TORREYANA

Published for Members of the Torrey Pines Docent Society, #78, Sept., 1982

NEXT MEETING: September 18, 9:00 A.M., Visitor Center

Report from the Ranger by Bob Wohl

Many of us in the past (and present) have felt that we have excellent ideas for managing the cultural and natural resources of Torrey Pines State Reserve. "If only someone would listen to my ideas!" is a common refrain. Or, "Whom should I contact? Who will listen to me?"

Well, your chance is now at hand. The next twenty years of resource management at Torrey Pines will be affected by the State Park System meeting at the Torrey Pines Lodge (Ranger Station) on Sept. 18, 1982, at 9:00 A.M. Dave Schaub and his resource management research team will be down from Sacramento at that time (starting at 9:30 A.M.). They will present their findings, feelings and recommendations for resource management at Torrey Pines- geology, geography, botany, zoology, archeology, etc.

This is a feedback process from Sacramento to the concerned community. Though the Docents have generously offered their monthly meeting for this discussion, other groups will also be attending- the Torrey Pines Association, the Torrey Pines Protective Association, the Del Mar Heights Community Planning Group, the Sierra Club, etc. So, if you see some strange faces, don't be surprised. But do realize that they have much in common with you- a deep personal concern and commitment to the preservation and well-being of Torrey Pines State Reserve.

The meeting will not be solely one-directional. Dave Schaub's team of experts will be requesting your feedback on their suggested policies. This is a critical factor in the formation of the resource management plans- to solicit the public's input and recommendations.

So come Sept. 18th with your questions, concerns, suggestions and thoughts. This is your chance and it won't be repeated very soon.

REPORT FROM THE RANGER (continued)

News Update:

For those of you who are wondering how the museum renovation program is progressing- the four large exhibit booths are nearing completion. Delivery date has been deferred by us until after the summer season. The exhibit cases should be delivered and ready for your viewing by the last week in September. They are beautiful!

Now comes the content. And the format for presenting the story of Torrey Pines State Reserve! See you soon!

Bob

News & Notes

SHELLEY SUBS FOR RUTH IN SEPTEMBER

Schedule coordinator Ruth Hand will be on vacation from Sept.2 through Sept. 19. During that period, Shelley Rogers will assume the duties of coordinator. She may be reached by phone at 453-8128.

Don't forget that even on sunny days, when visitors to the Reserve flock to the beach, we need someone at the Information Desk to answer questions, show slides and encourage environmental awareness. This may be done by associate members in addition to full-fledged docents. Try your wings and help us with staffing in the Visitor Center.

HELEN CHAMLEE, Naturalist

The San Diego Union/File Photo

Helen Chamlee

The Docent Society was saddened to learn of the death of Helen Chamlee, noted conservationist, botanist, teacher and lecturer. Among her many activities was membership in the Torrey Pines Association. During the early days of T.P.D.S., it was Helen who named our newsletter, Torreyana. She was a favorite to lead nature walks in the Reserve each spring because of her vast knowledge of the wildflowers, her enthusiasm and sparkling personality. Many of her Canyon Trails nature articles have been reprinted, with her permission, in the Torreyana.

WASH ZONE WONDERS by Bill Brothers

As seasonal light lingers longer than darkness along the shore, the sands become dotted with pock marked surfaces at the sea's washzone. A closer look, after a retreating wave, shows the altered surfaces as small V-shaped granular ridges formed by protruding antennae of well buried sand crabs.

The sand crab(Emerita analoga) aggregates in colonies of various magnitudes along the coast from early Spring till Fall. These colonies migrate with with the tides in a series of moves or as a single step as the washzone changes levels. Biologists have two major theories for aggregation. The first is biological with sand crabs secreting chemicals that maintain the "social" attraction. The second is the physical nature of converging water currents aggregating the crabs or food the crabs eat. E. analoga get around in their world by digging, swimming and less frequently by crawling but all in a backwards fashion. When bur ied, their protruding featherlike antennae collect meals of detritus and plankton as the retreating ocean filters through. These antennae are carried coiled underneath and out of sight when the crabs are not feeding. The smaller eyes and antennules are most readily seen and serve for sight and respiration respectively.

Sand crabs are decapods and are related to lobster, true crabs and shrimp. Lucky for sand crabs our palate is for their tasty cousins. However, they are used for bait by the fisherman when dreaming of corbina and perch and are a part of many shore birds' diets. Watch the Marbled Godwits probe for the scurring sand crab(gulp, down the gullet and to the gizzard).

Adult male sand crabs vary from 6-12 millimeters in length and are smaller than their female counterparts which range from 12- 38 millimeters. Females also have three pairs of additional appendages. The lack of small females suggests that males change into females after 12-18 months.

The life cycle of the sand crab goes through various stages with little resemblance to the adult. The cycle starts during the summer with females carrying orange eggs with incubating young in their abdominal appendages for about a month. The newly hatched young appear as transparent free swimming larvae that go through a few pelagic stages during the Fall and Winter before their invasion of the beach as megalops. Megalops are the final larval stage which are more adapted to burrowing than swimming and have an outward appearance similar to an adult sand crab.

FIG. 290.—*Emerita analoga:* a female with eggs (Ventral view). 1, 2, 3, 4. First four pairs of thoracic legs. 5. Antennules. 6. Eye. 7. Uncoiled antenna. 8. 3rd maxilliped, the merus is large, the terminal joint narrow. 9. Telson. 10. Egg mass. 11. Uropod. 12. 6th segment of the abdomen; ×1.

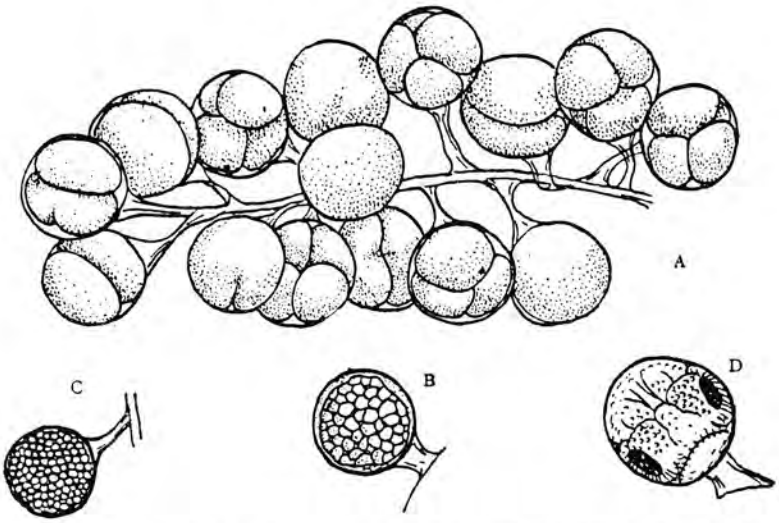


FIG. 292.—Early stages in the development of the sand crab, *Emerita analoga*. A. Eggs undergoing segmentation. B. and C. Advanced stages in the segmentation of the egg. D. larva shortly before hatching, the eyes are well developed and visible through the egg membrane; x35.

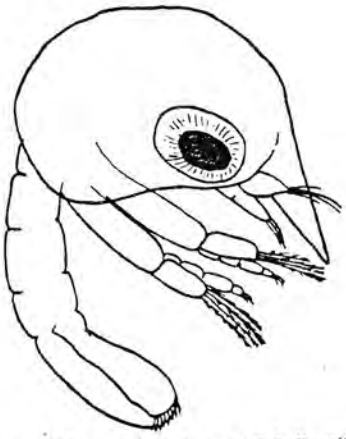


FIG. 293.—Larva of the sand crab, *Emerita analoga*, shortly after hatching; x60.

Watch for these animals and think about their lives, Why do they aggregate? Do they change sexes ? What happens to the adults during the winter ? Think about how they evolved into efficient animals which have coordinated structures(digging apparatus, feeding antennae etc.) with life in the wash zone.

Bill

Drawings from Seashore Animals of the Pacific Coast.
by M.E. Johnson

Getting to Know You

Betty Andrews

"I have always been a lover of the out-of-doors and its varied activities, and since my retirement four years ago- after 30 years in Education- have had more time to devote to it. I feel I have been very lucky to find a place like Torrey Pines in which to spend some of this time. It has taken me months to become familiar with the local plants, as most are quite different from the ones with which I am familiar. But I have, finally, mastered the more common ones. I hope to be able to conduct some tours for the physically disabled, and to pass on to them some of my newly acquired knowledge."

Betty

Secretary's Notes by Julie Marine

Sixteen docents and associates were present at the meeting Aug.21. Judy Schulman presented the monthly prize to Jane Vogel.

Martha Chapin awarded a book to Judy Carlstrom for being the docent with the most interesting questions about things observed on the beach walk last month. Martha suggested a rafting trip into the lagoon for further study of the lagoon ecology.

Ranger John Magee reminded us to help in planning displays for the new exhibit booths which will be delivered soon.

Docent Larry Banks gave a talk on the geology of San Diego. We listened intently as he discussed the millions of years of geological changes, compressed into a 13 year time scale, so that we might better understand when the age of reptiles occured, when the Linda Vista layer was formed, etc. Our thanks to Larry for sharing some of his knowledge with our group. I was especially interested in his map that showed the geological setting at Torrey Pines.

A FITTING TRIBUTE TO A GRAND LADY

A donation to the Torrey Pines Docent Society has been received from your editor's sister and brother-in-law, Mary Jane and Lester Raymond, of Rogers City, Michigan. This gift is in memory of Don Horger's mother, Helen K. Vollbrecht, who died July 17th at age 94. Helen loved nature and enjoyed Torrey Pines when she visited San Diego two years ago.

JUDY'S GENTLE CONGLOMERATIONS OF THOUGHT:

This month I would like to share with you an interesting article on the importance of the shape and structure of the pine cone to propagation of the species.

The article is from the August, 1982, issue of Science Digest.

Judy

PINECONE'S DESIGN AIDS POLLINATION

The sex life of a pine tree depends, in part, on the wind. So it makes sense that the female pinecone, an organ of sexual reproduction, is built on aerodynamic principles that help it capture pollen dispersed by the wind.

This is the finding of plant evolutionist Karl Niklas of Cornell University, who conducted two wind-tunnel experiments to determine how pinecones are adapted to pollination by the wind.

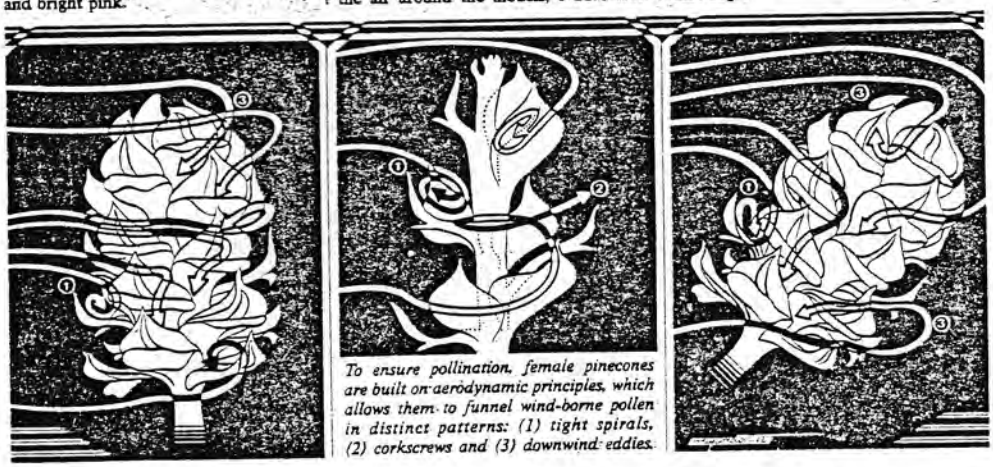
Each spring, pollen produced in a male cone must find its way to one of the opposite sex. Next, it filters down through the cone's overlapping scales to the ovules, which develop into seeds after fertilization. "These female cones," explains Niklas, "are not the large, ripe ones you see at Christmas time. They're tiny, soft, fleshy and bright pink."

In one experiment, Niklas directed pollen from five different pine species at female cones of each type. By measuring the number of pollen grains that fell on or near the ovules, he found that every cone captured pollen from its own species best. He also discovered that the shape of each pollen and cone type was distinctive. "We figure," he says, "that this enables every cone to efficiently trap pollen of its own species."

Next, Niklas placed cone models, 20 times larger than the real thing, in the wind tunnel and used helium-filled bubbles to visualize airflow. In this procedure, bubbles sweeping by the object under study are illuminated and appear as bright streaks on photographic film.

From analyzing the patterns made by the air around the models, Niklas concluded that each scale on a cone acts like an airfoil, deflecting wind in three different configurations: tight spirals that circle between two scales; corkscrew vortices that twist around the cone like ribbons around a Maypole; and downwind eddies that sweep in air that has passed by the cone. Says Niklas, "The total geometry of the cone functions like a wind turbine, channeling pollen around it in a way that maximizes pollination—so that if pollen fails to land on one scale, it is passed on to the next."

Niklas observed that for this channeling to occur, the best orientation of a cone to the wind is a 45 degree angle. And it just so happens that when the wind blows by a pine branch, it twists it in such a way that the cone usually ends up at roughly that angle. □



To ensure pollination, female pinecones are built on aerodynamic principles, which allows them to funnel wind-borne pollen in distinct patterns: (1) tight spirals, (2) corkscrews and (3) downwind eddies.

THAT WONDERFUL BIRD AGAIN by Hank Nicol

A lone pelican was cruising along the waves riding updrafts. A boy playing in the surf reached up and smacked it with his Boogie Board. I was a bit upset. So was the pelican. It could barely flap its wings, but it managed to swim to the beach. It could barely flop around, but no one could catch it. It was understandably leery of humans.

The next day Park Aide Karen Schlom and I went along the beach looking for the pelican. We found it just south of Mussel Rocks. Karen kept its attention while I sneaked up from behind and grabbed it. The pelican was so weak that it could barely hold up its head. If I let go of its neck, it flopped all over the place. We headed for Sea World. As we were buzzing along I-5 past Mission Bay we picked up a garbled radio transmission that there was another injured pelican on the beach at Torrey Pines. Maybe the one we had wasn't the victim of the Boogie Board incident at all.

Curator Scott Drieschman met us at Sea World. He wasn't above quoting THAT POEM at me, but he was alarmed at the way I was holding the bird. I was propping its head up by holding onto the neck and bill. He told me what I should have known if I had just looked. Pelicans don't have external nostrils. If a pelican's bill is held shut, the bird can't breathe. If you hold a pelican by the bill, you should stick a finger between the upper and lower bills to keep them separate. A pelican can't bite hard enough for you to notice.

Hank

Audubon

BROWN PELICAN

Range: Breeds from California and North Carolina to Brazil. Winters from British Columbia and Florida southward.

Habitat: Coastal waters.

Ident.: Brown coloration, pouch under bill. Sails between wing-beats. Spread, about 6½ ft. Dives for food.

Breeding: Colonial, 3 eggs in nest in bushes or on the ground.

Food: Fish. "Of 3,428 specimens of fish, in a Pelican colony, only 27 individual fish were of a kind ever sold in markets for food"
(Pearson)

TELL-TALE TAILS by Judy Carlstrom

This is the sad tale of a new docent who spent her three hours "on duty" in the Lodge, enthusiastically writing a story about her discovery of the "bushy-tailed" woodrat in the canyon next to her home in Poway. It included anecdotes about the woodrat's first visit to her backyard, about the time the fire-chief almost demolished its home on the way to make inquiry about a fire in the canyon. It compared the habitat of the dusky-footed woodrat of Torrey Pines and the bushy-tailed woodrat of rockier, more elevated terrain. It spoke of how the bushy-tailed variety lived not in enormous stick mounds of its cousins, but rather in caves, rock crevices and boulder fields; how its homes had usually been occupied for thousands of years, its middens providing anthropologists with important data on the climactic history of the regions, telling that many desert regions were once covered with coniferous forests.

This docent was sharing her exciting discovery with Park Aide Karen, telling of how the rat "stood sentinel" over its mound, when Karen gently suggested that this little animal might just be a California ground squirrel. "What? Impossible! I just spent the last three hours writing about my woodrat!" the docent replied. But her spirits sagged. She scurried over to Wilburn's Wild Animals of California. True- her neighbor didn't look like the woodrat pictured there. Oh, the shame and mortification of not knowing a woodrat from a ground squirrel. And to think that her marvelous discovery was none other than a common beastie. How could she ever write an article for the Torreyana about that? Karen kindly told her where she might get a good look at the ground squirrel (to erase any doubt)- early in the morning, near the beach, scavenging.

The docent left the Lodge obviously disheartened. As she drove out of the Reserve a ground squirrel came running right toward her on the road. That wasn't what she'd seen in the backyard! Some of her confidence returned. Hers was buff-colored and the sun glinted off its fur. Perhaps it was a prairie dog! Now that was exciting. That was worth a mention in the Torreyana. Before she'd left the Lodge, in her consternation she had purchased the Peterson Field Guide to the Mammals for its thoroughness and outstanding color plates. On returning home, she studied the map and information about woodrats, ground squirrels and prairie dogs. Alas, the maps indicated that neither bushy-tailed woodrats nor prairie dogs were indigenous to this area. It must have been the buff-colored underside that had caught her eye. Well, at least her ground squirrel didn't eat garbage on the beach (had more dignity, that is.) Rye grass seed seemed to be a favorite food. And, after all, as a newcomer to California, the docent could claim that the discovery of a native species of ground squirrel was quite exciting (never forgetting her Italian friend who went screeching across a Midwestern campus after every tree squirrel that dared to descend.)

Well, the happy ending to this story is the surge of curiosity that this experience engendered. This docent (myself, I admit) decided to catalogue all of the interesting (to her new and inexperienced eyes) phenomenon observed in her canyon.

(Ed. Note: Watch for Judy's report next month on all she has observed, including unanswered questions!)

TORREY PINES DOCENT SOCIETY
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Deadline for Torreyana copy
the 25th of each month.
Send contributions to:
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Phone: 481-9554

Poetry (?)

Corner

June Warburton's

A Zoological Dilemma

A centipede was happy, quite
Until a frog, in fun,
Asked, "Pray which leg comes after which?"
This raised her mind to such a pitch
She lay distracted in a ditch,
Considering how to run.

(As recalled from elementary school days by Ruth Hand.)

The Natural History Museum Canyoneers' training sessions will begin on Sat., Sept.11, and run for 12 Saturdays through Dec.4. No science or biology background is necessary. The training involves attending lectures by experts in each field and practical experience on the trails. For more information phone Museum Education Dept., 232-3821.

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