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Sketches SAN DIEGO AUDUBON

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Together we defend our region's birds, unique biodiversity, and threatened habitats through advocacy, education, and restoration.

Sketches
SAN DIEGO AUDUBON

Celebrating 75 Years of Protecting Birds

SUMMER 2024 • VOLUME 75 • NUMBER 4

A WALK ON THE ReWild MISSION BAY SIDE

The De Anza Natural Plan is Unanimously Passed by City Council —but There's More Work Ahead

A trio of Marbled Godwits wading into a more promising future.

Approved: De Anza Natural

In May, the City of San Diego took a big step toward restoring wetlands in the northeast corner of Mission Bay when the City Council voted 9-0 to approve the De Anza Natural amendment to the Mission Bay Park Master Plan. "The Council's adoption of De Anza Natural is an exciting and critical milestone in the process to envision and create a vital and resilient future for De Anza," says Kelley Stanco, Deputy Director of Environmental Policy & Public Spaces for the City of San Diego's Planning Department. "The City is eager to finalize and begin implementation of De Anza Natural and see improvement of recreation facilities, development of new low-cost visitor accommodation facilities, and restoration of 143 acres of wetland habitat."

The San Diego Audubon Society has been advocating for coastal wetland restoration in the northeast corner of Mission Bay for more than a decade, spearheading the *2018 ReWild Mission Bay Feasibility Study*, which identified three feasible wetland restoration alternatives for the De Anza area, and leading what is now the 89-member ReWild Coalition. While the Coalition has been pushing the City to adopt the Feasibility Study's Wildest alternative, the City Council's approval of the De Anza Natural amendment is seen as a significant achievement.

"The ReWild Coalition was extraordinarily helpful and a very powerful voice in this conversation," says Council President Pro Tem Joe LaCava. "They were relentless in keeping up the conversation about the importance of wetlands, to be thinking big, reminding us of what Mission Bay used to look like back in the day, about the inevitability of sea level rise, and about the value that wetlands can actually bring. I can't say enough good things about what they did in this extraordinary effort."

According to Stanco, the City Planning Department intends to submit the amendment to the California Coastal Commission for certification late this summer, but she expects it to be at least a year before the amendment is heard. "If the Commission conditionally certifies the amendment, it will return to City Council for adoption of the Commission's conditions before returning to the Coastal Commission for final certification," she says. "It is therefore anticipated that De Anza Natural will be fully adopted and certified by the Coastal Commission sometime in late 2025 or early 2026."

Once the amendment is certified by the Coastal Commission, the City Planning Department will prepare a General Development Plan (GDP), which must then be approved by the California Department of Fish and Wildlife and the U.S. Fish & Wildlife Service. "[The GDP] will take the vision that we've created with this action and actually sharpen the pencils, so to speak, and refine the plan," says LaCava. "It will bring more detailed analysis into the conversation—whether it's engineers, biologists, landscape architects—to make sure we can fit all these pieces in and carefully structure and deliver on the promises that we made to all of the stakeholders."

> *We must keep fighting to improve the plan and the shoreline … but we also can just as honestly measure ourselves against the enormous progress described in the approved plan and the momentum for projects that will be inspired by this one.*

The public will continue to have the opportunity to be involved throughout the Coastal Commission's certification process and the preparation of the GDP. Both Stanco and LaCava encourage ReWild supporters to stay engaged and continue their advocacy. "We can take a moment and celebrate because it's certainly worth celebrating," says LaCava. "And then realize you have to go back to work again. We need the coalition to keep up their voice and say, 'This is a unique opportunity, we need to go big.' And then find the place where plans land at a good spot, more biased toward wetlands and uplands creation, but recognizing what other activity has to happen out there. That really continues to be the assignment."

By LaTresa Pearson, Sketches Editor

To learn more about the De Anza Natural amendment and the Coalition's future plans in light of the City Council's action, we spoke with Andrew Meyer, Director of Conservation for San Diego Audubon and leader of the ReWild Coalition:

Sketches: How close do you think the City's De Anza Natural plan is to our original vision for ReWild Mission Bay? How happy should we be?

Meyer: We can be very, very happy. But not content.

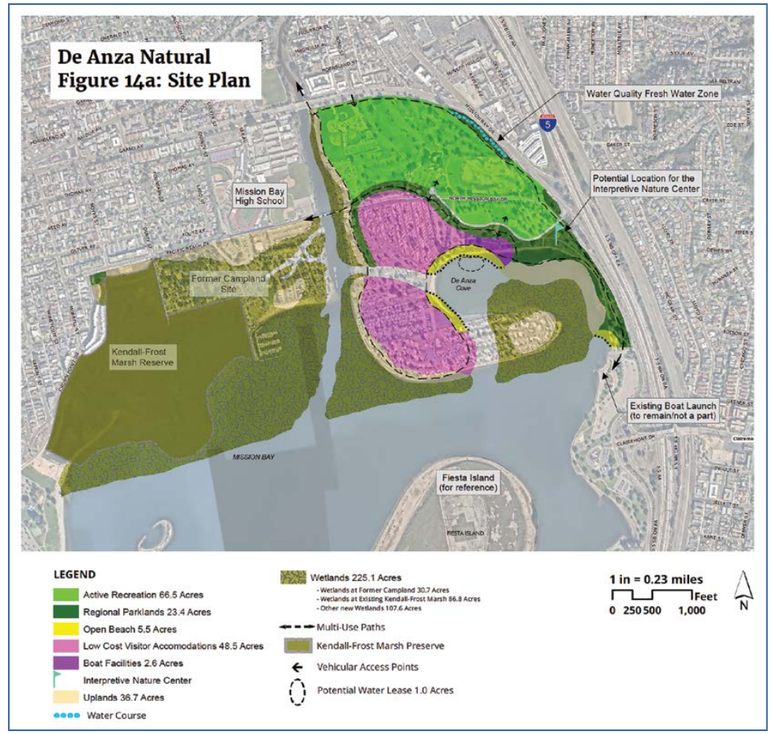
We did awesome, long-term, scientifically informed advocacy work. We pushed the City to adopt a plan with 100% of our Wildest acreage at the start, and with 83% of our acreage goals for the rest of the century. That's huge—literally! We kept our messages positive and described a healthy and active vision for a new public park in the northeast corner of Mission Bay. We built a ReWild Coalition of organizations and businesses that showed up time and time again to demonstrate to the City that the public wants wetlands. We got the City to approve a much-needed lifeline to the remnant marsh we have. Kendall-Frost Marsh holds the memory of the vibrant habitats that thrived in what we now call Mission Bay. That memory is fading because freshwater and sediments have been shunted away for the past few human generations, but we have moved the City towards long-term restoration and expansion of the marsh.

Above left: Supporters cheer on ReWild at City Hall. Left: Eight Light-footed Ridgway Rails being released in the Kendall-Frost Marsh. (Photos by Craig Chaddock).

But we didn't get everything we wanted. The plan the City approved is not our Wildest dreams, so maybe your feelings are complicated and tempered. I know mine are. San Diego Audubon and ReWild supporters believe, and know, that we have to do everything we possibly can for endangered Ridgway's Rails and Belding's Savannah Sparrows, clinging to disappearing tidal habitat; for the herds of Long-billed Curlew and Snowy Egret that wander the marsh; and for all the terns and plovers that rest along the quiet shore of the remaining marsh.

We didn't get all of Wildest, and we must keep fighting to improve the plan and the shoreline. With that ecological background, we need much more than this plan provides. With endangered species habitat and the climate crisis as the setting for our project, we had big shoes to fill. They cannot be filled, really, because there is always more we could have done—something we could have said or one more data point we could have added that may have won the day. That is one way to measure our progress.

But we can also just as honestly measure ourselves against the enormous progress described in the approved plan and the momentum for projects that will be inspired by this one. We also should measure and celebrate the hundreds of new acres for endangered birds, the reconnection of Rose Creek with tidal habitats, the focus on sea level rise, the Coalition of smiling supporters, and literally that anything was adopted at all. Our ReWild project got the City up off the couch to start the master plan amendment process, which had been ignored for more than 20 years! Using those measures, we got an amazing plan with amazing acreage for birds and people. We can celebrate, and then we can start helping to get it implemented.



Sketches: What are the important differences between the City's plan and San Diego Audubon's "Wildest" plan?

Meyer: Digging into the muddy details, our Wildest plan shows that 227 acres of restored marsh and 315 acres of total marsh and upland habitat is feasible. Our Wildest plan was a feasibility study, not a finished restoration plan, so there are still many questions that we haven't answered. We do have some answers to questions regarding hydrology, sea level rise, and the cut-and-fill construction process, and those answers form the foundation for our advocacy.

Compared to Wildest, the City's De Anza Natural Plan has 83% of the habitat acreage, including 100% of the wetland acreage when first built. The big problem with the City's adopted plan is that it doesn't show or guarantee enough space for critical marsh habitat to migrate upslope as sea levels rise. The difference in acreage between the Wildest and the De Anza Natural plans is about 50 acres of transitional and upland habitat, which would slowly transition to marsh along a resilient shoreline. That was the main focus of our advocacy and Councilmember meetings in the past few months. We tried to push the City to improve their plan by committing to a shoreline ready for marsh to migrate and persist in the bay through this century.

The adopted plan has positive language, such as "In recognition of expected sea level rise, associated amenities and visitor-support facilities should be located primarily in the northern portion… away from the shoreline"; "Different shoreline treatments will respond to the amount of tidal action and focus on gently sloping, nature-based design solutions to the impacts of climate change…"; and, added right at the City Council meeting in response to one of our concerns, "…at least 80 acres of tidal marsh will remain" as sea levels rise in the ReWild area. The City added several sentences to the plan in response to our concerns, but they haven't gone far enough to commit to it. That is where we need to continue to focus our advocacy work.

Other concerns include the plan's definition of buffer areas and how active the uses will be; the wildlife and water-quality value of the proposed channel that connects Rose Creek to wetlands restored east of Rose Creek; and the phasing of the implementation, including how shoreline restoration will be prioritized in the timeline.

It's important to note that the City added some excellent improvements in the past six months, such as restoring a 100-foot public-use zone along Rose Creek, committing to night lighting standards that will help preserve our dark habitat in the restored wetlands, prioritizing native plants in all land uses, and issuing a strong statement that Kumeyaay traditional cultural use of Mission Bay and De Anza Cove shall be honored and respected.

Our ReWild work, which started 10 years ago under the courageous leadership of Rebecca Schwartz-Lesberg and Chris Redfern, did exactly what it needed to do. The Wildest plan showed the public and the City that something brand new was possible and beneficial.

(Continued on page 4)

(Continued from page 3)

It gave us the science to push the City to go big for wetlands, and ultimately it gave the City the support it needed to okay substantial wetland restoration. That's a win we can be happy about!

Sketches: What political and administrative challenges remain for the project? Will we have an influential role going forward? What level of engagement should we expect?

Meyer: The City must now have the plan approved by the Coastal Commission, which will probably take at least a year. Then the City will start the fine-scale, General Development Plan work needed to implement the broad-scale, land-use plan just adopted. You'd better believe we'll be involved! We'll have to make sure the City doesn't backslide—you can bet other groups will be trying their hardest to keep the City from realizing the wetland investment in this plan. We'll have to make sure the City improves the plan, to be resilient to the most up-to-date sea level rise information. And we need to start working with the City and other partners to implement the plan. One of the best improvements we secured in the adopted plan is the addition of a "wetlands management and implementation plan." We have made strong connections with Kumeyaay partners, resource agencies, the UC San Diego Natural Reserve System, and our Coalition partners, and we can help organize to get a fine-scale plan for implementing a functioning and accessible marsh in the acres now agreed to, enhanced by protective and beautiful upland habitats.

Kayakers are flanked by Marbled Godwits. (Photos by Sydney Walsh)

The best part of the marsh we currently have, the scenic Kendall-Frost Marsh, is the ability to bring people into the marsh to enjoy the sounds of squelching sand and the sights of the sunshine blooms of Salty Susan, the loafing birds along the edge of the mudflats, the killifish camouflaged under the water's surface, and the launching of tule boats created with Kumeyaay Community College leaders. That must keep happening. That certainly remains our role, too, and that will be the best part of restoring this marsh. We'll need people to love this marsh in order for it to function properly.

Sketches: Do we anticipate that the overall health of Mission Bay, as an Important Bird Area (IBA), will improve when the restoration of the marsh is completed?

Meyer: Absolutely. By adding more than 140 acres of rare tidal marsh to the bay and bolstering the existing marsh to total more than 225 acres of thriving tidal habitats, we will greatly improve those acres for birds, plants, invertebrates, and fish that live there. These additional acres will also help improve the balance of the whole bay for all kinds of shorebirds and diving birds, and for any human who wants cleaner water.

It will take a few years before we are able to see the restored marsh start coming back to life. Once that process has started, it will take another number of years before it's a thriving, self-sustained habitat that is actively locking away carbon, so we still have a long road in front of us. In a relatively short time, I expect that we'll all be able to get in there and help replant, monitor, learn, teach, birdwatch, kayak, and stroll through a thriving marsh. But before that, we're going to be calling on you and all of our ReWild supporters to keep pushing the City to get the marsh restored as soon as possible!

Kumeyaay tule boat building.

Sketches: What will be the future role of the ReWild Mission Bay Coalition, and will we look to sustain the Coalition for further environmental improvements for Mission Bay, San Diego Bay, and the San Diego River channel? Do we hope to build on these new relationships to strengthen future efforts?

Meyer: We will keep working with the ReWild Coalition to push the City to improve and implement the plan. It's going to take a lot of work to get this plan improved with resilient habitats and to get the grants and plans we'll need to make it real, so the Coalition still has a lot of leading to do. Over the coming years, it will be great to transfer the ReWild project from an advocacy project built on our Feasibility Study, to an implementation and celebration Coalition that will guarantee equitable accessibility of these habitats. The next steps must involve raising voices and encouraging leaders to show the City how people from around the county, especially disadvantaged communities and Kumeyaay organizations, can gain access to the northeast corner of Mission Bay. That's our next big focus.

Around Mission Bay, and in other coastal areas, there are numerous examples of places where habitats have been degraded and where humans have been blocked from enjoying them. We want to advocate for the restoration and accessibility of those places. In Mission Bay, the City has already agreed that wetland restoration is needed at the mouth of Cudahy and Tecolote Creeks. It would be great to see that happen. The City included wetland restoration in their Fiesta Island amendment, which was approved by the Coastal Commission a couple of years ago. We hope to support this restoration project for its habitat and water-quality improvement benefits, too.

Finally, I am so proud of the other articles in this issue of *Sketches*, which were written by dedicated, inspiring staff members working for the birds and other wildlife throughout the county. In these other articles, you can see how we are working on projects that relate to and bolster our ReWild project. San Diego Audubon, in conjunction with many community partners, has been a steward of Mission Bay's California Least Terns for decades. We've been trying to improve and celebrate the coastal habitat in the San Diego River for years and have built support for improved management. We have begun working with partners across the border to collaborate and share knowledge about wetlands and about endangered Ridgway's Rails. The ReWild project showed us how much power comes from diverse coalitions with deep expertise, and we are bringing that understanding to other critical conservation issues and our other conservation projects.

Investigating Blue Carbon *at Kendall-Frost Marsh*

by Nick Cirrito, San Diego Audubon Blue Carbon Coordinator

Coastal ecosystems, such as mangroves, seagrasses, and salt marshes, are crucial for capturing and storing carbon. We call these carbon stockpiles coastal blue carbon. Blue-carbon ecosystems take up carbon dioxide from the atmosphere and store it in their plant matter and soil. By doing this, these ecosystems help stabilize the climate while offering additional benefits, such as recycling nutrients, preventing coastal erosion, and providing habitats for various species. Unfortunately, these environments face growing threats due to human activities, including warming, sea level rise, and coastal development.

Kendall-Frost core sample carefully documented (by Andrew Meyer).

For the past few years, I have worked with Matthew Costa, a former postdoctoral scholar in the Center for Climate Change Impacts and Adaptation at Scripps Institution of Oceanography and now a postdoctoral research associate at Northeastern University, on a study of these vibrant ecosystems in San Diego County, to better understand their role in carbon storage and sequestration and their significance in fighting climate change.

To study blue carbon at Kendall-Frost Marsh, a grid of points was created, each separated from the next by 0.001 degrees of latitude and longitude. This provided 38 locations from which to take core samples. To extract the samples, we used a Russian peat corer, taking core sections at 50-cm intervals, ensuring precision down to the deepest layers of sediment. After collection, the samples were dried, finely ground, and then subjected to elemental analysis at Scripps Institution of Oceanography to quantify their organic carbon content. This meticulous process highlights our commitment to understanding and preserving vital coastal ecosystems.

While a research article encompassing the whole dataset is forthcoming, here is a summary of what we hope to answer:

Amount of Carbon Storage: This research aims to uncover the amount of carbon that Kendall-Frost salt marshes, mudflats, and eelgrass beds store and how this carbon storage varies, based on sediment depth and soil composition. Salt marshes act as significant carbon sinks by accumulating and storing organic carbon in their sediments.

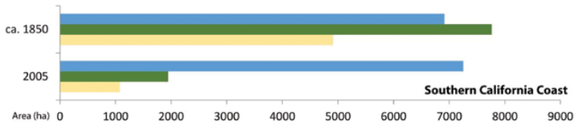
Carbon Stock Variations: We are investigating whether carbon stocks vary from one part of the marsh to another, such as between the high- and low-elevation areas of the marsh, or across areas with different soil composition. Understanding these differences helps us gauge the effectiveness of these ecosystems in carbon storage and how the rate of carbon sequestration varies over their history.

Comparing with Regional Standards: Matthew Costa has led research gathering carbon-stock data at several wetlands in San Diego County to create a benchmark for local blue-carbon research and restoration. Kendall-Frost's carbon storage capacity will be compared to that of other sites in the region. Our research provides insights that will guide future conservation efforts aimed at maintaining and improving these natural carbon sinks.

Conservation Importance: Coastal wetlands, such as salt marshes, have faced significant losses due to urban development over the past century. In San Diego County, 69% of salt-marsh area was lost between 1850 and 2005, according to a 2014 study titled, "Wetlands of the Southern California Coast—Historical Extent and Change Over Time." When blue-carbon ecosystems are destroyed, much of their carbon, accumulated over centuries, is released to the atmosphere all at once. Preserving these areas is crucial to preventing them from shifting from carbon sinks to carbon sources, worsening climate change.

Sampling the deep marsh sediment.

This research is crucial for several reasons. First, it emphasizes the need to protect and restore coastal ecosystems, including salt marshes, because they help mitigate climate change. Second, the carbon storage value of these systems can be put in the larger context of their many other ecosystem services, including the protection of coastal communities from storms and the provision of vital habitats for wildlife. We are hopeful that the research can support decision-makers in efforts to increase protection and restoration to make these ecosystems more sustainable in the 21st century. By maintaining and enhancing the health of these ecosystems, we can harness their natural ability to reduce carbon dioxide levels and to secure a healthier environment for future generations.



Change in overall extent and composition of estuarine habitat types between ca. 1850 and ca. 2005

Total Carbon stock of one acre of marsh like this sample*:

2,647 tons of CO2

One acre of marsh like sample would sequester:

4.2 tons of CO2 annually

If the city restores 700 acres of marsh like sample, that marsh would sequester:

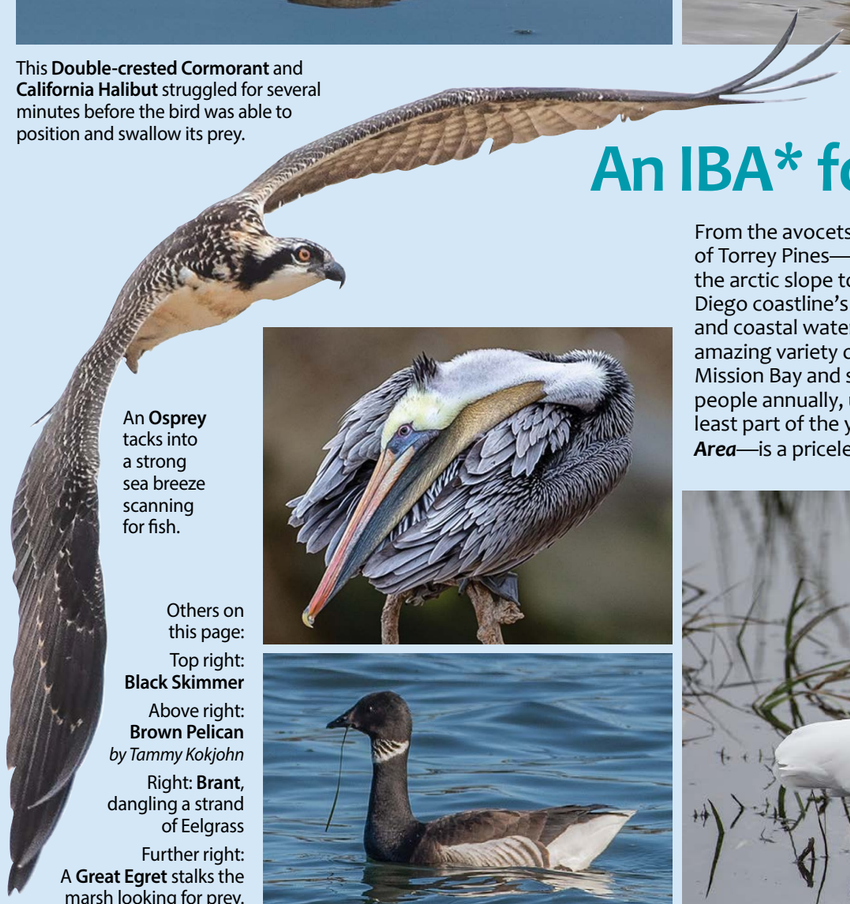
2,964 tons of Carbon every year

*Based on Core Sample 32, collected at Kendall-Frost Marsh

This **Double-crested Cormorant** and **California Halibut** struggled for several minutes before the bird was able to position and swallow its prey.

Mission Bay: An IBA* for Good Cause

From the avocets and stilts of Famosa Slough to the falcons of Torrey Pines—from migratory shore birds fresh in from the arctic slope to resident gulls and herons—the San Diego coastline's fragmented but vital wetlands, shore, and coastal waters are a nesting and feeding ground for an amazing variety of birds. Even though they need to share Mission Bay and surrounding nature with roughly 15 million people annually, upwards of 144 species call it home, for at least part of the year. Mission Bay's ***IBA**—***Important Bird Area***—is a priceless treasure.



An **Osprey** tacks into a strong sea breeze scanning for fish.

Others on this page:

Top right: **Black Skimmer**

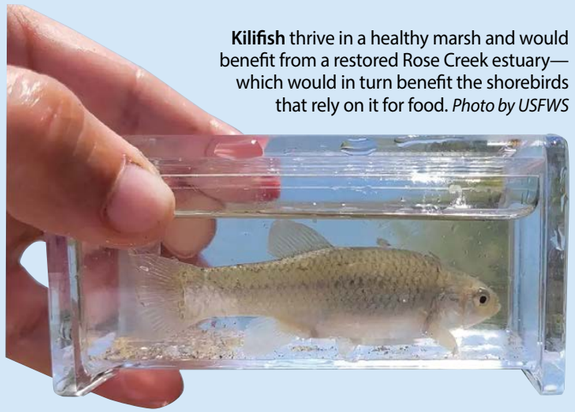
Above right: **Brown Pelican** *by Tammy Kokjohn*

Right: **Brant**, dangling a strand of Eelgrass

Further right: A **Great Egret** stalks the marsh looking for prey.

Uncredited photos by DS

This page, from top left:
Flight of **Semi-palmated Plovers** *by DS*
Long-billed Curlew *by Bruno Enrique Struck*
Synchronized **Royal Terns** *by DS*
Light-footed Ridgway's Rail *by Iris Kilpatrick*
Belding's Savannah Sparrow *by DS*
Peregrine Falcon with **wigeon** *by Nathan French*
Pied-billed Grebe with **blenny** *by Craig Chaddock*



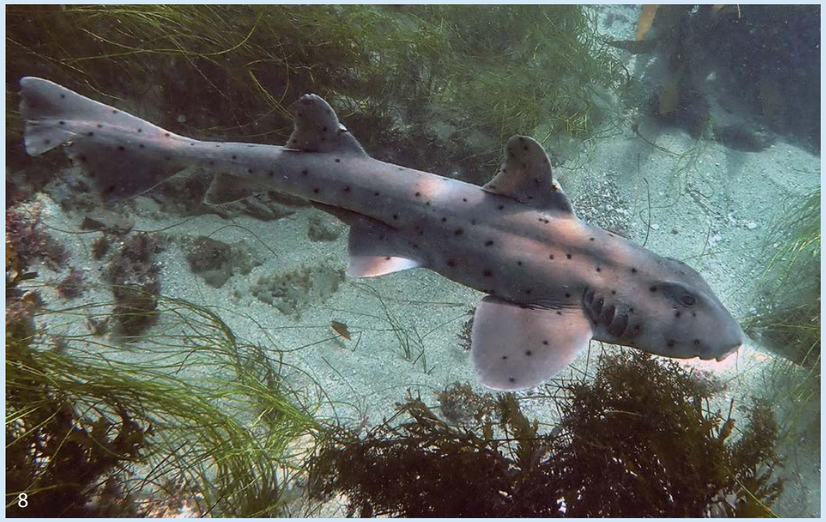
Kilifish thrive in a healthy marsh and would benefit from a restored Rose Creek estuary—which would in turn benefit the shorebirds that rely on it for food. *Photo by USFWS*

ReWild Mission Bay:
An Impact Beyond Kendall-Frost

Restoring the natural Rose Creek estuary has from day one been one of the primary goals of ReWild. The whole of Mission Bay, both beneath and above the bay's surface, will be positively impacted in coming years as the creek will once again be allowed to flow through the salt marsh.

There are 56 species of native plants found in Mission Bay, as well as scores of fish, crustaceans, mollusks, and other invertebrates—even a handful of mammals and reptiles. This pictorial gives a tantalizing glimpse into the significant biodiversity of the bay's various habitats. Each species has a place in the food chain, and each has an important role to play.

A Great Blue Heron snatches a Botta's Pocket Gopher, itself a native to the bay's upland habitat. *Photo by Nathan French*



From top left: Beach Evening Primrose *(by DS)*; Marsh Rosemary *(by Craig Chaddock)*; Pickleweed *(by DS)*; California Cordgrass *(by Charlie Hyman)*

Second row from left: Nuttall's Lotus *(by Denise Stillinger, San Elijo Lagoon Conservancy)*; Eelgrass *(by John Brew)*

Third row from left: Eccentric Sand Dollar *(by Craig Chaddock) and Mexican Fiddler Crab (by Craig Chaddock)*; Side-blotched Lizard, Sand Verbena *(by DS)*; and Staghorn Sculpin *(by Laura Holloway)*

Bottom row from left: Horn Shark *(by Siobhan O'Neil)*; Striped Shore Crab *(by Ed Henry)*; California Horn Snail *(by H. Zell)*; and Longjaw Mudsucker *(by Milton Love)*.

iNaturalist is a good source to explore the bay's biodiversity.

Protecting the San Diego River Mouth

and Its Sensitive Bird Habitat

by Coral Weaver, Conservation Coordinator

Birders from around the world flock to San Diego for our birdlife, and one of their must-visit locations is the mouth of the San Diego River, where freshwater meets the Pacific Ocean. This location is in the "Top 5 Birding Hotspots of San Diego" on eBird and can feature such rarities as Elegant Terns, Burrowing Owls, Vermilion Flycatchers, Tricolored Herons, and Neotropic Cormorants, to name just a few. The river's mouth also supports endangered species such as the Light-footed Ridgway's Rail, California Least Tern, and Western Snowy Plover.

It's not all rosy in this easily accessible estuary, however. Unfortunately, the confluence of microhabitats supporting a vast array of biodiversity abuts the much-loved Ocean Beach Dog Beach, an off-leash dog park. The mere presence of dogs, perceived as predators by wild birds, is enough to impact the foraging, nesting, and resting behavior of our resident and migratory bird populations. Even when a well-behaved dog isn't actively chasing birds, it alters bird behavior and their overall ability to produce offspring.

By Kathy Parrish

Our SDAS staff members go out every week to engage with people using the area, hoping to shift their attitudes and values around this multi-use space to those of endearment, wonder, and stewardship. While we engage beachgoers, dog walkers, and bird enthusiasts, we're also recording data. Our first year of community outreach has shown that during the 285 hours spent at the outreach table, 53% of the dogs seen in habitat areas outside of Dog Beach were off leash, increasing the existing threats to endangered species through flushing, trampling, and energy expenditure. Flushing by dogs was witnessed at a rate of 0.78 flushes per hour, compared to only 0.18 flushes per hour from natural predators. Put another way, birds are expending calories to avoid potential predator interactions about four times more often with dogs than with their natural predators. Knowing that human habitats tend to attract more predators in general, even this rate of natural flushing may be higher than what these birds are adapted for.

To people who aren't bird enthusiasts, flushing may not seem like a big deal. "My dog never catches the birds, so we're okay," is a common sentiment. We're not okay, though. When nests are abandoned during flushing events, eggs and chicks are more susceptible to predation from other wildlife. Adult birds also expend vital energy in predator avoidance—energy that's increasingly needed by imperiled species to fly farther and forage longer. Clearly, the frequent flushing we see in this designated Global IBA (Important Bird Area) is hampering the birds' ability to recover precious calories and to successfully reproduce. In a time of climate crisis, biodiversity loss, and countless species in peril, it is imperative to protect the habitats we have and to enhance the areas we can.

The full expanse of the San Diego River, estuary, and Dog Beach are within the boundaries of San Diego's MHPA (Multi-Habitat Planning Area). These spaces have been set aside for the preservation of biodiversity and contribute to San Diego's 30×30 plan (protecting 30% of San Diego's land and water by 2030). When community members have access to natural areas, they more fully appreciate their value, but when that access degrades the habitat, it depreciates the value for everyone.

To combat this degradation, SDAS has partnered with the San Diego River Park Foundation and SANDAG to replace the deteriorated post-and-rope fencing and to install educational signage to enhance the community's understanding of where they can go, what lives here, and what's at stake. We also started a BARK Rangers program to engage and educate dog owners in a fun and interactive way. Our first event in May featured docent-led, leashed dog-friendly trail walks; dog-centric giveaways; and the opportunity to earn a doggie bandana for taking the BARK Ranger Pledge. We are happy to have support for this program from FIDO (Fiesta Island Dog Owners), whose mission is to protect, improve, and sustain Fiesta Island's off-leash dog area. "Many members of FIDO go to Dog Beach as well as Fiesta Island, and part of our mission is to keep our 15,000 members informed about dog and dog-park related issues, so we're happy to help disseminate the BARK Rangers brochure via email and website to help our friends at the Audubon Society," says Kathy Parrish, FIDO's Board Vice President.

Rather than seeing the land as just a sandy shoreline where dogs splash, play, and exercise, we encourage folks to become curious about whose home we're sharing. While the habitats of our coastally dependent species are diminished and degraded daily, it's also true that we can carefully plan a balance of uses. We envision a Dog Beach and adjacent estuary where kids can see their first Long-Billed Curlew, where surfers can catch a wave without catching an illness, and where dogs can continue to splash and play along the shore, away from where birds are seeking sanctuary. By simply keeping a respectable distance from birds, we allow them to utilize these small pockets of wetland, mudflat, sage scrub, and sand-dune habitats as the refuges they are designed to be. Their interactions in places like these are the foundation of the ecosystem on which we all depend.

Please join us by engaging in this important discussion. Share what you know with your friends and fellow beachgoers. If you have a dog, bring it to our outreach table and sign the BARK Ranger Pledge. Become a volunteer docent. Together, we can help protect the San Diego River mouth's unique biodiversity.

Mission Bay's California Least Terns

Persevering Despite Challenges

by Cristina Santa Maria, Conservation Manager

The California Least Tern (CLTE) is a federally and state-listed endangered migratory species. Early each spring, this 8-inch, fish-eating seabird travels from unknown wintering grounds (probably Mexico, Central America, and South America) to Baja California and the Southern California coast in search of dune habitats suitable for nesting. Very few protected nesting areas remain, so the San Diego Audubon Society and the City of San Diego do restoration and monitoring in Mission Bay, with the support of the U.S. Department of Agriculture (USDA), U.S. Fish & Wildlife Service, California Department of Fish and Wildlife, and numerous SDAS chapter volunteers. Over time, these collaborative efforts to monitor nesting success yield valuable insights. These insights are increasingly needed, given the climate crisis and erratic weather patterns, which compound the existing challenges posed by habitat loss, human impacts, and predation.

Mariner's Point and FAA Island, both in Mission Bay, are highly active, protected nesting sites that don't often experience human-related impacts, but that doesn't mean they're not vulnerable. These nesting sites are located in the middle of the country's largest aquatic recreation park, which receives an estimated 15 million visitors annually and hosts several festivals, aquatic races, and more during the CLTE's critical nesting period from April 15 through September 15.

During the 2023 nesting season, Mariner's Point experienced the most severe nest abandonment since 2012 and 2008. Two main factors contributed to 2023's nest abandonment at Mariner's Point: heavy predator presence and stress related to human-caused disturbance, both of which occurred early in the egg-laying process. We hope that better coordination and enforcement can minimize these harmful impacts in future years.

In addition, too little is said about the challenges CLTEs face due to the influence of El Niño (warmer, wetter) and La Niña (cooler, dryer) climate and weather patterns on the forage-fish populations on which these terns depend. According to the National Oceanic and Atmospheric Administration (NOAA), the Pacific Ocean's El Niño and La Niña climate patterns can affect weather and ecosystems worldwide. Prior to the 2023 nesting season, the North Pacific experienced three consecutive years of a La Niña cycle, associated with below-average temperatures and dry conditions. In 2023, this pattern shifted to a warmer, wetter El Niño cycle, potentially limiting forage-fish availability.

On a pelagic (open ocean) trip in June 2023, bird watchers reported seeing at least 25 CLTEs a couple of miles offshore. This observation suggests that favorable foraging locations were far offshore, and if the birds sighted were attending nests, their nests would have been vulnerable to predators due to long trips required to find food. Jennifer Jackson, our Mission Bay Biological Monitor, reports that it's crucial to distinguish between food-related nest abandonment and predator- or human-induced colony abandonment, as these situations require different management decisions and strategies. A foraging study may shed more light on this subject.

A brooding tern with her two young chicks, who must run the gauntlet to fledge.

Despite the challenges CLTEs face throughout their range, these small seabirds continue to demonstrate the will to survive. Though the colony ultimately abandoned Mariner's Point last year, they sought refuge at FAA Island. A total of 131 breeding pairs successfully fledged up to 48 chicks at the island alone, which is only slightly fewer than all of the Mission Bay nest sites in 2022. Much of this success can be attributed to USDA Wildlife Services Specialist, Brooke Gullatta, who worked tirelessly around the clock, safeguarding the terns' well-being.

Volunteers in our Ternwatchers program assist Gullatta by monitoring the nesting preserves for predators and other problems imperiling the terns. They communicate with the USDA about predators and with the Mission Bay Park Rangers about human disturbance. Protecting the preserves and educating the public are steps we can take as a local community to help lessen some of the challenges CLTEs face. As we adapt our management efforts to ensure that this species thrives into the future, we need your assistance. SDAS enthusiastically welcomes your support to help conserve California Least Terns by joining our summer Ternwatchers program and community restoration events from October through March. See our SDAS website for more information.

A fledged tern chick stretches its wings and calls out—a survivor of the myriad challenges it's faced over the past seven weeks.

Photos by Sandeep Dhar

Conservation Knows No Borders
La Conservación No Conoce Fronteras

by Karina Ornelas, Conservation Outreach Coordinator / Por Karina Ornelas, Coordinadora de Conservación de Extensión

Thanks to a Binational Resilience Initiative (BRI) grant from the San Diego Foundation and the International Community Foundation, our conservation team spent a year partnering with Fauna del Noroeste (Fauno) and others in Mexico to exchange knowledge about wetlands, sand dunes, and endangered species, such as the Light-Footed Ridgway's Rail (LFRR), which inhabit both sides of the border.

Through a project called, "Sharing Coastal Knowledge: Capacity Building and Habitat Resilience," SDAS has been working hand in hand with Fauno on ways to restore habitat and to learn from each other's experience. Fauno is creating a management plan for Punta Banda, a restoration site southwest of Ensenada in Baja California, which has wetlands with LFRRs, as well as sand dunes used as nesting sites by Snowy Plovers and California Least Terns. Last November, our conservation team visited Punta Banda to learn about their restoration work. We monitored vegetation and co-hosted a well-attended volunteer event that included removing invasive ice plant. Punta Banda's wetlands are thriving with a rich number of species and high numbers of LFRRs.

As part of the grant, Diego Maldonado, Restoration Coordinator with Fauno, also spent 15 days working with our conservation team on different projects here in San Diego, including vegetation monitoring and surveying LFRRs at the San Diego River mouth and Famosa Slough. During his visit, we hosted two bilingual events—one at the Mariner's Point California Least Tern nesting site and the other a bioblitz at Tijuana Slough. In addition, we worked on management plans and ways we can continue to work together. "Working on a binational project with the San Diego Audubon Society has been a very enriching experience," says Maldonado. "It has given us the opportunity to identify and address socio-environmental problems from a different perspective. We are very happy that there are people with the same passion for wildlife as we on the other side of the border. I hope that this collaboration will continue for many more years!"

The BRI grant also enabled us to bring another partner to this year's San Diego Bird Festival for our first-ever bilingual session. Hiram Moreno, M.Sc. Professor at the Universidad Autónoma de Baja California (UABC), Ph.D. Candidate at the Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), and Projects Coordinator for Terra Peninsula and Pro Esteros A.C., spoke about his work on wetlands and LFRRs. He also led an LFRR workshop for our conservation team, as well as members of the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, U.S. Geological Survey, and others. "Binational collaboration knows no borders," says Moreno. "The resilience of coastal environments is assured when we work hand in hand with the right people. Thanks to SDAS for being excellent collaborators. Let's continue sharing about our environments and endangered species. An excellent example is sharing our efforts with the LFRR as well as the exchange of knowledge and management capacity for their conservation."

Spanish Translation by Karina Ornelas:

Gracias a los fondos de la Iniciativa Binacional de Resiliencia (BRI) de la Fundación San Diego y la Fundación Internacional Comunitaria, nuestro equipo de conservación tuvo la oportunidad de colaborar durante un año entero con nuestros socios Fauna del Noroeste (Fauno) y otros aliados en México. Este esfuerzo se centró en el intercambio de conocimientos sobre los humedales, las dunas de arena, y las especies en peligro de extinción, como el Rascón Picudo Californiano, que habita en ambos lados de la frontera.

A través del proyecto "Intercambio de Conocimientos: Desarrollo de capacidades y resiliencias del hábitat", SDAS ha trabajado en estrecha colaboración con Fauno para restaurar hábitats y aprender unos de otros sobre sus experiencias. Fauno está desarrollando un plan de manejo para Punta Banda, un sitio de restauración al suroeste de Ensenada en Baja California, que tiene humedales con rascones, dunas de arena con sitios de anidación para los chorlitos nevados y charranes mínimos. El

Four amigos in ice plant plunge. Selfie by Karina Ornelas.

pasado noviembre, nuestro equipo de conservación visitó Punta Banda para aprender sobre los esfuerzos de restauración en curso, monitorear la vegetación y coorganizar un evento con varios voluntarios para remover el dedito de hielo, una planta invasora. Los humedales en Punta Banda albergan una gran variedad de especies y un alto número de rascones, lo cual indica un ecosistema saludable.

Gracias a estos fondos, Diego Maldonado, Coordinador de Restauración de Fauno, pasó 15 días con nuestro equipo de conservación en San Diego, trabajando en diversos proyectos, incluyendo el monitoreo de vegetación y del Rascón en San Diego River Mouth y Famosa Slough. Durante su visita, organizamos dos eventos bilingües: uno en Mariner's Point, un sitio de anidación para el Charrán Mínimo, y un Bioblitz en Tijuana Slough. También colaboramos en los planes de manejo y exploramos nuevas formas de trabajar juntos. "Trabajar en un proyecto binacional con San Diego Audubon Society ha sido una experiencia muy enriquecedora", comentó Maldonado. "Nos ha brindado la oportunidad de identificar y abordar las problemáticas socioambientales desde una perspectiva distinta. Nos alegra mucho que existan personas con la misma pasión por la vida silvestre que nosotros del otro lado de la frontera. ¡Esperamos que esta colaboración se mantenga por muchos años más!"

Los fondos del BRI también nos permitieron invitar a otro socio al San Diego Bird Festival de este año para nuestra primera charla bilingüe. Hiram Moreno, M.Sc., Profesor en la Universidad Autónoma de Baja California (UABC), Candidato a Doctorado en el Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE) y Coordinador de Proyectos con Terra Peninsular y Pro Esteros A.C., presentó su trabajo en los humedales y sobre los rascones. También dirigió un taller para nuestro equipo de conservación, así como para los miembros del Servicio de Pesca y Vida Silvestre de Estados Unidos, el Departamento de Pesca y Vida Silvestre de California, el U.S. Geological Survey, entre otros. "La colaboración binacional no conoce fronteras", comentó Moreno. "La resiliencia de los ambientes costeros está asegurada cuando trabajamos de la mano con las personas adecuadas. Gracias a SDAS por ser excelentes colaboradores, sigamos compartiendo sobre nuestros ambientes y especies en peligro de extinción. Un excelente ejemplo es compartir nuestros esfuerzos con el Rascón así como el intercambio de conocimientos y capacidad de gestión para su conservación".

Punta Banda, a tidal wetland complex southwest of Ensenada in Baja California, home to Light-footed Ridgway's Rails, Western Snowy Plovers, and California Least Terns.

Sharing Our Shores Makes Helping Nature "Better Than Recess"

by Brian Moehl, Education Manager

"This is the best day ever!" exclaimed one of the elementary school students participating in San Diego Audubon's Sharing Our Shores program. Through scientific discovery, habitat restoration, and artistic creation, Sharing Our Shores helps students learn about the region's biodiversity, along with the biology and conservation of coastal birds. This innovative program also helps students to develop a passion for environmental stewardship and to realize that they can be advocates for the protection of threatened and endangered species.

Touching Bladderpods for the first time. Inset: a winning student-drawn sign.

SDAS offers Sharing Our Shores at two locations in the Mission Bay area: Mariner's Point for third graders and Kendall-Frost Marsh for fourth graders. We also offer a South Bay program in partnership with the U.S. Fish and Wildlife Service at the San Diego Bay National Wildlife Refuge, which is for third-, fourth-, and fifth-grade students in Imperial Beach. At each location, the Sharing Our Shores program consists of a classroom lesson, a field trip, and an art project.

The classroom lesson, taught by SDAS staff, includes an overview of coastal habitats, tides, and the biology of shorebirds and seabirds, as well as an understanding of the importance of coastal wetlands. The students learn some specific characteristics of endangered species such as the Ridgway's Rail and the California Least Tern. They also learn about some of the threats to these species and discover ways we can help to protect them. In addition, the students learn to design artwork that will convey an effective message for the protection of habitats and species.

During the SDAS staff–led field trips, students participate in hands-on, experiential science activities. At each location, they explore and observe coastal habitats, use binoculars to identify bird species and other wildlife, learn about native plant species, and participate in a habitat-restoration project. There are also site-specific activities. At Mariner's Point, the students play a game that helps them learn about California Least Tern nesting and feeding behaviors. At Kendall-Frost Marsh, they experiment with building a model of a Ridgway's Rail nest. In the South Bay, students measure weather conditions using scientific tools, which helps them gain an understanding of how birds have adapted to migration.

These field trips bring out students' innate affinity for nature and are a big hit. We hear comments such as, "My favorite part of the field trip is just being outside and taking in the beauty." "What I love about this place is that all the birds are beautiful." "I would like to come back here with my family." And perhaps the highest praise an elementary school student could give, "This field trip is better than recess!"

The art project gives students the opportunity to create colorful artwork that communicates the importance of respectfully sharing coastal areas with wild species, including threatened and endangered birds. Each year, the artwork of one student from each class is chosen to become an official sign. The signs are then installed at important nesting sites throughout the Mission Bay area and along the Bayside Birding and Walking Trail at the Wildlife Refuge in Imperial Beach to alert the public not to disturb these protected habitats and nesting sites. Because the signs are created by children, they are more likely to make an impression on the public than are signs produced by a government agency.

An important outcome of the Sharing Our Shores program is that students discover they can actually do something to help our region's birds, unique biodiversity, and threatened habitats. As one student said, "I love feeling like I'm doing something for nature and not just watching."

Anstine Ambles *A Labor of Love Keeps Getting Better*

by Rebekah Angona, Anstine-Audubon Nature Preserve Manager

From the late 1940s through the late 1990s, John and Lois Anstine owned and resided at the property that is now the Anstine-Audubon Nature Preserve in Vista. The husband-and-wife team built their home into a beacon for wildlife—establishing flowerbeds and a small orchard, as well as dredging the creek to create a pond. The Anstines fell in love with the region's beauty and the wildlife that called their property home, so prior to her passing in 1988, Lois shared her vision for the property to become a sanctuary for wildlife and a common space for the community to enjoy nature. In the mid 1990s, John graciously invited the San Diego Audubon Society to be the next stewards for the land, and our organization gladly accepted his imperative. After John died in 1999, SDAS became the owners and guardians of this precious 11.6-acre natural space.

Over the next few years, SDAS restored the Anstine home and removed old farm equipment, piles of debris, and non-native trees. From 2005 to 2011, SDAS established the Anstine Committee, and volunteers spent countless hours restoring habitat. They added thousands of native plants and forged trails throughout the property. Originally, the Army Corps of Engineers had dredged the creek and built the pond to irrigate the Anstines' crops and gardens. In 2013, we redredged the pond to remove the cattails and open up the waterway for wading birds and waterfowl. We constructed a bridge to connect the southern and northern portions of the property and to provide access throughout the preserve through a continuous loop trail.

As we restored the habitat, the wildlife rebounded. As we forged the trails, the community came together to enjoy this wild space. Starting in 2017, the Anstine-Audubon Nature Preserve became a living classroom for students at Vista Unified School District and various other community and school groups. Since then, we have been hosting workshops on the weekends; Eagle scouts have been creating projects to enhance the property; and volunteer work parties have continued to maintain the beauty of the preserve.

This past year, we have been restoring the northernmost portion of the property. Due to our close proximity to neighboring homes, we are focused on maintaining defensible space against flash-fire fuels. Through generous funding provided by the Coastal Conservancy, we are removing non-native grasses and weeds and replacing them with fire-resistant native plants. This summer, we will be creating plant signs to educate the community about the benefits of using native plants in defensible zones.

Anstine-Audubon aerial view showing pond site, circa 2013.

We will also be creating a new trail leading to the highest viewpoint of the preserve, providing a vantage point to view the property in its entirety.

The Anstine-Audubon Nature Preserve has been a labor of love, transforming what was once a well-loved family property into a vital sanctuary for wildlife. We invite you to join us this fall at Anstine-Audubon Nature Preserve when we re-open to the public on Saturdays from 9a.m. to 12p.m. from October to June *(closed July–September)*.

Three views of the pond restoration project: Dredging, landscaping with native riparian trees and shrubs, and a view of the finished pond with bridge in foreground.

Silverwood Scene *Helping Nature Restore Itself*

by Phillip Lambert, Silverwood Resident Manager

Before the 2003 Cedar Fire, Silverwood's undisturbed old-growth chaparral and riparian oak woodland habitat was so dense—with 45 species of native shrubs—that 90% of the property was impenetrable to human access. There wasn't a concerted effort to remove non-native weeds from the property until about 1999 when Silverwood's manager, Nola Lambkin, had the two resident assistants, Lori Gleghorn and me, begin hand-pulling Black Mustard and Star Thistle in the Cienega and along the 7.5 miles of trails. At that time, the only method for knocking out the foxtail grasses and other weeds along the trails was by using a hand-held sling blade on a pole. In 2000, I purchased the first weed wacker to keep up with weed growth on the trails and around the observation area and parking lot.

During the night of October 26, 2003, the Cedar Fire raged through the county, leaving all of Silverwood's 708 acres (at that time) in ashes. In the months that followed, there was much concern about the recovery of Silverwood's habitat and whether we should intervene by replanting. Having spent time monitoring post-burn sites from previous fires in the county, I suggested that we observe and record the natural recovery of the property instead of intervening.

Within four months after the fire, facultative seeder and obligate seeder shrub species had begun to grow. (According to the California Chaparral Institute, obligate seeders are shrubs, such as most Manzanitas and some Ceanothus, that are killed by fire and depend on seedlings to repopulate. Germination depends on some fire cue, such as heat or the chemicals from smoke or charred wood. They don't necessarily need fire to germinate but are adapted to a pattern of fire. There are also obligate resprouters, such as Toyon, that only resprout after a fire from underground roots or burls. Facultative seeders are shrubs that resprout and germinate from seed after a fire. About half of Ceanothus species and a few Manzanitas fall into this category.)

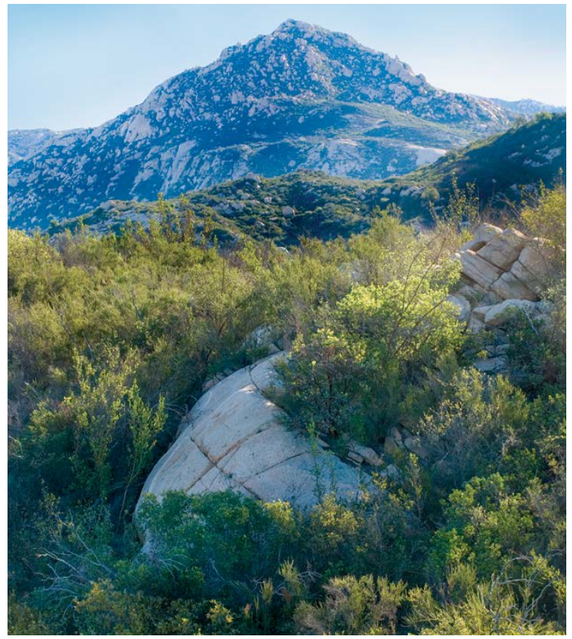
Scorched live oak with new sprigs of life.

By the end of 2004, most sections of the trails had disappeared within the density of next-generation seedling shrub populations. Oak trees also began recovering, producing new branches and limbs out of their charred, protective bark.

During 2005 and 2006, we began a new effort to eradicate non-native, invasive weeds within the enforced fire-clearance areas around Silverwood's structures and driveway. After many years of effort by staff and volunteer work parties, we eventually eradicated species of Black Mustard, Italian and Star Thistles, and foxtail grasses along the trails. Today, we do weed wacking only once each season, after the native annual species go to seed. With the help of volunteers, we continue removing annual invasive species, which allows native annuals to flourish while also reducing flash fuels that increase wildfire risk. Hearing comments from visitors, such as "We did not see one Black Mustard anywhere!" and "I record the most species of native bees here each year than anywhere else in the county!" lets us know we are doing something right.

Today, Silverwood's chaparral habitat, with the exception of the trail system, is back to being impenetrable to human access, just what the birds and other wildlife here need.

Four stages of plant recovery following 2003 Cedar Fire, 2003-2011. By Phil Lambert



This 2015 view from Silverwood Circuit Trail shows the thick, impenetrable flora. By DS.

Silverwood Wildlife Sanctuary is open through July to the public on Sundays 9 a.m.–4 p.m. Silverwood is also open to **San Diego Audubon members on Wednesdays 8 a.m.–12 p.m.** Please call (619) 443-2998 a week in advance to arrange visit.

NOTE: Silverwood will be closed to all visitors from August 1 through September 30, 2024.

The programs and services offered at Silverwood are made possible through your support, and we would like to express our thanks to our many generous volunteers, members, donors, and partners.