Summer/Fall 2021

Point Blue Quarterly

Conservation science for a healthy planet.

Growing a Better Future

Voices from the Regenerative Agriculture Landscape

FROM THE CEO

Growing a Better Future

When the idea first came up to devote an issue of the *Point Blue Quarterly* to some of the diverse and dedicated people we collaborate with on working landscapes, I was excited for us to jump in with both feet.

Agricultural lands are on the frontlines of climate change. The impacts of drought, flood, fire, and other climate-driven events are often felt first by farmers and ranchers. And while our agricultural system accounts for a significant amount of greenhouse gas emissions, sustainably managed working lands hold enormous potential to help address our global climate crisis.

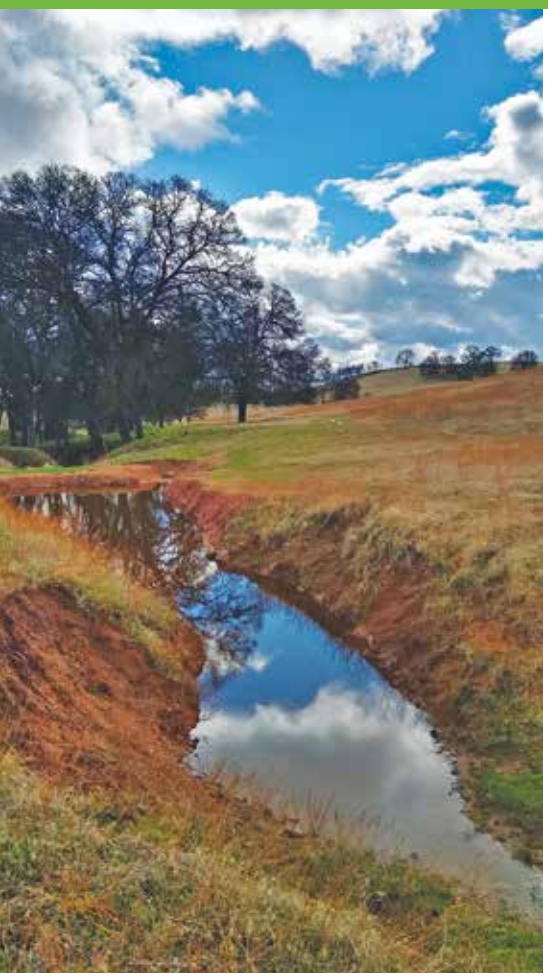
In this issue we elevate the voices of some of the thought leaders and practitioners who are working to better understand and manage the agricultural systems that provide multiple benefits for humans and wildlife. From small-scale producers to government leaders to our partner biologists working in collaboration with the NRCS, members of this visionary group are healing the soil, restoring watersheds, building community, securing human well-being, preserving biodiversity, and making our planet more resilient to climate change. And they all share at least one thing in common: they care deeply about the ability of farmers and ranchers to make a living on sustainably managed lands.

As with much of Point Blue's work, our impact extends beyond the immediate projects and partnerships we have in California. For example, we are proud to be a part of the United Nation's Decade on Ecosystem Restoration (see back cover). And this November, we will again join delegations from around the world at the UN's 26th annual Climate Conference of the Parties, held this year in Glasgow. We'll be sharing Point Blue's expertise around climate-smart agriculture to help better manage the world's working lands as part of the climate solution.

Point Blue is committed to increasing diversity, equity, inclusion, and justice both internally and throughout all of our programs. And we acknowledge that many communities have historically been underrepresented in conversations about the future of conservation and agriculture. Many practices that are now labeled "regenerative agriculture" have far-reaching roots in BIPOC (Black, Indigenous, and People of Color) communities. To support a more inclusive and equitable agriculture community, we pledge to listen to and learn from the diverse body of people who are working to secure a healthier future for working lands, and our planet.

Sincerely,

Manuel Oliva
Chief Executive Officer



Re-Balancing Act

Making a Ranch Ecosystem More Resilient

Heather Bernikoff has been a changemaker in her community through the many roles she's held—a volunteer leader on non-profit boards, a health educator, and an advocate for direct service programs, to name a few. Now on her ranch in the rolling foothills of the Central Sierra Nevada, she is effecting change on the land by applying her creative problem solving skills to ecological issues.

"Both my professional life and my life on the ranch involve studying issues, listening to people who know more, reading, and then using all that data to attempt to solve an issue," she says. The problems that currently concern Heather the most are water scarcity, loss of pollinator habitat, and the cascading effects of climate change.

Heather worked extensively with former Point Blue Partner Biologist Elaina Cromer and continues to work with Partner Biologist Catie Mong to strategize and implement nature-based solutions on her land. "I have installed swales and plan to install log/rock drop and beaver dam analog structures to slow down run-off, in an attempt to retain as much moisture as possible," Heather details. She has also made extensive efforts to make her ranch a sanctuary for pollinators, especially the western monarch butterfly, planting more than 400 nectar and milkweed plants—irrigated with rainwater captured from her roof. "By doing these things, I am hoping to make this ecosystem more resilient to climate change," says Heather.

Above: Mani Oliva. Photo by Lishka Arata/Point Blue. Left: A swale on Heather Bernikoff's ranch helps manage water runoff, filter pollutants, and increase rainwater infiltration. Photo courtesy Heather Bernikoff.

Heather Bernikoff places pollinator-attracting plant species from a Xerces Society for Invertebrate Conservation habitat kit during a smoky day on her ranch in the Central Sierra foothills. Photo by David Raboy.

For Heather, whatever benefits result will contribute to the greater good of the planet, and all who inhabit it. "If natural systems are not working, it impacts everything from human health and food systems to living conditions and water availability and quality," she believes. "The ranch is where I have some small measure of control, and if I can help the ecosystem here, in this harsh landscape, there is hope for other places."

Heather's approach to the stewardship of her land is deeply rooted in her Native American heritage. "*Inepo Yo'eme*—I am Yoeme," she says. "In my culture, there is no difference between one's health and the health of all our relations. If you do harm, you do it to yourself." And Heather believes that because the human species is capable of doing harm to our shared Earth, we have a corresponding responsibility to care for it. She surmises: "I am doing what I should be doing when there is an imbalance, and helping where I can."

Heather was recently awarded a contract through the USDA Natural Resources Conservation Service (NRCS). It's a major achievement that will enable her to improve water availability and quality for livestock and wildlife, increase habitat for pollinators and birds, and protect sensitive riparian areas of her ranch. Point Blue and partners, including biologists from the NRCS and the Xerces Society for Invertebrate Conservation, worked with Heather to develop a plan and navigate the application process. "I could not have done as much without this team," says Heather, "and I thank them every chance I get!"

The award of the contract was very personal to Heather. She recalls how her grandfather Henry Ayala, a highly decorated war hero, was denied farm loans in the 1940s because of racist lending practices. "Like many people similar to him, he didn't want anything much—just something to call his own, somewhere he could produce food for others, and make a living for his family," she explains. "As an Indigenous and Latino person, his money and industry were not good enough. He put his dream away and moved on, never building the farm he wanted," Heather laments.

Seventy-three years on, Heather says her grandfather would be very proud of her achievement, but also realistic about the barriers people of color continue to face with access to credit, resources, and land. "My grandfather was still alive when I purchased this ranch, and he loved this place," she says. "He was so amazed that in just two generations his family could have such acreage."

Cultural connections continue to be meaningful to Heather as she works to maximize the health of her ranch ecosystem. She often consults local Tribal elders, to learn from them "what grows here, what things work together—essentially, how to do things the right way." She believes we'd all benefit from more Indigenous people having a seat at the table when it comes to setting agricultural policy. "They have a perspective as land stewards, often with thousands of years of knowledge, and as impacted stakeholders that are not tied simply to profit creation," she says.

Heather would also like to see a major shift in thinking about our relationship with the planet and natural resources. While regenerative agriculture—which largely builds upon practices pioneered by generations of BIPOC communities—can help draw down carbon, improve the water cycle, and provide other benefits by restoring soil health and degraded habitat, Heather points out that so much of the focus is on fixing damage that has already been done. While that work is necessary and important, she wonders how different the world would be if we viewed it through another lens. "We see every blade of grass, tree, ounce of water as a function of its monetary value instead of seeing it as a relation, as necessary to our well-being, as having an intrinsic value solely due to its existence," she says. "There are people who want to shift the ecology, but who need to ensure it won't negatively impact the business aspects of their operations. We have to balance those interests. But to do this, we would also need to shift the fundamental economics of all sectors, including farms and ranches, to decrease the pressure to scale up, to make more and more profit or just simply keep up with costs with a little bit extra on which to live," Heather continues. "You can't make money if you have no water or dead soil."

But Heather is encouraged by some of the things she is seeing. "With the smaller family farms and ranches I know, care for the land is embedded in their business model," she says. "And young people make me hopeful—both the scientists that help land stewards innovate and thrive and the young people choosing careers as farmers and ranchers. *Ne visawame eme'e*—I am grateful for them all."

by Stacey Atchley-Manzer, Editor

Of Mettle and Mycelia

Nature-Based Solutions on a Small Farm

TurkeyTail Farm is a small family operation located in the bucolic foothills of Butte County, California, tucked between the northern end of the fertile Central Valley and the western slopes of the Sierra Nevada. Samantha Zangrilli and Chris "Cheetah" Tchudi coax a variety of food and natural products from their 40 acres of oak savanna, brush land, and pasture, including gourmet mushrooms, duck eggs, pasture raised poultry and lamb, and herbal products. Most of what Cheetah and Sammey produce stays within the community, via farmers markets, some wholesale business, and their own Community Supported Agriculture program, which offers subscription boxes of seasonal farm bounty.

TurkeyTail Farm is committed to what Cheetah describes as a "model of practical and profitable, ecologically conscious agriculture." And for him and Sammey, that all starts with synergy: the byproducts of the mushroom farming become food for the livestock, the livestock manure nourishes the market garden, and the weeds pulled from the garden provide additional food for the sheep. "Use nothing just once and move energy around the farm to maximize utilization of farm inputs," Cheetah explains.

Partner Biologist Carrie Wendt was immediately impressed by the couple's approach when she first visited TurkeyTail Farms four years ago. In her position—a collaborative role between Point Blue and the USDA Natural Resources Conservation Service—she was there to help guide conservation strategies that would enhance wildlife habitat on the property while also improving farm productivity. "I really enjoyed what they were doing on their land," she says. "They didn't want to extract from it—they wanted to be part of the system." According to Carrie, the ecosystems of smaller, more diverse farms like TurkeyTail often provide important habitat for wildlife and crops that support pollinators. "They are not trying to exclude nature, but farm and ranch with nature," she says.

Cheetah Tchudi and Sammey Zangrilli with a fungus colony ready to be applied to a burn area. Photo courtesy TurkeyTail Farm.

It's a philosophy that was tested when the Camp Fire roared through Butte County in November, 2018, consuming more than 153,000 acres and claiming 85 lives. Like many of their neighbors, Cheetah and Sammey lost their home in the fire, as well as all of the farm's outbuildings, several vehicles, and their electrical and water infrastructure. Despite the devastation, Cheetah got to work making repairs to the livestock pens and, with the help of his sheepdog, rounding up the animals that he and Sammey were unable to evacuate. "The fact that we evacuated our product and our animals survived is why the farm's spirit survived," says Cheetah. "The fact I had sheep and pigs to rescue forced me to act rather than wallow in my own grief. The farm saved me while I was rescuing the farm."

Although wildfires are a natural part of the western landscape, the combined effects of climate change and more than a century of fire suppression are leading to more intense, more devastating fire events that take dire human and environmental tolls. And the danger is not always over when the flames subside. When high-intensity wildfires burn the artifacts of modern life—buildings, vehicles, household electronics, etc.—they leave in their wake toxic substances such as arsenic, lead, and benzene, which can contaminate soil and pollute watersheds. "After the fire the greatest areas of concern on the property were the burned vehicles and the pump house," Cheetah says. "Both of these had burned lead acid batteries, as well as aluminum."

But just as Cheetah and Sammey were guided by natural systems in their operation of TurkeyTail Farm before the fire, they looked to nature to aid recovery of the land, and their community. And help came in what is to many an unlikely form—a mushroom.

Since his days as an agroecology and mycology student at Evergreen State College in Washington, Cheetah has been intrigued by the possibilities of *mycoremediation*—the use of fungi as powerful environmental healers. Among nature's best decomposers and recyclers, research suggests that mushrooms (the fruiting body of fungi) and their underground mycelia (networks of root-like threads) can be used to help break down or sequester harmful materials. They have been increasingly deployed as a nature-based tool to clean up after environmental disasters, including the 2007 Cosco Busan oil spill in San Francisco Bay and the 2017 Tubbs Fire in Sonoma County.

Meet the Team: Carrie Wendt, Partner Biologist

Photo courtesy Carrie Wendt.

Partner biologists work jointly for Point Blue and the NRCS to help farmers and ranchers implement climate-smart conservation programs on their lands by leveraging federal, state, and other agency funding. Carrie Wendt's path to becoming one was gently winding, just like the narrow country roads that thread the foothills of Butte and Tehama Counties where she lives and works.

Carrie grew up on what she calls the "fringe" of agriculture in Placerville. Her first career was working for the National Park Service and other agencies, doing wildland firefighting, trail construction, and stream restoration. "It wasn't until my late 20s that I went to college," she says, "after realizing that I wanted to use my brain as well as my body."

With Carrie's outdoor skills, friends in the field encouraged her interest in wildlife biology.

At Humboldt State University, a class on the ethics of food was an epiphany. "It changed my life," she says. "I was always torn between wanting to farm and wanting to be in the woods doing wildlife biology. It was a pivot point where I realized I could combine those two interests." Carrie's academic research, under the guidance of former Palomarin intern and current Point Blue Science Advisory Committee member Dr. Matt Johnson, explored how birds such as migratory warblers and Barn Owls help control pests on agricultural lands.

After graduate school, the partner biologist role was a dream come true. "*I can actually get a job doing this?*" Carrie recalls thinking. "I love working with people who work the land and are always striving to do better—to feed people in a way that is also conscious of the environmental impact."

Carrie spends a lot of her time helping landowners make adaptations that will increase resilience. "Drought and fire are the main climate change effects we're dealing with—we are seeing it before our eyes," she says. "Some folks look at that as dismal, but there is so much research and funding going into how we can make farming and ranching more compatible with climate change," she says. "And to me, that is hopeful."

Being able to connect that research and funding with producers on the ground is just what makes a partner biologist like Carrie such a key piece in the climate adaptation puzzle. But the flow of knowledge works both ways, she says: "Building trust with the landowners, seeing how people are adapting, and thinking about what we can do differently is important," she says. "We're working to bring people together, build community, and learn from each other at the same time."

by Stacey Atchley-Manzer, Editor

Concerned about the toxic debris on his own land and moved to help others in his community, Cheetah not only began preliminary mycoremediation at TurkeyTail Farm, he also launched the non-profit Butte Remediation to test soil and provide no-cost fungal bioremediation services to underserved Camp Fire survivors (he's already planning a series of workshops to assit those impacted by this summer's Dixie and Caldor Fires). His methods include applying oyster mushroom-inoculated straw wattles or sheet mulch to toxic ash footprints and allowing the fungi to grow over a period of months. Laboratory testing has shown promising reduction of chemical substances over the course of treatment. His ultimate goal is to groundtruth mycoremediation research and provide open-source techniques to fire survivors. And Cheetah has been inspired to take his mycoremediation journey a step further, enlisting Carrie's support through Point Blue and the NRCS for a project aimed at demonstrating the ability of fungi to break down pesticides in orchard soils.

"It's been inspiring watching Cheetah and Sammey regrow and be super resilient and not give up," says Carrie, who also lost her home in the Camp Fire. "Our journeys have been parallel in many ways, and we've supported each other." One of the ways Carrie, in her role as partner biologist, has been an important post-fire resource is by helping secure NRCS funding for a comprehensive conservation plan to rebuild TurkeyTail Farm's water infrastructure.

Cheetah is reflective about the resiliency required to maintain the synergy of an environmentally sustainable small farm while also adapting and responding to conditions after wildfire. "Sometimes seeing the path forward was near impossible," he says. But his and Sammey's passion for securing a healthier community—whether by providing nourishment or cleaning the soil—keeps him hopeful. "I love farming because growing food fulfills the most basic human needs. I'd like to believe that people are seeking a closer connectivity to their food and knowing the people who grow it. Ultimately we have to invest in the people that can heal our soils and feed people in a more holistic way."

Mushrooms grown on wattles placed in a burn area. Photo courtesy TurkeyTail Farm.

by Stacey Atchley-Manzer, Editor

Cultivating California's Climate Resilience

A Conversation with the Honorable Karen Ross

Point Blue has a long history of working hand-in-hand with farmers and ranchers across California to apply climate-smart science on working landscapes to benefit soil, water, air, plants, and animals. Anne Chadwick, vice chair of Point Blue's Board of Directors, recently interviewed California Department of Food and Agriculture Secretary Karen Ross to find out more about the State's efforts to scale up climate change solutions on working lands, and how Point Blue's science can help achieve those goals.

Working lands are often seen as a climate change contributor, but we know that they may actually be a big part of the climate solution. How can California's farmers and ranchers unlock the potential of carbon capture and carbon banks?

Measuring and verifying carbon levels is going to be key, and it's possible—Point Blue is doing it! It can be intimidating for farmers and ranchers if it's really time consuming or expensive... I think that's going to be an important hurdle for us to get through. The work that Point Blue has done, especially with our coastal communities and with rangeland owners and ranchers, has been a huge step forward in helping us really achieve the scalability that we have to have.[1]

I think the real opportunity is in partnerships. Point Blue has been built on partnerships and science, and that's what we need to look at. We have to close the gap so that [food companies] are partnering with farmers and ranchers...actually investing to get more regenerative agriculture on the land. That's going to help them reach their goals, and I think that will help us scale up.

How can farmers, ranchers, and the food supply chain help California reach its zero-emission goals?

First of all, we need to make sure that every 18-wheeler that drives up and down the 99 and the 5 Freeways is electric, or at least using very low carbon fuels. Transportation is the hardest nut to crack with this whole problem. And the California Air Resources Board has taken significant steps that way.

The FARMER Program is the most oversubscribed program at the Air Resources Board.[2] And the proposed budget this year has $230 million to keep that program going, because we know what a positive difference it has made in helping that air basin achieve its attainment goals just to be in compliance with the federal Clean Air Act.

Another significant change that the Air Resources Board voted on in January is to completely phase out open field agricultural burning over the next three years. They think that there's enough suitable alternatives, and one of those is for orchards of almond groves. We did a pilot [program] with the Almond Board of California two years ago to prove that pulling out these trees, mulching them in the field, and then immediately working them into the ground actually stored carbon and eliminated the need for burning.

How do we develop resiliency in our state's water supply? And what is the role of groundwater recharge and storage, and how can that benefit both farmers and wildlife?

We're thinking about multi-benefits, whether it's the proposed Multibenefit Land Repurposing Incentive Program, the implementation of the Sustainable Groundwater Management Act, or water benefit projects [such as] rebuilding our flood plains—it's good for the ecosystem, truly good for recharge, helping communities avoid destruction from floods, and over time really good for agriculture.[3] Because if we don't have healthy ecosystems, we cannot have a healthy agricultural system. It's very exciting to be able to think this way instead of one thing at a time in a box!

CDFA Secretary Karen Ross. Photo courtesy CDFA.

How do we win hearts and minds to stimulate climate action on working lands?

First we have to find a way to listen to each other and to really hear each other's concerns. If I'm talking to a single mom in a part of Los Angeles where she has to catch three buses to go grocery shopping, she's got a different list of concerns than a farmer growing 100 acres of fresh produce. But there's much commonality there if we take the time to think about each other as compassionate human beings that share the same space.

For me, the connector is food. We grow it with care for the earth and the livestock. And we grow it because we want people to have it. And we want people to understand we do this for passion for a way of life, but it's also a business. I always say eating is a two-way street.

What keeps you up at night, and what gives you hope?

I worry about people. Because if we forget the impact of our decisions that we make

in Sacramento, if we forget the impact on people's lives, well, then we've been in the town too long.

We're trying to build resiliency into our healthy, equitable, climate-smart food systems, and that means our diversity is our greatest blessing. Having many, many small farms that coexist with many, many large farms—we need that continuum to meet the food needs. But how do we help the small and mid-sized growers who don't have as many resources?

How do we make sure agriculture is still viable and exciting? And I think it is an exciting place for young people, people of color. We have a new Black, Indigenous, Farmers of Color advisory committee. How do we make sure that they have the opportunity to succeed?

The really big hope for me is our young people. There are so many bright young people, and our environmental schools are overflowing with them. And many of them are excited about working landscapes and being on the land. They find out about soil health and change their major because they get so excited about it! We need that energy and we need that enthusiasm and we need their optimism. And we need their frankness—that's quite truthful, because they bring a new way of looking at things, and that's important to keep industries sustainable for the long term.

This interview has been condensed and edited for clarity. To view the full one-hour conversation, which was conducted via Zoom with an audience of Point Blue staff and guests, please visit pointblue.org/secretaryross.

[1]Point Blue is developing new innovations that will allow us to work with CDFA and other agencies to contribute large-scale, verifiable datasets of carbon levels.

[2]The Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program provides funding through local air districts for lower emission agricultural harvesting equipment, heavy-duty trucks, agricultural pump engines, tractors, and other equipment used in agricultural operations.

[3]The Multibenefit Land Repurposing Incentive Program is intended to help farmers repurpose fields to more water-efficient uses that deliver new benefits, such as open space for rural communities, recharge basins to store water, habitat corridors for wildlife, and lands to store carbon.

The State of Regenerative Agriculture

Point Blue works with partners across California to maximize the ecological value of working lands for people and wildlife. Meet two individuals who know firsthand the value of Point Blue science to inform climate-smart management practices that help produce healthy food; increase benefits to soil, water, air, plants, and animals; and sustain the social and economic well-being of communities.

Tacy Hahn
Landowner and Point Blue Member

I first became involved with Point Blue after buying the Ford Ranch in Nevada County, California, in 2015. The property was slated for development when the local land trust brought it to my attention, hoping that it could be conserved.

Point Blue began monitoring almost immediately, and we introduced a grazing schedule the next year.[1] For me, learning that one could mimic nature through a grazing plan and begin to restore land that had been overgrazed was a new and exciting concept. It will take time to heal, but the property is protected and being coaxed along. It is becoming a more complete ecosystem.

I try to go out with the Point Blue partner biologists whenever they monitor. I learn more and more each time. The ranch started out in a very neglected state and the changes are becoming more obvious. It now hosts great biodiversity in its plants and birds and the numbers are growing.

The more land we have being managed to encourage the health of the entire ecosystem, the healthier we all are.

Wendy Millet, Ranch Director,
TomKat Ranch Educational Foundation

Point Blue is, and has been from the beginning, critical and central to the mission and success of TomKat Ranch Educational Foundation. Point Blue provides scientific guidance, expertise, and research to advance our knowledge and understanding of the co-benefits of regenerative agriculture. Their Working Lands Program is rigorous and comprehensive in a world where reductionist and siloed science is all too common.

My passion is to help people understand how the health of our food, land, water, soil, communities, animals, and selves are connected. We are grateful for Point Blue's shared passion for protecting and restoring working lands in a way that benefits both natural and human communities. If we care for nature, she will care for us.

[1]Monitoring the presence and diversity of plants and wildlife, soil dynamics, and other conditions helps partner biologists assess ecological function and changes in response to management strategies.

Above left: Tacy Hahn. Photo courtesy Tacy Hahn. Above: Wendy Millet. Photo courtesy Wendy Millet. Below: Hermit Thrush. Photo by hansstuart1nm.

It's Bird-A-Thon Season!

Visit pointblue.org to register or support a team in the 43rd annual Rich Stallcup Bird-A-Thon, now through October 15.

pointblue.org

Point Blue
Conservation science
for a healthy planet.

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A Decade of Ambition

The decade 2021-2030 has been designated by the United Nations as the Decade on Ecosystem Restoration and Point Blue is proud to be participating in and supporting the UN's effort. To further ecological restoration and address environmental issues in ways that improve community livelihood, health, and access to basic human needs, Point Blue commits to:

- Work with agricultural producers to support 800,000 acres of agricultural land with stewardship practices that provide habitat for biodiversity and ecological processes while providing food and livelihoods for local communities.
- Restore 10,000 acres of mountain meadows in California to benefit biodiversity, carbon sequestration, and water quality and increase their resilience to climate change.
- Restore 500,000 acres of Sierra Nevada forest to enhance resilience to climate change and extreme fire, resulting in enhanced biodiversity and long-term carbon storage.
- Restore 520 acres of riparian, wetland-upland transition zone, and farm edge habitat, providing benefits to wildlife, water quality, carbon sequestration, and aesthetic value to our communities. In addition, these benefits amplify throughout the landscape as these habitat types are essential linkages for wildlife and for whole-ecosystem health.
- Support the science-based restoration of 100,000 acres of tidal marsh in the San Francisco Bay–with as many acres restored by 2030 as possible.
- Engage over 51,000 students and teachers and community members in the implementation of restoration projects.
- Manage fisheries in the California Current System in a sustainable manner that leaves sufficient forage for thriving populations of marine birds and whales.
- Manage vessel speeds in the California Current System to decrease whale strikes, reduce noise pollution, and decrease carbon emissions
- Guide safe implementation of renewable energy development off California Current System safeguarding wildlife populations and human uses.
- Advance the scientific and practical knowledge for ecological restoration that will be resilient to the consequences of climate change.

Read more about our participation in the Decade of Ecosystem Restoration, including our own declaration and commitments, at pointblue.org/commitments.

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

Above: Cattle graze on the grassy knolls of a California ranch. Photo by Anne Kitzman. Cover: Working Lands Research Director & Principal Soil Ecologist Chelsea Carey, PhD, samples soil at TomKat Ranch. Photo by Liz Chamberlin/Point Blue.