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Point Blue Quarterly

Conservation science for a healthy planet.

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4 CLIMATE-SMART RESTORATION





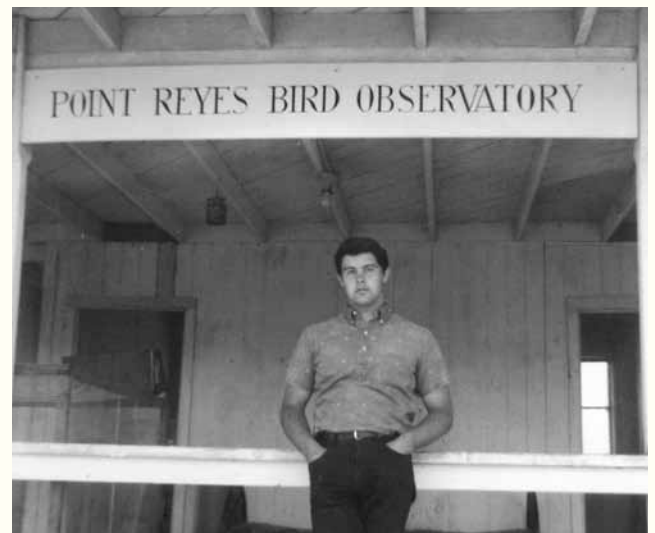
Ellie M. Cohen

PRESIDENT AND CEO OF POINT BLUE CONSERVATION SCIENCE

50 Years and Still Counting!

Sitting in a Bay Area living room 50 years ago this winter, a group of dedicated ornithologists and birders, including Professor Dick Mewaldt, Dr. C.J. Ralph, and others with the Western Bird Banding Association, completed the paperwork to establish a new non-profit. The purpose, as described in the articles of incorporation, was to research migratory birds and collaborate with the National Park Service on their interpretive program at the Point Reyes National Seashore (PRNS). With approval by the state of California on March 15, 1965, the Point Reyes Bird Observatory was officially born.

Since then, thanks to our outstanding staff scientists and you, our enthusiastic members and partners, we have grown to become internationally recognized leaders in collaborative conservation science using birds and other indicators to assess changes in the environment and to improve conservation outcomes.



Rich Stallcup, PRBO co-founder, at our original headquarters on the Heims Ranch (outer Point Reyes peninsula). Circa 1965.

Today, we are leaders in training the next generation of conservation scientists, having graduated over 1,500 interns from our hands-on field programs at the Palomarin Field Station (PRNS), Farallon National Wildlife Refuge, and other study sites. We are leaders in dozens of major conservation partnerships on land and at sea. We are leaders in storing, sharing, and interpreting ecological data, currently managing almost half-a-billion ecological observations including Point Blue’s long-term bird ecology data sets.

Today we are also pioneering habitat restoration that repairs past damage while also anticipating future climate change impacts – climate-smart ecological restoration – the subject of this Quarterly.

Fifty years after our auspicious founding, we continue to research birds collaboratively and interpret findings with scores of partners, but on a scale much larger and more complex than our visionary founders might have imagined.

Looking ahead to the next 50 years, we are hopeful. We believe that with your continued engagement, our collaborative, climate-smart conservation efforts today will secure healthy ecosystems that sustain vibrant wildlife and human communities well into the future. 🌍

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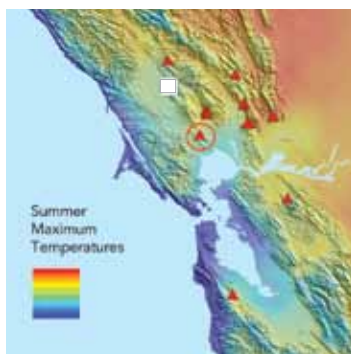
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By Tom Gardali

Above: Tom Gardali studies birds in a healthy riparian ecosystem. **Photo by:** Ryan DiGaudio / Point Blue.



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On The Cover:

Restoring a major wildlife corridor, in the Pajaro River valley. **Photo by:** Emily Kent © The Nature Conservancy.

◀ **Left:** Student restorationists. **Photo by** Ethan Inlander © TNC.

Center: Climate models chart likely changes to landscapes. **Point Blue.**

Right: A gathering at TomKat Ranch. **Photo by** Bill Milliard.

RESTORING ECOSYSTEMS FOR A CLIMATE-CHANGED FUTURE

Essential

Hopeful

Of all the ways conservation gets done around the world, one stands out as essential, as hopeful: ecological restoration. Ecological restoration is an intentional activity aimed at initiating or accelerating the recovery of an ecosystem with respect to its health, integrity, and sustainability.

Restoration is essential. It is essential because every ecosystem on Earth has been compromised, in big or small ways, by human activities, and the results have been devastating – extinctions, pollution of drinking water sources, fisheries collapse, disease outbreaks, and so on. Wildlife and human communities alike literally depend on a healthy environment for food, water, and shelter.

I grew up in California's Central Valley, where by 1988, when I had just finished high school, only two percent of the Sacramento and San Joaquin rivers' riparian (riverside) forests remained. My family enjoyed spending time in nature – fishing, canoeing, and hiking – yet to do so we would leave the valley, driving hours to find wild nature and clean streams to fish in, even though the San Joaquin River was only 15 minutes from

home. Only much later in life, when I began studying Central Valley ecosystems, did I realize how damaged the place where I grew up was – what and how much was missing.

In the face of such loss – and the critical importance of biodiversity for wildlife and for human health – ecosystem restoration is essential.

Restoration is hopeful. It is hopeful because it works to revive lost species, clean once polluted waters, capture rainwater and carbon, and so on. Hope bolsters optimism, an important ingredient for conservation and stewardship, and success stories serve to inspire public motivation, empower conservationists, and ultimately promote more success.

A few years ago I had the chance to spend time along the Sacramento River, California's largest river, and was astonished by the amount of newly created – restored – riparian forest there. While I was well aware of the numbers – over 7,000 acres of forest have been restored by forward-thinking organizations like The Nature Conservancy, U.S. Fish and Wildlife Service, and River Partners – and

Point Blue's work has documented that a diverse bird community is responding, I was still moved by the sights and sounds of a river on the road to recovery.

Witnessing ecosystem recovery, on any scale, gives people the hope to take on new challenges.

Climate change and restoration. While the very notion of restoration suggests returning something to a former state or condition, in reality that is rarely possible – and perhaps not even desirable because of climate change, which will create new ecological conditions. Does climate change limit the importance of ecological restoration? Not at all. Restoration, even the type that uses past conditions as a guide, is still a critical climate-change strategy. There are two reasons for this. First, reducing the stress on an ecosystem now – giving species and processes room to thrive today – will improve the chances that they can respond on their own (with less human intervention) to what climate change has to bring. Second, ecosystems of the past were much more resilient to disturbances, and in that way they continue to be good guides.



Left: A singing male Lazuli Bunting.
Photo by Tom Grey / tgreybirds.com

Tom Gardali

Director, Pacific Coast and Central Valley Group

Tom uses natural history, ecology, long-term studies, and diverse collaborations and partnerships to provide the scientific intelligence needed for effective conservation action.



Making restoration climate-smart.

Climate change may not put traditional restoration in a bind, but it does pose some very large challenges. Today, restoration is tasked not just with aiding the recovery of damaged and destroyed ecosystems, but projects must now succeed in a world where climate change is the new normal. We at Point Blue believe that restoration should address climate change head-on – that is, it should be climate-smart.

We are defining climate-smart restoration as the process of enhancing ecological function of degraded, damaged, or destroyed areas in a manner that prepares them for the consequences of climate change. Designing projects to explicitly address climate change gives them a better chance of surviving and even thriving in a world with sea-level rise, reduced snowpack, larger floods, and more drought – and the articles in this Quarterly are excellent examples.

To enable climate-smart restoration, we have developed a set of simple principles that, when followed, aid in making restoration projects climate-smart. These principles are:

- Look forward, but don't ignore the past. Set forward-looking goals, use available science on climate change predictions, and learn from historic conditions and events.
- Consider the broader context. Restoration needs to be concerned with climate-change impacts beyond the scale of individual projects, it must prioritize what and where to do restoration, and it must be considered within the context of threats beyond those posed solely by climate change.
- Build in ecological insurance. Restoration approaches that incorporate redundancies and are robust to a range of future scenarios may act to provide ecological insurance against uncertain future conditions.
- Build evolutionary resilience. It is increasingly recognized that micro-evolutionary change can occur at the relatively short timescales relevant to natural resource management decisions, and may therefore be a critical pathway by which species escape extinction under climate change.
- Include the human community. The long-term success and growth of climate-smart ecological restoration projects will be facilitated by a community of advocates with an understanding of the what, why, and how to prepare systems for climate change. Additionally, project sustainability will be increased when people who understand and care about it can monitor and maintain it.

Point Blue and our partners are already moving forward with climate-smart restoration by using science as our guide and our measure, implementing projects on the ground, being creative and taking risks, and sharing our lessons learned.

I look forward to standing along the banks of the San Joaquin River, shaded from the ruthless summer sun by restored cottonwood, listening to the warbling phrases of a Lazuli Bunting song, with the knowledge that society has recognized the importance of restoring ecosystems as an essential pathway to address human and wildlife needs in a future of change. 🌍

One Mile, Big Impact

Climate-smart restoration on the Upper Pajaro



On a cool and sunny December day, 30 miles south of San Jose, in a valley between Gilroy and Hollister, Point Blue's STRAW (Students and Teachers Restoring a Watershed) team joined forces with second- and third-grade students from the nearby towns of Corralitos and Gilroy. The goal: to help restore one mile of stream habitat along the Pajaro River.

The work day was part of a focused effort to restore a river that once connected millions of acres of open space and three mountain ranges. Such habitat connections, or wildlife corridors, are a critical climate-change strategy. They enable wildlife species to move to new areas as climate change renders their current home ranges unsuitable.

The restoration of the Upper Pajaro River, now a grassy, shallow depression in the

earth – a treeless ghost of a river – is an ambitious, precedent-setting effort, emblematic of how conservation should be done to prepare for climate change.

Partnerships are one key to successful restoration, and this effort is being led by Point Blue and The Nature Conservancy, in cooperation with local rancher Allan Renz and other key collaborators.¹

Climate-smart design elements

In addition to restoring an essential wildlife corridor, Point Blue has designed the Upper Pajaro River project to specifically address how climate change will likely impact the region. The design aims to ensure that new habitat will thrive regardless of the future climate conditions such as increased drought.

The basic idea behind climate-smart restoration is that you plan for a range of future climate scenarios and design a restoration that increases chances of survival and provides wildlife habitat regardless of the future climate. For our designs, this approach typically results in a very diverse and specifically chosen plant list.

Along the Upper Pajaro River, we are planting 31 different species of trees, shrubs, forbs (herbaceous flowering plants), and grasses that are not only native to California but also indigenous to the Pajaro River valley. We choose species that are likely to survive an array of future climate conditions while providing food for wildlife year-round. For example, California buckeye and flannel bush are known to survive drought conditions, and coast live oak and toyon

River



are fire-adapted. We added one plant, an aster known as mule plant, because it flowers year-round.

With climate change, migration timing of songbirds and other wildlife is predicted to shift: some will arrive earlier, some will stay longer. Our design addresses the need for plants that flower, fruit, and seed throughout the entire year, ensuring that food is available for native animals year-round.

In addition, to be climate-smart, a project needs to involve people. The human community is critical to the success of this work: people will be its voice – its stewards and advocates – for years to come. Direct involvement, from planting to maintaining to learning about the restored habitat, instills an ethic of sup-

porting future endeavors that prepare our communities for a changing climate.

Educating students about climate change through participation in habitat restoration engages them as part of a local solution to a global problem. Participation is a key component to what is known as “empowering education,” which is designed to instill hope and inspire action. To this end, we engaged Bradley Elementary (Corralitos) and Rucker Elementary (Gilroy) to learn about salamanders, bobcats, mountain lions, and the many birds that would benefit from their restoration efforts on the Pajaro River.

And the STRAW approach has a long-term impact. The second-grade teacher at Bradley Elementary, Stephanie Barnes, was present at the very beginning of STRAW – as an assistant teacher to STRAW’s founder, Laurette Rogers, in 1992. Stephanie worked with Laurette when her fourth-grade class restored a section of Stemple Creek in Marin County.

That experience gave rise to the STRAW project, which has since engaged some 38,000 students and community members to restore more than 30 miles of streamside habitat in the northern San Francisco Bay region. The work at Pajaro marks the furthest expansion of the STRAW program since its inception. As

Melissa Pitkin

Director, Education and Outreach Group

Melissa leads Point Blue’s work devoted to educating and connecting people of all ages to science and conservation.

John Parodi, STRAW Restoration Manager, contributed to this story.




Stephanie now involves her own class in a STRAW restoration, it’s an example of the lasting, far-reaching, positive ripple effects of involving people directly in hands-on restoration.

Beyond one place

To ensure that this restoration has the broadest possible impact, we will work with the Elkhorn Slough Coastal Training Program to lead workshops and train more than 100 regional restoration practitioners and regulators in our climate-smart approach.

The planting design tools we create (see story on page 12), based upon our forecasts of future climate conditions (page 8), will be made available to others in the region who are working to restore degraded stream habitats.

Connecting three mountain ranges and a million acres of habitat, connecting communities through student involvement, and connecting our successful approach from the San Francisco Bay region to the Central Coast – all through climate-smart ecological restoration of one river mile – means big results! 

¹ Additional partners in this project are the Elkhorn Slough Coastal Training Program, NRCS Resource Conservation District in Benito County, Santa Clara County Open Space Authority, USFWS Partners in Restoration Program, and Upper Pajaro River Watershed Partnership.

Sam leads Point Blue's efforts to empower conservation decision-makers regarding the potential effects of climate change and to develop and implement adaptation actions.



Investigating landscapes of the future

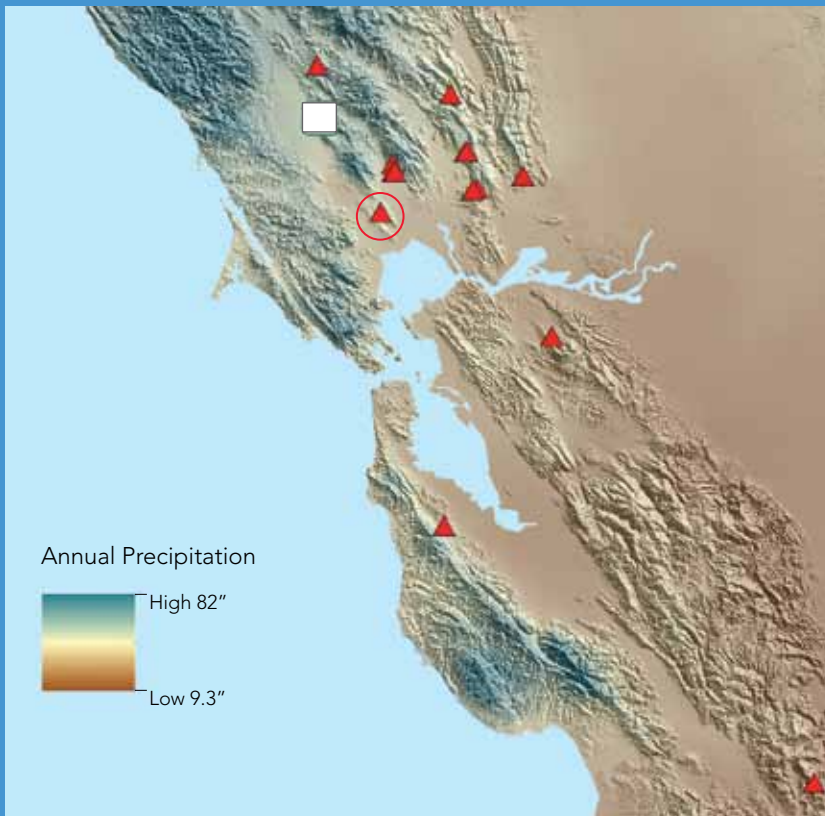
Climate Analogs

One of our great challenges in preparing for the impacts of climate change is how to accurately envision ecosystems of the future. For the most part, we don't understand what conditions will prevail at places that we are trying to proactively steward today.

Consider Point Blue's current focus on "climate-smart restoration" and the

efforts devoted to ensuring such projects succeed (see the story on climate-smart tools on page 12 in this issue). Among other things, such restorations aim to provide wildlife habitat for decades to come, with a suite of plant species that are well adapted to future climate conditions. How do we know which plants meet these requirements at a given location?

A relatively simple scientific tool that helps answer questions like these is called climate analog analysis. It works by examining places on the Earth where climate conditions today are similar to those forecast for the future at the location of interest. Using current information about all the sites, we can compare things like the types of plants and animals that occur at the two locations,



How Climate Analogs Work. In this example, a site in Santa Rosa's Doyle Park (the white rectangle symbol) serves as the reference point. Each of 18 climate models has identified a site (the red triangles) where rainfall and temperatures today suggest the likely climate at Doyle Park 50 years from now. To illustrate the contrast, the reference site and one analog site (red circle) are shown in the photos above. The models all consider predicted changes in annual precipitation (large map at left) as well as summer high temperatures and winter lows (small maps at right). Point Blue belongs to a scientific consortium¹ that uses climate-change modeling to answer questions about the future of California ecosystems.

¹Terrestrial Biodiversity & Climate Change Collaborative, www.tbc3.org



The two photographs suggest the contrast today between conditions Doyle Park, in Santa Rosa, (left) and one of the analog sites (circled on the map) in southern Sonoma County. Note that land use is also a current influence at these sites. **Photos:** Point Blue

how frequently wildfires occur, and how farms and rangelands are managed. The climate analog sites help us more clearly visualize a broad range of effects of climate change – and identify effective restoration strategies – at the location where people today are devoting resources.

The power of climate analog analyses is their ability to integrate and compare several climate variables simultaneously. This is important because changes in two or more factors can potentially amplify the impacts of any one by itself. For instance, a future decline in precipitation in California could lead some ecosystems to become extremely dry; this is particularly true if spring and summer temperatures also increase: the warmer growing seasons could cause greater loss of moisture from the soil through evaporation and plant transpiration.

Climate analog analysis is useful for communicating the magnitude of climate change to broad audiences.

Sometimes the effects of climate change are easy to imagine: if three feet of sea-level rise will cause a beach that I walk on every day to be permanently inundated, I can easily conceptualize the impact to my life. It may be far less obvious how changes like a 5.5 °C (about 10 °F) increase in winter temperature and a 20% decline in annual precipitation (such as some climate models project) will affect my daily life, or the state of natural ecosystems.

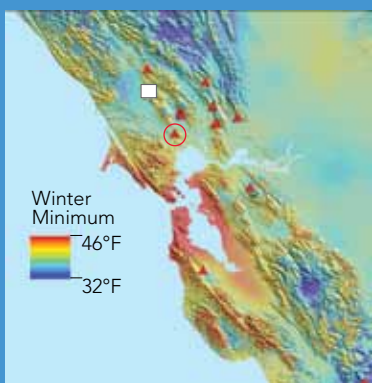
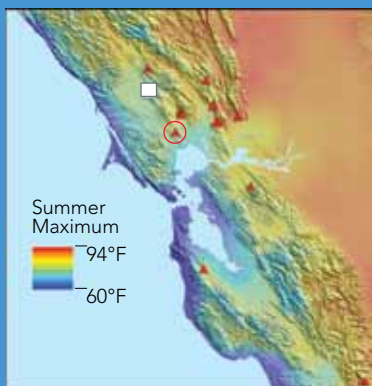
A climate analog can help people, including resource managers, envision

the likely future conditions at a particular place. For example, if people in California pictured the future climate of a Bay Area city, like Oakland, as similar to the present-day climate of Davis or Fresno, it would likely be far more meaningful than a chart of monthly temperature and precipitation changes.

At Point Blue we can use this type of information to support climate-smart conservation. For example, our STRAW team may use climate analog maps to identify where to collect seeds, in order that the plants that they grow for restoration projects may be best adapted to the climate conditions of the future.

Beyond restoration projects, we can also use climate analog maps and analyses to effectively illustrate the scope of larger-scale actions needed in order to meet management goals in a range of possible future conditions.

Perhaps most importantly, climate analogs can provide visceral knowledge of the kinds of conditions that can be expected in a range of potential future climate conditions, motivating and empowering decision makers and the public to take action now to reduce carbon pollution and avoid the worst scenarios. 🌍



Climate-smart restoration of California rangelands

Lessons Learned at TomKat Ranch

Impacts of the recent drought on California farmers and ranchers illustrate the urgency of challenges associated with preparing for climate change. Climate change threatens to upset every economic endeavor that directly depends on climate. Food production is one of those endeavors – a vital one. Fortunately, the principles of climate-smart restoration (see page 5) can apply not just to ecosystems but also to ways of farming and ranching that maintain ecological and economic well-being.

At TomKat Ranch, just northeast of Pescadero, California, ecologists from Point Blue are part of the team working to explore how California ranchers can prepare for climate change. This 1,800-acre ranch, with a permanent herd of 100 to 150 cows, is a place much like other coastal ranches. It has grasslands dominated by non-native annual grasses, steep slopes filled with rich coastal scrub, and a landscape dotted with live-oak woodlands, Douglas fir forests, and small patches of introduced eucalyptus trees.

The vision of TomKat Ranch is to produce healthy food in a way that sustains the planet and inspires others to action. As

part of this vision, the TomKat team is testing climate-smart ranching practices.

One part of making ranching climate-smart is reducing the greenhouse gas emissions that result from cattle-raising practices. TomKat is doing this by installing solar power, using horses and electric vehicles for transportation, minimizing driving and tractor use when possible, and reducing the need for off-site feed and thus the emissions from transporting hay to the ranch.

Guided by science

In addition, led by Point Blue ecologists, the TomKat team has explored possible responses to climate change with a tool called scenario planning. This process lets people evaluate outcomes that might result from decisions today under different climate conditions in the future. Scenario planning is an increasingly important tool for preparing for climate change. Using climate-model projections, Point Blue staff described the conditions expected 35 years from now in the region where TomKat Ranch is located: warmer temperatures throughout the year; uncertain changes in rainfall and coastal fog.

One of the practices identified in the exercise was managing pastures to restore native perennial grasses. In the past, the ranch was farmed, the topsoil sold, and cattle grazed without any focus on the grasslands' condition. As a result, exotic annual grasses came to dominate the grasslands, and the soil in many areas became depleted of nutrients. Today's practices, in contrast, are about managing grazing in ways that can restore native perennial grasses. This can create soil conditions that better sequester carbon and capture and retain water (reducing the impacts of extended drought).

In 2011, the ranch changed from grazing cattle on large portions of the acreage for several months at a time to moving the herd frequently through smaller, subdivided fields. This allows the land to rest and recover and native perennial grasses to better compete with the non-native annual species. Over a three-year period since grazing practices were changed,





By grazing their herd for short periods in defined areas, ranchers at TomKat are restoring native perennial grasses that retain groundwater and store carbon.
Photo by: Bill Milliard / TomKat Ranch

Point Blue ecologists have documented a significant increase – from 8% to 80% – in the number of pastures where native perennial grasses were detected.¹

As we continue our work at TomKat Ranch, the opportunities to broadcast the lessons learned are exciting. There are strong parallels between climate-smart ecological restoration (which shows people practical steps for helping heal ecosystems in a way that prepares

them for climate change) and climate-smart ranching practices – making our rangelands climate-smart.

This example of working with private landowners to develop ranching practices that help us all prepare for climate change is hopeful and inspiring! 🌍

Nat Seavy, PhD

Research Director,
Pacific Coast and
Central Valley Group

Among Nat's research interests: understanding and preparing for the ecological effects of climate change.



¹Our results were published in 2014 in the journal Ecological Restoration and also featured in an NBC news story. Learn more at pointblue.org/blueplanet.

Rangelands comprise about one-third of California (and all land globally), supporting birds, other wildlife, cattle, water storage in soils, and carbon sequestration. However, habitat loss due to development, industrial agriculture, and poor grazing management threatens rangeland health. To help restore rangelands for wildlife and people, Point Blue is establishing an integrated monitoring network and working collaboratively to 're-water' 1.1 million acres in California through changes in grazing and other practices. See pointblue.org/working-lands.

Planting habitats that will thrive into the future

Online Tools to Guide Climate-Smart Restoration



In the transition zone on the shore of San Pablo Bay, students and volunteers in a STRAW restoration project plant a suite of native species that can shelter vulnerable wildlife when their tidal-marsh habitat is flooded during high-water events. **Photo by** Leia Giambastiani / Point Blue

On a stormy day in January, an extreme high “king tide” is flooding the upper salt marshes around San Pablo Bay, the northern portion of San Francisco Bay. At the same time, heavy rain is falling in the Sierra Nevada. Water rushing down to sea level pools with the high tide in the bay. As people detour around flooded bayshore roads, wildlife in tidal marshland seeks higher ground and shelter from predators until the waters recede.

Climate models predict that severe weather and scenarios like this will become more and more common in the San Francisco Bay region. Marsh inhabitants – from ground-dwelling rails and other birds to mice and snakes – have been surviving storm events for millennia. Things are not as they used to be, however. The critical habitat surrounding marshes, often called the transition zone, where these species seek shelter during storms, is all but gone from San Francisco Bay.

Point Blue and other groups are working to restore transition-zone habitat. Using our growing knowledge of such restorations, Point Blue scientists, with support from the U.S. Fish and Wildlife Service, are now working on a Climate-Smart Transition Zone Planting Tool. This free online database will help restoration practitioners and land managers select the best plants for their transition-zone restoration projects.

The tool allows users to evaluate native transition-zone plants for characteristics such as drought and salt tolerance and wildlife cover. It will help practitioners make climate-smart decisions and ensure that restoration projects planted today will maximize critical resources for wildlife now and in the future.

Point Blue will release the tool this spring. We will use it to design future restoration projects in San Pablo Bay that will be planted by Point Blue’s Students

and Teachers Restoring a Watershed (STRAW) project. Our hope is that this tool, and the work of restoration practitioners throughout the bay, will better protect bay edge communities from damaging floods – and help marsh wildlife species find the transition-zone refuges they need to survive in a future with an uncertain climate. 🌍

Note: A similar tool for designing riparian restoration projects that are climate-smart is already available online. Please visit www.pointblue.org/restorationtools to explore our climate-smart restoration resources.

Isaiah Thalmayer
STRAW Restoration
Manager, Education and
Outreach Group

As one of our restoration managers, Isaiah coordinates particular STRAW restorations – from planning to planting days to follow-up.



MEET THE TEAM

Each Point Blue Quarterly spotlights a member of our team.

Ryan Burnett –
Sierra Nevada Group
Director



Pictured here in 2012, Ryan Burnett and his son Alden roam near their home in the northern Sierra.

How does our knowledge about climate change shape Point Blue's work in the Sierra Nevada?

Viewed from the perspective of the Sierra Nevada, climate change has many compelling aspects. But the impacts that will be most profound, including for all those downstream who rely on the mountains' resources, will likely be the changes in the hydrological cycle. We can no longer take for granted the massive reservoir that the winter snow-pack provides. Its predicted loss will result in profound changes to the mountains' ecology and also to the services these systems provide.

With some impacts now virtually inevitable, our focus is on reducing other stressors and ensuring that natural ecological processes can remain intact. An example is our Sierra meadows program.

Meadows sit at the headwaters of much of California's water supply. They provide ecological services such as water storage and flood attenuation, and are biological diversity hotspots. Many are degraded, and this makes them more vulnerable to effects of climate change (extreme floods; warmer, drier conditions).

We are working with a range of partners to restore and protect meadows and help lessen the blow of climate change.

What was your path into your current position?

I arrived in the typical way – as an intern, in 1997. I was working right out of college at Tortuguera in Costa Rica, tagging green sea turtles, but I was more interested in birds than turtles. I met a bird-bander there who had trained at the Palomarin Field Station, and she gave me Geoff Geupel's phone number. That led to me coming to work here, first in the Tidal Marsh project and then for several years at Palomarin and the Farallon Islands.

Later, after an interlude studying Painted Buntings on a barrier island in Georgia, I was traveling in remote Guatemala and happened to check email. I found a note from Diana Humple inviting me back to Point Blue to run a small project in the Lassen National Forest. I jumped at the chance.

In May 2000, I arrived in the beautiful place that became my home. I loved learning the natural history and discovering all the wonders of the far northern

Sierra and southern Cascades – lush meadows, towering conifer forests, and salmon-filled streams. I also saw the need to help inform conservation of these unique resources.

Can you talk about another project that gives you particular satisfaction?

One that comes to mind is with the Lassen National Forest – to restore aspen habitat. Healthy aspen stands can create their own micro-climate, increase groundwater, enrich soils, and support diverse plants and wildlife. Yet, most of the aspen stands that dotted the Sierra Nevada less than a century ago are gone or in poor health. When our project began, not much in the way of restoration was happening.

Through Lassen National Forest's efforts to restore hundreds of acres, and Point Blue's long-term monitoring, we've been able to illustrate the benefits. Now, managers Sierra-wide are using our results in restoring this important habitat. These sorts of efforts give me hope we can advance climate-smart restoration in a significant way, ensuring these vital habitats thrive even under changing climatic conditions. 🌍



STUDY SITES

Dos Rios

A climate-smart future for two rivers:
riparian restoration at Dos Rios Ranch

Dos Rios Ranch lies in an active floodplain in Stanislaus County, California. Reconnected floodplains help prepare for climate change. **Photo courtesy:** River Partners.

In the Central Valley, where the Tuolumne and San Joaquin rivers come together (west of the city of Modesto), the Dos Rios Ranch restoration project illustrates the bold choices that Californians are making to revive our rivers and prepare for a climate-changed future.

The Central Valley landscape, once dominated by vast wetlands, forests, grasslands, and meandering rivers, is now one of the most productive agricultural regions in the world. While agriculture is essential, the price paid for its expansion has been the degradation of our river systems and the nearly complete loss of riparian habitat. Among the casualties are many species that rely on healthy rivers and intact riparian commu-

nities and, importantly, the benefits these systems provide to people (flood control, clean water, recreation, and more).

Restoration gives us the opportunity to repair broken systems and to prepare for the challenges of climate change.

Working with multiple stakeholders, River Partners is leading this ambitious project to reconnect portions of the San Joaquin River and Tuolumne River floodplains. In consultation with Point Blue, River Partners is developing innovative, climate-smart design features for this massive, 2,100-acre project. These include high-water flood refugia for wildlife, mosaics of native plant species to provide habitat for diverse species that can be successful

under a range of future conditions, and increasing floodwater storage.

Point Blue, as part of a team of researchers, will be in the field this spring collecting data on bird use related to this innovative, large-scale restoration project.

The ongoing restoration of Dos Rios Ranch illustrates that by working together, we can take action on climate-smart projects that provide multiple benefits – projects that reduce our vulnerability to climate change while also protecting wildlife and providing clean water, recreational opportunities, flood protection, and other nature-based solutions that improve our quality of life. 

— Nat Seavy, PhD

news bites

PRESENTING OUR SCIENCE

Point Blue played a lead role at the annual meeting of **The Wildlife Society** Western Section, held in January in Santa Rosa, California. President and CEO Ellie M. Cohen delivered the keynote address and then joined a panel of Point Blue scientists who discussed the power of our partnerships. We also gave presentations on Sierra Nevada birds' responses to management actions and fires, conservation targets for riparian birds in the Central Valley, and more. Our STRAW Program hosted a restoration field day for conference participants. Learn more at www.tws-west.org.

Point Blue was well represented at the 2015 meeting, in Sacramento, of the **Society for Rangeland**

Management. Our Partner Biologists and scientists gave presentations and interacted with ranchers and agency partners from across California – meeting with strong interest in our rangeland work. See www.rangelands.org.

The **Migratory Bird Conservation Partnership** (MBCP) recently convened an open house for some 125 staff and partners. Point Blue, Audubon California, and The Nature Conservancy hosted this celebration of our shared successes and the power of partnerships. The MBCP works to ensure that California's lands can support thriving migratory bird populations and human communities for decades to come. See www.camigratorybirds.org.

CLIMATE GOALS

A plan that, since 1999, has guided the most extensive bayland habitat restoration in the country is now becoming climate-smart. The *Bayland Ecosystems Habitat Goals Technical Update for Climate Change* is due out in 2015. Point Blue is a major contributor to this ambitious project – serving on the steering committee and authoring or contributing to several chapters in the new report. Learn more at www.sfstuary.org/estuary-news/back-to-the-future.

SCIENCE BLOG

We are launching a new blog – “Science For a Blue Planet.” It features the cutting-edge work, discoveries, and challenges of Point Blue scientists, partners, and the larger conservation science community. Topics to date include historical fur seal numbers, techniques for restoring Sierra aspen, and using technology to monitor songbirds. Explore the blog at pointblue.org/blueplanet.

POINT BLUE CALENDAR

SCIENCE EVENTS

SCIENCE FOR PARKS
MAR 25–27
BERKELEY, CALIFORNIA
Jaime Jahncke, PhD, Nat Seavy, PhD, and Tom Gardali present on Point Blue science from our Bay Area national parks.

MIGRATORY SHOREBIRD WORKSHOP
APR 13-17
COLOMBIA
Matt Reiter, PhD, with partners Asociación Calidris, meet with biologists from Chile, Peru, Ecuador, Colombia, and Mexico.

NATIONAL ADAPTATION FORUM
MAY 12-14
SAINT LOUIS, MISSOURI
Point Blue will share our innovative climate-smart conservation in dialogue with others who are advancing climate change adaptation.

MEMBER EVENTS

Point Blue offers visits to our field sites where members can learn about our cutting-edge studies. For details visit pointblue.org/walks or contact Lishka Arata at 707-781-2555 x 354 or larata@pointblue.org.

CITIZEN SCIENCE
MARCH 7,
PETALUMA, CA
Meet at Point Blue's HQ to see birds and learn how your sightings can become valuable data for science.

SALT POND MUD STOMP
APRIL 4, MOSS LANDING, CA
Learn about shorebirds while enhancing Snowy Plovers' nest habitat – with your boots!

MIGRATORY BIRD DAY
MAY 9, MUIR WOODS, CA
This annual festival includes visits to Point Blue's bird study site on Redwood Creek.

PARTNERSHIP



Sonoma Land Trust – Julian Meisler

To achieve our climate-smart conservation goals, Point Blue works with on-the-ground partners that pursue forward-thinking ways of restoring the environment – leaders who understand what it means to protect and restore natural beauty and ecological processes.

Point Blue has found such a partner in Sonoma Land Trust's Julian Meisler. It is our shared commitment to climate-smart principles, and the dedication it takes to put those principles into practice, that make this partnership unique.

How does Julian Meisler help Sonoma Land Trust (SLT) conserve scenic, natural,



agricultural, and open land for the future of Sonoma County? "We emphasize watershed-level restoration. While the tidal wetland is often the star, we are working from the tops of the hills on down, trying to influence each drop of water from the time it falls in the hills on down to the bay," says Julian.

Indeed, Point Blue's STRAW Project (Students and Teachers Restoring a Watershed) has been working with Julian and other SLT staff, planting native vegetation from the upper stream reaches right down to the bay.

At the blurred margin between upland vegetation and marsh vegetation, in what's called the transition zone, Point Blue and Sonoma Land Trust share a restoration focus. This previously neglected habitat type provides critical cover for marsh species during the highest tides.

A great example of our working partnership is Sonoma Baylands, a former hayfield along the edge of San Pablo Bay that SLT first purchased and began restoring to tidal action in 1996. STRAW has planted the transition zone there with native flowering shrubs and grasses that now provide rich habitat for diverse wildlife, from marsh birds to pollinating insects and jackrabbits.

In addition to watershed-level restoration, Julian Meisler embraces new restoration techniques, designed to increase

Julian Wood
San Francisco Bay
Program Leader, Climate
Adaptation Group

Julian leads Point Blue's effort to guide conservation strategies and climate adaptation in San Francisco Bay.



a site's resilience to climate change. It takes courage to attempt something new, in the hope that restored habitats will continue to thrive years from now.

To help SLT and other conservation practitioners prepare for an uncertain future, Point Blue has been developing a suite of climate-smart restoration and planning tools. One of these is focused on transition zone restorations (see page 12), and Julian is looking forward to testing this tool on his flagship project, Sears Point on San Pablo Bay.

Looking farther ahead, we are working with Julian using our Future Marshes Tool online (www.pointblue.org/sfbayslr) to identify and prioritize new bayland acquisitions that have the best chance of supporting healthy tidal marsh ecosystems under a range of climate change and sea-level rise scenarios.

Julian explains it best, "Our projects have to be built on the best science: there is too much at stake both financially and in missed opportunities if we make the wrong choice. In the bay, Point Blue's modeling helps us make those choices."

Point Blue looks forward to growing this partnership with Julian Meisler and Sonoma Land Trust, and we are hopeful that the results of our innovative conservation practices together will continue to inspire future generations. 🌍



focus



Above: Northern Saw-whet Owl fledgling. Below: Great Gray Owl. Photos by: Chris McCreedy / Point Blue.

Owls and Owling

Mystical, haunting, secretive, beautiful, wonderful owls. Wise? Maybe, but in avian IQ tests they come up just a little dumber than chickens.

Of 19 species of owls that nest in North America north of Mexico, 11 can be seen in central California, one in far northern California, another in extreme southeastern California, and one is a rare visitor to the state. Fourteen kinds of owls nearby... let's go see 'em.

But whoa! Aren't they awfully hard to find? Yes! It cannot be done all at once, and one must pay considerable dues in time and mileage and believe that simply walking through nature in the dark is a grand experience. If owls are not speaking or not there, maybe you'll be lucky enough to hear the restless drumming of a dusky-footed woodrat or find a Pacific giant salamander on the path.

Preparation. Wear warm clothes, and bring a small flashlight (the leader should have a strong light with a concentrated, not scattered beam) and binoculars. Once a bird is in the light, focus your binoculars at center beam and you should have an owl. Then the appropriate whisper is, "Oh God, it's wonderful."

Walk. Roadside owling by car is rough at best. As well as the obnoxious passing traffic, birds present often go silent for

15-plus minutes after a vehicle stops. But if you must owl by car, be as quiet as possible and don't slam the doors.

Timing and Conditions. Early spring (January through April) is the best time for listening along the coast; later (March through July) is better at increasing elevations in the mountains. Pre-dawn is better than early night, especially when



birds may be feeding young. Before chicks fledge, adults are busy feeding hungry young just after dark. That difficult feat accomplished, the male will again make territorial announcements into dawn.

Weather and sky conditions for good owling are not predictable. Obviously, rainy and especially windy nights are hopeless. Clear, moonless periods are good, and often there is a chorus of voices when a large moon rises; though owls must see the moon many times, it always seems to surprise them. My favorite situation is a windless, rather warm night with an even, high cloud cover.

Strategies. If you hear about an owl at a day roost, go see it. That is the easy way. Otherwise, owling requires special discipline, stealth, and cunning.

Be silent like the deer mouse, and try not to let the owls know you are there. Don't talk, don't wear squeaky clothes, don't use your flashlight until the bird is close. When you stop at a spot to listen, get a good position in case a bird appears, and plant your feet. Be a tall mushroom. Do not scrunch around in the leaf litter or gravel. Do not sneeze, wheeze, or breathe, or your fellow owlers may pluck a feather from your upper tail coverts.

When possible, let the bird come to you; owls are curious and often will. 🦉

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Rich Stallcup (1944–2012) was a PRBO co-founder and our naturalist extraordinaire. His knowledge continues to deepen our appreciation of all things wild. Read this complete essay and the entire Focus archive online at pointblue.org/focus.

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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Blake Barbaree holds a dowitcher that will carry a lightweight radio transmitter, helping us trace wintering shorebirds' movements within California. / Point Blue photo.

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FARALLON PATROL Our Farallon Islands Program relies upon the skills and generosity of volunteer skippers in the Farallon Patrol. They provide essential transportation year-round between the mainland and our research station on the Farallon National Wildlife Refuge. We acknowledge the Farallon Patrol in our Annual Report. Here are all the skippers (and their boats) who made volunteer runs to the island during 2014. Many thanks!

Jim Bewley — *Another Girl*
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Point Reyes Bird Observatory Fund

To honor our history and sustain our bird conservation foundation, we established the Point Reyes Bird Observatory Fund.

Donations to the Fund support our long-term bird ecology studies at our Palomarin Field Station (in Point Reyes National Seashore) and the Farallon Islands (at the Farallon National Wildlife Refuge).

To learn more, please visit pointblue.org/prbofund.



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for a healthy planet.

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Make Conservation Science Your Legacy

Secure a Healthy Planet for Future Generations

Point Blue Board Member Rebecca Patton and her husband, Tom Goodrich, recently became Tern Society members, joining the company of many visionary supporters who are committed to securing a healthy planet for future generations. "We put Point Blue in our estate plans because we believe the unique role it plays in conservation is going to be important for the very long term," Rebecca says.

Rebecca and Tom were especially inspired by Point Blue's restoration programs and partnerships on working lands. "Point Blue's work with farmers and ranchers to improve their land for wildlife and sustainable agriculture is fundamentally important," she says. "Point Blue is doing some of the most innovative research in climate-smart conservation today, and helping land and water managers apply that science is critical as we grapple with habitat loss and other challenges."

Rebecca and Tom realized that a bequest is one of the simplest and most effective ways to ensure that Point Blue and its partners can continue to create viable, nature-based conservation solutions for years to come. Join them and make a lasting difference for our natural world!

Please contact Stacey Atchley at 707.781.2547 or legacy@pointblue.org for more information.

Photo: Courtesy Rebecca Patton.