

Sedgwick Field Notes

Occasional Ramblings for Volunteers and Friends of the Sedgwick Reserve

May 2006

Welcome to New Docent Class Graduates.



left to right, Bruce Edwards, husband of Kate McGuiness; Mike Williams, Director; Kate McGuiness; Linda Williams; Sheila Kornblum; and Genie Lauffenburger. Missing: Nancy Priestly.

New additions to the docent family were celebrated with a pot luck graduation ceremony. Their backgrounds are varied ranging from the legal profession, teaching, and agriculture, to real estate. Please take some time to introduce yourself the next time you are with them at the Reserve.

Joe Dabill's Class on Native American Crafts



Joe getting tinder ready to make fire



Fire, as easy as that!!



Pressure flaking an obsidian point

Joe Dabill's class on Native American Crafts was one of the highlights of this year's docent classes. He demonstrated fire making, atlatls (throwing-sticks), and making stone tools. Participants who tried their hands at fire making using sticks found it a lot harder than Joe made it look. A number of people tried, with varying degrees of success, to hit various targets using atlatls.

Featured Research Project

Project title: Geographic mosaics in diversifying plant/insect interactions

Project Principal Investigator: John N. Thompson, UC Santa Cruz,

Department of Ecology and Evolutionary Biology

Contact: John N. Thompson, thompson@biology.ucsc.edu

All things . . .

Near or far,

Hiddenly

To each other linkèd are . . .

. . . thou canst not stir a flower

Without troubling of a star . . .

-- Francis Thompson, 1859–1907

Woodland Star, that is, otherwise known as *Lithophragma cymbalaria*, is a small annual plant in the Saxifragaceae family that blooms during March and April at scattered locations on the Reserve. Troubling yet and benefiting this flower is its coevolutionary partner, the Greya moth that deposits its eggs into the ovaries of *Lithophragma* flowers, simultaneously pollinating them. The developing moth larvae feed on the plant's developing seeds, consuming some but leaving others to develop to maturity. The plant "allows" the moth some of its seeds in exchange for the transfer of pollen from one plant to another, enabling the plant to send its genes into the future. These two species have coevolved a relationship in which the moth's abdomen is uniquely configured to deposit pollen on the plant's stigma as the moth "punches" it through the ovary's wall.

Sedgwick docents were fortunate recently to have Professor Thompson (who is also the Director of the UCSC STEPS Institute for Innovation in Environmental Research), give us a brief overview of a project he is directing which looks at this moth/flower relationship in the context of his lab's broad concerns with co-evolutionary biology, and which also encompasses research sites here at the Reserve and around the Western US.

In an era of concern about rapid climate change and other human effects upon the two-to-ten million organisms that make up the vast interdependent natural world, Thompson's work asks questions whose answers may help us find ways to limit destruction of both codependent relationships and species themselves.

Professor Thompson's team pursues how the process of coevolution organizes the earth's biodiversity. One of their projects investigates how interactions between coevolving insects and plants change across ecoregions, and as the traits of populations diverge, how this affects the ecological outcomes (mutualism, commensalism, antagonism). Ultimately the question is, how do the interactions among codependent organisms cause new species to emerge or existing species to die out, in different geographic regions, enriching or weakening the earth's biodiversity?

The interaction between the pollinating seed-parasitic

moth *Greya politella* and its major hostplant *Lithophragma parviflorum* spans the US Rockies and squeezes through the narrow gap of the Columbia River gorge, then spreads down the coastal areas of Oregon

and California. Thompson and his team are evaluating how the morphological traits of the flower change over its geographic range, and how these traits coincide with differences in the moth morphology over its range. The group will assess how regional variation in plant and moth traits affects pollination efficacy, using experimental trials on pairs of plants and moths. They will be able to determine then whether the outcome of the interaction (mutualism, commensalism, antagonism) differs among geographic regions.

The overall point of this work is to understand better how coevolution organizes the web of life not only within particular ecosystems but also across large geographic areas. These studies will therefore help us understand how to conserve not only species but also the ecological and evolutionary processes that maintain our many interconnected ecosystems in the long term.

Sedgwick Reserve is crucial because it lies at the southern edge of the moth's range. There are two varieties of *Greya*, and they use a different hostplant species, *L. cymbalaria*. This outgroup comparison allows evaluation of how absence of the unique traits found in *L. parviflorum* affects the interaction.

Thompson and his team collect only a small number of moths and plants from Sedgwick each year to avoid affecting population dynamics. He collects seed capsules to assess the effects of *Greya* oviposition on seed set and uses the seeds to grow plants in his greenhouse at UC Santa Cruz, where he conducts pollination efficiency trials. He will compare the results with measurements from four other sites in Northern California, Oregon, and Washington State.

The Thompson Laboratory website <http://bio.research.ucsc.edu/people/thompson/Research.html> has more information.



Greya politella



Greya politella ovipositing into and accidentally pollinating a *Lithophragma* flower

Cuttings from the Nursery

By Steve Schulz

Family: Saxifragaceae, Saxifrage

Genus: Lithophragma

Species: parviflorum

Common Name: Woodland Star

Description

General: perennial from slender rootstocks with numerous rice-grain bulblets. Flowering stems 10-30 cm tall, rather densely glandular-short-hairy throughout and commonly distinctly purplish above, often grey-short-hairy.

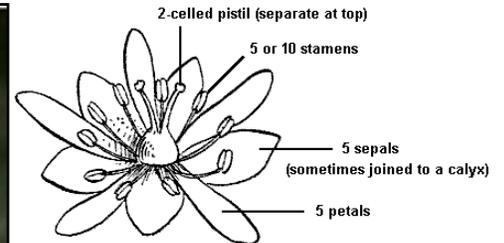
Leaves: the basal ones with stalks 2-6 cm long, the blades 1-3 cm broad, divided nearly or quite to the base into (3) 5 main divisions that are divided or lobed in 3's once or twice. Stem leaves usually 2 (1-3), alternate, often cleft into narrower segments, the upper ones nearly stalkless.

Flowers: about 5-11 in a cluster, at first congested, later becoming open and up to 15 cm long, the flower stalks ascending to erect, up to slightly longer than the fruiting calyx. Calyx at flowering distinctly conic, pointed at base and gradually narrowed to the stalk, 4-6 mm long, in fruit up to 10 mm long, the 5 lobes triangular-ovate, 1-2 mm



Lithophragma parviflorum (Hook.) Nutt. ex Torr. & Gray - smallflower woodland-star
©G.A. Cooper. Courtesy of Smithsonian Institution, Department of Systematic Botany

Typical Saxifrage Flower



long, slightly flared. Petals 5, white to pinkish, usually slightly unequal, 5-10 mm long, the blade obovate to wedge-shaped, usually palmately 3 (to 5)-cleft.

Flowering time: March - April.

Fruits: capsules, splitting open along 3 lines.

Seeds: ellipsoid, brown, about 0.5 mm long, irregularly net-veined and longitudinally ridged.

Distribution: Prairies and grassland to sagebrush desert and lower montane forest, in w. and c. parts of MT. Also from B.C. and Alberta to n. CA, CO and e. to SD.

Environmental Scientist at UCSB Receives Fellowship



Joshua Schimel, Sedgwick
Faculty Advisor

An environmental scientist from UCSB has been awarded a fellowship that provides training in communication and leadership. Joshua Schimel, a professor in the Department of Ecology, Evolution and Marine Biology and chair of Environmental Studies, is one of 18 environmental scientists from around the United States and Canada to receive an Aldo Leopold Leadership Fellowship this year. Fellows will receive intensive training in how to deliver scientific information effectively to policymakers, the public, the media and business leaders.

“Being able to communicate ideas and results is an integral component of great science,” said Martin Moskovits, dean of science at UCSB, in a statement announcing the fellowship.

Anna Davison,
Santa Barbara NewsPress 03/31/06

Bird Walks

by Fred Machetanz

The White-tailed Kite—Renaissance Bird



Early in the 20th century, the White-tailed Kite was headed for extinction. In 1927, Ralph Hoffmann wrote, “There are probably not more than 50 pairs left in California and in spite of protection by law the number is decreasing.” Though quoted often, Hoffmann was wrong and in many regions of California this kite is now common. At Sedgwick, Andy Lentz brought the good news that four White-tailed Kites are cruising the upper reaches of Figueroa Creek with an abundance of meadow mice and others of the “gnawing gentry”. The kite’s primary needs include trees for nesting and perching and open areas with ample populations of mice.

The White-tailed Kite is one of the most easily identifiable of California birds. The grace of its flight, its characteristic hovering when hunting and its apparent whitish color make it a hawk of spectacular appearance. It is a medium-sized, sharp-winged, raptor with white breast and tail, gray back and dark shoulder patches in all plumages. Short yellow legs may dangle when it is hovering. Females’ backs may be somewhat darker gray than the males.

Among its main prey are the Meadow Vole (*Microtus californicus*), the House Mouse (*Mus musculus*) and the Harvest Mouse (*Reithrodontomys megalotis*). According to Ken Kaufman, the introduction of the house mouse from Europe may have contributed to the species’ recovery, the kite having previously eaten voles almost exclusively.

The female typically lays 4 brown-spotted eggs in a

bulky nest of fine twigs at medium height in oaks or willows, often communally with other kites. According to William Dawson, an Oologist of note and prime mover of the SB Museum of Natural History, “This kite lays the handsomest eggs of any of the raptors, basically creamy white, the surfaces ...altogether covered with chocolate in several intensities, and each of ravishing richness”. With Dawson’s description one can understand why early egg collectors were contributing to the species’ demise.

During the nesting period males provide food for the females thus allowing the females more time for feeding and nurture of the young. Incubation by the female requires 26-32 days and the young are able to fly in 30-35 days (Kaufman).

J.R. Dunk (Birds of North America) notes that the kite, in strong wind holds a stationary aerial position without flapping, which is termed “kiting”. Kaufman notes that the paper kite flown on a string derives its name from the bird.

A major part of the kite’s comeback is attributed to agricultural developments in California which increased arable land and consequently the mouse population. Rather surprisingly, the fenced-in aspect of freeways, barring access to large predators but not mice, has aided somewhat in the kite’s recovery and has made it a more visible species.

Controlling egg collectors and educating hunters to the fact that it does not prey upon quail has also been helpful.

Since its recovery from extinction, kite populations have waxed, waned and shifted in response to cyclical mouse populations, but education and a measure of luck seem to have assured our continuing enjoyment of this special bird.



White-tailed Kite, adult in flight; Channel Is., CA, November.

Wait....Stop....What was that??

By Andy Lentz

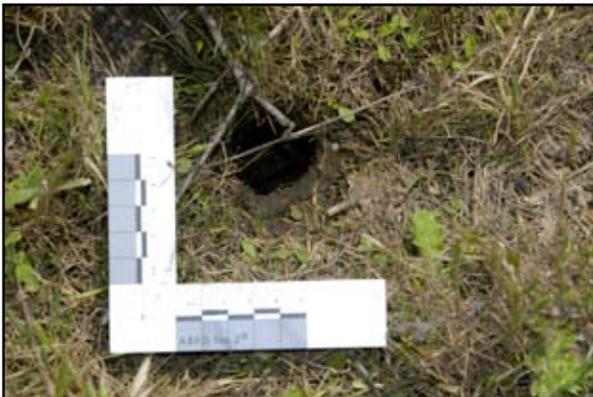
Fred has presented us with another of his outstanding bird reviews and I thought it would be interesting to do a quick note on one of the Kite's food sources, the California Vole, and what you might look for while walking.

If you have ever taken the time to walk through the fields or looked closely at the edges of the trails you might have noticed some movement out of the corner of your eye; a small brown animal scurrying off to hide. (The first few times I saw this movement I kept thinking that it was just my imagination.) Looking closer you might see small runways in the grass; these runways are much smaller than the ones used by the ground squirrels. Following the runway you find it ends in a small burrow and you might even find the latrine.

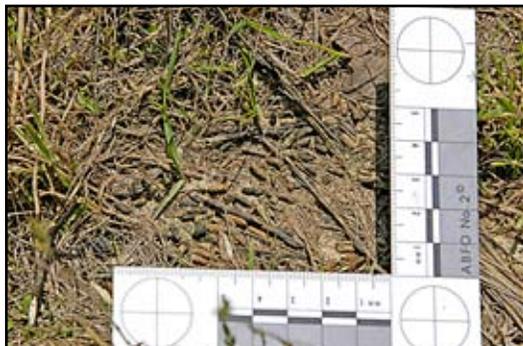


Vole runways

Information on the California vole that follows is from various web sites but primarily: http://www.fcps.k12.va.us/StratfordLandingES/Ecology/mpages/meadow_vole.htm



Vole's burrow entrance.



Vole latrine usually found near the entrance to the den, scat measure .2 to .3 cm.

Microtus californicus

California vole

Order: Rodentia

Family: Muridae



Also known as: California meadow mouse

Length: Average: 172 mm, range: 139-207 mm

Weight: Average: 52 g males; 47 g females,

range: 33-81 g males; 30-68 g females

The Meadow Vole, or "Field Mouse," is a small, common rodent that lives in grassy fields, woodland, marshes, and along lakes and rivers.

It is five to seven inches long, counting the tail, and usually weighs only an ounce or two. Meadow Voles' color can vary from yellowish-brown to reddish-brown to blackish-brown. They are normally gray on their underparts.

Meadow Voles make nests in clumps of grass, using materials such as dry grass, sedges, and weeds. From their nests, they build "runways," like tunnels beneath the grass and plants.

They are most active at night during the summer, and during the day if its winter. They are less active when there's a full moon.

Meadow Voles breed frequently. It is common for a vole to have 12 litters a year. Anywhere between one and eleven young is normal. Most Meadow Voles live a year to a year and a half.

Their diet consists of many things, including grasses, sedges, seeds, flowers, leaves, roots of shrubs and small trees, bark, tubers, bulbs, and sometimes insects. Some of Meadow Voles' favorites, besides grasses, are clover and plantain. These animals can eat their weight daily.

Meadow Voles do not hibernate, and they do not usually store food. They eat constantly. Voles concentrate on green vegetation in the Summer, and switch to mostly grains and seeds in Fall.

While Meadow Voles mostly use runways, they also build systems of burrows. They are good diggers, as well as good swimmers

If a vole feels threatened, it will stamp its hind feet, much like a rabbit. Meadow Voles normally only make noise in order to threaten another vole. Female voles are very territorial.

They are preyed upon by many creatures, including: hawks, owls, foxes, cats, snakes, crows, herons, shrews, skunks, bullfrogs, snapping turtles, largemouth bass, and raccoons.

K.I.N.

By Susan Brooks

March and April spring showers accompanied KIN classrooms back to Sedgwick. Top priority for the students was to find out what had happened in their restoration plots, not seen since December when their first planting went in. Students dug in to finding their purple needle grass and grey pines amid towering green exotic grasses. They measured, recorded, and MULCHED!

Each student nature printed their own Kids-in-Nature T-shirt and made plant cuttings in the nursery for next year's KIN classes. The mesa amphitheater provided a great location for exploring spring wildflowers and insects.

In May, the 2005-2006 KIN classrooms will come together at Celebration Day for their displays, activities, and recognition.

We are looking forward to next year. Arroyo Hondo Preserve, with Jane Murray as coordinator, will be hosting a KIN field trip with a focus on coastal watersheds and ripar-

ian habitat. This is an exciting partnership. Hutton Foundation just honored us with a site visit for our grant application for Olga Reed Elementary School's inclusion in next year's KIN.

Thank you to all who have made the KIN program a success for the kids.

"Getting to know home is the most human and necessary occupations. To give that power of observation to students is to give them something of infinite value and importance – something to do for the rest of their lives."

Ann Zwinger, Introduction – INTO THE FIELD, A Guide to Locally Focused Teaching



Photos are taken by KIN participants.

THE HIKING PROGRAM

By Nick Di Croce

With the “washouts” in March and April, the Public Hikes Program has gotten off to a stuttering start this year. However, two new features – plus the promised wildflowers – have been added to the hikes, so those who are “hike starved” will get a chance to make up for the cancellations. As of this writing, the advance reservations for the May hikes are building fast.

The two new features that have been added are a Wheelchair Hike and the Artists Workshops. The Wheelchair Hikes are for those who are wheelchair bound and for parents with their kids and strollers. Quite appropriately, the hikes are led by Steve Schulz and will include rolls around the pond, the creek, the KIN plots and other close by points. The month of May will be the first hike of this type and the incoming reservations are encouraging. The other new feature is our Artists Workshop. Artists from SCAPE (Southern California Artists Painting for the Environment) are invited to bring their easels and paints and do their thing during the same time that the hikes are running. There is always a featured artist who is on hand to help and give advice. The Artists Workshops started with the February hikes and was well attended. Even in April, when we had to cancel the monthly hikes, half a dozen intrepid artists showed up and painted the lush green scenery. The Artists Workshops are a great addition to the public outreach and to the Saturday morning hiking activities.

The most recent docent hike was in mid April and a small group, lead by Mike and Andy, meandered around the Blue Schist Trail and the Big Leaf Maple Gulch. What we discovered – with the help of a stashed ladder and some hardy explorers – was that the small creek canyon where the

Big Leaf Maple grows actually has at least four maples and they grow to about 60 feet. There are probably more to be discovered by some adventuresome climbers further up the creek. Perhaps next month! And although the wildflowers have also had a stuttering start because of the heavy rains and cold, our docents spotted a plethora of wildflowers on the trails, including Woodland Stars, Virgin’s Bower, Golden Girls, Red Maids and Windmill Pinks. Watch your email in early May for the next planned docent adventure.



Carol Gibbens, Andy Lentz, Mike Williams and Larry Ballard set up the ladder,



Carol Gibbens descending into the canyon to count maple trees.



Blue Schist canyon.



Fiesta flower.

Director's Notes

Mike Williams

I am quite amazed that the rainfall has caught up this precipitation year (July through June) to the norm of 15 inches (30 cm). In fact, at the moment it is really pouring outside. January and February pointed toward a drought year. Now everyone is asking me when the spring wildflowers will appear. Of course, my answer is: I am not really sure. The shooting stars (*Dodecatheon clevelandii*) are usually my indicator of good spring flowering. They were a bit meager this year and have passed now, as have milk maids (*Cardamine angulata*) and even buttercups (*Ranunculus californicus*). But with all this rain in the last few weeks, I think we might see a bloom yet this year. Here is my predication, however feeble...we should have a flower display over the next month or so as those hesitant species turn on their blooming power. Here are some possibilities...those little phloxes (*Gilia*, *Navarretia*, and the like), the annual thistle sage (*Salvia carduacea*), and a host of others just might be able to recover enough, having been held in a state of vegetative suspense. When it warms up a bit, they just might pop up on the barren portions of the serpentine outcrops. We will all have to go have a look. Let me know if any of you want to form a quick trip and we can all hike into the back country. And of course, just remember, in rare past years, all the wonderful displays of vinegar weed (*Trichostema lanceolatum*) up Lisque Valley, casting a blue haze over the valley bottom. These warm season bloomers appear as the late spring and early summer heat comes on. Seems like every month there is another flowering surprise out here, one just has take time to look.

Where on the Reserve???



This one might be harder than the last, but most of you have been here!!

Calendar

May

- May 1 Open Alternative School
- May 3 Wildflowers with Cathy Rose
- May 4 KIN makeup, Santa Ynez
- May 9 Pine Grove School
- May 12 Ballard School
- May 13 Public Hike/Tom Henderson art workshop
- May 15 Pine Grove School
- May 20 19 Oaks docent hike
- May 23 KIN celebration Day
- May 26 CPR Training
- May 27-28 LACC

June

- June 1 Open Alternative School
- June 3 Docent get together

Last issue's Where on the Reserve?



Answer: **BONE CANYON**, this is a wonderful place to take tours for games, views of blue oaks and to search for bones!

WILDLIFE TRIVIA QUESTION

Anna's hummingbird has the the largest ___ of hummingbirds in California.

- (a) Tongue
- (b) Wingspan
- (c) Eggs
- (d) Range
- (e) Hummer

WILDLIFE TRIVIA answer (read in the mirror!!)

(b) Range. This can be found in a variety of habitats, including woodlands, forests, chaparral, agricultural areas and residential areas