



2022 IMPACT REPORT



Connecting the Americas Through Conservation

Project Locations

CRITICAL STOPOVERS, CONNECTED EFFORTS
Along their twice-annual journeys, long-distance shorebird migrants use a series of essential stopovers to rest and refuel. Project sites range from Arctic tundra to temperate rainforests, mudflats, estuaries, inland wetlands, and tropical mangrove forest.



HANS HERKERT - RICE FARMER



EDWIN MANUEL MARTINEZ - BIRD GUIDE



ANA AGREDA - PROGRAM DIRECTOR

LEGEND

- Habitat Conservation
- Education and Outreach
- Industry Partnerships
- Law Enforcement
- Conservation Policy
- Research and Monitoring
- Organizational Capacity

What do a Guatemalan park ranger, a California rice farmer, and an Ecuadorian crab fisherman have in common? They're working together to protect the far-flying birds that depend on habitats from northern Alaska to southern Chile.

The Power of Partnership

Because shorebirds cross multiple borders, shorebird conservation requires an international approach. In 2015, conservationists began an effort to connect shorebird supporters in every country along the Pacific Americas Flyway into a single conservation partnership. Scientists, conservationists, and communities came together in an effort to identify and tackle the most pressing issues that threaten shorebirds. In total, **53 organizations and hundreds of people in 13 countries** united to create the Pacific Shorebird Conservation Initiative, committing to conservation actions that provide shorebirds the resources they need to survive their migrations and successfully breed. Supporters—which include local and international NGOs, governments, academics, and industry partners—have invested more than \$37 million dollars in conservation projects thus far.

Benefits That Go Beyond Birds

Shorebird conservation benefits other wildlife, biodiversity, and human communities that rely on wetlands and coastal ecosystems. Our efforts prioritize sustainable economies, climate-change mitigation and adaptation, and human well-being. For example, habitats such as mangroves are essential to coastal communities, serving as buffers against powerful waves and storm surges. Tidal marshes and wetlands serve as nurseries for fisheries, sequester carbon, and mitigate the effects of climate change.

Whimbrel



Douglas DeNeve / Audubon Photography Awards

This is conservation diplomacy at its best—an effort that brings the people of the Americas together to sustain shorebird populations for future generations.

Conservation Strategies



MANAGE AND CONSERVE EXISTING HABITATS

We provide guidance and technical assistance to wetland managers and regional planning agencies, to improve and expand climate-resilient habitats.

\$6.4M
Project
Investment

65K
Hectares
Affected

390K
Individuals
Reached

27
Best
Management
Practices



CULTIVATE AND EMPOWER CONSERVATION CONSTITUENCIES

We build and encourage social and political support for shorebird conservation among individuals, communities, decision-makers, and funders.

\$364K
Project
Investment

1.7K
Individuals
Reached
In-Person

74K
Individuals
Reached
Digitally

58
Partners
Assisted



CREATE CONSERVATION INITIATIVES WITH NATURAL RESOURCE INDUSTRIES

We collaborate with industry to develop best management practices that protect and improve important habitats in working lands.

\$28M
Project
Investment

30K
Hectares
Affected

73
Partners
Assisted

20
Best
Management
Practices



DEVELOP ENVIRONMENTAL AND WILDLIFE PROTECTION POLICIES

We advocate for environmental laws, policies, and regulations that benefit shorebirds and human well-being.

\$80K
Project
Investment

50
Individuals
Reached
In-Person

800
Individuals
Reached
Digitally

6
Policy and
Compliance
Actions



Sanderlings

STRENGTHEN COMPLIANCE AND ENFORCEMENT

We motivate the public to follow wildlife-protection policies and laws, through volunteer stewardship programs, outreach and trainings.



\$83K
Project Investment

1.4K
Individuals Reached In-Person

5K
Individuals Reached Digitally

7
Policy and Compliance Actions

IMPROVE KNOWLEDGE OF PRESENT AND FUTURE HABITATS

We seek to expand knowledge of shorebird ecology and the habitats they depend on, and monitor the results of conservation actions to improve strategies.



\$810K
Project Investment

486K
Hectares Affected

12
Studies

1
Best Management Practice

INCREASE PARTNER AND STAKEHOLDER CAPACITY

We work to enhance the capacity of partners and stakeholders across the entire flyway and build strong, collective-minded, professional partnerships.



\$1.7M
Project Investment

85
Partners Assisted

767
Individuals Reached In-Person

4.6K
Individuals Reached Digitally



PROJECT SPOTLIGHT

In a Parched Valley, Pop-Up Wetlands Provide Critical Habitat for Migrating Birds

In early April in California's Central Valley, hundreds of shorebirds strut through a shallow pond, plucking food from the mud. The wetlands of this valley have long been among the most important shorebird stopover and wintering sites in the hemisphere. But this four-acre pond is no conventional wetland. It's part of a 5,000-acre rice farm that wouldn't normally be flooded this time of year, if not for an innovative partnership between conservationists and farmers that creates habitat for birds where and when they need it most.

"We've been in the rice industry for two generations and the migrations have always been my favorite times of year," says rice farmer Hans Herkert. "By adjusting when we add water, we can really see a difference in the amount of birds that show up."



HANS HERKERT - RICE FARMER

Tom Clynes

Declining Wetlands, Declining Bird Populations

Two centuries ago, the Central Valley was a wild patchwork of marshes, creeks, rivers, grasslands, and forests—habitats that supported enormous flocks during seasonal flooding. In the mid 1800s the landscape began to change as farmers moved in. Supported by large-scale irrigation projects, the valley evolved into an extraordinarily productive agricultural region. Comprising less than one percent of U.S. farmland, the Central Valley provides much of the fruit, vegetables, and nuts grown in the country.

But agriculture's gain has been the birds' loss. More than 90 percent of what was once wetland habitat in California is now farmland, drastically diminishing the places birds can use to fuel up for their journeys. That has coincided with dwindling populations among many of the birds that use the Pacific Americas Flyway, including declining species such as Western Sandpipers, Red Knots, and Long-billed Curlews.

Rice Farms to the Rescue

Recent research has clarified that the Central Valley's agricultural lands, rather than its natural wetlands, now provide the vast majority of the habitat and food for migrating birds, according to Kristin Sesser of Point Blue Conservation Science. Point Blue teamed up with Audubon California and The Nature Conservancy to create the Migratory Bird Conservation Partnership.

"With flooded rice lands so essential to migrating shorebirds, conservationists realized that we needed to engage the farming community more deliberately," says The Nature Conservancy's Rodd Kelsey. When they did, they found a receptive audience among farmers like Herkert, particularly when financial incentives were made available to cover the costs of staggering the timing and rate at which the water is drawn down—a practice that creates a diversity of depths and habitats to meet the needs of various waterbird species.

“Results of field studies indicate that wetlands with the gradual drawdown practices applied can support up to 21 times more shorebirds than wetlands with traditional management.”

The BirdReturns program combines images from NASA satellites, data from citizen scientists, and sophisticated mapping to determine when and where the birds’ need for habitat is greatest. Then, it pays rice farmers in the birds’ flight paths to keep fields flooded as migrating flocks arrive. Prices are determined by a unique reverse-auction system that allows farmers to submit bids and create shorebird habitat.

Since 2014 BirdReturns has contributed more than 20,000 hectares of critical habitat. On the heels of that success, the California Ricelands Waterbird Foundation started a companion program called Bid4Birds. On peak migration days, the flooded ricelands nearly equal the equivalent wetland habitat that was available for birds prior to industrial agriculture. This habitat has contributed to the stability of populations, and in some cases has helped to support waterfowl population increases.

Natural Wetlands Are Still Critical

Natural areas like the San Luis National Wildlife Refuge still support hundreds of thousands of birds, and are a key part of California’s water-conservation and ground-water-recharge puzzle. Many have been severed from the region’s natural hydrology, and they are often last in line for water allocations, after farms and municipalities.

In a time of water shortage—California’s drought is the worst in 1,200 years—conservationists are working with managers of wildlife refuges and private wetlands to advocate for water deliveries and help to make these wetland habitats more climate resilient.

“At this point, we have the bare minimum to meet habitat needs,” says Sean Brophy, deputy refuge manager of the San Luis complex, which annually hosts some 200,000 shorebirds. “We’re making the most out of every drop, but if we have further cuts, we’re going to have a hard time meeting the needs of these birds.”

“Where there’s water, the birds will find it,” says Audubon California’s Samantha Arthur. “When we don’t have the water to create that habitat, that threatens the survival of entire species.”

The Human Element

Water issues are also central to the health and prosperity of human populations, particularly those in vulnerable communities.

“Just like the birds, our communities need access to safe drinking water and healthy ecosystems, and many of them do not have that,” says Eddie Ocampo of Self-Help Enterprises, a community development organization in Visalia. As the drought has worsened, some farmers have sunk deeper wells, causing wells to go dry in poor communities.

Project partners have been active in pulling together diverse stakeholders to find opportunities to collaborate in a quest for long-term, multi-benefit solutions that could lead to a more resilient hydrology in the valley. Among those solutions are better-managed irrigation and land repurposing—including recharge basins to replenish water tables and wells.

“The bright side of this crisis is that it has started conversations between people who weren’t talking before, and created opportunities to collaborate,” says Ocampo. “If we can bring more water to people and nature, everyone benefits.”

Accomplishments

- Applied habitat-enhancing and gradual drawdown practices to wetlands and farm fields that can consequently support up to 21 times more shorebirds than traditionally managed farm fields.
- Leveraged more than \$15 million in Farm Bill funds with \$8 million in private funding to support on-the-ground conservation.

Major Partners

- Audubon California
- Point Blue Conservation Science
- The Nature Conservancy
- Grasslands Water District
- Central Valley Joint Venture partners
- Farmers and private wetland owners



PROJECT SPOTLIGHT

On Guatemala's Pacific Coast, Young People Are Becoming Conservation Champions

Like many people along Guatemala's Pacific coast, Edwin Manuel Martínez spent part of his childhood harvesting sea salt. "Between the ages of 10 and 15, I'd come to the flats after school and gather the salt that the sun had evaporated from the water that day. I got interested in the shorebirds that came to feast on the brine shrimp in the salt pools, and I came to love them."

Now, Martínez hopes to make a career out of sharing his knowledge of birds. He's a recent graduate of a program that trained a group of young people from the region to be community guides and experts in observing migratory shorebirds and marine fauna in the Sipacate-Naranjo National Park.

The park's mudflats, mangroves, and waterways offer sanctuary to resident and migratory shorebirds. Within its 20 square kilometers are 200 species of birds, six species of mangroves, 23 amphibians and reptiles, and 40 mammals. Guatemala's National Council of Protected Areas is in the process of expanding the park to include a marine protected area, the first on the country's Pacific coast.

EDWIN MANUEL MARTINEZ – BIRD GUIDE

Tom Clynes

A Community-Based Approach

"The guide training is part of a strategy to employ a community-based, participatory approach to conservation of this critical habitat," says José Moreira of the Wildlife Conservation Society (WCS). "We're finding that people here have a great desire to conserve. There's a lot of potential if we can generate employment from sustainable activities like ecotourism."

Due to the COVID-19 pandemic, much of the training was done virtually and supplemented by field trips to help the guides hone their skills in identifying and monitoring birds. The 32 graduates included fishermen, housewives, a cook, a mechanic, and a ferry boat captain.

Lady Blanco, a ranger at the national park, was one of 15 women to complete the training. "Since I was a child, I was interested in caring for the animals, especially birds and turtles," says Blanco. "So it was exciting to have this opportunity to know them more deeply, and to know how to meet the needs of tourists so I can share my knowledge more effectively. Even among the local people I have a role to play as a promoter of conservation."

Extending the Boundaries of Protection

WCS has also trained young people in the community to assist in bird monitoring, supporting comprehensive shorebird surveys of Guatemala's Pacific coast. Martin

Robards of WCS says such efforts are “essential for the conservation of migratory shorebirds, accomplishing flyway-wide needs that support other efforts from the Arctic to the wintering areas.”

The surveys in Guatemala found that shorebird abundance was higher than previously believed—and that 70 percent of shorebirds were in unprotected areas. These results played a role in integrating shorebird conservation into planning for marine protected areas, and influenced the government’s decision to extend the boundaries of the proposed marine protected area.

“We have limited funds, and there are not many people on the Pacific coast who have the capacity to monitor wildlife, so the knowledge acquired by these young people is very important,” says Carlos Velasquez, director of the Sipacate-Naranjo National Park. “The more the community participates, the more they appreciate the importance of the park and the animals it protects.”

Carlos Martínez, executive secretary of Guatemala’s National Council of Protected Areas, says that the biological diversity of Guatemala’s coastal areas is essential to ensure local livelihoods. “If we are going to have sustainable use and conservation of our resources, we need these communities to know the richness of nature, and to become our strategic allies and get involved in their protection.”

Supported by WCS, park employees and supporters visit local schools to teach students about conservation and organize “mangrove days,” during which children and adults collect trash from coastal forests and beaches. A Festival of Migratory Birds included a guided tour that began at Sipacate’s ferry dock, where a WCS-funded mural (see front and back cover) depicts shorebirds in vibrant colors. From there, participants visited learning stations that included waterways, mudflats, mangroves, and salt flats. Led by the young guides, community members learned about wetland biodiversity while bird- and turtle-watching.

Building a Constituency for Birds

The pandemic took a toll on the coastal economy, where poverty and unemployment were already high. A lack of economic opportunities has increased the pressure on natural resources, with more people cutting mangroves, hunting, and overfishing. Tourism is picking up again, especially in the surfing town of El Paredón, “but we need people to know that this area offers more than beaches and waves,” says Moreira, who co-edited the Guide to Birds on the Guatemalan Pacific Coast, which was given



Tom Clynes

On Guatemala’s Pacific coast, guide-training and other community conservation projects are building a constituency for shorebirds.

to the guide trainees. “We want everyone to know that we have culture, cuisine, turtles, and of course rich bird life.”

To help promote their guiding services and appreciation for birds in general, Martínez, Blanco, and other guides have organized a birding club. Some are learning digital marketing techniques and honing their English-language skills.

“I’m working as a mechanic now, but I would love to build a career as a birding guide,” says Martínez. “Then I could have a bigger role in protecting the birds that visit here, which are among the most threatened in the world. We’re just one place among many along the Pacific coast of the Americas, but our conservation efforts make us part of something much bigger.”

Accomplishments

- Conducted the first comprehensive shorebird surveys of Guatemala’s Pacific Coast and trained 32 young people in the Sipacate-Naranjo region to work as birding guides and monitors.
- Solidified public and governmental support to expand the marine protected area around Sipacate-Naranjo National Park and establish a new marine protected area nearby.

Major Partners

- Fundaeco
- Wildlife Conservation Society – Guatemala and Arctic Beringia Programs
- National Council of Protected Areas



PROJECT SPOTLIGHT

On Ecuador's Coast, Crabbers Are Guardians of Coastal Habitats

All along the Gulf of Guayaquil, the largest estuary on South America's Pacific coast, the water's edge gives way to mangroves and mudflats dimpled with the meandering footprints of shorebirds. With each retreating tide, migrating birds come down from their roosts to feed, scurrying across the mushy soil and pecking at the ground.

"We saw 30,000 sandpipers yesterday," says Ana Agreda, from the bow of a slender wooden boat that glides past trees, beaches, and mudflats backed by the outlines of faraway Andean peaks.

Agreda directs the coastal program for Aves y Conservación, an Ecuadorian NGO. With her in the boat are five *cangrejeros*, men who make their living gathering red crabs among the mangroves, plucking them by hand from their burrows in the muck. Today, though, they're at the mouth of the Naranjal River

to count shorebirds—something they've been doing enthusiastically twice a year for the past three years, after training with Agreda's team.

Perhaps more importantly, the crab gatherers serve as informal but highly motivated guardians of Ecuador's threatened coastal ecosystems, which are critical stops for shorebirds that migrate along the Pacific Americas Flyway.

"We're out here almost every day with our eyes on who's coming and going, who's harvesting when and where they shouldn't, who's cutting mangroves or trying to expand their shrimp farms beyond the legal limits," says Alonso Mejillones, 55. A third-generation *cangrejero* who was six years old when he started collecting crabs, Mejillones now leads the cooperative that harvests on the community's 3,874-hectare concession.



ANA AGREDA - PROGRAM DIRECTOR

Tom Clynes

Mangroves: A Threatened Resource for Avian Migrants

Mangrove wetlands are hot spots for birds and other biodiversity. They sequester carbon, prevent coastal erosion, and provide habitat for fish and other human-harvested foods. During Ecuador's shrimp-farming boom of the 1970s and 1980s, though, there was little knowledge of the value of mangroves. More than a quarter of the country's mangrove forests were destroyed to make way for shrimp aquaculture farms and other development. Mangrove felling has been prohibited since 1994, but destruction continues in some places—driven, often, by a lack of economic opportunities in local communities.

Sustainable-use concessions were an innovative strategy that emerged in 1999 to support conservation by providing legal tenure to traditional mangrove users, incentivizing community conservation by allowing sustainable harvesting of shellfish and crabs on public land.

That's been a boon for the millions of birds that return each year to the Gulf of Guayaquil, says Agreda, who works with subsistence crabbers, fishers, and industrial salt harvesters to promote practices that preserve shorebird habitat. "Our work focuses on strengthening compliance of management policies, control and surveillance, scientific monitoring, and ecotourism development at mangrove concessions," she says.

The COVID-19 pandemic slowed ecotourism development, but appreciation for shorebirds continues to grow among the bird counters up and down the coast. "What we're learning is that's what's good for the birds is ultimately good for fish and crabs and the people who harvest them," says Byron Lucin, a crabber who lives in Balao, a town whose central square features a sculpture of a giant shrimp.

The shorebird counts are used to evaluate and guide conservation efforts along the Straits of Jambelí in the upper gulf, a Western Hemisphere Shorebird Reserve Network site of International Importance where 55,000 hectares of mangrove forest and mudflats host hundreds of thousands of shorebirds annually.

"I love this ecosystem that we live and work in, and to have birds here is beautiful," says Lucin. "But there's a lot of destruction, and we're trying to help people understand that when someone cuts a mangrove down it hurts not only the plant, but also our future and the future of the entire planet. The birds that come here

are part of a web of life that extends up and down the continents. We are local crab gatherers, but when we protect this habitat, we are playing a part in something much bigger."

Accomplishments

- Developed and presented community workshops on bird conservation to 420 red-crab collectors.
- Provided technical assistance to improve governance and cooperation between crab fishing associations.

Major Partners

- Aves y Conservación
- Ecuador Ministry of the Environment, Water and Ecological Transition
- Water and Ecological Transition
- Municipalities of Naranjal and Balao
- Balao Red Crab Collector Association
- 6th of July Red Crab Collector Association
- Nuevo Porvenir Artisanal Fishing Cooperative
- CALISUR



Tom Clynes

Along the Gulf of Guayaquil, red crabs feed families and are the centerpiece of efforts to preserve mangrove habitat.

Building a Brighter Future for Wetland Conservation

The Pacific Shorebird Conservation Initiative's partners continue to create successful and impactful on-the-ground conservation solutions. Topic-focused groups deliver collaborative projects by working with local stakeholders to tackle complex conservation challenges with regional solutions. In the future, we will continue to focus on nature-based solutions for climate resilience and community-led conservation that will protect and restore critical wetland habitats throughout the Americas.

To learn more about what our partners are accomplishing, visit the Pacific Shorebird Conservation Initiative's Story Map (www.arcg.is/eDuOC). To learn more about our flyway-wide strategic conservation planning efforts, visit our website: www.pacificflywayshorebirds.org.

To contribute or learn more about the Pacific Shorebird Conservation Initiative, contact river.gates@audubon.org.





Mike Fernandez / National Audubon Society



Jean Hall / Audubon Photography Awards



Mike Fernandez / National Audubon Society



Parita Bay's mangroves are strategic ecosystems for biodiversity conservation and climate change mitigation from carbon storage.

Mike Fernandez / National Audubon Society



JOIN US!

Throughout the Americas, people who care about shorebirds are uniting in an international effort to tackle the most pressing conservation issues that threaten shorebirds throughout their annual cycles. We thank you for your support and look forward to your participation in this unprecedented conservation opportunity. Together, we can build a brighter future for shorebirds and other essential wildlife, as well as the human communities of the Americas.



Evelyn Jaén from Panama's Ministry of Environment guides a team measuring blue carbon along Parita Bay's Important Bird Area in collaboration with the National Audubon Society and Panama Audubon Society, and supported by the Inter-American Development Bank.



pacificflywayshorebirds.org



FRONT COVER PHOTO: A flock of migrating Hudsonian Godwits rests on the shore of Chile's Chiloé Island, completing a monthslong, 10,000-mile journey from the birds' breeding grounds in Alaska. Mike Fernandez / National Audubon Society

MURAL PHOTO: To promote awareness of migratory shorebirds, the Wildlife Conservation Society commissioned a 30-meter-long mural near the wharf at El Paredon, Guatemala. Mural art by Jorge Rodriguez / Wildlife Conservation Society

Lucas DeCicco / U.S. Fish and Wildlife Service

