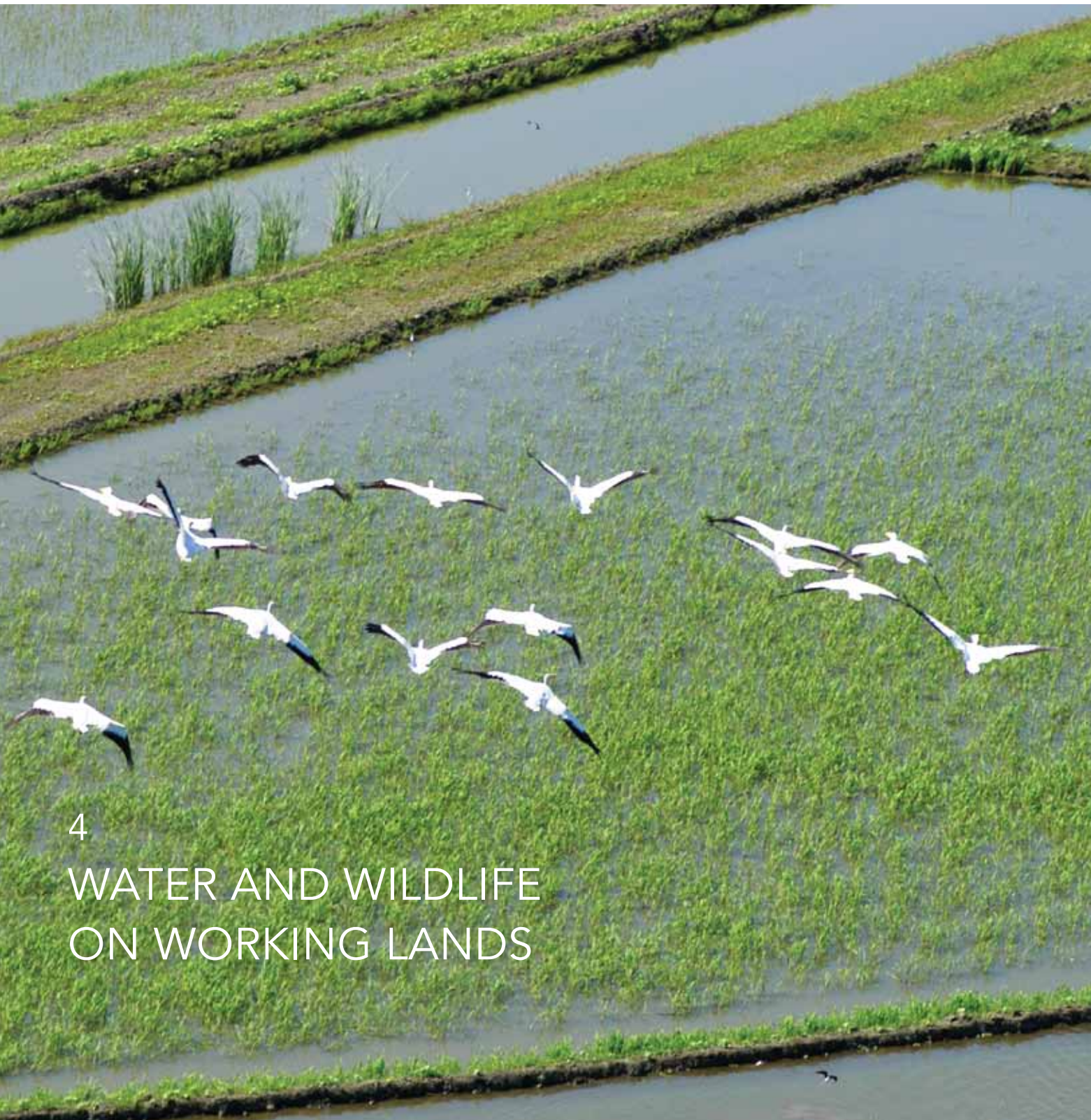




Point Blue Quarterly

Conservation science for a healthy planet.



4

WATER AND WILDLIFE
ON WORKING LANDS



Ellie M. Cohen

PRESIDENT AND CEO OF POINT
BLUE CONSERVATION SCIENCE

Ryan Burnett contributed
to this article.

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FROM THE PRESIDENT

Left: Ellie M. Cohen. Photo by: Miki Goralsky.

FIRE – KEY TO BIODIVERSITY, CARBON STORAGE, HEALTHY WATER CYCLE

Fire and Water in the Sierra Nevada

In early September, I was scheduled to go with my family for a long weekend up to Yosemite, but due to a major wildfire our plans had to be cancelled.

The Yosemite Rim Fire, California's third largest on record, started on August 17, 2013, and is still burning (95% contained as of mid-October). In just two days (August 22 and 23), it sped through one-third of the total area burned (402 square miles) with 200-foot walls of flame. But once it hit Yosemite National Park, where both wildfire and prescribed fire have been used to reduce fuel loads, the fire's pace and intensity dropped substantially.


Fire is essential to nature's health in much of the West. However, fire suppression policies and extensive logging of larger trees have resulted in much denser forests full of small fire-prone trees and excessive fuels (dead trees, branches, and needles) on forest floors. Coupled with increased drought (the first half of this year was the driest January-to-June on record in California), fires are burning more intensely, killing more trees, and releasing more stored carbon.

Under Ryan Burnett's leadership, and working with the U.S. Forest Service, Point Blue has collected long-term data on bird ecology from over 2,000 locations spanning the Sierra Nevada. The Rim Fire burned through 100 of these sites. We can now track changes in bird communities resulting from fire there and elsewhere. This will help us guide improved management for wildlife that depend on post-fire habitat, including the Chipping Sparrow, Lewis's Woodpecker, and rare Black-backed Woodpecker.

Our Sierra Nevada research has shown that mechanical thinning of forests (needed especially in fire-prone wildlands where humans are increasingly building and living) can benefit some birds. However, to sustain the full range of species that depend on Sierra Nevada ecosystems, fire is still essential.

Fire is also key to a healthy water cycle in the Sierra Nevada, where more than 60% of California's water for agriculture and our communities originates. Stories in this Quarterly illustrate the importance of these connected benefits from nature.

Reducing tree densities and other fuels through fire and mechanical thinning will help forests sustain birds and biodiversity, withstand more extremes, store more carbon, and absorb and gradually release more water to streams and meadows.

Partnering with the Forest Service and others, our goal is to ensure a climate-smart conservation approach: managing for a balance between fire, mechanical thinning, wildlife needs, and human needs in our rapidly changing world. 

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By Catherine Hickey

Above: American Avocets in rice field, by Stuart Mackay.



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Wet habitats at high elevation are fragile but crucial to Sierra birds.

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American White Pelicans over rice farmland in the Central Valley. **Photo by:** © 2007 State of California.

◀ **Left:** Healthy California rangeland in spring. **Photo by:** Melissa O'Dell.
Center: Central Valley wetland. **Photo by:** Ryan DiGaudio. **Right:** Sierra meadow. **Photo by:** Stefan Lorenzato.



Catherine Hickey
Conservation Director, Pacific Coast and Central Valley Group.

Active in bird and habitat conservation coalitions spanning the Americas, Catherine also helps lead the Migratory Bird Conservation Partnership with Audubon California and The Nature Conservancy.

MANAGING WATER FOR FOOD, BIRDS, AND COMMUNITIES

Balancing Needs

Water is essential to nature's health and our health. Point Blue works collaboratively, from the high Sierra to sea level, to increase water availability and efficiency for wildlife and people.

Nearly every drop of water in California is spoken for, managed, and subject to political and economic negotiation. It has been that way for decades. But with a growing human population, and climate change knocking on the door, the issues surrounding water now call for innovative approaches. With Point Blue's science we can help broker solutions among diverse interests while ensuring that wildlife needs and climate-smart principles¹ are high priorities in decisions about the future of California's water.

In the Central Valley of California, water sustains some of the world's most productive agriculture and most threatened wildlife habitat. Achieving the goal of thriving wetlands and bird populations in this region requires solutions that balance the needs of a wide array of stakeholders, from natural resource managers to farmers to water policy decision-makers.

At Point Blue we believe that the key to lasting conservation success is to find ways to manage water for multiple benefits, including flood protection, wildlife habitat, recreation, and food production. To sustain waterbird and shorebird populations in the Central

Valley, it is essential for public lands (such as wildlife refuges) and private lands (such as duck clubs and farms) to have dependable supplies of water every year. Water that is *reliably* available can benefit thousands of shorebirds back from their Arctic breeding grounds, bird watchers who come to see the sky fill with Snow Geese at dusk, and hunters awaiting daylight from their icy duck blinds.

This region is home to extensive flooded agriculture – crops such as rice, alfalfa, and wheat that use water while growing and also on fields after harvest. Watered farmland serves as critical habitat for hundreds of thousands of birds, which have lost 95% of their historic wetland habitat in the Central Valley.

Essential to successful conservation on working lands are strong partnerships. We work with agricultural agencies such as the USDA Natural Resources Conservation Service (NRCS), industry groups such as the California Rice Commission, individual farmers, and, in the Migratory Bird Conservation Partnership, with Audubon California and The Nature Conservancy.

Bringing all these perspectives together, we aim to assess how to create conditions that benefit farmers and water-



¹ Learn more at www.pointblue.org/priorities/climate-smart-conservation.




birds. And we have been successful! For example, we have identified ways for rice growers to provide additional bird habitat without using additional water. How does this work? Growers flood fields earlier than average in the fall or hold water on fields later in the winter and into the spring (critical migration windows). In a major achievement for all the partners involved, Point Blue research guided NRCS's investment of \$11 million in Farm Bill funds for rice growers to apply such practices to enhance waterbird habitat.

While water availability has long been the issue in California, climate change – with the expected increases in drought – puts an unprecedented premium on its use. Californians now are discussing strategies to address water supply and allocation demands in the face of future drought years.

Concern about climate change is also prompting the search for acceptable ways to reduce greenhouse gas emission from agricultural production. There is growing pressure to create programs that reduce the amount of water used during growing and post-harvest seasons – potentially impacting waterbirds and farm operations alike. Water conservation and reduction of greenhouse gas emission both are essential, as are new conservation strategies that minimize negative impacts of any reduced water allocation to agriculture and wetlands.

We face uncertainty about the future of water in California. Can we find creative solutions that sustain waterbirds, maintain the benefits wetlands provide to society, support our farmers and ranchers, and ultimately improve the quality

of life for all Californians? We believe we can, and we have to try. But it will take hard work, sound science, and strong, diverse collaborations. With partners, we are developing tools to plan for the future – tools that address uncertainty and enable people to assess potential future scenarios regarding water supply and distribution, as well as changing land use and climate.

We are helping provide a common framework for multiple stakeholders to make short-term and strategic policy decisions for the future for California's most precious, highly disputed, and in-demand resource – water. 

Left page: Long-billed Dowitcher in breeding plumage. **Photo by:** Tom Grey.

Right page: Wintering waterbirds and shorebirds find essential habitat in the wet fields of California's Central Valley. **Photo by:** Ann Burris.

ASSESSING THE LAND'S HEALTH

Diagnosing Soil



Gazing upon California's varied landscapes, most people are struck by the natural beauty. But closer examination reveals stark evidence of damage that we are causing to our most basic natural resource, the soil. While certain places still have healthy soils and intact ecological processes (water and nutrient cycles and plant succession, for example), that is the

exception today, not only in California but throughout the West. When I survey lands that I drive or walk through, I take on the role of a land doctor. How is the patient faring? I check the pulse of the land, mainly by inspecting its watercourses. What is the condition of the creek or stream? Does it have stable, well vegetated banks? Is the vegetation native to the locale and free of invasive species, and

are there plants of varied age, structure, and diversity? Would the water in the stream meet the varied needs of native fish and wildlife – and people?

Most often the stream is incised into the land. It is down-cutting and widening, and it may be tapping into its water table, if shallow, and draining it dry. Channels that are enlarged this way impound the water even during natural



flood cycles. This robs the surrounding land – or floodplain – of the renewal that an overflowing stream brings. My diagnostic checklist continues. Are the stream banks bare of vegetation and eroding? Are new individual native plants joining the streamside community every year, or has it been years, perhaps decades, since a new tree or shrub began growing there?



Wendell Gilgert

Rangeland Watershed Program Director, Point Blue Emerging Programs and Partnerships Group.

Wendell spearheads our work with NRCS and private landowners to enhance crucial natural benefits as well as economic viability on 1.5 million acres of agricultural land in California.

Why are our watercourses in such bad condition? What are they telling us about our soils' poor health? Can these declining or degrading natural systems be repaired and restored?

While there is seldom a single reason for degraded soil (and thus ecological health), hardening of the soil – compaction – is almost always a major culprit. This process began over two centuries ago, when Spaniards introduced domestic livestock into California, and it continues today.

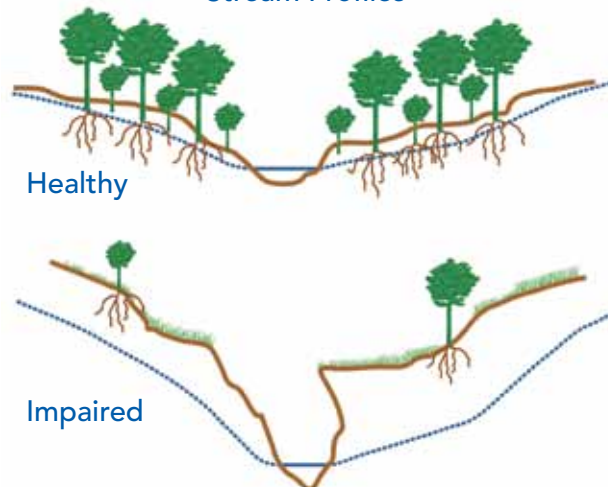
In our Mediterranean climate, rainfall typically occurs from late fall until mid-spring. Soils are wet then, grasses green and growing. This is the most productive time for sheep and cattle to use rangelands. But it is not the optimal time for this for the soil!

Weight applied to wet soil over time removes all the pore space, compacting the soil. Animal hoof impact in winter for more than 200 years has produced a "cowpan" – the loss of pore space in the top 6 to 12 inches, which severely limits the movement of air, water, and nutrients into the soil.

With table-top-like soils having replaced spongy ones, creeks have been forced to widen and cut down into the land, to accommodate more rainfall runoff more quickly. This has led in many places to excessive streambank erosion, more frequent flooding, and the loss of shallow water tables (water stored in the ground).

Of course, livestock grazing is not the sole source of soil compaction. People place many kinds of hard surfaces on the land – roofs, roads, and parking

Stream Profiles



Top: An unimpaired stream channel in cross-section. When flows are naturally high, the stream can overflow its banks and deposit silt and nutrients on its flood plain. Dotted blue lines represents the ground water level.

Below: Hard soils can force a channel to incise, disconnecting the stream from its flood plain and depleting the ground water.

Perennial grasses can help soils and streams return to health. On California's rangelands, grazing practices can bring about this remedy and benefit people and wildlife.

lots, for example – that contribute to the hardening of our water catchment areas, or watersheds.

The remedy is to make watersheds permeable and sponge-like again. At Point Blue we are doing our part to achieve this. Partner Biologists in the Rangeland Watershed Initiative are engaging with increasing numbers of ranchers toward adjusting their grazing management practices to “rewater California.”

In an era of climate change, we are increasing the soil’s capacity to store both ground water and also carbon drawn out of the atmosphere. Scientists from U.C. Davis are collaborating with Point Blue to measure these effects (see below).

How does this remedy work? Certain grazing practices on ranch lands

favor the growth of perennial plants – sedges, rushes, grasses, and other herbaceous plants with abundant, deep, and fibrous roots that grow, proliferate, and then die back each year. This creates pore space for air, nutrients, and water to move through the soil profile. When perennials die back each summer, they also sequester carbon in the soil.

The benefits accrue. Ranchers who adopt measured ways of using their pasture lands to improve soils’ health can also create more wildlife habitat while simultaneously increasing their profit margin. This can enable them to remain on the land, keeping the land in open space, reducing the prospect of conversion to other less wildlife-friendly uses, and keeping nature’s water catchment areas permeable beneath our beautiful landscapes. 🌍



Point Blue is working closely with the California Rangeland Watershed Laboratory at U.C. Davis, under the direction of Dr. Ken Tate, to assess soil response to various grazing management practices on ranches in the Central Valley. The following table shows one part of this study: we measure aspects of soil health, such as how much water filters into the soil and how much carbon it holds, using the indicators shown at right.

| Ecosystem component: | Example measures: |
|--|--|
| Soil moisture retention and infiltration | Soil porosity, stability, and texture |
| Effective rooting depth | Soil density; root quantity, size and location |
| Soil organic carbon | Topsoil thickness; soil color |
| Litter organic carbon | Litter layer thickness; degree of decomposition; soil composition |
| Resistance to weed invasion | % cover of noxious/invasive weeds |
| Wildlife diversity | Bird species richness, diversity, and relative abundance |
| Habitat health/function | Vegetation heterogeneity; stream health; habitat availability for invertebrates and fishes |
| Primary productivity | Herbaceous biomass |

Photos on pages 6 and 9: Views of California rangelands in the foothills surrounding the great Central Valley. **Photos by:** Melany Aten / Point Blue.



facts:

Soil health basics.

40%

of California's 102 million acres are public or private rangelands. Cattle grazing can be managed to optimize nature's health.

10^{tons}

of topsoil is lost when a layer as thick as a dime erodes from just one acre.

10%

of the world's carbon dioxide emissions are stored in the soil. Eco-friendly practices can protect and increase this.

Ecosystem Services: Nature's Benefits

Globally, many of the benefits that people rely on from nature (ecosystem services) – including fresh water, clean air, fisheries, pollination, climate and flood control, recreational opportunities, and spiritual enjoyment – are at risk of disappearing or becoming impractically expensive to sustain. Fresh water, while extremely valuable in its own right, is also a critical ingredient of many other ecosystem services, as stories in this Quarterly highlight. Fresh water's increasing scarcity and cost due to human population growth and climate change are cause for concern. Despite all of humanity's technological innovations and social adaptations, we are completely reliant on ecosystem services for our survival. Key to Point Blue's approach to climate-smart conservation is enhancing ecosystem services, including understanding, protecting, and restoring nature's ability to store, filter, and gradually release fresh water. – *Grant Ballard, PhD*



For Water and Life

SUSTAINING AND RESTORING SIERRA
MEADOWS



Ryan Burnett
Sierra Nevada Group Director.

Ryan oversees Point Blue's work to understand the ecology and improve the conservation of the Sierra Nevada ecosystem, using birds as indicators and cooperating with a suite of partners.

counted birds here in early June and found a smattering of typical meadow species like Wilson's and MacGillivray's warblers and Lincoln's Sparrow – about 50 individuals in all.

As we set up our nets at dawn, we expected to band perhaps 30 to 40 birds in six hours, as we had done at lower elevations all spring. Our first check of the nets was slow, as expected. Then, 30 minutes later, we returned to find the avian equivalent of a stampede. Permanently etched in my mind are the 35 birds in the first mist net, with more flying in every few seconds. We captured 188 birds in less than two hours that day! It was like nothing I had ever experienced.

I am often reminded of that day in Cirby Meadow. In late July each year, as the sound of wind through pine needles replaces the forest songbird chorus, we return to these meadows. Soon after we unfurl our nets above the dew-strewn sedges the birds begin to drip from the willows. On a given morning under the best conditions we may band more than 300 birds, and we estimate that 5,000 individuals of 50 species are present in a single meadow.

Water is the key ingredient in this formula. Meadows that are very wet, full of willows, and at higher elevations harbor the greatest abundance and diversity of birds late in the breeding season. This is especially true in drier years, when annual precipitation and snowpack are below average. As the lower-elevation forests get hot, dry out, and provide less insect prey, birds

of many species retreat upslope to meadows and their saturated soils, lush vegetation, and cooler temperatures.

In fact, these meadow refuges are likely instrumental in the lives of most songbirds breeding in the Sierra. Of the birds we capture in meadows, the great majority are young, going through their first molt in preparation for migration, and newly cut off from their parents' provisioning just four weeks into life. During this critical time, they can find food and protection from predators in the meadows' dense willow and alder thickets.

Meadows at Risk

Yet such habitat is fragile and a rare commodity. Meadows represent just one percent of the Sierra landscape. Up to half are in a degraded state resulting from incompatible land use. Climate change now multiplies the risks to meadows, as snowpacks dwindle, aquifers decline, and extreme flood events threaten to further unravel these sensitive habitats.

Meadows occur in the Sierra Nevada only under particular conditions created by topography, soil, and hydrologic interactions. For this reason, we believe they are quite fixed in their current locations (unlike the surrounding conifer forests, which may march upslope in response to climate change). Increasing

Left page: A stream naturally overflows its channel during spring runoff. A healthy meadow in the high Sierra soaks up and holds water, a key to birds' survival and other ecosystem services in the dry season that follows. **Photo by:** Ryan Burnett / Point Blue.

On an unforgettable August morning in 2000 – my first summer working in the Sierra for Point Blue – I learned the true importance of high-elevation meadows for birds. We had set out to survey birds in a few of these meadows near the end of the breeding season. An intern and I took our mist nets to the first site, Cirby Meadow, at 6,600 feet in the Lassen National Forest. I had

meadows' resiliency to climate-related impacts may be the way to ensure they persist on the landscape. Strategies for this include bringing down-cut stream channels back up to their original grade, so that high flows can spread out across meadow floodplains, and reducing current stresses on meadows, such as those from grazing, fire suppression, and exotic weeds.

During the same July and August period when birds depend on Sierra meadows, so do livestock. When pastures in the foothills and valley grow dry in late spring, cattle are shipped upslope to the meadows. The majority of Sierra meadows are actively grazed. Unfortunately for birds and cattle alike, meadows with degraded habitat often have eroded stream channels, which dry the meadows and rob the vegetation that cattle eat of needed moisture.

Ensuring that meadows remain in good health and restoring ones that are no longer wet and willow-filled – applying climate-smart principles – are high priorities for Point Blue. We are working with partners to restore degraded streams to ensure that meadows can

function like sponges, absorbing water from spring floods and gradually releasing that water clean and cool in the late summer. We also work with land owners to minimize grazing impacts to important wildlife habitat. Measures for this include fencing stream channels, reducing cattle stocking rates, adjusting the timing of use, and seeking to remove grazing from the most sensitive meadows to manage them solely for their wildlife and water functions.

These steps to improve meadow habitat on public and private land are part of Point Blue's strategic initiative Wildlife and Water on Working Lands. Our continuing studies of birds and their habitats have resulted in the largest wildlife database for Sierra meadows, spanning

70 meadows across the Sierra Nevada. Using this information we are providing many partners with quantitative measures of meadow health, guidance on meadow restoration, and ways to measure restoration success. We are working with the Forest Service to ensure that land-management plan updates focus on improving meadow conditions in every Sierra Nevada national forest. Through our Partner Biologists we are working with the Natural Resource Conservation Service to improve Sierra meadow habitat on private land.

Significantly increasing the number of healthy wet mountain meadows that sustain bird and other wildlife populations, and provide the ecosystem services that all of us increasingly rely on, is a climate-smart priority for Point Blue. 🌱

Above: Point Blue field biologists use mist nets in a willow thicket to monitor birds in a Sierra meadow.

Left: Prior to restoration, a damaged meadow's down-cut stream deprives the soil and plants of water. Point Blue helped our partners restore this meadow in September 2013.

Photos by: Ryan Burnett / Point Blue.



Dave Shuford

Senior Biologist, Pacific Coast and Central Valley Group.

Dave's larger study area is California's interior. He has documented the habitats and conservation needs of shorebirds and waterbirds from the Klamath Basin to Mono Lake to the Salton Sea.



STUDY SITES

Staten Island, San Joaquin County

In our Study Sites column we visit the places where Point Blue works.



Above: The red rectangle indicates the location of the Sacramento-San Joaquin Delta, the confluence of California's two great river systems. Staten Island is near the Delta's center.

Below: Sandhill Cranes. **Photo by:** Tom Grey / tgreybirds.com.



Staten Island, in the heart of California's Sacramento–San Joaquin River Delta, is a mecca for wintering waterbirds, particularly Sandhill Cranes.

Owned by The Nature Conservancy (TNC) and managed by a partner group as a working landscape, Staten Island is a real-world laboratory – a place to assess farming practices that might benefit waterbird populations if adopted more widely. The dominant crop grown there is corn, complemented by winter wheat, irrigated pasture (for grazing during the dry season), and potatoes.

Staten is also a magical place. Fog-shrouded early winter mornings, punctuated by the haunting, croaking calls of cranes flying out of sight just overhead, later give way to clear skies and intimate

views of large flocks of cranes, geese, swans, and ducks feeding and loafing in the mosaic of flooded and dry fields.

Point Blue biologists worked for two winters (2010–11 and 2011–12) on this study site. In collaboration with TNC, we studied waterbirds' use of various crops and post-harvest practices. Many birds, not surprisingly,

avored flooded fields, but others, such as geese and cranes, also used dry fields extensively.

A key dynamic between waterbirds and agriculture at Staten is played out on the corn fields post-harvest. The standard practice here is to "chop and roll" the corn stubble after harvest – then flood some fields while leaving others dry. For comparison, we asked that in some fields the corn stubble be left standing after harvest.

We found that waterbirds were more numerous on chop-and-roll than on harvest-only fields, regardless of whether the fields were flooded or dry. If other farmers can adopt this post-harvest practice and maintain profitability, waterbirds may benefit more widely.

Our study expanded this year to the entire Delta, where farming varies from the Staten Island model. In the larger region, some waterbird-friendly crops are widespread (alfalfa), while others are concentrated in certain areas (irrigated pasture) or are uncommon overall (rice).

With the Delta as our study area, we are evaluating birds' use of crops and wetlands and how the extent and dispersion of crops affect the distribution and abundance of waterbirds. The ultimate goal is to prioritize conservation actions and make the Delta an even friendlier place for birds. 🌍



"Working together, cooperatively, is truly the only way we will be able to maintain and restore the diverse ecosystems so important to us and to birds and other wildlife in the face of climate change, habitat loss, and other environmental stressors." So says Diana Craig, of the USDA Forest Service, a key partner of Point Blue for over 20 years.

The Forest Service's Pacific Southwest Region manages 18 National Forests across California, and today its focus is ecological restoration. Its goals align with Point Blue's long-term vision – that because of our cooperative conservation work today, healthy ecosystems will continue to sustain thriving wildlife and human communities in California for decades to come.

Diana Craig has been with the Forest Service in California, primarily as wildlife biologist, for 23 years. Currently she is the Deputy Director for Ecosystem Management, Southwest Region.

is to inform and promote integrated science, natural resource management, and conservation to address impacts on nature of climate change.

Our collaboration with Diana took off in 1992, when the Forest Service served as the lead federal agency for an important new songbird conservation initiative, Partners in Flight. The Forest Service, responsible for about 20 million acres in California or 20% of the state's land, was a key player in adopting management recommendations aimed at reversing the decline of songbirds in North America. Biologists from every National Forest in California, and leadership staff from the regional office, including Diana, joined in this unprecedented effort to "keep common birds common."

In the mid-1990s, under Point Blue's leadership, California Partners in Flight launched an effort to develop and implement bird conservation plans for every habitat in California. Diana's



Geoffrey Geupel

Emerging Programs and Partnerships
Group Director

In his work with groups across the Americas, Geoff aims to help integrate the results and tools from Point Blue's research and monitoring into diverse conservation initiatives.

PARTNERSHIP

Our Partnership column highlights the people we work with to develop conservation solutions.

USDA Forest Service – Diana Craig



She also serves as Chair of the California Landscape Conservation Cooperative, a management-science partnership in which Point Blue is very active. Its purpose knowledge and expertise with Willow Flycatchers, other forest wildlife, and meadows, as well as with the intricacies of forest management, proved invaluable in the writing and implementation of these plans. Many of the conservation actions recommended are being carried out today throughout California and the West, thanks in large part to Diana's leadership.

Our partnership is of mutual value, according to Diana. She says, "What I've most appreciated about Point Blue is their focus on high-quality science that is understandable, available, meaningful, and actually useful to managers. It has been a joy to work with such a professional organization, one that is interested in working cooperatively to improve conservation outcomes on the ground."

The newest endeavor in our collaborative work with Diana and the Forest Service centers on plans now being developed to guide management of every federal forest in California in the face of accelerating changes in land use, climate, and more. Our goal is to help ensure a balance between natural processes, such as fire and water function, and the needs of wildlife and people. 🌍

Photo: Courtesy Diana Craig.



MEET THE TEAM

Each issue of the Point Blue Quarterly spotlights a member of our team.

John Parodi – STRAW Restoration Manager

With a wide-ranging role at Point Blue, centered on his restoration expertise, John Parodi discusses his work in the STRAW Program (Students And Teachers Restoring A Watershed).

If a casual friend asked what you do in your job, how would you answer?

First, that I build habitat with local schools and community groups around the North Bay. And that we love to push the boundary of what an active and engaged community – including school children – can contribute to watershed health. With good training, they can do astounding work, to the same standards as a professional crew!

I help our whole STRAW team coordinate up to 55 restoration projects each school year. Participants plant native trees and shrubs chosen for a given streamside or San Francisco Bay margin – to become living erosion-control structures as well as habitat.

our projects and sharing results with the greater restoration community.

What was your path to your present position with STRAW? What made the connection for you?

My love for working on the land originates with my family's roots in agriculture in the Central Valley (one side farmed almonds, and the other packed tomatoes for Italian restaurants). I started out my professional life in the brewing trade.

Then in 1999 I turned toward teaching science. While I was studying for my credential, I learned about STRAW and got really fired up. This program bridges my love of the outdoors, education, and farming. As soon as I could, I created an internship for myself with STRAW's founder and director Laurette Rogers.

It was inspiring to be “farming” native plants and also engaging with the agricultural community about

conservation. The landowners we work with are phenomenal habitat stewards, doing their best to protect natural systems. They're essential to the “solution” we all want for our planet. I quickly learned the same is true about public land managers: so many people working tirelessly to keep our landscapes healthy!!

What are some of the other meaningful aspects of your work?

I love the interplay between the great conservation-science minds here at Point Blue and our STRAW team staff: together we have found amazing ways to put theory into practice. One example is our pilot project in climate-smart restoration,¹ designed to create habitat for birds and other wildlife under a range of future climate scenarios.

It's also satisfying to see our established restoration projects grow – and to know that each one exists because of our partners' dedication and our communities' hard work. 🌍

¹ Learn more online at pointblue.org.

news bites

PRESTIGIOUS PUBLICATIONS

Scenario Planning for Climate Change Adaptation, a 2013 report from Point Blue and California Coastal Conservancy, presents a new planning approach. It incorporates uncertainty as a factor in prioritizing management actions. Scenario planning can help generate creative approaches to climate change adaptation.

Point Blue staff contributed to *Indicators of Climate Change in California*, a report from the state's Environmental Protection Agency. Three dozen indicators, such as annual Sierra snowmelt and migratory birds' arrival, tell of changes in the climate as well as the impacts on California's environment and people.

Ecological Impacts of Climate Change, a curated collection from the journal PLOS ONE, includes two previously published papers that Point Blue scientists co-authored – on Adélie Penguins in a changing environment and on assessing at-risk birds in California.

A recent paper by Point Blue and Audubon California, in the journal *Agriculture, Ecosystems & Environment*, reports on our study showing that a combination of flooding strategies in rice fields has the potential to support the highest diversity of waterbirds through the winter in California's Central Valley.



WHALE SPOTTING

A new application for mobile devices is now helping protect whales from ship strikes in the Gulf of the Farallones. The ocean just outside the Golden Gate has heavy shipping traffic but also – because of seasonal food abundance – one of the highest concentrations of blue and humpback whales in the world.

With the new Whale Spotter App, which Point Blue helped test, commercial ship operators, fisher people, whale-watching naturalists, and others can report whales' locations in real time. Resource managers can use the information to alter or slow shipping traffic. We will be part of continuing work to check and verify the data. Learn more at pointblue.org.

Above: A humpback whale lunges upward through the sea surface, having captured a mouthful of krill.
Photo by: Mike Baird / mikebairdphotography.com.

LOCAL IMPACTS

The federal government shutdown in October caused an unprecedented break in Point Blue's continuous bird monitoring based at the Palomarin Field Station. Research-related activities were barred on National Park lands where we have study sites.

This coincided with a peak fall period for returning songbirds. For 15 days we were unable to mist-net birds. We hoped to recapture Hermit Thrushes that we tagged last spring with tiny data recorders. Only by recovering those devices can we learn where the thrushes migrated over the summer.

The shut-down also impacted our long-term studies in the Ross Sea, Antarctica. The repercussions are not yet fully known. Read more at baynature.org/articles/government-shutdown-bird-monitoring-resumes.

POINT BLUE CALENDAR

SCIENCE EVENTS

STATE OF THE ESTUARY
OCT 29–30
OAKLAND, CA
Ellie Cohen was a plenary speaker: “20/20 Vision: Past Reflections, Future Directions.”

COASTS & ESTUARIES CONFERENCE
NOV 3–7
SAN DIEGO
Point Blue is participating in a research federation devoted to sustainable solutions for resilient coasts and estuaries.

RANGELAND SUMMIT
JAN 21–22
OAKDALE, CA
Point Blue is on the California Rangeland Conservation Coalition’s steering committee.

THE WILDLIFE SOCIETY
JAN 29–31
RENO, NV
Our scientists will present papers at the annual conference of The Wildlife Society Western Section.

MEMBER EVENTS

Point Blue offers visits to our field sites where members can learn about our cutting-edge studies. For details, including how to sign up, visit pointblue.org (“Get Involved”). Or contact Lishka Arata: larata@pointblue.org or 707-781-2555 x 354.

HAMILTON WETLANDS “STRAW” RESTORATION
DECEMBER 1
NOVATO, CA
Tour a vast project in Marin County and learn first-hand how students working with Point Blue are restoring shore habitats on northern San Francisco Bay.



focus



Curious and feisty Kinglets

It’s September 21st, and we are huddled below the weathered cypresses at the end of Point Reyes. There is fog and light drizzle but no wind. These trees and the bush lupine below, which yesterday held only a few Song and Nuttall’s White-crowned sparrows, are today a symphony of “tics, chips, rattles, and trills” – voices of winter birds that arrived overnight, in the first wave from the north. The crowd includes a Varied and several Hermit thrushes; Fox, Lincoln’s, Golden-crowned, and *pugetensis* White-crowned sparrows; Audubon’s and Townsend’s warblers; and *kinglets*. It is raining kinglets.

Waiting for kinglets. I love Ruby-crowned Kinglets and really miss them when they’re gone. They are so beautiful and radiant, peaceful yet sassy and assertive. Their no-nonsense, non-stop, high-energy business gives motion to winter woodlands that, without them, might fall asleep.

Ruby-crowned Kinglets arrive to winter here from Oregon, Washington, British Columbia, and Alaska, where they nest. Those that nest in the Sierra Nevada and Cascades mostly go to Mexico. Kinglets are full-time insectivores and have refined their leaf search to an evolutionary art form that includes hover-gleaning, a behavior that gives them access to the undersides of leaves and branches.

Leader’s friend. Winter field trip leaders are likely to succeed in showing birds to their followers *because* of the presence of Ruby-crowned Kinglets. The birds’ curiosity and feisty nature drives them toward any disturbance in the thicket, like an owl, a squirrel, or a squeaking, “pishing” human. The little birds’ goal is to confront and displace a potential predator rather than turn their backs on it.

The kinglets will flit around the perceived threat, often within inches, giving rapid-fire, agitated calls that attract other nearby birds to join the “lynch mob.” Sometimes we will have 100 birds of 8 to 12 species – close but quick – in clear view. Kinglets and Yellow-rumped Warblers are usually the instigators of such mob scenes, and they always seem to enjoy a good rumble.

Rich Stallcup (1944–2012) was a PRBO co-founder and our naturalist extraordinaire. His knowledge continues to deepen our appreciation of all things wild. This essay is excerpted from his column in our summer 2005 newsletter. Read the complete essay online in the Focus collection at pointblue.org (type “Focus” in the search window).

Thank You For Your Support

Point Blue is deeply grateful to Point Reyes National Seashore, the Farallon National Wildlife Refuge, and Cordell Bank and Gulf of the Farallones National Marine Sanctuaries for providing facilities and field stations where we work.

Your gifts make it possible for Point Blue Conservation Science to reduce the negative impacts of changes in land use, climate, and the ocean on birds and ecosystems.

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Below: A team at work in a STRAW restoration project at Tolay Creek, Sonoma County (see page 15). **Photo:** Point Blue.



We are grateful for in-kind donations during this period from Louise Berto, Frances Bidstrup, Cultivar Wine Napa Valley, and Meryl Sundove and Roger Harris.

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Above: In our long-term study of seabirds as indicators of marine ecosystem health, Point Blue intern Max Czapskiy holds a Pigeon Guillemot chick on Southeast Farallon Island. **Photo by:** Annie Schmidt.

For providing essential links with our Farallon Island field station, we thank the skippers of the Farallon Patrol. They are skilled and dedicated volunteers who carry Point Blue personnel and supplies to and from the mainland year-round.

John Warriner

This past July, Point Blue lost a long-time friend, life member, and Research Associate, John Warriner. An outstanding conservationist and a lover of birdlife, John first volunteered for our Beach Watch program, along with his wife Jane (Ricky), in 1971. They were intrigued by a small population of Snowy Plovers they found nesting on a salt panne near their home. Using their car as a blind, they could closely observe these birds. In 1977, John approached Point Blue's Gary Page about studying the plovers, and a new project was born. The Warriners subsequently documented details of this species' nesting activity that were unknown at the time. John Warriner coauthored a number of highly regarded scientific papers on the Snowy Plover, and he was deeply involved in all aspects of the project until his passing. John's warmth, humor, and generosity will be greatly missed.

Note: A profile of John and Ricky Warriner by Lynne Stenzel, from the fall 2004 Observer, can be found online at pointblue.org.

Below: Ricky and John Warriner gathering Snowy Plover data, 1980.





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Note: Estate gifts will continue to be accepted under PRBO, PRBO Conservation Science, and Point Reyes Bird Observatory.

"We've had an interest in nature and conservation for decades. When we first moved to the Bay area in 1988 one of our early trips was to the Palomarin Field Station. We were very impressed with the mission of the organization and the dedication of the scientists. Our enthusiasm grew even greater when we met Rich Stallcup in 1993. We believe that the scientific research and outreach that Point Blue conducts helps us protect and preserve the natural world. Joining the Tern Society is a way to express our commitment to education and science as the key to preservation and conservation – and our belief in Point Blue's mission and vision." – *Scott and Claudia Hein*