2026–2027

PROJECT PROPOSALS

SOUTHERN Wings

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Protection of Wintering and Stop-Over sites in the Conservation Coast Birdscape, Guatemala

Partners: American Bird Conservancy (ABC), Fundación para el Ecodesarollo y la Conservación (FUNDAECO), Izabal Agro-Forest

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

Overview: The Izabal region of Caribbean Guatemala is home to over 150 species of Neotropical migratory birds (NMBs). ABC and its partners are implementing a long-term conservation strategy of preserving stopover and wintering habitats along Guatemala's Caribbean migratory funnel. This includes the Guatemala Conservation Coast BirdScape (Map 1).

Map 1. *ABC's Guatemala Conservation Coast BirdScape*

Our conservation goals include acquiring and managing a series of reserves that protect key habitat for priority migratory birds, such as Golden-winged Warbler, Kentucky Warbler and Wood Thrush, and promoting and implementing regenerative agriculture, such as agroforestry, throughout the BirdScape.

Threats: Forests in the Izabal region are rapidly disappearing due to agricultural expansion (mostly cattle ranching). Land use change is an ongoing process accelerated by poverty and the lack of alternative income opportunities for the communities. Cattle ranching and illegal logging, slash-and-burn, and climate change in the area continue to threaten bird habitats.

Birds: 150 Neotropical migratory bird species have been identified in the Izabal region of Guatemala, including Wood Thrush, Kentucky Warbler, Worm-eating Warbler, Hooded Warbler, Black-throated Green Warbler, and Painted Bunting. Past ABC-funded research identified the region's Caribbean mountain tops as important spring stopover sites for the Cerulean Warbler-a priority Watchlist bird. Other Watchlist species that use reserves in the region include Golden-winged Warbler, Canada Warbler, and Olive-sided Flycatcher.

Project goals: The goal of this project is to continue to focus on habitat protection, restoration, and management in accordance with the 10-year Conservation Coast BirdScape Conservation Plan developed in 2020. Goals for the Plan include:

- Acquire an additional 9,980 acres of land for protection.
- Restore 14,600 acres of forest within core zones of designated national protected areas.
- Establish 19,750 acres of additional agroforestry systems

Previous Southern Wings Successes: Since 2012, Southern Wings has supported the creation and expansion of a network of private reserves through land acquisition. In total, these lands account for over 43,000 acres of habit for migratory birds. FUNDAECO has now established protections for core areas within all priority locations of the Conservation Coast.

In FY2023, with support from Missouri, the US Fish and Wildlife Service (USFWS), and additional funds secured by ABC, we supported the acquisition of 1,112 acres of forested habitat on two parcels known together as Tameja Mountain within the Cerro San Gil Protected Area. We were also able to help FUNDAECO pay one out of

several payments to acquire 164 acres of coastal forest in a property called Guaira-Cocolí, located to the northeast of the Cerro San Gil Protected Area.

In FY2024 and FY2025, we worked with Q'eqchi' communities restoring over 50 acres of degraded land. This effort included planting over 22,000 native and cacao trees. Local farmers will soon benefit from cacao harvests, while the growing trees will create vital corridors for NMBs, enhancing forest connectivity and benefiting both the community and local wildlife.

Activities: Our objective is to restore 55 acres of degraded lands and plant at least 18,000 trees. We will work with local communities to promote and implement regenerative, bird-friendly agricultural practices. In addition, we will start to identify and engage other communities. Our project in the Conservation Coast BirdScape contributes to four of the nine strategies included in the Business Plan for the Conservation of the Caribbean Slope.

Budget: Approximately $97,600 is needed. Contact Deb Hahn for a more detailed budget.

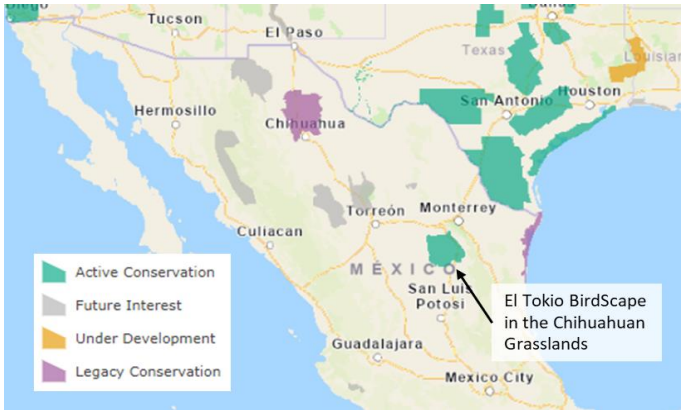
Matching funds: Matching funds will come from FUNDAECO, Izabal Agro-Forest and ABC investments in these properties, related management costs and other associated activities within the BirdScape.

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

Partners: American Bird Conservancy, Pronatura Noreste (PNE)

States that have participated to date: Oklahoma, South Dakota, Nebraska, Iowa, Kansas, Pacific Flyway Council

Overview: The desert grasslands in El Tokio located south of the town of Saltillo in northern Mexico are high elevation (6,000 to 7,000 ft a.s.l.) grasslands important to numerous wintering migratory birds as well as threatened resident bird species and a threatened endemic mammal, the Mexican Prairie Dog. ABC is working in partnership with PNE to ensure the protection and management of 325,000 acres, and specifically for the improved protection, management, and restoration of grasslands within the El Tokio Grassland Priority Conservation Area (GPCA). ABC includes this region in ABC's BirdScape initiative: El Tokio BirdScape (Map 1). Our goal is to ensure habitat is sufficient to support 30% of the global Long-billed Curlew population and 12% of the Mountain Plover global population.



Map 2. ABC's El Tokio BirdScape in the Chihuahuan Grasslands in Mexico.

Within El Tokio, PNE and ABC have supported conservation efforts on more than 140,000 acres of habitat through the creation of private reserves, ejido (community-owned) reserves, and conservation agreements that advance more sustainable cattle ranching and agriculture practices. We have also supported the installation of erosion control measures and ranching infrastructure, as well as implemented ranching best management practices. PNE also manages two formal protected areas, Cuatro Gorriones and Loma del Gorrión, which are focused on the conservation of migratory grassland birds and the endangered resident Worthen's Sparrow.

Threats: Grassland habitat in El Tokio is rapidly disappearing due to overgrazing by cattle and goats. The loss of vegetative cover, in a region with naturally arid soil, has exacerbated drought conditions and is leading to desertification. Erosion and the proliferation of invasive plant species are side effects of overgrazing and contribute to an overall loss of grassland and declines in migratory 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 (up to 2,000 individuals have been seen in a single flock). This region is also one of the most important wintering areas for Mountain Plover and Sprague's Pipit. Other Species of Conservation Concern include Loggerhead Shrike, Lark Bunting, Eastern and Western Meadowlarks, Chipping, Brewer's and Baird's Sparrows, and Ferruginous Hawk. Also wintering in the area are Grasshopper, Lark, and Vesper Sparrows. Passage migrants include the Upland Sandpiper and Swainson's Hawk. The endemic Worthen's Sparrow is IUCN Endangered and considered an Alliance for Zero Extinction (AZE) species, as it is restricted to this region.

Project goals: The goal of this project is to directly impact at least 285,500 acres of grassland through improved grassland management and erosion control.

Previous Southern Wings Successes: With Southern Wings funding, ABC and PNE have helped restore grasslands on a dozen properties and communities in El Tokio. This includes the protection and management of two reserves owned and managed by PNE: *Loma del Gorrión* and *Cuatro Gorriones* (Sparrow Hill and Four Sparrows). Here support has gone to maintaining a guard for the two reserves, which has been crucial for deterring illegal activity and carrying out management tasks such as monitoring and repairing the fence that prevents the ingress of goats from neighboring properties and allows for sustainable grazing practices. In addition, we have installed erosion control devices, removed invasive plant species, developed sustainable cattle grazing plans with ejidos, and trained local ranchers on best cattle ranching practices.

In the last five years, five livestock management plans were developed for ejidos La Carbonera, Puerto México, La Esperanza, San José del Alamito, and San Francisco, which will help reduce the number of livestock grazing in some ejidos and improve the grazing practices. Additionally, PNE in partnership with the local communities and landowners have conserved more than 1,000 acres of grasslands by removing invasive plant species and enhancing livestock grazing practices that allow for natural grassland regeneration.

Activities: Our objective is to continue collaborating with ejidos already in the program to conduct habitat improvement activities and to expand this project to new properties in the region. Our activities will include:

- Installing and restoring ranching and water infrastructure, erosion control measures, and the removal of invasive plants in at least 100 acres.
- Engage and work with at least two ejidos to restore degraded grasslands and enhance their livestock grazing practices.
- Enhance ejidos' knowledge on grasslands birds, grasslands, and their importance.

Budget: Approximately $66,000 is needed. Contact Deb Hahn for a more detailed budget.

Matching Funds: Matching funds will come from funds from the Canadian government secured by ABC and PNE. Ejidos are contributing in-kind match for installation of infrastructure.

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

Funding Partners: Anonymous donor, Bobolink Foundation, Canadian Wildlife Service, Southern Wings.

Implementation partners: Bird Conservancy of the Rockies, Evaluación Integral y Restauración de Hábitat, A.C. (EIRHA), and Pronatura Noreste, A.C.

States that have participated to date: Arizona, Colorado, Montana, New Mexico, Pacific Flyway Council, Minnesota

States with strong biological connections: Seven to 28 Species of Greatest Conservation Need (SGCN) in each Western Association of Fish and Wildlife Agencies (WAFWA) state have a biological connection to the species in the Chihuahuan Desert.

Overview: The Chihuahuan Desert is a continentally-important wintering area for North American grassland birds, supporting 90% of migratory species breeding in western North America. However, grassland bird species that overwinter in the Chihuahuan Desert are declining twice as fast as other North American grassland birds, having lost over 70% of their population since 1970. These include 28 species recognized as conservation priorities, such as Baird's Sparrow and Chestnut-collared Longspur, both of which overwinter exclusively in this region. These birds are sentinels for unsustainable practices and land use across the Central Grasslands. Mexico encompasses more than two-thirds of the Chihuahuan Desert, and most of their non-breeding habitat. Conservation and restoration of grasslands in this region is essential to stabilize and recover breeding populations in the U.S. and Canada, and prevent future listings under the Endangered Species Act.

The Sustainable Grazing Network (SGN) was started by Bird Conservancy of the Rockies in 2012 to bring together ranchers and conservationists in northern Mexico to collaborate on habitat management, protection and restoration for grassland birds, while simultaneously improving the economic and ecological resiliency of the land, reducing the threat of cropland conversion and helping to preserve grasslands on these lands forever. Our collaborative, non-regulatory approach includes voluntary, near-term protection of grasslands (15 yrs) while addressing the root cause of habitat loss – desertification and loss of grassland productivity due to long-term, unsustainable grazing practices, often resulting in land-use change. Less farming also conserves critical ground water that sustains pastoral economies, rural communities, and a shared cultural heritage and way of life spanning generations and nations. The SGN currently includes 38 partner ranches and ejidos encompassing 698,000 acres in northern Mexico. With each partner we develop a holistic management plan to identify range and habitat objectives for their property. We then cost-share with the landowners on implementing improvement projects to meet those objectives. We use the best available science and peer-to-peer learning, as well as annual bird monitoring, to engage and guide landowners in grassland management and conservation and help them become informed stewards of the land.

Birds: Long-billed Curlew, Mountain Plover, Baird's, Grasshopper, Brewer's, Vesper, Cassin's, Savannah, and Clay-colored Sparrow, Lark Bunting, Say's Phoebe, Loggerhead Shrike, Sprague's Pipit, Horned Lark, Mountain Bluebird, Chestnut-collared Longspur, Scaled Quail, Aplomado and Prairie Falcon, American Kestrel, Golden Eagle, Ferruginous Hawk, Northern Harrier, White-tailed kite, Burrowing and Short-eared Owl, Chihuahuan Meadowlark and Western Meadowlark.

Threats: Intensive cropland agriculture is rapidly expanding in northern Chihuahua, particularly in the Janos and the Valles Centrales GPCAs, threatening to eliminate some of the most important grasslands in Mexico for

wintering grassland birds. Between 2000 and 2020, more than 200,000 hectares of grasslands in these areas were converted to croplands. This threat is ongoing and accelerating, in part due to long-term unsustainable grazing that has resulted in increased soil erosion, loss of perennial grasses, and encroachment of shrubs and invasive grasses, degrading habitat for birds and reducing economic productivity for ranchers, forcing many to sell their land. This phenomenon is widespread across northern Mexico and has greatly reduced the extent and condition of Chihuahuan Desert grasslands, especially over the last 50 years. Based on our long-term monitoring data, we estimate that Janos and Valles Centrales together support 43% of the wintering habitat capacity within the Chihuahuan Desert GPCAs for Sprague's Pipit, 60% for Baird's Sparrows, and 80% for Chestnut-collared Longspurs. These areas are thus critical to the conservation of these species, which spend up to 9 months of the year in these areas. Maintaining these grassland-dominated landscapes as grazing lands, by improving their ecological productivity and resilience through management and restoration, is the most immediate and cost-effective means for slowing the loss of habitat for grassland birds on their wintering grounds.

Previous Southern Wings Successes: The SGN currently includes 38 partner ranches and ejidos encompassing 698,000 acres in four GPCAs in Chihuahua, Sonora and Coahuila. Since 2013 we've implemented 375 range and habitat improvement projects on these and other grassland properties in the region, enhancing 546,151 acres. We've also reduced woody encroachment on 5,451 acres of degraded grasslands through mechanical shrub control, and rehabilitated 9,737 acres of degraded soils through keyline plowing and contour berms to direct and capture surface flow after rains and facilitate germination. We've installed 233 2-m tall, galvanized steel stock tank ladders in open water storage tanks to reduce accidental drowning of wildlife, including species like Golden Eagle and Aplomado Falcon, and we've capped 371 open pipes in fence and gate posts to avoid accidental entrapment/death of small birds. We've also installed 72 artificial nest platforms/cribs for the critically endangered Aplomado Falcon population, several of which are used regularly by nesting pairs, that help to reduce nest predation. We conduct annual winter grassland bird monitoring to evaluate our progress, measure our impact, and guide our next steps, as well as engage landowners. We just completed our 14th consecutive year of monitoring and have analyzed trends of grassland bird densities from 2014-2025.

In 2025, we added one new partner ranch to the SGN, El Muchacho, located in Buenaventura municipality in the Valles Centrales GPCA in Chihuahua. El Muchacho encompasses 40,000 acres of diverse native grasslands spanning from the desert floor into the foothills of the Sierra del Nido, as well as oak woodland, cliffs and riparian corridors. It is among the crown jewels of grassland ranches in northern Mexico and has a long history of sustainable grazing. Its previous owner was one of the early adopters of holistic management in Mexico and this approach continues guide management on the ranch today. BCR has monitored birds on a portion of this ranch occasionally since 2014 and has documented significant populations of priority grassland species including Baird's Sparrow and Chestnut-collared Longspur.

We completed 10 rangeland and habitat improvement projects on 9 SGN partner ranches in 2025 aimed at grassland restoration, facilitating rest-rotational grazing, and reducing hazards for wildlife. These projects included construction of 21 8,000-liter geomembrane watering troughs for cattle and wildlife, installation of a solar water pump, installation of 8.2 km of buried water lines, installation of 10 2-meter tall, galvanized steel escape ladders in open water storage tanks to prevent accidental drowning of birds and mammals and improve water quality for livestock, installation of two 4-m tall artificial nest cribs on two ranches where pairs have recently been confirmed nesting, and restoration of 40 ha of shrub-encroached grasslands through removal of large and small mesquites via bulldozer. With the exception of the nest cribs, all projects were matched at least 1:1 with cash and/or in-kind contributions. These projects directly impacted 81,000 acres of Chihuahuan Desert wildlife habitat, including 40,000 acres of grasslands, in the Janos and Valles Centrales GPCAs. We expect to see improved ecological conditions and grassland bird numbers in these areas over time, which we will document through our annual monitoring efforts.

In 2025, we implemented the 3rd annual "Encuentro Ganadero" at the Universidad Autonoma de Chihuahua, in Chihuahua City, which brought together over 350 ranchers, academics, students and conservation professionals from NGOs, government, and the private sector, in the largest public outreach and engagement event around grasslands in Mexico ever held to date. The goal is to share experiences and information around grazing management and wildlife conservation, create bonds and form new partnerships, to build a constituency and movement for grasslands conservation in northern Mexico. We also conducted environmental education programs with Mexican students and educators in the rural community of San Lorencito in the Valles Centrales GPCA that engaged over 40 people, mostly students, in the classroom and the field in topics ranging from water and soil conservation to grazing management and grassland birds.

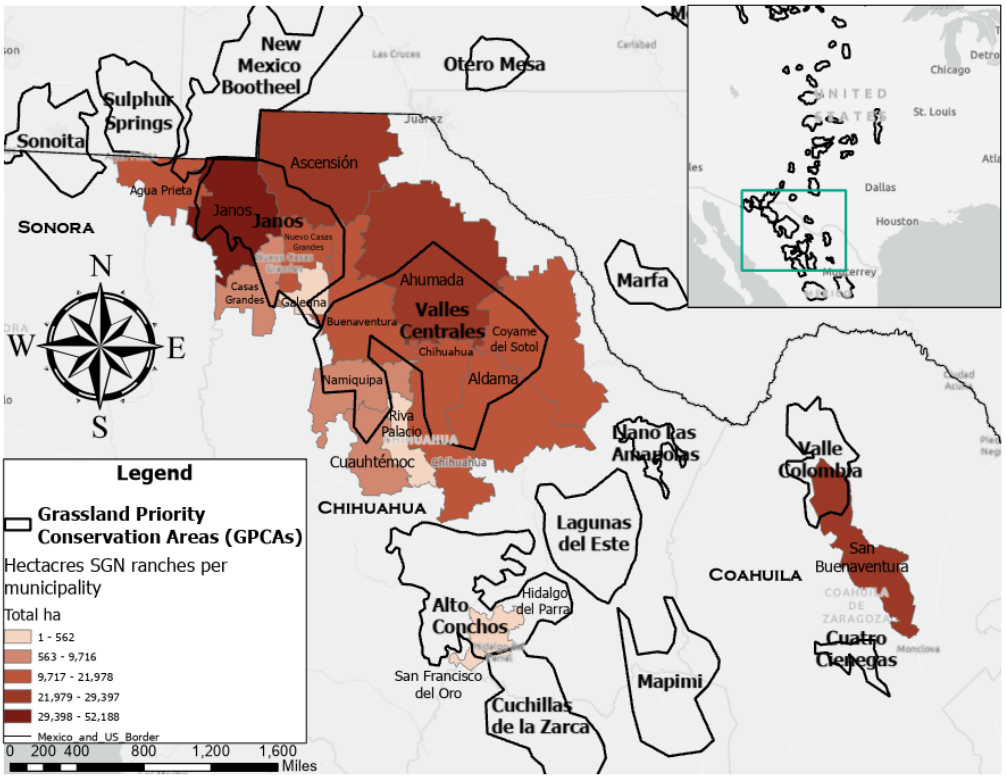
Goals: In 2026, we aim to:

1. Protect an additional 20,000 acres of habitat for grassland birds,
2. Enhance at least 20,000 acres of SGN lands through improved grazing management,
3. Restore at least 100 acres of degraded grassland through mechanical shrub control,
4. Enhance habitat for birds and wildlife through installation of stock tank ladders, protective nest cribs, capping open pipes, and retrofitting fences for Pronghorn and other wildlife,
5. Monitor grassland birds on SGN ranches, including in restoration areas, to measure impact and effectiveness,
6. Raise awareness among Mexican and/or Mennonite rural communities through environmental education on grasslands and birds reaching at least 50 students,
7. Host the 3rd Central Grasslands Roadmap Summit in Chihuahua City, Chihuahua, building off the success of the annual Encuentro Ganadero, in collaboration with local partners, the International Central Grasslands Roadmap Initiative and the 2026 International Year of Rangelands and Pastoralists.

Activities: Bird Conservancy of the Rockies collaborates primarily with Evaluación Integral y Restauración de Habitat, A.C. (EIRHA) in Chihuahua to implement the projects described above. Thanks to past support from key partners such as the USFWS's Neotropical Migratory Bird Conservation Act and the U.S. Forest Service's International Programs, we have trained and supported five full-time grassland bird biologists and range management experts with EIRHA over the last 14 years to operate all aspects of the SGN, from landowner outreach and engagement, to environmental education, grassland bird monitoring, ranch planning, rangeland management and grassland restoration. Without key federal support, there is more supported needed than in the past.

Budget: Approximately $300,000 is needed. Contact Deb Hahn for a more detailed budget.

Matching Funds: This project leverages significant additional investment from private donors, as well as Mexican landowners, who provide at least 1:1 match for range and habitat projects. Every dollar invested by U.S. states leverages at least three additional dollars from non-federal sources.



Map 3: Distribution of SGN lands by municipality in 2024.

Conservation of Wintering Habitats in the Yoro-Pico Bonito and Agalta-Lost City Birdscapes, Honduras

Partners: ABC, Tropical Agricultural Research and Higher Education Center (CATIE), Doselva, Aves Honduras

States that have participated to date: Missouri, Indiana

Overview: Honduras is a critical country for NMBs birds, providing essential stopover and wintering habitat for more than 200 migratory species that move between North America and the tropics each year. ABC and its partners are implementing a long-term conservation strategy focused on protecting and restoring habitats, particularly in northern Honduras and the Caribbean slope, which form part of the Mesoamerican migratory funnel. ABC includes these important regions within its BirdScape initiative as priority landscapes for migratory bird conservation (Map 4).

Map 4. ABC's four BirdScapes in Honduras

Our conservation goals include promoting and implementing bird-friendly conservation practices in working lands, such as agroforestry with shade-loving spices and climate-smart agriculture, across the BirdScapes to enhance habitat connectivity, support local livelihoods, and ensure the long-term sustainability of conservation outcome to benefit migratory species, such as Wood Thrush, Golden-winged Warbler, and Kentucky Warbler.

Threats: The most significant threat to bird habitats in Honduras is the loss of forest cover due to conversion to cattle production and monocultures. Land use change is an ongoing process accelerated by poverty and the lack of alternative income opportunities for the communities.

Birds: Nearly 200 migrant species winter in or migrate through Honduras every year. Target wintering migratory species include Wood Thrush, Golden-winged, Kentucky, and Worm-eating Warbler, and Louisiana Waterthrush. More than 15 other species also use this area as a stopover on their annual migratory cycle, including Canada and Bay-breasted Warbler, and Yellow-billed Cuckoo.

Project goals: Our goal is to increase forest availability and connectivity in Honduras' BirdScapes. We aim to do this by working with landowners and communities to implement regenerative agriculture practices, such as agroforestry, that are compatible with forest preservation. Our goal for the next ten years is to restore 3,500 acres with regenerative agriculture and bird-friendly practices. Our projects in Honduras will contribute to two of the five strategies in the Conservation Investment Strategy for the Mid-Elevation Forests of Central and South America: strengthening small-scale sustainable agriculture and influencing local people's behaviors to have a positive relationship with nature.

Southern Wings Successes to Date: ABC and partners have facilitated habitat restoration in the Sierra de Agalta-Lost City BirdScape, including the improvement of 335 acres of cacao and coffee plantations by planting 10,617 native trees, 38,530 coffee and cacao plants, and 777 fruit trees. In addition, we worked with 17 cattle ranchers to plant 2,000 native trees as living fences and installed nearly three miles of fencing to allow ranchers to practice rotational grazing with their cattle, which helps reduce the amount of land needed for cattle and allows

natural regeneration to occur where cows previously fed.

Activities: In FY 2027, with support from Southern Wings, our objective is to enhance 600 acres of farmland by planting over 20,000 trees. We will work with local communities to promote and implement regenerative, bird-friendly agricultural practices and conduct community workshops to strengthen capacity of 100 farmers, particularly around agroforestry and organic agriculture.

Budget: Approximately $83,000 is needed. Contact Deb Hahn for a more detailed budget.

Matching Funds: Matching funds will come from our project partners and ABC investments in these and complementary activities. Doselva and the local farmers will also provide in-kind investment into this project, including providing the tools, land, expertise, and workforce to plant, protect, and maintain the planted tree.

Neotropical Flyway Project: 2025-2026 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; Fundación Julia Marquez, Colombia; Fundación Iguaraya, Colombia; ADOPTA: Panama Rainforest, Panama; Canopy Family, Panama, Costa Rica Bird Observatories; Cerulean Environmental Association; Las Brisas Nature Reserve; Reserva El Jaguar, Nicaragua; Quetzalii, Nicaragua, WCS Guatemala, Belize Bird Conservancy, TIDE.

States that have participated to date: Missouri, Wisconsin, Minnesota, Alaksa and the MS Flyway Council

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; many western states also have connections through long-distance migrants such as Olive-sided Flycatcher and Western Wood-pewee. See Table 1.

Overview: Close to 300 species of landbirds, whose combined populations represent billions of birds, migrate between the Neotropics and North America. For many species, migration is the greatest source of mortality during their annual cycle, such that even successive delayed arrivals or degradation at a single major stopover site can lead to significant declines, threatening the viability of populations across the Western Hemisphere. To successfully migrate between their breeding and wintering grounds, Nearctic-Neotropical migrants typically depend on a series of (stopover) sites along the length of their migratory route, which provide critical resources such as the fuel for migratory flights, safe roosting sites, and refuges where birds can make emergency stops.

Outside of North America, the funnel-shaped geography of Central America and the biogeography of northern Colombia act as bottlenecks, concentrating millions of migratory landbirds into a tiny area (relative to their breeding grounds), magnifying the importance of Neotropical stopover sites. Further, birds migrating through this region face major barriers in the form of both the Caribbean Sea and the Gulf of Mexico, giving rise to vital stopover regions where birds attain sufficient fuel to cross these barriers safely. Recent work on thrushes, vireos, and warblers on stopover in northern Colombia has shown that the energy reserves acquired there, may enable birds to not only cross the Caribbean Sea but also cover up to 40% of their total migration distance – highlighting a pressing need to identify major Neotropical stopover regions and assess the needs of birds within them.

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

Threats: Research to date indicates that most birds stopping over in northern South and Central America rely on native forests, especially pre-montane forests on Caribbean-facing slopes as well as lowland tropical wet and dry forests. These tropical forests are under severe threat from expanding agriculture, agroforestry, and development – for example, we have lost over 600,000 hectares of pre-montane forest in this region in the last 20 years. Although some agroforestry 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 several species on migration. The almost complete lack of knowledge of migratory stopovers in this region constitutes a threat, hampering full annual cycle bird conservation.

Birds: More than 50 species of landbirds regularly migrate through northern Colombia and Central America on their way to and from South American wintering grounds, and many more both winter and use Central America for stopovers. These are primarily species from eastern and boreal forests of the U.S. and Canada, including species of high conservation concern, such as Canada, Cerulean, Blackpoll and Golden-winged Warblers, as well as common species central to ecosystem function, such as Red-eyed Vireo, Scarlet Tanager, and Swainson's Thrush. All eastern states have connections due to the migration routes of many species (see Table 1). Birds, such as Western Wood-pewee, Olive-

sided Flycatcher, and Yellow-billed Cuckoo, connect to western states.

NFP: AT A GLANCE

- Over **one billion migratory landbirds** migrate to the Neotropics from N. America.
- Despite this massive movement of birds, the routes and strategies that migratory landbirds adopt in the Neotropics are almost completely unknown.
- 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 annual cycle.
- The **NFP** is discovering critical stopover regions and habitats across six Central American countries and northern Colombia.
- **Intensive surveys** are used to identify previously **unknown** stopover sites.
- Constant effort **mist-netting stations,** combined with cutting-edge **radio-tracking** technology, determine how birds use stopover regions and to what degree a site contributes to the migration of each species.
- **Regional capacity for avian research** is enhanced by training biologists and students from six countries in research techniques for studying and monitoring migratory birds.
- **Major discoveries to date:** (1) Sierra Nevada de Santa Marta, N. Colombia critical for Gray-cheeked Thrush and other migrants in spring; (2) N. Colombian dry forests critical for Yellow-billed Cuckoo in spring, and Blackpoll Warblers arriving after trans-oceanic crossing in fall; (3) major fall stopover by Cerulean Warblers in Caribbean foothills of Costa Rica; (4) global populations of most aerial insectivore species funnel through the Darien in spring and fall. (5) The highlands of Honduras provide stopover and winter habitat for several steeply declining migratory warblers.
- **Conservation applications:** >30,000 native trees planted to enhance stopover habitat along Colombia's Caribbean coast; the Corredor Azul initiative was launched to enhance and connect stopover habitat for Cerulean Warblers in Costa Rica and has resulted in the purchase of a **200-acre Cerulean Warbler reserve**; environmental education campaigns have reached hundreds of children in a major migratory bottleneck in NW Colombia.

Goals:

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;
6. Develop and implement conservation strategies at newly discovered stopovers through local partners

Table 1. Species targeted by the NFP and their Partners in Flight (PIF) and Road to Recovery (R2R) status. These species migrate primarily to South America and use sites within northern Colombia and/or Central America for stopover. PIF continental status: XX = Red Watch List, XX = Yellow Watch List, XX = Common Bird in Steep Decline (2016 PIF Landbird

Plan). * Conservation actions are underway to enhance or conserve stopover sites.

Species	PIF Status	R2R	Species	PIF Status	R2R
Mississippi Kite			Yellow-throated Vireo		
Broad-winged Hawk			Red-eyed Vireo*		
Swainson's Hawk			Bobolink	XX	R2R
Black-billed Cuckoo	XX	R2R	Golden-winged Warbler	XX	R2R
Yellow-billed Cuckoo*	XX		Tennessee Warbler		
Common Nighthawk	XX		Yellow Warbler		
Chimney Swift	XX	R2R	Cerulean Warbler*	XX	R2R
Olive-sided Flycatcher*	XX	R2R	Blackburnian Warbler*		
Eastern Wood-Pewee*			Blackpoll Warbler*	XX	
Western Wood-Pewee	XX		Bay-breasted Warbler*		
Acadian Flycatcher			American Redstart*		
Willow Flycatcher			Northern Waterthrush		
Alder Flycatcher			Prothonotary Warbler	XX	
Great-crested Flycatcher			Connecticut Warbler		
Eastern Kingbird			Mourning Warbler*		R2R
Bank Swallow	XX		Canada Warbler	XX	R2R
Barn Swallow*			Summer Tanager		
Cliff Swallow			Scarlet Tanager		
Veery*			Dickcissel		
Gray-cheeked Thrush*			Rose-breasted Grosbeak		
Swainson's Thrush*					

Previous Successes and history: During the initial phases of the NFP in 2016-2018, more than 10,000 transect surveys were conducted along 450 transects at 32 sites across northern Colombia, Panama, and Costa Rica. The surveys have produced over *150,000 records* during passive transects and migration counts, recording a total of over *3 million birds*. Surveys were designed to cover a range of elevations, climatic conditions and habitats, thereby facilitating the development of spatial predictions of stopover use at the regional level (see Map 5). Analysis of spring data, for example, revealed the previously unknown importance of dry forest stopover sites for species such as Yellow-billed Cuckoo and Barn Swallow in northern Colombia, and the importance of pre-montane forests for species like the Canada Warbler.

During Fall 2017 and 2018, we studied the use of tropical thorn scrub on the Guajira Peninsula, NE Colombia, by Blackpoll Warblers arriving after trans-oceanic crossings from North America. Our results revealed the critical importance of this habitat for Blackpolls to recover body fat and refuel for the remaining 1,000 km+ journey to wintering grounds in the Orinoco and Amazon basins. During Fall 2019 and 2020, a mist-netting station was established in the Caribbean foothills of Costa Rica and has described stopovers up to 12 days long by Cerulean Warblers, as well as significant fuel gains in abundant species like Red-eyed Vireos, Swainson's Thrush and Bay-breasted Warbler.

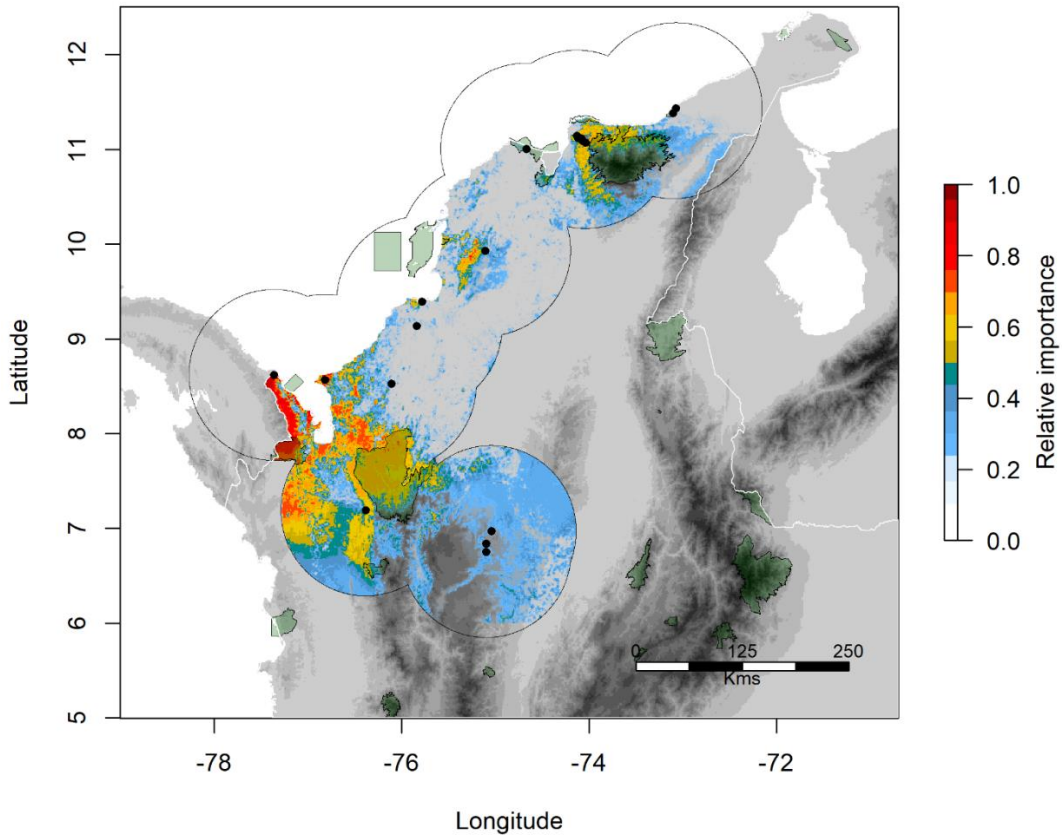
From 2020 through 2023, surveys were expanded to Nicaragua, Honduras, Guatemala and Belize, and spring and fall surveys revealed important concentrations of Canada Warblers in the highlands, as well as high wintering densities of Golden-winged Warblers and both fall and spring records of Cerulean Warbler. Surveys also provided novel information on wintering Golden-cheeked Warblers, with up to 20 individuals recorded in the Cerros de Yali, Nicaragua, and >100 records from La Tigra National Park, Honduras.

Outreach activities have included working alongside National Parks authorities in Colombia and Honduras; education activities in at least 10 schools in project areas (see photo of mural from Sapzurro, Colombia, below); the organization of a migration stopover symposium and presentation of results at PIF VI in Costa Rica (Nov 2017); the publication of a review

of major stopover regions in the Neotropics (PDF) and five additional peer-reviewed publications; presentation of results at the Colombian Ornithology Congress (Nov 2016), American Ornithological Society (April 2018), and International Ornithological Congress (August, 2018), and NAOC (2020).

A major goal of the project is to build local capacity. Working with local partners in each country we have trained 12 Colombian, 6 Panamanian, 5 Costa Rican, 7 Nicaraguan, 8 Honduran, 8 Guatemalan and 6 Belizean biologists. In 2021, a workshop on advanced ornithological techniques was held in Costa Rica and individuals from Panama (2), Costa Rica (4) and Nicaragua (3) were trained in the use of nano-tags, manual telemetry, installation and maintenance of Motus automated telemetry stations, installation of canopy nets, ageing and sexing migratory birds, and the use of occupancy models to map stopover areas. In 2025, 16 individuals from 6 countries participated in a 10-module occupancy course.

Parallel to research activities, restoration and protection activities are underway in some of the critical stopover regions discovered to date, including the Guajira peninsula (Colombia), Caribbean dry forest (Cordoba, Colombia), and on the Caribbean slope of Costa Rica. To date >30,000 trees have been propagated in nurseries and planted through agreements with private landowners to enhance stopover habitats, with a special focus on native tree species that provide food resources to migratory landbirds (trees were identified through foraging observations of focal species).



Map 5: Priority spring stopover areas in northern Colombia based on occupancy surveys and a modeling exercise for 20 species of migratory landbirds. Priority areas are limited to areas where natural forest remain. The presence of protected areas is indicated by transparent green shapes. The area outlined by a thin black line, is the area within which spatial predictions from occupancy models can be assumed to be appropriate, while black symbols represent survey sites. Critical stopover habitat in need of protection remains in north-west Colombia in the Darien and Uraba regions and on the northern and western flanks for the Santa Marta mountains.

Activities: Activities will focus on data analysis and priority setting, and advancing restoration and habitat protection activities in priority stopover regions identified to date.

January-December 2026 –

- Carry out occupancy analyses to map *major spring stopover regions* across Panama, Costa Rica, Honduras, Nicaragua, Guatemala and Belize.
- Carry out occupancy analyses to map and describe *stopover use* by Cerulean Warblers and Olive-sided Flycatchers in northern Colombia and Central America.
- Expand restoration efforts in the Corredor Azul on the Caribbean slope of Costa Rica, linking new landowners and planting 5000 trees, while continuing education efforts.
- Continue and expand tree planting and protected area establishment in critical stopover regions in Colombia including: the Guajira Peninsula of Colombia; the seasonal dry forests in Cordoba, Colombia; transitional forests in northwest Colombia.

Budget: Approximately $157,000 is needed. Contact Deb Hahn for a more detailed budget. (**Note**: because the project is built on modular activities in each country and region, with new modules being phased in through time, smaller amounts of funding can go towards specific components in each season.)

Matching funds: Cornell Lab of Ornithology, $10,000 for 2018, $15,000 for 2019, $10,000 for 2020, $10,000 for 2022 and $20,000 for 2026; the Canadian Wildlife Service provided $33,000 for 2018/2019, Southern Wings ($240K from 3 states), Sam Shine Foundation (17k) and a private donor ($30K). Smaller contributions from SELVA, Acadia University, Guelph University and Saskatchewan University total $30,000. Equipment, namely 100 radio transmitters, represent a further $20,000. From 2019 through 2022 Environment Canada provided $60,000 towards conservation activities.

Restoration of Migratory Bird Habitat in Ecuador

Partners: ABC, Fundación Aliados, Fundación Jocotoco

States that have participated to date: Missouri

Overview: Ecuador provides wintering habitat to 105 species of NMBs. ABC and its partners are implementing a long-term conservation strategy of conserving and restoring wintering habitats in Ecuador. ABC includes the regions in and around the Chocó Rainforest and the Sumaco Napo-Galeras National Park in ABC's BirdScape initiative: Chocó-Canandé and Sumaco BirdScapes (Map 6).

Map 6. ABC's Chocó-Canandé and Sumaco BirdScapes in Ecuador

Our conservation goals include promoting and implementing regenerative agriculture practices, such as agroforestry, with local communities to scale up bird habitat conservation as well as sustainable and improved livelihoods in working lands. In these BirdScapes we aim to restore monocultures, pastures, and fallow lands with agroforestry systems to provide additional habitat and corridors for NMBs. Building the communities' capacity to manage nurseries, diversify their income sources, and value wildlife will be key to the long-term conservation.

Threats: Ecuador has had the highest deforestation rate in South America over the last 50 years. The annual loss of forests ranges from 148,000 to 495,000 acres because of expanding human development. Land use change is accelerated by poverty and the lack of alternative income opportunities for the communities.

Birds: Cerulean, Canada, Blackburnian, and Black-and-white Warbler, Olive-sided and Acadian Flycatcher, Swainson's Thrush, Summer Tanager, Western Wood-pewee, Southern Rough-winged Swallow, and Broad-winged Hawk.

Project goals: The goal of this project is to slow the rate of deforestation and work with small landowners to improve land use practices and create better habitat connectivity in 2,500 acres in the buffer zones of existing protected areas over the next 10 years.

Previous Southern Wings Successes: With Southern Wings funding in FY 2020, ABC and Tesoro Escondido worked with eight communities in and around the Chocó-Canandé BirdScape. Funds helped Tesoro Escondido build six nurseries in five communities, each with the capacity to produce 5,000 seedlings. Twenty thousand seedlings were planted in 75 acres of cacao monocultures, pastures, and fallow lands. In addition, Tesoro Escondido's staff gave a series of workshops about tree nurseries, seed collection, bird identification, and wildlife conservation.

In the past five years, ABC and Aliados restored over 1,020 acres with 20,000 cacao, native, and fruit trees and trained over 165 farmers in six Indigenous communities on regenerative agriculture practices, such as agroforestry and cover crops. With partners Tesoro Escondido and Jocotoco, we conducted reforestation work planting 19,700 native trees over 150 acres. These actions have contributed to three of the nine strategies included in the Chocó-Conservation Investment Strategy. These strategies include strengthening small-scale sustainable agriculture, designing and managing business models for sustainable products, influencing local people's behaviors to have a positive relationship with nature, and restoring key areas.

Activities: Our objective is to restore at leat 100 acres of cacao monocultures and degraded lands by planting at least 10,000 native, fruit, and cacao trees. In addition, we will start to identify and engage other communities. We will work with local communities to promote and implement regenerative, bird-friendly agricultural practices.

B**udget:** Approximately $43,000 is needed. Contact Deb Hahn for a more detailed budget.

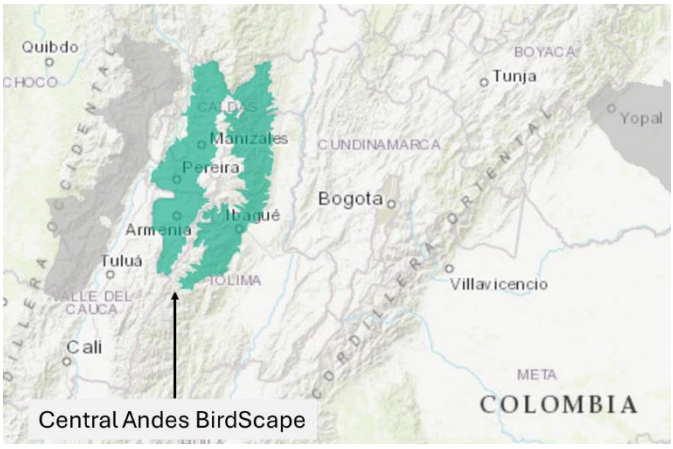
Matching Funds: ABC, Tesoro Escondido, and Aliados have secured funds from private donors. Tesoro Escondido, Aliados, and the local farmers will provide in-kind investment, including tools, land, expertise, and labor.

Improving Migratory Bird Habitat in Colombia

Partners: ABC, Fundación Ecológica Cafetera (FEC), Comité de Cafeteros de Caldas (CCC), Central Hidroeléctrica de Caldas (CHEC), and SELVA.

States that have participated to date: Missouri, Indiana, Tennessee, Virginia, North Carolina, Kentucky, Michigan, Ohio, Minnesota

Overview: Colombia is an integral part of the lifecycle of more than 170 Neotropical migratory bird species. In the country's highest coffee producing region, ABC and its Colombian partners, locally known as *Proyecto PaSos - Paisajes Sostenibles* (PaSos Project - Sustainable Landscapes) are implementing a long-term conservation strategy of preserving stopover and wintering habitats. ABC includes this region in the Central Andes BirdScape (Map 7).



Map 7. ABC's Colombia Central Andes BirdScape

Since 2008, ABC has been working in Colombia to support the creation and management of bird reserves and ecological easements, develop and promote bird tourism opportunities, restore degraded lands, and promote bird-friendly agriculture. Our conservation goals conserve critical habitat for Golden-winged, Cerulean, and Canada warblers.

Threats: More than 70 percent of Colombia's population lives in the Andes, resulting in high rates of deforestation for cattle pastures and agriculture. In Colombia, it is estimated that 87 percent of NMBs occur in agroecosystems and more than 70 species have been registered in coffee farms. It is imperative that we target these kinds of landscapes in our migratory bird conservation strategy in Colombia.

Birds: 75 Neotropical migratory bird species use this area, including: Golden-winged, Cerulean, Canada, Black-and-White, Tennessee, Blackburnian, Yellow and Blackpoll warblers; American Redstart; Broad-winged Hawk; Yellow-billed Cuckoo; Acadian and Olive-sided Flycatchers; Eastern Wood-pewee; Summer Tanager; Rose-breasted grosbeak; Northern Waterthrush; Spotted Sandpiper; Red-eyed Vireo; and Swainson's Thrush.

Project goals: Our goal is to conserve 3,000 acres of habitat for NMBs and to improve connectivity throughout the Central Andes BirdScape. Specific objectives include:

- Planting at least 25,000 native trees.
- Engaging 50 producers in conservation activities.

Previous Southern Wings Success: ABC and partner ProAves worked in the Eastern Andes specifically the Cerulean Warbler Corridor, with cacao and coffee farmers in the buffer zones of two ProAves reserves, Cerulean Warbler and Pauxi. Southern Wings funds contributed to the creation of habitat corridors through the planting of more than 500,000 trees on 2,835 acres across 200 private farms. More than 5,000 people received information about birds and biodiversity through radio programs, International Migratory Bird Day events and activities, training workshops on reforestation and sustainable coffee farming, and the distribution of educational materials.

In recent years, funding from Southern Wings has supported engagement with coffee producers in the departments (equivalent to states) of Caldas and Tolima in the Central Andes BirdScape, facilitating the planting of more than 250,500 trees and the installation of 10.5 miles of fencing to conserve over 2,700 acres. Since 2021, the project in Caldas has been expanding to lower elevations and new watersheds. States participating in Southern

Wings have also provided funding for specific Golden-winged Warbler surveys and other conservation activities in Colombia with our partner SELVA, and neighboring Venezuela with Provita.

Activities: Our objective is to plant an additional 25,000 native trees to increase habitat and connectivity between forest patches, as well as provide maintenance to the trees planted thus far.

Budget: Approximately $79,000 is needed. Contact Deb Hahn for a more detailed budget.

Matching Funds: Matching funds will come from private donations secured by ABC and other local funds from FEC and CCC, which have matching funds available for related activities in this proposal.

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

Partners: Terra Peninsular, Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Centro de Investigación en Alimentación y Desarrollo, A.C. (CIAD Guaymas, Sonora), Point Blue Conservation Science, Universidad Nacional Autónoma de México (UNAM), Centro de Investigaciones Biológicas del Noroeste (CIBNOR), Universidad Autónoma de Baja California Sur (UABCS), Grupo Aves del Noroeste De México (GANO), US Forest Service International Program

States that have participated to date: Arizona, California, Pacific Flyway Council.

Overview: Nearctic-neotropical migratory shorebirds (Order: Charadriiformes; Families: Charadriidae, Recurvirostridae, Scolopacidae) 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 (Map 8) supports entire populations of neotropical migratory shorebird species during winter (November-February). Wetlands stretching from western Alaska to southern Chile are critical for the survival of these birds; including 13 Western Hemisphere Shorebird Reserve Network (WHSRN) sites in NW Mexico. Mexico is particularly important because globally significant populations of shorebird species spend the winter at numerous sites along the Pacific Coast. Primary species recorded during winter surveys in Mexico include: western sandpiper, dunlin, marbled godwit, willet, black- bellied plover, sanderling, greater yellowlegs, dowitcher spp., snowy plover, black-necked stilt, and American avocet.

The health of these sites is critical to supporting shorebird populations during their annual migrations. Current research indicates populations of shorebirds are declining (Reiter *et al*. 2025) but the causes of these changes are not well understood (Butler et al. 2004, Andres *et al*. 2012).

Map 8: The Western Hemisphere with stylized migration route of shorebirds along the Pacific Coast of the Americas and important wetland sites (black dots) as designated by the WHSRN.

The lack of broad-scale coordinated monitoring for Pacific Flyway shorebirds has limited our ability to effectively manage their populations particularly in light of climatic variation, which will likely alter habitat conditions. In 2011, in collaboration with the Copper River International Migratory Bird Initiative and >100 individual and organizational partners throughout the Pacific Flyway, we initiated the Pacific Flyway Shorebird Survey (PFSS) and the Migratory Shorebird Project (MSP) to fill gaps in Pacific Flyway population status and trends and to assess hypothesized threats to shorebirds and identify priority conservation locations. Specifically, the objectives of the PFSS and then the MSP 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 13 countries annually.

Threats: The primary threats to shorebirds in the Pacific Flyway include 1) changes in habitat availability; 2) exposure to contaminants and pollutants; 3) human disturbance; 4) climatic variability; and 5) increasing predator populations. Human disturbance is thought to particularly be a problem in beach habitats (important for populations of threatened or endangered species such as the snowy plover and red knot), which get a lot of use by humans compared to intertidal mudflats and rocky areas commonly used by other shorebird species.

Birds: Shorebirds (Families: Charadriidae, Haematopodidae, Recurvirostridae, Scolopacidae); waterfowl (Pacific brant and ducks); raptors; and waterbirds (terns, egrets, etc.). See Table 2 for a complete list of species SGCN in the project area. The wetland habitats and sites used by shorebirds during the non-breeding season and monitored as part of this program are important for other migratory waterbirds. All 13 sites of importance for wintering Pacific brant in northwest Mexico are surveyed, and brant as well as other waterfowl are counted as part of the MSP (Table 3).

Goal(s): The overall 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 (Map 9) and compile these survey data in the PFSS node of the Avian Knowledge Network (AKN). Data collected includes the number of birds (shorebirds, waterbirds and waterfowl), measures of bird disturbance, and assessment of habitat condition. The number of avian predators (raptors) of shorebirds and other waterbirds are also recorded.

2. Expand survey efforts on sandy beaches to improve sampling for snowy plover, red knot, willet, and sanderling, and improve our understanding of human impacts.

3. Integrate survey data from new and existing sites, along with spatial data on the distribution of shorebird habitat across Mexico, into models to determine drivers of shorebird distribution and abundance, and the prevalence of different threats. Distribution models developed with these data for Pacific Flyway SGCNs species will be used to highlight priority areas for non-breeding shorebird conservation.

Southern Wings Successes in 2025: Funds helped to conduct nonbreeding shorebird and waterfowl surveys as part of the MSP, breeding shorebird surveys at coastal wetlands and sandy beaches (targeting snowy and Wilson´s plover and American oystercatchers) and identify key wintering sites and develop conservation strategies (as data becomes available and analyzed). These funds have strengthened conservation and management of specific sites, disseminated information to land managers, and conducted education/outreach to the public.

Surveys

- Breeding surveys of Mexican Duck in canals of the Yaqui River Irrigation District, Yaqui Valley, during June 2025.
- Breeding season monitoring of Least Terns was conducted in Tobari Bay and Salina de Lobos, Estero de Punta Banda, and “El Vizcaino” Biosphere Reserve, tracking nests and marking them. Collaboration with Proesteros.
- Bird survey of the Alvaro Obregón "Oviachic" Dam, which irrigates the Yaqui Valley during July 2025. We documented nesting of Caspian terns and evidence of American white pelican breeding for the first time.
- Nonbreeding Shorebirds Monitoring: During January-February of 2025 we completed the annual non- breeding mid-winter shorebird surveys at 21 sites across northwest Mexico (Map 9). These sites included 250 sampling units that are surveyed by about 50 volunteers in northwest Mexico.
- Pacific Brant Surveys: We conducted the 2025 mid-winter Pacific brant surveys in Bahía San Quintín, B.C. and Canal de Infiernillo, Sonora.
- Collaboration with Local Hunting Organization: We collaborated with the hunting organization “Los Volcanes” to monitor wintering Pacific brant in Bahia San Quintin and conserve wetland habitat through protection of loafing and gritting sites, and conduct surveillance to avoid illegal hunting and human disturbance.
- Snowy Plover Nonbreeding Surveys: During January 2025 we coordinated with the snowy plover mid-winter

survey in the U.S. to conduct nonbreeding snowy plover surveys in five sites in northwest Mexico (Estero de Punta Banda, Bahía San Quintin, Salinas Lobos, Marismas Nacionales, and Bahía Ceuta).

- Breeding waterbirds surveys at Tobari Bay and Salina Lobos (southern Sonora), conducted in 2025 and documented 12 species of waterbirds breeding on 11 dredge-spoil islands.

Education/Outreach/Training

- *Coastal birds of Sonora: current status, threats, and conservation,* Chapter accepted in the book titled: Sonora Coastal Zone: Conservation, Development, and Society.
- Organizer and speaker at the Regional Workshop for the Implementation of the Migratory Shorebird Project Methodology in Northwest Mexico.
- Keynote presentation at the 25th anniversary of CIBNOR: "Climatic and Anthropogenic Influence on Migratory Shorebird Populations in Northwestern Mexico."
- Speaker at the IX San Quintín Bay Bird Festival. "San Quintín is a reserve for shorebirds."
- Webinar. Manomet. 2025. Presentation in the WHSRN Basic Training Program for Shorebird Conservation in Latin America. "Threats to shorebirds at the hemispheric level."
- We participated in the celebration of World Wetlands Day at El Soldado Estuary, Guaymas. Organized by CEDES.
- We participated in the Researchers' Forum on the Agiabampo-Bacorehuis-Río Fuerte Antiguo, Ramsar Site, where data from the MSP and Ridgway's rail monitoring were presented. Organized by CONANP-ITSON.
- We participated in the Expert Workshop for the Definition of Biological Corridors in the Stata of Sonora.
- We organized two virtual workshops for updating the Shorebird Conservation Plan for Northwest Mexico.
- Celebration of World Migratory Bird Day, organized at the Yo'o Joara Cultural Center in Cocorit, a community in Cajeme, Sonora.
- Participation in the scientific committee and in the workshop to developing the National Strategy for Bird Conservation (ENCA) – Northwest Regional Workshop to create the ENCA, organized by Pronatura Northwest.
- Application of MSP data: We continued mentoring graduate students on data analysis and interpretation for use in conservation and management. Sheccid Chagoya, graduate student from CICESE, finished her MSc thesis on population trends of the snowy plover in Bahía San Quintín. Daniela Michelle Valdez Gámez, PhD student at UABCS, used MSP data to finish and got accepted a paper to *Waterbirds* on the Winter ecology of Wilson's plover in northwest Mexico. Evelyn Quintero, graduate student from CICESE, is using MSP data for analyzing abundance trends of Western sandpiper and American avocet in California and northwest Mexico.
- We continued developing the Northwest Mexico Shorebird Conservation Plan. Two workshops were held in 2025. In these workshops, a threat analysis was conducted and consensus was reached on conservation targets.
- Publications based on data from the MSP in 2025:
  - Reiter Matthew E et al (2025). **Trends in nonbreeding shorebirds along the Pacific Americas Flyway**. *Ornithological Applications*, *128*(00), 1-13. doi: 10.1093/ornithapp/duaf076.
  - Avila Cárdenas et al (2025). **Population genetic structure of the American oystercatcher in Northwestern Mexico**. *Conservation Genetics*, *26*, 1127-1139. doi: 10.1007/s10592-025-01726-x.
  - Ryan Thomas Patrick et al (2025). **The Current Status and Distribution of the Least Tern Breeding in the Gulf of California**. *Waterbirds*, *47*(4), 1-17. doi: https://doi.org/10.1675/063.047.0405.
- Seminars presented at the annual Western Field Ornithology Conference.
  - "Extreme winter events and their influence on shorebirds in the Mexican Pacific"
  - "Influence of environmental variability on the abundance and distribution of Snowy Plovers in Baja California, Mexico"
  - "Genetic structure of the Least Tern *Sternula antillarum* in northwestern Mexico"
- Seminars presented during the Congress for the Study and Conservation of Birds in Mexico:
  - "Influence of climate and human disturbance on a non-breeding population of chorlo pico grueso in Mexico"
  - "Assessment of the conservation status of the Willet (*Tringa semipalmata inornata*) in Mexico"
  - "Current status and distribution of the Least Tern (*Sternula antillarum*) in the Gulf of California, Mexico
  - "Influence of environmental variability on the abundance and distribution of the Snowy Plover in Baja California"

- We entered all 2025 mid-winter shorebird survey data into the project's online data entry portal hosted by California Avian Data Center (CADC), a node of the AKN. Data includes the number of shorebirds, waterbirds and waterfowl, raptors, measures of human disturbance, and assessment of habitat condition.

Species and Habitat Conservation:

- Proposal accepted by SEMARNAT for the inclusion of the willet (*Tringa semipalmata*) in NOM-059-SEMARNAT, as a "Threatened" species.
- Protection of Habitat – To protect breeding areas of snowy plovers and California least tern, we installed a temporary fence on three nesting beaches of Estero de Punta Banda, northwest Baja California. This action also includes monitoring of the two species breeding season. The fence remained installed until August.
- To protect the nesting ground for the snowy plover, California least tern, and American oystercatcher, we installed a fence in Guerrero Negro, Baja California Sur. The protected area is about 40 ha. Our partners for this activity include CONANP, Exportadora de Sal, Pro Esteros, and CICESE.
- Development of signage to protect restoration areas at El Salitral de Guerrero Negro, important for snowy plover and other waterbirds.
- Terra Peninsular continued restoring hiking trails in the natural reserves by conducting soil restoration, delimitation and trail enhancement, plastic garbage cleanup, and infrastructure improvements. Local people from Ejido Chapala have been participating in restoring trails and cleanup activities in Monte Ceniza and Punta Mazo nature reserves. These reserves provide important habitat for a suite of migrants including thousands of Pacific brant, surf scoter, western sandpiper, marbled godwit, willet, and dozens of long-billed curlew, snowy plover, and sanderling.

Habitat Enhancement:

- Laguna Figueroa is the most important nesting site for the snowy plover in the Baja California peninsula. This critical habitat is constantly impacted by human activities, therefore it is important to strengthen strategies to improve the nesting and resting habitat of the snowy plover at this site and to strengthen biological monitoring and surveillance in strategic areas. During the project period, Terra Peninsular monitored snowy plovers nesting in two plots of one hectare each, within Laguna Figueroa.

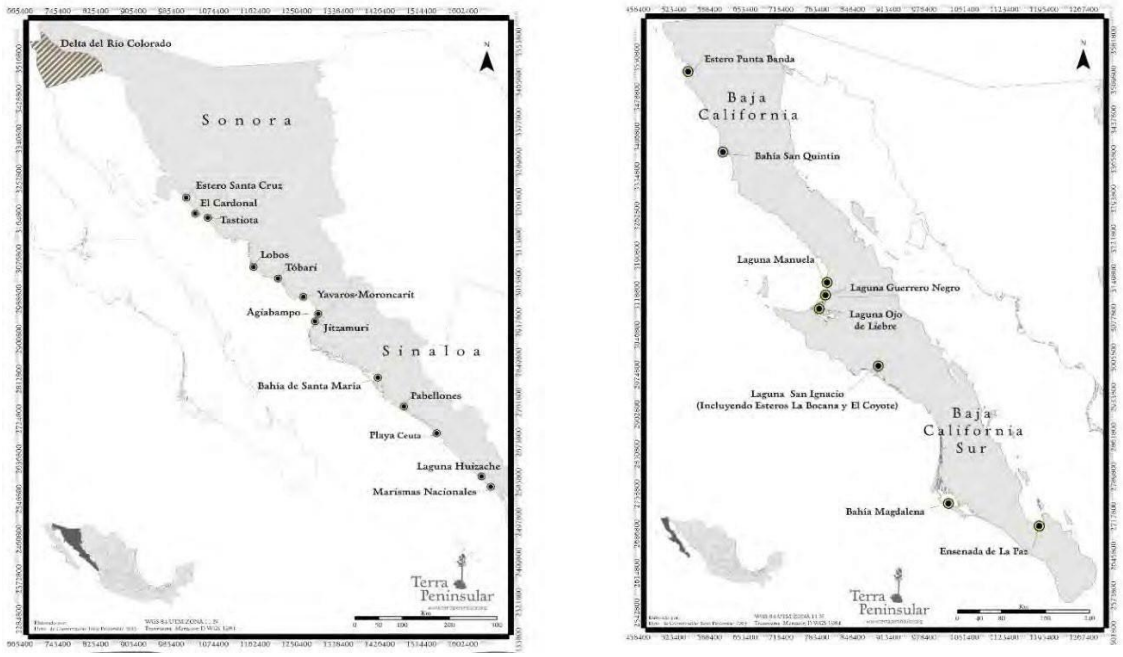
Activities: Terra Peninsular and partners will implement the following conservation actions in 2026.

- Pacific black brant Surveys: Obtain a total count of wintering Pacific brant at major coastal wetlands of Baja California peninsula and mainland Mexico. Record abundance and distribution of the Pacific brant flocks at each wintering site during winter of 2026-2027. Generate a distribution map with GPS locations of the Pacific brant flocks at each wintering site. And provide a summary report to the Pacific Flyway Council.
  We will conduct two workshops using the Open Standards for the Practice of Conservation to complete the Northwest Mexico shorebird conservation plan. This will provide a scientific framework to determine species, sites, and habitats that most urgently need conservation action in northwest Mexico.
- Mitigate recreational human disturbance through signing projects, involving local community (children designing signs that are better adopted by local community and visitors), rope fencing of nesting areas, and training volunteers as docents to conduct outreach to visitors to mitigate human disturbance at nearby breeding and roosting shorebird sites; Training on shorebirds identification and population monitoring for local community involvement in shorebird monitoring.
- Conduct standardized annual non-breeding bird surveys of 21 wetland sites across NW Mexico (Map 9) and compile into the AKN node. Data collected in the field includes the number of birds, measures of bird disturbance, and assessment of habitat condition. The number of avian predators (raptors) of shorebirds and other waterbirds are also recorded.
- Use MSP database for assessing population status, winter population trends and environmental drivers (temperatures and precipitation) for priority shorebird species such as black-bellied plover, American avocet, snowy plover, Wilson's plover, willet and Western sandpiper in northwest Mexico. Graduate students will work on their theses to complete these analyses.
- In collaboration with local hunting organizations, we will strengthen conservation and management of

designated wildlife conservation units (UMAs) in San Quintín, Baja California and El Tóbari, Sonora:

- Restore wetland habitat by removing abandoned structures used for oyster farming in Bahia San Quintin.
- Monitor wintering population of Pacific brant and work to maintain/enhance habitat.
- Improve capture of harvest information (sex and age) for hunted Pacific brant.
- Implement a beach and wetland plastic cleanup campaign

Budget: Approximately $25,000 is needed. Contact Deb Hahn for a more detailed budget. Contributions of $4,000 each will significantly advance implementation of these Pacific Brant/shorebird/waterbirds conservation actions.



Map 9: Location of 21 coastal wetland sites which are part of the PFSS in NW Mexico.

Table 2: SGCN in the project area, listed by state.

Species (SGCN)	AK	AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
spotted sandpiper	X											
western grebe		X			X						X	
northern pintail							X					X
cinnamon teal											X	
greater white-fronted goose	X											
great egret		X										
ruddy turnstone			X									
black turnstone	X		X									
lesser scaup	X											X
brant goose			X								X	
Pacific black brant	X								X			
Sanderling	X		X									
red knot			X								X	
western sandpiper	X						X					
semipalmated sandpiper	X											
mountain plover		X	X	X		X		X				X
snowy plover			X					X		X	X	
western snowy plover		X		X			X		X			
killdeer	X											
black tern			X	X	X		X					X
black-bellied whistling duck		X										
fulvous whistling duck			X									
snowy egret		X							X			X
common loon			X		X		X				X	X
gull-billed tern			X									
black oystercatcher	X		X						X			
black-necked stilt									X			
Caspian tern					X	X			X	X		X
loggerhead shrike			X	X			X	X	X		X	
California gull					X							
ring-billed gull					X							
short-billed dowitcher	X											
long-billed dowitcher	X						X					
marbled godwit												
belted kingfisher	X											
surf scoter											X	
wood stork			X									
long-billed curlew				X	X		X	X	X			X
whimbrel	X											
black-crowned night heron												X
American white pelican			X	X	X		X		X	X	X	
brown pelican (California)			X						X		X	
neotropic cormorant								X				

Species (SGCN)	AK	AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Brandt's cormorant			X									
red phalarope	X											
red-necked phalarope							X					
Wilson's phalarope							X					
white-faced ibis				X	X		X			X		X
black-bellied plover	X											
eared grebe								X				
American avocet							X					
black skimmer			X									
Forster's tern												X
least tern				X		X		X				
California least tern		X	X									
elegant tern			X									
royal tern			X									
lesser yellowlegs	X											
Total species	**18**	**7**	**21**	**8**	**9**	**3**	**13**	**7**	**10**	**4**	**10**	**11**

Table 3: Waterfowl abundance and distribution at sampling units of 30 Migratory Shorebird Project sites in Northwest Mexico, during midwinter surveys.

Common name	Abundance	Percent of sites (%)	Number of sites
northern shoveler	23140	30	9
green-winged teal	19654	23	7
brant	4100	30	9
redhead	3258	7	2
northern pintail	3254	33	10
gadwall	2962	7	2
blue-winged teal	2516	30	9
cinnamon teal	1177	23	7
ruddy duck	1143	13	4
American wigeon	595	13	4
surf scoter	557	13	4
red-breasted merganser	215	20	6
mallard	191	3	1
lesser scaup	113	13	4
bufflehead	71	27	8
black-bellied whistling-duck	12	3	1

Conservation of Neotropical Migratory Birds in the Dry Tropical Forests of El Salvador: Assessing and Addressing Threats to Overwintering Habitat and Bird Populations

Partners: Paso Pacífico, Zoological Foundation of El Salvador (FUNZEL), Fundación Enrique Figueroa Lemus, Ministerio de Medio Ambiente y Recursos Naturales (MARN), Arizona Game and Fish Department, Sociedad Salvaje, Asociación de Desarrollo Turístico de la Costa Oriental De *El* Salvador (ADETCO), Compañía Azucarera Salvadoreña (CASSA), Southern Sierra Research Station (SSRS), Mujeres y Naturaleza (MUNAT), Zoo Boise

State(s) Participating: Arizona, Pacific Flyway Council

Overview: Continued declines in populations of NMBs have demonstrated the need to take a full annual cycle approach to NMBs conservation. Actions taken only within the U.S. may not be adequate for the long-term conservation of migratory birds that spend much of their life cycle south of the U.S. Paso Pacifico proposes to work with U.S. states, Federal agencies and in-country partners to protect overwintering and stopover habitat.

Numerous NMBs from throughout the Pacific Flyway use Central America's Pacific coast during migration and overwintering periods. Most of this geography was once dominated by seasonally dry tropical forests (Figure 1). However, large-scale conversion to agriculture and pasture has made the dry tropical forest one of the world's most endangered ecosystems, with less than 2% of the original forest remaining intact. Only 5% of remaining dry forest in Mexico and Central America receives some degree of protection.

Threats: The primary threats to NMBs overwintering in lowland El Salvador are: 1) habitat conversion from forest to intensive agriculture, 2) habitat degradation through timber and firewood extraction and wildfires, and 3) direct mortality from unregulated hunting (e.g., slingshots). Intensive agriculture is perhaps the largest threat in the tropical dry forest lowlands, and export crops such as melons and sugar cane continue to replace dry tropical forest with monoculture crops every year. Meanwhile more traditional farming (maize, beans) operates in a landscape matrix that often includes small patches of dry tropical forests and thus can provide some habitat to western migratory birds.

Figure 1. Most of this geography was once dominated by seasonally dry tropical forests (El Salvador section)

Birds: El Salvador hosts high avian biodiversity with 585 species, despite its relatively small size. In the lowlands portion of the dry tropical forest, 364 bird species have been recorded, including 38 species that are SGCN across 12 western states including Willow Flycatcher (potentially the southwestern subspecies), Yellow-billed Cuckoo, Mississippi Kite, Peregrine Falcon, Swainson's Hawk, Brown-crested Flycatcher, Macgillivray's Warbler, Summer Tanager, and Bell's Vireo, among others (Table 4).

The project aims to protect overwintering birds and their dry tropical forest habitats in the eastern region of El

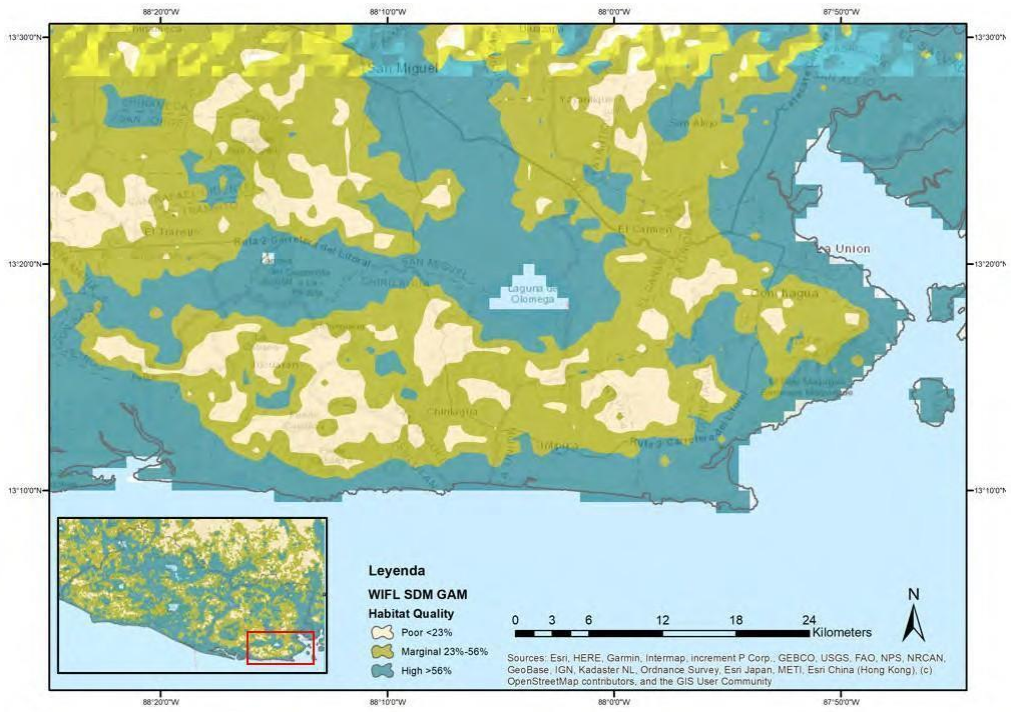
Salvador (Map 10). The eastern region has high conservation potential for birds due to its relatively low human population density and high cover of tropical forest and because it is located near the coast and the border of the Gulf of Fonseca, a recognized passageway for migratory birds. The eastern region is poorly studied due to civil war and more recent security concerns. Currently the security situation has significantly improved. It is urgent that conservation efforts accelerate before commercial agriculture and threats displace forests.

Map 10. General project area in eastern El Salvador with specific sites of importance to overwintering birds noted (consisting of dry tropical forest habitats and adjacent wetland areas).

Two priority species in this region are the Willow Flycatcher (WIFL) and Yellow-billed Cuckoo (YBCU). Both southwestern WIFLs and YBCUs have experienced substantial population declines across their U.S. ranges. These trends are mirrored in data from capture stations in North and Central America; an overall view of demographic trends of survival and recruitment strongly infers that factors acting on migrating and overwintering populations play an important role in these declines. The WIFL and YBCU use Central America's Pacific coast during stopover migration and overwintering respectively. Project activities focus on sites that maintain suitable WIFL habitat (Map 11) and their neighboring upland forests that host a diversity of migratory and resident birds.

In addition to NMBs, the tropical dry forests of eastern El Salvador host other priority species such as the endemics White-bellied Chachalaca and Blue-tailed Hummingbird. The endangered Yellow-naped Amazon (parrot) nests in this region and the federally endangered Cyanoptera Macaws cross the gulf of Fonseca from Nicaragua to forage in the dry forests that border the gulf. The project activities will complement Paso Pacifico's Yellow-naped Amazon and Cyanoptera Macaw Conservation Programs which operate in the same geography.

Project Goals: This project seeks to restore tropical dry forests and to protect forest-dependent migratory and resident bird populations in El Salvador, including for the WIFL and YBCU. To reach this goal, the project will: 1) restore and protect dry tropical forest habitat, 3) carry out targeted monitoring and research of species of special concern, and 4) build capacity amongst local people, private sector partners, and governments for improved habitat management and awareness of migratory birds.



Map 11. Distribution of potential suitable WIFL habitat in eastern El Salvador with dark blue representing good potential habitat. Based on a model by Lauren Phillips and Tom Albright, University of Nevada Reno in partnership with Paso Pacifico, 2020.

Southern Wings Success 2025:

1. Conserve dry tropical forest habitats

- We maintain a team of ten part-time community rangers who participate in conservation efforts, including fire prevention and habitat protection across 7,413 acres. They conducted approximately 1,147 hours of field patrols in tropical dry forest over 131 days, remaining actively engaged in building firebreaks and responding to wildfires during the dry season. In addition, the community rangers carry out regular roadside, stream and lake cleanups to remove plastic pollution and fishing nets from waterways, thereby protecting shorebirds and waterbirds in the area. Four thousand pounds of pollution were removed from roadsides and waterways.

Figure 2. University of California student Carson Viers collecting eDNA samples at Olomega Lagoon.

- Paso Pacifico collaborated with a student from Cal-Poly and scientists from UC Merced and UC Santa Cruz to collect environmental DNA (eDNA) samples in Olomega Lagoon. Sample collection has been completed, and analyses revealed the presence of birds in 35 of the 37 samples taken across 9 sites, highlighting the importance of this RAMSAR wetland to avifauna (results available here) (Figure 2). This study also highlighted changes in biodiversity since the lake was last surveyed in 1925. The introduction of water buffalo was a new threat in the aquatic systems. We note that the terrestrial area where the water buffalo resides corresponds to WIFL habitat.
- Paso Pacífico held coordination meetings with representatives from the Compañía Azucarera Salvadoreña (CASSA) to strengthen collaboration for the conservation of riparian habitats within sugarcane landscapes. As a result, a technical document was shared with CASSA outlining best practices for bird-friendly agriculture in sugarcane fields. These recommendations include restoring riparian vegetation, conserving wetland areas, minimizing agrochemical use through integrated pest management, reducing pre-harvest burning, improving soil fertility with green manures, and implementing basic bird monitoring and environmental education.

Figure 3. Students from schools in the Oriente Salvaje region using citizen science applications as part of environmental education activities.

•Paso Pacífico, in collaboration with ADETCO and Sociedad Salvaje Salvadoreña, implemented the Climate Resilience through Environmental Stewardship initiative in the Oriente Salvaje World Surfing Reserve. The project engaged 277 students from eight schools through structured environmental education sessions focused on local ecosystems, biodiversity, and climate change. Students were trained in citizen science tools, including iNaturalist, Merlin Bird ID, and the Save the Waves app, strengthening environmental awareness and local capacity among youth in the Oriente Salvaje region (Figure 3).

2. Promote bird monitoring as a tool to inform management and build capacity

•Paso Pacífico advanced the expansion of the Motus Wildlife Tracking System in El Salvador through the acquisition of all necessary equipment and site selection, planning, and coordination for two Motus stations at Isla Olomeguita (Laguna Olomega) and Playas Negras. These efforts included technical coordination with radio communications specialists and preparation for station installation.

•Paso Pacífico, in collaboration with Fundación Naturaleza, organized the Reto Naturalista Reserva Mundial de Surf Oriente Salvaje to document biodiversity and promote citizen science in eastern El Salvador. The initiative included a training workshop held in El Cuco in February, where community members were introduced to the use of the iNaturalist application to record observations of local flora and fauna. To date there are 635 observations, including 32 bird species of cultural importance.

3. Build local awareness and appreciation for birds and their habitats

Figure 4. Environmental Police patrol near Playa Icacal to deter poaching of Yellow-naped Amazon chicks during the 2025 nesting season.

•Paso Pacífico continued coordination with the Environmental Division of the National Police to support the protection of Yellow-naped Amazon nests in Laguna El Jocotal and the mangrove areas of Playa Icacal. Community rangers assisted with nest searches and protection, resulting in the successful protection of at least thirteen active nests and reduced nest poaching (Figure 4). Field visits conducted in 2025 documented multiple bird species of conservation concern, including American Redstart, Black-and-white, Tennessee, and Yellow Warbler, Great Crested Flycatcher, Spotted Sandpiper, Whimbrel, Green Heron, White Ibis, Little Blue and Tricolored Heron, Snowy and Great Egret. The planned Motus station adjacent to this mangrove wetland will support future monitoring.

•Paso Pacifico, in collaboration with the University of El Salvador, delivered a presentation to biology students enrolled in the ornithology course at the Faculty of Natural Sciences and Mathematics, focusing on migratory and resident birds, migration ecology, and the use of citizen science tools such as eBird, Merlin, and iNaturalist. A Memorandum of Understanding was signed between Paso Pacifico and the University of El Salvador, which will support future student and faculty participation in research, technical training, and conservation initiatives.

4. Develop science-based conservation tools for endangered migratory birds

Figure 5. Biology students from the Oriental Multidisciplinary Faculty of the Universidad de El Salvador conducting Willow Flycatcher monitoring surveys in 2025.

•Paso Pacifico continued monitoring the WIFL through monthly bird surveys conducted during the non-breeding season at established transects in Olomega lake and Jocotal lake. This year, the surveys were carried out with the participation of biology students from the Faculty of Multidisciplinary Studies – Oriental Campus of the University of El Salvador (UES). Data collected in December documented the presence of the WIFL alongside a diversity of other overwintering migratory species, contributing to a broader understanding of bird use of these wetland habitats (Figure 5).

Actions:

Forest Conservation and habitat protection: We will identify a dry forest area for lease or purchase, and to serve as a research station composed of dry tropical forest near the Laguna Olomega RAMSAR site. Matching funds will be sought to complete the payment. Once secured, Southern Wings will support key protection activities, including fence repair and the construction and maintenance of firebreaks, with the support of a team of community rangers. These rangers will also focus on fire extinction, preventing illegal hunting and logging, promoting agroforestry, and removing sources of plastic pollution in the nearby communities.

Willow Flycatcher Habitat Management: Based on previous surveys, the southern margin of Olomega Lagoon has been identified as an important wintering habitat for the Willow Flycatcher. In early 2026, Paso Pacifico coordinated with its rangers to initiate outreach efforts, including interviews with landowners and farm managers along the lagoon margins to collect information on land use and management practices. This information will support the development of future habitat management and conservation strategies. These efforts aim to encourage the seasonal conservation of spiny shrubs and promote practices such as delaying the removal of agricultural vegetation until after the northward migration period.

Riparian and Wetland Habitat Conservation: Design and implement a short environmental awareness module for field technicians and farmers focused on riparian and wetland habitat conservation and sustainable agricultural practices. In partnership with the sugar cane company CASSA, we will engage company management and extension agents to incorporate bird-friendly management practices into farm management training, with particular attention to Willow Flycatcher habitat. This module will include a monthly monitoring form to track bird sightings, agrochemical use, vegetation cover and burning practices. The goal is to complete the training and initiate implementation with 20 farmers in 2026.

Bird Monitoring to Inform Conservation**:** During the 2025-2026 non-breeding season, Paso Pacifico is conducting monthly bird surveys along previously established transects to monitor the presence and distribution of the Willow Flycatcher, as well as other migratory species. These surveys are being carried out with the participation of university biology students, allowing for continued monitoring of temporal patterns in habitat use during the winter months. All observations are being uploaded to eBird.

iNaturalist Biodiversity Challenge: We will continue promoting the iNaturalist Biodiversity Challenge to engage local communities. Additional workshops will be organized with students to introduce them to the iNaturalist platform and its applications in biodiversity monitoring, including field trips to practice making observations. A one-day challenge, in which students document as many species as possible within 24 hours, will focus on the Oriente Salvaje World Surfing Reserve, with emphasis on dry tropical forests and mangrove ecosystems.

Capacity building: As part of the ongoing collaboration with the University of El Salvador, Paso Pacifico will deliver at least two ornithology-focused workshops in 2026. One workshop will be held at the San Salvador main campus, and a second workshop will be offered at the Campus in San Miguel. These sessions will cover bird identification tools such as eBird (including eBird Status and Trends and Using eBird Data and Tools), Merlin, and iNaturalist, as well as the role of citizen science in research and conservation.

Youth Birding: Building on our collaboration with the University of El Salvador, Paso Pacifico will support efforts to expand student participation in birdwatching and ornithology by organizing two field trips: one for students enrolled in the ornithology course at the San Salvador campus, and other for students in a zoology course at the Oriental Campus. These activities will provide hands-on birding experience. In addition, binoculars will be provided to support student learning and strengthen long-term birdwatching capacity.

Identify and Engage Emerging Ornithologists: We will invite members of the bird conservation community in El Salvador (students and biologists) with an interest in bird conservation to participate in targeted webinars. These sessions will share knowledge on ornithology and conservation topics, while also fostering learning, professional connections, capacity building, and future collaboration among participants.

Environmental Education in Schools: In collaboration with local partners, we will continue delivering environmental education sessions in schools within the Oriente Salvaje World Surfing Reserve during 2026. These activities will focus on local ecosystems, biodiversity, birds and climatic variability, and will incorporate participatory methodologies and citizen science tools such as iNaturalist and Merlin Bird ID. Through these efforts, we aim to reach 250 children, strengthening environmental awareness, local stewardship and youth engagement in conservation in coastal communities in eastern El Salvador.

Budget: Approximately $20,000 is needed. Contact Deb Hahn for a more detailed budget.

Table 4. SGCN in the project area, listed by state. Species shown in blue are focal migratory species identified by Southern Wings due to their high conservation concern.

Species	AK	AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Grasshopper Sparrow			X	X	X							X
Swainson's Hawk		X	X	X					X			X
Northern Beardless-Tyrannulet								X				
Swainson's Thrush	X	X										
Vaux's Swift			X									
Yellow-billed Cuckoo		X	X	X	X		X	X		X	X	X
Olive-sided Flycatcher	X	X	X	X	X		X	X	X	X		
Western Wood-Pewee	X											
Black Swift			X	X	X	X		X		X		
Alder Flycatcher	X											
Willow Flycatcher		X	X						X			X
Merlin												X
Peregrine Falcon	X						X	X		X	X	X
American Kestrel	X											
MacGillivray's Warbler	X	X										
Common Yellowthroat	X											
Barn Swallow	X											
Yellow-breasted Chat		X	X									
Mississippi Kite		X										
Belted Kingfisher	X											
Acorn Woodpecker		X							X			
Dusky-capped Flycatcher		X										
Brown-crested Flycatcher		X	X									
Sulphur-bellied Flycatcher		X										
Rose-throated Becard		X										
Harris' Hawk		X										
Savannah Sparrow	X	X										
Band-tailed Pigeon		X		X						X	X	
Summer Tanager		X	X									
Blue-gray Gnatcatcher						X						
American Redstart	X											
Townsend's Warbler	X											
Dickcissel												X
Chipping Sparrow	X								X			
Eastern Meadowlark		X										
Tree Swallow	X											
Elegant Trogon		X						X				
Bell's Vireo							X	X				
Total	**15**	**18**	**10**	**6**	**4**	**2**	**4**	**7**	**5**	**5**	**3**	**7**

Table 5. Species of Conservation Concern observed at ~1km length WIFL survey. Surveys were conducted monthly in February, March, and April of 2024 and 2025 at 3 sites in Usulután and San Miguel, El Salvador.

	13-Sep	Jocotal	Olomega
Western Birds of Concern			
American Redstart	X	x	x
Barn Swallow	X	x	x
Bell's Vireo			x
Brown-crested Flycatcher	x	x	x
Dickcissel	x		
Dusky-capped Flycatcher	x		x
Harris' Hawk		x	
Northern Beardless Tyrannulet	x		x
Rose-throated Becard	x	x	x
Sulphur-bellied Flycatcher	x		x
Summer Tanager	x		x
Vaux's Swift	x	x	x
Western Kingbird			x
Willow Flycatcher	x		x
Other Species of Concern			
Mangrove Cuckoo	x		x
American White Pelican	x	x	
Wood Thrush	x	x	
Orchard Oriole	x	x	x
Rose-breasted Grosbeak	x		x
Painted Bunting	x		x

Restoration of Wetland Hydrology in the Marismas Nacionales of Nayarit, Mexico to benefit migratory waterfowl and shoredbirds

Partners: Ejidos (local communities), farmers and ranchers, fisheries cooperatives, Organización Vida Silvestre A.C (OVIS), Marismas Nacionales Biosphere Reserve, Comisión Nacional de Áreas Naturales Protegidas (CONANP), Comisión Nacional Forestal (CONAFOR), Municipality of Tecuala.

Participating States: Pacific Flyway Council

Overview: Marismas Nacionales is a complex of wetlands that represent different marine waters and 11 powerful rivers, creating a very varied mosaic of features such as meanders, river deltas, marshes, freshwater lagoons, estuaries, coastal lagoons, intertidal wetlands and coastal dunes. It supports the largest mangrove area on the Pacific coast. The "Functional Diagnosis of Marismas Nacionales" document drafted in 2011 provides interdisciplinary information which is spatially explicit, enabling the systematic and integral analysis of the current state of the Marismas Nacionales wetlands. That year the design of the first pilot projects for the restoration of wetlands in the area began. Ongoing work since the initial pilot projects has provided us with extensive experience in developing and implementing effective techniques for hydrological restoration.

Restoring the habitat depends mostly on the maintenance of freshwater flows from rivers, streams and springs and on a functional network of natural channels within the mangrove systems. Therefore, urgent restoration measures need to be implemented that include cleaning and dredging (e.g., removal of dead mangroves), such as the hydrological rehabilitation of 20 miles (accumulative) of natural tidal channels that will restore the hydrological flow and contribute to the restoration of 4,700 acres of mangroves.

Threats: Marismas Nacionales is affected by the cumulative impact of multiple threats to the hydrological pattern. The hydrological pattern has been altered by the retention and excessive agricultural and livestock purposes uses, establishment of shrimp farms, poorly planned communications infrastructure networks and sewage systems that modified and reduce the natural hydrological flow. More recently the emergence and establishment of invasive vegetation species have become a concern. All these threats have resulted in drastic mangroves mortality, higher lagoon salinity and reduced habitat for wetland-dependent bird species.

Birds: Marismas Nacionales is one of the most important energy resupply sites for waterfowl on the Mexican portion of the Pacific Flyway, providing high quality foraging and resting sites for 15 migratory species (> 250,000 individuals). The area is notable for its concentration of: northern shoveler (130,000), green- winged teal (25,000), northern pintail (12,000), lesser scaup (4,450) and mallard (1,200). It also provides habitat for more than 427,000 wintering shorebirds of 28 species, including: American avocet (137,000, which constitutes about 20% of its total population), and western sandpiper (145,000). Other priority species include marbled godwit (13,000), long-billed curlew (400), Wilson's plover and short and long-billed dowitcher (72,000) and black-necked stilt (26,000). Also, notably over 1,300 red knot , feed in the area during their summer stay on their way to the Arctic and the area also has migratory (200) and resident populations of snowy plover (93 pairs).

Goals: The project focuses on restoring hydrological flows for the recovery and conservation of mangrove ecosystems, which provide foraging sites and energy resupply for thousands of waterfowl and shorebirds that migrate along the Pacific Flyway. The project includes different sites, which together benefit the Agua Brava tidal watershed (210,039 acres) and comprises 11 tidal systems.

Phases 1 and 2 of the project is focused on the restoration of two degraded wetland systems: The first is the Las Garzas

Lagoon of the Chagüín-Chuiga sub-tidal basin (12,429 acres), located within the Agua Brava Tidal Basin. This wetland has been impacted and transformed by agricultural activity and hurricanes. This is observed in terms of low water volume, low water permanence (hydroperiod), hypersalinity, and no productivity. The proposal offers to rehabilitate the 8.7-mile Río Viejo (8.75 yd base by 2.19 yd height) channel, which is a branch in the delta of the Río Acaponeta. The expected outcome is to harvest surplus water from agricultural activities, pluvial and hurricanes and transport this excess water to the wetland (Las Garzas Lagoon), to recover a large part of the hydrological pattern and increase habitat for waterfowl and other wetland-dependent wildlife. The Río Viejo channel was functional until the 1980s and is currently filled with sediment and with a collapsed bridge, which does not allow water to flow into the wetland. The second wetland is the San Cristóbal Basin (11,080 acres), which includes 5 sub-basins that make up freshwater wetlands such as La Tobara, La Chayota, Singayta, San Blas and Chacalilla, fed by streams and springs. The wetland complex is beginning to experience the establishment of several invasive species such as *Typha* sp, *Eichhornia crassipes*, *Pistia stratiotes* and *Ludwigia peploids,* leading to the reduction and loss of available habitat. Therefore, there is a need to establish an early detection and response strategy for invasive species at the basin level and implement control actions in 494 acres of Ejido La Libertad.

The second phase includes an expansion into the Valle de la Urraca and Laguna Las Garzas, north of the protected natural area (within the buffer zone), to benefit around 4,200 acres by restoring the mangrove and marsh ecosystem and managing sites already restored. Promoting environmental awareness and education are also fundamental strategies at this stage due to the impact of the local population who use the ecosystem and natural sites.

Southern Wings Successes in 2025: Ovis in coordination with CONANP, CONAFOR, ejido Arenitas and other partners accomplished the following:

- Expansion of available habitat for birds through the improvement of mangrove conditions in 74 acres and cleaning and dredging of 1.8 miles of natural tidal channels.

- Assisted reforestation with 10,000 black mangrove propagules (*Avicennia germinans*) according to the suitability of the land and prevailing hydrologic conditions.

- Seasonal monitoring in the Valle de la Urraca lagoon system during the months of October, November and December 2025. Fifty-three species of aquatic and shorebirds birds were recorded, of which 22 were species of the order Charadriiformes; with an accumulated abundance of 39,581 birds, of which at least 14,410 were shorebirds (62%) and 5,815 ducks (25%).

Table 6. Waterfowl species detected during standard annual surveys at Valle de la Urraca and Laguna Las Garzas in Marismas Nacionales Biosphere Reserve.

	Season 2021-2022	**Season 2022-2023**		**Season 2023-2024**		**Season 2025**
Species	Las Garzas	Las Garzas	Valle Urraca	Las Garzas	Valle Urraca	Valle Urraca
Northern pintail	4,373	1,915	645	304	1,728	139
Green-winged teal	1,1718	4,367	9,355	758	,7558	317
Northern shoveler	24,418	16,361	6,465	3,461	9,116	2,681
Blue-winged teal	6,435	9,495	483	727	2,385	2,717
Cinnamon teal	602	116	391	89	57	0
Ruddy duck	520	16	63	720	4,019	0

- In the months of June and July snowy plover nests were identified and geographically located in Laguna Las Garzas. Eleven active nests, 29 breeding pairs, and five chicks were found.

- Based on recent waterfowl surveys a proposed harvesting rate was drafted and submitted to SEMARNAT for the UMA Valle de la Urraca. The harvesting rate was approved for 927 specimens of northern shoveler, green-winged teal, blue-winged teal, ruddy duck and black-bellied Whistling-duck. During the reporting period, the technical manager provided guidance and support to the UMA through the preparation of the zoning map for the site, defining the areas designated for management, conservation, and operational activities. The technical manager also supervised the proper implementation of the management actions established in the authorized plan and coordinated environmental surveillance activities to ensure compliance with protection measures and the proper functioning of the unit.

- Participatory environmental education and awareness workshops were conducted with elementary school students in Arenitas ejido and in the town of Tecuala. WHSRN shorebird and mangrove educational materials were used.

- An activity report was presented to the advisory council of the Marismas Nacionales Biosphere Reservie (Nayarit-CONANP) on December 10, 2025.

Activities: In 2026, we propose the following activities.

- Habitat improvement through the cleaning of natural tidal channels in the main estuaries of the El Roblito ejido, benefiting 30 hectares.

- Continue seasonal monitoring of shorebirds and waterfowl in Laguna Las Garzas during the Winter season from October to December and compiling of historical data.

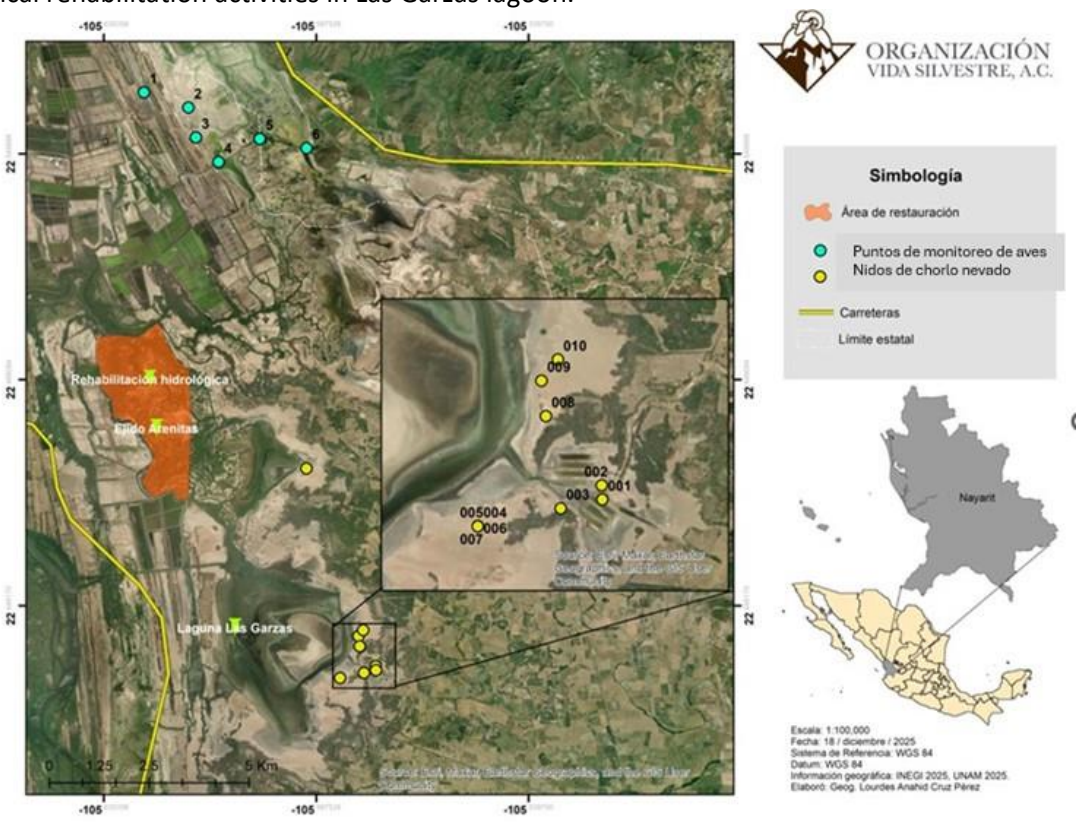
- Maintain existing tidal channels to ensure the efficiency of the hydrological connection across 20 hectares and carry out improvements and cleaning of water bodies within two UMAs (El Roblito and Valle de la Urraca).

- Design and conduct two participatory environmental education and awareness workshops for an audience of 50 participants in the communities of Valle de la Urraca and El Roblito ejidos.

- Disseminate activities and results obtained through OVIS social media and present results to the advisory council of the Marismas Nacionales Biosphere Reserve.

Budget: Approximately $16,000 is needed. Contact Deb Hahn for a more detailed budget.

Map 12. Location of seasonal multi-species bird surveys, reproductive monitoring of snowy plover, and hydrological rehabilitation activities in Las Garzas lagoon.



Hydrological rehabilitation to increase available habitat

Environmental education workshop for Elementary school students

Monitoring of migratory and resident birds.

Table 7: SGCN (considered Neotropical Migrants*) in the project area, listed by state.

Species	**AK**	**AZ**	**CA**	**CO**	**ID**	**MT**	**NV**	**NM**	**OR**	**UT**	**WA**	**WY**
cinnamon teal											X	
northern pintail							X					X
eared grebe								X				
sora		X										
American avocet							X					
snowy plover			X					X		X	X	
whimbrel	X											
long-billed curlew				X	X		X	X	X			X
marbled godwit											X	
ruddy turnstone			X									
red knot	X		X								X	
stilt sandpiper												
dunlin	X											
western sandpiper	X						X					
lesser yellowlegs	X											
Wilson's phalarope							X					
ring-billed gull					X							
least tern				X		X		X				
gull-billed tern												
caspian tern					X	X			X	X		X
Forster's tern												X
wood stork			X									
neotropic cormorant								X				
American white pelican				X	X		X		X	X	X	
brown pelican											X	
great egret		X										
snowy egret		X							X			X
Total	**5**	**3**	**4**	**3**	**4**	**2**	**6**	**5**	**4**	**3**	**6**	**5**

Thick-billed Parrots as an Umbrella Species for Community-based Conservation of Mature Forests and Dependent Neotropical Migratory Birds in the Sierra Madre Occidental, Mexico

Partners: This project is part of the program for the study and conservation of Thick-billed Parrots with Organización Vida Silvestre A.C (OVIS) as the lead organization. It is in collaboration with multiple partners over 30 years in an informal consortium such as Ejidos (local communities), CONANP, CONAFOR, Arizona Game and Fish Department (AGFD), Foresta S.A. de C.V. Técnicos Forestales de Ejido El Largo S.A. de C.V., FORESTA, Unidad Forestal Galván, Asociación de Silvicultores de Guadalupe y Calvo, San Diego Zoo Wildlife Alliance (SDZWA), U.S. Fish and Wildlife Service, Universidad Estatal de Sonora, Sacramento Zoo, IUCN/Durrell Wildlife Trust, SAFE Program Partners, Planet´s (Project Centinela), Pronatura Sur, Fondo Mexicano para la Conservación de la Naturaleza (FMCN) and CONABIO.

State(s) Participating: Arizona, Pacific Flyway Council

Overview: Mexico's national forest management policy, which now considers the management of biodiversity, presents an opportunity to work at reducing significant threats (e.g., destructive fires, over-harvesting of timber, overgrazing, land-use change, etc.) to maintain or restore populations of birds in forests of the Sierra Madre Occidental (SMO). Timber harvesting for the past 70 years has been implemented through Forest Management Units. These units cover vast territories where various timber-harvesting treatments are applied, sometimes including destructive clear-cutting and high-intensity timbering. Through new partnerships, forest managers are adopting and implementing practices that promote sustainable forest production and productivity and explicitly integrate biodiversity conservation objectives and indicators.

Thanks to the information generated by satellite transmitters used on Thick-billed Parrots (TBPAs) as an umbrella species, we can specify that only 20% of the TBPA habitat distribution has some federal protection status (Natural Protected Areas - NPAs). Since it is unlikely that this can be increased significantly, we are identifying key sites that are important to the recovery of various bird populations, particularly old growth/mature forests, and applying OECM (Other Effective Conservation Measures).

The roles of the current project partners are:

- CONAFOR encourages the identification of High Conservation Value Areas (HCVAs) within forest management programs, which supports the forest certification of properties and ejidos (communal lands). These programs are implemented with the support of the forestry technical advisor.
- By identifying important sites, Pronatura Sur and FMCN provide resources for direct conservation through Areas Voluntarily set aside for Conservation (ADVC) certification. CONABIO and Pronatura Sur are supported in updating Important Bird Areas (AICAS); this update includes extending the area to key sites for the species and numerous neotropical migrant species.
- Planet, Centinela Project, an alliance to support decision-making with real-time images on areas affected by forest fires in sensitive sites for TBPAs and other resident and migratory species.
- SDZWA, the SAFE program, and OVIS manage TBPAs with actions such as construction, installation, and maintenance of nesting boxes; chick supplementation; treatments for ectoparasites and anti-predator measures; marking with bands and radio transmitters for both juveniles and adults; population and reproductive success counts; monitoring migratory movements and home range; and the creation of a gazetteer.
- All the information generated by the program has been useful to the International Union for Conservation of Nature's (IUCN) Green List in assessing the general threats to TBPAs (species threat diagram) through the Miradi analysis. This is the origin of the SAFE program for the species, with the objective of managing annual resource procurement.

This project focuses on establishing and maintaining a network of forests under conservation schemes and integrating the best management into forest management plans in the SMO (Map 13). The project is implemented through a

network of Forest Associations, establishing binding agreements, standardizing methodologies and coordination for the conservation and monitoring of biodiversity in properties under different forest management and conservation schemes. The project area encompasses 6,223,549.00 ha of high elevation forests found in the mountainous regions of five states in 31 municipalities (Chihuahua, Sonora, Durango, Sinaloa and Nayarit) where threats are severe and ongoing. Continued loss of old-growth/mature forests has led to loss and/or significant population declines of species associated with these forests. One of the most dramatic examples is the almost complete loss of remnant old-growth/mature forests in northern Durango and southern Chihuahua and with it the loss of locally nesting populations of TBPAs and neotropical migrant populations dependent on old-growth/mature forests.

This project implements strategies outlined in the PIF *an Integrated Conservation Strategy for Western Temperate, Mexican Pine-Oak, and Tropical Cloud Forest Birds: North America to Central America*. Furthermore, the project addresses threats identified in the species recovery plan for the TBPA.

Threats: The TBPA is endemic to the pine and oak forests of the SMO, at elevations >2000 m in northwestern Mexico. It depends on forests with an abundance of old and dead pines, a habitat highly threatened by the felling of large pines and the extraction of logs for pulp and papermaking. This type of forest has been used immoderately in the last 100 years, and currently there are some remnants of old-growth/mature in the State of Chihuahua, where TBPAs nest. In the early 1900s, this parrot was hunted by humans, primarily out of curiosity. Yet habitat loss and degradation has been the main cause of the abrupt decline of their populations over the past century because of poor forest management policies for more than a hundred years, as well as by fire suppression and increased incidence of catastrophic fires. Large-scale logging has been practiced for many decades without considering the need to manage for biodiversity. Major threats have caused the imperial woodpecker to be considered extinct and two other endemic species to be critically endangered (Sierra Madre sparrow and TBPA). Logging has eliminated primary forests (estimated less than 1% of their original range remains) affecting entire groups of birds that depend on mature forests to provide nesting and shelter cavities, such as trogons, woodpeckers and owls.

There is an urgency to advance the conservation of the TBPA, a species listed as endangered by both the U.S. and Mexico. This parrot historically occurred in Arizona but is now only found in the mountain ranges of the SMO (in mixed conifer forest habitats). Thick-billed parrots are seriously threatened from the loss and degradation of habitat because of poor forest management policies, as well as from fire suppression and a higher incidence of catastrophic fires. Protection, management and restoration actions addressing these and other threats to TBPA, considered an "umbrella" and "flagship" species; will significantly contribute to overall management and conservation of avifauna dependent on functioning mature forests.

Additionally, in the last two decades' various threats have been detected in TBPA and its habitat, among which prolonged droughts that cause different problems, including frequent fires, lack of food, predation and outbreaks of ectoparasites, stand out. In 2021 and 2022, the lowest recruitment rate in 28 years of 0.63 chicks per nest occurred, and in 2022, this recruitment rate was sharply lower in 2022. Likewise, snags used for nesting are being lost due to natural factors and anthropogenic.

Birds: The SMO is a system of canyons dominated by temperate forests in the higher areas grasslands in transition zones, forests in the lower parts, gallery forests and wetlands. As a result, the footprint of the project can be felt over an extensive area of critical habitat for more than 352 bird species, 31.25 % of which are Neotropical. At least 93 species in the region are considered species of common concern (USFWS 2023). More than 110 species are listed as high priority by PIF, including Band-tailed Pigeon, Bell's and Cassin's Vireo, Calliope and Rufous hummingbird, Elegant Trogon, Flammulated and Short-eared Owl, Grace's, Hermit, MacGillivray's, Black-throated Gray, Virginia's and Lucy's Warblers, Olive-sided Flycatcher, Cedar Waxwing, Loggerhead Shrike, Purple Martin, and Yellow-billed Cuckoo. Other species include Dusky and Hammond's Flycatcher, and Painted, Lazuli and Varied Bunting. Other resident bird species of high conservation priority also benefit, such as Eared Quetzal, Mexican Spotted Owl and American Goshawk.

Goals: The project focuses on conserving habitat and implementing sustainable forest management practices that benefit the SMO. This will be accomplished by integrating habitat needs of NMBs (Table 8) and the TBPAs into forest management plans using the national forest management policy framework. The policy incorporates biodiversity management and sustainability education to conserve wildlife populations and habitats. In partnership with AGFD, the project will also implement management of breeding populations of TBPAs in the protected areas of Tutuaca, Papigochi, Campo Verde, Mesa de Guacamayas and Madera (Map 13). The project will also use new information on TBPA wintering areas (obtained from new satellite tracking of migrating TBPAs) to begin conservation planning of wintering habitats for TBPAS and NMBs.

Successes with Southern Wings support 2025:
In coordination with CONANP, CONAFOR, Forestry Consultants, and Ejidos of the Sierra Tarahumara, the following was accomplished.

1. Implement habitat conservation measures to protect, restore and manage mixed coniferous Forests (Chihuahua and Durango).

- Continue working with forestry consultants to incorporate Best Forestry Practices into forest management plans to benefit TBPAs and other wildlife.
    - Forestry unit supported in biological monitoring in the Ejido Socorro Rivera.
    - CONANP received support in CADNR 043 in the zoning of the protected area management program.
    - Support provided to APFF Tutuaca and Papigochic in the zoning for the protected area management program.
- Continue working with Ejidos to voluntarily incorporate lands into conservation schemes, to allow for sustainable management of forests. We met with CONANP regarding the management of the ADVC (Voluntarily Conserved Areas). A multi-sectoral meeting (PNS, FMCN, OVIS) held with CONANP to announce the create of the ADVC. Two informational meetings were held with the Ejido to advance the creation of an 4800 hectare. ADVC. Finally, a meeting held with the National Agrarian Registry (RAN) to launch the formal call for the creation of the ADVC.
- Continue to support Ejidos, Forest Management Units and CONANP in the prevention and control of wildfires in TBPA nesting areas and foraging habitat.
    - Equipment provided to the brigade in Ejido J. Rojo Gomez for the containment of forest fires.
    - The ejido supported with the payment of 12 days' salary for the containment of the fire in APFF Campo Verde.
    - Community brigades, trained and supported by OVIS, extinguished a potentially disastrous fire, preventing the loss of "La Gloria", a very important TBPA nesting site in the ejido Las Playas in the municipality of Casas Grandes.
- Train and assist forest managers in conducting monitoring and data analysis of high priority wildlife species.
    - A forestry technician was trained in bird monitoring and bird monitoring protocols. A bird monitoring protocol is under development to establish a participatory biological monitoring system to generate a bird list and evaluate the seasonality, trophic guilds, and diversity of birds in ADVC Madera, Chihuahua.
- Initiate the necessary steps and procedures for the construction of a biological station in the J. Rojo Gómez ejido. We have developed a tentative design for a biological station and requested permission from CONANP for its construction.

2. Monitor breeding populations of TBPA, NMB and other species in the state of Chihuahua

2.1 *Monitor breeding populations of TBPA*

- 156 TBPA nests located in Campo Verde, Santuario, Tutuaca, Gasachi and Ahuichique. 119 nests in natural cavities and 37 in nesting boxes. 47 clutches were monitored to estimate TBPA nesting productivity.

2.2 *Management of breeding TBPAs:*

- Two nesting localities were identified: one in Namiquipa and another in Gómez Farías municipality.
- An area was identified in La Rosilla, Guanaceví, with more than 200,000 ha of habitat.
- Maintenance carried out on 82 nest boxes, prior to the breeding season.
- Twenty-one nesting cavities were sanitized due to ectoparasite outbreaks (2 in Campo Verde, 3 in Yahuirachi, 8 in Madera, 6 in Alamillo and 2 in Ahuichique)

2.3 *Monitor NMB and other sensitive wildlife*

Monitor migratory and resident species, through point counts along transects, to determine presence and abundance of species.

- Training in bird identification was provided to 11 observers from ejidos, forest management units, and OVIS staff through eight virtual modules and one in-person module conducted over three consecutive days. We held weekly bird identification sessions along with the provision of equipment to the community brigade. There was a three-day field practice in bird identification conducted with experts specialized in bird identification training. Finally, a bird monitoring protocol developed to establish a participatory biological monitoring system aimed at generating an avifaunal checklist and assessing seasonality, trophic guilds, and bird diversity.
- Continue use of camera traps to identify and track TPBA predators as well as to document occurrence of sensitive wildlife species.
    - Monitoring efforts expanded to the municipalities of Gómez Farías and Namiquipa in Chihuahua, and Guanaceví in the state of Durango. From January to November 2025, a total of 356 bird surveys conducted, including 138 transect surveys and 218-point counts, yielding 5,454 bird records and an overall checklist of 261 species. Of these, 68.2% were NMBs, 36.02 % were recorded in coniferous forests, 12.26 % were aquatic birds, 6.13 % were shorebirds, and 13.79 % were grassland birds within the SMO system.
    - The most frequently observed bird species were: Painted Redstart, Grace's Warbler, Band-tailed Pigeon, Hepatic Tanager, Townsend's Warbler, Lazuli Bunting, Evening Grosbeak, Red-faced Warbler, Ash-throated Flycatcher, Hermit Warbler, Hermit Thrush, Western Tanager, Bullock's Oriole, Plumbeous Vireo, Dusky-capped Flycatcher, Gray Flycatcher, Virginia's Warbler, Dusky Flycatcher, Hammond's Flycatcher, Lucy's Warbler, Purple Martin, Blue-gray Gnatcatcher, Common Yellowthroat, MacGillivray's Warbler, Olive-sided Flycatcher.
    - Ten camera traps currently installed across 24,000 ha.
    - Document and evaluate bird mortality. During the summer of 2025, Western Tanager, Townsend's, Hermit, and Yellow-rumped Warbler and Ruby-crowned Kinglet mortality events occurred with no apparent cause.
        - A training course completed to practice necropsies and the collection of biological material for pathological analysis.
        - In September 2025, a sick Hammond’s Flycatcher (Empidonax hammondii) was found and subjected to necropsy. The liver was markedly yellow, apparently due to infection. Tissue samples from the liver, heart, lungs, and brain were collected and fixed in formalin, then embedded in paraffin blocks for storage and subsequent pathological analysis.

2.4 *Assess TBPA winter habitat use and winter flock counts*

Conduct population counts in the months of October or November to estimate numbers at stopover and wintering sites.

- Migration this year has been gradual; therefore, population counts at the wintering areas are still ongoing.

Train community members in the monitoring of wintering populations of TBPA (State of Durango).

- Technicians trained as follows: one in population monitoring techniques, one in identifying sites of importance for the species, and two in administrative procedures management.

2.5 *Sustainability education*

- Design and build a TBPA mascot outfit for use in raising awareness of the species and its ecosystem at school activities and outreach events.
  - A beginner's bird identification manual designed.
  - Two community members trained in bird identification.
- Conduct environmental education activities in at least 4 schools where the importance of bird and ecosystem conservation is discussed.
  - An eight-woman community brigade trained in biological monitoring based on TBPA.
  - Two community members trained in bird identification.
  - Sustainability education provided to primary school students at the Socorro Rivera School.
  - Sustainability education provided at the schools in La Norteña within the Campo Verde Flora and Fauna Protection Area (APFF Campo Verde).
  - Training in bird identification provided to 11 observers from the ejido, forest management units, and OVIS staff through eight virtual modules and one in-person module conducted over three consecutive days.
  - Weekly bird identification sessions conducted.
  - The community brigade was equipped with binoculars and cameras to document birds.
  - A three-day field practice in bird identification and analysis was scheduled with experts in bird identification training.

Activities: In 2026 and 2027 OVIS and numerous partners will implement the following conservation actions.

1. Implement habitat conservation measures to protect, manage and restore mixed coniferous forests (Chihuahua and Durango).
   - Continue working with forestry consultants to incorporate Best Forestry Practices into forest management plans to benefit TBPAs and other wildlife.
   - Continue working with Ejidos to incorporate lands into voluntary conservation schemes, to allow for more sustainable management of forests.
   - Continue to support Ejidos, Forest Management Units and CONANP in the prevention and control of wildfires in TBPA nesting areas and foraging habitat.
   - Train and assist forest managers in conducting monitoring and data analysis of high priority wildlife species.
   - Signing of a collaboration agreement (MOU/CA) with Unidad de Conservación y Desarrollo Forestal Integral Topia, S.C. for the municipalities of Topia, Canelas, and Santiago Papasquiaro, Durango.

2. Monitor breeding populations of TBPA, NMB and other species in the state of Chihuahua

2.1. Monitor breeding populations of TBPA: This work will be conducted at large landscapes in coordination with Forestal S.A. de C.V and forestry technicians from Ejido El Largo, which jointly administer and manage more than 300 thousand ha of forests in the Municipality of Madera. This area constitutes one of the most important reproductive areas for the TBPA and provides stopover and wintering habitat for a suite of migratory species.

- Management of breeding TBPAs:
  - Monitor main breeding sites and identify any new breeding locations in Chihuahua.
  - Provide maintenance to nest boxes, prior to the reproductive season.
  - Sanitize nests to address any ectoparasite outbreaks.
- Disseminate results and management recommendations to local land management partners.

2.2. Monitor NMB and other sensitive wildlife

- Monitor migratory and resident species, through point counts along transects, to determine presence and abundance of species.
- Continue use of camera traps to identify and track TPBA predators as well as to document occurrence of sensitive wildlife species.
- Bird monitoring by extensive counting points in habitat types of the ADVC Ejido Madera.
- Training in bird monitoring for Unidad de Conservación y Desarrollo Forestal Integral Topia, S.C. for the municipalities of Topia, Canelas, and Santiago Papasquiaro, Durango.

2.3. Assess TBPA winter habitat use and winter flock counts.

- Conduct population counts in the months of October or November to estimate numbers at stopover and wintering sites.
- Training in winter monitoring for TBPA population counts for the Topia Comprehensive Forest Conservation and Development Unit, S.C. for the municipalities of Topia, Canelas, and Santiago Papasquiaro, Durango.
- Bird monitoring and winter TBPA monitoring with ejidos and the Topia Comprehensive Forest Conservation and Development Unit, S.C. for the municipalities of Topia, Canelas, and Santiago Papasquiaro, Durango.

2.4. Sustainability education

- Conduct sustainability education activities in at least 4 schools where the importance of bird and ecosystem conservation is discussed.
- Support outreach activities on the importance of fire prevention.
- Socialization of ADVC Ejido Madera.

Budget: Approximately $12,000 is needed. Contact Deb Hahn for a more detailed budget.

Matching funds include satellite transmitters and satellite services for an estimated cost of $68,035 (in-kind).

Table 8. SGCN (considered Neotropical Migrants*) in the project area, listed by state.

Species	**AK**	**AZ**	**CA**	**CO**	**ID**	**MT**	**NV**	**NM**	**OR**	**UT**	**WA**	**WY**
Sharp-shinned Hawk	X		X									
Spotted Sandpiper	X											
White-throated Swift		X										
Violet-crowned Hummingbird		X						X				
Short-eared Owl	X	X	X	X	X		X		X		X	X
Lesser Scaup	X											X
Red-tailed Hawk	X											
Swainson's Hawk			X	X					X			X
Common Black-Hawk								X				
Lark Bunting												X
Wilson's Warbler	X											
Red-faced Warbler		X										
Killdeer	X											
Northern Harrier	X		X	X								
Yellow-billed Cuckoo		X	X	X	X		X	X		X	X	X
Western Wood-Pewee	X											
Broad-billed Hummingbird		X						X				
Gray Flycatcher		X										
Pacific-slope Flycatcher	X											
Cordilleran Flycatcher		X										
Magnificent Hummingbird		X										
Merlin												X
Peregrine Falcon	X	X		X		X	X	X	X	X	X	X
Barn Swallow	X											
Yellow-breasted Chat		X										
Bullock's Oriole		X										
Hooded Oriole		X										
Scott's Oriole		X	x				X					
Dark-eyed Junco			X									
Blue-throated Hummingbird		X										
Belted Kingfisher	X											
Elf Owl		X	X					X				
Ash-throated Flycatcher												X
Painted Redstart								X				
Sulphur-bellied Flycatcher		X										
Black-crowned Night-Heron												X
Rose-throated Becard		X										
Osprey		X										
Savannah Sparrow	X	X	X									
Varied Bunting		X						X				
Band-tailed Pigeon				X						X	X	
Spotted Towhee		X	X	X			X		X	X	X	

Species	AK	AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Summer Tanager		X	X				X					
Blue-gray Gnatcatcher						X						
Vesper Sparrow			X					X	X		X	
Vermilion Flycatcher		X	X				X					
Ruby-crowned Kinglet	X											
Rufous Hummingbird	X			X			X				X	
Yellow Warbler	X	X	X									
Townsend's Warbler	X											
Mountain Bluebird		X						X				
Western Bluebird								X			X	
Eastern Bluebird		X										
Red-naped Sapsucker		x										
Williamson's Sapsucker		X					X	X				X
Chipping Sparrow	X								X			
Tree Swallow	X											
Elegant Trogon		X						X				
Thick-billed Kingbird								X				
Bell's Vireo		X	X				X	X				
White-crowned Sparrow	X	X					X					X
Northern Goshawk	X	X	X	X		X	X		X			X
Flammulated Owl		X		X		X	X		X	X	X	X
Grasshopper Sparrow		X	X	X	X				X			X
Lincoln's Sparrow	X	X					X					
MacGillivray's Warbler	X	X										X
Lucy's Warbler		X	X				X					
Bank Swallow	X		X				X					
Black Swift	X		X	X	X	X		X	X	X		
Common Nighthawk		X			X		X	X	X			X
Brown-crested Flycatcher		X	X				X					
Purple Martin		X	X	X					X		X	X
Pinyon Jay		X		X	X	X	X			X		
Mexican Whip-poor-will		X										
Common Yellowthroat	X		X									X
Golden Eagle	X	X		X	X	X	X			X	X	X
Bald Eagle	X	X	X	X			X			X	X	X
American Kestrel	X						X					X
Lewis's Woodpecker		X		X	X	X	X		X	X	X	X
Grace's Warbler		X		X			X	X				
Loggerhead Shrike			X	X		X	X		X		X	X
Black Phoebe			X	X		X	X		X		X	X
Olive-sided Flycatcher	X	X	X	X	X		X		X	X		
Black-throated Gray Warbler		X					X	X				X
Clark's Nutcracker					X	X	X					X

Species	AK	AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Northern Pygmy-Owl		X					X			X		X
Prairie Falcon		X		X			X					
Swainson's Thrush	X	X					X					
Western Screech Owl	X	X									X	
Virginia's Warbler		X		X			X					X
Total	**33**	**54**	**27**	**23**	**10**	**11**	**33**	**19**	**16**	**12**	**16**	**28**

*SGCN Neotropical Migrants as defined by the NMBCA Program.

Map 13. Range map of the Thick-billed Parrot along the Sierra Madre Occidental, depicting from north to south, key priority sites, breeding, migrating, and wintering areas (6,223,549.00 ha), five states and thirty-one municipalities, less than 20% of the habitat with a public protection scheme.

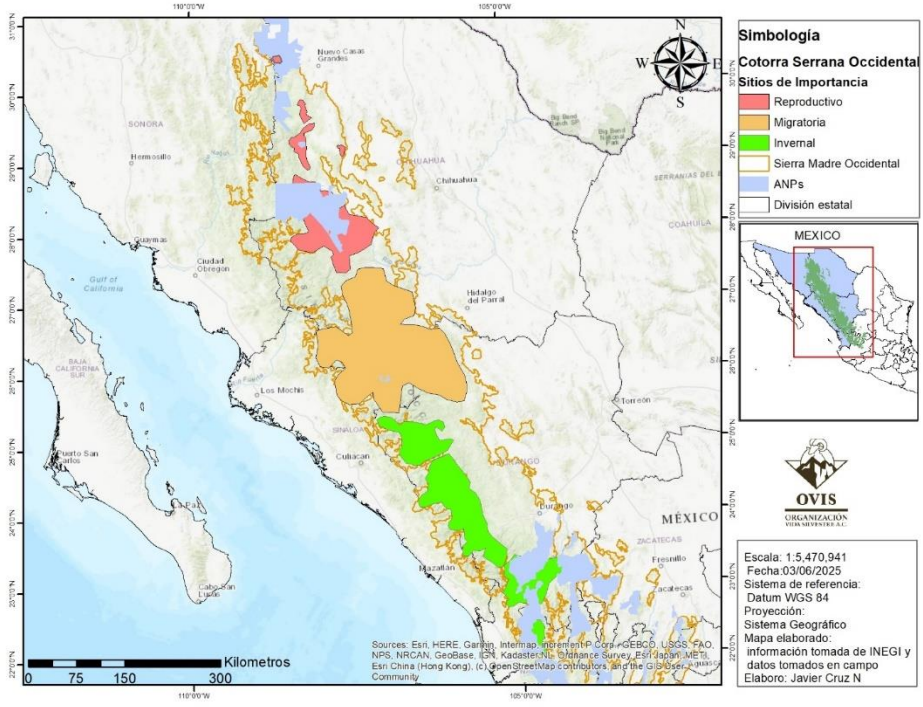
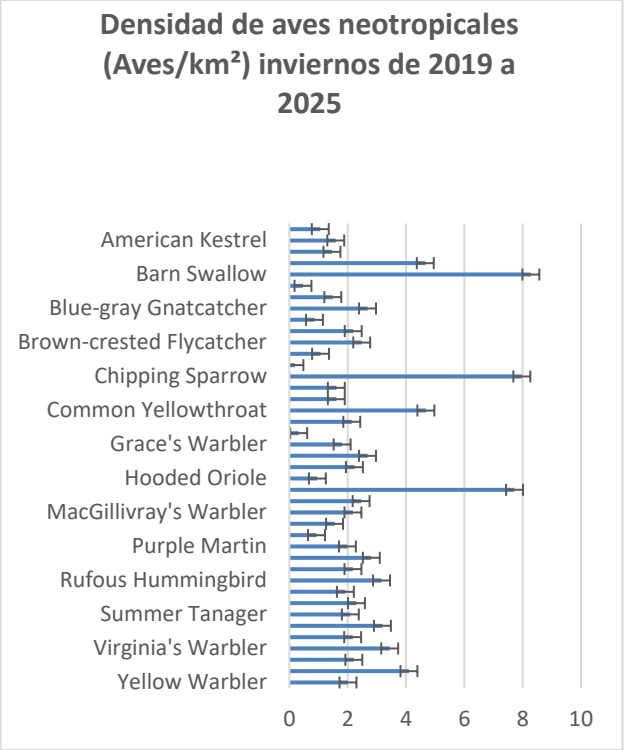


Figure 5. Density of Neotropical Birds (birds/km²) — Winters of 2019 to 2025


Densidad de aves neotropicales (Aves/km²) inviernos de 2019 a 2025
American Kestrel
Barn Swallow
Blue-gray Gnatcatcher
Brown-crested Flycatcher
Chipping Sparrow
Common Yellowthroat
Grace's Warbler
Hooded Oriole
MacGillivray's Warbler
Purple Martin
Rufous Hummingbird
Summer Tanager
Virginia's Warbler
Yellow Warbler
0
2
4
6
8
10

Migratory Bird Wintering Grounds Conservation in Nicaragua

Partners: American Bird Conservancy, Doselva, and Cosecha Partners

States that have participated to date: Pennsylvania, Missouri, Massachusetts

Overview: Nicaragua is home to over 190 species of NMBs. ABC and its partners are implementing a long-term conservation strategy of preserving stopover and wintering habitats along the Caribbean slope and mid-elevation forests. ABC established three BirdScapes: Nicaraguan Highlands, Bosawas, and Indio Maíz (Map 14). Our conservation strategy here is to add shade to coffee and spice plantations and use native species reforestation to create habitat availability and connectivity and protect water sources.

The highland cloud-forest ecosystems and lowland rainforests of Nicaragua provide important wintering areas for several species of migratory birds, including the Golden-winged Warbler, and stopover areas for many species like Bay-breasted and Canada Warblers. Nearly all the Golden-winged Warbler, Canada Warbler, and Cerulean Warbler Focal Geographies identified in the Conservation Investment Strategy for the Mid-elevation Forests of Central and South America for Nicaragua are in these regions.

Threats: Unsustainable land uses, such as logging and agriculture, including sun-coffee production, have resulted in habitat degradation, loss of forest cover. Land use change is an ongoing process accelerated by poverty and the lack of alternative income opportunities for the communities.

Birds: Wood Thrush, Golden-winged, Cerulean, Canada, Golden-cheeked, Magnolia, Blue-winged, Kentucky, Worm-eating, Black-and-white, Black-throated Green, and Chestnut-sided Warbler, Louisiana Waterthrush, Eastern Wood-Pewee, Yellow-bellied Flycatcher.

Map 14. ABC is aiming to reactivate work in the Nicaraguan Highlands BirdScape (violet) and to start new projects in the Indio Maíz BirdScape (gray).

Project goals: Our goal is to increase forest availability and connectivity in Nicaragua's BirdScapes. We aim to do this by working with landowners and communities to implement regenerative agriculture practices, such as agroforestry, that are compatible with forest preservation. Our goal for the next ten years is to restore 3,500 acres with regenerative agriculture and bird-friendly practices.

Our projects in Nicaragua will contribute to two of the five strategies in the Conservation Investment Strategy for the Mid-Elevation Forests of Central and South America: strengthening small-scale sustainable agriculture and influencing local people's behaviors to have a positive relationship with nature.

Southern Wings Successes to Date: Since 2011, ABC's work has resulted in the planting of over 120,000 trees. With matching funds, 43 silvipasture systems covering 222 acres were implemented, and 350 acres were left for natural regeneration. Additionally, 25 producers committed to conservation agreements across 1,035 acres in the buffer zone of Saslaya National Park in our Bosawas BirdScape. In 2022, patrol operations conducted with national and indigenous authorities in regions of Bosawas led to the expulsion of squatters and were successful in stopping illegal settlements. These patrols resulted in the voluntary abandonment of at least eight illegal settlements, leading to the recovery of over 2,500 acres that were

being converted to cattle ranching by the settlers.

Activities: Our objective is to enhance over 1,400 acres of farmland with regenerative agricultural practices, such as agroforestry systems and organic fertilization and conduct community workshops to strengthen capacity of 200 farmers, particularly around regenerative and organic agriculture.

Budget: Approximately $81,000 is needed. Contact Deb Hahn for a more detailed budget.

Matching Funds: Matching funds will come from additional ABC and partner investments in these and complementary activities.

Expanding the Motus Network in Northern Central America to Advance Conservation of Migratory and Resident Avian Species

Partners: Paso Pacifico, Mujeres y Naturaleza, Pronatura Sur, Chicatana (Tlaxiaco Bird Observatory), Tracy Aviary.

Participating States: Pacific Flyway Council, Arizona, Utah

Overview: The Motus Wildlife Tracking System (Motus) is an international collaborative research network that allows researchers and managers to collect critical movement data on birds, enhancing our understanding of their migratory patterns, timing, survival, connectivity, stopover areas, and breeding and wintering locations. Even now, these are poorly known for many conservation target species. In recent years, the Motus network has expanded significantly, especially in the north, contributing to conservation by providing crucial ecological information for migratory species. Despite being at the heart of annual migrations, Central America, particularly in Guatemala, Honduras, El Salvador, and Southwestern Mexico remain underrepresented, with significant gaps in the monitoring network (Map 15).

Our project focuses on two sub-regions: northern Central America, including El Salvador, Guatemala, and Honduras, and southern Mexico, including Oaxaca and the Isthmus of Tehuantepec. It addresses important knowledge gaps for migratory and resident birds that rely on the freshwater wetland, dry tropical forest, and pine-oak forest habitats found along the Pacific slope of northern Central America, and southwestern Mexico – a critical geography for Pacific Flyway birds. The limited number of Motus stations highlights the urgency of expanding and maintaining the Motus network in this geography, a region that has an important role as a stopover and wintering area for migratory birds (Figure 6). The work will be accomplished by growing and strengthening the existing regional Motus network by installing new stations, reinvigorating inactive stations, deploying tags as part of research studies, and supporting technical training. We next highlight the project's relevance to Bird Conservation Regions (BCR) in the Pacific Flyway.

Map 15: General geography of Southern Mexico and northern Central America showing active (green and yellow) and inactive (blue and pink) Motus stations as of August 2025, highlighting the limited coverage and the potential for network expansion in the region (Motus.org, 2025).

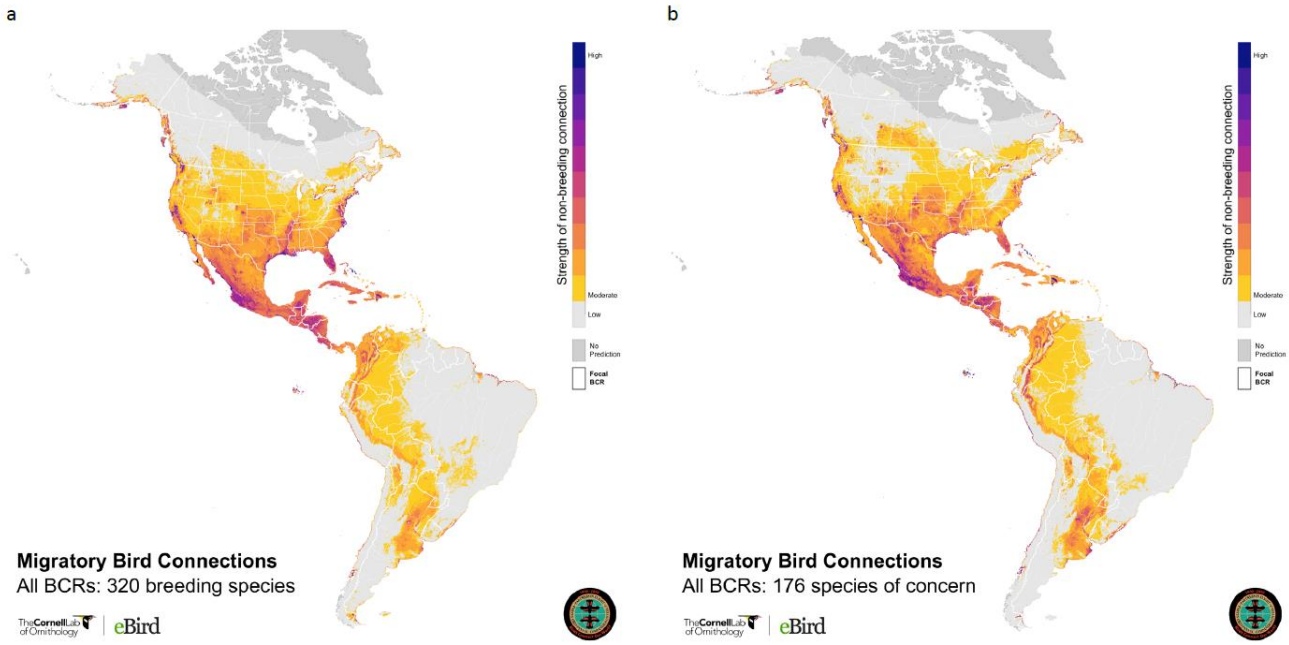
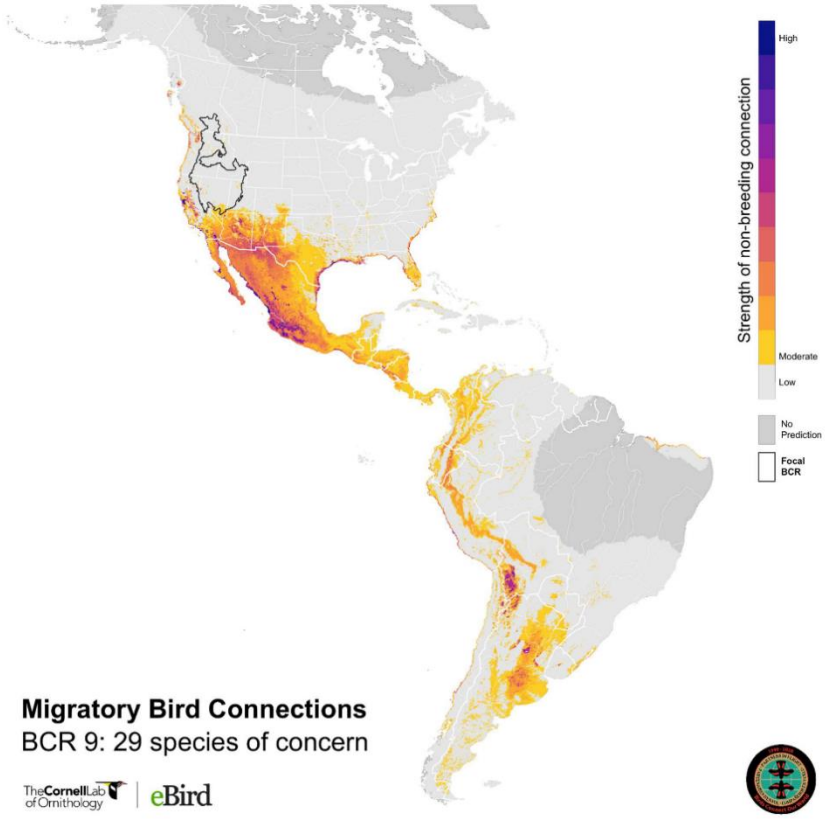


Figure 6: Migratory bird connections maps illustrate where connections are strongest (dark purple) between a) all migratory breeding species and b) species of conservation concern and their non-breeding grounds. Nearly all birds that winter in South America also pass through Central America in both spring and fall.

Great Basin (BCR 9): The project area is an important wintering and stopover area for 29 species of concern that breed in the Great Basin, showing the need for conservation efforts in these regions (Figure 7).

Figure 7: Partners in Flight Migratory Bird Connections map showing the importance of Central America/Southwestern Mexico as a wintering region for these species that breed across BCR 9.



Northern Rockies (BCR 10): Figure 8 highlights the importance of the project area as stopover or overwintering sites for 31 species of concern migrating from the Northern Rockies.

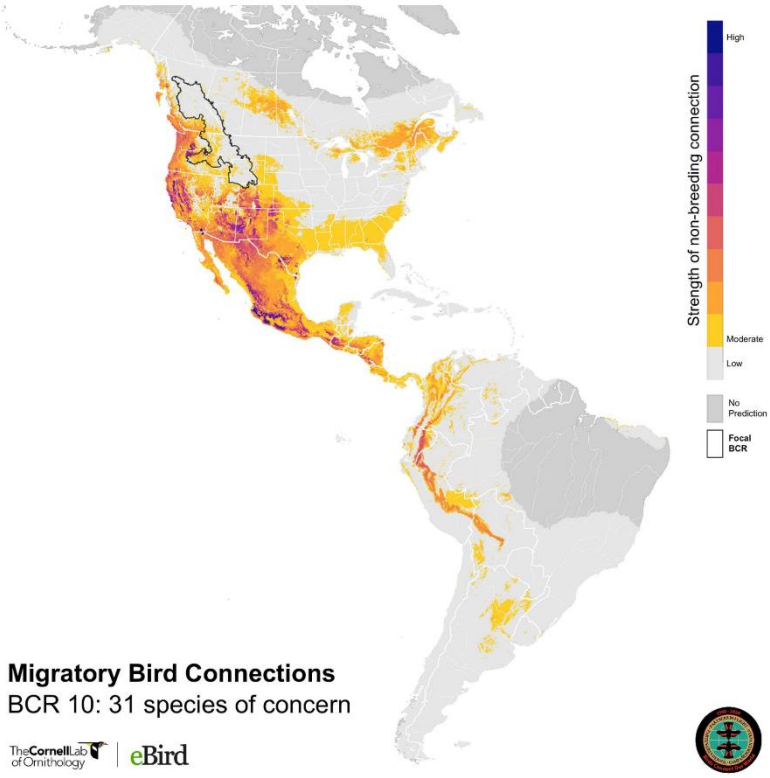
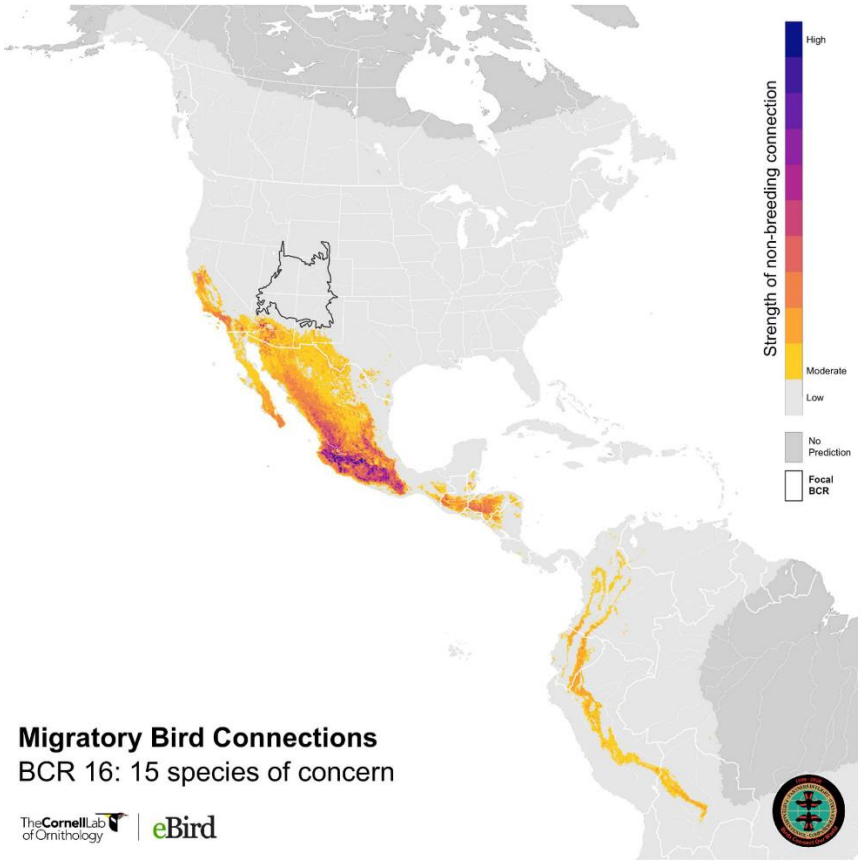


Figure 8: This detailed map focuses on BCR 10 (Northern Rockies), emphasizing its significance for migratory species and identifying priority areas for the installation of Motus stations in Northern Central America/southwestern Mexico.



Southern Rockies/Colorado Plateau (BCR 16): Figure 9 emphasizes the connections between 15 species of concern from BCR 16 that migrate through or winter in the project geography.

Figure 9: This map delineates BCR 16 (Southern Rockies/Colorado Plateau), highlighting the importance of Central America/ Southwestern Mexico for migratory bird conservation and showcasing the strategic locations for future Motus station deployment in the Region.

The eBird models that generated these maps clearly show the highly concentrated importance of Northern Central America and Southwestern Mexico to the breeding grounds of the Pacific Flyway. Using these connectivity maps, the project will prioritize key areas for station placement and enhance the tracking and conservation of SGCN and other priority species.

Expanding the Motus network in the region is key to understanding the full annual cycle of migratory SGCN and other migratory and resident species. By utilizing this technology and collaborating with partners, we can begin to fill in knowledge gaps about birds and other wildlife and enable conservation efforts that benefit species, their habitats, and people.

Goals:

1. Co-establish and collaborate in a Motus Working Group within this geography to facilitate communication and build local capacity,
2. Identify and support the identification of suitable sites for Motus stations,
3. Install new stations and assist with trouble-shooting existing stations,
4. Develop and implement research studies that harness the power of the Motus network through strategic deployment of tags on conservation target species, and
5. Strengthen Motus local capacity through supporting virtual and in-person training workshops and facilitating experience exchanges.

We next detail the opportunities in the three project sub-regions: northern Central America, including El Salvador, Guatemala, and Honduras, and two areas in southern Mexico, the Isthmus of Tehuantepec and western Oaxaca

Northern Central America (El Salvador, Guatemala, Honduras): Most of this geography was once seasonally dry tropical forests; large scale agricultural conversion has made the dry tropical forest one of the world's most endangered ecosystems (<2% remains intact). Only 5% of the remaining dry forest in Central America receive some degree of protection. These conversions have a disproportionate impact given their centrality to migrating species and the sheer per hectare density of over-wintering North American birds. Currently, no Motus stations are operational in El Salvador. In Honduras, there is one station at Bella Vista (inactive), and there are five stations in Guatemala, only two of which are active. Taken together, these few installations underscore not just the need for more stations, but the significant gap in the local capacity needed to maintain stations in the region (Map 15).

Birds: Most migratory species from the Pacific Flyway use western Central America during migration and overwintering periods. Migratory species of conservation concern found here include U.S. federally endangered species like the Southwestern Willow Flycatcher and the Yellow-billed Cuckoo; Partners in Flight species of conservation concern such as Black Swift and Olive-sided Flycatcher. Numerous migratory waterbirds such as American White Pelican and White-faced Ibis also winter or pass through the region. Resident species are also of conservation interest - these include priority species such as the Azure-rumped Tanager found in the Pacific slope foothills of Guatemala and Chiapas, game birds such as the Great Curassow, Highland Guan, and the Ocellated Quail, as well as forest birds such as the Pale-billed Woodpecker and the Emerald Toucanet.

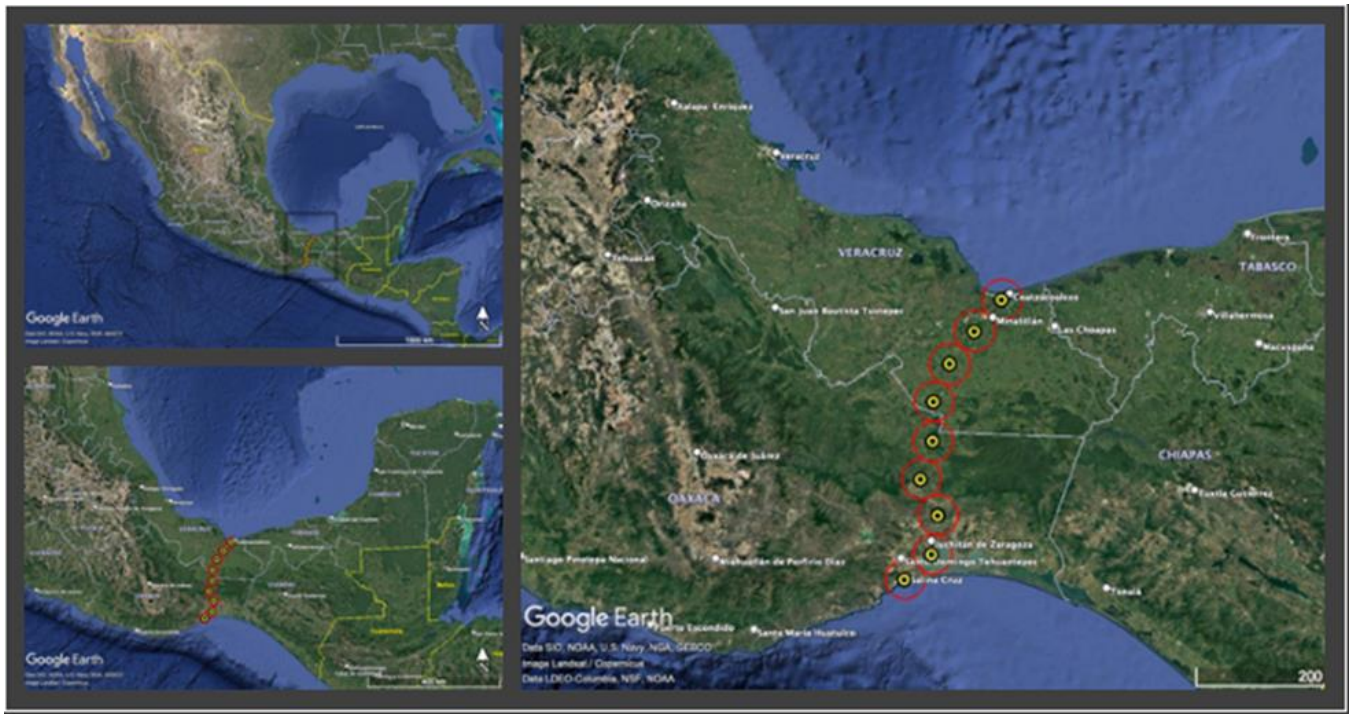
Threats: Large areas of seasonally dry tropical forest continue to be cleared for livestock and agriculture, often using fire as a tool for land management. These repeated burns degrade forest structure and limit regeneration, making the ecosystem increasingly vulnerable. In some areas, deforestation is accelerated by infrastructure expansion and development, which keep spreading across the remaining forest patches. These pressures have fragmented the landscape and reduced the availability of suitable habitats.

Southern Wings Successes in 2025: The project advanced the expansion of the Motus network in northern Central America through identification of sites, Motus station maintenance, capacity building, and outreach to potential partners. Specifically, 1) conducted mapping and coordination activities in El Salvador with local radio communications engineers and international Motus experts; 2) performed maintenance and repair at an existing Motus station and procured equipment for three new installations (one per country – El Salvador, Honduras, Guatemala); and 3) engaged new partners in the region to identify potentia collaborations for hosting stations, capacity building activities, and information exchange.

Activities Planned for 2026-2027: Our local project partner, Paso Pacifico, will:

- facilitate a Motus Working Group within this geography,
- conduct field visits to assess suitability of sites for hosting Motus stations,
- coordinate the maintenance of existing stations in Honduras and/or Guatemala,
- obtain parts and supplies for two Motus stations, and
- deploy two new stations across the region.

Southern Mexico - Isthmus of Tehuantepec: At ~200 km wide, the Isthmus of Tehuantepec is the narrowest part of Mexico between the Pacific Ocean and the Gulf of Mexico and represents an ideal location for a Motus 'fence'. In this very narrow region, there is a vast diversity of ecosystems, such as: coastal lagoons, pine-oak forests, dry forest, cloud forest and rainforests that are potentially used by more than 220 species. The tidal flats of the Lagunas del Istmo de Tehuántepec in Oaxaca/Chiapas is a huge and remote tidal flat complex which is rarely surveyed for birds. (Newstead et al. 2024). Currently there are only two Motus Stations on the Isthmus of Tehuantepec and the potential for recording marked birds in the region is very high as millions of migrating birds pass through this area each spring and fall (Map 16).



Map 16: Conceptual proposal for the 'fence' of Motus stations across the Isthmus of Isthmus of Tehuantepec in Southern Mexico.

Birds: The Important Bird Area (IBA) Istmo de Tehuantepec - Mar Muerto is in this region. Within this IBA is the Selva de Los Chimalapas, which according to Townsend Peterson and his collaborators, is the area of

the country with the greatest diversity of birds in Mexico, having collected and recorded 458 bird species in their studies from 1990-2000 (Peterson, et al., 2003). The Isthmus of Tehuantepec is not only an area of importance for resident and endemic birds, but also one of the migratory corridors of greatest global importance for many species of landbirds (Lamb, et al., 2017). Species from the eastern, central and northwestern part of the continent, as well as migratory species from the southern cone of the continent, use this area as feeding and sheltering sites during migration, as well as wintering sites (BirdLife International, 2025). Entire populations of NMBs cross the Isthmus of Tehuantepec, such as: Swainson's Hawk, Hudsonian Godwit, Upland Sandpiper, Franklin's Gull, and Canada and Golden-cheeked Warbler.

Threats: Coastal Development, Industrial/Intensive Agriculture, Overexploitation or destruction of wetlands and freshwater watersheds

Southern Wings Successes in 2025:

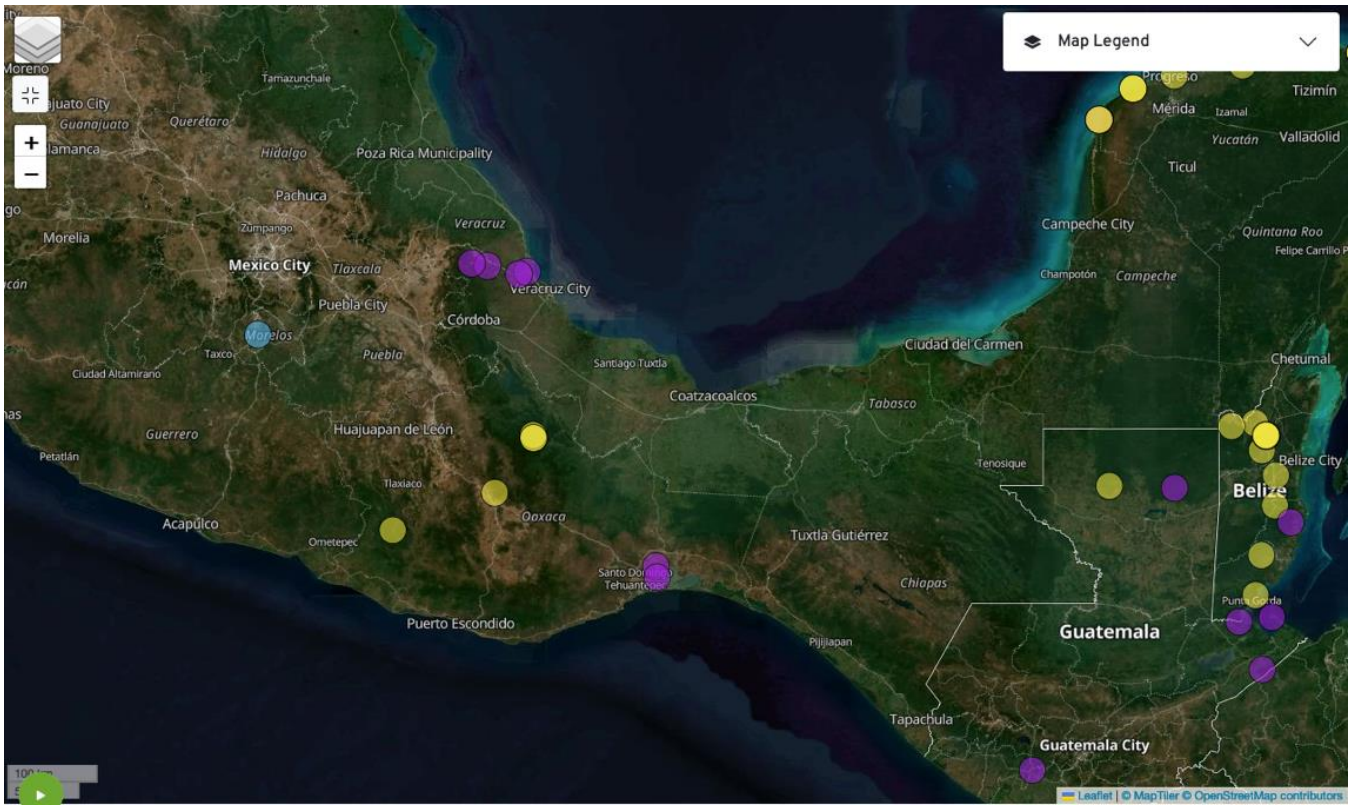
- Reached out to contacts in the Isthmus of Tehuantepec to identify potential locations that could host Motus stations.
- Conducted site visits to engage with landowners and assess existing infrastructure, and opportunities for deploying stations.
- Performed desktop analyses to determine suitability of specific sites for hosting Motus stations.
- Deployed the first Motus station in the town of Chayotepec, Oaxaca In November 2025.
- Implemented a training workshop on the placement of radio transmitters. The workshop, held in November, was taught by Sergio Villaverde from the Tlaxiaco Bird Observatory (OATL). Three participants were trained.

Activities Planned for 2026-2027: Our local project partner Pronatura Sur seeks to continue to build a Motus fence in the Isthmus of Tehuantepec that will collect data on different groups of NMBs tagged in different regions of the northern hemisphere and will help to understand migratory connectivity patterns.

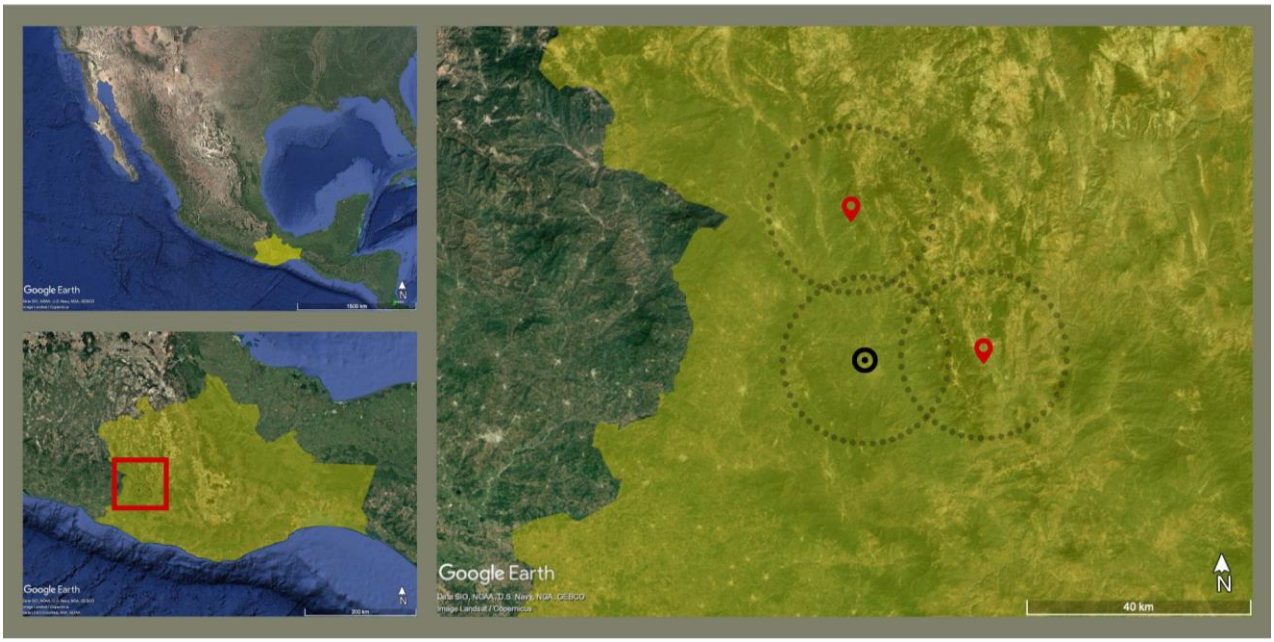
- Install Motus stations and provide maintenance.
- Develop/support opportunities for capacity building (installations and tagging).
- Deploy Motus tags, analyze data.

Southern Mexico - Western Oaxaca: Oaxaca is also an area of high biological diversity and migratory flow. Despite its obvious importance to many Pacific Flyway states, the number of Motus stations in this region remains limited. The goal here is to grow the Motus network and to generate data on the local and regional movements of migratory birds in the Mixteca region, a critical but largely undocumented area, even regarding basic species presence.

In 2023, the local NGO Chicatana, through its OATL, established a foothold for the Motus network in western Oaxaca. Work began in the community of Atoyaquillo, Oaxaca. At this site, we have focused our efforts on studying the winter survival and habitat use of the Yellow-breasted Chat, a migratory species of international conservation concern. Currently, we have one Motus station fully operational at this location, actively detecting tagged birds and contributing valuable data in this region and at the continental level.



Map 17: Map of existing Motus stations in Oaxaca and the Isthmus of Tehuantepec in southern Mexico (Motus.org, 2025).



Map 18: Location of the state of Oaxaca and the station in Atoyaquillo (black), along with proposed locations for new stations (red).

Birds: Willow Flycatcher, Flammulated Owl, Yellow-breasted Chat, Loggerhead Shrike, Common Nighthawk, Bell's Vireo, Scott's Oriole, Rufous Hummingbird, Common Yellowthroat, Summer Tanager, Swainson's

Thrush, Vermilion Flycatcher, Western Screech Owl, and Black-throated Gray, Grace's, Virginia's, and Yellow Warblers. Endemic species that would potentially benefit from this project include, Balsas Screech Owl, White-throated Jay, Collared Towhee, Long-tailed Wood-Partridge, Gray-crowned Woodpecker, Hooded Yellowthroat, Red-headed Tanager, and Red Warbler.

Threats: Climate variability, tree clearing for cattle ranching, flooding, hunting of birds of prey, capture of psittacines for illegal trade, unregulated extraction of materials, and logging of timber-yielding trees.

Southern Wings Successes in 2025: Equipment for two Motus stations was procured and the tower structures for supporting the equipment were built. The stations will be deployed in Yucuhiti and Yosondua. We also implemented a training workshop on the placement of radio transmitters, in partnership with Pronatura Sur. The workshop, held in November, trained three individuals.

Activities Planned for 2026-2027: Our local project partner, Chicatana, will focus on creating a network of stations in the western region of Oaxaca. Currently two new stations and the maintenance of the operational station are funded. Already about 50 tags have been deployed on migratory birds.

- Training of local technicians for the operation and installation of Motus stations.
- Installation of two Motus stations.
- Tagging of priority migratory species with Motus tags.
- Environmental education workshops for children and teenagers focused on bird migration and the connectivity between breeding and wintering grounds.

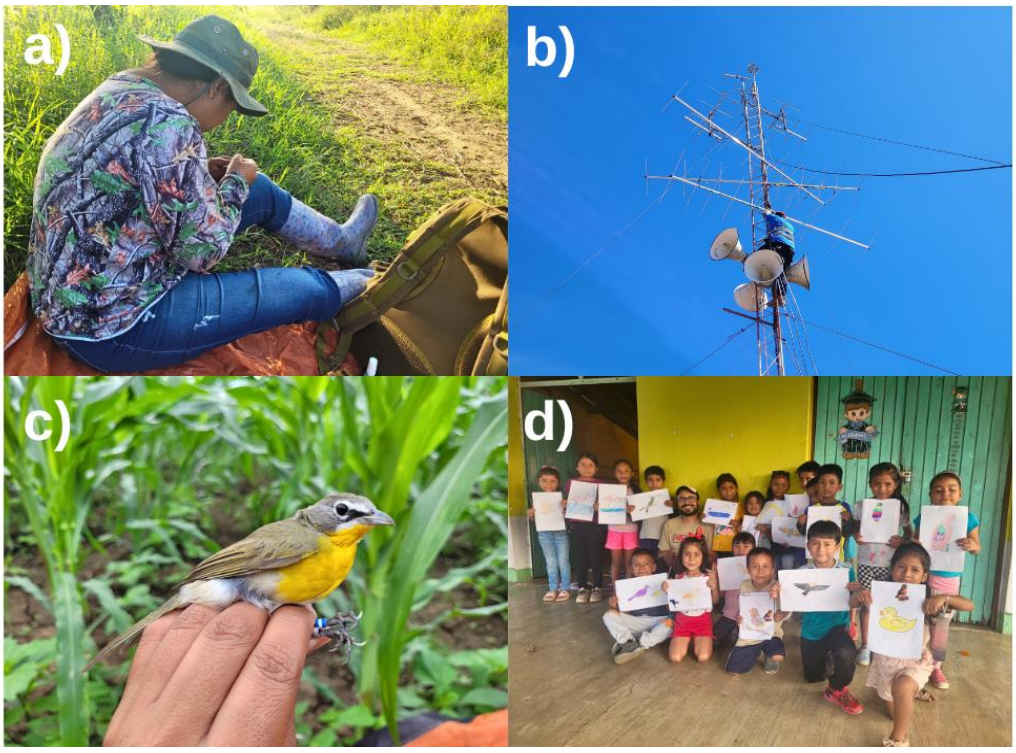


Figure 10: Previous work in Atoyaquillo: a) training of local technicians; b) installation of a Motus station; c) tagging Yellow-breasted Chats; d) environmental education for children focused on bird migration.

Success to Date: N/A, New project

Budget: $15,000 to $20,000 is needed in each location. Contact Deb Hahn for a more detailed budget. Funds provided through this proposal will expand and enhance match (and non-match) activities already being implemented with support from other partners, including Arizona, Utah and the Tracy Aviary.

Upper Pacific Coast of Mexico Conservation Initiative

Partners: DUMAC, Ducks Unlimited, Inc. (DU), National Commission of Federal Protected Areas (CONANP), National Water Commission (CONAGUA), Secretary of Environment and Natural Resources (SEMARNAT), State and Municipal Governments agencies (Baja California, Baja California Sur, Sonora, Sinaloa and Nayarit), Outfitters, Sonora Joint Venture, other local Universities and other NGOs.

States that have participated to date: None (new project)

Overview: The Upper Pacific Coast of Mexico, which includes wetlands along the coastal states of Nayarit, Sinaloa, Sonora, Baja California and Baja California Sur, contains some of the most important coastal wetlands for migratory and resident waterfowl in Mexico. These wetlands are home to an average of 38% of waterfowl that winter in Mexico (U.S. Fish and Wildlife Service Mid-winter Waterfowl Surveys). Most of these wetlands are coastal lagoons with mangroves, emergent vegetation and seagrass, located along the coastline and connected to dams created for irrigating the most important agricultural area in Mexico.

Coastal wetlands are complex and dynamic environments where mangrove forests develop. These mangrove forests are one of the most productive and biodiverse ecosystems on the planet and have been called the kidneys of wetlands, but unfortunately this unique ecosystem is among the most threatened forests - Sonora has 163,000 acres of wetlands; Sinaloa 1.1 million acres, and Nayarit has Marismas Nacionales which by itself covers 494,000 acres. These wetlands are adjacent to 2.6 million acres of irrigated agriculture in Sinaloa (including the Los Mochis, Guasave, Guamuchil and Culiacan Agricultural Valleys) and approximately 1.1 million acres in Sonora (including Yaqui and Mayo Valleys). These coastal plains and highlands were converted to intensive agriculture use over the last 60 years. As a result, significant changes have occurred in Pacific Coast wetlands, as they have become less saline, more densely covered by cattail and subjected to pesticides and fertilizers from irrigation and runoff of agricultural lands.

Baja California: The Baja California peninsula is 30-150 miles wide and over 900 miles long. Most of the key waterfowl habitats consist of bays and estuaries along the Pacific Coast. Four major bays represent the most important habitat for the distribution of migratory waterfowl including San Quintin Bay, Guerrero Negro / Scammons Lagoon, San Ignacio Bay and Magdalena Bay. These sites are in near pristine condition and provide critical habitat for 85% of the Pacific Black Brant population. These bays are hypersaline, intertidal, shallow and are dominated by 145,000 acres of aquatic grass beds. In addition, there are over 85,000 acres of mangroves in the bays. However, these areas are vulnerable to development that can negatively impact the critical feeding areas for Black Brant. Potential development includes salt mining, tourism, and seaports. Only Laguna de Scammons is protected by a special concession from the federal government. In addition, these bays are also critical wintering and calving grounds for Pacific Gray Whales from Alaska.

Coast of Sonora, Sinaloa and Nayarit: The Colorado River Delta was a significant and reliable wintering area along the Pacific Flyway for wintering waterfowl. It has been reduced from over 2 million acres in size to about 250,000 acres at the present time. There are still opportunities for carefully targeted restoration and protection programs. DUMAC has worked on several of these areas, but more attention is needed to secure the remaining areas.

Sonora, Sinaloa and Nayarit still have some of the most pristine coastal wetlands in North America. About 500,000 acres remain essentially untouched and are used by North American waterfowl in the winter along with millions of shorebirds from the U.S. and Canada. A new threat has emerged of late with the development of a major shrimp farming industry that consumes wetlands and impacts the hydrology on adjacent wetland areas. Tens of thousands of acres are affected, and the industry is growing.

Irrigated farmlands of Sonora and Sinaloa provided feeding areas for millions of waterfowl as recently as the early 1990s. For example, DUMAC research inventoried over 1 million pintails wintering in Sinaloa in some winters in the mid-1980s when there were 300,000 acres of irrigated rice fields. Today the main crop is tomatoes and much of the land is not farmed. There appear to be great opportunities to work on private lands to manage some of them for wintering waterfowl. The infrastructure is in place to irrigate all of it and water is abundant.

Threats: The primary threats include intensive agriculture, pollution, and shrimp farm development in the states of Nayarit, Sinaloa, and Sonora. In Baja California, wetland areas are vulnerable to development that can negatively impact the critical feeding areas for Black Brant. Potential development includes salt mining, tourism and seaports.

Birds: The list includes species of waterfowl, shorebirds, waterbirds and landbirds that are considered priority in conservation strategies and wildlife management plans in the states of Alaska, Washington, Oregon and California. In addition, these species that at some point in their life cycle are distributed, make use of or benefit from the wetlands of the northern Mexican Pacific coast are also priority for NAWCA.

This conservation initiative will promote projects focused on the restoration, management and conservation of wetlands in the North Pacific region; highlighting actions in subtidal and intertidal estuarine wetlands that will benefit various species of migratory waterfowl. Among the species, the Dusky Canada Goose and the Pacific Black Brant stand out, which use these wetlands as resting and feeding sites; species such as the Lesser Scaup, White-winged Scoter, Pacific Black Scoter and Redhead that spend the winter feeding in this region using shallow estuarine bays and wetlands will also benefit. Likewise, this initiative will favor the fulvous whistling-tree duck and cinnamon teal, priority species in the Washington and California action plan; priority species for NAWCA that depend on shallow freshwater wetlands with emergent vegetation along the Mexican Pacific coast.

As a regional initiative, it will benefit various species of Nearctic migratory shorebirds, such as the Whimbrel, Long-billed Curlew, Solitary Sandpiper, Wandering Tattler, Western Sandpiper, Short-billed Dowitcher, all of which are considered priorities by NAWCA. It will also favor species such as the Lesser Yellowlegs and the Western Snowy Plover, classified as vulnerable and threatened, respectively by the IUCN and Mexican legislation. Along the North Pacific Coast, there are 15 WHSRN sites, including Marismas Nacionales and Santa Maria Bay which have designations of International and Hemispheric Importance, respectively, where we are currently engaged in wetland restoration and public outreach efforts. The priority shorebird species that will benefit are listed in Table 8. These species will find food and shelter in the mangrove swamps, shallow intertidal zones with mudflats, sand flats, seagrasses and algae along the Mexican Pacific coast.

As a regional initiative, the priority shorebird species that will benefit are listed in Table 8. These species will find food and shelter in the shallow intertidal areas along the Mexican Pacific coast. Likewise, this initiative will benefit the terrestrial birds listed in Table 8, which are distributed on the edges of riverine, lake and mangrove wetlands or that depend on the highlands adjacent to the wetlands of the northern Mexican Pacific coast; highlighting the species Black Swift, Short-eared Owl, California Black Rail, Western Yellow-Billed Cuckoo, Least Bell's Vireo that use shrubby wetlands as refuge or feeding sites and that are listed in the U.S. Endangered Species Act (June, 2021) or in the U.S. Fish and Wildlife Service's Birds of Conservation Concern (2021).

Project Goals:

1. Restoration / enhancement of 25,000 acres of coastal wetlands along the Northern Pacific coast

2. Protection of 60,000 acres of wetlands, using the legal instruments under the Mexican law
3. Implement the DUMAC´s Environmental Education Program "Teaching the Teachers", to train 200 professors from elementary and secondary school
4. Support the implementation of the Management and Conservation Plans of all Federal Protected Areas within the region
5. Use the information on the Digital Change Detection along the states of Sinaloa and Sonora, to influence management and conservation decisions, with the development of public policies to better regulate the growth of shrimp farms.

DUMAC has developed of a Shorebird Conservation Strategy in Mexico because shorebirds use the same wetlands as waterfowl. The Mexican government has an interest in taking a broader view to wildlife conservation beyond just waterfowl. The Strategy was adopted by the federal government and is being used to guide projects that will contribute very significantly to the protection of wetlands that are critical to North America's shorebirds and waterfowl. Within this strategy, the development of shrimp farms represents one of the most important threats for the maintenance of the natural coastal wetlands. This is the reason why DUMAC has advocated for the development of a manual that would guide shrimp farmers in the development and management of their farms in such a way that minimally impacts wetlands that are important to migratory and resident wildlife. This is critically needed as the industry is in its early stages of development and there is still time to prevent long-term damage to the wetland resources of Sinaloa and Sonora.

The threats to the bays and lagoons of the Baja can be significantly decreased by federal designation of protected areas that are most critical to wintering Black Brant. This has been accomplished at Laguna de Scammons where development of a salt mine that threatened the integrity of that system declined because it was a federally protected area. This Initiative seeks to strengthen alliances with municipal, state and federal government agencies, and other organizations that are interested in the conservation of wetland ecosystems in the region, to promote joint projects that support restoration, management and conservation of wetlands in the region. In addition, the Initiative will conduct research that will generate basic information that supports the conservation processes of these ecosystems. An important component for this initiative is to establish a program of public involvement and awareness regarding conservation issues, seeking to change people's attitudes regarding the environment and seeking their support and participation in the generation of a better ecological awareness that allows greater participation of local citizens in the conservation of natural resources.

Southern Wings Successes to Date: Not Applicable

Project Activities:

1. Conduct habitat change analyses to determine the effects of conservation activities on wetland areas.
2. Establish a permanent monitoring program for habitat quality and distribution of species.
3. Develop best management practices for shrimp farming to guide current and future developments and avoid negative impacts to coastal wetlands.
4. Evaluate the feasibility of habitat creation and restoration projects on wetland areas as well as on farmlands to compensate for natural habitat loss.
5. Provide technical assistance to farmers through the development and use of best management practices to reduce the impact from runoff on coastal wetlands.
6. Develop management plans for the conservation of coastal wetland systems.
7. Seek state, federal, and international recognition of important coastal wetland systems (state or federal refuges, Ramsar sites, WHSRN designation, etc).

8. Implement environmental education projects for fishermen, farmers, locals, hunters, and the general public to motivate changes in attitude towards the environment.
9. Promote the long-term conservation of historically important wetland areas for waterfowl using the legal instruments available in Mexico under the General Wildlife Law.
10. Work with local organizations, and state and federal government authorities to improve management decisions.

Budget: To Be Provided

Table 9: The following table lists bird species that are present in the Upper Pacific Coast Conservation Initiative Area, and which are priority species in the State Wildlife Action Plans for Alaska, Washington, Oregon, and California along with NAWCA priority species.

Scientific Name	**Common Name**	**State Wildlife Action Plans**				**NAWCA Priority Bird Species**
		AK	**WA**	**OR**	**CA**	
Waterfowl						
Branta canadensis occidentalis	Dusky Canada Goose	*				
Branta bernicula nigricans	Pacific Black Brant	*		*	*	MEDIUM
Aythya affinis	Lesser Scaup	*				HIGH
Melanitta deglandi	White-winged Scoter	*				
Melanitta americana	Pacific Black Scoter	*				
Aythya americana	Redhead				*	LOW
Dendrocygna bicolor	Fulvous whistling-duck				*	LOW
Spatula cyanoptera	Cinnamon Teal		*			High
Shorebirds						
Actitis macularius	Spotted Sandpiper	*				
Tringa flavipes	Lesser Yellowlegs	*				*
Charadrius nivosus nivosus	Western Snowy Plover			*	*	*
Arenaria melanocephala	Black Turnstone	*				
Calidris virgata	Surfbird	*				
Numenius phaeopus	Whimbrel	*				*
Numenius americanus	Long-billed Curlew			*		*
Tringa solitaria cinnomomea	Solitary Sandpiper	*				*
Calidris alpina pacifica	Dunlin	*				
Calidris alba	Sanderling	*				
Tringa incana	Wandering Tattler	*				*
Calidris mauri	Western Sandpiper	*				
Limnodromus griseus	Short-billed Dowitcher	*				*
Phalaropus fulicarius	Red Phalarope	*				
Himantopus mexicanus	Black-necked Stilt			*		
Bartramia longicauda	Upland Sandpiper		*			
Anarhynchus nivosus	Western Snowy Plover		*			*
Waterbirds						
Pelecanus erythrorhynchos	American White Pelican		*	*		*
Pelecanus occidentalis	Brown Pelican		*	*		*
Haematopus bachmani	Black Oystercatcher	*		*		

Scientific Name	Common Name	State Wildlife Action Plans				NAWCA Priority Bird Species
Pluvialis squatarola	Black-bellied Plover	*				
Charadrius vociferus	Killdeer	*				
Gavia stellata	Red-throated Loon	*				
Gavia immer	Common Loon		*			
Egretta thula	Snowy Egret			*		*
Leucophaeus pipixcan	Franklin's Gull			*		*
Rissa tridactyla	Black-legged Kittiwake	*				
Larus glaucescens	Glaucous-winged Gull	*				
Sterocarius pomarinus	Pomarine Jaeger	*				
Hydroprogne caspia	Caspian Tern			*		
Phoebastria albatrus	Short-tailed Albatross		*		*	
Sternula antillarum browni	California Least Tern				*	
Brachyramphus marmoratus	Marbled Murrelet	*	*		*	
Synthliboramphus hypoleucus	Guadalupe Murrelet				*	
Synthliboramphus scrippsi	Scripps's Murrelet				*	
Aechmophorus clarkii	Clark's Grebe		*			*
Aechmophorus occidentalis	Western Grebe		*			*
Landbirds						
Cypseloides niger	Black Swift			*		*
Asio flammeus flammeus	Short-eared Owl	*				*
Laterallus jamaicensis coturniculus	California Black Rail				*	*
Coccyzus americanus occidentalis	Western Yellow-Billed Cuckoo		*		*	*
Vireo bellii pusillus	Least Bell's Vireo				*	*
Spizella passerina	Chipping Sparrow			*		
Lanius ludovicianus	Loggerhead Shrike		*	*		
Contopus cooperi	Olive-sided Flycatcher			*		
Buteo swainsoni	Swainson's Hawk			*	*	
Buteo regalis	Ferruginous Hawk		*			
Otus flammeolus	Flammulated Owl		*			
Empidonax traillii	Willow Flycatcher			*	*	
Haliaeetus leucocephalus	Bald Eagle	*	*		*	
Falco peregrinus	Peregrine Falcon	*	*			
Falco sparverius	American Kestrel	*				
Contopus cooperi	Olive-sided Flycatcher	*				
Empidonax difficilis	Pacific-slope Flycatcher	*				
Contopus sordidulus	Western Wood-Pewee	*				
Spizella passerina	Chipping Sparrow	*				
Melospiza melodia	Song Sparrow	*				
Melospiza lincolnii	Lincoln's Sparrow	*				
Passerculus sandwichensis	Savannah Sparrow	*				
Rallus obsoletus levipes	Light-footed Ridgway's Rail				*	
Rallus obsoletus obsoletus	California Ridgway's Rail				*	
Rallus obsoletus yumanensis	Yuma Ridgway's Rail				*	

Scientific Name	Common Name	State Wildlife Action Plans				NAWCA Priority Bird Species
Colaptes chrysoides	Gilded Flicker				*	
Melanerpes uropygialis	Gila Woodpecker				*	
Vireo bellii arizonae	Arizona Bell's Vireo				*	
Riparia riparia	Bank Swallow				*	
Polioptila californica californica	Coastal California Gnatcatcher				*	
Passerculus sandwichensis beldingi	Belding's savannah sparrow				*	
Progne subis	Purple Martin		*			