



TORREYANA

THE DOCENT NEWSLETTER FOR
TORREY PINES
STATE NATURAL RESERVE

Issue 470

September 2024

Remarkable Raptors – Up Close and Personal

By Joan R. Simon and Jeannie Smith

Sharyl Massey is a volunteer with Sky Hunters, a nonprofit rehabilitation and educational organization that rescues injured and orphaned raptors. She has had a long career as an environmental educator and naturalist, starting in 1989 as a docent at Torrey Pines. She brought three raptors to the August 10 Docent Society meeting, and they completely won our hearts.

Sky Hunters takes in only raptors that are native to San Diego County. These include hawks, owls, falcons, and eagles as well as the White-tailed Kite. They sometimes are found with broken limbs or brain trauma, and volunteer veterinarians are called in to mend their wounds. When successful, the birds are released back into the environment where they were originally found. When limbs do not heal correctly or have to be amputated, the birds

cannot be released into the wild, and some have to be euthanized. Others that are calm enough are kept by Sky Hunters and participate in their educational programs.

Raptor parents teach their chicks survival skills: what predators to watch out for and how to hunt. This typically happens when they are very young. If a young raptor is



Photo by Joan Simon

Docent General Meeting

Date: Saturday, September 14, 9:00 am

Location: St. Peter's Episcopal Church Parish Hall, Del Mar

Speaker: Micah Parzen, CEO, Museum of Us

Topic: Beyond Land Acknowledgments -- Translating Words into Action at the Museum of Us

We are on the unceded ancestral homeland of the Kumeyaay Nation. While we know this to be true, few organizations are willing to translate this acknowledgment into meaningful action. This presentation will share the messy but rewarding journey of the Museum of Us as it has attempted to do so.

Micah Parzen is an attorney and anthropologist who has served as CEO of the Museum of Us (formerly the San Diego Museum of Man) since 2010. He has practiced both as an anthropologist, doing his Ph.D. fieldwork on the Navajo Nation; and as an attorney, serving as a partner at Luce, Forward, Hamilton & Scripps.

Refreshments: Docents with last names beginning with **A, B, C** will be responsible for providing snacks for this meeting.

found alone, without having been taught those skills, it can no longer learn to survive in the wild.

Wearing a protective falconry glove, Sharyl first brought out a Western Screech Owl (pictured left), a surprising name since it in fact does not screech. It actually makes a soft cooing sound and is small, about the size of a burrowing owl. She cautioned us that they do not like loud noises or sudden movements (and we behaved). Screech Owls live in oak woodlands and forests

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 and Angela Bailey. Submissions are due on or about the 20th day of the preceding month and may be emailed to

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**FLASH - Don't forget to donate
your ZooNooz magazines to the
Museum Shop.**

(so, unfortunately, there are none in Torrey Pines). Sharyl explained that owls have three assets that make them highly successful predators. First, they have very sharp talons that can clamp down through the skin and muscle to secure and kill their prey. Second, they have strong beaks that can easily tear off the flesh from their victims for consumption. Third, they have forward-facing eyes that give them incredibly acute vision, believed to be the sharpest on the planet.

Their hearing is equally acute. The facial disk that surrounds their face funnels sound waves to the ears, which are asymmetrically placed on either side of their face – one higher and one lower – to catch sounds above them and below. With 360° hearing, they can pinpoint exactly where their prey is located.

The Screech Owl's favorite foods are small mammals, including bats, as well as insects. The first thing they eat is the brain, because that is where the best nutrition lies. They cannot completely digest bones, which form a ball in the stomach and are coughed up. Owls can eat prey that are two to three times their weight, whereas hawks and falcons are limited to animals that are half their size.

Male and female Screech Owls are hard to tell apart, although one indicator is that males are up to one-third smaller than females, a fact that is true for most raptors. This enables them to fly faster to catch their prey. In the wild, they usually live for three years – "it's really tough to survive in the wild," Sharyl commented. In captivity they can live for 15 years, because they are well fed and not at the mercy of predators. Their talons get worn down in the wild but need to be trimmed in captivity. The same is sometimes true of their beaks.

Raptors do not have a bladder, and they poop often. Like other birds, they have one opening that is used for excreting waste, mating, and laying eggs. Their waste is mostly white, which signifies uric acid (and the reason you do not want it on your car). As with most birds, they usually poop before taking flight – "to lighten the load."

Unlike other predators, such as soaring hawks and diving falcons, owls pounce on their prey. Owls have feathers with a soft texture and specialized comb-like structures on the leading edge of the wing that suppress turbulence and make them completely silent in flight – hence the ability to sneak up and pounce.

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The second bird Sharyl showed us was an American

Kestrel. It used to be called a Sparrow Hawk, but this name was misleading, since a Kestrel is a kind of falcon and very different from a hawk. Falcons' wings are extremely aerodynamic, wide in the front and narrow at the end. In fact, the wing designs of the F-14 and F-18 fighter jets were copied from the falcon's. Kestrels have a



Photo by Craig Carlisle

notch in their beak that allows them to break the neck of their prey. Their eyes are many times more powerful than ours. Their preferred foods are sparrows, lizards, and grasshoppers. Because of their relatively small size, they might not eat their prey on the ground in order to avoid predators of their own.

Kestrels are sexually dimorphic, with different coloration, but both males and females have the familiar black streaks under their eyes that we see in our Peregrine Falcons that nest in the cliffs above Torrey Pines State Beach. Kestrel males are also smaller than females.

Falcons, both resident and migratory, are one of the most widespread birds in the world and can thrive in many different environments. Because Kestrels eat lizards, we find them at Torrey Pines – where lizards are abundant, although their numbers have fallen in recent years.



For more information on Sky Hunters, click [here](#).

The third visitor Sharyl brought was a Barn Owl, which indeed does screech.

This bird was taken out of its nest as a chick, so it did not learn survival skills and could not be released into the wild. It can live up to 20 years in captivity. Its striking heart-shaped facial disk is the perfect configuration for enhanced hearing and enables it to hunt in pitch darkness by just using its hearing. The Barn Owl has long legs to reach down into the grasses.



Photo by Craig Carlisle

Owls cannot move their eyes the way we do, but they have twice the number of neck vertebrae, which enables them to rotate their heads up to 270 degrees. The holes in their neck vertebrae, through which blood vessels deliver blood to the brain, are large enough that the vessels do not get twisted and cut off the supply of blood to the brain when they turn their heads.

Sharyl explained that raptors as a group share many characteristics, such as beak shape and sharp talons, and inhabit similar ecological niches, but in fact they are often not genetically closely related. Some of their similarities owe more to convergent evolution than to common DNA. For example, falcons are more closely related to parrots than to other raptors.

September CEED Event: Old Town

Date: Tuesday, September 17

Time: 11:00 am

Place: Old Town San Diego State Historic Park, featuring three historic parks

Duration: approximately one hour

Difficulty Level: easy walking; please wear closed shoes

Respond to: Mukesh Mehta

Limited to: first 20 docents to respond

General Meeting Minutes, August 10, 2024

President **Matt Xavier** led the meeting.

Speaker: Sharyl Massey, an environmental educator and naturalist who works with Sky Hunters, a raptor rescue organization, brought three raptors to the meeting. (See pgs. 1-3.)

Docent of the Month: In addition to working at the Lodge and TIK, **Dave Nichols** started and runs the Torrey Pines Falcons Naturalists program, which brings special needs young people to the Reserve, where they sweep around the Lodge, clean up trash on the beach, and assist in other helpful ways. The program has been so successful that other parks and organizations have adopted Dave's model.

2025 Board Elections: **Steve Neal** from the Nominating Committee reviewed the procedures to nominate and apply for the Board. Please send nominations and address any questions regarding board elections to a nominating committee member: **Steve Neal, Medi Denker, Myrna Trust, or Janet Ugalde**. The new slate will be presented at the October meeting. (For more information, on the board and link to application, see [August 2024 Torreyana](#))

Shark Lab, Cal State Long Beach will provide a Shark Lab display at the BLIK on August 16 (see pg. 6). Dr. Chris Lowe, director of the Shark Lab, will give a talk, "Learn to Live with White Sharks," on August 17 at St. Peters Parish Hall. (See pgs. 5-6)

Lynne Truong announced that Mindful Walks will have a special sunset walk on August 24, starting at 6:00 pm at the Lodge.

Barbara Wallach announced that honorary docent **Maryruth Cox** recently passed away at age 93. (See pg. 15.) In lieu of flowers, please make donations in her memory to the Torrey Pines Conservancy. Cards may be sent to her home address listed in the docent Member List.

Docents whose last names start with **A, B, C** are responsible for refreshments at the September meeting.

Roving Interpreters: There will be two Roving Interpreter forums to discuss proposed additions to the RI program: August 9 and August 13.

Louis Sands is retiring. There will be an event celebrating his tenure in the near future.

Mary Makowski and **Carolyn Colwell** will be in charge of planning the December holiday potluck and new docent graduation.

Barbara Wallach asked if we could have a treasurer's report. **Lynne Truong**, the TPDS treasurer, noted that one is posted quarterly in the library.

New Docent Class applications are available on the docent website. The class starts September 25 and will be on Wednesday mornings starting at 9:00 am.

Park Aides have been signing up for the Lodge and TIK if there are spots that need filling. However, they are limited to working 1,500 hours per year so they might not be able to do this frequently.

Docent of the Month: David Nichols

Photo by Herb Knufken

First, I would like to thank the board for awarding me the September Docent of the Month. What a privilege! Torrey Pines has provided me with, over 50 years of unmatched experiences . . . just outside my door.

I am a 2023 docent, married and recently retired from a career in national defense-related R&D, with an only son who is on the autism spectrum.



Four years ago, during the COVID lockdown, we started a group for special needs, neurodiverse individuals that would bring them together, outdoors, with a common bond. That group is now known as the [Torrey Pines Falcon Naturalists](#). Every Thursday or Friday, you can find us either in the Reserve or at a nearby state, county, or regional park picking up trash, which often leads to a little friendly competition: Who can find the most unusual piece, and who will have collected the most? Our group routinely collects over ten pounds during each outing.

While visiting parks we offer our trash-collecting services in exchange for a local docent-led 15-to-30-minute talk about the area. Our last outing here at Torrey Pines focused on the green sea turtle, with sensory activities, a live underwater camera at Scripps Pier, and a scavenger hunt courtesy of Senior Park Aides Lila Beth Scott and Laura Chaing (thanks guys). The kids really look forward to the experiences. What a joy to be a part of such a special group of individuals.

Special thanks to: Meg Banta, Ingo Renner, Louis Sands, Lila Beth Scott, Laura Chaing, and volunteers Dylan Parker and Heather Graves.

Learn to Live with White Sharks

by Ray Barger

Dr. Chris Lowe, Director of Cal State Long Beach Shark Lab, gave a presentation on white sharks to approximately 125 docents and other local residents on August 17. Dr. Lowe's talk, in the aftermath of a confirmed juvenile white shark (JWS) bite at Del Mar beach this past June, was focused on updating the public on new insights about near-shore JWS behavior and on the research into shark behavior by the Shark Lab.

The JWS's have two populations: coastal aggregations and offshore groups that differ based on age and diet. The Shark Lab has focused on easier-to-study JWS's, which aggregate near the shore for three key reasons: 1) the shallow waters are where JWS's seek safety from predation by other sharks; 2) the waters are warmer, enabling faster JWS growth rates; and 3) food that JWS's can catch is more plentiful, including stingrays and benthic flatfish.

Based on drone surveys with more than 1,000 hours of total flight time, Dr. Lowe indicated JWS's aggregate in counts up to 40 within a mile of beach. He said that 97% of the days his team observed JWS's they were within 60 feet of surfers and swimmers; yet there have only been two documented shark bites at Del Mar/Torrey Pines, which is the current JWS "Hot Spot."

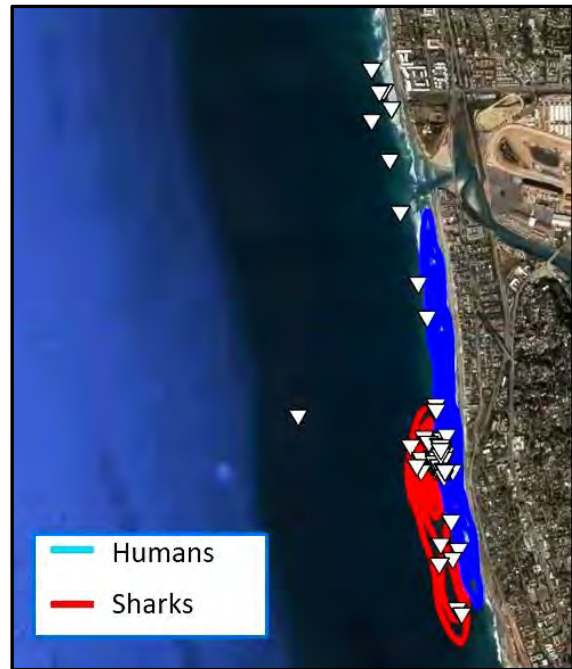
Dr. Lowe highlighted trends in both white sharks and their food sources. He noted that after marine protection laws passed in recent years, including outlawing gill nets (which were catching many sharks younger than one year) and laws to protect marine animals (which are the adult white sharks' main food source), the populations of both sharks and their prey have increased since 2005.

Typically, great white females have two to fifteen babies in April that are approximately 4.5 feet in length. Once born, JWS's are on their own, and in May the parent females move to offshore island aggregation sites to feed on marine mammals. In August adult males do the same.

JWS's grow up to 9 feet in length and have only the skills needed to feed on benthic flatfish and stingrays. When they get to be about ten feet in length and are at least six years old, they attain adult status and find they are "too big for their near-shore kindergarten playgrounds." They are also ready for an adult diet, which consists mainly of marine mammals. Their teeth change from long and pointy (which facilitate near-shore feeding) to triangular and serrated, which are effective with offshore marine mammals such as seals and sea lions. Dr. Lowe noted that adult white sharks can take up to five years to develop the skills needed to consistently catch these fast-moving marine mammal prey.

From 2012 to 2022, there were 458 unprovoked shark bites in the United States, 52% of which were in Florida. In California there were three to seven white shark bites per

year during this time. Dr. Lowe noted the "shark bite rate" in Southern California has not gone up despite more JWS's living along the coast, because the number of people going to the beach is also increasing.



In the past ten years, JWS sightings by lifeguards have increased fivefold. The current protocol is for lifeguards to issue two-day beach closures after a swimmer has been bitten. Otherwise, informational warnings are posted when sharks are present. This scaled-back approach reflects the scarcity of actual bites, along with the need to minimize the economic impacts of beach closures to the local community.

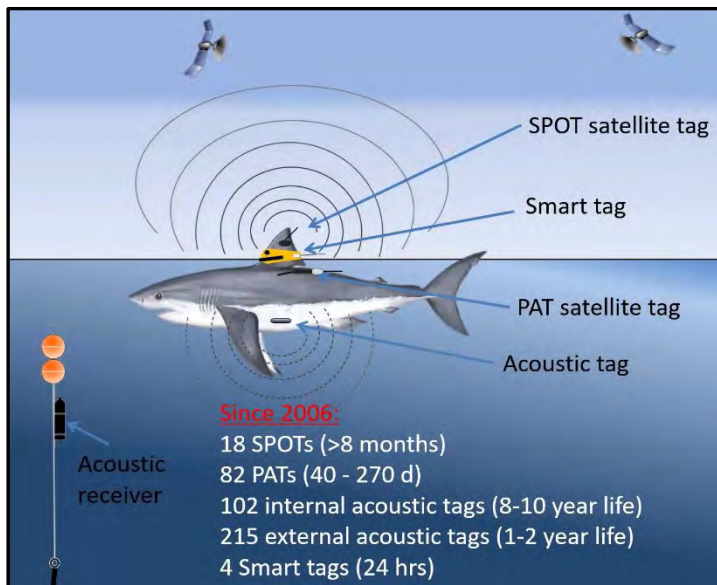
Dr. Lowe noted that his team used AI to analyze more than 1,000 recent coastal shark observations and found that most of the time the sharks ignore people. He said that along our coast in Del Mar and Torrey Pines there may be as many as nine JWS's in an area the size of a football field. Currently, the primary JWS aggregation sites are Santa Barbara and San Diego, but these can change from year to year as JWS food sources tap out and water temperatures change.



White shark hotspots in Southern California

Dr. Lowe elaborated on the four types of shark tags used by his Shark Lab team to track white sharks.

- 1) SPOT satellite tags, which transmit data when the shark surfaces.
- 2) & 3) Smart and PAT satellite tags, some with video loggers, which “pop off” and float to the ocean surface, where the data can be retrieved.
- 4) Acoustic tags injected or surgically implanted for near-shore JWS identification and position monitoring from about 100 fixed and floating acoustic stations from Morro Bay to Mexico. Since 2019, the Shark Lab has inserted 99 of these tags. A new feature of floating acoustic research stations is the ability to send “early warning” cellular text alerts to the Shark Lab researchers regarding the presence of JWS’s to assess the need for temporary beach closures.



Shark tags and tracking data

The Shark Lab also uses a GPS-guided autonomous underwater vehicle tracing a “lawn mowing pattern” to create 3-D temperature maps of the near-shore ocean water column. Dr. Lowe noted that water temperatures are dynamic and can vary up to 12°F between the ocean bottom and surface. Because JWS’s bottom feed, the Shark Lab team has discovered that juveniles are eating at dawn and dusk at the colder bottom. During the day and night, they stay near the warmer surface to warm up their bodies, which cannot auto-regulate body temperature. The team has found the best water temperature for white sharks is 68-72°F, and if the bottom temperature is less than 60°F for more than two days, the sharks will move to another location.

Using tag data, the Shark Lab has tracked groups of JWS’s leaving Southern California to seek warmer water in the fall, moving south to Vizcaino Bay in mid-Baja and occasionally continuing on to Cabo San Lucas, the Sea of Cortez, and mainland Mexico. During the same time period,

adult great white sharks in offshore aggregations move south from Monterey to San Diego. Dr. Lowe said the number of adult groups is growing, along with the number of sharks within each aggregation.

Dr. Lowe said his Shark Lab team has identified a shark behavior they call “sleepy time.” The sharks swim in multiple left-hand circles, then switch to right-hand circles, which the team believes represent “uni-hemispheric” sleep – namely, one hemisphere of the brain sleeps while the shark circles in one direction; then the shark changes direction while the other hemisphere sleeps. This sleeping behavior is similar to that observed in other marine mammals, such as whales and dolphins, as well as migratory birds. One downside is that this makes sharks vulnerable to boat strikes. Dr. Lowe thinks that the recent shark bite in Del Mar occurred when the swimmer startled a sleeping shark.

In 2018 a California law established a Shark Beach Safety Program (SBSP) for shark research and community outreach. Under the SBSP, the Shark Lab provides research-based training and education to beach Lifeguards, Junior Lifeguards, and K-12 organizations about shark behaviors (see BLIK exhibit article on pg. 6).

Shark Lab has found that compelling artwork has worked better than actual great white shark photos for community outreach. It turns out shark artwork that is not as “scary” is more approachable by the public and fosters a greater understanding of shark behavior.

Dr. Lowe told us that current state funding for the SBSP and Shark Lab runs out next month. This year’s Shark Lab expenditures are more than one million dollars. He is seeking donations and other sources of funding to continue Shark Lab’s research and outreach mission.

To view Dr. Lowe’s full presentation [click here](#).

For more information on juvenile white sharks at Torrey Pines, see Cal State Long Beach Shark Lab’s previous presentation to the TPDs: (*Torreyana*, [August 2022](#))

For more information on Shark Lab, see their [website](#).

BLIK Hosts Shark Lab Exhibit *by Ray Barger*

On Friday, August 16, the Cal State Long Beach Shark Lab team displayed and discussed information about sharks with docents and visitors to the North Beach at a pop-up exhibit adjacent to the BLIK. In addition to juvenile white sharks, the exhibit included material on many species of sharks along with displays of various shark tags used in the Lab’s past and ongoing research.

Thanks to the many docents who helped with the exhibit: **Rosemary Wareham, Malana Tabak, Jane Barger, Ray Barger, Ann Tomczak, Wayne Korneich, Susan Potuznik, Diana Coram, Greg Lafreniere, Allan Heryet, Coleen Huang, and Ed Saade.**



Shark Shack artifacts, including jaws, eyes and fins of different shark species. CSULB Shark Lab student, Brayden Ortiz, talks about shark behavior.

Trail Closures for Footbridge Project

The footbridge on the Big Basin Trail (between Razor and Yucca Points) is being replaced. In order to get materials in and out, the Beach Trail complex, which includes Razor and Yucca Point Trails (see map), will be closed for some periods.

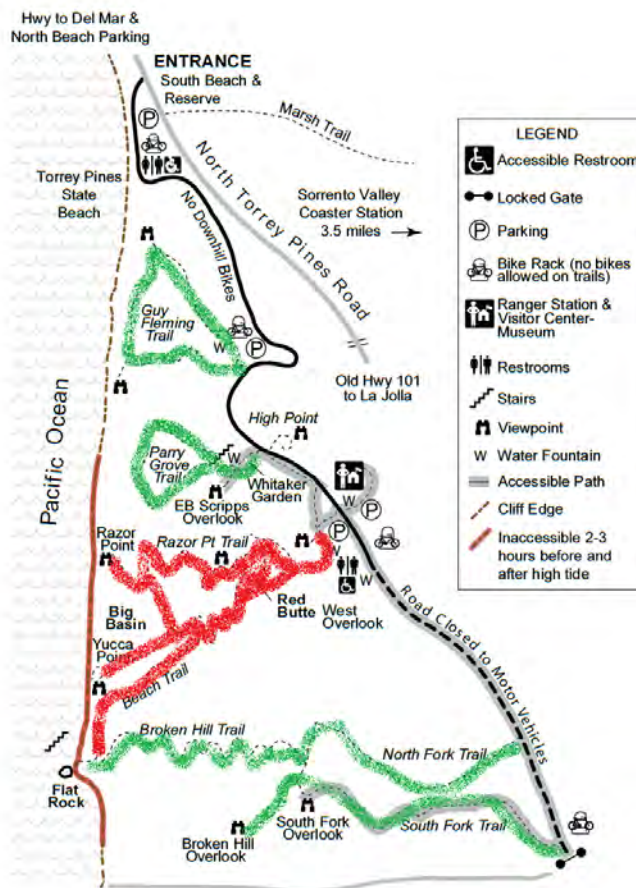
Trail Closure Dates

- Tuesday, August 20 – Thursday, August 22
- Monday, August 26 – Thursday, August 29
- Monday, September 2 – Friday, October 4

The upper parking lots will be minimally affected, with materials staged in a few parking spaces. The Big Basin bridge project is expected to be completed by the first week of October.

Visitors should be directed away from the closed Beach, Razor Point and Yucca Point trails. West Overlook, Whitaker Garden and EBS Overlook, Parry Grove, Guy Fleming, the park road and Visitor Center will be unaffected. Beach access is available via the North and South Forks of the Broken Hill Trail.

This project is being funded by the TPDS and TPC. The San Diego and State Trails Maintenance Teams are implementing the work.



Guy Fleming House Fundraiser

by Solange Jacobs, TPC Development Director

The Guy Fleming House dedication at Torrey Pines on Sunday, July 28 was a resounding success, drawing a full house of enthusiastic attendees. The TPC fundraiser, which sold out in three weeks, welcomed more than 120 guests to this private residence usually shielded from public view.

Despite minor parking and shuttle-related challenges, the celebration proceeded smoothly, much to the enjoyment of all present. The atmosphere was electric, with the talented Taryn Donath and her drummer providing a diverse musical backdrop ranging from soul jazz to funk, plus their signature “beatnik blues.”

Guests savored delicious street tacos courtesy of Jose’s Taquizas Street Tacos Catering, while local brand JuneShine generously donated beer and hard kombucha. The event also featured goodie bags filled with delightful gifts from local brands, including VitaCup, San Diego Bar, Doctor D. Schwab, and Dr. Bronner’s.

The dedication was made even more special by the presence of some of Guy Fleming’s descendants, including granddaughter Mary Beth Adderley, who came with her grandsons. She shared stories about Mr. Fleming as a granddad. Also present were San Diego-based great-grandchildren Bobby Coats, Christina Lettang, and Nate McMullen. Former residents Ed and Jennifer Vodrazka and their two children were also in attendance, with college-bound daughter Jade sharing cherished memories of growing up in the Fleming House. Ed treated guests to tours of the newly renovated house, highlighting the meticulous attention to detail in preserving this historically designated property.

Set against the backdrop of a beautiful sunny day in the Reserve, the event offered a rare opportunity for the public to explore this usually private residence. The overwhelmingly positive response from attendees underscored the significance of the Guy Fleming House and its place in the hearts of the community.

A heartfelt thank you goes out to Park Maintenance Chief Chad Van Doren and his team, who led the renovation over the last three years, for allowing us to enjoy it before the new tenants move in. We wish to extend to all the volunteers who contributed to the event's success our utmost gratitude, especially members of the Torrey Pines Docent Society. Their dedication in arriving early and staying late was instrumental in creating a memorable experience for all attendees. Their efforts embody the spirit of community and preservation that the Guy Fleming House represents.



Children's Program

by Janet Ugalde, Program Director

This fall the Children’s Program will be held on Tuesday and Thursday mornings when school is in session. Teacher signups are scheduled to begin September 4, with programs beginning October 1. All events will feature a docent start time at 9:30, with students arriving by 10:00.

Both docents and teachers will have a new and improved online signup system this fall. Docent signups will be on Better Impact, like other docent activities. Your team is working hard to smoothly provide docents with all the information they enjoyed with our former (decrepit) signup system. I apologize in advance for any inconvenience caused by this upgrade!

We will schedule a team meeting (including new signup instructions) in September, as soon as we have programming issues resolved – with an email announcement to all team members.

Children’s Program docents: WE NEED YOU! PLEASE help make our 2024-25 program another incredible, awesome experience for San Diego students!

Extension Trails Open

The Mar Scenic, DAR, and Hidden Pines Trails have reopened at the Extension.

Margaret Fleming and Red Ridge Trails will remain closed for repairs and vegetation recovery after the July 25 fire. The burn area is susceptible to erosion and invasion by exotic weeds. There is no reopening schedule for these trails yet. For more information on the fire, see [August 2024 Torreyana](#).

Docent Tour of Guy Fleming House

Article and photos by Ingo Renner

On August 7, Torrey Pines docents were given the opportunity to visit the newly renovated Guy Fleming House. Maintenance Chief Chad Van Doren and I led three tours. We walked through the historic house built in 1927 by Guy Fleming and his father, admiring the pueblo-style corbels, the original wavy glass windows, and the spacious rooms with views of the Reserve and ocean. Docents noticed that there was only an exterior staircase connecting the first floor to the second, where Guy Fleming had his office. This was done on purpose, so he could keep his work area separated from his domestic life.

The Maintenance Department did a fantastic job installing new infrastructure, including plumbing, electrical, tile, and appliances, while retaining the historic character and charm of the building. Soon a new State Park family will be moving in, continuing the legacy of custodians for this wonderful piece of Torrey Pines history.



Chad speaking to a docent group about the scope of work done to the GF house



Chad showing docents the extra-wide downstairs hallway.



A view of Guy Fleming's upstairs office



Downstairs Living Room

CEED Beach Party

It was a balmy evening on July 24 when about 50 docents and their guests celebrated the summer at the South Beach. There was plenty of pizza and a lot of singing after the sun set. Thanks to the CEED group for organizing this event!



TPSNR Chemistry: Cochineal and the Color Red

by Suzan Potuznik

This is one of a series of articles on the chemistry of TPSNR

As a new docent, I was absolutely fascinated by the intense brilliant red color produced by an insect found on a prickly pear cactus. When a white, waxy insect clump smeared onto a card released an intense red color fluid, my chemist's curiosity was piqued. The insect was cochineal, *Dactylopius coccus*. Now I enjoy sharing a fun fact with school children visiting Torrey Pines: "Do you know that you have eaten an insect found right here at Torrey Pines?" A red cochineal dye is used to color foods, including yogurt, sweets, and meats. The next questions are: "Is it blood?" "Isn't red food coloring bad for you?"

The vibrant deep-red dye called carmine, or carminic acid (also known as natural red 4, or E120) is produced by cochineal, a 0.2-inch parasitic insect that makes its home on a petal of prickly pear cactus. It is covered by a waxy white secretion. The dye is not blood. (The blood of insects is typically colorless to light yellow green.) So why produce such intense deep color red, making up about 10% of the dried insect's weight? Because it wards off predators – carminic acid is a potent feeding deterrent to ants.



Clockwise from left: cochineal on prickly pear; female cochineal; dried cochineal with waxy coating removed; prickly pear photo by Steve Rose

Is the cochineal red dye bad for you? In Europe, a number of synthetic red dyes – e.g.: E122 (carmoisine, Azorubine), E124 (ponceau 4R), and E129 (Allura red) – have been linked to hyperactivity in children, and some have been banned from use in food. The effect of the cochineal red dye, a natural product, on hyperactivity has not been studied as extensively as the synthetic dyes. The chemical structures of the synthetic dyes listed above all contain a nitrogen-nitrogen double bond ($-N=N-$), an "azo" linkage, that has unique chemistries and is known to be metabolized,

producing aromatic amines that can be hazardous to human health.

Comparing the chemical structure of carminic acid, which does not have an azo linkage, to red dye and Red Dye No. 40 (Allura Red), carminic acid has a completely different reactivity.

I have not found any studies linking cochineal to hyperactivity in children. Carminic acid dye from cochineal has been approved by the FDA and must be listed on the products, since a very small percentage of the population has an allergy to cochineal. Although the carminic acid structure is not similar to the suspect synthetic color reds, more data is needed.

Carminic acid molecules reflect dark purplish red to a vibrant red color wavelengths as they absorb much of the green and blue color range of the visible light spectrum. The three connected carbon rings of the "anthracene"-derived ring structure have the pi cloud orbitals levels, or highways, that excited electrons can jump to, absorbing light-energy, giving carminic acid its unique and very intense color.

Carmine use as a red dye can be traced back to the Mayan and Aztec empires. After the 1500s, Spanish ships carried tons of dried cochineal insects back to Europe for use as a vibrant red dye for fabrics. Cochineal became a valued commodity that rivaled silver and gold. Currently the demand for cochineal remains strong; the United States market for cochineal is more than \$40 billion per year. As for the future, biotechnology companies are developing genetically modified bacteria to produce carminic acid, which should help reduce the demand for prickly pear cactus.



1700s illustration that shows traditional harvesting of cochineal insects. José Antonio de Alzate y Ramírez/Public Domain

Further reading suggestions are available from the author.

Creature Feature: Spider Wasps

by Laura Chaing, Senior Interpretive Park Aide

Found in various shapes, sizes, and colors, the family of wasps, Pompilidae, is dubbed “spider wasps” for good reason. This family has evolved a relationship in which they hunt spiders and require them for survival.

Adult wasps, like those in the photos, can be found flying low to the ground or even quickly scurrying on the ground while they are searching for spiders. They search for a suitable spider, stun it with paralyzing venom, and drag it into a ground nest. Some spider wasps have a burrow dug before capturing a spider, while others may dig the burrow after having paralyzed a spider. With each paralyzed spider, the spider wasp will lay a single egg before closing the burrow and making the ground nest inconspicuous to potential predators. Once hatched, the spider wasp larva will feed on the dead spider and have all the resources it needs to grow, pupate, and emerge as an adult.

Different wasps in this family can be further categorized into genera and species, with each spider wasp preying on a different kind of spider. Some of the largest and most well-known spider wasps are tarantula hawks, found in the *Pepsis* genus. True to their name, their primary spiders of choice are tarantulas, a dynamic that can be observed at Torrey Pines. Populations of both tarantulas and tarantula hawks are active, particularly in late summer and throughout the fall.



A *Pepsis tarantula hawk* drinking nectar

Tarantula hawks are also known for their painful sting, second only to the bullet ant on the Schmidt sting pain index. A powerful venom containing neurotoxins allows them to paralyze and kill large spiders like tarantulas, but people don't need to look at tarantula hawks or other spider wasps with fear. Spider wasps are not typically aggressive or interested in stinging (unless you are a spider), and they are quite unbothered by the presence of humans. If they are not out hunting spiders, spider wasps are frequently seen

drinking nectar from wildflowers. Tarantula hawks, in particular, are big fans of milkweeds and play an important role as pollinators in our local ecosystems.



Aporus spider wasp dragging a wolf spider across a sandy trail

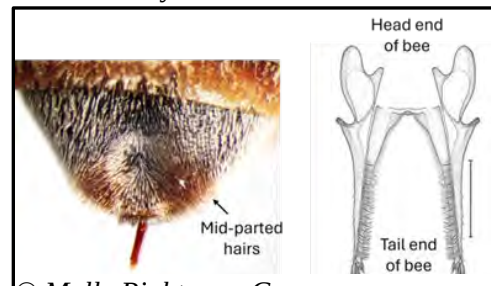
There is so much more to learn about these fascinating insects. If something about them stands out to you, I encourage you to do a research deep dive to find out more!

Bee of the Month: *Triepeolus matildae*

by K. James Hung and Molly Rightmyer Gee

San Diego County is part of a global hotspot of bee biodiversity, with a roster of species that just recently surpassed 700 strong. However, fewer than two dozen of these species were officially described and scientifically named based on specimens collected here. This month's Bee of the Month is one such lucky species, and indeed, one of our newest additions to science: *Triepeolus matildae*, or Matilda's longhorn-cuckoo, was first introduced to the global scientific community in 2014. Prior to that, Matilda's longhorn-cuckoo was thought to be a rare regional variant of the Utah longhorn-cuckoo (*Triepeolus utahensis*), a closely related lookalike. It wasn't until we sat down together with genetic data of both species from James's dissertation collection that we realized we had a new species on our hands.

When we think of bee hairstyles, we think of the adorable fluffiness of bumble bees or the chic hair bands of sweat bees and miner bees ... but did you know that some bees have neat, '90s-style mid-parts? In Matilda's longhorn-cuckoo, this mid-part isn't on its head – it's on its hind end! Only the ladies have this feature.



© Molly Rightmyer Gee

Most bee species work hard to construct nests and collect pollen and nectar for their offspring, but not Matilda's longhorn-cuckoo. It's a cleptoparasite, which means it invades the nest of other bees and lays its own egg there. Its larva assassinates the original occupant and then usurps the pollen provisions for itself – hence its common name of “cuckoo.” This life history is not unique to Matilda's longhorn-cuckoo; in fact, more than 2,500 of the 20,000+ of bee species in the world live this way. *Triepeolus* bees have beautifully modified, long, arm-like appendages on their tail end, formed from the sixth segment of the abdomen. Scientists speculate that these appendages allow them to hide their eggs in the walls of the nest cells that they infiltrate – very sneaky!



© Craig Chaddock

Being a cleptoparasite means that Matilda's longhorn-cuckoo doesn't need to be choosy about what flowers it visits – it doesn't collect pollen for its offspring, after all. It spends time in flowers only to fuel up on nectar and, in the case of females, eat some pollen to replenish proteins and fats for producing more eggs. You'll likely see these bees on easily accessible flowers such as *Stephanomeria* (wreath plant), *Eriogonum* (buckwheat), and *Deinandra* (tarweed); but sightings are uncommon because they mostly hover over nest sites of their host bees, waiting for a chance to infiltrate. As to who those unfortunate host bees are ... that's a puzzle for future scientists to solve!

So far, we have documented Matilda's longhorn-cuckoo only from Baja California, San Diego County, and Los Angeles County, making it quite a rare species and one that is potentially threatened by ongoing habitat loss and conversion. To date, the vast majority of observations of this species on iNaturalist have come from our very own Wannabees observing pollinators at Torrey Pines along the Marsh Trail!

References available upon request.

Pollinator Week in June

by Laura Chaing, Senior Interpretive Park Aide

Torrey Pines is such a beautiful place – home to countless wildflowers that bring color to our trails and to the pollinators who make that possible. From June 17 to 24, we celebrated our pollinators with a special week dedicated to featuring our small but mighty friends. Pollinators may include living creatures like bees, flies, wasps, beetles, moths, butterflies, bats, birds and more, as well as non-living things like wind.

Jess Mullins, whom docents may know through bee surveys and Wannabee activities, created a Pollinator Week BioBlitz in the community science app iNaturalist. This BioBlitz project captured all pollinator observations in Torrey Pines Reserve during the week. I partnered with **Robert James** and **Santosh Nichani** to lead iNaturalist walks, present on-trail interpretation for visitors, and add to BioBlitz observations. We had 18 people submit 174 observations for the week, giving a good snapshot of pollinator biodiversity at Torrey Pines.

Jess Mullins and Bonnie Nickel, a volunteer with California Native Plant Society, opened booths in front of the Lodge with interpretive displays featuring native plants and pollinators. In addition to great posters, visitors also had the opportunity to see bee specimens through a microscope. It's always fun to see the surprise and awe when people learn how bees come in all shapes, colors, and sizes (as demonstrated by the Bee of the Month articles in the *Torreyana*). **Lynne Truong** assisted with planning and greeting visitors to let them know about the fun activities we had to offer.

In addition, for Children's Story Time, Senior Park Aide Lila Scott read aloud *Am I Even a Bee?* written by Dr. Felicity Muth and illustrated by Alexa Lindauer. This children's book demonstrates how diverse bees can be, from carpenter bees and digger bees to cuckoo bees and many more. San Diego County is home to about 700 species of bees, so there are many different bees to explore.

Many of our native plants have special relationships with pollinators and may not even be as successful without pollination from specific species. The key to finding pollinators is to look in and around flowers. Noticing pollinators and their behaviors can be fun; and if you have a curiosity for identification and further research, upload a photo to iNaturalist, and the iNaturalist community will help with identification. A big shout-out to everyone who participated in Pollinator Week. Keep an eye out for future events highlighting the biodiversity of Torrey Pines State Natural Reserve.

A Summer of Junior Rangers

by Zuzana Volny, Senior Interpretive Park Aide

This July we held two successful summer sessions of our Junior Ranger program – a highlight for many of our young visitors and an accomplishment we take great pride in. I am thrilled to share that this summer was one for the books!

Our summer program is the most demanding of all our Junior Ranger programs. Despite its rigorous nature, we welcomed more kids this summer than ever before, a testament to the growing interest in and passion for our local natural wonders.

One of the most memorable moments for me this summer was with a young Junior Ranger named Ava. When I mentioned that we had a Reptiles Day planned, she was not excited. In fact, she told me she wouldn't hold any snakes and asked if that would be okay. Ava was even a bit squeamish when we first talked about snakes. But everything changed when it came time to view live reptiles brought in by herpetologist Jeff Nordland. Ava was clearly curious, peeking over the shoulders of other kids, and eventually, to my surprise and pride, she asked to lightly pet a snake – then she even held one! It was a triumphant success and a moment of bravery that I was so proud to witness.



It's moments like this that make me happy to see kids getting more in touch with nature, demystifying it, and learning to be less afraid of it. I believe that's such an important part of our mission here.

In addition to our Junior Rangers, many parents took advantage of the guided Parent Walks led by our knowledgeable docents. Every day we had at least one or two parents sign up, and sometimes more, eager to learn about what their kids were experiencing. A huge thank you to the dedicated docents who led these hikes, enriching both the kids' and parents' understanding of our local environment.

What stood out most this year was the enthusiasm and knowledge of the participants. It was clear from the start that these young rangers weren't just here to learn – they were here to explore, engage, and share their own insights about the unique flora and fauna of our Reserve. Their

bright minds and keen observations reminded us all of why we do what we do: to inspire the next generation of stewards for our natural environment.

As we reflect on this summer, it's heartening to know that these young rangers are leaving with a deeper appreciation for nature and a stronger connection to the world around them. We look forward to seeing many of them return throughout the year.



A big thank you to all our incredible docents and staff who supported the program and helped make this summer so special, and the parents/grandparents who encourage their children's love of nature. We couldn't do it without you!

Olympic Torch at Torrey Pines

by Judy Schulman, TPDS Historian

What were you doing around 8:00 am on July 25, 1984? I'll give you a hint: the Olympics were in L.A. that year. If you were lucky, you had a spot near the beach to watch the Olympic torch being passed between lifeguard towers 1 and 2. From La Jolla, the runner came down S21 (Torrey Pines Road) and entered the Reserve to get onto the beach. The torch was then carried north to Del Mar en route to Los Angeles. I was told that a special permit was needed because open fires were not allowed in the park. Lifeguards in two jeeps followed the runners on the beach portion.

State Park Interpreter Hank Nicol wrote about the event in the [August 1984 Torreyana](#) pg. 3: "It was a beautiful morning. The sun was out for the first time in several days. It was a great day for the race ... the human race."

In 2028, the Olympics will again be held in Los Angeles. Maybe we will get another chance to see the torch come to our park.



In Memoriam: Maryruth Cox

Maryruth Cox, who passed away on August 4 at the age of 93, was never a docent at Torrey Pines. But because her involvement at the Reserve was so significant, she was made an Honorary Docent in the mid 1990s. For decades she was one of the most prolific columnists for the Torreyana, writing on a limitless range of subjects, from current events at the park to history, geology and archeology to flora and animals. She played an important role in the effort to save the land that, in 1974, became the Extension.



Prickly Pear Cactus Flower

by Rhea Bridy

*Hoped for a blossom photo
Then realized the bloom
Was an oasis for
pollinators.
Ah, those beguiling elixirs
Of pollen and copious
nectar!*



Maryruth Cox: A Very Special Woman

by Barbara Wallach

I met Maryruth after becoming a docent at Torrey Pines in 1993.

She was special. She seemed to know everything there was to know about the Reserve, and I wanted to know what she knew. Plus, she wore a cobbler's apron just like my grandmother – a picture that comes to mind for many of us when thinking of Maryruth. Whether at home, the grocery store, in a meeting, or cleaning out the office on the second floor of the Guy Fleming House, she wore an apron. Her aprons had pockets to carry everything she needed. Chances are she had sewn the aprons herself. I guarantee she always had paper and pencil in her pocket.

In the 1990s, I was searching for children's books about animals and nature that could be sold in what is now called the Museum Shop in the Lodge, something that might cost 50 cents or a dollar so every child could afford to buy one. I learned that

Maryruth had written small, easy-to-read books that she self-published for her own children. She was more than happy to write more stories for us. We printed, folded, and stapled them. Now books about spiders, lizards, ravens, etc. were available in the shop.



Not many of us can accurately recall names, dates, and details of events that happened long ago. Maryruth could! If asked about details connected with the Extension or Peñasquitos Lagoon or the Reserve, it might take a minute, but she could recall the event, time and place. She had a wealth of knowledge and loved sharing what she knew, often in story form. She wrote many articles for the Torrey Pines Association (now TPC) and TPDS newsletters. Several of her books are in our docent library. What a wonderful written legacy she left to us.

Many docents and TPC members, past and present, have their own stories about Maryruth. She loved Torrey Pines State Reserve and had an endearing love of people and nature. She has a place in our hearts and for those of us who knew her, how lucky we were. Thank you, Maryruth!

[Click here](#) for a tribute from Maryruth's granddaughter.

In lieu of flowers, please make donations in her memory to the Torrey Pines Conservancy.

Torrey Pines Book Club

We will continue to meet via Zoom at our regularly scheduled time: the second Tuesday of each month at 1 pm. Please notify **Annette Ring** if you plan to participate or if you need any extra help getting connected.

When: Tuesday, September 10, 1:00 pm

What: *Lady Tan's Circle of Women* by Lisa See

Amazon says:

According to Confucius, “an educated woman is a worthless woman,” but Tan Yunxian, born into an elite family in 15th-century China, is being raised by her grandparents to be of use. Her grandmother is one of only a handful of female doctors in China, and she teaches Yunxian the pillars of Chinese medicine, the Four Examinations – looking, listening, touching, and asking – something a man can never do with a female patient. From a young age, Yunxian learns about women’s illnesses, many of which relate to childbearing, alongside a young midwife-in-training, Meiling. The two girls find fast friendship and a mutual purpose, but when Yunxian is sent into an arranged marriage, her mother-in-law forbids her from seeing Meiling and from helping the women and girls in the household.

How might a woman like Yunxian break free of these traditions and lead a life of such importance that many of her remedies are still used five centuries later? How might the power of friendship support or complicate these efforts? A captivating story of women helping each other, *Lady Tan's Circle of Women* is a triumphant reimagining of the life of one person who was remarkable in the Ming dynasty and would be considered remarkable today.



All TPDS docents are welcome. Meetings usually last an hour and a half.

October 8: *What an Owl Knows: The New Science of the World's Most Enigmatic Birds* by Jennifer Ackerman

Torrey Pines Docent Society Bird Survey: August 2024

Number of species: **64 (+2 other taxa)**

Mallard 4	Common Loon 2	Cliff Swallow 3	Yellow-breasted Chat 1
Surf Scoter 4	Black-vented Shearwater 5	Bushtit 77	Hooded Oriole 2
Mourning Dove 11	Brandt's Cormorant 30	Wrentit 80 population seems to be increasing	Red-winged Blackbird 3
White-throated Swift 3	Double-crested Cormorant 10	Blue-gray Gnatcatcher 3	Orange-crowned Warbler 14
Anna's Hummingbird 10	Brown Pelican 89	California Gnatcatcher 11	Common Yellowthroat 5
Allen's Hummingbird 9	Snowy Egret 12	House Wren 8	Black-headed Grosbeak 3
hummingbird sp. 3	Great Egret 1	Bewick's Wren 19	
Killdeer 1	Great Blue Heron 1	California Thrasher 15	Observers: Donna Mancuso, Kathy Brav, Manolo Turner, Tsaiwei Olee, Andy Rathbone, Marci Rimlinger, Dave Rimlinger, Dylan Hardenbrook, Dinah Carl, Steve Neal, Robert James, Marty Hales, Paul Mulholland, Nancy Richardson, David Walker
Snowy Plover 2	Osprey 3	Northern Mockingbird 2	
Whimbrel 2	Red-shouldered Hawk 1	Scaly-breasted Munia 2	
Long-billed Curlew 5	Red-tailed Hawk 4	House Finch 65	
Willet 3	Nuttall's Woodpecker 12	Lesser Goldfinch 14	
Heermann's Gull 15	Peregrine Falcon 4	American Goldfinch 1	
Western Gull 41	Western Flycatcher 4	Dark-eyed Junco 2	
California Gull 2	Black Phoebe 4	Savannah Sparrow 13	
Least Tern 2	Say's Phoebe 1	Savannah Sparrow (Belding's) 3	
Caspian Tern 2	Ash-throated Flycatcher 1	Song Sparrow 48	
Royal Tern 28	Cassin's Kingbird 3	California Towhee 66	
	Hutton's Vireo 3	Rufous-crowned Sparrow 1	
	California Scrub-Jay 10	Spotted Towhee 8	
	American Crow 8		
	Common Raven 53		

Herb Knufken's photo gallery includes many birds: pbase.com/herb1rm



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