

Sedgwick Field Notes

Occasional Ramblings for Volunteers and Friends of the Sedgwick Reserve

March 2009

Keeping You in The Dark

By
Dennis Nord

The invention of the telescope will be attributed by most to Galileo. It is usually noted on the second page that Galileo did not invent the telescope, but used a design from Hans Lippersheim of the Netherlands. That's fair enough since it seems Lippersheim invented the "looker," but Galileo knew where to look and knew what he saw. Certainly, we celebrate Galileo for turning his discoveries into an organized new science and his courage to publish his radical new understanding of our solar system in the face of unflagging religious persecution. Leaders of his day refused to look through the abominable telescope while denying the existence of what Galileo reported.

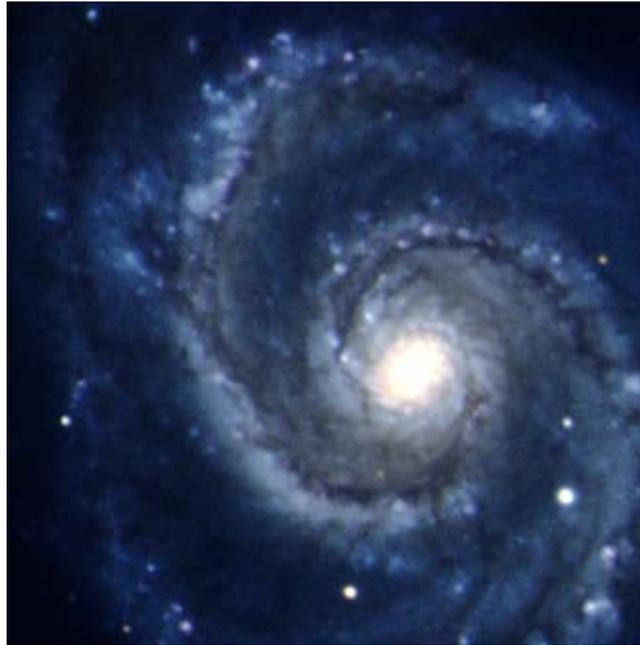


Photo of the M-51 galaxy taken by the Leigh Technology Academy, Dartford, UK, using the 2m class of telescope installed at the observatory site on Mt. Haleakala, HI

This year the Sedgwick Reserve is celebrating the 400th anniversary of the telescope and the International Year of Astronomy (IYA) with the international community of professional and amateur astronomers. It is fitting that this is the year the Las Cumbres Observatory Global Telescope Network (LCOGT), in coordination with the UCSB Kavli Institute for Theoretical Physics, will install an eight-tenths meter telescope and observatory at the Sedgwick Reserve. Sitting in the Santa Ynez Valley, the observatory is optimally sited to take advantage of clear air, temperate weather and dark skies.

LCOGT is building an unprecedented network of telescopes around the globe for scientific research and education. Because of the goal to create continuous sky monitoring, the motto, "Keeping You in the Dark," has been aptly applied to LCOGT's mission. Two LCOGT observatories are currently in operation at Haleakala on the Hawaiian Island of Maui and at Siding Spring, Australia, near Coonabarabran, New South Wales. The observatory at Sedgwick will be the third. When completed, the network will allow scientists continuous, twenty-four hour observation opportunities, shifting remotely from one dark site to the next following short-lived events, such as supernova. This aspect of the network will greatly speed data collection for rare astronomical events that have great bearing on cosmological theory testing and understanding. At the same time, young students in the UK and the USA are making discoveries of their own during daylight hours, using telescopes in the dark halfway around the world.



Drawing of the planed 0.8 meter telescope to be installed on the Sedgwick Reserve

The LCOGT headquarters in Goleta provides easy access for testing new instrumentation and controlling software at the nearby Sedgwick observatory. Sedgwick Reserve plans to develop educational opportunities in astronomy afforded by the on-site observatory. Currently students from local schools visit the reserve for experiential science education in nature following California curriculum objectives. The observatory will be incorporated as a major new resource in the educational program.

For more information about the project, the web address for LCOGT is: <http://lcogt.net/>



View of the installation site on the Reserve.
Photo from the LCOGT website.

Cuttings from the Nursery

By
Steve Schulz

In keeping with the nocturnal theme of this issue, *Hesperoyucca whipplii* is one of the few plants that bloom at night.

Botanic Name: *Hesperoyucca whipplii* (formerly *Yucca whipplii*)
Common Name: Our Lord's Candle, Spanish Bayonet, and Chaparral Yucca
Family: Liliaceae

Chaparral Yucca is a short lived perennial found on slopes in the Oak woodland, coastal sage scrub and chaparral habitats below 7500' in elevation. It forms dense colonies from spreading rhizomes and numerous seeds that are too



Yucca.
© 2008 Thomas Stoughton

heavy to travel far from the parent plant. It tolerates a variety of soil types including heavy clay and serpentine and can endure long periods of drought.

Yucca is recognized by long narrow leaves with a sharply pointed apex and finely serrated leaf margins. The gray-

green leaves grow in a whorl pattern from a single bulbous stem and can reach three feet in length. The yucca inflorescence is a single peduncle that can reach 15' in height and looks like a very large asparagus spear. The hundreds of two-inch diameter individual flowers are white to cream in color and tipped in light purple. The seeds are small black disks, 1/4" in diameter, arranged in two rows within the capsule and disperse in mid-summer when the pods burst open.



Yucca in bloom © 1995 Saint Mary's College of California
(CalPhotos)

Hesperoyucca whipplii is pollinated exclusively by the California yucca moth (*Tegeticula maculata*).

The symbiotic relationship between the moth and the yucca plant starts in mid-spring with the moth collecting pollen from the first flowers to open. The moth forms the pollen into a ball that it carries from flower to flower. At each new flower visited, the pollen is purposely deposited on the stigma while a single egg is deposited in the ovary of the flower. The growing moth larva eats the ripening seeds in the yucca fruit. The larva matures quickly and drops to the ground for its pupal stage of life before it can consume all of the seeds in the pod, thus ensuring another generation of both yucca and yucca moth.

Native tribes of the American Southwest used all parts of the yucca plant. The leaves were used to make twine, fishing line and shoes. The spines were used as needles for sewing and tattooing. The root and stem were roasted in a pit oven and eaten. The flowers were eaten raw and the seeds could be eaten raw or ground into meal. The dried flower stalk was used as tinder, hollowed out to make an arrow quiver, or burned and the charcoal used as a dye.

Director's Page

By Kate McCurdy

It might appear quiet at the Reserve this winter, but look closer and you'll see we are as busy as ever.

The **Las Cumbres Observatory Global Telescope Network** is set to install their telescope in March, weather permitting. A contract has been signed to bring a high speed internet connection to the Reserve. Site restoration will begin immediately following the installation of the telescope. **Nancy Stearns** will be asking for your help to plant native grass plugs and other native plants on the mesa where construction has taken place. Local Eagle Scout **Ryan Andres** has been selected to plan and install split rail fencing and a native rock lined gravel area surrounding the dome. The large tower just east of the Observatory is a remote weather station that will provide real time weather information on the Sedgwick website. Training and star parties will be planned for spring and summer. The LCOGT staff says they will need several months to get the telescope running smoothly.

As you have undoubtedly heard, work on the Tipton Meeting House was suspended in November due to lack of funding. There is not currently a clear path forward, but a number of options are being explored by the **Tipton Foundation** (the building's owner) and the UC Regents.

Other reserve infrastructure projects have also been delayed due to the statewide freeze on bond-funded projects. Our Proposition 84 facility and utility improvement package was slated for authorization in February 2009 but has now been postponed indefinitely. In the meantime, we have **National Science Foundation** grant funding to begin work on a new septic system and to upgrade the electrical infrastructure on the western end of the Field Station. Additionally, donor funds were recently made available to begin restoration work on the historic barn. The barn restoration project will have to go out to bid, a long process, but if all goes as planned, work on the barn's crumbling foundation should begin in early summer.

In another positive development, the new Director's Residence is soon to be a reality. The 1200 square foot cottage, a gift from long-time reserve supporters **Jack & Judy Stapelmann**, is being manufactured on the Hoopa Reservation in northern California, and will be shipped in pieces and constructed at a site located west of the green corrals (behind the barn). An improved road, water, septic and electrical system are being put in as we go and will hopefully be complete before the house arrives later this year. A bigger challenge will be fitting all the belongings I have accumulated since moving into the main house into the new residence...

Although there are still two trips left to go with this year's 4th grade classes, fund raising has already begun for next year. Contributions by the **Ove W. Jorgensen Foundation** and contributions made in memory of the late docent **Carolyn Rathbun** will carry us forward into the 2009 -2010

school year when we hope to expand the program not only to an additional 4th grade class, but to have this year's 4th graders return as 5th graders. Our fingers are crossed that several sizable grant applications we have out will be successfully funded. If you have not witnessed the excitement and value of an Outdoor Classroom visit, classes will be here on March 31, April 1 and May 27th. Let **Sue Eisaguirre** know if you want to observe kids learning on (and about!) Sedgwick.

Several personnel changes have recently transpired. You may have heard that native plant nursery manager **Steve Schulz** resigned in February for personal reasons. For the rest of the fiscal year **Nancy Stearns** and her cadre of superb Tuesday-Thursday volunteers will be running the nursery and overseeing restoration efforts. A new part-time maintenance steward, **Eric Massey**, has been hired to help out with vegetation management, custodial and tree work assignments. Please welcome Eric on board when you see him and try not to let on to what an enormous job he has just undertaken.

At the January docent communication meeting we had a frank discussion about Sedgwick operations in light of the state and UC budget crisis. We have been told to expect a reduction in our Fiscal Year 2009 budget allocation. I do not know yet how this will affect the Sedgwick staff and operation. We haven't an ounce of fat to trim. The only program that has definitively been cut already is the 2009 Adventure, Risk & Challenge program. We are keeping our operating costs as low as possible, which basically means we can't afford for anything to break. Public hikes will continue into summer (thanks largely to financial donations made by **Jayne & Bill Harasty** and **Tom & Laura Baldwin**, as well as volunteer time pledged by many of you). Please be mindful when you need something from our outreach coordinator, that there is a good chance Sue is volunteering her time to accommodate your request. Be kind with her time.

Last, but certainly not least, there are several new research projects at the Sedgwick Reserve this winter. UC Berkeley researcher **Walt Koenig** is investigating whether oaks are releasing pollen earlier due to climate change; UC Davis researcher **Jane Van Susteren** is including Sedgwick in a western states botanical survey on serpentine soils; Cal Academy of Sciences entomologist **Chris Grinter** is conducting a moth survey in the region; and three UCSB graduate students are working on their PhD dissertations at Sedgwick: **Erin Mordecai**, seed mortality on serpentine soils, **Nicole Molinari**, effects of climate change on invasive grassland species, and **Karen Stahlheber**, why exotic grasses dominate the understory of oaks.

Bird Walks

by Fred Machetanz

The Barn Owl, Superb Hunter of the Night

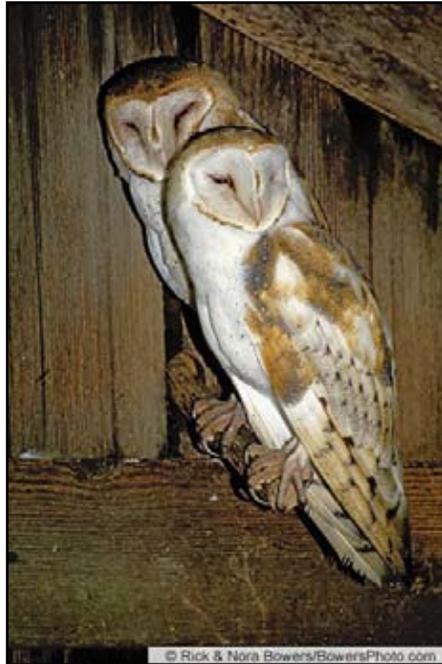
Photos and map courtesy Cornell Lab of Ornithology

Not only is the Barn Owl, *Tyto alba*, the most widely distributed of owl species, it is one of the most widespread of all land birds. Its superb hearing, excellent vision in low light conditions and noiseless flight make it a great hunter of small rodents. The ability to hunt in complete darkness when its prey is active has also been important for its success in many lands.

Laboratory experiments have shown that if a mouse squeak is broadcast in a dark room a barn owl is able to fly to the exact location of the squeak. This is possible because its left facial disk (ear opening) is tilted slightly upward and gathers sound for the left ear. The right facial disk is tilted slightly downward and brings sound to the right ear. This arrangement of sound gathering structures allows the owl to assess the vertical location of its prey. The time differential of the sound reaching its ears and a unique tuning of the ears to different frequencies allows it to both locate its prey on a horizontal axis and to identify the type of prey.

Although Barn Owls occasionally hunt from a perch, most hunting is done in open country where, with their long, broad wings, they cruise buoyantly and noiselessly in areas where their prey is most numerous. Although Barn Owls may hunt in the day, most hunting is done from an hour after sundown to an hour before sunup. After hearing or seeing prey from an altitude not usually exceeding fifteen feet, the owl dives, catches it in its claws and crushes the head with its bill. One observer ventured the opinion that an old owl can capture as many mice in one night as a dozen cats. With this capability, owl parents do not stint on feeding their young. Another observer noted that, although nine mice made a meal for the brood, in one twenty-five minute period, sixteen mice, three gophers, a squirrel and a good-sized rat were delivered to the nest. For young owls, smaller prey is first dismembered and later fed whole.

A mature owl's smaller prey is swallowed whole and undigested parts are regurgitated in the form of pellets. The pellets are roughly ovate and variable in size up to 2.5x5.0 cm. The Barn Owl's pellets have a varnished appearance produced by an enzyme in the bird's digestive system that coats the pellets and preserves them. They are much different from the Great Horned Owl's softer, gray pellets which



Pair roosting in barn, Washington.

we have often found in the barn.

There have been numerous Barn Owls seen at Sedgwick and for a time a young owl roosted near Director Kate's garage. An examination of the remains of its pellets showed that it had been eating Jerusalem Crickets.

Several years ago, a pair of Barn Owls and a pair of American Kestrels nested at the same time period in cavities on opposite sides of a large Valley Oak located near the barn. Both pairs fledged young successfully, the falcons hunting in the daytime and the owls at night. The oak was cut down but the part of the trunk containing the birds' nesting cavities lies just outside of the studio.

The Barn Owl's vocalizations are not pleasant to human ears. They include screams, snores, hisses and twitters.

The order of owls, the *Strigiformes*, contains two families, the *Tytonidae* (barn owls), and the *Strigidae* (typical owls). The *Tytonidae* contains only one member, the Barn Owl, *Tyto alba*, while there are 18 species of typical owls in ten genera. The Barn Owl is a medium sized owl with small dark eyes, a heart-shaped face, a large head without ear tufts and sparsely-feathered long legs. Its plumage is rusty brown above with underparts white to cinnamon. The underparts of females are darker and more spotted than those of males. Compared to typical owls, Barn Owls have a narrow skull, a heart-shaped face and other small structural differences. The Barn Owl's pale plumage gives the bird an eerie appearance. This ghostly aspect may have been accentuated at times in



In flight; Channel Is., CA.



Barn Owl, female and nestlings



Barn Owl Range.

Europe when luminous bacteria from decaying wood stuck to the owl's plumage.

In times past, because of their ghostly appearance, unearthly shrieks and night activity, owls have been victims of superstition and considered birds of ill omen and messengers of misfortune. Modern experts agree, however, that the Barn Owl is a most useful bird of prey and that its food consists almost entirely of rodent species that are harmful to agriculture, destructive of property and spreaders of disease.

Barn Owls nest in tree cavities, barns, assorted abandoned buildings, crevices, caves and nest boxes. Tree cavities and nesting boxes seem to require a 15cm entrance. Usually 5-7 eggs are laid and incubated by the female for 30-34 days. During this period, the female leaves the nest only briefly and is fed by the male. The young are fledged by both parents in 52-56 days.

In some areas of the United States, populations of Barn Owls are expanding as agricultural lands are increasing with the clearing of forests and the use of irrigation. In other areas, particularly the upper Midwest, there have been drastic

declines as agricultural practices have lessened the availability of open farm structures and areas of agricultural land that support sufficiently high populations of small mammals. Nest boxes have provided a partial answer to the first of these problems but providing populations of small mammals will be more difficult.

To end on a slightly anthropomorphic note, it was observed that Barn Owls are such efficient hunters that they spend most of their time loafing.

THE HIKING PROGRAM

By Nick Di Croce

Our usual program for public hikes got back in gear with the November hike and has been running monthly since then. Turnout from the public has been good; turnout from our docent volunteers has been outstanding. We have had a few hikes where we had more docents than public hikers. What a great problem!

The new trail signposts that have been installed by the Trails Committee are a welcome addition and the new trail maps being compiled are superb. Our thanks to **Sam Babcock** and **Laura Baldwin** for heading up these two much needed projects.

The training sessions for new docents on hiking interpretation and the updated hiking safety guidelines are a great help for smoothly functioning public and school hikes. Your

input and advice has been welcomed.

As usual, we look forward to seeing you on the trails.



*Blue Oaks (Quercus douglasii) in Bone Canyon.
Photo Nick Di Croce*

The Outdoor Classroom

by Sue Eisaguirre

Half way through the first year...

We have reached the half way mark of the first year of the Outdoor Classroom! Fourth graders from Ontiveros Elementary in Santa Maria and from Los Olivos Elementary visited the Reserve in October and December. The days were chock-full of activities: discovering insects in the pit-fall traps, setting up the decomposition experiments, doing restoration, exploring the creek bed, learning how to use a compass, and, best of all, hiking with their docents enjoying lunch on the trail and being outdoors for the entire day.



Group leader Andy Lentz with students from Los Olivos Elementary School.

Students and group leaders form a special bond.

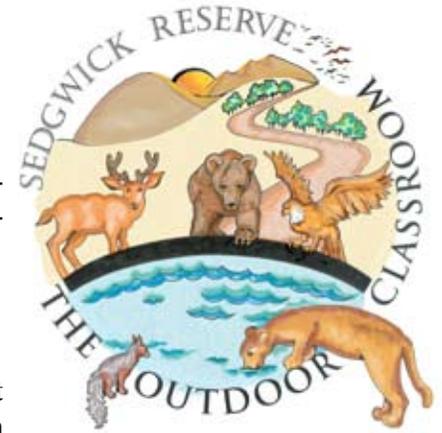
The bond the students form with their docents is important to the success of the program. On the second visit to the Reserve, the students' excitement to find their docent was obvious! Group leaders this year are: **Nancy Stearns, Carole and Dennis Nord, Andy Lentz, Sam Babcock, Laura Baldwin, Doug Binkley, Elizabeth Quick, Dennis Beebe, Betsy Cramer and Ann Dickerson. Sue Swarbrick and Marion Schlinger** shared their knowledge of insects with the students; **Susie Bartz** shared her geology expertise and **Steve Schulz** his nursery/gardening expertise. Bugs are always a treat; Susie made the rocks equally exciting; and Steve told how the F.B.I. is involved with our dirt! Nick had the challenging task of teaching the students to use a compass, but all seemed to be maneuvering well by the end of session! (I think the most excited person who learned to use a compass was Los Olivos' 4th grade teacher, Ms. Baublits!) **Mike Delgado** spent an entire day prepping the ground for the restoration project and, **Nancy Emerson and Sandi Owens** assisted with restoration and the decomposition experiment as did **Lucy Thomas and Susie Bartz** (when she wasn't teaching geology). When **Nancy Stearns** wasn't leading her

group, she was heading the restoration efforts.

Time to plan for next year.

Excitement about the program is still on a high, and it is now

time to draft the curriculum for the 5th grade program. The Outdoor Classroom is funded solely by donations. Grants have been submitted and, pending the outcome, we are anticipating expanding the program to include two fourth grade classes and two fifth grade classes. If donations and grants exceed our expectations, we may be in a position to open the program to yet another fourth grade class. With the enthusiasm to work with children of our docents-in-training, we will be in good shape to welcome more students. Let's hope we can!



Spring visits.

The spring visits on March 31 and April 1 should be exciting as the students will see the Reserve in its glory of wildflowers. Focus will again be on the varied ecosystems at Sedgwick emphasizing the native plants in bloom. Students will have the opportunity to make paper from natural materials such as leaves, seeds, cattails, and dirt. The backpack presses will be used to preserve their favorite flower. Cards will be made using the hand made paper and pressed flowers! The students will also have a chance to practice their orienteering skills by finding their way to the pond, where they will collect water samples to study in the classroom. Most importantly, the students will spend the entire day in the outdoors with the undivided attention of their mentor/docent.

All are excited about the Outdoor Classroom.

I have had multiple conversations with the principal at Los Olivos Elementary School who is most anxious for us to expand the program. He has heard nothing but great comments about the program from **Mrs. Baublits**, from the parents and especially from the students! In fact, **Gary Crispin**, the principal, is exploring ways for all of his students to be more involved with Sedgwick.

Thanks again to all who have helped make the Outdoor Classroom a success whether through direct or indirect support.

Docent Doin's

by Sue Eisaguirre

Many attend the Open House...Picture perfect weather, great food, and wonderful folks filled with good cheer made for a memorable Sedgwick Holiday Open House on December 5th. The Studio once again glowed with candle light while the patio was lit by a brilliant fire and hundreds of twinkle lights! A fun and festive Sedgwick event!



Kate McCurdy (aka Popo Nez Rouge), Jill Barnitz, Barbara Huebel, Sue Eisaguirre and Susan Lentz at the buffet table.

Nancy and her nursery volunteers have been hard at work!



Nancy Stearns and Carole Nord.

Sedgwick Reserve Event Schedule

March

- 6 Fri. Docent Training Scat, Splats and Tracks
- 13 Fri. Docent Training Mammals
- 14 Sat. Public Hike
- 19 Thur. K-12 Field Trip Santa Ynez School
- 20 Fri. Docent Training Work Day
- 20 Fri. K-12 Field Trip Home School Santa Barbara
- 24 Tue. K-12 Field Trip CAVA Home School
- 27 Fri. Santa Cruz Island Field Trip
- 31 Tue. Outdoor Classroom Ontiveros School

April

- 1 Wed. Outdoor Classroom Los Olivos School
- 3 Fri. Docent Training Wildflowers
- 10 Fri. Docent Training Herpetology
- 11 Sat. Public Hike
- 16 Thur. K-12 Field Trip - SYV Charter School
- 17 Fri. Docent Training Insects
- 17 Fri. Docent Communication Meeting
- 24 Fri. Docent Graduation/Celebration BBQ and Astronomy class

May

- 9 Sat. Public Hike
- 27 Wed. Outdoor Classroom "Nature Game Olympics"

On January 30th, 27 Sedgwick docents enjoyed an informative tour of the Coal Oil Point Reserve. It was a glorious day to be at the beach!



Sedgwick Docents on a tour of UCSB's Coal Oil Point Reserve.
Photo: Carol Gibbens