

Edgewood Explorer



September 2011

Volume 18 Number 3

FROM THE [NEW] EDITOR...

by Linda Leong

As Anne Koletzke takes her leave to pursue new interests, I'd like to take this opportunity to thank her for her many years of dedication to the Edgewood Explorer and, in particular, for sharing her wonderfully creative and amusing "adventures of a meadow mouse." Since I

started receiving my copy of Edgewood Explorer a few years ago, following m.m.'s adventures has always been one of my favorite parts of the newsletter. I'm sure I'm not alone in saying that Anne will be missed.

Allow me to introduce myself...I moved to San Mateo around 2003, but it wasn't until 2005 or 2006 that a friend introduced me to Edgewood Natural Preserve. I couldn't believe my good fortune to be so close to this hidden gem. I checked out the Friends of Edgewood website and was even more pleased to learn of the weekend wildflower walks led by docents. It was so convenient to simply show up on a Saturday or Sunday morning and join a pleasant and informative walk. One day in 2009, I joined a walk led by Kathy Korbholz, and we came upon two lizards which were immobile. One lizard held the other lizard's head between its teeth, and I thought they were both dead. However, after sending a photo of the lizards to Kathy, she consulted with Edgewood experts and reported the following: "The consensus opinion is that they are alligator lizards in courtship. One of our best herpetologists writes:

What you have there are two Southern Alligator lizards celebrating the rights [sic] of Spring. The more vividly colored one is the male doing his best to "convince" the female that he is the most worthy mate in the world. I guess there is no such thing as sexual harassment among lizards (or ducks from what I recall)!

Once they have mated, the female will lay eggs. The Northern Alligator lizard, which is less colorful and also found in the Bay Area, bears living young."

Since that memorable hike, I've continued to join a wildflower walk or two each year, and now I've started volunteering as a host in the new Bill and Jean Lane Education Center (BJLEC) once a month. Since the Edgewood Explorer is only published quarterly (as opposed to monthly), I decided that I could squeeze in a few more hours of volunteer time to help out. Being an engineer by training and anal in nature, typos and run-on sentences have always seemed to jump off the written page. I've enjoyed meeting new people and am continually learning new things about the park; I look forward to getting to know all of Edgewood's Friends in the future.



**2011
Board of
Directors**

Laurie Alexander
Peter Alley
Paul Heiple
Bill Korbholz
Kathy Korbholz
Christal Niederer
Mary Wilson



Call for Docents

by Mary Wilson, Docent Training Coordinator

Friends of Edgewood will offer docent training starting late January 2012 and continuing into the middle of April. This training prepares people to lead our spring Wildflower Walks. Wildflower Walks are offered on Saturday and Sunday mornings from mid-March to early June. Each walk lasts about 3 hours and covers about 3 to 4 miles. Training dates will be available at the Annual Meeting on Oct. 16. Please email docent-trainer@friendsofedgewood.org for more information about docent training.



Autumn is a second spring when every leaf's a flower. ~ Albert Camus



Bill and Jean Lane Education Center

- By the numbers
by Laurie Alexander

April 5 through August 31, 2011

Adult Visitors: 4041

Child Visitors: 1194

Questions Answered: innumerable



2011 Annual General Meeting

by Mary Wilson, FoE Board President

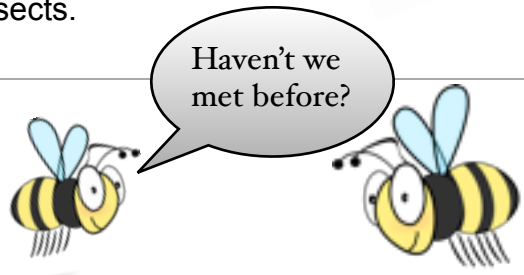
It's time once again to elect a new FoE Board (Board) as we celebrate this year's official opening (last April) of the Bill and Jean Lane Education Center. Watch US mail for your personal invitation to party with us on **Sunday, October 16.**

Take advantage of this opportunity to meet the Board as well as all the other folks who volunteer behind the scenes, in the weeds, on the trails, and along the highway. Also, help us to congratulate and honor Edgewood's newest "Best Friend" (award to be announced at the meeting).

Check-in will be at 11:30 AM at the Old Stage Day Camp. Lunch will be provided, of course!



~ Paper Wasps at a Glance

<ul style="list-style-type: none"> ◆ Over 1,000 species worldwide, mostly in the tropics, and 22 in North America. 	<ul style="list-style-type: none"> ◆ Usually not aggressive unless disturbed.
<ul style="list-style-type: none"> ◆ Named for their papery nests, made of chewed fibers from dead wood and plant stems. 	<ul style="list-style-type: none"> ◆ Feed on nectar, caterpillars and other insects.
<ul style="list-style-type: none"> ◆ Umbrella-shaped nests hang in protected areas (like eaves), with downward facing hexagonal brood cells. 	
<ul style="list-style-type: none"> ◆ Queens (reproductive females) maybe be slightly larger or a different shade, but their bodies are basically the same as those of workers. 	<ul style="list-style-type: none"> ◆ However, other wasp groups, including irritable yellowjackets, also build paper nests. (And some paper wasps use mud!)

Let's Face It: Wasps Know Who's Who

by Carolyn J. Strange

If you're going to live in a complex social system, you've got to somehow keep track of others around you. Individual variation makes such tracking easier, helping society run more smoothly. And while sometimes a distinctive appearance can benefit an individual, putting on airs often backfires — even among wasps. All humans might look alike to wasps, but evolutionary biologists wielding model airplane paint have shown that paper wasps can tell each other apart.

The ability to identify and remember individuals is necessary (but not sufficient, alas!) for vertebrate species to manage social relationships. Advantages of knowing who's who include reduced aggression, more cooperation, and more stable long-term relationships. Individuals needn't start at "square one" every time they meet, having to work things out over and over. Some scientists think that the importance of managing such social knowledge may have helped drive the evolution of vertebrate brains.

Social insect colonies are complex, yet scientists have assumed that insects get by with undifferentiated relationships based on simple rules. Indeed, insect brains are very tiny, and individual recognition is thought to be a relatively complex cognitive task requiring a fair amount of mental flexibility: You have to learn unique characteristics of those around you and also recall pertinent information during subsequent encounters. Observations of social insects have indicated limited memory, with new experiences replacing previous memories. Honeybees, for example, can remember two food locations, each associated with a scent, but add a third location and all bets are off.

Studies with paper wasps over the past decade are overturning these simplistic assumptions. Wasp social interactions really are based on memories of past contacts with particular individuals.

It's known that social insects can differentiate between nest mates and outsiders, probably due to chemical cues. However, northern paper wasps

(*Polistes fuscatus*) also maintain a pecking order within their nests, so biologists speculated that members can tell who's who within the colony. Among these wasps, one or more queens establish communal nests and raise offspring cooperatively, but only after establishing a linear dominance hierarchy that determines how work and food are shared, and who gets to lay eggs.

Furious fighting when a nest is founded tapers off to ritualized encounters in which subordinates step aside or lower their antennae for superiors. These wasps naturally vary in their yellow, brown, and black facial patterns and their abdominal stripes. There's no apparent correlation between these markings and health or rank. But might they provide visual cues, even though insects are thought to have poor visual acuity?

Experiments were simple in design, if not implementation: Remove some wasps from their nests and paint them; return them to their nests; record resulting interactions. (Chilly, listless insects can be handled fairly easily. Toothpicks fashioned to fine points served as paintbrushes.) Wasps of various ranks got minor makeovers on both their faces and abdomens, or they got control paint jobs that didn't alter appearance. For comparison, the same wasp would get each treatment on different days.



Photo by Michael J. Sheehan

None of the painted wasps were booted from their nests as real intruders would've been, probably because they still smelled like they belonged. But rather than a routine welcome, it was more, "Who the heck are you?!" Wasps with altered appearances faced twice as much aggression as non-altered wasps, although it was relatively minor and decreased as the day progressed.

More elaborate experiments later on showed that not only do wasps recognize each other but they have surprisingly long memories. They remember social partners for at least a week, even if they interact with ten other wasps in the meantime. In fact, as has been proposed for people and some other animals, they may also have specialized circuitry for facial recognition.



Paper wasps (*Polistes fuscatus*) have highly individual facial markings, which they use to recognize one another. New research at the University of Michigan shows that the wasps benefit not only by being able to recognize others, but also by being recognizable themselves. Photo by Michael J. Sheehan

Being able to recognize others benefits individuals and wasp society as a whole. But what about being especially recognizable? Researchers introduced groups of four unrelated wasp queens, as might happen at the founding of a nest, and videotaped the encounters. The paint-daubing scientists altered the wasps' faces and arranged the groupings so that three wasps looked alike, and one was distinctive.

When the tapes were played back and all aggressive acts scored, the standout wasps were targeted much less. If distinctive individuals do better, over evolutionary time diversity would be encouraged, a principle that might apply to more than just wasp society.

But studies in a different species, the European paper wasp (*P. dominulus*), an invasive species in North America, showed that facial variation still has to make sense within its social context. Wild wasps were captured and brought to the lab where bouts between equal-weight pairs were videotaped. Analysis of the tapes indicated that in this species facial markings do correlate with rank. Winning wasps tended to have more broken or mottled facial patterns. Although status badges are common elsewhere in the animal kingdom, this was the first report of such quality signals in an insect.

But what keeps would-be social climbers from faking higher rank? In further experiments, again involving face paint, paired bouts, and videotapes, "cheaters" got beaten up, suggesting that honesty is the best policy among wasps. Fighting continued longer in bouts where one wasp had a changed face. The researchers speculate that some other characteristic —chemical or behavioral— also conveys quality information, and there are social sanctions for sending mixed signals.

Besides helping scientists understand the evolution of cooperation and social complexity, and demonstrating that insects can be more sophisticated than anyone previously assumed, the wasp-waisted gals with their tiny brains may also be showing that, conversely, perhaps the basics of social cognition are not as cerebrally demanding as previously thought. ⚡

To learn more:

http://www.eurekalert.org/pub_releases/2002-10/cuns-fmh103102.php

http://www.eurekalert.org/pub_releases/2009-10/uom-bas101509.php

http://www.eurekalert.org/pub_releases/2004-11/uoa-tbt110504.php

<http://www.sciencedirect.com/science/article/pii/S0960982208008993#implicit0>

Public Lands Day at Edgewood

by Paul Heiple



September 24 is Public Lands Day. To celebrate, Edgewood will sponsor two hikes led by Paul Heiple and Ken Himes on the subject of biology and ecology, the effects of invasive plants on the ecosystem and the best management practices to control or eliminate these invaders. The goal is to increase the biodiversity of Edgewood and maintain a healthy ecosystem. The first hike will leave from the Education Center at 10 AM, and the second hike will leave at 11 AM. Each hike will last approximately 2.5 hours and cover two miles.



SAVE THE DATE!
THE ANNUAL MEETING
OF THE FRIENDS OF
EDGEWOOD WILL TAKE PLACE
ON SUNDAY, OCT. 16 -
DON'T MISS IT!



Experience Edgewood

To display the treasures of Edgewood throughout the year, Friends of Edgewood Wildflower Walk docents now guide nature hikes on the third Saturday morning of each month. The walks vary according to the docent and the current happenings in the Preserve.

Our **free** walks cover about 3 miles, at a moderate pace, and include frequent stops.

When

The walks in 2011 take place on the third Saturday of the month, beginning October 15. Walks begin at 10:00 AM and end around 1:00 PM. During Wildflower Season, our usual walks will occur every weekend day at 10 am (see <http://www.FriendsofEdgewood.org> for more info).

Where to Meet

Walks depart promptly from the Education Center.

What to Bring

Bring water, a hat, sturdy shoes, sunscreen, and a snack if you wish. We don't stop for lunch, but picnic tables are usually available after the walk in the **Old Stage Day Camp** area.

Restrooms

Restrooms and water are available only at the **Old Stage Day Camp**.

Reservations

No reservations are needed unless you have a group of 10 or more. For group reservations, please email our Docent Coordinator at docent-coordinator@friendsofEdgewood.org

SAN MATEO THORNMINT ON THE UPSWING

By Christal Niederer



To prevent trampling, biologists use a special cot when monitoring the short-statured endangered San Mateo thornmint.

© Christal Niederer

You probably know there's a plant found ONLY at Edgewood: the San Mateo thornmint. In fact, when some people were planning to turn Edgewood into a golf course, the discovery of the San Mateo thornmint (*Acanthomintha duttonii*) was important proof that Edgewood contained rare species and was worth saving. Historical populations are known to have existed on San Francisco Water Department property and in Emerald Hills, but these colonies have long since faded away. And sadly, the last remaining population at Edgewood has been in decline for years. In 1998, 53,000 individuals were estimated; in 2008, a careful census yielded only 249 individuals. This diminutive annual mint is being overrun by invasive annual rye grass and may be suffering from altered water flows uphill.

In the December 2009 *Explorer*, I reported the exciting news that a San Mateo thornmint restoration project had been funded by the U.S. Fish and Wildlife Service.

With that funding, we were able to start a seed increase program at the U.C. Berkeley Botanical Garden. In the meantime, we needed to improve the habitat at Edgewood. We started by conducting small-scale restoration experiments just uphill of the occupied habitat. We tried scraping, mowing, grass-specific herbicide, raking, and hand-weeding. Our goal was to find the most effective and pragmatic treatment for reducing cover of annual grass and thatch, and increasing cover of bare ground to promote thornmint germination. Scraping was the clear winner. With this treatment, we let the weeds germinate in late fall then scraped away the top layer of soil and weeds using a hand tool called a McLeod. Our native perennials rebounded just fine, and the weedy grasses are greatly reduced.

Once we had data showing a preferred treatment, we were ready to seed in thornmint. In November 2009, 12,500 seeds were placed into 25 1-m² experimental plots adjacent to the extant population. A 30% germination rate yielded 3,111 seedlings, resulting in 2,885 mature plants in June 2010. Adding in plants outside of our experiment, the census totaled 3,135 plants. We were thrilled by this response!

In December 2010, 9,000 seeds were seeded into 30 new scraped plots, and 1,416 individuals reached maturity. In June 2011, 3,450 plants were censused. Although the overall population increased only slightly from 2010 to 2011, reproductive output nearly doubled from 1.3 to 2.2 whorls per plant. Next year we'll have more information to determine whether these larger plants with more seeds will be able to reproduce at a sustainable rate.

We created an adaptive management plan with the U.S. Fish and Wildlife Service, which contains objectives for the current site, and specific management directions if objectives are unmet. Per the adaptive management plan, the goal of seeding is to stabilize the population. Supplemental seeding should continue until the population reaches 7,500 individuals. Once that goal is met, no management action will be triggered until the population dips below 5,000 individuals. Because we are currently below our objective, we plan to seed again this year at the beginning of winter. We have already met our occupancy goal of having more than 75 square meters occupied.

String cutting and dethatching continues to improve overall habitat. Funding from the San Mateo County Weed Management Area has allowed us to conduct these treatments in this very sensitive habitat. Cover of bare ground has increased from 4.6 to 8%, and nonnative plant and thatch cover decreased 60.1 from to 42.2%. Our site objectives are to have at least 20% bare ground, and no more than 30% nonnative plant and thatch cover. We believe we can achieve all of these site objectives in the next couple of years.

The adaptive management plan also calls for four more introduction sites. We are currently working with the San Francisco Water Department to introduce San Mateo thornmint on their property.

While we'd love to share our project up close, we ask that you respect the sensitivity of this last remaining population and stay on the trails to prevent trampling this tiny annual mint. That's the best way to help keep it on the road to recovery! ☘

Thornmint Photo
© Christal Niederer



Intimacy Issues of the Sticky Monkeyflower

by Mary Anne Leary

In the last issue of the *Edgewood Explorer* we touched upon the three species of the *Mimulus* genus that we enjoy seeing in Edgewood Preserve. We explored *Mimulus guttatus*, commonly known as the Large or Seep-Spring Monkeyflower. In this issue we will study the Sticky Monkeyflower, *Mimulus aurantiacus*. In her book, *Flowering Plants of Edgewood Natural Preserve*, Toni Corelli writes of how the Sticky Monkeyflower blooms from March – July in chaparral or woodland areas. Toni also explains “when [the] mature stigma is teased lightly with the fingertip, you can see it close. This occurs naturally when an insect brushes against it.” This is always a fun thing to show children (and adults) when leading them on a docent walk!

Recall that the *Mimulus* genus, also known as Monkeyflowers, used to be a member of the Scrophulariaceae Family, but through DNA studies has now been reclassified into the Phrymaceae Family. This will be noted in the new edition of the *Jepson Manual*. There are more than 100 species of *Mimulus* worldwide, with over 60 species native to California. Monkeyflowers are characterized by their mouth-like shape, having a throat that opens out into two upper and three lower petals.



As a flower essence, Monkeyflowers, in general, deal with some aspect of fear. In the last article of the *Edgewood Explorer* it was noted that *Mimulus guttatus* is a remedy for everyday fears that we encounter in our lives. In contrast, *Mimulus aurantiacus* is a remedy for those who struggle with intimacy issues in their personal relationships providing assistance to overcome the inability to express deep feelings of love and connectedness. The Sticky Monkeyflower essence is useful for dealing with relationship fears that hold us back, particularly with issues of physical intimacy.

Sticky Monkeyflower proves to be an excellent remedy during adolescence, for those who have suffered rejection in past relationships, loneliness, issues of inadequacy, awkwardness, exploitation, obsession, or for those who are negatively impacted by inappropriate betrayals of intimate relationships in commercialized media. The stickiness of intimacy issues pertaining to our personal relationships can definitely be addressed by the healing qualities the Sticky Monkeyflower offers to us. ☘

Photo Credit: Kathy Korbholz, 2005
Kaminski, Patricia and Richard Katz, *Flower Essence Repertory*



MEMBERSHIP DUES

New or renewing members may clip and complete this section to pay tax-deductible annual membership dues. Please send your check, payable to Friends of Edgewood Natural Preserve, to the return address on the back of this panel. Renewing members can determine their membership expiration date by checking the six-digit code to the right of their name on the mailing label. For example, if the code is 06/2011, membership runs through June 2011.

Questions? Lv msg at (866) GO-EDGEWOOD (866.463.3439) or contact membership-coordinator@friendsofedgewood.org



- \$10 Student/Retired** (includes quarterly newsletter)
- \$25 Friend** (newsletter)
- \$50 Advocate** (newsletter, set of 6 Edgewood photo greeting cards)
- \$75 Supporter** (newsletter plus choose one):
 - Set of 6 Edgewood photo greeting cards and 1-year subscription to *Bay Nature* magazine
 - Toni Corelli's *Flowering Plants of Edgewood Natural Preserve*
- \$100 Steward** or **\$250 Guardian** (newsletter, set of 6 Edgewood photo greeting cards, plus choose one):
 - 1-year subscription to *Bay Nature* magazine
 - Toni Corelli's *Flowering Plants of Edgewood Natural Preserve*.

- Please do not send any premiums.**
- I am enclosing a gift of _____.**

Please send (subject to availability):

____ copies of *Common Native Wildflowers of Edgewood* @ \$1.50; ____ copies of the *Edgewood Vascular Plant List* @ \$3.00; ____ copies of the Apr-Jun 2004 *Bay Nature* magazine @ \$6.00; ____ copies of *Flowering Plants of Edgewood Natural Preserve* @ \$12.00. All prices include tax, shipping & handling.

I would like to participate in the following:

- | | |
|---|--|
| <input type="checkbox"/> Docent program | <input type="checkbox"/> Weed management |
| <input type="checkbox"/> GIS/GPS mapping | <input type="checkbox"/> Schools outreach |
| <input type="checkbox"/> Newsletter/web | <input type="checkbox"/> Habitat restoration |
| <input type="checkbox"/> Public relations | <input type="checkbox"/> Adopt-A-Highway |



Name: _____

Address: _____

City/State/ZIP: _____

Day Phone: () -

Eve. Phone: () -

Email: _____



Check out
Edgewood's
Strategic Plan -
it's on The Web!



UPCOMING EVENTS

Adopt-a-Highway

Sessions for the rest of 2011 are
9/11, 10/1, 11/6, & 12/3.

To volunteer or get more information,
contact Ken Seydel at [adoptahighway-
coordinator@friendsofedgewood.org](mailto:adoptahighway-coordinator@friendsofedgewood.org)

Public Lands Day

Saturday, Sep, 24, 2011

Annual Meeting

Sunday, Oct. 16, 2011

FREE - All Friends Welcome!



The Edgewood Explorer is published quarterly by the Friends of Edgewood Natural Preserve, a nonprofit organization dedicated to preserving Edgewood for the human, plant, and animal generations to come. The newsletter is edited by Linda Leong and is supported by contributions from many Friends. For more information about the Friends of Edgewood, visit our web site at www.friendsofedgewood.org, mail us at PO Box 3422, Redwood City, CA 94064-3422, leave message or fax us toll-free at (866) GO-EDGEWOOD (866-463-3439), or email us at info@friendsofedgewood.org.

Friends of Edgewood Natural Preserve
PO Box 3422
Redwood City, CA 94064-3422

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**Calling
all Friends to the**
ANNUAL MEETING
Sunday, Oct. 16, 2011
Details will be mailed soon!
Food - Fun - Festivities
FREE!!!

Mission Statement of The Friends of Edgewood — To protect and celebrate Edgewood as a unique treasure by promoting exemplary stewardship, and by reaching out with informative public programs. www.friendsofedgewood.org