

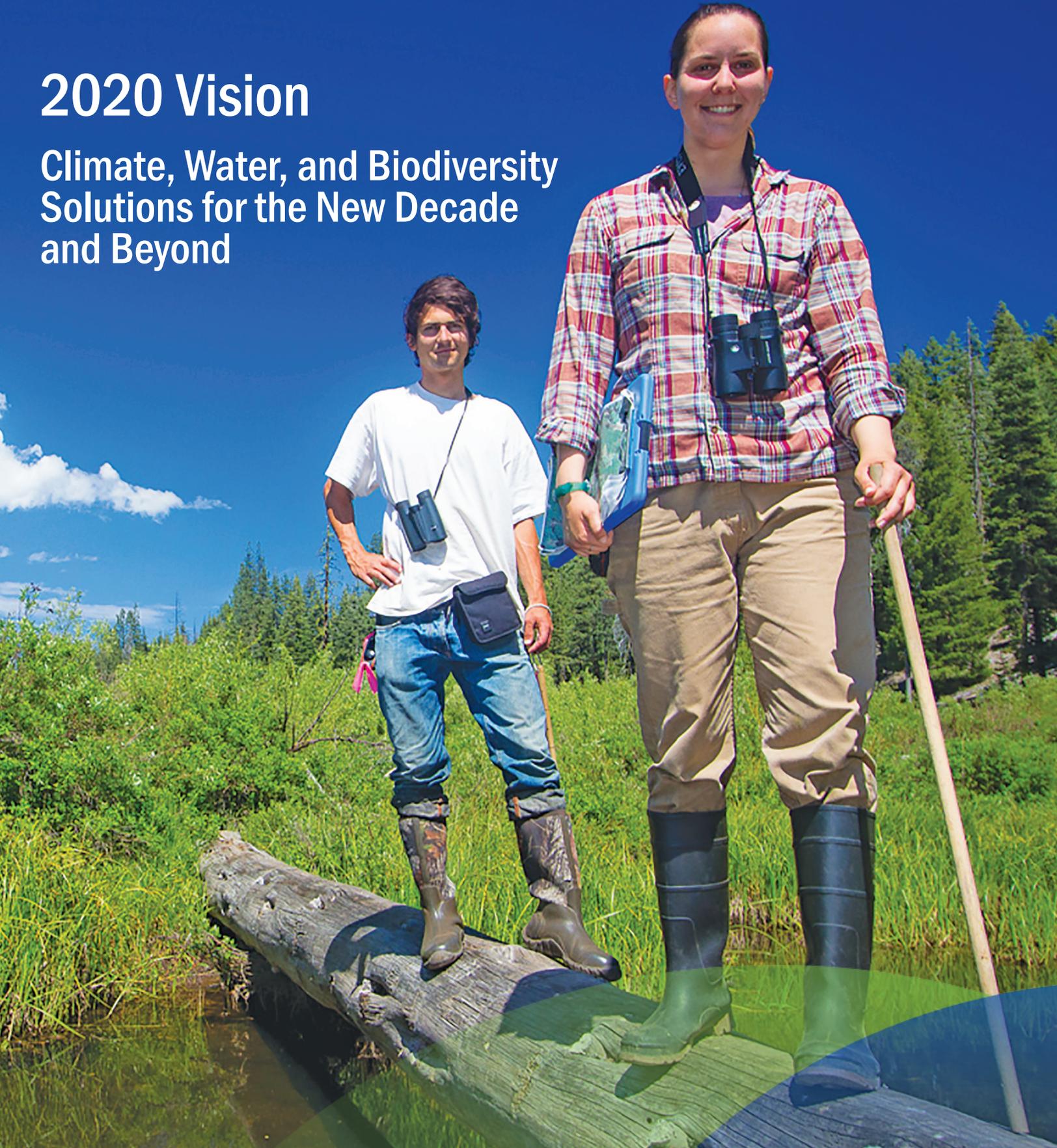


Point Blue Quarterly

Conservation science for a healthy planet.

2020 Vision

Climate, Water, and Biodiversity
Solutions for the New Decade
and Beyond





FROM THE CEO

2020 Vision: Resilience and Solutions in the Face of Challenges

It is my sincere hope that you and your family and friends are staying safe and healthy as we all navigate our way through the unprecedented COVID-19 pandemic. Point Blue has always been, and will always be, part of a greater community from which we derive our strength, our passion, and our resilience. In this time of great challenge I am proud of our mission serving this community and helping to protect the healthy ecosystems that allow humans and wildlife to adapt and thrive today, and in the future.

Almost a year ago I arrived from Washington, DC, excited for the opportunity of leading this amazing organization. As I spent the past year getting to know our staff, our partners, and the communities where we live and work, one theme that continued to arise was how important our 55-year history was in shaping Point Blue. The importance of this history was never more poignant than when speaking with our scientists. Through these conversations, I've come to understand how the innovative solutions we develop today are informed by decades of data, from the patterns that only become clear over long periods of time across many different conditions.

Today we find ourselves in the middle of a severe pandemic, uncertain of when the challenges it brings will end or what changes for the future it will present. The highest priority for Point Blue is the well-being of our staff and the communities we work with. Like many organizations, we are working from home and have postponed events and paused field work. Looking further afield, as the global scientific community springs into action to find solutions, the need has never been greater for rigorous research, collaboration, and a cooperative spirit of community to inform the uncharted path in front of us. Yet as this acute crisis commands our attention, the effects of climate change continue to become greater and more unpredictable, undercutting the natural systems that we strive to protect and are the cornerstone of our long-term health and well-being.

Before the COVID-19 crisis hit, we prepared the current issue of the *Point Blue Quarterly*, in which we dive deep into the interconnected climate, water, and biodiversity solutions that we and our partners are designing. Understanding that the road ahead is full of twists and turns, we thought it was important to share our latest and best thinking as we tackle the biggest environmental challenges we all face. In this issue we explore some of the important research questions and conservation solutions that will guide us across unknown terrain: *Why is creating resilience important in times of change, and how do we do it? Why are we viewing our conservation work through the lens of climate change? What can we do to protect the resources that are so critical for our well-being in the face of fire, drought, heat waves, habitat destruction, and other serious threats? How can we protect the food and water systems that help us thrive in this changing world?* And as we have done for over five decades, we adapt and continually ask ourselves: *What are the other important questions that are not being asked?*

To our newer supporters and those of you who have supported us through the decades: we are truly grateful. And we look forward to our continued partnership, and to being in your company once again very soon!

Sincerely,

Mani Oliva
Chief Executive Officer

Above: Mani Oliva at a field site in Tasmam Koyom, northern Sierra.
Photo by Lishka Arata/Point Blue.

The *Point Blue Quarterly* is published by the Board of Directors of Point Blue Conservation Science (founded as Point Reyes Bird Observatory). Edited by Stacey Atchley-Manzer with assistance from Point Blue staff.

© 2020 pointblue.org.

Contents



4 Climate Solutions



7 Going with the Flow



9 Life Support



13 Natural Connections



14 Point Blue on the World Stage

ALSO IN THIS ISSUE

2 From the CEO

6 Science + Art

11 Meet the Team

12 Partnership

14 News Bites

15 Focus

Top, left: Bair Island marshlands, Redwood City, CA. Photo by Christopher Chan.

Top, right: Sandhill Crane, Merced National Wildlife Refuge. Photo by Amit Patel.

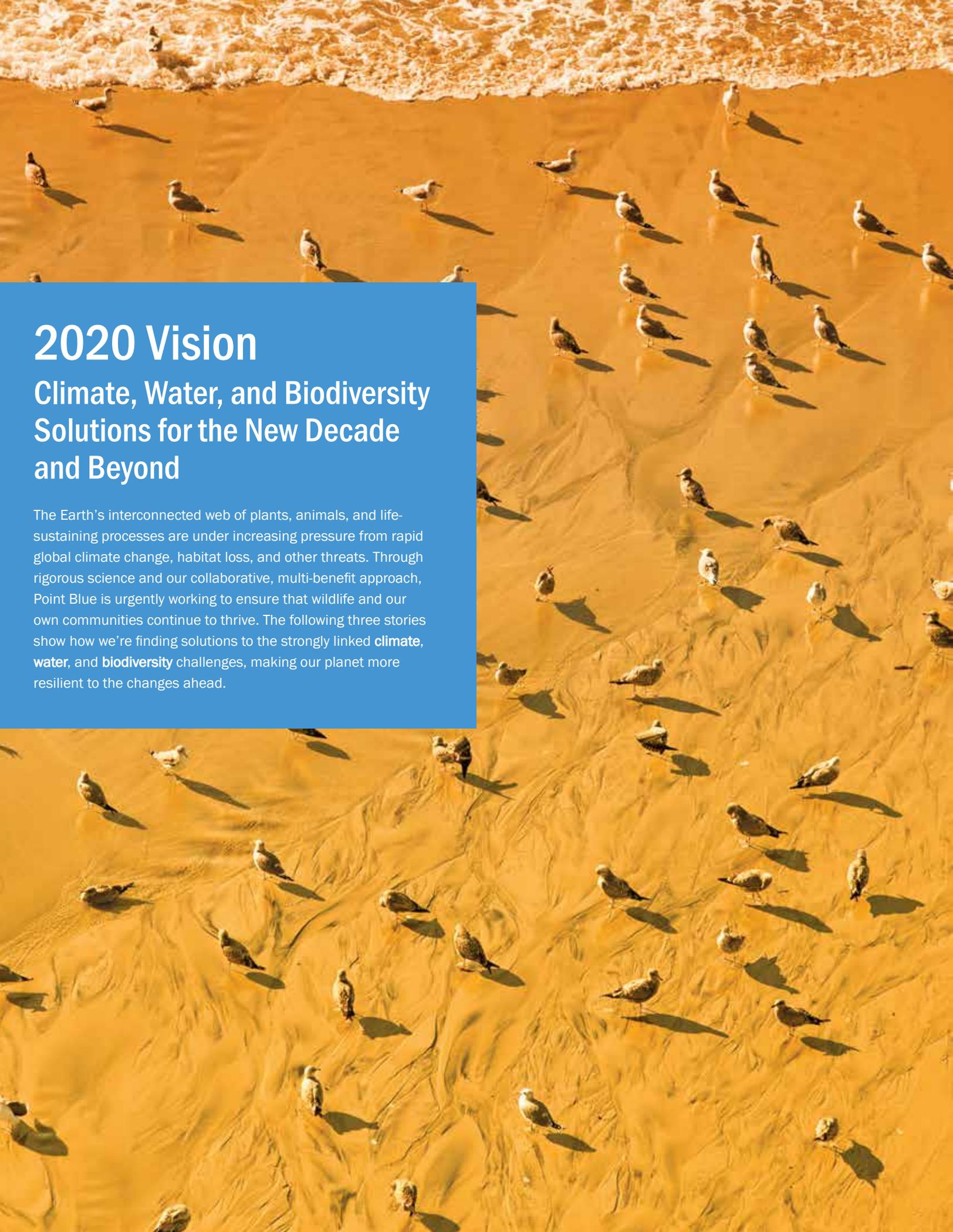
Middle, left: A humpback whale and seabirds near Santa Cruz, CA. Photo by Gomez David.

Middle, right: David Loeb at Glacier Bay National Park and Preserve, AK. Photo by Diane Poslosky.

Left: CEO Mani Oliva, Board Chair Geoffrey Gordon-Creed, and Working Lands Director Dr. Elizabeth Porzig attend COP25 in Madrid, Spain. Photo by Point Blue.

ON THE COVER:

Former Sierra Nevada interns Jason Greg and Anna Kennedy monitor meadow bird nests as part of Point Blue's Beaver Based Restoration project near Gurnsey Creek in Lassen National Forest. Photo by Wendy Willis/Ojo Loco Media.

An aerial photograph of a vast colony of seagulls on a sandy beach. The birds are scattered across the sand, which shows tracks and patterns. In the upper portion of the image, the ocean waves are breaking, creating white foam. The overall color palette is warm, dominated by the golden-brown of the sand and the blue of the sky and water.

2020 Vision

Climate, Water, and Biodiversity Solutions for the New Decade and Beyond

The Earth's interconnected web of plants, animals, and life-sustaining processes are under increasing pressure from rapid global climate change, habitat loss, and other threats. Through rigorous science and our collaborative, multi-benefit approach, Point Blue is urgently working to ensure that wildlife and our own communities continue to thrive. The following three stories show how we're finding solutions to the strongly linked **climate**, **water**, and **biodiversity** challenges, making our planet more resilient to the changes ahead.

Climate Solutions

Building Resilience and Adapting to Change

At the heart of Point Blue is the concept of *climate-smart conservation*, the understanding that because of climate change, the way we do conservation work over the next 50 years must look different from how we've done it over the past 50 years. Much of this work centers around identifying and protecting the most vulnerable habitats that human and wildlife communities rely on.

Some of the areas where we're seeing the most change—and where we know even more change is coming—are the dynamic places where water meets the land. But coastlines and riverbanks are also places where we can prepare ecosystems for what's to come and enhance their resilience to change.

Since 2013 we've been partnering with communities up and down California's coast, helping coastal planners use Point Blue's Our Coast Our Future (OCOF) planning tool. Developed with our partners at USGS, OCOF has helped over 70 federal, state, and local agencies discover vulnerabilities under the combined threats of sea level rise, storm surges, and continued shoreline erosion. But identifying threatened areas is just the first step of our work to support climate-smart coastal planning.

As we look ahead to the next ten years for our coastal adaptation program, we're focused more than ever on helping our partners assess and implement solutions. One of our top priorities is helping communities understand where and when it makes sense to implement nature-based solutions like wetlands and dune restoration, which offer many more benefits than “hard infrastructure” like seawalls. First, they are dynamic and can change over time. While hard infrastructure begins to degrade the moment it's installed, wetlands and dunes respond to short-term changes driven by storms and long-term

changes from rising seas. Second, they provide critical habitat for endangered, threatened, and at-risk species like the salt marsh harvest mouse, Ridgway's Rail, and Snowy Plover. Finally, nature-based solutions create opportunities for shoreline recreation and can halt the erosion of beaches that seawalls exacerbate.

“By prioritizing nature-based measures where they are suitable, communities maximize the benefits of their adaptation investments,” says Dr. Maya Hayden, Coastal Adaptation program leader. “Through our partnerships with communities, we get a better, more direct understanding of their needs, and can use our coastal ecological know-how to help them make the most appropriate and sustainable decisions for their community.”

In just one recent example, we worked closely with the County of Marin and SF Estuary Institute to develop a decision-making guide that can help the county know where nature-based solutions make the most sense.

Point Blue isn't just focused on shoreline conservation in California. We realized years ago that if we wanted to support thriving populations of shorebirds along California's coast, we needed to study where they migrated during the winter. This work became our Migratory Shorebird Project (MSP), covering the Pacific coast of North, Central, and South America. As a cooperative effort of organizations and agencies led by Point Blue, our goal is to conserve shorebirds and wetlands from Alaska to Chile by connecting



Opposite page: Point Blue tools help reveal vulnerabilities of coastal communities and habitat along the Pacific Flyway, like this California shoreline dotted with gulls. Photo by Pgam. Above: Flooding from a storm prompts a trail closure near Morgan Hill, CA. Photo by sheilaf2002.



that there are many rural, undeveloped landscapes allows for the possibility of “wetlands migration.” As sea levels rise, it may be possible for wetland zones to move further inland, preserving critical wildlife habitat. And on the people side of the equation, there is huge value in the fact that many people are still deeply connected to nature for their livelihoods and well-being. Because they rely on intact ecosystems and are already seeing changes on the frontline, planning ahead with conservation in mind is in the

communities, standardizing data, and applying science across the Americas.

The rising seas that threaten California’s shorelines threaten shorelines from Canada to South America, too. And as the MSP moves beyond a focus just on shorebirds, it’s taking on coastal conservation more holistically. “We’re really excited to take some of the lessons we’re learning in California and apply them throughout the entire Pacific Flyway,” says Dr. Matt Reiter, research director at Point Blue and one of the leaders of the MSP.

Matt sees lots of opportunities to implement solutions. On an ecological side, the fact

best interest of these communities.

One of the key tools in our conservation toolbox for a changing climate is to restore degraded landscapes. And as we look to the future with an eye towards the most hopeful solutions, we’re asking a lot of questions about restorations of riparian forests—those adjacent to a river or stream. Point Blue research has shown that the average amount of carbon stored in a mature riparian forest rivals the highest estimates for any other forest type. This means that riparian forests can play a critical part in efforts to slow the impacts of climate change.

Riparian areas also provide habitat for wildlife and are a critical part of an adaptation strategy for animals. In addition to creating corridors through which wildlife can move to new habitats as the climate changes, they also allow for increased gene flow, resulting in stronger populations that can endure in stressful times.

We’re exploring exciting new opportunities to expand these types of restorations in the future. In one example, Point Blue is partnering with the Nez Perce tribe in Idaho, helping them identify their needs and potential solutions as they look to restore habitat. And we are now experimenting with soil inoculants (basically, helpful bacteria) as we put plants in the ground to help ward off disease and increase resilience.

From coastlines to riverbanks, climate change has the potential to affect each and every project that Point Blue works on. Our scientists are answering critical questions to create a more resilient future for human and wildlife communities. *How can we get better at quantifying the many benefits that result from nature-based solutions? Which new partners can help us achieve our goals? How can we stay flexible and adapt with the times?* Luckily for us, there’s not much more exciting to our scientists than unanswered questions, and we look to the future with hope and curiosity. 🌍

Carving Out Support for Conservation

When artist Melinda (Millie) Whipplesmith Plank reached out to Point Blue last spring to ask if we were interested in a collaboration that would support our conservation work, our immediate answer was an enthusiastic yes!

Millie visited Point Blue field sites and worked with our scientists to create two original woodblock prints that represent our climate-smart restoration work. *Hidden Railway* (detail at right) shows the endangered Ridgway’s Rail characteristically skulking amongst the marsh reeds. *Nursery Guardians* depicts Western Kingbirds perched on caging that protects oak trees planted by Point Blue staff in partnership with Glenn Ranch in Petaluma.

Millie will be donating 10% of sales of the prints in 2020 to Point Blue. You can purchase prints through her website (whipplesmithplank.com) and you can learn more about this exciting partnership in our recent blog post (pointblue.org/woodblock).





Going with the Flow

Solving Water Woes for Wildlife and People

Elusive stuff, water. It can slip through our fingers, flow away, or even evaporate into thin air when we attempt to control it. Yet for more than a century, here in California we've been trying to do just that.

Water is a precious resource in the arid West, and controlling it—by damming rivers, building massive reservoirs, and creating hundreds of miles of canals and ditches—has fueled urban and industrial development and enabled California to become the nation's leading agricultural producer. But efforts to contain, acquire, and distribute water have altered the state's hydrology, to the extent that much of our natural landscape bears little resemblance to its former self. This has left deep environmental scars and contributed to California's water woes.

“Through this process of confining our water within dikes and canals, we have severely impacted our rivers, floodplains, and natural wetlands,” says Catherine Hickey, conservation director. Nowhere is this legacy more keenly felt than in California's Central Valley. Almost all of the region's natural wetlands have been lost, drained and converted to agricultural use. Rivers have been cut off from floodplains, and from the wildlife that depend on the floodplains to reproduce and grow, including salmon. Over-pumping of groundwater in many areas has eliminated the connection to groundwater-dependent ecosystems such as riparian forests along the major rivers and seasonal wetlands in the Central Valley, in some cases causing severe sinking of land in the process—up to 28 feet in places!

Wetlands and other aquatic ecosystems provide critical services to people and wildlife. They store floodwater, break down pollutants, help regulate climate by sequestering carbon, and provide much-needed habitat for diverse communities of plants and animals. Additionally, they recharge aquifers and extend streamflow in dry seasons, replenishing water supplies for farms, communities, and wildlife. But disruption of these water-related ecosystem services, coupled with drought and other effects of climate change, make meeting the water needs of wetlands, agriculture, communities, and wildlife a challenge. “Now, in California, we have thirsty crops, thirsty people, and thirsty wildlife,” says Hickey.

Opposite, top: Restoring riparian forests, like this one along the Cosumnes River near Galt, CA, may help slow the effects of climate change. Photo by Annie&John. Opposite, bottom: Detail of *Hidden Railway* by Melinda Whipplesmith Plank. Photo courtesy of the artist. Above: Northern Pintails land on the Sacramento River. Photo by Mike Fusaro.

With climate change expected to increasingly modify water cycles through drought, reduced and earlier snowmelt, and extreme weather events, the need to secure a climate-resilient water supply is critical for the new decade and beyond. It's a Point Blue priority to continue to play a leadership role in guiding solutions, and our robust science is already moving the needle on California's water issues.

Our partnership-driven action is helping secure reliable water for 19 wildlife refuges in the Central Valley, as well as for privately owned and managed wetlands in the region. "Along with our partners, including Audubon California, The Nature Conservancy (TNC), Defenders of Wildlife, Ducks Unlimited, California Waterfowl Association, the Grassland Water District, and others, Point Blue works to ensure refuges receive their full federally-mandated water supplies and that funding for these supplies, deliveries, and management infrastructure are adequate to support wildlife populations," explains Hickey.

On working lands, in collaboration with state and federal partners, industry groups, and farmers and ranchers, we help implement water cycle management practices that maximize benefits for wildlife and people. "Our science helps guide smart use of water resources," says Dr. Elizabeth Porzig, working lands director. For example, determining

the optimal time farmers should flood their fields to maximize benefits for birds while also maintaining food productivity, or informing how ranchers can manage cattle to minimize soil compaction and increase water infiltration.

Point Blue is also informing the planning and implementation of one of the most significant water reforms in a century, the Sustainable Groundwater Management Act (SGMA). "Our efforts with the Migratory Bird Conservation Partnership (Point Blue, Audubon, and TNC) are twofold, says Hickey. "One: *protect*—ensure water supplies for wetlands are incorporated into SGMA implementation, and two: *enhance*—create new or enhance existing bird habitat through local SGMA compliance actions, such as retiring or rotational fallowing of agriculture, and groundwater recharge projects." Point Blue is leading on much of the science to inform these strategies, including developing a tool that helps wetland resource managers understand and project their surface and groundwater needs so those needs can be recognized in groundwater management plans and protected into the future.

We are also addressing water issues at the source: the Sierra Nevada, where Point Blue works to restore meadows that are critical to downstream water supplies. Much of California's water originates in the Sierra as rain

and snowmelt, with water at upper elevations flowing to fill rivers, reservoirs, and groundwater basins in the Central Valley. But more than 50% of Sierra meadows are currently degraded, reducing their ability to provide vital water-related ecosystem services for wildlife and people. "Degraded meadows dry out earlier in the year, while healthy meadows store groundwater from snowmelt during the spring and then slowly release it into streams late into the dry summer months," explains Marian Vernon, Sierra meadows adaptation director. "We're acting now to restore meadows to health using climate-smart restoration approaches to ensure they are resilient to future climate change."

When that water does make its way downstream, Point Blue's Water Tracker can help resource and conservation managers know how to allocate it to meet the needs of wildlife and people. Developed in partnership with the US Fish and Wildlife Service, NASA, USGS, and TNC, Water Tracker is an innovative online tool that harnesses satellite technology to show near-real time data on surface water distributions. The information has already been used in conservation planning and habitat incentive programs on working lands, and with new features and forecasting tools, Water Tracker promises to be an indispensable resource as the effects of climate change increase.

Whether in the Central Valley, the Sierra Nevada, or even from a satellite in space, all of Point Blue's work to secure a climate-resilient water supply is unified by a guiding principle, one that is critical to addressing California's water woes, according to Hickey. "We always consider how to achieve our conservation goals while optimizing multiple benefits," she says. From recharging groundwater and preventing flooding to improving water quality and reducing greenhouse gas emissions, we're advancing water management strategies that balance the needs of people, wildlife, and economies today, and into the future. 



Opposite page: The Black-backed Woodpecker is an indicator species for healthy snag forests. Photo by Keg River. Left: Sierra Nevada Director Ryan Burnett and STRAW students prepare to restore a Sierra Nevada meadow. Photo by Melissa Pitkin/Point Blue.



Life Support

Preserving Biodiversity in a Rapidly Changing World

A jumpy time-traveler journeys to the Cretaceous Period and inadvertently crushes a butterfly. Upon returning to the present, he discovers that the course of history has been dramatically altered by the seemingly inconsequential demise of that single insect. Fans of science fiction may recognize the plot of the classic Ray Bradbury short story *A Sound of Thunder*. But astute observers of nature may also draw parallels with our current worldwide decline in biodiversity: the loss of even a single species can result in significant changes to an ecosystem. And when those single losses are aggregated, the consequences can be dire: a recent United Nations report estimated that around 1 million species are now threatened with extinction.

That's because human well-being, and that of all life forms, is inextricably linked to the health of our planet's ecosystems and the

services they provide, including pollination of crops, air purification, nutrient cycling, and water filtration. Globally, billions of people depend directly on biodiversity—the variety of life in a habitat—for their livelihoods, from forestry to fishing to farming. Planting a wide variety of crops or harvesting an array of fish species, for example, typically increases food and economic security. But disturbances such as habitat degradation, pollution, over-exploitation, and climate change can compromise biodiversity and undermine the stability and productivity of an ecosystem.

The good news is that it's not too late to make a difference. Biodiversity monitoring has long been a Point Blue “superpower,” and our rigorous science continues to catalyze conservation solutions that can ensure a more resilient future for wildlife and people.

“When I first started working in the Sierra 20

years ago, much of the biodiversity conversation was around a few species associated with old growth conifer forest, such as Spotted Owls,” recalls Sierra Nevada Director Ryan Burnett. “I realized early on that much of the biodiversity in the Sierra lies in the relatively small fraction of the system that is *not* conifer forest.”

Burnett and his colleagues worked to understand the biodiversity value of other habitats, including meadows, aspen stands, chaparral, and burned forest, publishing research that shows many species would be left out in the rain under management that was exclusively focused on Spotted Owls. “As a result, snag forests are now included as an important habitat type to manage for in National Forests in the Sierra,” he says, “and aspen and meadow restorations are priorities across the ecosystem.”

Some of those restorations are completed in collaboration with Point Blue’s Students and Teachers Restoring A Watershed (STRAW) program. “Our projects always focus on conserving and restoring the biodiversity of restoration sites,” says Isaiah Thalmyer, senior project manager. “In fact, we aim to restore not only native plant biodiversity, but pollinators and other insects, amphibians, birds, mammals, and other wildlife that use plants as habitat. We design each project to maximize biodiversity and increase resilience to climate change by including plants that are capable of surviving highly variable conditions while also providing habitat all year long.”

And the benefits of increasing biodiversity extend well beyond the restoration site, according to John Parodi, STRAW restoration manager. “The immense diversity of life on our planet creates varied opportunities for people to connect to the natural world in ways that are relevant and personal,” he says. “STRAW allows people to actively work to protect, enhance, restore, and explore this biodiversity.”

As in the Sierra, life in the ocean is a complex web of interdependence. In an example from the southern Atlantic Ocean, overfishing of anchovy and sardine—key forage species for predatory fish, seabirds, and mammals—resulted in a jellyfish “explosion,” with the gelatinous creatures filling the void left by the depleted fish population. The problem, says Dr. Jaime Jahncke, California Current director, is that almost nothing preys on jellyfish, and the animals that rely on anchovy



and sardine may be negatively impacted by the shift. “Removal of any species affects food webs in ways we can not necessarily predict,” he says.

Closer to home, Point Blue and our partners have been monitoring biodiversity in the California Current since 2004 via our Applied California Current Ecosystem Studies (ACCESS) program. Here, warming ocean temperatures and increased acidification are the biggest threats to biodiversity, says Jahncke. Recent research from partners at the National Oceanic Atmospheric Administration (NOAA) for the first time revealed that corrosive conditions along the US Pacific Northwest coast are damaging the shells and sensory organs of some young Dungeness crab. This can cause delayed development and in turn delay harvest seasons, negatively impacting the most economically valuable fishery in California.

Jahncke and his team keep an eye on overall population changes, from whales and seabirds to the plankton and fish that they depend on. “On top of that,” he says, “we use our strength in analyzing data to identify new areas along the coast that would benefit from more protection.” Point Blue has already contributed to the establishment of three national marine sanctuar-

ies on the West Coast—Cordell Bank, Greater Farallones, and Monterey Bay.

Looking forward, protecting more critical habitat from harvesting, as well as from oil and gas exploration and drilling, will help marine species to thrive. “Our ACCESS work shows where species aggregate, helping identify areas that would benefit from protection from human impact,” says Jahncke.

Point Blue research shows a large conservation gap between the mid-Oregon and Northern California coasts. Jahncke and colleagues are currently working to propose this area for further protection.

Just as in Bradbury’s story, the detrimental actions we take now can shape what our world looks like in the future. But it works both ways—positive steps like habitat restoration and the protection of sensitive ecosystems can make just as great an impact. From the Sierra Nevada to the California Current and points in between, Point Blue is acting now to preserve the globally beneficial effects of biodiversity and secure a healthier future for us all. 🌍



Opposite page: Alba Estrada López (far right) leads a STRAW restoration group. Photo by Lishka Arata/Point Blue. Above: Striped marlin and sea lions hunting sardine in the Pacific Ocean. Photo by Andrea Izzotti. Left: A STRAW student pauses planting to investigate an isopod in the soil. Photo by Lishka Arata/Point Blue.

MEET THE TEAM

Alba Estrada López

Rising STRAW Star

Conservation Educator and RAY (Roger Arliner Young) Conservation Diversity Fellow Alba Estrada López is a rising leader in Point Blue's STRAW program. Learn more about her interests and the valuable perspectives she brings to Point Blue.

What's your first memory of something related to conservation?

When I think about pro-environmental behavior, then conservation efforts are part of my earliest memories. This includes having a garden in my family's yard, recycling and reusing much of our plastic and glass containers and bags, limiting our food waste—even things like re-using my siblings' hand-me-downs. I've observed that, similarly to many other low-income Latinx households, I grew up in a family that was conscious that resources were finite and we must be creative, innovative, and intentional on how we use things. It just didn't necessarily have the title of *conservation*.

Just as biodiversity is important in nature, Point Blue believes that the conservation field should be more reflective of our diverse communities. What makes you passionate about greater inclusivity in conservation?

I am passionate about increasing opportunities for people of color not only because I am a member of this community, but because, as an environmentalist, it is strategic to want to create a more inclusive space because of the benefits that result. Environmental issues are global problems and successful solutions will only come from the innovation of a myriad of perspectives.

In other words, when we create a more inclusive field we are creating a more diverse workforce that is more prepared to address issues that affect us all. The conservation field has history of isolating and *other-ing* environmental issues from social justice issues, and that has inhibited both movements'

progress. I strongly believe that is due to the homogeneity of the field. It is only when we begin including a diversity of voices that we can begin to understand that the same systems that degrade our environments are the ones that create social inequity, and it is there that we find our sustainable solutions.

Tell us about a project you're proud of.

Last summer I was able to design and implement a pilot project for community college students to be part of local conservation efforts through a career internship. The inaugural cohort consisted of five students from Santa Rosa Junior College who volunteered with Point Blue for eight weeks to learn more about restoration, marine biology, and conservation careers. Creating more internship and volunteer opportunities for young scientists is an important step in creating a more inclusive conservation field. Community colleges especially have diverse student populations that, for many systemic barriers, do not transfer to four-year institutions and universities and ultimately are not uplifted to the environmental field. The project was

successful in creating the foundation for more community college students to use Point Blue as the platform for a conservation career. I am already planning for this summer, so if you are interested in training the next generation of environmentalists, reach out and let me know!

Have you had an especially inspiring moment as a conservation educator?

Yes, every time we go out and do a restoration and I see students thrilled to be outside, getting dirty, and having healthy competition over who can care for their plant the best, or plant the most, or how many worm refuges they can make. It reminds me to not be jaded to the reality of restoration work, which is filled with little wonders.

What are your interests outside of work?

I am always ready to enjoy a science-fiction book or show and discover good music and art. Or you can find me enjoying the very accessible natural wonders of Sonoma County while checking for ticks on a hiking trail. 🌍



PARTNERSHIP

Jack Liebster

Planning on a More Resilient Marin

You may have heard the adage “it takes a village to raise a child.” But the power of community to accomplish big, meaningful tasks applies to more than just child-rearing, and preparing for the effects of climate change is no exception.

Just ask Jack Liebster, planning manager for the Marin County Community Development Agency. “Community engagement is the indispensable foundation of climate change adaptation,” says Jack. “There are limited opportunities for individuals to adapt on their own; it literally takes a village. All residents need to fully understand the risks and adaptation alternatives available, and find a way to work together to choose, implement, and pay for the adaptations that are needed.”

Marin has been a locus for environmental protection since the 1960s, and the County made an early commitment to climate action in 2002. With approximately 82,000 acres of coastline, rising sea levels and more severe storm flooding are big concerns. These

disruptions are expected to accelerate in the future, but there is hope, says Jack. “If we prepare wisely, we have the chance of reducing those consequences and their impact on people’s lives, natural resources such as wetlands and beaches, our homes, businesses, roads and other infrastructure, and our economy.”

But how—and where—communities approach the challenges of climate change requires a complex playbook. “Our role is to identify potential climate change and sea level rise futures, assess the vulnerability of the things we value to those changes, identify possible ways to adapt to them, catalyze widespread understanding and appreciation for the severity of the threat, and seek to motivate appropriate action while there is still time,” Jack explains.

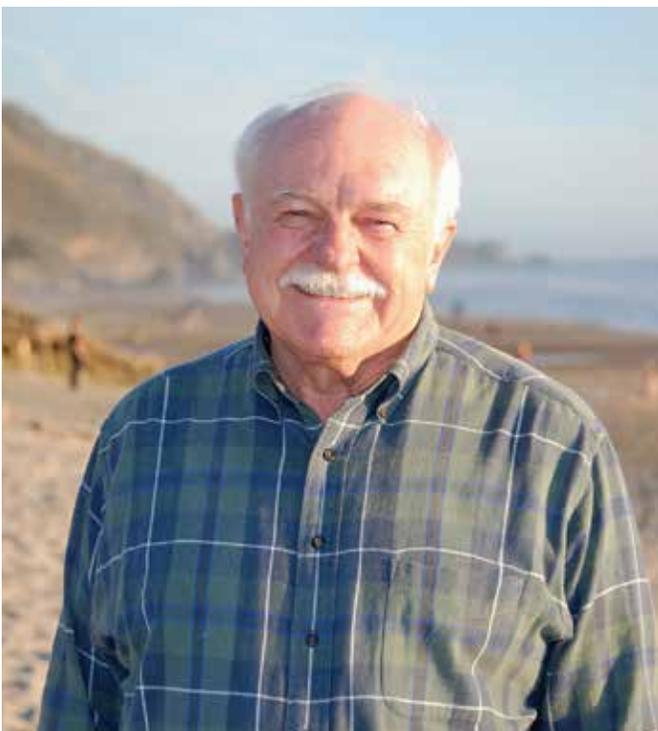
Point Blue has been a frequent partner in the County’s planning and adaptation work. “The Our Coast, Our Future web tool that Point Blue co-created makes the complex scientific output of the USGS CoSMoS model easily accessible, not only to us, but to anyone who wants to see possible sea level rise, storm, and wave impacts anywhere along our coast—from now until the end of the century,” says Jack. Other collaborations include the Marin Sea Level Rise Adaptation Framework User’s Guide, a resource to help planners and others include nature-based strategies to address sea level rise hazards. “Even right now, scientists from Point Blue are part of our team studying the feasibility of novel nature-based adaptation methods such as building up dunes at

Stinson Beach to feed the beach (projected to almost entirely disappear through drowning and erosion by 2100) and protect existing development behind the beach, and restoring seagrass and oysters to moderate wave attack in Tomales Bay.”

“Jack has always understood the value of partnerships, reaching outside your typical silo to develop creative solutions to the climate challenge,” says Point Blue Coastal Adaptation Program Leader Dr. Maya Hayden. “His enthusiasm to collaborate has pushed us as scientists to improve how we translate, communicate, and conduct our work to best support and inform coastal decision-making.”

Jack believes we are at a critical moment in this era of unprecedented change. “The coming decade is our rapidly closing window of opportunity to act before possible choices become increasingly narrowed,” he says. “We are trying to develop adaptation pathways—sequenced actions that build upon one another in step with the ocean’s rise. The timing and transition from one adaptation action to the next, in a way that is most efficient and economical in the long run, is a difficult challenge.”

Making Marin County communities more resilient to the effects of climate change is a daunting task, but Jack is energized to tackle it. “There is an intellectual challenge in puzzling out the pieces to solve an unprecedented problem set. And it’s very much the energy, foresight, creativity, and passion of colleagues who share this challenge—such as those at Point Blue—that keeps me in this fight,” he says. “That, and wanting to save the World.” 



Opposite page: David Loeb. Photo by Elizabeth Hewson. Left: Jack Liebster. Photo Myisha Hogan/Marin Community Development Agency.

CHAMPIONS OF CONSERVATION

David Loeb

Natural Connections

As founding editor of Bay Nature magazine and executive director of the non-profit Bay Nature Institute, David Loeb created rich resources for people to learn about local natural history, follow conservation news, and find new ways to enjoy the area's diverse wild places. Retired since 2017, David still works to connect people with nature as a freelance author and editor. He shared with us some of the experiences that have strengthened his connection to the planet and inspired him to help protect it through a planned gift and annual support of Point Blue.

A Love for Nature, Nurtured

Even though I grew up in midtown Manhattan, my father loved to get outside in nature whenever possible. Our family would often go to state parks and reservations around the New York City area for picnics and hikes in the woods. Later, when we took a couple of trips to national parks in the Southwest and California, the rugged expanses of wildlands and mountains and canyons blew my mind. In addition, my mother's parents had a cottage on Martha's Vineyard, and I loved going there and having the opportunity to be so much closer to nature and to see lots of birds.

From Volunteer to Valued Partner

I volunteered for Point Blue in 1996 and was assigned to do transect counts in the coastal scrub near the Palomarin Field Station. It was a great experience, getting up close and personal with the Wrentits and White-crowned Sparrows, despite the ticks and the poison oak!

After I started publishing Bay Nature magazine (2000), I came to rely on Point Blue as an essential source of information on a wide variety of topics, from the impact of tidal marsh restoration on bird populations to the impact of sea level rise on coastal habitats, from sustainable ranching practices to ocean acidification research, and much more. When



the magazine launched our series of articles on the impact of climate change on Bay Area ecosystems in 2009, Point Blue—and former CEO Ellie Cohen in particular—served as an invaluable partner.

Taking a Life Lesson from Salmon

In the fledgling days of Bay Nature, Jules Evens, a Point Blue research associate, suggested an article about the coho salmon run in Lagunitas Creek. On a cold winter day following a rain, I went out to the creek and stood there looking for salmon. When one swam into view, and then another, it took my breath away. Here, so close to the urban core of a major metropolis, this ancient cycle of renewal involving these large beautiful creatures was taking place right in front of me. It said to me so clearly that human beings and wild nature can coexist, as long as we take responsibility for the way we live our lives, and make room for the life forms that have been living in this place since long before we got here. And it was also confirmation that our actions to restore the landscape can have a positive impact.

Research that Gets Results

I've always been impressed by Point Blue's science-based conservation. Working with many local conservation groups through my roles at Bay Nature, I was able to see how respected and influential Point Blue had become in the conservation community.

Point Blue set the standard for effective research leading to action and results in the field of conservation. They are dedicated to turning observations and data into valuable information that can be used by land managers, policy makers, and all the rest of us to make climate-smart decisions about our future. It is the intelligence and dedication and enthusiasm of Point Blue's staff to move this mission forward that I find so inspiring. I'm honored to be able to support this work in a small way, both now and into the future. 🌍

To learn more about making a planned gift, please contact Nancy Gamble, director of philanthropy, at 707.781.2555, ext. 324 or at legacy@pointblue.org.



NEWS BITES

Dieterich Joins Team

Josh Dieterich joined the staff in January as our new chief development officer. Josh comes to Point Blue with an impressive record of fundraising, leadership, strategic development, and relationship building, most recently with The Nature Conservancy and Harvard University. Along with his experience, Josh's passion for conservation science and commitment to collaboration and equity make him a great addition to the team.

New Guide for Land Trusts

Land trusts across the country are dealing with wildfires, catastrophic flooding, severe drought, extreme heat waves, and other climate impacts. Point Blue's new guide, *Integrating Climate Adaptation into Land Conservation: A Climate-Smart Framework for Land Trusts*, helps increase the resilience of conserved lands and ensure land trusts fulfill their commitment to protect land in perpetuity. Find all our climate-smart guides online at pointblue.org/tools-and-guidance/.

STRAW at Shollenberger

Our Students and Teachers Restoring A Watershed team doesn't have to travel far for their latest restoration project—they're transforming the wetlands at Petaluma's Shollenberger Park (see photo above), literally right outside the door of our headquarters! Over the next three years, 600 students from 10 Petaluma schools will plant more than 1,000 native plants. The project will increase habitat for threatened species like the Ridgway's Rail and salt marsh harvest mouse as sea levels rise, along with a suite of other benefits. 🌍

Above: Casa Grande High School students participate in a STRAW restoration at Shollenberger Park in Petaluma, CA. Photo by Lishka Arata/Point Blue.

COP25: Point Blue on the World Stage

by Geoffrey Gordon-Creed, Point Blue Board Chair

In early December, I joined Mani Oliva, Point Blue's CEO, and Dr. Elizabeth Porzig, Point Blue's working lands director, at the United Nations Climate Change Conference (COP25) in Madrid, Spain. Organizations like Point Blue were there to present and share their ideas, learn from one another, and connect. My goal was to learn as much as I could, serve as an ambassador for Point Blue, and talk to as many people about Point Blue as I could.

Dr. Porzig participated on a panel discussion convened by Wetlands International that, among other things, discussed nature based solutions and the science behind them, including wetlands restoration. No bias here, but she really did a terrific job representing Point Blue and our scientific work.

It was tremendously inspiring to be at COP25 with thousands of serious, smart, and committed people working on climate change. With that said, there was also a sense of disconnect. NGOs, activists, scientists, and academics were sharing ideas on how to combat and mitigate the worst effects of climate change. Meanwhile in the negotiating sessions, representatives from the world's most powerful countries were digging in their heels and refusing to commit to any meaningful steps toward reducing carbon emissions and providing the financial assistance required by developing countries to help them transition to more carbon-neutral economies.

Disheartening as that was, I came away from COP25 with optimism. Here's why. The robust activism and directed passion of the next generation demanding that political leaders recognize and deal with the crisis of climate change was evident and palpable. There were

young people present, protesting, and demanding action inside and outside the venue. Greta Thunberg, the young Swedish student who is holding adults to account, was by far the biggest star there and a huge press draw. Both political and business leaders voiced their understanding that the calls of the next generation are getting louder and more insistent. I am certain that the current state of political inaction on climate change will not last and that the next generation will lead us to the light. I'm proud that Point Blue is training and engaging aspiring conservationists every day.

And at COP25, I saw that the private sector, cities, and states are mobilizing and organizing to push national governments into real action. They will need sound science to secure a safe climate future and healthy, thriving ecosystems, and Point Blue can help point the way.

Finally, I returned more committed to and proud of the serious science that is the cornerstone of Point Blue's work. And our partnerships with farmers, students, teachers, land managers, government agencies, and many others show that we don't need to wait for climate policy from DC to keep making progress. In short, I've never been prouder to be a part of this great organization! 🌍

Below (L to R): Mani Oliva, Geoffrey Gordon-Creed, and Dr. Elizabeth Porzig at COP25 in Madrid, Spain. Point Blue photo.



focus

Rich Stallcup (1944-2012) was a Point Blue co-founder and naturalist extraordinaire. His original *Focus* essays inspired a love of nature and conservation. The column excerpted below was originally written in fall 2002.

Birds and Weather



Birds that are native to any area can be seen as “weather vanes,” reflecting local climate effects. Their adaptations and activities indicate responses throughout the natural community to seasons and weather conditions.

Birds have evolved physical and behavioral strategies for dealing with *ordinary* weather within their range. They are waterproof, they know how and when to seek shelter, and because they are feathered, they can thermoregulate (stay warm in cold and cool in heat). Migratory kinds are able to depart from high latitudes before the cold season sets in.

Exceptional and extreme weather causes problems for birds: sometimes there are many casualties for migrants over water; sometimes results are devastating to local species with small terrestrial populations.

Many birds—organisms with unusually high metabolism—adapt better to hot conditions than very cold ones: it is much harder for them to recover body heat than to cool off. For example, many desert species do not need much water, as they derive enough fluid from their insect prey. Tropical seabirds pant and quiver their gular pouches to fan their innards.

Some birds have evolved physical designs for cold, such as extra and denser feathering, but what dictates cold-weather survival is the ability to forage. Among small songbirds in winter, bark and cone gleaners do the best; chickadees, creepers, nuthatches, and woodpeckers can always find insect or spider eggs hidden in dark crannies.

Among the victims of cold weather are potential pioneers trying to open up expanded wintering opportunities to the north. Severe winters may kill the pioneers (like Carolina Wrens in the Northeast and Midwest, and Montezuma Quail in southeastern Arizona and southwestern New Mexico).

Wild Weather

Like any living thing, birds are subject to weather extremes, and local populations may be decimated by single wild-weather events. Here are a few anecdotes, some from *The Encyclopedia of North American Birds* by John K. Terres.

Hail: In July 1953, two extreme hailstorms in Canada killed an estimated 150,000 waterfowl “with terrible destruction of songbirds, hawks, owls, grouse, coots....”

Ice: During World War II, many Common Loons from a flock over the Atlantic fell to the deck of a battleship, their wings encased in ice.

Lightning: John James Audubon saw two nighthawks struck down by lightning during a thunderstorm at Indian Key, Florida.

Storms: An exceptional bird-weather event occurred in May 1998, when Bristle-thighed Curlews migrating thousands of miles nonstop over the Pacific collided with a violent storm. Survivors of this El Nino-related phenomenon showed up, for the first time on record, on the West Coast of North America—a delight for birders but also cause for concern for the species’ small world-wide population.

Birds do well in weather to which they have adapted to over time. When the elements change too rapidly, or generate extremes, many cannot cope. Birds’ responses to weather, observed and scientifically understood, are sensitive “weather vanes” of climate change. 🌍

Above: A banded Bristle-thighed Curlew photographed in the Andreafsky Wilderness, Yukon Delta National Wildlife Refuge. These rare shorebirds breed in western Alaska and winter on tropical Pacific islands. Photo by Kristine Sowl/USFWS.



Point Blue Conservation Science
3820 Cypress Drive, Suite 11
Petaluma, CA 94954
707.781.2555 | pointblue@pointblue.org
pointblue.org

Create a Conservation Legacy

You can help secure a healthy future for birds, other wildlife, and human communities with a planned gift to Point Blue. Contact us to learn how to create your personal legacy of conservation!

707.781.2554 • legacy@pointblue.org • pointblue.plannedgiving.org



Point Blue Advancing nature-based solutions to climate change, habitat loss, and other environmental threats for wildlife and people, through science, partnerships, and outreach.

A banded Western Snowy Plover. Point Blue has led conservation efforts for this federally threatened shorebird since the mid-1970s. Photo by Blake Matheson.