



TORREYANA

THE DOCENT NEWSLETTER FOR
TORREY PINES
STATE NATURAL RESERVE

Issue 416

March 2020

The Benefits of Blue Carbon

by Joan R. Simon

Dr. Matthew Costa, a postdoctoral scholar from Scripps Institution of Oceanography, gave a very engaging talk at the Feb. 8 docent general meeting about “blue carbon”: what it is and what it can do for the environment. He explained that blue carbon is the term used for carbon captured in ocean environments, mostly coastal ecosystems, and stored in their sediment. These coastal areas include mangroves, in tropical and subtropical regions; salt marshes, in temperate zones, such as Southern California; and sea grasses, which lie just under the sea surface and occur in multiple environments around the world. A large percentage of carbon storage in the ocean is found in these coastal vegetated habitats.

When carbon is stored in wetland sediment, it is taken out of the atmosphere. This happens at a rate 100 times (even up to a thousand times) greater than in terrestrial forests. In fact, wetlands store carbon more effectively than almost any other ecosystem on the planet. For example, mangroves and the algae and plankton that live around them are productive photosynthesizers, taking up CO₂ from the atmosphere and turning it into organic matter. Each year a square kilometer of mangroves produces on average 1-2 metric tons of excess organic matter. While much of this material feeds the existing animals and microbes, a significant amount accumulates in carbon reserves in the sediment, where the organic matter from microbial breakdown is sequestered. Once buried, it can remain isolated from the atmosphere for millennia.

Dr. Costa’s research has involved obtaining sediment cores from coastal ecosystems in Panama, Mexico, and the Galapagos Islands, as well as local areas around San Diego, and then analyzing them in the lab. Scientists are learning how these carbon stocks vary from place to place. Mapping blue carbon variation makes it possible to prioritize carbon hotspots for conservation, and understanding how blue

Docent General Meeting -CANCELLED

Saturday, March 14, 9 am

Location: St. Peter’s Episcopal Church Rec Hall, Del Mar

Speaker: Dr. Hendrik Nollens, Vice President of Animal Health and Welfare at SeaWorld San Diego and Kimberly Peterson, Rescue Supervisor

Topic: SeaWorld’s Marine Animal Rescue Program

Dr. Nollens received his veterinary degree from the University of Ghent in Belgium, an MS in Marine Biology from the University of Otago, New Zealand, and a PhD from the University of Florida. Kim Peterson is the Rescue Supervisor at SeaWorld San Diego. She has been at SeaWorld for 21 years and specializes in aquatic bird rehabilitation.

Refreshments: Docents with last names beginning with **P, R, S** will be responsible for providing snacks for this meeting.

carbon stocks are formed and maintained can help us manage them more effectively.

Sequestered carbon forms deep deposits of peat over time, representing centuries or millennia of accumulation. However, most of the world’s wetlands have already been destroyed from logging, agriculture, aquaculture, and coastal development. Disturbing the stored carbon in these area has released huge amounts of carbon back into the atmosphere, resulting in an economic cost of billions of dollars per year.

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The Torrey Pines Docent Society publishes the *Torreyana* monthly, edited by Joan Simon and Dan Hammer on alternate months, and is formatted and produced by Roger Isaacson. Submissions are due on or about the 20th day of the preceding month and may be emailed to

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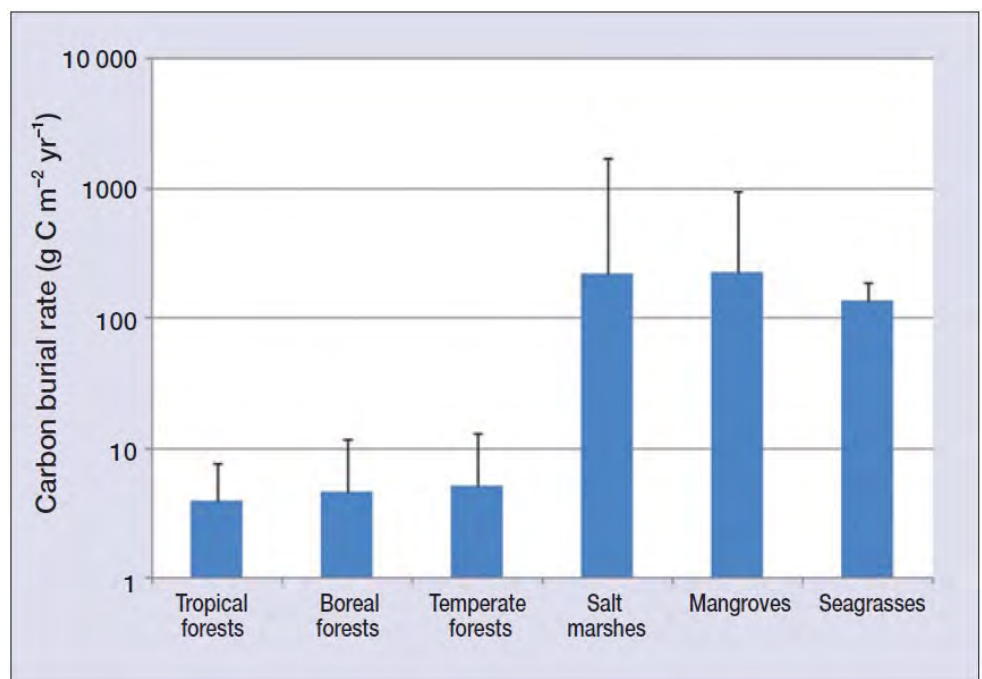
FLASH From Joy Inton: Don't
forget to donate your ZooNooz
magazines to the Museum Shop.

Estimates of emitting one ton of CO₂ are typically less than \$50 per ton, although Dr. Costa says this number is likely vastly underestimated. Another calculus is: one acre of wetland carbon sequestration = one car's gas emissions.

Working in and around the Los Peñasquitos Lagoon, we docents at Torrey Pines know the many other ways in which wetland environments are valuable. They are vital fish nurseries for the oceans around them and provide a safe haven for local and migrating birds. A good example is the federally endangered Clapper Rail (or Ridgeway's Rail), which nests in the shallow waters of coastal ecosystems, supported by cordgrass (a salt marsh grass). Wetlands also serve as water purification systems, removing pollutants and nutrients from runoff before it flows into the open ocean. In addition, they provide protection during hurricanes by slowing down waves. In "real life" experiments, it has been shown that after tsunamis and other destructive water events, communities with preserved mangroves fared better than those without.

While California now has some of the most progressive programs for protecting coastal environments, 91% of wetlands in the state has been destroyed. For example, San Francisco Bay has lost 95% of its wetlands, leaving only 50 sq. miles out of 850 sq. mi. Close to home, Mission Bay, once about 50% wetlands, is now down to about 1%, consisting only of the area in the Kendall-Frost Marsh Reserve (see [article in the August 2019 Torreyana](#)).

The research that Dr. Costa and others have been doing to document the storage of blue carbon in coastal sediments has been published in scientific journals, but that is just the beginning of their efforts to share this information. Articles in economic journals talk about carbon storage along with the other economic values, including tourism, which argue for making conservation management of coastal wetlands an economic priority. The goal, he said, is to "put dry scientific numbers into economic terms," so that local governments and stakeholders can use them to make informed decisions.



You can go here to learn more about Dr. Costa's work:

scripps.ucsd.edu/news/scripps-student-spotlight-matthew-costa

General Meeting Minutes:

February 8, 2020

Meeting called to order at 9:00 am by President **Janet Ugalde**.

Speaker: Matthew T. Costa, Ph.D., a postdoctoral scholar at the Center for Climate Change Impacts and Adaptation at Scripps Institution of Oceanography (SIO), gave a talk on "Coastal Blue Carbon." His presentation was based on his Ph.D. research on sequestration of carbon by mangroves and coastal ecosystems in Panama, Galapagos, and Mexico (see article on page 1).

President **Janet Ugalde** reported the following:

Not all docents have paid their dues yet. Those who have not done so need to do so by February 25 or they will not be included in the Membership List.

Ingo Renner is leading the **Earth Day 2020** event; the event will take place on April 18, from 9 am to 1 pm. Ingo invited docents to sign up for specific activities.

Peter Domaille is leading a king tide walk this afternoon, February 8.

Craig and Peggy Newall made a \$1,000 donation in memory of Craig's mother **Joan Nimick**, a longtime docent at TP. Craig wrote in his letter that his mother attended TPDS meetings well into her nineties.

The Nature Discovery Series is sponsoring a Family Discovery Day lead by **Louis Sands** and **Ingo Renner** on February 15 from 10 am to 12 noon. Participants will learn about native animals and plant adaptations. There will be live animals, nature booths, and scavenger hunts (see article on pg. 6).

Roving Interpreter Training, led by Ranger **Kyle Knox** and docent **Annette Ring**, will take place in May (date to be announced). Interested 2019 trainees are allowed to participate in the training as long as they have fulfilled their five hours of interpretive service per month prior to the start of the Roving Interpreter class. Janet pointed out that all trainees were told during their training that they are expected to do five hours of interpretive service each month. Docents from earlier classes are welcome to attend, whether or not they have trained previously.

Kristine Schindler's fall-prevention program (Matter of Balance) will be on eight Fridays at the Pavilion, from 4/17 to 6/5 from 10:30 am to 12:30 pm. There are 14 spots available. Further information will be sent out via the TPDS Google Group. Docents who participate in the program will not be able to log these hours as volunteer hours (see box on pg. 7).

Annette Ring will circulate a survey to solicit feedback about the location of the 2020 Holiday Party.

Gail Gluckman shared that throughout the entire month of February, adults 65 years and older are invited to enjoy the San Diego Zoo Safari Park for free. Parking fees are \$7.

Ingo announced that he will lead a CEED event on Friday, February 28 in Gonzales Canyon. Details will be sent via the TPDS Google Group.

Docent of the Month: Don McGuire was named Docent of the Month. He spends many hours as a regular Lodge host and Roving Interpreter, staffs the TIK, and tends the plants around the Lodge. Last but not least, he spends many hours removing graffiti from the cliffs. He is also a member of the Nominating Committee (see article below).

Refreshments: At March's General Meeting, docents with last names starting with letters **P-R-S** are responsible for snacks.

Meeting ended at 10:45am.

Docent of the Month:

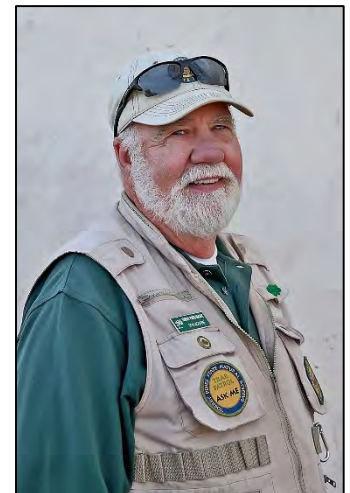
Don McGuire

Photo by Herb Knüfken

I started walking at the Reserve after work in 1999, good exercise and a great way to clear your mind of the stresses of the day.

After becoming interested in the history and nature of the area, I joined the TPA in 2006. I enjoyed going to their lectures and joining in on the nature walks.

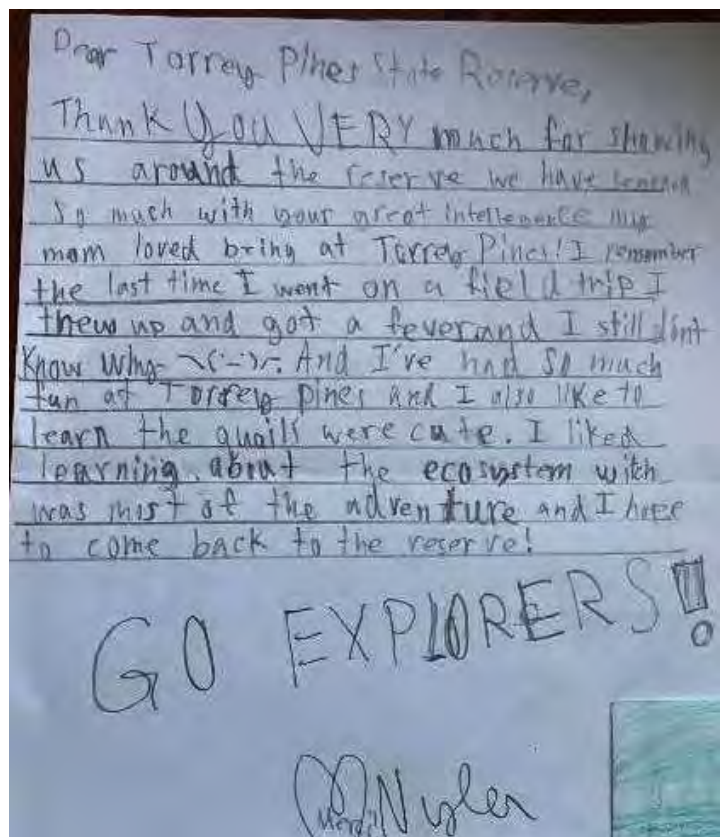
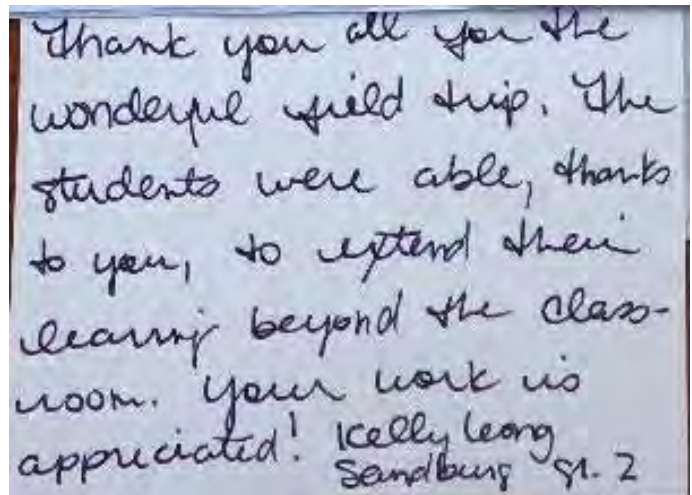
I retired from the printing industry in 2013 and signed up for the docent class of 2015. The past years have been very rewarding and fun. I'm glad I was able to join this great group of people. I hope to stay active with the Docent Society for many more years to come. Thanks to the Board for the recognition.



Children's Program

by Louis Sands, Children's Program Coordinator

Children's Program docents ARE appreciated! One of the many benefits of participating in this program is the thankfulness we receive from students and teachers alike. Take a look below at some of our more recent gifts:



The good news: Children's Program docents get a healthy dose of feel-good vibes even without the thank you notes. When our efforts result in a positive and fun learning experience for a child, our own inspiration reaches new heights. Please join us anytime and feel your own attitude of gratitude blossom!

Nature Discovery Series: The Amazing Gray Whale Migration

by Kathy Dickey and Jane Barger

On a very foggy January 25th morning, 50 adults and six children attended the monthly TPDS Nature Discovery Series event to hear docent **Jane Barger** give a presentation on the amazing migration of the California Gray Whales. Here are some very interesting facts:

- The gray whale is identified as *Eschrichtius robustus*. They are Mysticetes or baleen whales, and are one suborder of the order of marine mammals called Cetaceans. *Mysticetes* means “mustached whale.”
- These mammals have dimples on their noses that grow hair.
- Estimates as of 2016 indicate there are about 27,000 gray whales in the migrating Eastern Northern Pacific population. There is also a Pacific Coast Feeding subgroup of approximately 240 whales that never fully migrate to Alaska in the summer. They are residents in the area of Northern California to Northern Vancouver Island, Canada. A separate population near Russia, northern Japan and Korea called the Western North Pacific group is estimated to be only 100 whales and is near extinction.
- During the summer in Alaska, the whales gorge on food, eating two to four thousand pounds a day of amphipods, clams and other small creatures that they suck up in the mud from the bottom of the ocean and filter through their baleen.
- The migration from Alaska to southern Baja California starts in October or November, and is 10-12 thousand miles round-trip at an average speed of three to five miles per hour. The northern migration back to Alaska goes from February to May. The whales cover approximately 80-100 miles per day. During migration, the whales rarely eat, and lose 16% to 30% of their body weight.
- Some pregnant females may give birth along the way south, but most deliver their calves in three primary Baja lagoons in January or February. Gestation is about 12-13 months. Newborn calves are 15 feet long and 1,500 to 2,000 pounds. Mother and calf spend about 90 days in the warm Baja lagoons. Calves will continue to nurse on the rich (50% fat) milk for 7 to 8 months.
- Male and female adult gray whales mate while at the lagoon, and occasionally when on their southern migration. The gray whales reach sexual maturity between 5-11 years. Adult females have calves every 2 to 3 years.
- Long ago, the whales also used bays like San Francisco and San Diego to give birth to their young;



however, human activities changed the bays so now the gray whales bypass these bays and continue south to Baja California Sur.

- In 1855 Charles Scammon discovered the Ojo de Liebre breeding lagoon in Baja California. The whalers heavily hunted the gray whales to near-extinction. The gray whales recovered in the late 1800s, but by the early 1900s they declined again to only one to two thousand whales, due to advances in factory whale-processing steamships and explosive harpoon guns.
- Gray whales were placed on the Endangered Species List in 1973 and after population recovery were removed from the list in 1994. There are scientific teams that count and track these whales every year.
- Up to 100 to 200 pounds of “passenger” creatures live on the skin of the whales. Barnacles (a type of crustacean) attach and stay on for the life of the whale, while whale lice (another type of crustacean) can move around on the skin.
- The gray whale is a conscious sleeper, meaning they can sleep by turning off one hemisphere of their brain, while the other hemisphere periodically arouses them to take a breath.
- A gray whale can live 50-70 years, and will migrate a total of approximately 600,000 miles, or the near-equivalent of a trip to the moon and back, or 24 circumferences around the earth’s equator.
- Gray whales swimming near shore are occasionally seen from the overlooks at Torrey Pines as solitary or small groups traveling past the Reserve – look for the heart-shaped blows about 15 feet tall.

Carmel Mountain Reserve CEED Trip

by Ingo Renner; photo by Joanne Miale

On Jan. 31, 35 Torrey Pines docents took a CEED field trip led by docent/Park Aide **Ingo Renner** to hike Carmel Mountain Reserve and learn about this rare natural habitat. This 300-acre protected landscape, located several miles east of Torrey Pines, was slated for development in the early 1990s but saved in part by active members of the Docent Society. Today it contains some of San Diego County's last vernal pools, maritime chaparral and coastal sage scrub.



Thanks to winter rains, docents discovered tiny liverworts, lichens and mosses growing on the abundant Linda Vista sandstone. Vernal pools were full of spadefoot tadpoles in various stages of growth, while fairy shrimp were swimming in the murky waters. What a great way to spend the morning learning about local flora and fauna, while hiking with fellow docents! Come join us on future CEED trips.

[CEED stands for Continuing Education & Enhancement for Docents. Docents are allowed to record one hour of credit for each CEED event, not to exceed 12 hours per year.]

Nature Discovery Series: Plants and Pollinators

On Saturday, March 21, our NDS topic will be "Plants and Pollinators" with Margaret Fillius. Meet at 10:30 am at the Pavilion for a short lecture followed by a hike.

Nature Discovery Series: Family Discovery Day

Article and photos by Barbara Wallach

Family Discovery Day on Saturday, Feb. 15, was a big success and visitors, young and old, enjoyed the activities. There were five stations: Plant Adaptations; Bird Adaptions/feathers and nests; Insects; Snakes; and Whales.

Each of the stations had hands-on activities that the visitors took part in, with laughter and delight. Docents also had a great time and provided our guests with interesting interpretive information. The visitor response was stimulating and encouraging, and we all hope to have more such events during the year.

Here are some comments from the public:

"Thank you for having this special event."

"I loved holding the snake."

"This was so much fun."

"Yuck, is that what blubber feels like?"

"I didn't know you could write with a feather."

"Are those insects really alive?"

"You have to do this more often."

Thanks, (Park Aide) **Louis Sands** and (Park Aide/docent) **Ingo Renner**, for organizing this event!





Torrey Pines Book Club

When: Tuesday, March 10, 1:00 pm

Where: Kathy Glasebrook's home in University City

What: *Tambora: The Eruption That Changed the World* by Gillen D'Arcy Wood

Amazon says:

When Indonesia's Mount Tambora erupted in 1815, it unleashed the most destructive wave of extreme weather the world has witnessed in thousands of years. The volcano's massive sulfate dust cloud enveloped the Earth, cooling temperatures and disrupting major weather systems for more than three years. Communities worldwide endured famine, disease, and civil unrest on a catastrophic scale. Here, Gillen D'Arcy Wood traces Tambora's global and historical reach: how the volcano's three-year climate change regime initiated the first worldwide cholera pandemic, expanded opium markets in China, and plunged the United States into its first economic depression. Bringing the history of this planetary emergency to life, Tambora sheds light on the fragile interdependence of climate and human societies to offer a cautionary tale about the potential tragic impacts of drastic climate change in our own century.

All TPDS docents are welcome. Meetings usually last a couple of hours. RSVP to Kathy if you plan to attend. (Check Member List for email or phone number.)

April 14: *The Mosquito: A Human History of Our Deadliest Predator* by Timothy C. Winegard

OAKS Walk on Jan 22

[OAKS: Optional Advanced Knowledge Session]



Pao Chau and Barbara Wallach led a docent walk about the Wild Cucumber (Manroot).

Photo by Ken King

Matter of Balance Program is Coming to TPDS

Free, 8 sessions, 1 per week.

Fridays from 10:30am - 12:30pm

When: April 17 to June 5

Where: Pavilion behind the Lodge

To get your name on the list, call /text or email **Kristine Schindler** (see Membership List for email or phone number).

Maximum # of participants is 14. You will need to make the majority of the sessions to fully benefit and receive a certificate.

For more details about the MOB program itself,

[CLICK HERE.](#)

Bird of the Month: Western Bluebird

by Jack Friery; photo by Herb Knüfken

Our featured bird this month is the **Western Bluebird**, *Sialia mexicana*. This seven-inch-long member of the thrush family is a year-round resident in coastal California. Look for them in partially wooded areas, often flying out and landing on the ground to capture insects.

As our picture illustrates, the male has a neon-blue head and wings, and a rusty orange vest. (The female is much duller, mostly gray, with hints of blue in her wings.) Western Bluebirds are cavity nesters; however, since their bills are not built to excavate nest holes, they have to make do by adopting holes made by other birds, such as woodpeckers.

Here are some interesting facts. Studies reveal that up to 45 percent of Western Bluebird nests contain one or more young that are not the resident male's offspring. Their global breeding population is about 6.7 million birds. And, *mirabile dictu*, Western Bluebirds are not blue. Blue is not a pigment in bird feathers—it is a structural color, a way light reacts with the feathers and their arrangement of protein molecules, called keratin. Quite simply, there are no blue birds.

Sources: allaboutbirds.org/guide/Western_Bluebird/overview
audubon.org/field-guide/bird/western-bluebird
en.wikipedia.org/wiki/Western_bluebird
fs.fed.us/database/feis/animals/bird/sime/all.html
insider.si.edu/2016/04/blue-bird-not-blue/



Torrey Pines Docent Society Bird Survey: February 2020

Number of species: 84
(+1 other taxon)

Cinnamon Teal 5
Northern Shoveler 2
Gadwall 10
Mallard 11
Northern Pintail 2
Green-winged Teal 10
Canvasback 5
Redhead 3
Ring-necked Duck 1
Lesser Scaup 15
Surf Scoter 170
Bufflehead 13
Red-breasted Merganser 1
California Quail 5
Pied-billed Grebe 1
Western Grebe 46
Eurasian Collared-Dove 4
Mourning Dove 56
Anna's Hummingbird 78
Allen's Hummingbird 18
hummingbird sp. 4
American Coot 30

Long-billed Curlew 1
Least Sandpiper 1
Spotted Sandpiper 1
Willet 5
Heermann's Gull 3
Ring-billed Gull 34
Western Gull 56
California Gull 1
Royal Tern 2
Red-throated Loon 1
Brandt's Cormorant 250
Double-crested Cormorant 32
Brown Pelican 20
Great Blue Heron 4
Great Egret 3
Snowy Egret 2
White-faced Ibis 7
Osprey 1
White-tailed Kite 2
Northern Harrier 1
Sharp-shinned Hawk 1
Cooper's Hawk 1
Red-shouldered Hawk 3
Red-tailed Hawk 6
Belted Kingfisher 2
Downy Woodpecker 2

Nuttall's Woodpecker 8
Northern Flicker 1
American Kestrel 7
Peregrine Falcon 1
Black Phoebe 14
Say's Phoebe 6
Cassin's Kingbird 17
Hutton's Vireo 7
California Scrub-Jay 6
American Crow 34
Common Raven 12
Bushtit 53
Wrentit 61
Ruby-crowned Kinglet 5
Blue-gray Gnatcatcher 2
California Gnatcatcher 10
House Wren 3
Marsh Wren 2
Bewick's Wren 16
European Starling 2
California Thrasher 17
Northern Mockingbird 2
Hermit Thrush 3
Cedar Waxwing 29
House Finch 46
Dark-eyed Junco 2

White-crowned Sparrow 38
Golden-crowned Sparrow 6
Song Sparrow 27
California Towhee 64
Rufous-crowned Sparrow 2
Spotted Towhee 25
Red-winged Blackbird 4
Orange-crowned Warbler 23
Common Yellowthroat 12
Yellow-rumped Warbler 74
Wilson's Warbler 1

Observers: Andy Rathbone, Tina Rathbone, Marty Hales, Robert Turner, Kathy Dickey, Jim Wilson, David Walker, Gary Grantham, Frank Wong, Manolo Turner, Tsaiwei Olee, Steve Girard, Phyllis Kuszner, Herb Knüfken, Bob Glaser, and Anonymous

View this checklist online at ebird.org/checklist/S64569827

Herb Knüfken's amazing photo gallery, including many birds, may be found here: pbase.com/herb1rm

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