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

Protecting San Diego’s Unique BIODIVERSITY

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Protecting San Diego’s Unique Biodiversity
Our California Floristic Province is one of only 36 globally designated biodiversity hotspots
by LaTresa Pearson, Sketches Editor

As I watch cars stop at the traffic light at the corner of Black Mountain Road and Hilfiger Drive in Mira Mesa, I wonder how many of their occupants know they are driving by one of the rarest and most endangered habitats on Earth. It seems an unlikely place. This 1.2-acre site was a remnant located on the northwest corner of the Miramar Community College campus, is surrounded by a Home Depot, an apartment complex, Mira Mesa Market Center, Highway 15, and a large transit center. Inside the preserve, a trail system leads visitors to a series of vernal pools, which were restored by the San Diego Community College District and opened to the public in 2016. It’s been a wet year, so the pools are full and walk the trails. A series of interpretive signs tell the story of this rare wetland environment and the mysterious creatures that call it home, including the highly adapted and endangered San Diego Fairy Shrimp, the San Diego Mesa Mint, and the Western Spadefoot Toad (see “Vernal Pools,” page 6).

While this area has been restored, the land across the way, where the Legacy apartment complex and Mira Mesa Market Center now sit, wasn’t so lucky. Before it was developed, the site contained 67 vernal pools that were supposed to be protected under the City of San Diego’s Multiple Species Conservation Program (MSCP). At the edge of the preserve, on the northwestern corner of the site, a sign from the San Diego Museum of Art marks the site of the proposed development. According to Barbara Kus, Research Ecologist with the U.S. Geological Survey’s Western Ecological Research Center, adding, “I think all of us have something to contribute as part of the stewardship we have for this incredibly important place.”

San Diego’s Multiple Species Conservation Program (MSCP). At the time, the MSCP was a brand-new conservation plan designed to protect endangered species and habitats while allowing development to continue. “The very first project that came forward under the MSCP that had vernal pools on the property was the Mira Mesa Market Center,” says Wiese. “We’re all moved by Yosemite and the majestic views, but this site says with awe, ‘I see like this environmental miracle on the head of a pin, and that’s captured something to contribute as part of the California Endangered Species Act. And the list goes on.

Globally, biodiversity is declining at a catastrophic rate, with more than a million species of plants and animals known to be at risk of extinction. To put that into perspective, scientists estimate that there are about 8.7 million species of plants and animals on Earth, but they’ve identified and described only about 1.2 million of them, most of which are insects. We depend on them for everything we need to survive, from the air we breathe, the food we eat, the water we drink, the raw materials we use to make things, the medicines we use to treat and cure disease, and, of course, our own physical and mental well-being. As we face increasing impacts from climate change, preserving and restoring the world’s biodiversity is even more critical. Ecosystems with high levels of biodiversity are more resistant to environmental change and human impacts, so protecting biodiversity builds resilience to climate change.

Scientists in both the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC) say that effective conservation of 30-50% of global lands and waters could preserve nature’s ability to sustain people and the planet. Worldwide, initiatives to conserve or protect 30% of global lands and waters by 2030, known as 30x30 initiatives, are gaining momentum. In December, representatives from 196 nations gathered at the United Nations Biodiversity Conference (COP15) and pledged to protect 30% of land and oceans by 2030. Although the state, we have lost 90-95% of riparian habitat due to dams and water diversion, endangering species such as the Least Bell’s Vireo and the Southwestern Willow Flycatcher. Encroachment and recreation along our beaches and dunes have endangered the California Least Tern and the Western Snowy Plover. The loss of freshwater marshland and open foraging habitat has led to the precipitous decline of the Tricolored Blackbird, which is now listed as threatened under the California Endangered Species Act. And the list goes on.

Locally, the San Diego County Board of Supervisors adopted a resolution in November that supports a countywide biodiversity vision with four key goals. The vision statement reads, “All San Diego residents and visitors are able to connect with our local biodiversity and rich ecosystems daily and participate in ecological stewardship of the County’s natural heritage. San Diego County’s biodiversity is maintained and conserved in a way that ensures that its local communities remain connected to climate resilient and natural space is integrated within the built environment.” The four goals focus on protecting, maintaining, and restoring ecosystems; providing equitable access to natural spaces; empowering community partnerships for ecological

(continued on page 4)
themselves, and the City wanted to reduce the so-called burden on developers for having to conserve habitat and endangered species,” says Hogan. “It’s important to recognize that this was a practical effort to grease the skids for development as San Diego has a very long history of doing. We can’t deny that it also resulted in significant conservation benefits, so it was good and bad.” According to Hogan, the MSCP lacks the detail and funding needed to adequately protect species and habitats, but it also has provided a key benefit. "Millions and millions of dollars of state and federal funding has flowed to San Diego, particularly for acquisition of sensitive properties, because there are these regional plans in place,” he says.

For Kus, the funding to acquire land is a critical first step. “I think the first step has to be protecting the land because without that, then we don’t have anything,” she says. “These plans definitely, through acquisition and other sorts of agreements, protect the land, but that’s not enough. It can’t end with just thinking we’ve secured the land, everything will be fine. How do we secure ecological processes? How do we reduce the threats that are undermining these systems, so we have functional ecosystems long term?” In her role at USGS, Kus conducts research to help provide answers to questions such as these to the agencies responsible for protecting threatened and endangered species. “The goal in all of that research is to provide science-based information that tracks progress toward recovery of sensitive species and that evaluates threats and responds through management to reduce those threats,” she explains.

Good management practices are making a difference for some of the County’s most endangered birds, Kus says. “In terms of Least Bell’s Vireo, the combination of management and habitat protection has really reversed the decline of that species, and it’s now on the upward and expanding its distribution.” In addition to setting aside habitat for the vireos, Kus says removing exotic vegetation from local rivers has proven to be an effective management practice. "That’s a great example of how the City’s efforts, the Bell’s Vireo conservation team, and the City’s Parks Department have removed invasive plant in drainage areas around the county to allow native vegetation to recover. "That’s been a great way to increase habitat availability for Least Bell’s Vireos," she says. Kus’s group has had success increasing habitat for the Coastal Cactus Wren. “That’s a species that has a really narrow distribution in the county because our cactus habitat has always been pretty limited,” Kus says. That habitat has become easier to protect and fragmented with development, and the remaining cactus can become swallowed up by the surrounding tall and dense coastal sage scrub. "There’s been a lot of experimentation to thin shrubs and keep them away from the cactus, and that’s been really successful," says Kus. “Learning about ways to just enhance what habitat is left has been a great way to essentially create more suitable habitat for these birds, so we can then use and nest successfully and build their populations.”

One lesson we can take from these two examples is that species can recover when we devote the resources necessary to protect, restore, maintain, and monitor them properly. And that may be the most important outcome from the 30x30 initiatives at both the federal and state level. California’s Pathways to 30x30 states, “It should be noted that not only is species conservation is only the beginning of effective conservation. Protected areas require ongoing stewardship and monitoring. Sufficient funding and personnel are needed to ensure conservation activities are effectively conducted and provides a pivotal opportunity to improve current restoration practices and strengthens long-term stewardship to ensure effective conservation into the future.”
Vernal Pools

This ephemeral ecosystem hosts a wide range of species, including some found nowhere else.

Six inches of water for 60 days. That’s the reality for species that depend on vernal pools for their survival. More than 97% of our coastal region’s vernal pools have been lost as the mesas so desirable for tract homes and commercial development have been transformed over the past 70 years or so. Airfields that require both flat land and a lot of buffer space provide some of the remaining pockets of vernal pool habitat, along with Otay Mesa and a few other locations. These temporary ponds, some not much larger than big puddles, do not survive in isolation but are integral to the larger mesa ecosystem (as distinct from canyons) and its much longer list of species. As illustrated here, even temporary wetlands make a difference for our region’s biodiversity. Vernal pools are found in similar terrain in other parts of the U.S. and the world, each with their own species. The plant and animal species found only in our county’s vernal pools (shown by the blue circle with “U” for unique to our region) have lived in relative isolation for many thousands of years, and their survival adaptations reflect the uniqueness of San Diego’s natural environment.
Key Staff Positions Now Filled
Giving San Diego Audubon a Major Infusion of Energy and Talent

Esther Tsai
Director of Philanthropy

Esther is a nature lover. She is passionate about protecting wildlife and preserving natural habitats for future generations. Most importantly, Esther envisions a healthy environment for all. She has more than 30 years of experience in organizational leadership in nonprofit, private sectors, and board development. She comes to us from Fred Wells Tennis & Education Center where she served as the executive director for six years. She was responsible for managing all aspects of the organization, including leading the organization in the strategic planning process and a successful capital campaign. She also specializes in strategic planning and marketing management during her time in the private sector where she held the position of regional vice president overseeing the Asia-Pacific markets. Esther served on numerous nonprofit boards, including the Twin Cities Habitat for Humanity, Dodge Nature Center, Tennis & Education, Vistation School. She is also an advisory board member of the Gustavus T.L.C.

Rebecca Kennedy
Communications Manager

An artist and storyteller by nature, Rebecca has helped a number of nonprofits reach the hearts of their audiences through beautiful visual assets and collaborative communications. Rebecca is a San Diego native, deeply connected to the landscape and wildlife of the region. She spent time living in Costa Rica where one of her favorite moments was sitting by a river with a toucan watching her from a nearby rock. More recently, she lived in the Pacific Northwest, in awe of her frequent Bald Eagle sightings. She is always up for an adventure – traveling to new places, learning new things, and now helping San Diego Audubon Society as we enter our exciting next chapter.

Cristina Santa Maria
Conservation Manager

Cristina is passionate about habitat restoration, avian conservation, wetlands, environmental advocacy, and inspiring the same passion within the community. Cristina holds a degree in wildlife biology with an emphasis in management and conservation from Cal Poly Humboldt. She advocates for the environment on several committees and has experience working for the San Diego Zoo and the U.S. Geological Survey Western Ecological Research Center assisting in conservation research and monitoring locally endangered shorebird and riparian species. In her free time she enjoys being outdoors with her family and her garden, which sparked her love of native plants.

Brandon Weber
Conservation Advocacy Coordinator

Brandon is the Conservation Advocacy Coordinator for San Diego Audubon Society. He obtained a degree in political science with a minor in sociology from San Diego State University. Much of Brandon’s experience is political, working closely with candidates who strive to conserve and preserve our environment. As a San Diego native, he is dedicated to building a more equitable and sustainable future for our region.

Coral Weaver
Conservation Coordinator

Coral has a degree in Anthropology from San Diego State University. Much of Brandon’s experience is political, working closely with candidates who strive to conserve and preserve our environment. As a San Diego native, he is dedicated to building a more equitable and sustainable future for our region.

Nick Thorpe
Philanthropy Coordinator

Nick is SDAS’s new Philanthropy Coordinator, responsible for managing grants and the donor database, while supporting membership and fund raising outreach efforts. Nick has a degree in Mechanical Engineering from UCSD and worked as a Program Manager and proposal writer for six years in the aerospace industry before coming to SDAS. During his time in the private sector, he proposed, won, and managed several multi-million dollar programs for both governmental and commercial customers. Nick is a kindred heart for SDAS’s conservation mission, having volunteered with us any way he could since moving to San Diego. Above all, he wants to improve the lives of both birds and people through his work. Nick also has a terminal case of the need to hike and spend his free time scouring the county for rarer things when he’s not at home with his wife and two cats.

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vegetation growing in the intermittent streams where they’re conceived. The tadpoles themselves are food for the naïads of the Common Green Darner Dragonfly (Anax junius) that waits, hidden beneath the submergent algae, to ambush an unwary tadpole. When the tadpoles metamorphose into young frogs and toads and emerge onto land, they begin to feed on small insects such as ants, flies, mosquitoes, and spiders. They themselves become a food source for many other animals, from reptiles such as the Night Snake, Garter Snake, Lyre Snake, and Striped Racers to other predators such as raccoons, ringtails, and skunks. Snakes can become prey to the raccoons, ringtails, and skunks, as well as hawks, owls, and eagles, and all small mammals may fall prey to the coyote. This illustrates the nature of the complex food chains at Silverwood. The diminution of any one native species from this cycle can result in the deterioration or loss of other living creatures that are dependent upon it as a food source, and also possibly produce a population explosion in other species that now lack their normal predator.

Of the 379 species of plants here, 80 species are native, and many are considered invasive, especially annuals including Black Mustard, Star Thistle, and annual grasses such as Foxtail Chess (Bromus rubens) and Rat-tail Fescue (Festuca myuros), flash fuels that help to spread fire rapidly through the habitats they invade. With the help of volunteers and Silverwood staff over the past 20 years, we have worked to eradicate these invasives to reduce their fuel loads during fire season. As a result of these eradication efforts, we have been recording native annual and perennial species never recorded here before because they can now thrive within the habitats. Every year since 2003, we have added newly recorded species to the original plant species list compiled by Frank Gander in the early 1970s. Silverwood offers protection to 299 native species of plants, 38 species of amphibians and reptiles, 26 species of mammals, 123 recorded species of birds, and an unrecorded but large number of invertebrates. Some of these species are declining in numbers due to adverse human activities, but many of these same species contribute to our existence. The San Diego Audubon Society, by means of your support, has been able to successfully protect the remarkable biodiversity that exists within our Silverwood Wildlife Sanctuary. Thank you for the important role that you, our members, play!

**Silverwood Calendar for April-June, 2023**

Silverwood Wildlife Sanctuary in Lakeside is free and open to the public on Sundays from 9 A.M. to 4 P.M. **Registration required.** To sign up for a visit RSVP at www.sandiegoaudubon.org/what-we-do/silverwood.

Silverwood is also open on Wednesdays, 8 A.M. to 12 P.M. for SDAS Friends members only. Please call a week in advance of the day of your visit at (619) 443-2998. See our web page for all updates.

**Anstine Ambles Small in Size, but Big in Biodiversity**

by Rebekah Angona, Anstine-Audubon Nature Preserve Resident Manager

The Anstine-Audubon Nature Preserve may be only 1.16 acres, but what we lack in size, we make up for in biodiversity. Within the confines of its boundaries, Anstine offers wildlife and guests four distinct habitats: coastal sage scrub, oak woodland, mixed riparian, and a freshwater pond. In the time it takes to walk through our two miles of trails, visitors may encounter a wide variety of bird species, including Phainopepla, Hooded Mergansers, Belted Kingfishers, Red-tailed or Red-shouldered Hawks, Greater Roadrunners, and Mountain Chickadees—sometimes all in one visit! We are grateful for this small but mighty nature space.

![Green Heron by Margaret Elman](https://example.com/green-heron.jpg)

**Teaching Moments**

SDAS Partners with Barona Band of Mission Indians for New Education Programs

by Rebekah Angona, Director of Education

Working closely with the Barona Cultural Center and Museum, our staff participated in professional development workshops to learn about the history of the Kumeyaay people and their connection to the plants, animals, and habitats of what are now San Diego and Baja California. With the assistance of museum staff, the Silverwood Science Discovery program has been enhanced to include indigenous connections to our native wildlife, including ethnobotany and the role that animals in our region play in Kumeyaay culture. Our students will be learning about the native chaparral plants and animals through a research project designed by the museum staff. We look forward to sharing the Kumeyaay culture with our students.

Additionally, San Diego Audubon hosted the Barona Indian Charter School’s third- and fourth-grade students, taking them to Mariner’s Point to participate in our Sharing Our Shores: Mission Bay program. The students and staff learned about dune habitats and the threat to the endangered California Least Tern through in-class lessons, then we headed out to Mariner’s Point to prepare the nesting site for the terns’ arrival. Next school year, these same students will participate in our Sharing Our Shores: Kendall-Frost program, learning about the marshland habitats of Ridgeways’ Rails and visiting the Kendall-Frost Marsh Reserve to restore native habitat for wildlife. We are excited about this expanded partnership and look forward to learning from one another and protecting wildlife together.