

TORREYANA

THE DOCENT NEWSLETTER FOR
TORREY PINES
STATE NATURAL RESERVE

Issue 432

July 2021

Saving the Wild *Dudleya*

by Joan R. Simon

What do *Dudleya* have in common with tiger bones, ivory, pangolin scales, and rhino horn? Surprisingly, the thriving illegal global market that exists for these natural products now includes cacti as well as succulents, such as *Dudleya*. In recent years, poachers have been digging up rare and valuable *Dudleya* species from their native habitats and selling them at exorbitant prices around the world. In the process they are threatening the existence of several rare and endangered species.



Poaching *D. farinosa*, discovered by the Fish and Wildlife Service *Dudleya* are part of the Crassulaceae (Stonecrop) family and are commonly known as “live forever” because of their long lifespan and regenerative qualities. In addition, they have unique photosynthesis abilities that enable them to survive in arid conditions. They are New World succulents and come in large rosette shapes or finger-like forms, as typified by the *Dudleya edulis*, which is common at Torrey Pines.

While poaching these and other succulents is a global issue, there is also a local illegal trade, and that’s where Kevin Alison comes in. Mr. Alison is the production manager at

Docent General Meeting

Date: Saturday, July 10, 9:00 am

Online via Zoom (link to the meeting will be emailed to all docents)

Speaker: Dr. Carlos (Charlie) de la Rosa, Natural Lands Program Manager for the San Diego Zoo Wildlife Alliance. Charlie received a PhD in Biology at UCLA’s Department of Ecology and Evolutionary Biology in 2018.

Topic: Wildfires in Southern California’s Arid Ecosystem

Wildfires in the western United States have increased in intensity and size in recent years, devastating human and ecological communities. However, many plants in vegetation communities like coastal sage scrub and chaparral are adapted to, and even thrive after, fire, an indication that some amount, type, or interval of fire can be “good.” Dr. de la Rosa will give an overview of human- and non-human caused fires in coastal sage scrub and chaparral, and discuss some of the challenges of conservation in a warming world.

Tree of Life Nursery in San Juan Capistrano, a large native plant nursery with over 400 varieties of California natives in its inventory. He holds degrees in Horticulture and Natural Resource Management and recently earned a Masters in Conservation and Restoration Science from UC Irvine. His work is focused on conservation projects at the nursery.



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

Editors@torreypine.org.

Please send postal/
email address changes to:
Torrey Pines Docent Society
1155 Camino Del Mar #404
Del Mar, CA 92014

Attn: Membership or email to

Membership@torreypine.org

Web sites:

TP Docent Society: torreypine.org

TP Association: torreypines.org

Visitor Center phone: **858.755.2063**

TPDS Executive Board Members:

President: Lynne Truong

Vice-president: Roger Isaacson

Treasurer: Janet Ugalde

Secretary: Gabriele Wienhausen

Directors-at-large:

Harry Proctor

Annette Ring

Stu Rosenwasser

Cres Torres

TPSNR Staff:

Supervising Ranger: Dylan Hardenbrook

Rangers: Stephanie Adams, Kyle Knox,
Dave Richards, Jesus "Chuy" Salinas
Rodriguez

Sr. Park Aides: Louis Sands, Jake Mumma

Park Aides: Cheryl Biernacki, Krista
DeBusschere, Shawn Jacobs, Ingo Renner
(on temporary leave)

© Torrey Pines Docent Society
Since 1975
All rights reserved

As Mr. Alison explained at the June 12 Docent Society meeting, saving the *Dudleya* is a matter of supply and demand: in simple economic terms, the demand for *Dudleya* is high and the supply is low. The solution is to increase the supply, making these plants readily available and inexpensive, which will diminish their appeal to poachers.

There are approximately 45 species of *Dudleya* on the West Coast, from southern Oregon to Baja California, primarily on coastal bluffs and slopes but also in inland deserts. Some of the more notable ones are:

D. farinosa, in the bluff regions of Northern California

D. cymosa, in inland canyon areas

D. pulverulenta, a big chalk species with lantern-like flowers, seen locally on hikes

D. attenuata orcuttii, along the border area and into Baja California

D. virens hassei, on Santa Catalina Island

D. traskiae, on Santa Barbara Island

Many *Dudleya* are rare. Nine taxa are federally listed as “endangered” or “threatened” and 40 taxa are on the CNPS (California Native Plant Society)

inventory of rare and endangered plants. There are environmental challenges for *Dudleya*: for example 95% of the *D. verite* and its habitat were lost in the Ventura County Springs Fire of 2013 which burned 24,000 acres. But international poaching has become an even greater threat, where tens of thousands of plants are stripped from their natural environment and shipped overseas. Many of them don’t even make it to their destination, dying of rot from too much humidity in the containers they are crammed into. *D. pachyphytum* on Cedros Island in Baja is likely to go extinct because it has been so heavily poached. *D. farinosa* is now taking its place as a prime target of poachers.

Why are *Dudleya* so sought after? Because they are rare, found only in the Western Hemisphere, and their chalk-like anatomy is both unique and attractive. The goal of Mr. Alison’s project at the Tree of Life Nursery is “conservation through cultivation” -- to “take the floor out of the economic demand” and make *Dudleya* ubiquitous.

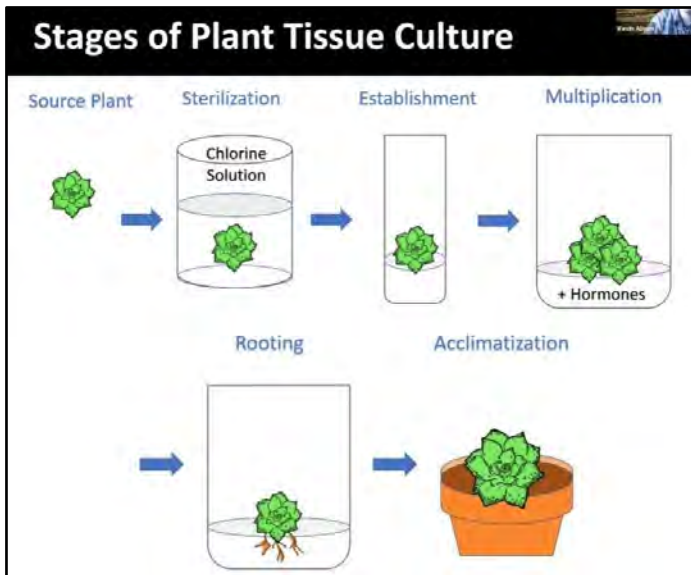
Inside	
Saving Wild Dudleya	1 - 3
Meeting Minutes	3 - 4
Docent of the Month	5
July CEED Event	5
80+: A Conversation	6
Museum Shop Reopening	6
TP Book Club	7
In Memoriam	7
Science Fair Winners	8
Maryruth Cox	9
June CEED Event	9
Bird of the Month	10
Bird Survey	10



If you flood the market with these rare plants, he explained, the market for poaching will evaporate, and the species in the wild can be preserved.

Propagation has traditionally been done by seed, but seeds of rare plants can be hard to come by, and an even bigger challenge is the ease of hybridization: “People want the pure plant.” A newer method, which Kevin learned while studying at the University of Hawai’i, is plant tissue culture, or “in-vitro culture,” which means growing plants in test tubes. Hawai’i has the highest rate of endemic species as well as the highest number of rare plants, and most of their natural pollinators have become extinct. The University of Hawai’i has been using in-vitro culture for restoration and conservation for many years. Instead of storing seeds, they use germplasm storage so that species can be retrieved and available to multiply quickly.

Mr. Alison has brought this method back to The Tree of Life Nursery for use with *Dudleya*. The stages of plant tissue culture involve sterilizing the plant (“killing all the fungus and bacteria without killing the plant”) and giving it a medium to grow in. By adding hormones, cultivators can rapidly produce new clones, and cuttings can be put into a rooting culture to produce more plants. The growth is theoretically exponential: one plant can generate 10 others; those 10 can produce 100, and in 6 quick replications you can get to 1 million plants.



Mr. Alison’s goal has been to develop a tissue culture protocol to produce “rapid exponential cloning” for select *Dudleya* taxa to combat poaching and potential extinction. He consulted Stephen McCabe (“the *Dudleya* guy”) at UC Santa Cruz to develop a list of species that were in the highest demand and the most threatened. Getting them established in an in-vitro environment is the most important step in conservation; from there, you can propagate them and preserve the living plant tissue safely in a lab. Like seed banking, it’s another tool in the conservation tool box.

The long-range goal is to provide living plants to nurseries and botanic gardens, as well as reintroducing them into the wild, where species are endangered. Mail order, to reach the overseas market, is being explored. If the supply is plentiful, the underpinnings of the poaching trade will collapse and the “exit to extinction” will end. “Why would anyone go across the world to poach plants when they are readily, and inexpensively, available in nurseries?”

Mr. Alison noted that the very rare *D. brevifolia*, which can be found at Torrey Pines, is not a target of poachers, because it becomes dormant for part of the year; nevertheless, it remains endangered and might be a candidate for conservation in his lab.

There’s an anonymous hotline if you see someone you think might be poaching:

CalTIP, CDFW’s confidential secret witness program

Ph: 888 334-2258; Text: tip411

General Meeting Minutes: June 12

The General Meeting was called to order at 9:05 am by President Lynne Truong. The meeting was again conducted via Zoom; 93 docents attended.

Invited Speaker

The invited speaker was Kevin Alison, production manager at the Tree of Life Nursery. Kevin talked about: “In-Vitro Conservation of *Dudleya*: Fighting Plant Poaching and Extinction.”

San Diego Science Fair Winners Presentation

Wayne Kornreich and his team, which included docents **Lillian Lachicotte, Sally Whitlock, Kathy Dickey, Karen Lisi, and Leigh Fenly**, selected two Greater San Diego Science Fair competition winners to receive TPDS awards: Neha Bhat and Bella Rose Schremmer. The students each received a Torrey Pines State Natural Reserve annual pass (donated by Supervising Ranger Dylan Hardenbrook) and a TPDS monetary award of \$250. They both gave a brief presentation about their work. (See pg. 7 for their abstracts.)

TPDS Business

President Lynne Truong shared the following business items:

- **Docent of the Month**

Phyllis Kuszniar, Class of 2019, was honored for her significant contributions to road/trail/ocean clean-up. She has also spent many hours at the TIK and – even during the pandemic – as a Roving Interpreter. Thank you, Phyllis! (See pg. 4.)

- **Thank you and Send-Off for Ed Vodrazka, Head Lifeguard at Torrey Pines State Beach**

Lynne said she had visited Ed Vodrazka to present him with a thank-you basket, which included a ceramic tile, a matted print by Tsuyoshi Matsumoto,

Torrey Pines: Landscape and Legacy, and, last but not least, a cape with a *Super Life Saver* inscription.

- **Thank you and send-off for Johnson Jou and Joy Inton**

Annette Ring and **Janet Ugalde** visited Johnson and Joy to present them with special gifts from the TPDS: a gift certificate to each of them for their favorite store, LLL Reptile. In addition, Johnson was awarded with a black-colored cape adorned with *Tarantula Tamer* and the message on Joy's cape read *Diabolic Ironclad Beetle Queen*.

- **Preparation for California Reopening June 15**

Details about the June 15 reopening are still not available. The leads for the different docent programs, including the Lodge and Museum operation, have developed reopening protocols and procedures. Short refresher videos describing the tasks associated with Lodge and TIK duties have been developed. They are available via the protected TPDS webpage. Lynne reminded the docents that the reopening plans are preliminary in nature. Specifics are likely to change depending on the information we receive from the State Parks headquarter via Supervising Ranger Dylan Hardenbrook.

- **Lodge Reopening**

As part of the reopening work, the Lodge will receive a deep cleaning. Preliminary plans call for the Lodge's opening hours to be reduced for the first few weeks of post-pandemic operation. Monday – Friday the Lodge will be open from 10 am – 2 pm. The weekend hours will be from 9 am – 3 pm. Docents can sign up for two-hour shifts. Each shift should be staffed by two docents. A park aide will fill in when only one docent is on duty.

- **CEED Program**

The next field trip of the program will take place on June 15 at the Scripps Coastal Reserve (see pg. 9). A visit to the San Diego Botanic Garden has been scheduled for July 22. Lynne highlighted the importance of the program as a community builder and thanked Cres Torres for restarting the program.

- **Community Outreach Program**

The Community Outreach Program, headed by Kathy Dickey, will resume in August with a new Nature Discovery Series talk. The starting time will change from 10 am to 3 pm. The hope is that this will make it easier for visitors to find a parking place. Lynne asked docents to be available for helping with the program set-up.

- **Public Walks and other Special Walks**

Lynne confirmed that we have not yet received permission to resume the guided walk programs.

- **Children's Program**

Both the San Diego Unified School District and CA State Park System have not yet provided updates and guidelines for conducting programs such as our Children's Program after the official state reopening on June 15. **Janet Ugalde**, the lead for this program, and her team are prepared for a limited program offering in the Fall. She assumes that we will be back in full force in January 2022.

- **Razor Point and Yucca Point Trails**

The erosion repair work for both the Razor and Yucca Point trails has been completed. The Seabees team contributed to this work.

- **September Social**

Lynne expressed hope that we will be able to have an in-person social gathering in September. Potential locations are being explored.

- **General Meetings at St. Peter's**

Lynne shared that there are no immediate plans for holding TPDS General Meetings indoors at St. Peter's. In 2020, TPDS continued to pay the monthly fee for using the church's meeting space. The payments were viewed as a donation to St. Peter's during challenging times. In 2021, TPDS stopped paying St. Peter's monthly fee. The board is now exploring the possibility of using the Children's Pavilion for general meetings starting in October.

- **Docent Training**

Lynne confirmed that TPDS is prepared to resume its training program for new docents again in the fall.

Kristine Schindler shared that:

- The CARE Team has adopted two projects, the 80+ and the Why-I-Became-a-Docent Project. The 80+ project needs docents interested in transcribing and possibly filming the interviews and subsequently writing up the interviews for the Torreyana. Kristine reminded docents that this activity has been approved as a Better Impact category. Kristine also asked docents 80 years and older to let her know if they wish to be interviewed.

Kristine again urged all docents to describe their motivation for becoming a docent and submit their reflection to her. She reminded all docents that if they would like to receive help writing their essay, members of the CARE Team are available to help.

Betsy Seible reminded docents that plastic pollution is a huge problem. We all can do our part reducing the contaminations of our oceans by picking up trash as we walk along our beaches.

The meeting ended at 11:22 am.

Docent of the Month:

Phyllis Kuszner

Photo by Herb Knüfken

As a city kid I was sent off to summer camps in the woods of Pennsylvania. That was the highlight of my year. I loved being out in nature, enjoying the experience with my peers. Since then, I've always wanted to learn more about natural things. As an adult approaching retirement in San Diego, I wondered how I could incorporate my interest in nature into my new life. I was not ready for a knitting needles and a rocker. Besides, San Diego's climate is usually too hot for wearing sweaters!



Over the last 30 plus years that I've lived in San Diego, I've enjoyed walks at Torrey Pines with my husband. We've also visited and hiked in many national parks and wilderness areas across the country. We met on a caving trip in West Virginia as members of our college Outdoor Club. In 2018, on one of our hikes in Torrey Pines after my retirement, I observed a group of gals with their TP vests on. When I spoke with them, they were friendly and sharing, explaining what a docent was and how much they enjoyed the training class to prepare for their volunteer work.

Afterwards, on my own, I learned more about the Guy Fleming Trail wildflowers via **Margaret Fillius's** book. I watched many of the videos made in the Reserve. I volunteered as a weeder and learned which plants were welcome natives and which were not and had to go. But I still wanted to learn more.

I signed up for docent training just as my hours working as a mental health social worker were tapering off. The timing was perfect; classes and training walks in the Reserve in preparation to

become a docent filled the void of retirement. The small amount of knowledge I was able to get on my own was nothing compared to the wealth of information learned from our teachers, who so generously shared their knowledge and experiences in training classes and walks. I learned from and enjoyed all our knowledgeable instructors.

After our enthusiastic Class of 2019 graduated, in addition to all the new learning, I now enjoyed a group of lovely people with whom to share the whole experience. We made it through our first year working at the TIK and Lodge, leading public walks and sharing our new wealth of information with the public. Then Covid closed it all down. I was able to continue helping by doing road clean-up around the beach, lagoon, and Sorrento Valley Road. I found a niche that was safe but could still contribute to the upkeep of the Reserve and the protection of the creatures that live here.

Now I deeply appreciate San Diego County as a nature hotspot and all the variety offered within our special Reserve. I admire all the people who have been involved over the past more than 100 years for having the foresight to recognize and protect it. I appreciate the native people of the area and their understanding and care for what they found undisturbed. I'm so proud to be one of the docents with shared goals of preserving the natural environment along with educating the public to be good stewards of our diminishing natural environment. And I am so thankful we have started the return to a full opening of the Reserve.

JULY CEED EVENT

San Diego Botanic Garden

Date: Thursday, July 22

Time: 10:30 am

Place: San Diego Botanic Garden

Duration: one hour

Admission Fee: \$11 per senior: \$17 per adult (under 60), unless you are a member of SDBG or any garden affiliated with the American Horticultural Society

80+: A Conversation with Barbara Wallach

Interviewed by Kristine Schindler

Barbara became a docent in 1993. Since that time she has consistently worked with the Children's Program and the Whacky Weeders, which she helped establish in 2002.

Barbara and **Joan Nimick** were named Docent of the Year in 1995 for their work



expanding the Children's Program. When I became a docent in 2011, Barbara was my mentor. That was a wonderful experience, and I have been a fan of hers ever since.

Tell us about your childhood

I grew up in a large family with five children. My father was one of eleven and my mother one of five. There were always enough of us for a couple of baseball teams and great adventures. Our backyard was woods with trees to climb and a stream to play in where we caught minnows and crayfish. The outdoors has always been a big part of my life. I grew up in the city of Kirkwood, which is in St. Louis County and was very rural at that time. I attended a one-room school from first to third grade that had one teacher for 50 children in grades K-12.

Where did you go to college and work?

I went to Southeast Missouri State College and did graduate work at the University of Oklahoma. My degree is in Health, Physical Education, and Recreation. I taught K-6th grades and then served on the local school board for three years. After that experience, I needed a break from education. Volunteering then became a large part of my life.

How long have you lived in the area? What brought you here?

In 1990 we moved to San Diego from New Jersey. My husband is an emeritus math professor at UCSD and continues to do research in math. We have enjoyed an interesting life, spending time at UC Berkeley and Rutgers, and traveling throughout the world.

Why did you become a docent?

In 1993, my neighbors **Eva Armi** and **Jim Cassell** encouraged me to go through docent training. After moving here and working on our house and yard for three years, I was ready for an adventure. **Joan Nimick** enticed me to work with the Children's Program. I minored in biology in college and have always loved plants, bugs, and the environment. I also became a docent at San Elijo Lagoon in 2007 and helped them develop a school program focusing

on wetland ecosystems.

I had the idea of using Rusty the Raven puppet to talk about recycling during Earth Day and to greet children as they came off the buses for the Children's Program. I love innovation and thinking of new ways to get our message across. I also encouraged "Spotlight On" during our monthly meetings and have enjoyed making videos, sharing photos, and working with other docents. Docents at TPSNR are some of the most dedicated, educated, interesting, curious, wonderful, caring people that I have had the pleasure of working with and learning from.

Now that the pandemic is almost over, what makes you happy these days?

Being vaccinated and knowing that things are getting better and spending time with family and friends, especially my grandson. It is great to get back to hiking with friends in the Reserve and talking to visitors. I encourage docents to keep learning, spend time on the trails, and to always look down and up, stop, listen, and take time to immerse yourself in the environment. And always, keep going...

Click [here to see Barbara's interview video \(25min\)](#).

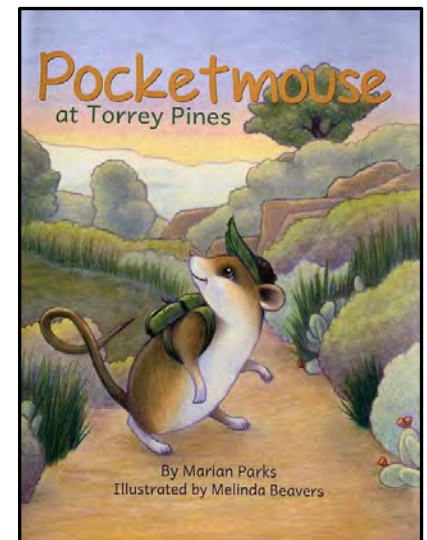
Museum Shop Reopening

by Nancy Walters

By the time you are reading this, the museum shop should have reopened after 15 months of closure! The shop team has worked to clean and reorganize all the merchandise, since everything was put away last year. So come on in and check out some of the newly painted backgrounds and displays in the museum and pick up a gift in our shop while you're there!

A few items of special-interest include a beautiful new children's picture book specifically written for our Reserve: *Pocketmouse at Torrey Pines* by Marian Parks (illustrated by Melinda Beavers). It is a charming story with gorgeous illustrations featuring our iconic trees and native plants. We also have some new mini paintings and painted rocks by docent **Jeannie Smith**, as well as some ceramic items you may not have seen before.

We encourage all docents to refresh your Lodge host training and sign up to work a few shifts at the Lodge desk. It's a great way to interact safely with visitors and get in some volunteer hours.



Torrey Pines Book Club

We will continue to meet via Zoom at our regularly scheduled time. Please notify Ken King if you plan to participate and if you need any extra help getting connected.

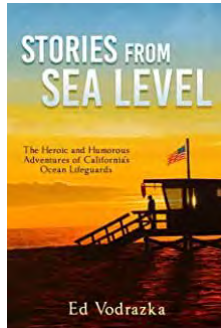
When: Tuesday, July 13, 1:00 pm

What: *Stories from Sea Level: The Heroic and Humorous Adventures of California's Ocean Lifeguards* by Ed Vodrazka

The book can be purchased from the Torrey Pines Conservancy, www.torreypines.org; click on Torrey Pines Boutique. A portion of the proceeds will go to the TPC. It can also be purchased from Amazon.

Amazon says:

Stories at Sea Level is a hand-picked assemblage of truly exceptional ocean-related events which occurred within the 50-year span between 1969 and 2019. The lifeguards featured in these stories work for various agencies between San Diego and the Sonoma coast. The lifeguards themselves provided the author with the details and specifics necessary to accurately immortalize their remarkable and dramatic events. This collection of their accounts are offered by the author as a homage to all lifeguards (past, present, and future) who diligently patrol the California coastline ensuring the safety of the general public.



Ten of these stories capture the details of daring rescues in which the lifeguards' performances were so exceptional that they earned the lifeguards' prestigious Medal of Valor honors from the United States Lifeguard Association and/or the Governor of California. This award serves as formal recognition and acknowledgement of the highest level of courage and bravery in our profession.

All TPDS docents are welcome. Meetings usually last a couple of hours.



Young Peregrine Falcon by Donna Close



In Memoriam: Diane Stocklin,

We mourn the passing of docent Diane Stocklin (Class of 2011) on June 14, 2021. Diane led the docent training program for two years. She was also involved in the Children's Program, public walks, Earth Day, and many other docent activities. She was an art historian and served as member of the Contemporary Arts Committee of San Diego Museum of Art.

Del Mar Sand Aster

by Rhea Bridy

Sweet little daisy

Bouncing on its slender stems,

Pale blue and helmet buds.

Just twenty to twenty-five slender petals,

Pale purple waves encircling sunlit yellow and red gold florets.

Quite a little dazzler, blowing on the sandy bluffs.



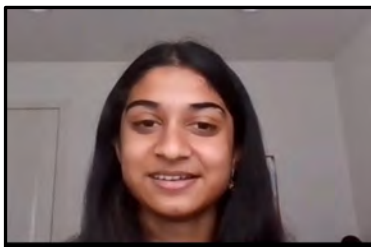
2021 Greater San Diego Science and Engineering Fair Winners

The Science Fair winners for 2021 were Neha Bhat, 8th grade, Carmel Valley Middle School, Junior Division; and Bella Rose Schremmer, 10th grade, University City High School, Senior Division. They presented their work at the June 12 Docent Society meeting. Their abstracts are included here. The TPDS meeting Vimeo [video is here](#).

Using Google Earth Engine to Identify California Gnatcatcher Habitats

by Neha Bhat

The California Gnatcatcher is an endangered bird that lives in the coastal sage brush habitat. The coastal ecosystem that is home to a many other endangered species is facing rapid decline due to increasing urbanization along the California coast. Right now, there are no easy ways to determine where these birds are located, causing urban planners to build in their important habitats. A supervised learning approach using the Google Earth Engine platform along with eBird dataset and Landsat images is proposed to solve this problem.



Procedure: California Gnatcatcher sightings data was imported from the eBird database to Google Earth Engine, along with 2020 Landsat image data. 70% of the information was used to train a decision tree classifier. Then, the classifier was run, separating the map into potential Bird Habitats and Non Bird Habitats. The process was repeated for the year 2016.

Test 1/Results: The remaining 30% of the data set was used to validate the classifier outputs, and assess the accuracy of the classifier. The classifier was 87% accurate with 145 sq km of Bird Habitat area and 3665 sq km of Non Bird Habitat area in the San Diego region.

Redesign: More data from previous years was imported from eBird and added to the data. New polygons of urban land were added as well. Elevation and NDVI bands were also included.

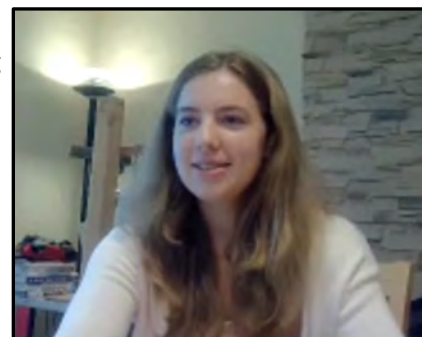
Final results: The 2020 classifier was 95% accurate with 522 sq km of Bird Habitat area and 2662 sq km, of Non Bird Habitat area in the San Diego area.

Conclusion: The project demonstrates that supervised classification on the Google Earth Engine platform, along with eBird and Landsat datasets, can be effectively used to identify the habitats of the California Gnatcatcher. The final results of the classifier show that the coastal sage scrub habitat amounts to about only 16% of the total land area, highlighting the importance of protecting the Gnatcatcher and its environment.

Clean Coastal Energy by a Piston-Buoy Rack and Pinion WEC System

by Bella Rose Schremmer

Global warming and climate change are intensifying problems that are gradually deteriorating the Earth's atmosphere. These issues are largely attributed to the burning of fossil fuels, prompting scientists to develop renewable energy sources like ocean, solar, or wind power.



Ocean energy is the largest potential renewable energy source on the planet, but has not been cost effectively or efficiently accessed for practical applications. A compact piston-buoy rack and pinion wave energy converter (WEC) device is devised and applied to pier pillars for easy application with no need for costly drilling into the sea floor. This WEC takes the reciprocating linear motion of the waves and converts it into rotational motion that spins generators, providing an economical answer that has the potential to power densely populated coastal areas.

The initial prototype involved a crankshaft mechanism that was much less efficient since it could only turn once per wave period and was only suited to waves with a peak to peak amplitude precisely matching the crankshaft diameter. The final prototype utilized a rack and pinion mechanism which proved to be far superior. The generator was connected to a capacitor (used to represent a rechargeable battery) and a voltmeter was used to obtain voltage data. Many adjustments were made to the device for optimal alignment with minimal friction, including gear ratioing. The WEC device was attached to a model of a pier pillar and tested with a homemade wave tank, where waves are created with a hinged paddle and propagate to a wall of loofah material to help prevent wave reflections. In addition, water-free testing was conducted with a CAM that mimics the motion of an ocean wave (modeled as a sine wave) in proportion to the device. The WEC prototype is a 1:12 scale model. The CAM has the ability to adjust for a range of wave periods from one second to eight seconds in length with a variable resistor in the circuit.

The piston-buoy rack and pinion WEC device proved to be successful in harnessing the energy of the waves, as shown by charging of the capacitor and the resulting voltmeter data, from both the wave tank and CAM trials. This highlights that a set of full scale models on a real-world pier would be an effective and low-cost solution to utilize ocean waves as a clean energy source.

Beach Song

by Maryruth Cox

The Cloud Master drew,
with careless hand,
a fog bank on the sea.
The raging sun
sank through the mist,
leaving a fringe of light
where the cloud met the sky,
when a surfer tensed
and caught his wave
and so, just then, did I.

Maryruth Cox was a mainstay of the Torrey Pines Association (now Conservancy) for several decades and served as their historian. She was a driving force behind the successful movement to secure the Extension property. Over the years she has contributed numerous colorful articles and poems to the *Torreyana* on every aspect of the Reserve. She was



made an Honorary docent early on. She wrote this poem on the occasion of her 90th birthday. Her granddaughter, Zoey Bahardar, took the photograph with surfers in the foreground.

CEED Event: Scripps Coastal Reserve

by Cres Torres

The second CEED event of the year was a visit to Scripps Coastal Reserve in La Jolla on June 15, attended by 24 docents. Dr. Heather Henter, Executive Director, Natural Reserve System at UCSD and Isabelle Kay, Reserve Manager, hosted the event. The short trail was surrounded by both evergreen and drought deciduous plants similar to those at TPSNR. The views were spectacular as usual from the coastal vantage point. Masks were optional but most docents were vaccinated. It was a good day to celebrate learning with friends.



Bird of the Month: Cinnamon Teal

by Jack Friery; photo courtesy of Herb Knüfken

Our highlighted bird this month is the **Cinnamon Teal**, *Spatula cyanoptera*. This lovely duck is a winter and springtime visitor to the Reserve, normally seen gliding on the waters of the lagoon. The Cinnamon Teal is about the size of a crow -- around 16 inches long -- and weighs 12 to 14 ounces. As dramatically colored as the male is (pictured), the female is equally drab. However, as is true with most ducks, when the male is molting, it goes into a drab phase called "eclipse plumage." Unlike most birds, ducks drop their flight feathers during molt and become flightless for a time. Since they're especially vulnerable to predators during that time, drabness equals camouflage and relative safety.



The Cinnamon Teal actually has two recognized scientific names, *Anas cyanoptera* and *Spatula cyanoptera*. *Anas* is the Latin word for a duck. *Spatula* refers to the bill shape — spatulate, or spoon-shaped. In both cases, the word *cyanoptera* refers to the blue patch seen on the leading edge of the duck's wing as it flies.

Sources: allaboutbirds.org/guide/Cinnamon_Teal/overview

ducks.org/conservation/waterfowl-research-science/understanding-waterfowl-the-amazing-molt

audubon.org/field-guide/bird/cinnamon-teal.

Torrey Pines Docent Society Bird Survey: June 2021

Number of species:68
(+1 other taxon)

Gadwall 10
Mallard 23
Surf Scoter 18
Red-breasted Merganser 2
California Quail 2
Western Grebe 3
Eurasian Collared-Dove 1
Mourning Dove 45
White-throated Swift 10
Anna's Hummingbird 27
Rufous/Allen's Hummingbird 21
Virginia Rail 2
Whimbrel 1
Long-billed Curlew 5
Western Gull 32
California Gull 28

Caspian Tern 2
Royal Tern 2
Elegant Tern 4
Double-crested Cormorant 3
Brown Pelican 10
Great Blue Heron 3
Great Egret 9
Snowy Egret 18
Osprey 2
Cooper's Hawk 1
Red-shouldered Hawk 1
Red-tailed Hawk 2
Nuttall's Woodpecker 12
Peregrine Falcon 5
Olive-sided Flycatcher 1
Western Wood-Pewee 3
Pacific-slope Flycatcher 2
Black Phoebe 10
Say's Phoebe 2
Ash-throated Flycatcher 16
Cassin's Kingbird 7

Hutton's Vireo 3
Warbling Vireo 1
California Scrub-Jay 6
American Crow 13
Common Raven 21
Northern Rough-winged Swallow 13
Bushtit 110
Wrentit 69
Blue-gray Gnatcatcher 3
California Gnatcatcher 7
House Wren 13
Marsh Wren 1
Bewick's Wren 22
California Thrasher 8
Northern Mockingbird 8
Phainopepla 2
Scaly-breasted Munia 17
House Sparrow 3
House Finch 116
Lesser Goldfinch 65

Savannah Sparrow 3
Song Sparrow 19
California Towhee 66
Spotted Towhee 51
Yellow-breasted Chat 11
Hooded Oriole 5
Red-winged Blackbird 22
Orange-crowned Warbler 30
Common Yellowthroat 22
Yellow Warbler 3
Black-headed Grosbeak 5
Blue Grosbeak 2

Observers: Marty Hales, Andy Rathbone, Nancy Richardson, Steve Neal, David Walker, Anonymous, Robert Turner, Kathy Dickey

View this checklist online at ebird.org/checklist/S90432459

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



Torrey Pines Docent Society
1155 Camino Del Mar #404
Del Mar, CA 92014
(858) 755-2063
torreypine.org