

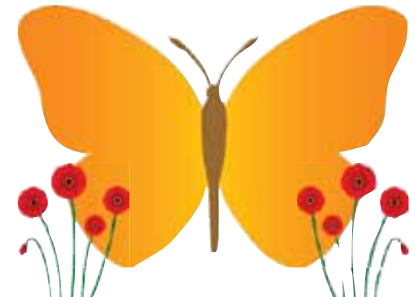


Hallberg Butterfly Gardens

The Pipevine

8687 Oak Grove Road, Sebastopol, CA 95472
(707) 823-3420 www.hallbergbutterflygardens.org

Spring 2013
Issue Number 15



16th Annual
Open Gardens Celebration
Sunday, June 23, 2013
10:00 am to 4:00 pm

Welcome to Open Gardens Day 2013

By Louise Hallberg

A new map is being printed so visitors can match numbers and information more easily to signs posted in the garden. We hope for good weather so you can enjoy your visit. There will be host and nectar plants for sale including Dutchman's pipevine, milkweeds, salvias, verbenas, scabiosa and Buddleia. Insect and host plant exhibits will be in the barn and a bird information table will be at the top of the hill. In the meadow you will find a table with wild flowers. Docents will be there to answer questions. There will be activities for children. Hopefully on your tour around the house you will find pipevine caterpillars eating on the Dutchman's pipevine growing abundantly along the path. Our population of Pipevine Swallowtail butterflies is decreasing. Climate change, fragmentation of surrounding habitat, and many other factors contribute to the decreasing butterfly populations.

As you pass the Dutchman's pipevine



Louise Hallberg and Pat Costello at Open Gardens Day 2012.

plants and walk the trail to the orchard you will see a magnetic board with sightings for the day. Stop here and see what is flying and nectaring on the nearby butterfly bushes and flowers. Further on, you come to the books and craft sales table where volunteers are happy to assist you. Nearby are cold drink sales which are very popular if it is a hot day. Under
Continued on page 2.



Above: Visitors study posters of plants and animals found on the property.

Top Left: Friendly volunteers greet visitors as they enter the gardens on last year's Open Gardens Day.

All photos by Gene Pearson except as noted.



Visitors watch for dragonflies at the pond with volunteer Paul Wycoff.

Open Gardens Day 2013

Continued from page 1.

the apple trees are the children's craft tables. Instructions are given for making paper butterflies.

Those with tired feet may sit on the bench across from the sign-in table to wait for the shuttle. Posters hang on cord between the apple trees. When school children thank us for their tour they often include an art poster. There are lists of all the trees, shrubs, birds, and butterflies found on the property. There is also a poster listing the Santa Rosa JC interns with their completed projects.

We had near perfect weather for Open Gardens Day in 2012. Visitors arrived all day long in 75 degree temperature. Early comers are often hoping to find a special plant. The plant sale was busy all day with helpers finding requested plants. Many were sold out by day's end.

Fifteen butterfly species and twenty-two different birds were seen. Most of the 1200 visitors were from Sonoma County with most towns in the county represented. There were some visitors from other California counties and several states represented. A very big surprise last year was the visit from the Press Democrat reporter and

photographer. They interviewed visitors and took pictures. The next day in the paper a headline in the second section stated "1000 Attend Open Gardens". An interesting article followed. Many readers who missed Open Gardens Day decided to pay us a visit. We were swamped with calls for tours the following weeks.

Many of the visitors said it was the first time they had been to the Gardens and made a special effort to say thanks as they departed. We had a new table at the head of the road showing a DVD of the history of the Gardens and our mission of being a wildlife preserve. It took more than two year's work to complete this very special DVD. The day was very successful thanks to the help of many volunteers.

The Children's Craft Tables feature butterfly-related projects.



Butterfly Sightings

Anise Swallowtail, Blue Azure, Buckeye, Cabbage White, Checkered Skipper, Lorquin's Admiral, Mournful Duskywing, Northern Cloudywing, Pipevine Swallowtail, Red Admiral, Spring Azure, Tiger Swallowtail, Umber Skipper, West Coast Lady

Bird Sightings

Acorn Woodpecker, Anna's Hummingbird, Bewick's Wren, Black-headed Grosbeak, Brown Creeper, Bushtit, California Towhee, California Quail, Chestnut-backed Chickadee, House Finch, Lesser Goldfinch, Mourning Dove, Nuttall's Woodpecker, Oak Titmouse, Pacific-slope Flycatcher, Red-tailed Hawk, Turkey Vulture, Spotted Towhee, Vaux's Swift, Western Scrub Jay, Wilson's Warbler



Facepainting

Tours of the Gardens

By Louise Hallberg

Although visitors knew they might not see as many butterflies during their visit as we would like, they were not disappointed because of the many different plants, flowers and birds. Most remarked they saw and heard many different birds. The Gardens have nectar and host plants to enrich butterfly habitat. Different butterflies require a variety of different plants to lay their eggs on. Host plants provide food for butterfly caterpillars. Plantain, anise, mallow, stinging nettle, wild radish, grasses, Dutchman's pipevine, milkweed, pearly everlasting, oaks, and willows are some of the host plants. An adult butterfly is interested in drinking from a variety of flowers—or nectaring. Some of the popular nectar flowers we have in the Gardens are salvias, verbena bonariensis, scabiosa, centranthus, ceanothus, cheiranthus, zinnia, bidens, goldenrod, milkweed and lippia. The many different

colors of Buddleia blossoms, lilac, rosemary, manzanita shrubs and buckeye trees are butterfly favorites. Camellias flower before the Gardens are officially open but early guests and friends have commented on the beautiful blossoms of the many varieties planted throughout the property.

Summer guests were shown pictures of the unique little vaux's swifts that have nested in the house chimney for the last ten years. When the chicks are fed there is a lot of noisy chirping. A recording of the chicks' competitive cries was made last summer to share with visitors. Pictures of the adults descending into the chimney in the evening and the recording were on the front porch.

A visit to the Gardens is more than butterflies these days. We are a wildlife sanctuary with many stories about the life found here.



Vinca major

11th Santa Rosa Junior College Internship Student Project

Last fall Jonathan Brody's challenging project was to remove the invasive *Vinca major* plant from a large Dutchman's pipevine area. Each week, sometimes in showers, he used a big pitch fork and tried to save the Dutchman's pipevine. This spring the native plant is coming up and wildflowers are blooming there. It will be a challenge for us to keep *Vinca major* out.

Silk Tassel Bush

By Louise Hallberg

Last spring small blossoms of a recently planted silk tassel bush were observed at the top of the hill. That reminded me of one planted years ago in an area not observed for years because of its location. I sent Catarino to look for it. What a surprise! He came back with four 12 inch 'James Roof' silk tassel blossoms. They were gorgeous and were viewed for many days in a vase on the table. Many thanks to *The Calypso*, Newsletter of the Dorothy King Young Chapter of the California Native Plant Society, in Gualala. I joined in 1960 because there was no chapter in Santa Rosa at that time.

Beautiful Silk Tassel Bush

From *The Calypso* newsletter, March–April, 2013, www.dkycnps.org

California native plants are treasured by horticulturists especially in Great Britain and Europe. The January 2013 issue of *The Garden*, the Royal Horticultural Society's magazine, featured *Garrya elliptica* 'James Roof' as a plant that has won the RHS Award of Garden Merit, the Society's highest plant accolade. *Garrya* is a dioecious shrub and it is the male plants that bear the graceful catkins—and 'James Roof' silk tassel bush has particularly long and beautiful catkins. "The wavy-edged leaves and silvery catkins look picturesque when dusted with frost on a sunny winter's day," said Peter Catt, a member of the RHS Woody Plant Committee (something we are able to appreciate given our recent super cold days on the coast).

To grow 'James Roof': Coast: part sun; Inland: part shade. Infrequent to occasional water.



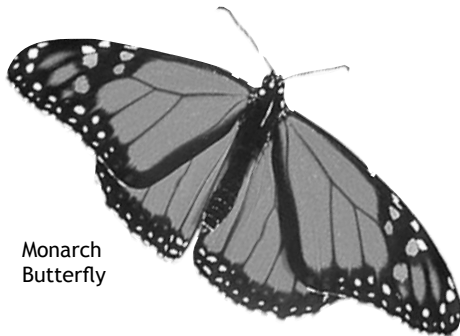
Garrya elliptica 'James Roof',
Royal Horticultural Society
Award of Merit winner.
www.rhs.org.uk.

Receive your newsletter by email! Drop us a line at: Leah@hallbergbutterflygardens.org

Monarchs Still Missing

By Louise Hallberg

For the second consecutive year we have observed fewer monarch butterflies even though we have milkweed, their favorite host and nectar plants available for them. Few were seen in August and no eggs or caterpillars were found. A recent March 2013 *Press Democrat* article stated that six of the last seven years have shown a decline in the numbers of Monarchs that migrate from the United States and Canada to mountain top forests in Central Mexico.



Monarch Butterfly

There are now only one-fifteenth as many Monarchs as in 1997—the same year we released 100 Monarch that hatched from eggs laid on milkweed plants here at the garden. This year's falling to lowest level since records began 20 years ago. The number of Monarch dropped 59% this year. Experts don't agree about why the population of Monarchs is decreasing. They believe illegal logging of forests in the 193,000 acre Mexican preserve has been reduced. One source lists climate conditions and agricultural practices in the United States as damaging. Herbicides kill off milkweed. Water diversion is another practice that manipulates the environment. The declining numbers of Monarchs is a great concern. Canada, United States and Mexico must take action to protect the migration and survival needs of the Monarch butterfly.

MONARCH RELEASES		
Year	Releases	Tachinid Fly Losses
1997	108	n/a
1998	53	80
1999	18	11
2000	82	5
2001	12	n/a
2002	22	4
2003	28	2
2004	51	20
2005	7	7
2006	57	3
2007	3	n/a
2008	24	3
2009	0	18*
2010	2	2*
2011	0	0
2012	0	0

*Due to late hatch, too cold (not tachinid flies.)

Pipevine Swallowtail Butterflies

By Louise Hallberg

Sightings from last year recorded the first Pipevine Swallowtail observed April 6, 2012. With so many sunny days during the spring of 2013 we first observed the pipevine this year on March 12th. A second Pipevine Swallowtail was seen March 24 when two were seen. By late April we expect to see several Pipevine Swallowtails. Many years ago 50 were seen in one day.

There are far fewer butterflies sighted currently. Here is a little data about Pipevine Swallowtail eggs that were found the spring of 2012.

Egg observations:

- 04-20-12 First 14 eggs found outside.
- 04-27-12 Two of 14 eggs remaining.
- 04-27-12 21 eggs found outside.

- 05-01-12 Two of 21 eggs remaining.
- 05-09-12 Six caterpillars found in a.m., 4 left in p.m.
- 05-09-12 Brought in 4 to save them.
- 05-09-12 Two of original 14 hatched, one gone, one brought in.

Caterpillar Observations:

- 05-02-12 Volunteers saw first caterpillar in area of 14 eggs.
- 05-06-12 One caterpillar left, brought in.
- 05-09-12 Four brought in, spiders are eating.
- 05-15-12 Lots of caterpillars seen.
- 05-26-12 Not many seen now.
- 06-13-12 Three brought in.
- 07-09-12 Last one in chrysalis.



Pipevine Swallowtail Butterfly

Releases:

Between 04-20-12 and 05-20-12: Twelve Pipevine Swallowtails were released after hatching in house cages. Chrysalises from previous year's caterpillars usually emerge in early spring whether they wintered outside or inside in cages. A few more Pipevine Swallowtails were seen during the summer months than some years, but it is discouraging to see so few other butterfly species compared to previous years.

STATISTICS: Butterfly Species Sightings in 2012

Family Name	Common Name	Latin Name	First Date Seen	Last Date Seen
PAPILIONIDAE				
	Pipevine Swallowtail	<i>Battus philenor</i>	April 6	October 3
	Anise Swallowtail	<i>Papilio zelicaon</i>	March 5	October 5
	Western Tiger Swallowtail	<i>Papilio rutulus</i>	April 18	October 26
PIERIDAE				
	Cabbage White	<i>Pieris rapae</i>	February 8	November 23
	Orange Sulfur (Alfalfa)	<i>Colias eurytheme</i>	September 21	September 21
LYCAENIDAE				
	Western Tailed-Blue	<i>Everes amyntula</i>	June 23	July 6
	Spring Azure (Echo Blue)	<i>Celastrina ladon</i>	June 14	July 11
	Acmon Blue	<i>Plebejus acmon</i>	May 9	October 9
NYMPHALIDAE				
	Mylitta Crescent	<i>Phyciodes mylitta</i>	August 14	November 6
	Mourning Cloak	<i>Nymphalis antiopa</i>	January 15	June 26
	Painted Lady	<i>Vanessa cardui</i>	August 5	August 7
	American Lady	<i>Vanessa virginiensis</i>	August 5	November 21
	West Coast Lady	<i>Vanessa annabella</i>	February 3	November 6
	Red Admiral	<i>Vanessa atalanta</i>	March 8	November 21
	Common Buckeye	<i>Junonia coenia</i>	July 13	October 23
	Lorquin's Admiral	<i>Limenitis lorquini</i>	May 11	October 16
	Great Basin Wood-Nymph	<i>Cercyonis pegala</i>	June 9	June 10
	Monarch	<i>Danaus plexippus</i>	April 19	November 4
HESPERIIDAE				
	Northern Cloudywing	<i>Thorybes pylades</i>	May 7	August 24
	Mournful Duskywing	<i>Erynnis tristis</i>	March 21	October 17
	Common Checkered-Skipper	<i>Pyrgus communis</i>	July 22	November 8
	Fieri Skipper	<i>Pyrgus communis</i>	August 22	September 14
	Sandhill Skipper	<i>Polites sabuleti</i>	May 11	May 11
	Sachem Skipper	<i>Atalopedes campestris</i>	September 10	November 2
	Woodland Skipper	<i>Ochlodes sylvanoides</i>	May 17	September 12
	Umber Skipper	<i>Poanes melane</i>	May 11	October 7
	Unidentified Skipper	<i>unknown</i>	May 7	November 23

year	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12
# of species sighted	27	26	31	33	21	35	28	33	32	30	32	32	36	38	27	32	32	38	36	33	27

Fifty-nine of California's 236 native butterfly species are commonly seen in the San Francisco Bay Area. A total of 54 different species have been catalogued visiting at Hallberg Butterfly Gardens over the last 20 years...some just once, or only rarely, and some establishing populations in our enhanced habitat.

Sebastopol's Vaux's Swifts

By Kathy Spalding

Since 1989 Vaux's swifts have used the enormous chimney at Rio Lindo Academy in Healdsburg as a roosting site during their autumn migration. My friend Donna was enjoying the spectacle when someone mentioned the swifts on Sebastopol's High Street.

You guessed it. Donna lives on High Street.

For the next two weeks, we were there nearly every evening, treated to an aerial display of jaw-dropping beauty.

Around dusk, the Vaux's (rhymes with hawks) swifts start out flying fairly high up in a loose group, with no discernable coordination of movement. I wonder if this served to gather up other swifts in the area, alerting them to a potential roosting site. Gradually the group became denser and more organized. Then the birds would become a whirling cylinder of flight. Many described it as a vortex. Flying at high rate of speed, the swifts created a whirring sound punctuated with the occasional tap of impact when wing met wing.

This cylinder of swifts would take up a position over the chimney. Then individuals would peel away from the group, hover, and drop into the chimney. An onlooker commented that it was like smoke in reverse. One needn't be a lover of nature to marvel at the sight.

On one occasion the cylinder shifted away from the chimney until positioned over some conifers. We wondered if they were going to roost in the trees, but then the flock eased back over the chimney and made the descent. Another evening about 30 swifts split off from the group as it was circling the chimney. This smaller flock flew off to the west, leaving us to ponder where they would spend the night.

Folks in the crowd estimated there were a couple hundred swifts at the peak. The fewest I saw was fifteen. Numbers did not appear to correlate with weather.

When numbers were high, the occasional swift would fall, perhaps from clipping one another or hitting the power

lines. The Royal Society for the Protection of Birds website states that grounded swifts, due to their long wings and short legs, are unable to fly. This wasn't the case with these birds. I saw one land on a roof and three others hit the ground. All remained for many minutes, head up and wings stretched out, looking not unlike toy bats before flying off. One landed in the road. I stood about ten feet away to protect it from vehicles. When almost all the swifts had entered the chimney, I approached the grounded bird. It exploded into the air and entered the chimney quickly.

The swifts weren't the only animals on show. Nearly every evening, once the swifts were tucked away for the night, a tabby cat would come through the house's hedge, cross the street, and return home. Had he been dining on grounded swifts? A fat raccoon would often pop down one drain and emerge on the other side of the street, using this underground roadway to make its rounds. One evening a small hawk flew directly under the gathering swifts. It swept past the flock, shot between houses, and turned on its side in flight where pigeons perched. I don't know who was the intended prey.

Frustrated by butterflies that refuse to alight and defy identification, my daughter refers to these uncooperative sorts as Neverlands. This is an apt name for some swift species, which remain airborne for months at a stretch. In fact, the Common Swift, *Apus apus*, is said to spend the first three years of its life flying. Eating, mating, sleeping, it all takes place during flight. How is that possible?

Whereas Vaux's swifts rely on chimneys and old-growth forests for nesting and roosting, some species practice aerial roosting. They will ascend to a great height (have been found at 10,000 feet) and use wind direction to



Vaux's Swifts flying into a Sebastopol Chimney, September 2012. Photo by Bill Brumgardt.

orient themselves. Birds have been shown to shut down half their brains, which is thought to allow for sleep.

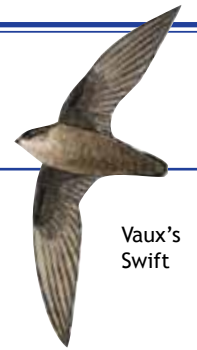
These are birds perfectly designed for what they do. Mouth as wide as the face, maximizing food intake in flight, like baleen whales in the sky. Flat forehead for an aerodynamic profile. Wings with short "arms" and long "fingers" for speedy flight. (Vaux's cousins, *Apus apus*, holds the level flight speed record at just under 70 miles per hour.) Tiny feet, toes sideways for grasping rough vertical surfaces. Spiked tailfeather tips for propping, much like a woodpecker.

Swifts are somewhat short-changed in field guides. "Flying cigars" and "twinkling flight" are standard descriptors. They are invariably grouped near swallows, which they resemble, but swifts' closest relatives are hummingbirds, with whom they share the ability to enter torpor, dropping their body temperature to conserve energy. Other birds do this, but few as dramatically as hummingbirds and swifts.

Watching these swifts, Louise wondered if among them were the birds which nest or hatched in her chimney. It's exciting to think we might have seen them on their way south.

Update on Vaux's Swifts at the Gardens

By Louise Hallberg



Vaux's Swift

2012 will be remembered as the year I stood by the tankhouse at sundown and looked up at the chimney for 90 consecutive days, April 27 to July 28, to watch for the valuable, fantastic little swifts suddenly appear from nowhere and drop into the little open chimney. It was very encouraging to see four of them on April 27, two regularly until May 20, and then just one at a time until June 24. We knew they had to make a new nest because the old nests had been removed for the first time since their annual visits began in 1997.

From books and from my daily notes an estimated schedule of the 2012 nesting is as follows.

April 27: First see four swifts drop into the chimney. A few seen each night until there were just 2 swifts, more or less regularly, until May 20.

May 5: Two little twigs seen on paper towel in the fireplace.

May 5 – 20: The swifts made a nest of little twigs glued together with saliva which is special during breeding season. Because Vaux's swifts have no hind toe they cannot perch on a branch or wire, so twigs are broken off while birds are in the air. A half-cup nest is glued with saliva to brick chimney, about five feet up from the bottom of the fireplace.

May 20 – June 9: 18 to 20 days of incubating by both sexes. During this period I saw a bird fly in and one bird fly out and return five to 15 minutes later quite regularly. My question: Is this bird the same bird flying in and out or a bird sitting on the nest and being relieved to fly out? My question has not been answered. Was the one flying in feeding the bird sitting on the nest or letting that bird fly out?

June 24: Birds seen flying into the chimney during the day.

June 27: Chicks heard chirping all day. Had not been heard when they were tiny; probably hatched a week or more before.

July 5: Chicks fed five times between 7:00 and 7:30 a.m. It is said they can be fed 5,000 insects a day! How many chicks? Three or four? Or five?

July 9: Until this date chicks were heard from every room in the house and out on the front porch. During this period we made a good recording of the bird sounds. Chicks can leave the nest at 20 to 21 days of age, but remain higher up in the chimney seven days to train wings for flying. When I walked into the living room at night and turned on the light, the chicks must have seen a little light or heard me and they would chirp loudly.

July 16: Bird sounds were fainter, so up higher in the chimney. Gay thought she heard wings flapping in preparation for flying. It seems quiet now after hearing chicks for so many days. They are missed.

July 17: At 8:50 – 8:55 p.m. 2 flew into chimney. A little later four flew in and after a little gap one flew in for a total of seven, probably two parents and five babies. I was glad and stayed out in the dark.

July 18 – 28: The swifts stayed around about two weeks and then left the area. Various numbers dropped in the chimney during this period; so glad I saw the seven on the one night.

July 28: Last swifts seen.

The experience was enjoyable because I was able to give information about these birds and play the recording of

the chicks chirping for feed to the summer visitors. Swifts are losing the tree cavities and open chimneys that they use for nesting. I hope this little chimney will always be available for these little birds when they migrate back after the long journey from South America each spring and use their tiny brains to remember the chimney where they hatched!

*We are very grateful for recent gifts from photographer Sharon Beals; a beautiful framed picture of our Swift nest which is now hanging by the fireplace, and for her new book, **Nests**, from Chronicle Books.*

Activity Statistics 2012				
(Number of guests shown in parentheses)				
Month	Total Tours	Groups	Children's Tours	Open Gardens
JAN	1	1 (3)		
FEB	1	1 (4)		
MAR				
APR	7	3 (5)	4 (162)	
MAY	23	18 (108)	5 (161)	
JUN	17	17 (106)		(1200)
JUL	37	36 (171)	1 (40)	
AUG	21	20 (52)	1 (13)	
SEP	10	8 (37)	2 (48)	
OCT	5	5 (10)		
NOV				
DEC				
Total Tours	122	109	13	
Total Guests	(2120)	(496)	(424)	(1200)

Bees – Solitary to Social

By Frederique Lavoipierre

BEES I: Solitary

According to one of my favorite books, *Evolution of the Insects*, if we eliminated bees, ants and termites from the planet, all terrestrial life would collapse. Whenever someone expresses a horror of insects, I pull this astonishing assertion from my bag of tricks. Without bees (and a few other 6-legged pollinators), I follow up, our diet would become horribly bland; we would be living on potatoes, corn, wheat and a few other crops. No apples, berries, oranges, zucchini, or tomatoes. No mint, thyme, oregano, or parsley. No chocolate (midge-pollinated), tea or coffee. Many of the beautiful flowering plants that we take for granted would also disappear. Insects and flowering plants coevolved, leading to an explosion of species, and the creation of multitudes of niches for other animals. Bees played a central role in increasing this biodiversity.

It may come as a shock to discover that honey bees are not native to the United States, but originated in the Mediterranean. Yet flowering plants were being pollinated long before the first European settlers brought hives to the eastern seaboard. As honey bees struggle

Frederique Lavoipierre is the volunteer manager at Santa Barbara Botanic Garden. She also teaches classes and workshops on many aspects of sustainable landscaping, including ecological principles, habitat gardens, beneficial insects, soil ecology, fresh-water ecology, and aquatic invertebrates. She has been writing the Garden Allies column in Pacific Horticulture Magazine for seven years. www.pacifichorticulture.org.

Editor's Note: We are delighted to have Frederique Lavoipierre's permission to reprint this article which also appeared in Pacific Horticulture Magazine, 2009–2011.

with a variety of woes, an increasing amount of attention is being paid to native bees. As opposed to honey bees, which have a highly developed social structure, native bees are often solitary. Social bees exhibit a division of labor, with only some females reproducing. Solitary bees may occasionally live in aggregations, but do not help each other in reproduction. Each solitary female bee builds her own nest (there are no worker bees), and provisions it with the food necessary for the larva to develop. Solitary bees do not produce either honey or wax.

In temperate zones, especially where it freezes in the winter, solitary bees may have short life spans. Some species come out at the first hint of warmth, and rely on early flowering plants for sustenance. Bees may be oligolectic, specializing on just a few, or rarely a single species, of flowering plants, or polylectic, with a broader, more generalist diet. Oligolectic bees may be far less discriminate when seeking nectar than pollen. Many of the solitary bees are oligolectic, and are found flying only during the season of the plants that they pollinate. All bees require protein (pollen) and sugar (nectar); with a few rare exceptions, only females gather pollen and nectar for nests. Although a few bees carry pollen internally, most bees have scopae, external structures for carrying pollen. These pollen baskets or brushes, as they are also known, are often on the hind pair of legs, but in the Megachilidae, the leaf-cutting bees, they are found on the abdomen, a distinguishing character for the family. In addition to how they gather pollen, or social structure, bees can also be divided according to nesting ecology. Many solitary bees are ground-nesting, while others seek out hollow stems or cavities in wood.

Colletidae (plasterer bees) are solitary species, although some nest in aggregations, and build their nests in the ground. They are relatively hairless, and those that carry pollen internally may



Syrphid fly visiting *Epipactis gigantea*, with pollinia on its back. Photo by Phil Van Solen.

resemble small wasps. Colletid bees characteristically line their nests with a cellophane-like material. Megachilidae (mason, leaf-cutters and carder bees) are primarily solitary species; some species nest in aggregations. Megachilids nest mainly in hollow stems and cavities in wood, while a few are ground nesters. Mason bees use mud as a nesting material, while leaf-cutters build nests lined with leaves (and sometimes rose petals). Carder bees line their nests with animal or plant fibers. Some species, such as orchard and alfalfa bees, are managed for pollination. Andrenidae (mining bees) are solitary ground dwellers. Although some species use a common entrance to the nest, each female still provisions her own offspring. Scopae are usually present on the entire length of the hind legs; many species of andrenids are oligolectic. This very large family of bees contributes much of the bee diversity of temperate zones of the Pacific coast. Melittidae (mellitid bees) is a very small family of mostly ground-nesting solitary bees with restricted distribution, often with shaggy scopae. It includes the oligolectic *Clarkia* bee.

BEES II: Solitary to Social

Strolling through my garden, early in the morning, dew heavy on the flowers, I sometimes pause to gently pet a velvety sleeping bumble bee. Although it may seem a strange activity to some, for me it embodies the ephemeral magic of the garden at dawn. I can safely pet the slumbering bumble bee because of an
Continued on page 9.

unusual behavior found in some members of the Apidae family of bees. Males may sleep on vegetation, sometimes in aggregations, clasping stems or petals with their mandibles and spending the night at rest. Bumblebees are one common group in the family Apidae, along with squash bees, long-horned bees, carpenter bees, honey bees, and several lesser known groups. Apidae have the broadest range of social behaviors of any bee family, exhibiting the full gamut from solitary to eusocial. They are closely followed in social diversity by the family Halictidae.

Eusocial (true social) bees exhibit three traits: a division of reproductive labor (only the queens reproduce), bees cooperate in caring for immatures, and there is an overlap of generations within colonies (daughters are workers). In advanced eusocial bees, there are also morphological differences between queen and workers. Only a single group of Apidae, the corbiculate bees, named for the pollen ‘baskets’ on the hind tibiae, exhibit advanced eusocial behavior. Corbiculate bees include four tribes; bumble bees, honey bees and the orchid and stingless bees (the last two are found only south of the US border).

Between solitary and advanced eusocial bees there are many variations on the theme of social behavior. Members of the same generation may cooperate in brood care to varying degrees. Communal bees share a common nest, but each female provisions her own cells with food for larvae. Among quasisocial bees, all females can reproduce, but cooperate in brood care, while in semisocial species, there is division of reproduction, with some bees laying eggs, and sisters acting as workers. In all these variants, colonies only last one year. Distinctions are difficult and sometimes intergrade.

Cleptoparasitoids, or cuckoo bees, use a unique strategy. Some solitary bees such as some digger and squash bee species steal provisions



Bumble Bee

gathered by other bees, generally by laying their own egg in the nest. When the cuckoo bee larva hatches, it eats the host larva’s pollen ball. Cleptoparasitoids occur in several families, most notably, the entire apid subfamily Nomadinae. Social bees that act as cuckoos, living and reproducing in other social bees’ colonies, are known as brood parasites.

Some of my favorite garden bees are the bright green metallic halictid bees in the genus *Agapostemon*. The female is uniformly green, while the male sports a handsome black and yellow striped abdomen. Halictids are sometimes called sweat bees, as some genera include species that appear to be attracted to perspiration. Some nest in decaying wood, but most are soil dwellers, digging their own nest. Some solitary species form aggregations, and some are known to construct nests with dozens of cells. Halictid bees include many solitary species, but also communal, semisocial and primitively eusocial bees (the vast majority of primitively eusocial bees are halictids), cleptoparasitoids and brood parasitoids. The type of social interaction can vary even within the same species. Some halictids have colonies with several queens, and have overlapping generations (a key factor in eusociality). Colonies are usually small—less than a dozen workers.

Apidae often brings to mind the social bumble and honey bees, but the apid family includes the gamut of social behaviors. Two important groups, the stingless bees (entirely eusocial) and the orchid bees, are only found south of the US border. Several other important groups are commonly found in gardens. Carpenter bees, both small and large, used to be in their own family, but as modern molecular techniques are leading to revisions of taxonomic relationships, are now included with apids. Most are solitary species, but in some cases mothers and daughters may occupy the same nest; some may even divide labor. Even solitary species are found in aggregations. Large carpenter bees are familiar to most gardeners; these look like shiny black bumble bees, and often behave as nectar robbers, cutting

Carpenter Bee



a slit at the base of a flower and stealing nectar without providing a pollination service. There are also small solitary metallic black carpenter bees, which nest in stems of woody plants.

Digger and squash bees were also once included in the family Anthophoridae with the carpenter bees. Many are specialist pollinators. In gardens, the solitary squash bees are commonly found wherever curcubits are grown. They arrive early in the morning before the honeybees which they resemble. Most are soil nesting; sometimes in aggregations. The commonly encountered *Melissodes* (long-horned) species are included in this group. Bumblebees are eusocial, establishing annual colonies in old rodent burrows and other ready-made homes; only the new queens overwinter. Like honeybees, they are generalist feeders, and they are great pollinators of solanaceous plants, dislodging pollen by vibration. They are more active in low light levels and cool weather than honey bees. Soon after dawn, bumblebees awaken, and another day’s activity has begun.

BEE III: Social Bees

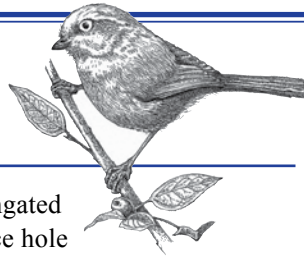
In the late 1600s, Johannes Swammerdam meticulously dissected a honey bee with home made tools and a microscope so primitive, it would be difficult to recognize it as such today. In doing so, he discovered that the ‘king’ bee possessed ovaries, and was in fact a ‘queen’. His remarkable drawings remain unparalleled. Among Swammerdam’s many other discoveries, he demonstrated that insects had systems as complex as any other animal. He was also the first to elucidate the process of metamorphosis—determining that caterpillars and other holometabolous larvae did not mysteriously change into a completely different animal, but gradually transformed into adult form.

Honey bees have long fascinated humankind. No one, for example, finds it

Continued on page 10.

Bushtits in the Gardens

By Louise Hallberg



On a sunny March 15th morning a regular volunteer was transplanting wildflower seedlings and pruning in an area by the office/tractor barn and noticed two little birds chattering and flying back and forth between a nearby manzanita bush and a Buddleia bush. Their beaks were stuffed full of moss and lichen. *Buddleia asiatica* is a variety that blossoms in February. The birds seemed to pick something off the blossoms. After watching all the activity, the volunteer crossed the driveway to look closer. Under a hanging branch of the Buddleia there was a large hanging nest being built.

A book reports that bushtits breed in open woodlands, shrubs and scattered trees in late February in California. The nest is usually four to five feet off the ground suspended from two adjacent

twigs. It is elongated with an entrance hole to one side at the top. It can be six to 12 inches long and widens to the base to three or four inches. The whole nest is held together with spider webs. Materials in the nest can be lichens, moss, grasses, blossoms, plant down, small dry leaves and spider cocoons. The inside of the nest is lined with feathers, fur and plant down. Eggs usually number five to seven. Two females can share the same nest so number of eggs is upward to 15. Eggs are white, smooth and non glossy. Both parents rear the young from incubation to feeding. Other bushtits have been known to help. Chicks hatch naked in 12 to 13 days, eyes open in eight days. They grow a grayish white down and are tended for 14 to 15 days and are dependent about eight more days after leaving the nest.

The adult bushtit is a small brownish gray bird with a longish tail and short rounded wings. They often travel in large mixed flocks of active foragers. They are led by a single bird or set of leaders and often stay together for several years. When flocks meet the males make territorial displays including agitated calling, tail chasing and sometimes fighting. Bushtits pick insects from leaves and twigs and an occasional berry when they can hang upside down. When feeding on bushes, they generally fly singly following the one ahead. They keep constant contact with light high pitched call notes. On cold winter nights they huddle together. During breeding season they pair off but return to flocks until nest is completed. Pairs sometimes remain together several years. The longest paired adults on record are eight years. Because of variable habitat and flock protection the bushtit population is probably safe.

Bees *Continued from page 9.*

odd that we devote entire shops to a single species of insect and its products. Honey bees are an ageless and enduring motif in human cultures around the world. They were important in Greek mythology, in which priestesses of Demeter and Artemis were known as the 'Melissae', or Bees. They are featured in creation myth of the San people of the Kalahari Desert, and appear as Freemason, Hindu and Christian symbols. The Mayans were known to worship a bee god, and the Egyptians revered bees as a symbol of the sun god Ra. Honey bees are viewed as hard-working, industrious, and cooperative; their social structure universally admired and emulated.

It is no accident that honey bees have our respect; historians note that domestication of honey bees is associated with the rise of early civilizations, and well over 30% of our

crops rely on pollination by honey bees. Of course, humans also appreciate the taste of honey, and have sometimes gone to great lengths to acquire it; Himalayan honey hunters, for instance, cling to sheer cliffs to gather honey, an ancient practice that continues today. With the advent of paraffin, we take candles for granted, but bees were once the principal source of household candles. Other bee products include propolis, a mixture of resins gathered and used by bees as a sealant, and valued for medicinal and antibacterial properties. Royal jelly, a glandular secretion fed to larvae and queen bees, has a long history as a health and beauty treatment. Allergy sufferers sometimes eat regionally produced pollen to better tolerate the effects of local flora when it is in bloom. Even bees themselves have been enlisted; a longtime folk remedy (supported by a recent study) is bee sting therapy to reduce the pain and inflammation of arthritis.

In the wild, bees live in colonies in trees and other hollows, while domesticated

bees live in hives. The familiar honey bee and other *Apis* species are not native to the Americas, but several species of 'stingless' meliponine bees in South America also produce harvestable honey. Once honey bees arrived in eastern North America, they quickly spread, but did not cross the Rockies, and were not introduced to the west until the mid 1800's, when they arrived by ship. There was no Native American word for honey bees, and they were known as the white man's fly.

Hives are often moved long distances to provide pollination services for crops; about one third of all the hives in the US, for instance, are trucked in to pollinate almonds. Such movement of hives is undoubtedly a factor in the many health problems honey bees face today, as it contributes to the spread of diseases and parasites. Another factor may be the corn syrup that is often fed to bees as an overwintering nutrient in commercial operations. Pesticides, especially neonicotinoids, are increasingly implicated *Continued on page 12.*



Queen Honey Bee

2012 Friends of the Gardens...

Donors

**Major Donors*

Carol Benfell
Tom Borowicz
Britton Tree Service
Bill Brumgardt
Alessandra Chargarodsky
Patricia & John Dervin
Lynn Eikenberry
June England
Mary Ely
Louis & Lois Faverio
Jean Ferretti
in honor of John and Patricia Dervin
Angela Ford
Louise Hallberg*
Kathi Jacobs
Diane Jacobsen
Stanley & Mary Jones
Geri & Renee Kientz
Charles Lahm*
Christy Lubin
Don Mahoney*
Kathy Matteri
in memory of Dolores Mary, Mother
Monica McCabe
Mary McLain
Mary Miller
Karen Nagel
Jane Nielson
Kris Nevius
Gene & Kathy Pearson
in memory of Dave Snapp
Phillip Persons
Redwood Empire California Association of Nurseries & Gardens Centers
Linda Reichel
Donna Robles
Margot Rued
Judith Sherwood
Sandy and Kim Shirai
in honor of Joanne Taylor
Caren Signorelli
Art & Judy Slater*

Kathy Spalding
Gail Dubinsky Spielman
Kathleen & Helen Stewart
Linda & Walter Stewart
Judith Teves
Winter Family
Paul Wycoff
Judith Zuckerman

Organizations

General Hydroponics
Petaluma Seed Bank - Baker Creek Heirloom Seeds
Press Democrat
Rotary Club of Sebastopol
Shooting Star Propagation
Sonoma West Times & News
West County Gazette

Volunteers

Sarah Barnett
Sharon Beals
Julie Bennett
Haven Best
Loretta Bentancourt
Jo Benz
Lisa Bernsten
Tricia Boreta
Nassu Born
Leah Brorstrom
Mark & Gay Brorstrom
Pam Brown & the Redwood Origami Club
Margaret & Carl Brown
Sarah Brown
Bill Brumgardt
Caterino Contreras
Pat Costello
Bob Cugini
Hollynn D'til
Marilyn Deis
Molly Deis

Patricia Dervin
Mary Ely
Rich Fashbinder
Jean Ferretti
Peggy Fuchs
Norma Halbersma
Susan Harris
Jeff Herr
Billie Herring
Garth Hokansan
Nick Irizary
Kathi Jacobs
Linda & Jerry Johnston
Nancy Kissam
Judy Krist
Frederique Lavoipierre & SSU Students
Linda Lebovics
Wintress Lovering
Don Mahoney
Mickey Marshall
Alexandra McDonald
Pat Muscat
Kathy Oetinger
Karen Nagel
Kathy & Gene Pearson
Phil Persons
Wendy Peterson
Lisa Pierce
Jean Powers
Joy Price
Margot Rued
Joan Schwan
Kathy Spalding
Ingrid Stearns
Charlene Stone
Eric Suazo
Judy Tanner
Joanne Taylor
Kathy Trafton
Alex Weishaar
Ross Weishaar
Kris White
Paul Wycoff

I'm a Friend of the Gardens too!

- I wish to become a Friend of the Gardens
 I wish to renew my Friendship

- \$250 Pipevine Swallowtail
 \$150 West Coast Lady
 \$100 Monarch
 \$50 Buckeye
 \$25 Woodland Skipper
 \$ _____



- I wish to make a gift in HONOR of:

Name

- I wish to make a gift in MEMORY of:

Name

Your Name

Address

City/State/Zip

E-mail

Phone

Please make checks payable to:

Hallberg Butterfly Gardens

8687 Oak Grove Road
Sebastopol, CA 95472

(707) 823-3420

Your gift is tax deductible to the extent allowed by law. HBG is a 501(c)(3) nonprofit corporation. #91-1767178





Hallberg Butterfly Gardens

8687 Oak Grove Road
Sebastopol CA 95472

HALLBERG BUTTERFLY GARDENS

is a 501(c)3 nonprofit organization #91-1767178

BOARD OF DIRECTORS

Gay Bishop Brorstrom • Kathy Trafton
Kathi Jacobs • Wintress Lovering
Art Slater • Frederique Lavoipierre

OFFICERS

PRESIDENT: Don Mahoney
VICE PRESIDENT: Louise Hallberg
SECRETARY: Patricia Dervin
TREASURER: Joanne Taylor

THE PIPEVINE NEWSLETTER

EDITORS: Leah Brorstrom, Louise Hallberg,
Jerry Johnston, Linda Johnston
DESIGN: Oetinger Design

Our full color newsletter is now online at
www.hallbergbutterflygardens.org

Receive your newsletter by email! Drop us a line at
Leah@hallbergbutterflygardens.org

**The Gardens are open April - October,
Wednesday - Sunday, by Appointment. Call 707-823-3420**

Bees *Continued from page 10.*

in the depletion of bee populations.

Honey bees live in perennial colonies, with a generally solitary queen bee that lays all the eggs. Unfertilized eggs become drones, while fertilized eggs become workers. A fertilized egg laid in a special cell, and supplied with only royal jelly as larval food, becomes a queen. The queen lays hundreds of eggs a day, especially in the spring, as worker bees only live a few weeks and must be replaced. Workers divide labor according to life stages, beginning their adult stage with the care of larvae and queen. A few days later, they switch to hive maintenance tasks such as wax work and nectar processing. At about three weeks, most worker bees become foragers, while others take on roles in defense, or disposal of dead bees.

Honey bees collect pollen, a valuable source of protein for larvae, in 'pollen baskets' on their hind legs. They are able to communicate the direction and distance from the hive of good sources of nectar and pollen with the delightful 'waggle dance'. Honey bees visit a wide variety of flowering plants but concentrate on a single plant species at a time, making possible the diverse flavors of honey, such as the clear flavor of clover, the floral note of orange blossom, and the deep richness of chestnut.

Providing bee habitat is quite easy. Bee plant lists are readily available; choose plants blooming over a long season for best results. Select plants that will attract native bees in addition to honeybees. Annual native wildflowers are an important source of early spring nectar for native bees; many are easily established. Ground-dwelling bees prefer bare ground, and are often found nesting in sun-baked banks, so leave some areas mulch-free for their benefit. Populations of many species of wood-nesting bees can be established using readily available nest boxes, or make your own. Different-sized holes will accommodate a diversity of species. Solitary bees are either stingless or highly unlikely to sting. Most bee species are not aggressive and only sting in self-defense. Surely few things can give more pleasure in the garden than the gentle hum of flower-visiting bees.



Worker Honey Bee

Hallberg Butterfly Gardens 16th annual Open Gardens Celebration



Plants, Books,
& Handcrafted Items
for Sale
Walking Tours
Docents

Bird and Butterfly
Sightings
Children's Activities
Wildflower
Display

Free! No reservations needed!

Sunday, June 23, 2013
10 am to 4 pm

Limited wheelchair access ~ Please, no smoking or pets

www.hallbergbutterflygardens.org (707) 823-3420

8687 Oak Grove Road, Graton/Sebastopol
(Off Hwy 116, across from Oak Grove School)