Hovland Consulting LLC

Strategic Summary

PACIFIC FLYWAY SHOREBIRDS

30 June 2025

Dunlins
Photo: Getty Images

This document presents a Strategic Summary for conserving shorebirds across the Pacific Flyway. It is based on our 2024 Global Shorebird Assessment and 2025 deep dives with seven organizations working in the Pacific Flyway, referencing also the 2016 Pacific Americas Shorebird Conservation Strategy.

Summary

Shorebirds encounter increasing **threats** from habitat destruction, insufficient food, melting of northern breeding grounds, and more. As a result, one quarter face extinction risk ranging from vulnerable to critically endangered. They use diverse habitats such as Arctic tundra, intertidal mudflats, freshwater wetlands, inland grasslands, deserts, and coastal beaches, and including wetlands used in agriculture and aquaculture. The **Vision** that guides many conservation efforts are: 1) Protected habitats extending across shorebirds' life cycle that are resilient to common threats, offer continuity across the Pacific Flyway (the Flyway), provide ecosystem services, and restore populations, and 2) Local community co-benefits ranging from sustainable livelihoods and engagement in management to empowerment and greater involvement in decisions. **The suggested approach** to conservation is multi-stakeholder and inter-disciplinary, in collaboration with local and Indigenous communities, governments, businesses, private landowners, conservationists, and scientists. Two core **strategies** protect habitat durably and reduce key threats. Four supporting strategies scale work to national and global levels, build support through creative communications, enhance monitoring to understand population trends, perform selective research, and build local capacity. Guided by the Decision Tool *(see the Global Shorebird Assessment)*, Alaska, Mexico, and Chile emerge as priorities along the Flyway, with critical stopover sites in Central and South America and the continental US. Finally, shorebird conservation **touches many inter-connected concerns** related to climate, Indigenous rights and lands, community wellbeing, coastal ecosystem services, water and land conservation, fisheries, and jobs and economies. While shorebird populations have been declining in recent years, specific, practical steps can be implemented to reduce threats and improve their outlook. **We invite you to join the work.**

Hudsonian Godwit
Photo: Pixabay

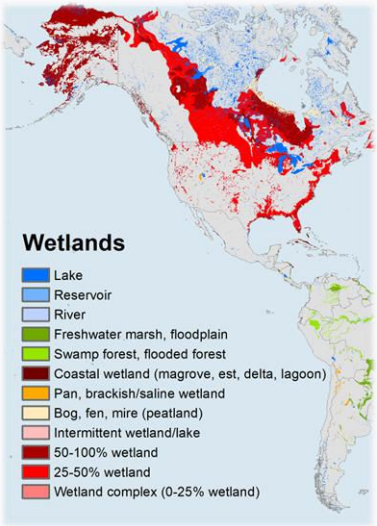
Why Now?
WETLAND IMPACTS

Crucial wetlands, mudflats, and mangroves are being destroyed

Wetland ecosystems, both coastal and inland, and intertidal mudflats are some of the most crucial habitats for shorebirds. It is there that shorebirds rest and find their food, such as biofilm, which is rich in healthy fats that can support the long migrations of many shorebirds. Across the Pacific Flyway, wetlands are prominent in the United States (both in Alaska and the lower 48 states), Mexico, Canada, and South America (especially Colombia and Chile). Essential stopovers are located in Central America, such as Panama. Destruction of wetland habitat is one of the imminent threats to shorebirds.

Under threat: 60+ shorebird species globally and over 12 priority species in the Pacific Flyway

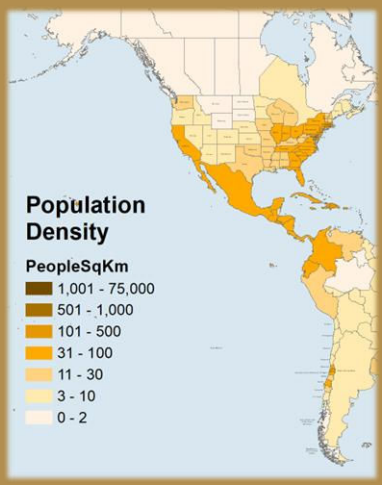
Levels range from vulnerable to critical



Key Threats

Humans, Development, Recreational Disturbance

People pose a significant threat to shorebirds. This includes habitat destruction; residential, commercial, and industrial development; and human disturbance at beaches.



Aquaculture, Agriculture, and Industrial Fishing

Seafood farms for shrimp, mollusks or salmon can destroy coasts, mudflats or mangroves used to rest, cause waters to be too deep for shorebirds or be designed in ways that harm birds, such as use of nets. This threat is high in Mexico, Chile, and Peru. Agriculture can convert shorebird habitat into farmland or livestock grazing, runoff can pollute water, and water use can dry up wetlands. Industrial fisheries can disturb habitat, leak oil, and affect food supplies.

Climate Change

Rising sea levels can destroy habitat or make it too deep to function as useful habitat for the birds, which could affect roughly 40% of the world's Ramsar wetlands of international importance. Rising temperatures change the timing of food availability in areas used for breeding and nesting. Changing seasons disturb flight timing. Drought and floods can reduce habitat. Ocean acidification reduces biofilm and food.

Other Threats

Other important threats include rats, ravens, cats, or dogs disturbing nests; wind turbine placement; oil and gas drilling; sport hunting or poaching of shorebirds; and more.

Vision, Birds, and Regions

Vision

Two guiding goals for birds and people

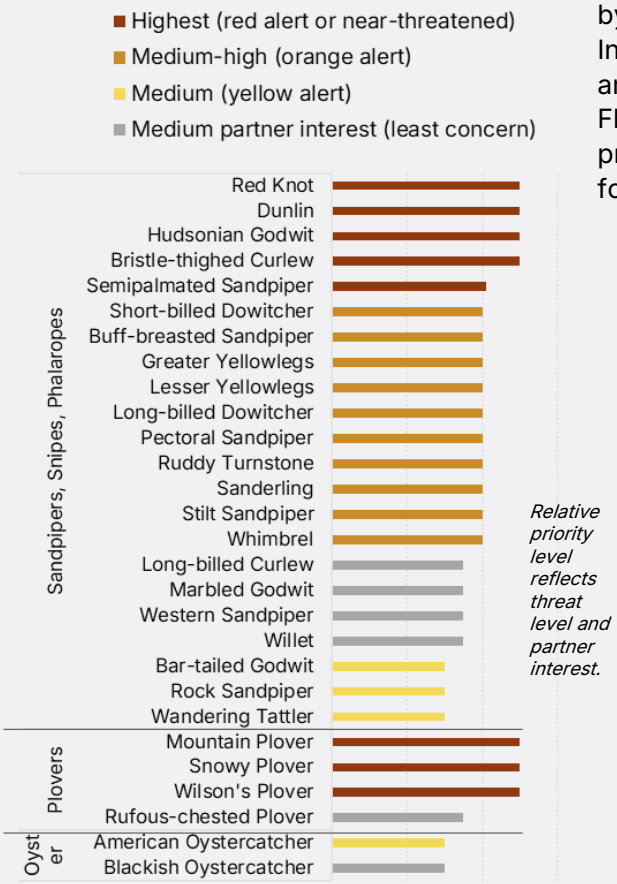
Flyway habitat

Globally interconnected networks of protected habitat, especially wetlands, are established and protected across all of the flyways worldwide.

Local community benefits

Holistic conservation efforts improve sustainable livelihoods and increase community empowerment, which can be achieved by working in partnership with locals, improving engagement, capacity-building, and respect.

Priority Shorebirds



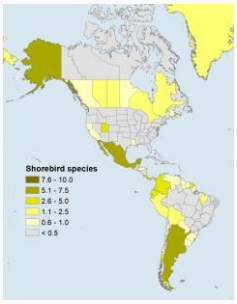
Relative priority level reflects threat level and partner interest.

Experts emphasize the need to consider protecting important species, including the most threatened, but also common shorebirds. Informed by tipping point species from the North American Bird Conservation Initiative's 2025 State of the Birds Report, complemented by expert and partner input identified 48 high priority shorebirds. For the Pacific Flyway, the top 28 species are shown, with select photos; most prominent are from the sandpiper, snipe, and phalarope family, followed by plovers and oystercatchers.

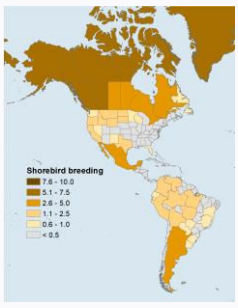
Top Places

To support greater understanding and selection of priority regions and countries, a decision-making tool was developed to bring together many important aspects of shorebirds and communities. Four important aspects are mapped below; wetland protections and threat estimates also contributed to the priority rankings.

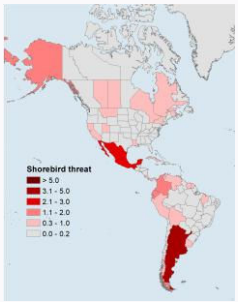
Shorebird Species



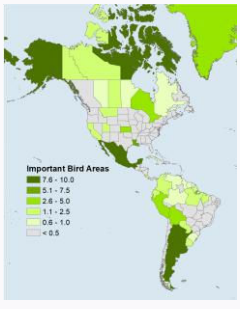
Shorebird Breeding



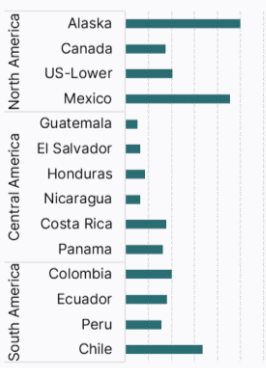
Shorebird Threat Level



Important Bird Areas



Priority



APPROACH: ENGAGE

Stakeholders

Engaging all relevant partners is a crucial component of successfully achieving the vision to benefit birds and communities alike.

A Collaborate across sectors and disciplines

To achieve positive outcomes for shorebirds and communities, environmental groups, communities, businesses, government, and conservationists all need to come together.

Consider creating collaboration agreements among parties to identify the 'who' and the 'what' of conservation plans with local communities and other interested parties. This can ensure that place-based interventions are focused and tailored to the unique needs of diverse communities and address the varied social components of conservation, considering economics, business needs, and policymaker goals.

> *"When you have worked across sectors, you can't go back to being siloed."*
>
> **– Cornell University Coastal Solutions Fellows**

B Pursue novel partnerships with businesses and landowners

Conservationists and organizations are thinking through new ways to partner with businesses – including developers, farmers, aquaculture owners, and others – and private landowners to find common ground and achieve improved outcomes for shorebirds and people.

> *"We like to think of creative solutions to conservation. Sometimes it's not what we expected but we will take all the opportunities we can get."*
>
> **– Red de Observadores de Aves y Vida Silvestre de Chile (ROC)**

Case Study

Coquimbo Bay in Chile serves as one flagship example of a creative success story involving a partnership with businesses. ROC worked with a real-estate developer to conserve and co-manage the sand dunes and maintain coastal views.

The Bay, a large beach area in central North Chile, hosts shorebird habitat situated in the southern half of the bay. The beach faces significant challenges due to high population density, recreational activities, and poor environmental conditions. Three wetlands, located in the north, center, and south of the bay, are particularly degraded. ROC identified an area with relatively better environmental conditions, characterized by intact dunes, and conducted bird surveys. This area, which includes a real-estate development with buildings and a golf course, garnered interest from two members of the neighborhood association keen on conserving the dunes. After months of negotiation, an agreement was reached with the real-estate company to co-manage the beach area in front of their property for the protection of the American Oystercatcher and other shorebirds. They secured a conservation easement that made it illegal to build on the dunes.

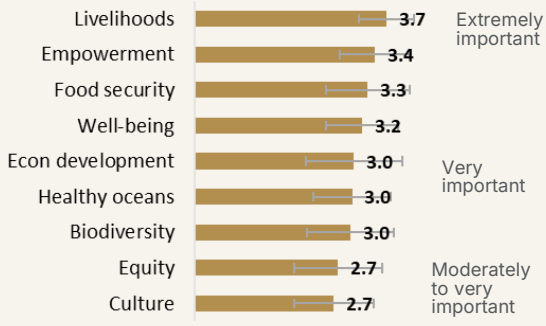
C Improve community leadership, encourage involvement in solutions, and promote sustainable livelihoods

Empower local communities to drive enduring conservation, strengthen leadership and capacity, increase local involvement in solutions, and improve livelihoods to create a more sustainable and inclusive conservation approach.

Engaging communities should be done in a thoughtful way, and often it may take time to understand the community's needs, priorities, and find common ground.

> *"Observe, learn and listen to local communities, rather than educating with foreign ideas."*
>
> **– University of Groningen**

IMPORTANT COMMUNITY BENEFITS



Source: Survey of 50 experts around the world. 4=extremely important, 3=very important, 2=moderately important, 1=important, 0=not important. Bars for standard deviation.

Semipalmated Sandpiper
Photo: Getty Images

PRIORITY
Strategies

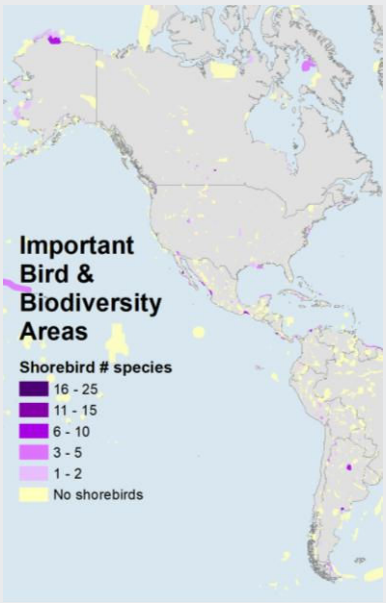
The two highest priority strategies were informed by extensive input throughout the project – expert input through interviews and a detailed survey, a scientific literature review, analysis of existing shorebird plans, The David and Lucile Packard Foundation Ocean team engagement, and more.

1 Protect important habitat and nesting areas, prioritizing key species

Protecting good quality habitat for shorebirds to breed, nest, feed, migrate, and live is a cornerstone of the strategy. Less than half of Important Bird and Biodiversity Areas (IBAs), are currently protected.

170 sites are important for shorebirds across the Flyway throughout 13 countries. Experts stressed the importance of increasing official protections and enforcement of these. Many, but not all, of these are existing or potential IBAs which are defined to consider globally threatened species, restricted-range species, biome-restricted species, and congregations (more than 1% of one or more species on a regular basis). For the most focused strategy, prioritize areas that are unprotected, have wetlands, mudflats, or other important ecosystems, and host a diversity of shorebirds. Protected areas that are large in size are valuable, but connectivity is also important. Protections can take many forms, including nature sanctuaries or parks, national and sub-national protected areas, marine sanctuaries, Indigenous protected lands and/or waters, or Western Hemisphere Shorebird Reserve Network designations.

55% of IBAs in the Pacific Flyway are unprotected



2 Reduce key threats

Reducing threats to shorebirds is possible. As noted earlier, important threats to shorebirds include concrete ones such as real estate development, aquaculture, loss of wetland habitat, recreational disturbances (e.g., cars driving on beaches or dogs off leash), energy development (e.g., drilling and mining), and others, plus the over-arching impacts of climate change.

"The threats that shorebirds are facing are interlocking and synergistic. There is no one 'smoking gun' and, thus, there will not be a single 'silver bullet'."

– University of Massachusetts Amherst

Solutions span the simple, such as restricted access and signs for beachgoers during nesting seasons, to the innovative, such partnerships with developers to protect views. Others include nature-based solutions, such as artificial rafts for roosting if wetlands are experiencing sea level rise. Other ways to address threats include developing better government regulations for development and energy projects, refining and implementing a sustainable aquaculture certification (considering site selection, depth of water, netting guidelines), establishing land or water easements on private property, working with cities on bird-friendly building designs, strengthening climate resilience and mangrove protection, and partnering with blue carbon funding sources.

SUPPORTING
Strategies


Western Sandpiper Photo: Getty Images

Supporting strategies expand resilience and reach.

3 Scale work and increase Flyway alliances

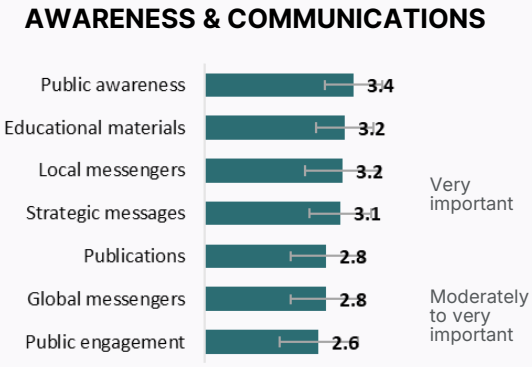
Engaging national governments expands impact. Examples include national shorebird conservation plans, environmental standards for development and aquaculture certification (work is ongoing in Mexico, Nicaragua, Honduras, and Guatemala), and legal policies that establish economic benefits for shorebird and habitat protection, such as valuing wetland ecosystem services such as flood control and water quality benefits.

Flyway collaboration ensures protection across the full lifecycle. Engage in initiatives across the Flyway that coordinate actions and share best practices considering outcomes for birds and people. Pacific Flyway examples include the Pacific Shorebird Conservation Initiative, Western Hemisphere Shorebird Reserve Network, Migratory Shorebird Project (MSP), or Pacific Birds Habitat Joint Venture. Engagement at global levels can also play a role, such as at the Convention on Wetlands (Ramsar) and the Convention on Migratory Species or through global networks such as BirdLife International or BirdEyes that create platforms for exchanging experiences, lessons learned, and best practices.

4 Deploy strategic communications and increase awareness

Raising the visibility of shorebirds to reach broad audiences, including local communities and youth, enhances awareness and support for shorebird conservation.

Creative communications can include storytelling, photos, music, art, education, bird festivals, site visits, engaging volunteers, tracking, educational programs, and more. Outreach educates interested parties about the value of shorebirds and their habitats, and the threats they face.



Source: Survey of 50 experts around the world. 4=extremely important, 3=very important, 2=moderately important, 1=important, 0=not important. Bars for standard deviation.

5 Support tracking, enforcement, and research

Success is buoyed by greater understanding of progress and threats, supported by a strong ability of governments, communities, and academics to track progress, improve enforcement, and perform select research.

Using satellite tracking technology (e.g., MOTUS) to improve in-depth knowledge of the movement and presence of shorebirds (population counts alone provide one piece of information) is key. Other strategies include: Leveraging shorebirds' migratory patterns to address systemic global threats and improve ecosystem preservation; Enforcing compliance with existing laws and regulations, especially in relation to human or recreational disturbances; Selectively pursuing applied research on threats such as where climate will have the highest impacts, sustainable economic uses of shorebird habitat, strategies, and outcomes.

6 Build local and regional capacity

Capacity to implement the work is important at every scale: Local, national, continental, and hemispheric.

Complementing the Flyway collaboration noted in Strategy 3, building local capacity through programs such as the MSP+ grants, community grants, Coastal Solutions Fellows Program, and citizen science initiatives to create future conservation leaders. Cultivating participant capacity by fostering a sense of belonging and purpose to develop a community of practice is key.

GEOGRAPHIES

Key Regions

A snapshot of the context, importance, sub-geographies, communities, and strategies for the Flyways' regions.

Priority level

IBA hectares unprotected

Very High | 16.8 million | United States

Context: Diverse ecosystems for shorebirds – coastal and inland wetlands to forests and inland grasslands. Strong capacity with the US Fish and Wildlife, California and Oregon natural resource agencies, many civil society groups, and multiple existing Shorebird Conservation plans.

Key geographies: Alaska stands out as a unique epicenter for breeding of many shorebirds. Next are California, Washington, Oregon, plus the intermountain west with inland wetlands.

Communities: Engage in Alaska (e.g., Kachemak Bay in Cordova) and other Tribes or coastal-dependent communities, considering subsistence harvest.

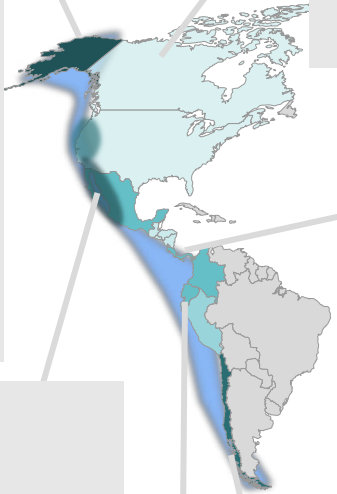
Strategies: Protect key IBAs and WHSRN sites (e.g., many in Alaska; CA Imperial Valley, including the Salton Sea, Antelope Valley, and Central Valley) for priority species (Snowy Plover, Hudsonian Godwit, others), including grasslands and salt lakes, including the Great Salt Lake, in the West and coastal regions impacted by development and sea level rise. Consider easements on private lands (or water rights) and economic benefits of working lands. Maximize benefits of state and federal agricultural conservation programs to shorebirds. Collaborate across the Flyway.

Low | 610 thousand | Canada

Context: Lower presence of shorebirds, but offers important nesting sites. While threat levels from humans are lower, Canada has the highest percentage of unprotected IBAs.

Key geographies: Arctic, west coast and select inland wetlands.

Strategies: Protect key IBAs for priority species, such as global species such as the Whimbrel, Semipalmated Sandpiper, Hudsonian Godwit, Dunlin, Western Sandpiper, Buff-breasted Sandpiper, or Sanderling.



High | 3.3 million | Mexico

Context: Very high shorebird presence with priority species (Marbled Godwit, Red Knot, Wilson's Plover, Killdeer, Snowy Plover, American Oystercatcher, others) and important breeding sites, plus the highest levels of threatened species across the Flyway. Threats include aquaculture, recreational disturbance, development, and more. Over half of IBAs are unprotected.

Key geographies: 20 priority wetlands in northwest Mexico in the states of Baja California Sonora, Sinaloa, Nayarit, and Colima. Including Bahía Magdalena and Bahía Lobos.

Communities: Colorado River delta, Ensenada, La Paz, Huizache-Caimanero.

Strategies: Support community-led work to protect and enhance key IBAs and WHSRN sites for priority species. Support implementation of the Pacific Americas Shorebird Conservation Strategy, include novel partnerships with developers to conserve habitat. Approach climate change adaptation and resilience creatively, such as understanding sea level rise impacts and creating roosting sites with floating rafts of seagrass. Expand monitoring.

Medium-High | 620 thousand | Panama, Costa Rica, others

Context: Crucial stopover points for important shorebird species, including threatened birds. Threats are very high and increasing, including mining, industrial fishing, and development. Over half of IBAs are unprotected.

Key geographies: Panama and Costa Rica stand out above the other countries in South America, offering habitat for priority shorebird species and important wetlands. Honduras also offers habitat and wetlands, with lower opportunities in other countries.

Communities: El Rosario, El Faro, El Retén, El Agallito, El Salado, Juan Díaz, Tocumen, Pedregal, Pacora, Chepo, and Chiman (Panama)

Strategies: Protect and manage well key IBAs and WHSRN sites (e.g., in Panama: Bay of Panama, Parita Bay, Juan Díaz, Playa El Agallito, others) for priority species (Red Knot, Whimbrel, Wilson's Plover, Western Sandpiper, Killdeer, others). Defend protections and communities, using legal strategies as needed. Incorporate sustainable livelihoods (ecotourism, fisheries) and climate resilience. Educate students to inspire future support and actions. Coordinate locally and internationally.

Medium-High | 660 thousand | Colombia, Ecuador, Peru

Context: Very high shorebird presence with priority species and threatened birds. Significant threats from humans, from development to recreational disturbance.

Key geographies: Colombia and Ecuador are priorities for their shorebird species concentrations and many types of wetlands. Peru has a slightly lower presence of shorebirds, but significant IBAs.

Communities: Colombia has opportunities to work with communities in regions such as Bocana de Iscuande, Gulf of Tribuga Cabo Corrientes, La Plata Bahía Malaga, or San Juan River Delta. Others: La Segua (Ecuador).

Strategies: Establish protected areas for key IBAs and WHSRN sites for priority species, especially areas used for migration, to reduce human threats. Positively, many IBAs already have some form of protection, but can be enhanced through improved plans and enforcement. Strengthen management of areas through strategic planning, information management technologies (e.g., databases), ecological restoration, environmental awareness, and sustainable use of natural resources with local communities.

High | 620 thousand | Chile

Context: Many habitats for priority shorebird species during the boreal winter – including coasts, wetlands and deserts. Strong government interest in shorebird protection with the National Shorebird Protection Plan, and strong existing NGO capacity. Over 60% of IBAs are unprotected. Higher local capacity.

Key geographies: Unique Chiloé Island concentrates more than 24 shorebird hotspots. Other important areas include Los Lagos, the southern tip toward Antarctica, the capital region, Valparaiso, Bio-Bio, and Atacama and Antofagasta in the north.

Communities: Many are interested, such as Mataquito Río Abajo and Jóvenes por el Mataquito in the Curepto/ Licantén region; Bahía Lomas; Huenchullamí; Mataquito; Maule region and La Pesca; Putú; Río Maipo in Chamiza; Tubul-Raqui in Chiloé; and Vichuquén. Co-manage areas and increase ecotourism.

Strategies: Protect key IBAs and WHSRN sites (e.g., Estuario de Maull, Estancia San Gregorio, Bahia Lomas, Valle del Yeso) and threatened altiplano and interior wetlands for priority species (Whimbrel, Red Knot, and Sanderling, others), implement National Shorebird Protection Plan, support Chile's urban wetland conservation law and rural wetlands. Improve environmental standards to be bird-friendly for new developments, buildings, aquaculture, mining, energy, agriculture, light pollution, and others. Partner with developers to protect views. Citizen science and volunteer engagement.

CONSERVATION
Connections

Shorebird conservation touches many important themes – from climate to land and water conservation to Indigenous communities to fisheries and economics.

Climate

Shorebirds face severe climate-related threats, such as habitat loss from sea-level rise and drought. Understanding bird habitats at risk and how to protect them – for example, by recognizing the value of ecosystem services (e.g., mangroves as carbon sinks) – strengthens climate resilience.

Coastal ecosystems

Shorebirds rely on diverse coastal and marine habitats such as beaches, wetlands, mudflats, and estuaries. Healthy birds serve as indicators of resilient and biodiverse coastal ecosystems along a wide variety of interconnected places.

Water conservation and natural capital

Freshwater and wetland systems are essential to shorebird survival. The birds' protection is linked to effective and well-timed water and watershed management, sustaining water quality, flood regulation, and ecosystem resilience. These benefits can be measured through natural capital valuation and accounting tools to better inform conservation easement strategies.

Land and bird conservation

Beyond the coastline, shorebirds also depend on grasslands, farms, and inland wetlands. Synergies exist between protecting shorebirds, other birds (grassland, other migratory), and lands. Working toward a goal of 30% of lands protected by 2030 can achieve multiple biodiversity outcomes.

Indigenous rights and lands

Shorebird conservation can protect land, water, and marine areas often deeply tied to Indigenous lands. Tribal stewardship and land rights are a powerful focal point for collaboration to establish, co-manage, and enforce protected habitat.

Community well-being and food security

Protecting coastlines and intertidal zones helps sustain local livelihoods, cultural traditions, and productive fisheries.

Fisheries

Communities are advocating for sustainable fishing and better aquaculture practices that safeguard jobs while reducing habitat degradation, pollution and plastics, and invasive fish and plants that affect the ecosystem function. Shorebirds themselves are also ecosystem engineers that improve fish habitat and ecosystem health.

Working lands

Ranchers and farmers steward working lands that overlap with key shorebird habitats; investing in conservation easements and outcome-based incentives can support shorebirds and livelihoods.

Jobs & economies

Shorebird conservation can create employment opportunities in habitat restoration, monitoring, and eco-tourism, and enhance ecosystem services that benefit fisheries and agriculture, which can support local livelihoods.

Thank you

This work was supported by The David and Lucile Packard Foundation and conducted in the spring of 2025, building on the 2024 Global Shorebird Assessment. Thanks to the seven organizations of National Audubon Society, Manomet, Point Blue Conservation Science, Pronatura Noroeste in Mexico, CECPAN (Center for Study and Conservation of Natural Heritage in Chile), Panama Audubon Society, and CIAM (Panama Environmental Advocacy Center) for interviews, reports, and review. Thanks also to the Biodiversity Funders Group and Knobloch Family Foundation for input.

Key References

Global Shorebird Assessment, 2024, Hovland Consulting, link

Pacific Americas Shorebird Conservation Strategy, 2016, Senner, Andres, and Gates, National Audubon Society, New York, link

For More Information

See the **Landscape Overview:** Organizations Protecting Shorebirds in the Pacific Flyway

Plus, the overviews for seven organizations:
Audubon – Manomet - Point Blue - Pronatura Noroeste - CECPAN - Panama Audubon - CIAM

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