

AUDUBON CANYON RANCH



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Conservation in Action

News from our programs and preserves | Number 65 | Summer 2020

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School Program

Lions Compete for
Territory in Sonoma

Giving Coastal Prairie
a Chance in West Marin

Curlew Captures at
Point Reyes

Honoring Big-Hearted
Spirits



*“Long-billed Curlews at Bolinas Lagoon
have increased over the past 50 years, so
conditions appear favorable there.”*

*-Nils Warnock
Director of Conservation Science*

A Call to Action, a Time for Hope

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On the cover: A Long-billed Curlew takes flight on Limantour Beach in Point Reyes National Seashore.
Photo: Scott Jennings

Story on page 12.

As this bulletin goes out, California is 84 days into a shelter-in-place order due to COVID-19, and the disease has claimed more than 111,000 lives nationwide. People have taken to the streets to protest institutionalized racism and violence. Environmental protections are being rolled back. A greater than normal wildfire season is predicted for Northern California. Shorebird declines have reached record levels.

ACR recently revised our mission statement to *Connecting nature, people and science in a rapidly changing world*. We could not have imagined how rapid the changes, nor how far-reaching.

ACR remains steadfastly engaged in land stewardship, environmental education, and conservation science. Conservation work is a call to action that requires courage, and courage requires hope. Lucia Garay is one source of hope for us all. As the 2020 David Bouverie Scholarship recipient (awarded to one extraordinary volunteer as they enter college), Lucia will begin conservation-related studies at UC Berkeley this fall. She has served ACR for seven years as a junior naturalist, peer educator, nature walk guide, and research assistant. In her greater community, Lucia chaired the Sonoma County Junior Commission on Human Rights and helped organize March for Our Lives to advocate for reasonable gun legislation.

This fall marks the fiftieth anniversary of ACR's nature education program. We are deeply grateful to Lucia and all ACR volunteers for courageously answering the call, and for the hope they inspire.

In gratitude,

John Petersen
Executive Director



Lucia Garay, 2020 recipient of the David Bouverie Scholarship



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"I thought, 'Ooh, I could do this!' In docent training I rediscovered a part of me that I hadn't paid attention to for a long time."

—Carol Kuelper, docent



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—Bob Cooley, Cooley Ranch



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"Since 2014, we've been chipping away at gaps in Long-billed Curlew migratory connectivity."
—Jay Carlisle, Intermountain Bird Observatory





photo: Jocelyn Knight

ACR'S NATURE EDUCATION: 1970-2020

We've Always Known: Kids *and* Adults Thrive in Nature

by Gwen Heistand, Martin Griffin Preserve Manager/Resident Biologist
Interviews transcribed by Natasha Lekach, Education Program Manager

Fifty years ago, Audubon Canyon Ranch embarked on a journey to create nature-based environmental education for Bay Area elementary school students.

On 1,000 acres overlooking the Bolinas Lagoon in Marin County, we began training a covey of volunteers to guide small groups of children in field and classroom exploration.

Over the years, we expanded the School Program from Marin into Sonoma. By now, 1,300 enthusiastic docents have led nature education and appreciation activities that touched more than 250,000 third, fourth and fifth graders from 2,500 classes.

Sprouting from our beginnings, we expanded ACR's reach and depth. We added more student programs—overnight, junior naturalist, lion ambassador, educational choir and high school conservation science intensives.

We're excited to share some of our many stories over the next year. This time, we'll talk about how, after a concerted effort to preserve heronries and vernal pools, redwood canyons and waterfalls, riparian corridors and oak woodlands, a community grew.

Its purpose was to gift children with passion, curiosity and place. The program is so rooted in land and kinship that volunteers from every decade still actively hike with school kids. Meet five of them, in their own words.



We're keeping the celebration going all year long! Check in for recorded histories, photos and more at egret.org/ed-program-turns-50



1962 Audubon Canyon Ranch is established to protect a sensitive West Marin heron and egret nesting colony from logging.

1964 Local Audubon chapter members welcome visitors to view the heronry at the Bolinas Lagoon Preserve, launching the ACR Hosts program.

1967 Clarin Zumwalt is hired as ACR's first naturalist and begins leading two tours daily for Bay Area classes of up to 30 fourth and fifth graders.

Evolution of Our Education Programs

1968 The 234-acre South Canyon is purchased for use as an environmental education center. Now called Volunteer Canyon, it houses residential program classrooms, staff housing, offices and a workshop.

1970 The ACR Docent Program is born with docent training funded by the Junior League of

San Francisco. Docent-led programs for schoolchildren and public visitors begin at Bolinas Lagoon Preserve (renamed Martin Griffin Preserve in 2010 to honor one of ACR's founders).

1972 ACR Docents begin conducting their own training program.

1978 David Bouverie donates a major portion of his ranch for education and preservation, forming the Bouverie Preserve, ACR's second main site.



My Docent Experience

Jane Ferguson - Class of 1971

In the beginning, the docent program was sponsored by the Junior League of San Francisco who hired NSER (Natural Science Education Resources) to do the training. NSER was made up of local biologists with the purpose of providing education in natural sciences. The Junior League supported and paid for the first three years. I got into the program because of my neighbor. Her kids and my kids played together. She had a wonderful first year in the program and sold me on it.

I discovered that I have a 10-year-old's mind. I love things I can hold in my hand and I found that kids do too. Once a kid put his hands in mine and said, "I love nature, especially mother nature." The children are always inspirational. They are curious, often a little fearful. I am so inspired. I come away thinking, I get as much out of this as they do.

One of the things that keeps me coming back is the land. I think that property grabbed ahold of a lot of us. You walk up on the hill and you see the lagoon and those beautiful hills. I am eternally grateful. It has been a wonderful relationship with the land, other docents and staff.

Carol Kuelper - Class of 1987

A friend and her daughter took me out to the ranch on Mother's Day in 1986. Skip Schwartz (ACR's first Executive Director) was at the gate, recruiting docents. I was working a per diem nursing job. I had control over my schedule, and I thought, "Ooh, I could do this!" In docent training I rediscovered a part of me that I hadn't paid attention to for a long time.

The kids bring a lot to the job. They are a part of the ecology, so whatever impact we have, they impact us. At creeks, kids can rock hop, almost fall—all that exploring! I think of a time I was in the Dead Horse Grove, each kid holding a Douglas fir branch. I told them the story of the horses and that the horses were now in the trees. One of the kids looked at me and said, "Oh, the circle of life!"

I can't quite separate myself from the place and the people. It is a unique land. It's got a big hold on me. This spring has been kind of disembodied without connection to the preserve.

Bonnie Blackhaller - Class of 1999

I heard about the program when it first started. I was a working single mom and I couldn't do it right then, but I thought, what a wonderful thing! I started when I retired. From the time I was a little kid, nature has been such an important part of my life and to learn from so many remarkable naturalists was an incredible experience for me.

I felt the trainees who were teachers had a real leg up on working with kids. Now I feel as comfortable. They're sponges, they soak it all up.

Under the heronry is a special place to me. It is just magical to share that, especially when there are newts. To be in nature, be excited, to open children's eyes, and that sense of wonder, I feel it is invaluable for our future generations.

I made wonderful friendships with so many people. And that is a big part of what I love about Audubon Canyon Ranch. It has been very special to me, so I miss that now. I miss it.

1982 The first docent class at Bouverie Preserve graduates and school groups begin to arrive.

1986 The old hay barn at the Bouverie Preserve is converted into the Gilman Hall Education Center. The first class of volunteer naturalist Ranch Guides graduate from training at Martin Griffin Preserve.

1994 ACR's Juniper Program (junior naturalists) is launched at the Bouverie Preserve.

1996 The Osher Volunteer Center, including a natural history library and volunteer office, is completed in Martin Griffin Preserve's Picher Canyon.

2001 The Overnight Program at Martin Griffin Preserve is launched, offering under-resourced schools an intensive, educational nature experience.

2002 The Quercus Quire, a group of singing volunteers from our preserves, receives the Community Service Award to Schools from the

Volunteer Center of Sonoma County. The honor is for bringing an ecological stewardship message to 2,700 schoolchildren each year.

2006 The Bouverie Preserve Docents receive the 2006 Outstanding Environmental Program award from the Sonoma County Conservation Council and the Sierra Club. Certificates of recognition are received from the California State Assembly, the California State Senate and Rep. Lynn Woolsey.



My Docent Experience, continued

Sherry Wright - Class of 2007

I had been going out to ACR for several years as a classroom teacher before I became a docent. My classroom aide, Jan Moffet, and I worked out a plan so she could have Wednesdays off to take the docent training. When the four walls of the classroom went down, that was really my draw.

I love being able to encourage children to trust nature, to help them feel safe. For many students it is so different than what they are used to. I love that you can take a child who is absolutely not going to touch anything and coax them into a shared trust. Newts. A spittlebug. To show kids that there is a little critter in the spit and it is doing what nature programmed it to do. The magic never goes away.

I feel as though there is always going to be something new and exciting to learn. This morning, our son stopped by. There was dog-vomit slime on our parking strip. He asked what it was, and when I could answer, he was like, "Oh My God."

I enjoy the people and I enjoy discovery. It is beautiful out there. When I get out of the car, it is just ahhh. I can release the stuff I carry around in life.

Christine Bent - Class of 2019

My kids participated in an annual summer camp and grew into these mini naturalists. My son knew everything I didn't know—the fennel, the bay leaf, everything. And I was jealous. I was a city girl, I grew up in Manhattan.

Becoming a docent was a way for me to educate myself in a way that I wasn't able to as a child. At the same time, I could try to share what I discovered with children so they might have the transformative experience my son had.

Something that made such an impact on me is all the other docents. I found such richness in the collective. I cannot think of another community like this. Everybody brings their experience and careers, their hidden skills and talents. It is an amazing symbiotic relationship between individuals, a community, the land and the science behind caring for the land.

So far, I feel like I've taken a lot more than I have given. I feel like I have a lot of giving back to do for what I have already been given in a short time.

Another thing I appreciate is I could live to be 150 and still be like a child trying to take it all in. It is just an endless road of learning and I am never going to master it. I love that. I love knowing that I will never get to the end of that road.

A Nature Community

Once a piece of land has been preserved how do we listen to it, steward it, honor it?

One way, as these five education volunteers pointed out, is by building a self-organized and networked community, entwined in the ecology of a place. Our niche in that ecosystem includes inviting children to explore, be curious and be safe in the company of passionate adults. This is the magic and potency of ACR's 50-year journey.

As we embrace these uncertain times, ACR's docent-delivered, free-to-school education programs have remained limber. We adjust when preserves are closed due to egret colony abandonment and when faced with wildfires, power shutdowns and now a global pandemic.

While we will adapt the specifics of ACR education, our roots will stay anchored in land, community, science and the joy of sharing it. ■

2009 In memory of Phyllis Ellman, the David Bouverie Scholarship Fund is established for Junipers pursuing higher education in science or the environment.

2010 The Martin Griffin Preserve Docents receive the 2010 California State Assembly Certificate of Recognition for Exceptional Outdoor Education Program for Youth signed by Rep. Jared Huffman.

2016 ACR launches the Conservation Science Intensive summer program. The hands-on, land-based training/mentoring program is for young women, taught by ACR's female science and education staff.

2017 Mountain Lion Ambassadors, a subset of ACR docents, bring a unique 90-minute science presentation into schools, sharing research from ACR's Living with Lions study to increase understanding and acceptance of our wild neighbors.

2017 Gwen Heistand, Director of Education, receives the Terwilliger Environmental Award for making a significant difference in environmental education.

2020 Responding to COVID-19-related shelter-at-home orders, ACR education staff launches Nature Where You Are, online teaching resources for educators and families that include videos filmed by docents in their own backyards.

Timeline sourced from ACR's 55 year history available at egret.org/history and "Sharing Wonder: Zumie and the spirit of Education at ACR," by Len & Patti Blumin, *Bulletin 19*, Fall 1996.

Photos: A. Battaglione, L. Blumin, J. Cacciatore, J. Childress, W. Coy, P. Green, J. Knight, N. Warnock, N. Young, and other ACR volunteers.



Meeting Students Where They Are

by Natasha Lekach, Education Program Manager, Martin Griffin Preserve

As an elementary school student growing up in San Francisco, I couldn't tell a redwood from a cypress or a heron from an egret. But I knew one plant, oxalis (although my friends and I knew it as sour grass).

We could spot the yellow flowers from half a block away, protruding from the unkempt city parkways, sidewalks and yards. We'd pluck them and crunch on their sour stems—nature's Sour Patch Kids.

When reflecting on the origin of ACR's school program, docent Jane Ferguson said, "...Nature does not necessarily involve getting on a bus, getting sick for an hour and half, and then getting to nature. Nature is around kids, right where they are."

For 50 years, our school program has provided students with tools to deeply engage with all of nature's wonders. Docents share these tools on our preserves, where students are so immersed in nature that they can't ignore the sounds of birds and the many shades of green. Curiosity naturally follows.

For most students, their field trip is only three hours. Yet this short outing is amplified when their new observational skills are applied outside of the boundaries of ACR's lands—"right where they are."

Today we are applying these tools and techniques to our *Nature Where You Are* content. It's aiding teachers and parents in connecting children with nature in their homes and neighborhoods. When watching a bird fly overhead, feeling the sun on their face or seeing oxalis from a block away, a child is invited to examine their world. If they're abuzz with questions because of something we shared, we've met our goal. ■

Find nature videos, graphing lessons, wildlife-themed games and more at egret.org/resources-for-teachers-families.



photo: Jared Jacobs



photo: Liz Martinis



photo: Stephen Lacy / @Bird

In Your Neighborhood

CYPRESS GROVE RESEARCH CENTER

Threatened Species Safe in ACR's Turtle Pond

ACR's preserves are special places, designed to support ecologically sensitive species. But finding a federally listed species on a preserve is still exciting.

In early March, Nils and Sarah Warnock invited Patrick Kleeman, an amphibian ecologist with the U.S. Geological Survey, to survey ponds at Cypress Grove Preserve. They were looking for California red-legged frogs (*Rana draytonii*), a federally threatened species.

Venturing out in the dark, headlamps aglow, they looked for the frogs' shiny, glowing eyes (larger than the Sierran treefrogs) and listened for their low, raspy croak.

To their delight, they detected five to 10 individuals in Turtle Pond, along with lots of tree frogs. Turtle Pond is also home to the state-listed species of special concern, the western pond turtle (*Clemmys marmorata*), so this small pond is large in ecological significance. ■



BOUVERIE PRESERVE

Refurbished Trail Opened Thanks to North Bay Rotary

In February 2019, ACR was awarded a generous \$50,000 grant from Rotary District 5130's Fire Recovery Fund. This relief funding from the greater North Bay Area Rotary allowed us to address 17 acres of fuel reduction that is vital to the ecological health and fire resiliency of the Preserve.

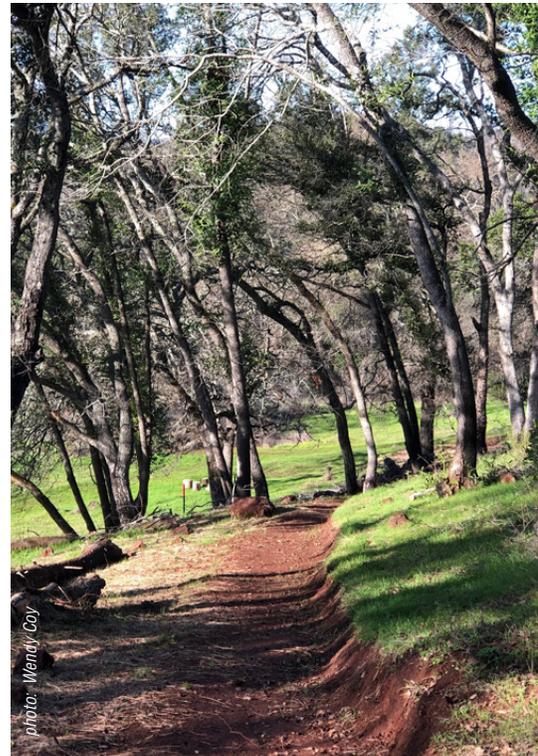
Rotary's substantial support also funded work on a key connector trail badly burned during the 2017 Nuns Fire.

We decommissioned a section of steep, burned trail and rerouted it in a more ecologically sound and easy-to-hike fashion. The new path, a reconfiguration of the old Loop Trail and still carrying the same name, opened early this spring.

An interesting section we're calling the Grotto is made up of a spur segment that leads to a mining pit circa the 1900s. Bouverie Preserve Resource Ecologist Jennifer Potts says, "Previous records and field surveys did not show this area on any maps (and field staff didn't know it existed), so it's a very cool discovery!"

The updated Loop Trail leads to the View Trail, which provides an amazing panorama of the mountains, valleys, San Pablo Bay—and on a clear day, all the way to Mount Tamalpais. The volunteer Bouverie Stewards were essential in completing this project.

We look forward to hiking the trail with school children as soon as possible and are extremely grateful for Rotary's forward-thinking contribution. ■



MARTIN GRIFFIN PRESERVE

Clearing the Way for Native Plants

At Martin Griffin Preserve, Resource Ecologist Henry Inman has been removing invasive plants and conducting invasive species early detection surveys.

These yearly surveys identify new patches of invasive plants for removal before they become a bigger problem.

Happy to intercept a developing patch of Scotch broom (pictured at right), Henry was able, with a lot of hard work, to pull it out by the roots. This tough and intrusive plant grows nowhere else at MGP but is rampant in other parts of Marin County.

Another infamous relative, French broom, out-shades native plants, alters soil chemistry and is also on the target list. Henry completed initial treatment on a couple larger patches on the preserve, taking out a lot of plants before their bright yellow flowers turned into seeds. We're hoping to see native plant recruitment in the treated areas over the coming years. ■



Dwindling grasslands on the Garden Club Ridge and Bourne Ridge of Martin Griffin Preserve on the eastern shore of the Bolinas Lagoon. Inset below: in 2020, coyote brush and Douglas fir encroach on the remaining grasslands of Garden Club Ridge.

FIRE FORWARD: MARTIN GRIFFIN PRESERVE

Grassland Loss Impacts Watershed and Fire Resiliency

By Sasha Berleman, Consulting Director of Fire Forward

Plants tell stories—narratives that illuminate the past, explain the present, and offer potential for the future.

Vegetation on Martin Griffin Preserve’s Bourne Ridge tells us about a changing landscape across the northern coast of California. The Preserve and surrounding areas have seen a significant decrease in coastal grassland in a relatively short time.

Most concerning is the loss of legacy native bunchgrass stands, perennials foundational to native coastal prairie. The purple needle grass, California oatgrass and California brome that likely dominated the grassland ridges on Martin Griffin Preserve have been reduced to small remnant patches.

The disappearance of these native coastal prairie stands is heartbreaking. On the other hand, the surviving native grasses are a hopeful testament to toughness. With a little effort we can help them thrive again.

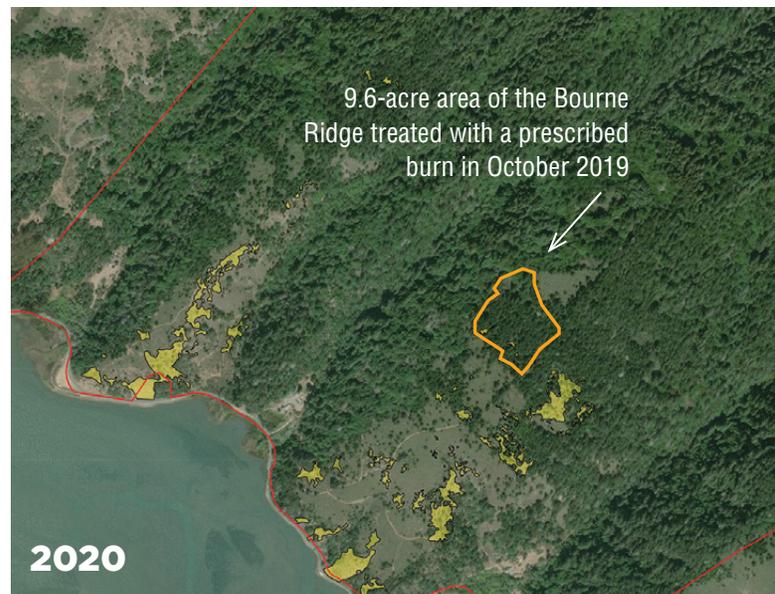
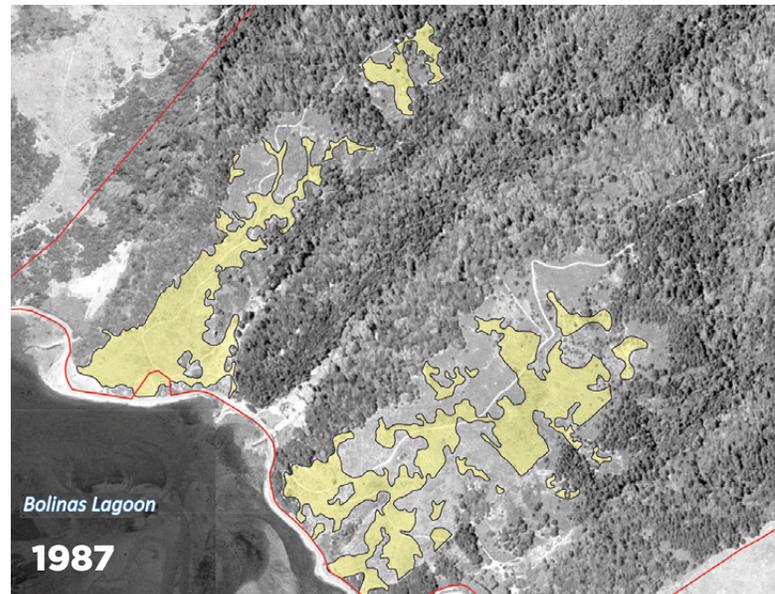
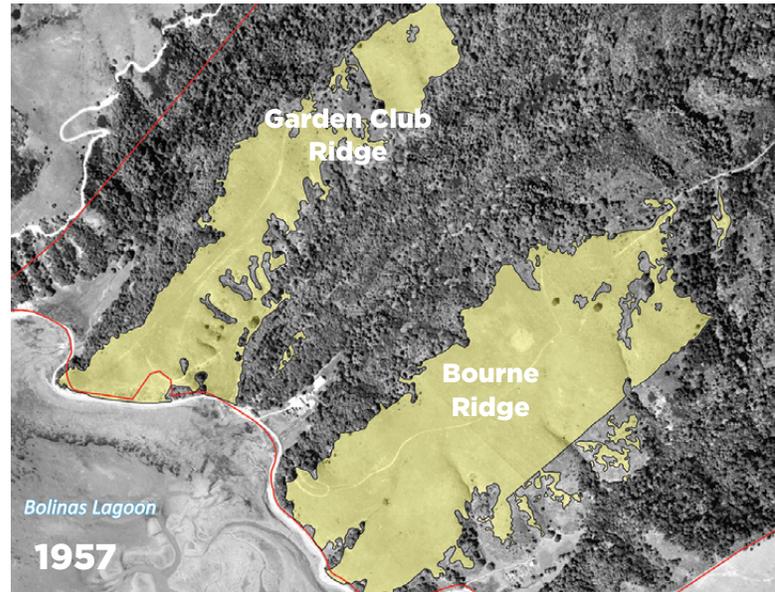
Among the most threatened California ecosystems

Coastal grasslands are rapidly disappearing under encroaching forest and shrubland. Disturbances such as fire and grazing are required to maintain open grassland systems, but these have largely been removed from the landscape.

The result is unchecked coyote brush and Douglas fir encroachment that distress watershed health and fire resiliency, especially in the face of climate change.

Martin Griffin Preserve has lost an estimated 91.5 percent of coastal grassland since 1952. This means a much less diverse landscape, more prone to intense ecosystem-changing fires.

Continued on page 9



maps: Brian Peterson

It's urgent that we take action now

This encroachment must be reversed if we're to save grassland ecosystems on Martin Griffin Preserve. It's pressing, both timewise and ecologically.

Over the last year, Fire Forward staff and Martin Griffin Preserve Resident Biologist Gwen Heistand have been implementing projects and working on conservation strategy. We're identifying the priority tasks, methodology and timeline needed to meet conservation goals on the Bourne Ridge and Garden Club Ridge.

Project goals include:

- Promoting a more fire resilient ecosystem—thin the Douglas fir and coyote brush in areas that can be transitioned back toward grasslands. By contrast, where a Douglas fir forest is well-established, thin younger trees for

a healthier forest and more diverse understory. Grasslands and forests consisting of larger trees and few ladder fuels are more likely to remain intact in a wildfire.

- Increasing coastal grassland cover—manually remove coyote brush and young Douglas fir trees while conducting more controlled burns along the ridges.
- Conserving remnant coastal prairie stands—identify and map Martin Griffin Preserve's remaining coastal prairie stands, design a treatment to open these meadows and implement the plan on up to 50 acres. Fire Forward staff are pursuing funding for this project and aiming to complete the conservation work by winter 2022.

ACR is committed to this project. We hope to develop strategies to save and promote our coastal prairie and to share them with other institutions and private landowners. ■

BONUS VIDEO: Watch how ACR used controlled burning to clear understory growth in a Douglas fir forest on the Bourne Ridge in October 2019 at egret.org/fire-forward.

COMMUNITY ACTION: GOOD FIRE ALLIANCE

Sonoma County Rancher Partners Up for Prescribed Burns

Big thanks to Bob Cooley and son Crawford of Cooley Ranch in northern Sonoma County for hosting onsite prescribed burn teams. In March for a live fire training event and in May for a 112-acre prescribed burn, Bob collaborated with ACR's Fire Forward staff and professional and volunteer prescribed burners from nearby counties, as well as the county's prescribed burn association, the Good Fire Alliance.

"I was truly impressed by the great attitudes and work ethic of the many awesome volunteers that came out," said Fire Forward Director Sasha Berleman. "Cooperatively conducted prescribed burning is only possible with the commitment of landowners like the Cooleys and we look forward to these continued partnerships in the coming months."

The team reduced fuel hazards and conducted hands-on mentoring on the especially valuable training ground of steep, rugged terrain. The good fire eliminated dangerous woody debris, halted brush and Douglas fir encroachment and cut short invasive barbed goatgrass.

The results—improved habitat for nesting birds, better mixed-brush browse for grazers, opportunity for resurgence of native plants—including the star flowered brodiaea (*Brodiaea stellaris*) shown at right—and the chance for participants to practice spot-fire containment.

"Everybody played a very important role," says Bob. "It's nice to be in a proactive burning environment, working with fire professionals like ACR's Sasha and Jared. When brush is overgrown, in some areas fire is the only thing you can use to effectively manage it."

Bob encourages landowners to be proactive in burning back dangerous flammables. His four-generation ranching family has a long history of land management through controlled burns and he plans to be part of the local cooperative burn force. ■

Learn more about the Good Fire Alliance at calpba.org/good-fire-alliance.

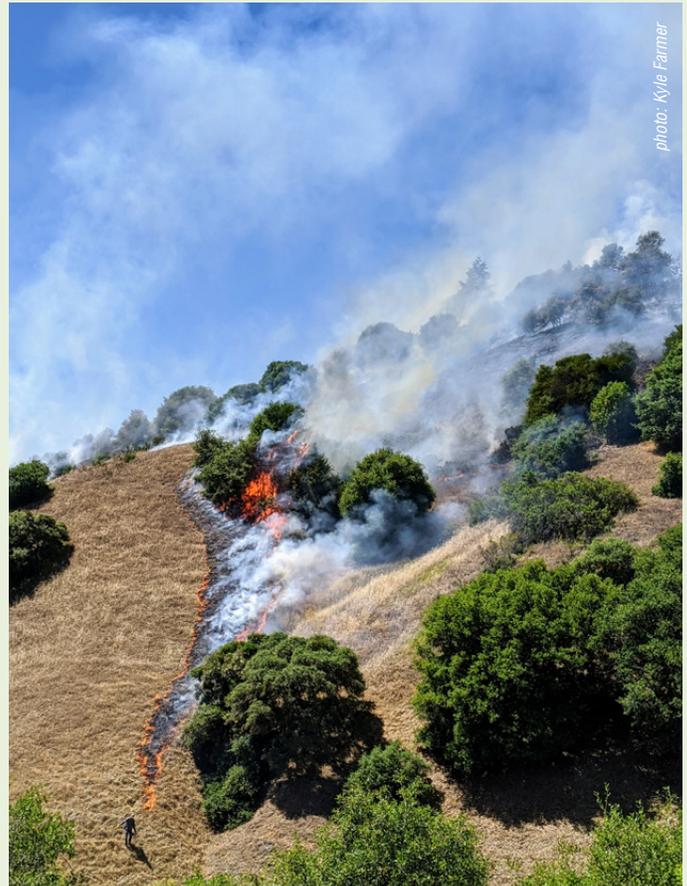


photo: Kyle Farmer



photo: Jared Childress



photo: Jared Childress



ACR FOUNDER & EMERITUS DIRECTOR L. MARTIN GRIFFIN, MD

Celebrating the Distinguished Conservationist at 100

by Jen Newman, Associate Director of Philanthropy

On July 23, Marty Griffin, Audubon Canyon Ranch's beloved founder, becomes a centenarian.

Marking the milestone with a tribute campaign

To celebrate, and with Marty's blessing, ACR has launched **100 for 100**. Our campaign aims to raise 100 donations—of any amount—to support the nature education and land stewardship programs at his namesake, the 1,000-acre Martin Griffin Preserve.

A timeless legacy

Marty, a lifelong nature lover and stalwart conservationist, and his like-minded contemporaries succeeded in defeating runaway growth in development-friendly 1960s Marin County. Marty helped protect wild landscapes forever and transformed the local political landscape. He helped open the door to a new environmental ethic, and Audubon Canyon Ranch was born.

"We bought the land 60 years ago to save from development the largest heronry on the West Coast," said Marty recently from the home he shares with wife Joyce Griffin, ACR Advisor and Docent. *"Today, we are working to restore coastal prairie and the mighty Bolinas Ridge, as we continue to protect wildlife habitat near the Point Reyes peninsula."*

Then the opponent was development. Today it's invasive non-native plants and human suppression of natural systems. But the objective is the same—protect and restore precious, threatened habitat.

Happy 100th Birthday, Marty!



photo: Richard James

Marty's legacy continues. Last fall, ACR's Fire Forward team returned good fire to the Martin Griffin Preserve. The prescribed burn cleared 70 years of dense Douglas fir needles atop remnant coastal prairie grasses on about 10 acres. Bringing back fire—a natural part of the ecosystem—marked the beginning of coastal prairie restoration on the Bolinas Ridge.

"I've been waiting for this moment for 70 years," Marty said before he ceremoniously ignited the burn.

Honoring the past, looking to the future

We were planning Marty's summer birthday party, but COVID-19 had other plans. Since it's unclear when we can host a large event, we're now celebrating our founder virtually.

Help us applaud Marty's milestone birthday, his impassioned commitment to protecting open space, his love for the ACR preserve that bears his name, and the vibrant community he helped establish at ACR so many years ago. Please join us in the **100 for 100** campaign! ■

Visit Marty's Page on ACR's website to read more about his life's work and how he made a lasting difference in our world: egret.org/martys-page.

100 Gifts to Honor 100 Years

Celebrate ACR Founder Marty Griffin's milestone birthday and support the nature education and land stewardship programs of ACR's Martin Griffin Preserve.

Let's show Marty how much he means to us! Here's how to participate:

- Make a donation and leave a note: we'll share your birthday wishes with Marty egret.org/100-for-Martys-100
- Be like Marty! Be a Sustainer! Join the ACR Monthly Sustainer circle egret.org/give
- Ask us how to leave a legacy gift to carry on Marty's environmental vision egret.org/legacy_gifts

For more information, contact Associate Director of Philanthropy Jen Newman at 415-868-9244 ext. 119.

A dozen ACR supporters have already made generous lead gifts, launching the campaign. Join them and help us reach our goal!



photo: Gwen Heistand

LIVING WITH LIONS

Male Mountain Lions Compete for Territory in Sonoma Valley

by Quinton Martins, Ph.D., Director of Living with Lions

We've been tracking a roughly 10-year-old mountain lion, P5, through GPS technology for three years. Our preliminary genetic work shows that, until recently, he had fathered all documented kittens born in the southern part of our study area.

When we started tracking him, P5 was covering roughly 250 square miles—from Mark West Springs to Sonoma then west over Highway 12, with east and west boundaries of Highways 29 and 101. He was the sole territorial male in the area.

Our hypothesis was that P5's expansive range came from usurping the vacant territory of a dominant lion that died from natural causes or due to all-too-common depredation permits.

P5 under pressure

But in late 2018, GPS data showed that P5 was slowly being pushed out by a new male, one we'd photographed but had yet to collar.

With pressure from this new rival, P5 could not maintain this vast range, and since late 2018 remained west of Highway 12. Occasionally, P5 would return as we suspect he wanted to retake his old territory, but as an aging male, signs of the younger cat sent him hastily back to his home territory.

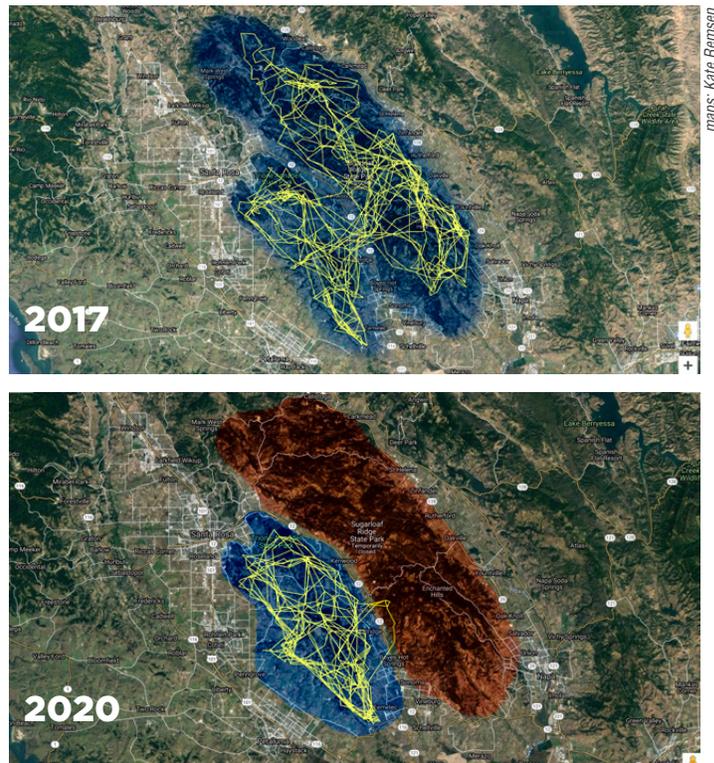
In late April, P5 made a foray across the highway, crossing paths with a tagged female and her two kittens. When we downloaded the GPS data from their telemetry collars, we discovered the adult lions had met up.

A sad discovery

I hiked to the thicket located by the GPS points and my grim thoughts were confirmed. I found the remains of both kittens, consumed but for the jaw bones and tail. P5 killed them knowing they were not his own.

Infanticide is not uncommon among mountain lions or other large cats, but this was our first documented case. Luna, the mother, may have tried to protect her cubs but would have been no match for P5, stronger and at least 40 pounds heavier. We don't know if Luna is injured but the GPS tells us she is alive and moving about.

For the last few weeks, P5 has been traversing his old territory—moving between the areas west of Highway 12 in the Sonoma Valley and the western hills of Napa County. So where is the dominant male who kicked out P5? Was he killed by another lion, by poison or illegally hunted?



Top: Blue area shows P5's territory in 2017. By 2020, P5's range was significantly restricted by an unknown male (shown in red). Below from left: P16 gave birth to two kittens in mid-February but by early April our GPS mapping picked up a deadly run-in; P5 moves through the pygmy forest of Bouverie Preserve in early 2020.

California Department of Fish and Wildlife has reported no recent depredation permits for an adult male in this area. Regrettably, we may never learn his fate.

It is unfortunate that Luna lost her first litter of kittens this way. Life is difficult for these cats—only 50% of cubs survive. They face significant natural dangers, but also the threat of an increasing human presence. In California, mountain lions' biggest risks are habitat loss, depredation permits, car strikes and poisoning. ■

Learn more about Living with Lions at egret.org/living-with-lions.





From left, David Newstead (Coastal Bend Bays and Estuaries Program), David Lumpkin (ACR), Jay Carlisle (Intermountain Bird Observatory) and Nils Warnock (ACR) prepare a net to be used to capture Long-billed Curlews on Limantour Beach, Point Reyes National Seashore.

photo: Scott Jennings

CONSERVATION SCIENCE PARTNERSHIPS

Casting a Wide Net on Migration Patterns of Long-Billed Curlews

GUEST AUTHOR

by Jay Carlisle, Ph.D., Research Director,
Intermountain Bird Observatory

Boise State University's Intermountain Bird Observatory began its research on Long-billed Curlews (*Numenius americanus*) in 2009. We partnered with the Bureau of Land Management and Idaho Department of Fish and Game to advance a study of a declining curlew population in southwestern Idaho.

The Long-billed Curlew is listed as a Bird Species of High Concern by the U.S. Fish and Wildlife Service as well as a Species of Special Concern in Canada. Some populations have declined dramatically in recent decades, with threats from loss of breeding habitat, especially grasslands, urbanization of agricultural habitat, and hunting.

Early findings were disheartening

We saw a substantially lower rate of nest success on BLM land

in southwestern Idaho than previous researchers saw in the 1970s (Redmond and Jenni 1986). Another unsettling trend was discovering more than one illegally shot adult curlew every year (see story on Audubon.org).

The Intermountain Bird Observatory program grew to include other breeding areas and satellite transmitters for tracking. Now involved in life cycle conservation and ecology of curlews, we collaborate with partners to follow birds from their nesting grounds in the north to their non-breeding grounds in the southern states and Mexico.

Closing in on migratory connectivity for the species

Within a year of our tagging curlews breeding in Idaho, researcher Gary Page and others published fascinating tracking results from birds breeding in Montana, Nevada



BOISE STATE UNIVERSITY
INTERMOUNTAIN BIRD OBSERVATORY

Appearing tall and statuesque on their coastal wintering grounds, nesting Long-billed Curlews practically disappear into their grassland breeding grounds. Below, in Montana a nesting curlew is shown with netting overhead as researchers prepared to capture it.

and Oregon. Generously, the authors provided some advice on techniques and, since 2014, we've been chipping away at gaps in Long-billed Curlew migratory connectivity.

Simultaneously, Birds Canada, the Coastal Bend Bays and Estuaries Program, and Smithsonian's Migratory Connectivity Project have been tracking birds from breeding areas in British Columbia and Saskatchewan, as well as wintering points in Texas and Georgia.

Several gaps remain

We're still pursuing the migration patterns of the thousands of Long-billed Curlews that winter along the California coast. Well over 125 Long-billed Curlews have been tagged in this study, yet none had been observed wintering on the central coast of California. Where might these birds breed?

This is where ACR comes in. Nils Warnock, one of the authors on the Page et al. (2014) paper, and his team were well positioned to help us find out. ■

Learn more about this connectivity study at boisestate.edu/ibo/curlews.

Coates, S. E., B. W. Wright, and J. D. Carlisle. 2019. "Long-billed Curlew nest site selection and success in the Intermountain West," *Journal of Wildlife Management* 83:1197-1213.

Page, G. W., N. Warnock, T. L. Tibbitts, D. Jorgensen, C. A. Hartman, and L. E. Stenzel. 2014. "Annual migratory patterns of Long-billed Curlews in the American West," *The Condor* 116:50-61.

Redmond, R. L. and D. A. Jenni. 1986. "Population ecology of the Long-Billed Curlew (*Numenius americanus*) in Western Idaho," *The Auk* 103:755-767.

Curlew Captures at Point Reyes Help Unravel the Mystery

by Nils Warnock, Ph.D., Director of Conservation Science

In February, 2020 ACR biologists collaborated with Dr. Jay Carlisle of Boise State University's Intermountain Bird Observatory, Dr. Autumn-Lynn Harrison of the Smithsonian Migratory Bird Center, and David Newstead of the Coastal Bend Bays and Estuaries Program in Texas. Together we caught a male and a female Long-billed Curlew in Point Reyes National Seashore and fitted them with satellite tags.

Our goal, as Jay explains above, was to find where these California beach-wintering birds breed. So we'd been anxiously waiting to see where the birds went during spring migration.

As we waited, we learned that these two birds moved daily between Bolinas Lagoon and Drake's Bay in the Seashore. We're not sure why, but our friends at Point Blue Conservation Science tell us that wintering populations at Bolinas Lagoon have increased over the past 50 years, so conditions appear favorable there.

At Drake's Bay we watched curlews move between the outer beaches, where they often feed on *Continued on page 14*

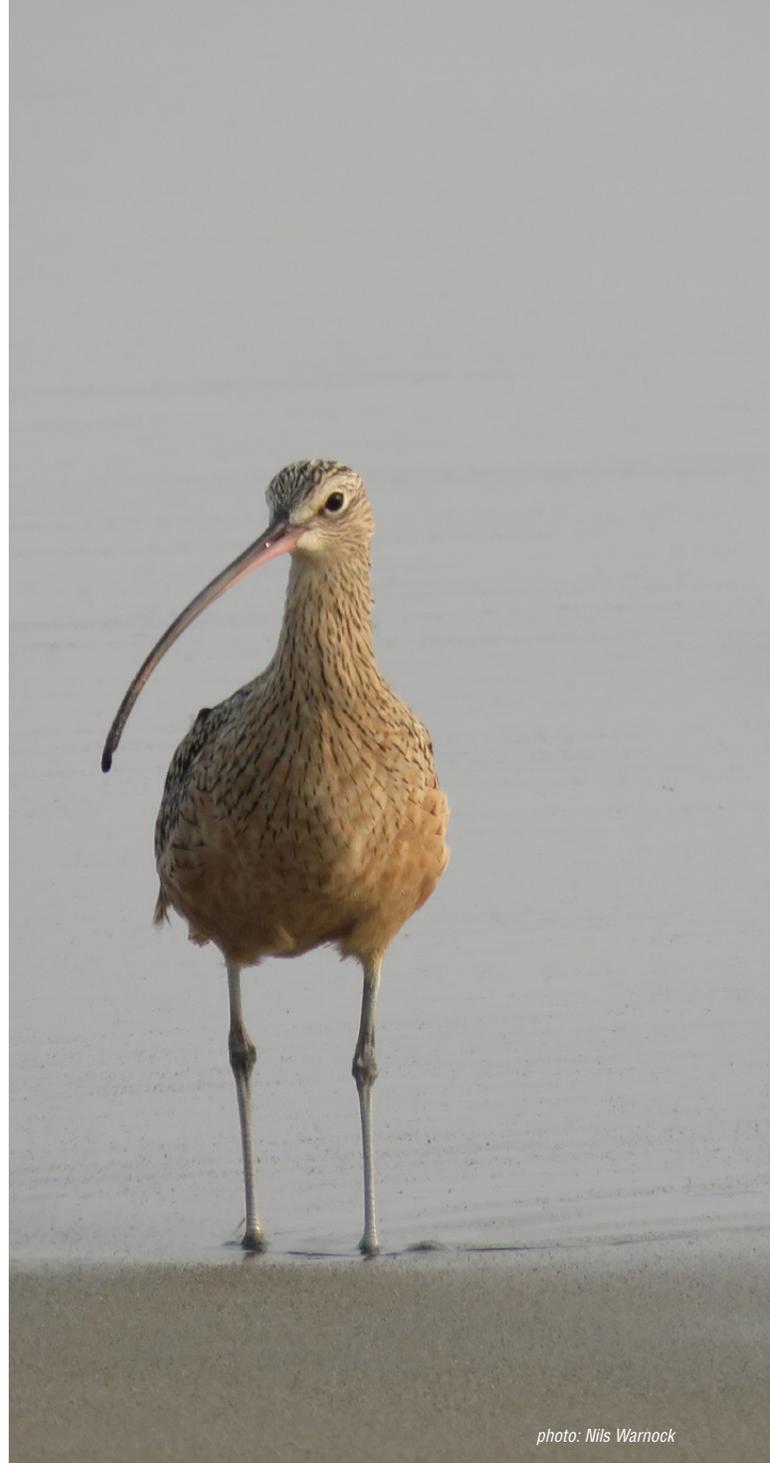


photo: Nils Warnock



photo: Nils Warnock



photo: Nijs Warnock



photo: Intermountain Bird Observatory

Left: the team fits a satellite tag on the female curlew captured at Limantour Beach in Point Reyes National Seashore; right: the “burrito wrap” reduces the risk of injury to the bird while being weighed.

mole crabs, to the inner estuaries to eat a variety of invertebrates in the mudflats.

Migration began in mid-April

Despite a study showing that male Long-billed Curlews tend to migrate toward breeding grounds earlier than females,¹ our female made the first move.

She headed northeast on April 12, flying straight to the east side of Sutter Buttes in the Central Valley. After a rest in the rice fields, she flew through Nevada’s Black Rock Desert and arrived in Idaho two days after leaving Bolinas Lagoon.

Currently, she is settled in an agricultural area in the Lemhi Valley, near Leadore, Idaho.

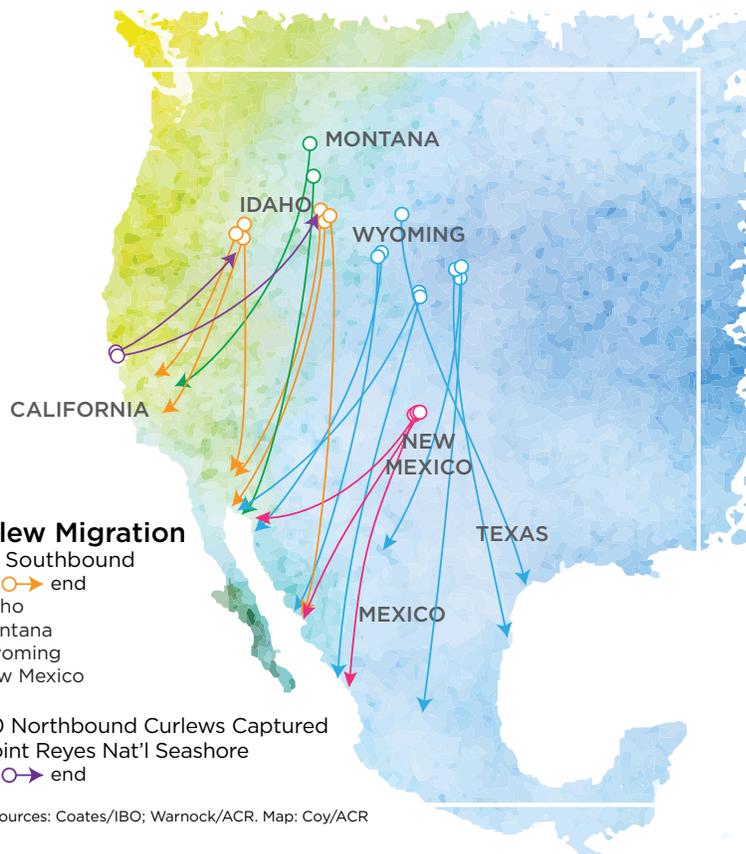
Male curlew heads to Idaho too

Two days after the female left Marin County, the male curlew struck out on a more southerly, but parallel track. He arrived in the Duck Valley of southwestern Idaho, just north of the Nevada border, a day after leaving Bolinas Lagoon. We think he will breed there, roughly 200 miles southwest of the female’s location.

According to other studies, these birds will not spend long on their breeding grounds. We expect they’ll leave in mid- to late-June, depending on how successfully they navigate the threats there. We will report back. ■

Follow project developments at egret.org/blog.

1 Page, G.W., N. Warnock, T. L. Tibbitts, D. Jorgensen, C. A. Hartman, and L. E. Stenzel. 2014. “Annual migratory patterns of Long-billed Curlews in the American West,” *The Condor* 116:50-61.



Data Sources: Coates/IBO; Warnock/ACR. Map: Coy/ACR



photo: Scott Jennings

Discover the work of our partners

Intermountain Bird Observatory

Boise State University, Idaho
<https://www.boisestate.edu/ibo/curlews/>

Smithsonian Migratory Bird Center

Washington D.C.
<https://nationalzoo.si.edu/migratory-birds>

Coastal Bend Bays and Estuaries Program

Texas
<https://www.cbbep.org/>

PROFILES IN PHILANTHROPY

We Honor Two Big-Hearted Spirits

by Naomi Sultana Young, Director of Philanthropy

When we receive word that a beloved member of the ACR community has left us a gift in their estate plans, I am deeply touched.

To leave a legacy which provides benefits that one will never see, to others one might never meet—this must be the highest expression of philanthropy—*love of humanity and voluntary action for the common good!*

Today we honor two late donors whose recent estate gifts benefit ACR's mission and community, while keeping their generous spirits alive.

Charles Gresham

Nearly 99 when he departed last summer, Charles Gresham was an artist, nature lover and San Francisco resident who spent 50 years with his life partner, Sidney Engelberg.

In a 2011 ACR Bulletin interview, Charles recalled his first visit to West Marin decades before as "incredible." Returning years later he witnessed (and feared) the first traces of development on what he believed to be the most beautiful part of California.

Charles discovered Martin Griffin Preserve, came for a hike and was so impressed he added ACR to his list of philanthropic commitments, making it a point to visit and learn about each preserve.

"My interest in and love of nature go back at least to high school when I read Henry David Thoreau's *Walden*," he said. Indeed, Charles adopted Thoreau's premise of living simply with nature as a model. By investing smartly and living frugally, Charles was able to give almost everything to charity, including a considerable gift to ACR to benefit nature, which he viewed as his "heir."

*"The true meaning of life is to plant trees...
under whose shade you do not expect to sit."*

—Nelson Henderson

Marilyn Sanders

When class of 1994 Bouverie Docent Marilyn Sanders passed early last year, Jane Wicklund, ACR docent and board member wrote, "I was so moved that in

Marilyn's belongings was a box she had saved with all her hiking cards, manuals, etc. Even though she was no longer an active docent, they were important to her. What better reminder that ACR is much more than a place—it's magical and becomes part of us in our hearts."

In addition to serving as a docent, Marilyn was for years a Bouverie Steward as well as a Conservation Science Volunteer for Cypress Grove Research Center. She is remembered for her can-do attitude, wonderfully positive outlook, and now, for the generous gift she and her husband Don gave to benefit the future of lands and programs she loved. ■

To consider leaving a legacy to help ACR to continue to study, conserve and steward the lands we hold dear, and to provide top-notch nature education to children into the future, please contact Director of Philanthropy Naomi Sultana Young at naomi.young@egret.org or 707-938-4554 ext. 311.

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J. Knight

INSIDE, page 10:

Marty Griffin marks milestone birthday!

Help us honor his life's work



Jared Childress

BOUVERIE PRESERVE



Dennis Olson

CYPRESS GROVE RESEARCH CENTER



Gwen Heistand

MARTIN GRIFFIN PRESERVE



Michelle Cooper

MODINI PRESERVE

BUSINESS PARTNERS ALIGN WITH ACR'S MISSION

Thriving Together

ACR Business Partnership provides businesses—both large and small, international and local—the opportunity to align with our nonprofit's nearly 60-year track record of environmental success.

Partnerships with North Bay businesses started on day one and continue to be a focus.

"Hanford FUND has deep respect for the work and mission of ACR," says Charitable Giving Advisor Sally Bolger of Hanford Program of Philanthropy, an ACR Business Partner. "We understand the health of the human and natural communities are intrinsically interwoven, and that neither can truly thrive unless both are thriving."

"When John reached out to us with the immediate need for erosion control work at Modini Preserve after the Kincadee fire, we were delighted to quickly provide a

crew, in addition to the FUND's annual financial support. Our long-term partnership enables ACR and Hanford to make the positive impact on our communities and our environment for which we both strive."

Business partners are vital to ACR's mission. They contribute community spirit and direct financial support, along with volunteers, in-kind services and materials.

"ACR's Business Partners provide valuable financial resources, as well as offer us the ability to collaborate with talented business leaders and their communities," says ACR Executive Director John Petersen. "Partnership is at the heart of ACR, and we are so grateful for these friends." ■

Interested in partnering your business with ACR? Contact ACR Director of Philanthropy Naomi Sultana Young at 707-938-4554 ext. 311.

