



San Diego Audubon Society
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Sketches

SAN DIEGO AUDUBON

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Sketches SAN DIEGO AUDUBON

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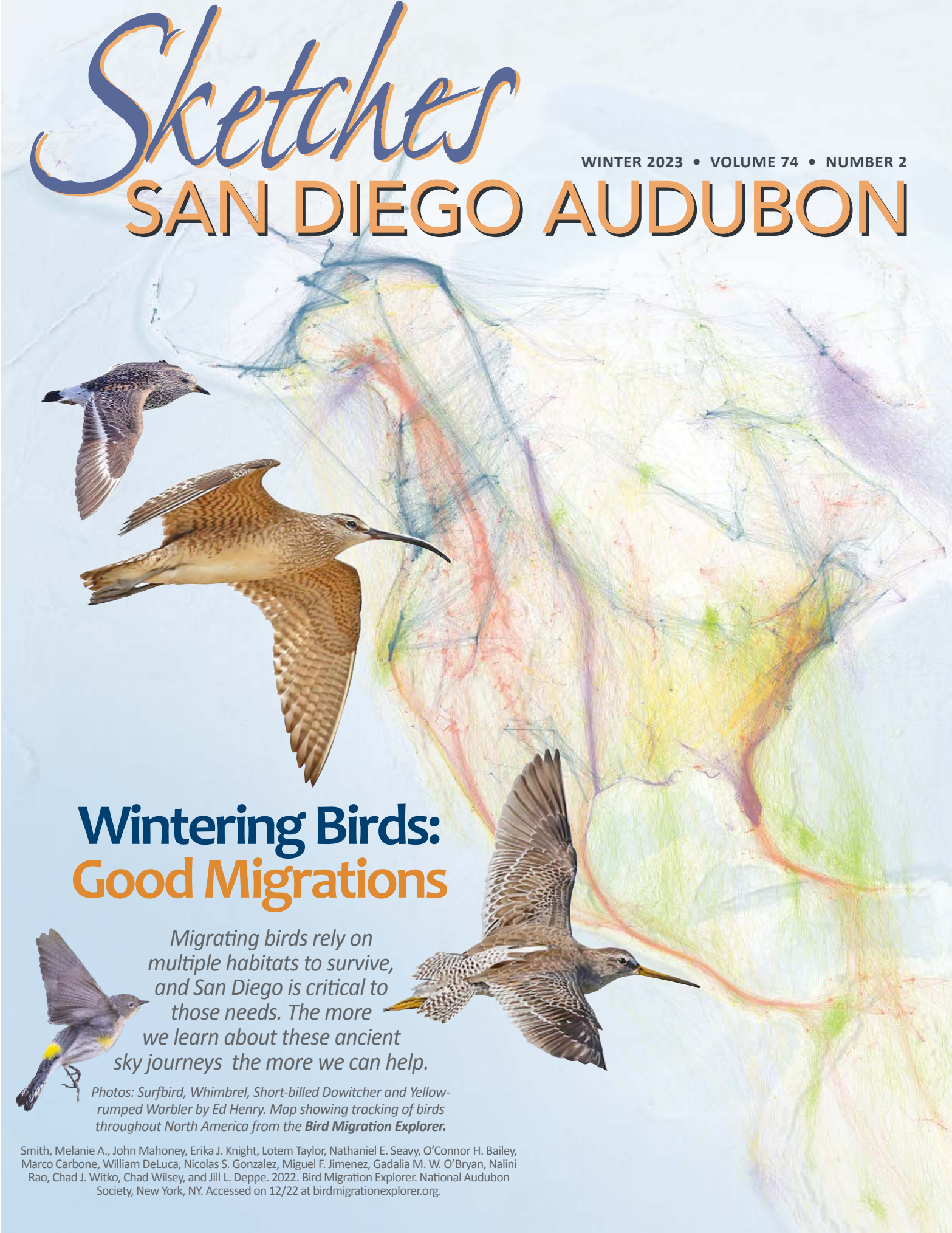
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Together we defend our region's birds, unique biodiversity, and threatened habitats through advocacy, education, and restoration.



Wintering Birds: Good Migrations

Migrating birds rely on multiple habitats to survive, and San Diego is critical to those needs. The more we learn about these ancient sky journeys the more we can help.

Photos: Surfbird, Whimbrel, Short-billed Dowitcher and Yellow-rumped Warbler by Ed Henry. Map showing tracking of birds throughout North America from the *Bird Migration Explorer*.

Smith, Melanie A., John Mahoney, Erika J. Knight, Lotem Taylor, Nathaniel E. Seavy, O'Connor H. Bailey, Marco Carbone, William DeLuca, Nicolas S. Gonzalez, Miguel F. Jimenez, Gadalía M. W. O'Bryan, Nalini Rao, Chad J. Witko, Chad Wilsey, and Jill L. Deppe. 2022. Bird Migration Explorer. National Audubon Society, New York, NY. Accessed on 12/22 at birdmigrationexplorer.org.

Wintering Birds: Good Migrations

Gravity-challenged Grebes, Black Bellies, and Butter Butts Fly the Gauntlet Each Fall

by Lesley Handa, SDAS Lead Ornithologist

Early in my waterbird studies in Mission Bay, I learned that one of our common winter visitors, the Eared Grebe, has a rather uncommon migration story. Before arriving in San Diego, Eared Grebes participate in a molt migration, traveling to far-away sites that provide food and safety from predators. These birds annually make the difficult and treacherous trek, during which thousands may die, to the hypersaline Mono Lake in California and Utah's Great Salt Lake before arriving in smaller numbers to winter at the San Diego Saltworks in the South Bay and at other areas of the county. While Eared Grebes are foraging for brine shrimp during their molt migration, incredible physiological changes take place, rendering the birds flightless for two months. During this process, they lose not only their flight feathers, but also breast muscle mass to make space for the enlarged digestive organs needed to help them double their weight. They then grow new flight feathers, contract their digestive organs to one-third their normal size (rendering them incapable of eating), and regrow their heart and pectoral muscles to prepare for their nocturnal migration to winter sites. What's even more impressive: Eared Grebes go through a similar process three to six times annually, meaning they are flightless nine to ten months out of the year—the longest known flightless period for any bird worldwide with the ability to fly!

Here in San Diego, we are fortunate to be able to witness the migration stories of numerous species of birds, such as the Eared Grebe. In addition to the hypersaline environments at the San Diego Saltworks, you can find large numbers of Eared Grebes, in their winter black-and-white plumage, inhabiting coastal waters, as well as smaller populations in freshwater lakes and reservoirs throughout the county. Grebes and other diving birds, such as loons, have legs located at the back of the body, which are perfect for propelling while foraging underwater but nearly useless for walking on land. Watching Eared Grebes expertly navigate underwater is fascinating and delightful. My favorite viewing location is at Famosa Slough near the bus stop bench on West Point Loma Boulevard, looking down into the water through the fence. This is a favorite foraging spot, and a handful of Eared Grebes may visit the slough at any given time in the winter. Here, you can get a closeup view of their underwater acrobatics, which are virtually impossible to see when the birds are in larger bodies of water.

Mission Bay is also my favorite location to watch Black-bellied Plovers, the largest plover to visit San Diego County during the winter. In winter plumage, an identifiable feature in Black-bellied Plovers is the black armpits, or "axillaries," seen in flight, earning them the nickname "Black-armpit Plover." This is a good way to distinguish the species from other shorebirds. Commonly seen in coastal areas, Black-bellied Plovers can also be recognized by their foraging behavior, which is typical of all plovers—slow, thoughtful pauses in movement peppered with rapid, direct strikes of forage items. Unlike other shorebirds such as the Long-billed Curlew, which have Herbst Corpuscles (nerve-endings located in the beak, which help feel around for food), plovers depend on sight rather than feel to forage. Their foraging behavior is tidally influenced, too, so paying attention to the tides will increase your chance of seeing them. Eelgrass, an underappreciated invaluable resource that hosts nurseries for fisheries and serves as blue carbon sequestration to help mitigate climate change, also serves as a buffet for shorebirds. During low tide, Black-bellied Plovers forage for invertebrates alongside Marbled Godwits and Willets in the exposed eelgrass along the miles



BY DAVID STUMP

Eared Grebe *Podiceps nigricollis*

A common grebe of freshwater lakes in the west. Gregarious at all seasons; nests in dense colonies, sometimes congregates in huge numbers on lakes during migration and in winter.

Climate Vulnerability +3.0 °C (Stable)

Global Population Size

3,100,000 (Category 3: <5,000,000 and ≥500,000)

IUCN Red List Category

LC (Least Concern)

Data and map from audubon.explore.com



of shoreline in Mission Bay. During high tides, Black-bellied Plovers congregate in dense flocks above the water line in the protected areas of the Kendall-Frost Marsh, which is open to the public on the second and fourth Saturday of each month for "Wander the Wetlands" events.

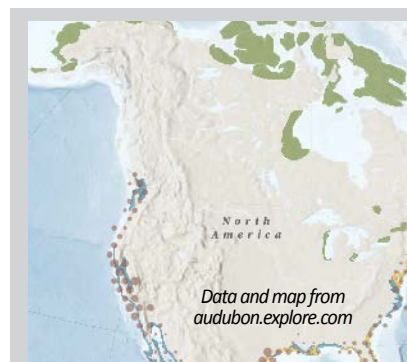
For those who love passerines, the fall arrival of a variety of warblers to the county is a welcome sight. The widespread Yellow-rumped Warbler, affectionately named "butter-butt" for the yellow plumage above the tail, is usually the first warbler beginning birders can identify. Two subspecies converge in San Diego, the Audubon Warbler, which breeds in western Canada, the western United States, and Mexico, and the Myrtle Warbler, which breeds in Canada and the northeastern United States. I find it comforting to hear the ubiquitous "chek" vocalizations of Yellow-rumped Warblers while strolling through Chollas Creek or almost anywhere in the county during the fall. Their widespread presence confirms the relative stability of the population and also represents the stability of western forest birds, a bright spot in an otherwise gloomy forecast for many bird species.

A 2019 study indicated overall losses of 30% of birds over the past 50 years in U.S. populations. Worldwide, 1 in 8 bird species is threatened with extinction, according to the State of the Birds report released by BirdLife International in 2022. While Yellow-rumped Warblers are currently numerous, there are still dangers. The Audubon Warbler and Myrtle Warbler, along with millions of other birds, navigate through areas that seasonally host high concentrations of birds, creating migratory bottlenecks. These key areas, such as California's Central

Valley and the Colorado River Delta, host 65 million birds in the fall, and 17 million birds during spring migration, respectively. Disasters associated with climate change such as fires, drought, and flooding in these key areas could prove devastating if they occur at critical times. Protection of these areas is vital to the stability of the many bird species that depend on them.

Eared Grebes and Black-bellied Plovers are also highly vulnerable to the challenges posed by climate change. Hotter temperatures are shrinking the hypersaline habitats that Eared Grebes depend on, and because they gather in such concentrated numbers, it is imperative that we protect and manage these unique habitats to ensure this species continues well into the future. The Black-bellied Plover breeds in the arctic, and as this area continues to experience changes in environmental conditions faster than any other region in the world, Black-bellied Plovers and other arctic breeding shorebirds are being forced to quickly adapt or face the possibility of extinction. The combination of low reproduction and long lifespan for the species, along with drying tundra ponds, shrub encroachment, weather events, and the mismatch of food availability to feed their young, will make it increasingly difficult for them to adapt.

On a positive note, technological advancements are providing fresh insights into bird migration, which will help us better target conservation efforts. With scientific devices shrinking in size and weight and an overall reduction of costs for each device, these advancements allow scientists to study smaller and smaller migrating birds, for progressively longer periods. With traditional bird banding and tagging efforts, a unique identifier is provided to an individual bird, which must then be recaptured to gather data. Now, a variety of other methods are available to study bird migration, which expand the ability to gather data. Scientists are deploying devices such as Radio Frequency Identification (RFID) tags, radio and satellite tracking devices, geolocators, and Passive Integrated Transponder (PIT) tags that can gather geographical data (See *Unlocking the Secrets of Bird Migration*, page 4). You can help contribute to these studies by reporting bands and tracking devices to the USGS Bird Banding Lab, and rest assured, researchers like me are always grateful for these reports. Upon receipt of the information, you will be awarded a certificate with details of the individual bird, such as the age and other locations where the bird was banded or observed. To explore migration data by species, the National Audubon Society's Bird Migration Explorer provides visualization of migration data from individually tracked birds. In addition, Cornell Lab of Ornithology hosts BirdCast, a tool that uses weather surveillance radar to gather information on the numbers, flight directions, speeds, and altitudes of migrating birds in flight.



Black-bellied Plover

Pluvialis squatarola

This stocky plover breeds in high Arctic zones around the world, and winters on the coasts of six continents.

Climate Vulnerability +3.0 °C (Stable)

Global Population Size

840,000 (Category 3: see Eared Grebe)

IUCN Red List Category Least Concern

I invite and encourage you to join us at San Diego Audubon Society to help protect and ensure the future survival of migratory bird species in San Diego County. While addressing climate change may seem beyond our reach, wild animals are unable to defend themselves or the habitats they rely on. It is up to us to lead the social advances necessary to slow the effects of climate change. We can facilitate conservation efforts of migratory birds that traverse international borders by supporting collaborative efforts to provide protections, including the Migratory Bird Treaty Act signed by the United States, Canada, Japan, Mexico,



BY CRAIG CHADDOCK

Yellow-rumped Warbler

Setophaga coronata

Flashing its trademark yellow rump patch as it flies away, calling check for confirmation, this is perhaps our best-known warbler. The Yellow-rumped may remain as far north in the winter as Seattle.

Climate Vulnerability +3.0 °C (Stable)

Global Population Size

170,000,000 (Category 1: ≥50,000,000)

IUCN Red List Category Least Concern



Data and map from audubon.explore.com

and Russia, and the Neotropical Migratory Bird Conservation Act, which seeks to fulfill long-term protection of neotropical migratory birds in the United States, Latin America, and the Caribbean.

We can continue to lead the nation in bird biodiversity by working locally and conserving rapidly declining populations through local work projects, such as our California Least Tern habitat restoration in Mission Bay and other native plant restoration projects, which will help keep common species, such as the Yellow-rumped Warbler, common. You can help us realize our conservation goals by getting involved in conservation advocacy on the Conservation Committee and the Audubon Advocate program, and by supporting local projects such as ReWild Mission Bay, which will create opportunities for blue carbon

storage to help mitigate the effects of climate change. You can also contribute bird sightings to eBird and community science projects such as the annual Christmas Bird Counts in San Diego and the Salton Sea or the California Bluebird Recovery Project, which provide scientists with data to assess changes in bird populations. Finally, to alleviate additional stresses for our local migratory birds, actions as simple as reducing and eliminating disturbance by respecting spaces for birds could make the small difference needed for an individual bird during its long migration journey.

Unlocking the Secrets of Bird Migration

by LaTresa Pearson, Sketches Editor

On October 13, 2022, a four-month-old Bar-tailed Godwit, dubbed B6, departed from Alaska to head for wintering grounds in Australia and New Zealand. Eleven days later, the intrepid young bird landed in Tasmania, 8,245 miles away, breaking the record for the longest documented nonstop flight by any animal, according to the U.S. Geological Survey (USGS).

We know about this amazing feat because B6 is part of a study by a team of scientists from the USGS, Max Planck Institute, and the U.S. Fish and Wildlife Service, who set out to track juvenile Bar-tailed Godwits from their breeding sites near Nome, Alaska. First-year birds had never been tracked before, so the scientists wanted to better understand how these juveniles navigate to their wintering grounds thousands of miles away.

To track B6, scientists attached a five-gram solar-powered satellite transmitter to its rump. They also used a USGS metal band and a uniquely coded alphanumeric leg flag to identify the bird. In an interview with Alaska Public Media, USGS Research Wildlife Biologist Dan Ruthrauff revealed that tracking these birds was tricky business. They tried to follow the chicks until they were big enough to strap on the transmitters, but most of the chicks outmaneuvered the researchers. They ended up only being able to attach transmitters to B6 and two of its broodmates, and those two transmitters fell off, leaving all their hopes pinned on B6.

It's the behind-the-headlines stories like this that captured the attention of Rebecca Heisman. Heisman studied zoology in college and did some ornithological fieldwork, which landed her a job in communications at the American Ornithological Society. Reading all the research papers that crossed her desk sparked an idea for a book. She wanted to tell the story of how scientists developed the technology to track extraordinary feats like B6's record-breaking flight. The result is *Flight Paths: How a Passionate and Quirky Group of Pioneering Scientists Solved the Mystery of Bird Migration*, which comes out on March 14. "Any cool new discovery or facts that you hear about, you're not hearing about the



Banding "B6". Photo by Dan Ruthrauff, USGS.

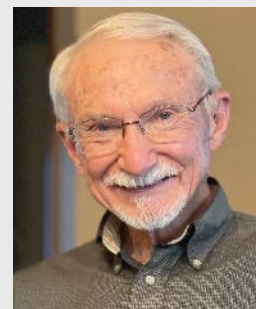
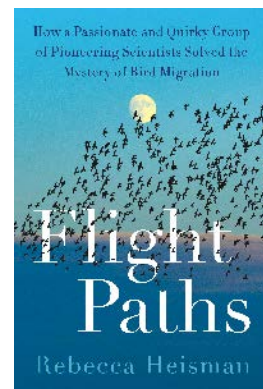
decades of stories and ongoing effort across multiple generations of scientists to make it happen," says Heisman. "There have been a lot of really cool books written about bird migration already, but this is the first one, that I know of, that goes into how we figured this out, which is an equally wild story to what the birds are actually doing."

I had the opportunity to read a prepublication copy of Heisman's book, and it provides fascinating insight into our quest to understand bird migration. From banding and nocturnal call recording to radar and radio isotopes, she tells the captivating stories of the scientists determined to unlock the

secrets of bird migration. From the pioneers who drew inspiration from such diverse sources as World War II radar readings and the space race to present-day scientists analyzing radio isotopes from feathers, Heisman paints a compelling picture of their challenges and triumphs. One of the most interesting characters in the book is Bill Cochran, one of the founders of radio telemetry. Heisman was able to track Cochran down and interview him for the book before his recent passing. "I'm still fascinated by him," says Heisman. "I feel like he's under-heralded as someone who played a really pivotal role in the history of not just birds, but wildlife tracking in general. He was the first guy who really built a functional transmitter that could be put on an animal. It's something we kind of take for granted now."

You can hear Heisman tell her favorite stories from her book at the San Diego Bird Festival, which will be held February 22-26. She will be the keynote speaker on February 24, 2023. Please register online at www.sandiegoaudubon.org

Published by HarperCollins, her book can be preordered on Bookshop.org, which supports local bookstores, and other book retailers.



Ed Henry... In Memoriam

Edward O. Henry was born in the fall of 1941 in North Platte, Nebraska, a year of many challenges. But Ed was a person who seemed born to thrive in times of challenge. We knew him primarily as a steady, thoughtful leader on the SDAS board of directors, including a full term as president, and as an avid and skilled bird

studying and teaching cultural anthropology, he was a prodigious student of life.

Ed had a deep love of Indian civilization, making eight trips to Northern India to record and study its folk music. He fell in love with the subcontinent's wildlife, especially its birds, and his extensive photo collection includes hundreds of images taken during these trips. He published a book, *Chant the Names of God*, and recorded a CD of ethnic music by the same title. His knowledge of music was encyclopedic, something he reveled in teaching to his SDSU classes over 31 years. Ed was a talented performer of the hammered dulcimer and guitar.

Ed is widely respected and loved in our SDAS community, and his contributions have helped make us a stronger chapter. You will see several of his photos on the pages of this issue.

photographer whose photos were freely shared for use in *Sketches* and other chapter publications. We grew to value these abilities in his retirement, but his life was marked by a series of fully realized career moves that collectively spoke of his keen intelligence, passion for life in all its expressions, and a desire to discover a unity within the great diversity of our human family. From his years as an engineering student at the General Motors Institute of Technology to his decades

With Nature As Our Guide...

When we listen, we learn; when we look, we discover; when we feel, we are moved to act; and when we are joined with others, each of these is magnified.



Black-bellied Plovers and Short-billed Dowitchers by David Stump

During migration, senses are alive because a deeper purpose is driving the need for change. We have heard of the unfathomable flights of birds such as the Arctic Terns, which migrate 60,000 miles in a year, and approximately 1.5 million miles over their lifetimes. In human terms, we see these as feats of sacrifice, grit, and fearless determination. To navigate to safe harbor across great distances, facing gauntlets of peril, birds instinctively interpret the signs of nature with precision and rely on their full range of uncanny adaptations. San Diego's climate and diverse habitats are a critical part of this unique saga, attracting thousands of migratory birds annually, with each season welcoming a different of migratory champions. We value these times as it gives us a chance to marvel, study, and support these wonders of the natural world. Yet, we also understand that humans have made these journeys even more perilous, and it is up to us to work to right these environmental wrongs.

San Diego Audubon is on the move throughout the county to protect and restore habitat for migratory birds, our resident avian stars, and other wildlife. The need to act is great, and you have been right there with us.

San Diego Audubon is following the flyways set before us by the mandates of our mission. Our flights of vision orient us as we seek to fulfill our chapter's priorities and nurture its core values.

We are committed to intensifying our efforts, deepening our impact, and magnifying the call to join the growing movement towards a cleaner and healthier environment for all. Together we can put San Diego on the map as the birdiest, most biodiverse, and "nature first" county in the nation. The journey will be long, resources may appear limited, and the end is beyond the horizon. Yet, with nature as our guide, we will reach our destination.

Cheers to the journey—and to each of you.

Travis Kemnitz, Executive Director



Black Turnstone, a winter migrant. This species and its close relative the Ruddy Turnstone, arrive in the fall after raising their chicks in the Alaskan Arctic. Photo by Ed Henry. Above: a flock of Black-bellied Plovers and Short-billed Dowitchers (with the white stripe down their back) circle the mud flats in the San Diego River estuary.



BY CRAIG CHADDOCK

Late winter through early spring is the time to catch the spectacular migration of **Swainson's Hawks** through the Borrego Valley. Beginning mid to late February and peaking mid March to late April, thousands of Swainson's Hawks migrate through the Borrego Valley from Mexico, Columbia, and Argentina on their way to breeding grounds as far north as Alaska. The hawks feed on flying ants, dragonflies, and the caterpillars of White-lined Sphinx Moths. Citizen scientists can help count the hawks during the Borrego Valley Hawkwatch.

While **Lark Sparrows** are year-round residents of San Diego County's inland valleys, their numbers grow during the winter when they are joined by migrants. They can be found foraging in mixed flocks with White-crowned Sparrows and other sparrows, but their distinctive facial pattern and white tail spots set them apart. The Lark Sparrow is named for its song, which is reminiscent of the Old World lark's. During 2021's Christmas Bird Count, the largest numbers were found in Escondido, followed by Lake Henshaw. They avoid urban and coastal areas, preferring more rural, grassland habitats.



BY ED HENRY

Birds That Tell a Winter's Tale

by LaTresa Pearson, Sketches Editor

As the tools of modern science continue to give us a more complete picture of bird migration, in all of its complexity and astonishing secrets, we are developing the knowledge to better protect these denizens of the skies. We now know that the "instrument panel" for migratory birds may include solar and star navigation, an ability to sense and follow the earth's magnet field, landmark



BY KAREN STRAUS

"mapping," and learned or imprinted behaviors. In the Northern Hemisphere most flyways follow a north/south orientation, but there are pelagic birds (such as albatrosses) that travel latitudinally, even circumnavigating the globe. Migratory irruptions are usually precipitated by food availability, such as with the Pinyon Jay. Flyway journeys usually require stopover habitat for rest and, just as critically, feeding. Mortality rates climb dramatically when these sanctuaries are damaged or destroyed. Our region's fall/winter migration mostly involves birds that nest in or near the arctic and winter in warmer latitudes. **Birds migrate for one basic reason: to survive.** It is our goal to tip the odds more in the birds' favor, at least at this point on the map.

Common Loons in Western Canada and Alaska migrate to the Pacific Coast, showing up in San Diego in the greatest numbers between November and March. Unlike their dramatic black-and-white patterned breeding plumage, their winter plumage is a drab gray with white underneath. They can most often be found near the shore and in tidal bays and estuaries. Needing open waterways to take flight, they are vulnerable during migration if a storm brings them down on land.



BY DAVID STUMP

Winter is the only time of year **American Pipits** can be found in San Diego. They begin arriving in mid to late September and tend to prefer open country—agricultural areas, pastures, lakeshores, beaches, and even sports fields and golf courses. While they are most frequently seen on the ground foraging for insects, they may also be seen flying overhead in large flocks giving their namesake *pi-pit* call.



BY DAVID STUMP

White-crowned Sparrows begin showing up the third week of September, traveling more than 2,500 miles from Alaska to spend the winter in Southern California. Large numbers of this species can be found throughout most of the county.



BY SANDEEP DHAR

Arriving in late September from their breeding grounds in northern North America and the mountains of the West, **Ruby-crowned Kinglets** are another widespread winter migrant in San Diego County. The tiny, olive-green bird, with its striking white eye ring and rarely seen ruby crown, is most common in riparian and oak woodlands but can also be found flitting amongst the branches of urban eucalyptus and pines.

With their velvety plumage, distinctive black mask, crest, and splashes of bright yellow and orange, **Cedar Waxwings** are a wintertime star attraction. They are found in the greatest numbers between November and March and are most common in coastal lowland areas. They fly in flocks and can often be seen feasting on Toyon berries.



BY DAVID STUMP

Four wintering ducks, the Northern Pintail, American Wigeon, and Green-winged and Cinnamon Teals (*above*) cluster on a narrow spit in the San Diego River flood channel. While some duck species are resident, many are seasonal, and provide a colorful display of diversity in the colder months.

During the winter (November through March) **Surf Scoters** are the most common bird on San Diego Bay as well as offshore, with more than 5,000 recorded during 2021's Christmas Bird Count. They feed largely on mollusks, which they swallow whole. Their powerful gizzard pulverizes the shell. They also have salt glands above their eyes which grow larger in the winter.



BY ED HENRY

Among the five North American thrushes in the genus *Catharus*, **Hermit Thrushes** are the only ones to winter in the United States. Arriving in late September, they are commonly found in chaparral and riparian or oak woodlands foraging on the ground for insects or picking berries from shrubs. They're common winter visitors at Silverwood Wildlife Sanctuary.



BY KEN ARCHER



BY KAREN STRAUS

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Conservation: A Year of Big Wins

ReWild Mission Bay

We have more than **60 organizations** in our ReWild Coalition and gave 19 presentations to community groups.

We had more than **600 people** at **Love Your Wetlands Day** in February 2022. Our activities in the marsh and connections to Kumeyaay tule boatbuilders brought new depth to our event and helped us make the argument for Wildest restoration of the northeast corner of Mission Bay.

In partnership with UCSD, we started **Wander the Wetlands** events, and twice a month, docents help open Kendall-Frost Marsh to the public for birding and solitude. This event helps us show the beauty and value of tidal wetlands.

Staff members have been appointed to the **City of San Diego Climate Action Plan Review Committee**, and we are helping to craft recommendations and policies to codify wetland restoration as a climate-action goal.



Mariner's Point CLT habitat restoration. Photo by Karina Ornelas

California Least Terns

Through our hard work, in concert with the City of San Diego Rangers, other partners, and a lot of luck, California Least Terns had a relatively good nesting season in 2021, with **more than 200 nests and 90 fledglings**.

The 2021-22 restoration season in Mission Bay involved **422 volunteers and more than 18 events**.

We have established **restoration partnerships** with the San Diego National Wildlife Refuge, Port of San Diego, and City of San Diego.

More than 2,000 pounds of invasive plants and hundreds of pounds of trash were removed and over **425 native plants installed** throughout the County.



Cal. Least Tern by Sandeep Dhar

Other Conservation and Advocacy Programs

Our **Native Seed Library** program has grown. We now have nearly 30 libraries open for lending, including one at the Barona Cultural Center.

Building off our good name and position in Mission Bay, our staff is **improving bird habitat protection** by beginning vegetation monitoring and nest mapping of Black Skimmer, Caspian Tern, and Forster's Tern nesting locations.

We continue to push for a seat at the planning table for **Western and Clark's Grebes** at Lake Hodges.

Our **Audubon Advocates program** enrolled another **20 Advocates**, who are ready to learn environmental campaign strategies and share their priority projects with us.

We expanded our campaign on **Native Plant Proclamations** and were **successful in convincing every municipality in the Otay Valley watershed**. The City of Chula Vista, the City of Imperial Beach, and the City of San Diego all passed Native Plant proclamations.



Anstine Seed Library by John Nicolopolous

Education: Back on the Trail

In-person field trips resumed in spring of 2022. The students and our staff were excited to get back out on the trails. We reached **nearly 1,000 students** and provided **more than 3,500 nature lessons** throughout San Diego County.

Anstine Adventures programs expanded to provide 783 nature lessons to 261 students through on-campus and field-trip programs to the Anstine-Audubon Nature Preserve. We piloted a Junior Adventurers on-campus program for first- and second-grade students at Vista Unified School District to prepare them for their third-grade field trips in upcoming years.

Silverwood's Science Discovery fourth-grade program taught **630 nature lessons to 210 fourth-grade students** from the Lakeside School Districts. We provided students with in-class lessons, research projects about native species, and a field trip to the Silverwood Wildlife Sanctuary.

Hayley Heiner with Anstine Audubon students. Photo by Nigella Hillgarth



OutdoorExplore reached **195 elementary afterschool students** with **1,509 nature lessons** in San Diego, Chula Vista, and Escondido school districts through virtual, on-campus, and field-trip programs.

Sharing our Shores South Bay introduced **297 students to the local and migratory birds** of South San Diego Bay through virtual and field-trip programs, providing **597 nature lessons** about the San Diego Bay National Wildlife Refuge. Students created conservation-themed posters to educate the public about threatened birds and shared their work through a virtual art show.

OutdoorExplore visits Golden Hill. Photo by Judie Lincer



Our Sanctuaries: Havens for Birds and Living Labs for Nature Enthusiasts

At San Diego Audubon, we are fortunate to provide a welcoming space for our visitors to reconnect with nature, and throughout the past few years, we have come to realize that there are few things more important for our mental health than our connection to the natural world. Birds and bird lovers alike are welcome to connect in our two well-managed properties, Silverwood and Anstine-Audubon:

Silverwood Wildlife Sanctuary: Recovering a Landscape as It Once Was

Silverwood hosted **1,695 visitors** throughout the year.

142 students and youth group members, including students from the University of San Diego and Girl and Boy Scout Troops, participated in nature and ethnobotany programs.

125 adults from hiking, ecology, and birding groups participated in special programming.

Staff and volunteers worked to **eradicate most of the germinating target species of invasive plants** in hotspot zones **within 69 acres** of invasive plant sites. This helped to promote the growth of many native annuals, including three species new to Silverwood: *Salvia xpalmeri*, *Salvia reflexa*, and *Polygala cornuta* var. *fishiae*.

Volunteers spent **375.5 hours** hosting Sunday events, **78 hours** removing invasive weeds and restoring native species, and **37 hours** maintaining trails.

Of the **130 species of birds** that have been reliably recorded at Silverwood over the last 60 years, **73 species were recorded for the past year**, including three separate sightings of an **American Bald Eagle**.



Polygala cornuta var. *fishiae*



Salvia reflexa



P. cornuta by Phil Lambert,
S. reflexa by George Miller,
Blue-gray Gnatcatcher by Ed Henry

Anstine-Audubon Nature Preserve: A Pocket-Sized Nature Experience

The preserve hosted **732 visitors** throughout the year, who were able to observe White-crowned Sparrows at our feeders, Cedar Waxwings darting among the trees, Western Bluebirds feeding on wild grapes, and Hooded Mergansers swimming through our pond. Events included a **Hummingbird Photography workshop**, **native seed collection** with the California Native Plant Society, work **parties**, and a **Spring Fling** community event.

Through the dedicated work of a local Eagle Scout group, an **outdoor education deck** was built to provide space to prepare native plants and wildflower seed bombs for planting and restoring the native habitat at the preserve.

The California Climate Action Corps summer program provided **more than 160 volunteer hours** for fire clearance and creating defensible space on the boundaries and trails at the preserve. The fellow also completed a capstone project, designing a **Native Seed Library** from native seeds collected from the preserve.

Anstine garage with bird house framed by Cleveland Sage and Bush Sunflower. By Rebekah Angona



SDAS / ANNUAL REPORT / 6.21-5.22



Anstine construction. By Rebekah Angona

Our Flock: Together We Defend Our Region's Birds, Unique Biodiversity, and Threatened Habitats

Our community rallied to support San Diego Audubon in heartwarming and impactful fashion, contributing **7,049 volunteer hours given by 989 volunteers, valued at \$211,118 of services.**

You migrated throughout the county to join us for Birding for Beginners, Yard Sales, Bird Outings, and a fully recovered **San Diego Bird Festival engaging more than 600 of our favorite people.**

San Diego City College Audubon Club's efforts remained a point of pride and importance to our collective efforts, leading the first ever **Environmental Justice Conference**, launching a Native Seed Library on campus, and completing a beautiful **local birds mural** in an otherwise drab parking garage.

Financial Report: FYE May 31, 2022

Contributions & Membership	\$444,941	39%
Grants	\$834,558	73%
Program Fees	\$160,678	14%
Investments/Interest	\$(292,289)	-25%
Other	\$1,538	
Total Revenues	\$1,149,426	
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Conservation, Education, Sancturaries	\$785,150	73%
Management	\$148,527	14%
Fundraising	\$139,135	13%
Total Expenses	\$1,072,812	
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Beginning Assets	\$6,901,050	
End of Year Assets	\$6,977,664	
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Balance	\$76,614	



Habitat restoration is a neverending task. By Rebekah Angona

Government, Foundation, & Corporate Partners

\$100,000 and above

Conrad Prebys Foundation
Dorrance Family Foundation
National Audubon Society

\$25,000-\$99,999

County of San Diego
Malk Nature Fund
PORT of San Diego
SANDAG
SDG&E
Sempra Energy Foundation
US Fish & Wildlife
US Small Business Administration
Vista Unified School District

\$10,000-\$24,999

California College of San Diego
City of San Diego
David & Margaret Engel Fund

\$9,999 and under

California Coastal Conservancy
Fire Safety Council of San Diego County
Friends of San Diego Wildlife Refuges
Genentech Foundation
Hispanic Access Foundation
MIT
Nordson Foundation
USD Water Justice Exchange



Biodiversity takes flight on the San Diego River. By Ed Henry

Great Egret Society Members

Active for 1/1/21 to 12/15/22

Anonymous
Theresa Acerro
Janet Anderson
Bettina Arnold
Kathy Askin
R. Lawrance Bailey
Earl W. Balch
Pam & Ken Barratt
Eowyn Bates & Christopher Croom
Janet & Alan Baumann
Susan & Richard Breisch
Susan Buckley
Fay Bullitt
Kristin & Walter Burns
Mandy Butler
Lisa & Craig Chaddock
Keith & Sue Colestock
Steven & Carolyn Conner
Diane Coombs
Alison Cummings
Gary & Denise David
William H. Disher
Jeanine Dreifuss
Joyce Edwards
Peg & David Engel
Madeline English
Joan Falconer
John A. Flaskerud
Virginia D. Forrest
Pamela Fairley & Kent Foster
Pamela Fair & Glen Sullivan
Peter Flint & Robert Padgett
Clare Friedman
Janice J. Gale
Einar & Sally Gall
Bill Green
Ellen Gross
Matthew Gross
Marty Hales & James Mckerrow

Marcia Hansen
Wayne & Margaret Harmon
Lisa Heinz
Robert Hemphill
Edward & Connie Henry
Nigella Hillgarth
Steven Hillyard
Mel Hinton
Bonnie Horstmann
Susan Hunter
Padma Jagannathan
Rustom Jamadar
Conny Jamison
Donald & Barbara Jania-Smith
Jay Jeffcoat
Marilyn C. Jones
Sonja F. Jones
Rita L. Kafalas-May
Matt & Natalie Kansteiner
Carol J. Kemnitz
Amy Kimball
Robert & Mary Kimball
Lynn Weith Klees
Candis Kolb
John E. Kramer
Barbara E. Kus
Karen Ladner & Todd Stone
Anna Marie Bovill Lea
Vicki Lindblade
Nancy Lindborg
Steve A. Lister
Dorothy Little
Claudia Lowenstein
Michael Lubin
Joseph M. Mahaffy
Vanessa Malcarne & Kennon
Kashima
Patricia Masters
Mike & Genevieve Matherly
T. D. Mathewson
Georg E. Matt
Jorge Sebastian Matt-Navarro

Don & Jan Maxted
Anne McCammon
Betty McCormack
Thane & Judy McIntosh
Christy McKown
Holly McMillan & Jim Chute
Kris & Jim McMillan
Elisabeth & Alan McQuaide
Shery Medler
James Michael
Kathy Moser
Ellen & Coleman Mosley
Edie Munk
Peter Munzinger
Peter & Sally Nelson
Bonnie Nickel
Robert, Michelle & Emma Nickel
Geri Nicolson
Bryan F. O'Leary
James H. Oliver
Elizabeth Hamman Oliver
David Oselett
Deborah Pate
James Pea & Sandra Petersen
Jim & Barbara Peugh
John & Nuri Pierce
Vanessa Pizzuto
Pamela Portillo
Bruce W. Posthumus
Patricia Potter
Ruth F. Potter
Charlene Chatham Price
Phil Pryde
Kay Quijada
Susan Randerson
Anita Reith
Karen & Mark Remmes
Brenda J. Richmond
Carole Rieker
Paula & Mark Robertson
Charles Herzfeld & Paul Rogers
DeVerna Rogers

Allison Rolfe
Kathleen & John Romine
Elizabeth Rudee
Josiah & Abbie Sand
Philip Schey
K. Barry Sharpless
Janet & Steve Shields
Ann & Michael Sixtus
Frimmel Smith
Gary Smith
Susan E. Smith
Peter & Raydene St. Clair
Robert & Virginia Steinbach
Harlyn Louise Stevens
Katherine S. Stewart
Leslie Howell Stupp
Valerie Swartz
Gerald Tietje
Bill Tippetts
James L. Toothaker
John E. Trexel
Janice Turner
Bradley Underwood
Richard & Jan Vessel
Anne Wadlington
Patricia Walsh
John F. Walters
Cheryl Ward
Dean & Carol Warner
Marian Warwick
Susan Weinberg-Harter
Naomi E. Williams
Dennis & Carol Wilson
Anne & Janet Wong-Steed
Frank & Toni Winder
Debbie Woodward
Gail Wynn
Alice Yee
Wendy Youngren
Andrew Zingale

TernWatcher's Program Gives Lessons in Conservation and Life by Kyla White, SDAS Volunteer

Last summer, I volunteered with San Diego Audubon for the first time. I had come across an Instagram post advertising the TernWatchers program, which trains and enlists volunteers to monitor California Least Tern nesting sites for predators in Mission Bay. It sounded like the perfect opportunity for me to expand my skills in observation, data analysis, and timely communication, which would aid me in completing my second undergraduate degree in Wildlife Biology. As a bonus, I would be volunteering for an organization that has done so much good in San Diego.

Throughout my time with the TernWatchers Program, I felt supported, cared for, and valued. Everyone I worked with was beyond wonderful and encouraging, and they will be a huge factor in my decision to return for a second season of volunteering. Both the previous Conservation Manager, Megan Flaherty, and the new manager, Cristina Santa Maria, helped me use my time with TernWatchers as an internship credit for my degree. Because of both of them, I was able to use this volunteering opportunity to gain skills, meet new people, and be one step closer to earning my degree.

During volunteer shifts, observing our adorable California Least Tern friends from a safe distance gave me a sense of peace. I feel incredibly lucky to have been able to witness bird parents raising their young to be fully functioning adults by the end of the breeding season. There's something really special about watching birds, and really all life, simply exist. Every aspect of the TernWatchers program was phenomenal, and I could not have asked for a better volunteering experience.



Least Tern chick by Sandeep Dhar