



## Bees and Their Parasites

by Patrick Foley



Bees form a large branch of the family tree of stinging wasps, with 20,000 species worldwide dedicated to pollen and nectar collection. Compared to the typical wasp, they are usually furrier with plumose (feather-like) hairs on at least part of their body, and their mouthparts ("tongues") range from rather short to quite long, 20 mm or just over  $\frac{3}{4}$  of an inch.

Locally on the lower American and Cosumnes Rivers, Byron Love and I at CSUS have identified about 120 species of bees; and Robbin Thorp at UCD has identified about 200 species in nearby Yolo County, which includes higher altitudes and thus more diversity. California is the Amazon of native bee diversity with over 1,500 species!

Native bees such as bumblebees (genus *Bombus*) tend to live in the ground in old native rodent nests. Carpenter bees (*Xylocopa* and *Ceratina*) bore holes into soft wood to lay their eggs; leafcutter bees (*Megachile*) tend to put their pollen ball (with egg) into old insect tree holes; and most sweat bees and other bees put their pollen balls in underground tunnels. Native bees require some variety of noncrop plants around just to provide daily energy (nectar) throughout their adult lives.

Most flowering plants are pollinated by bees, although the wind does the job for grasses and many temperate trees. Birds and mammals take care of many tropical plant reproductive efforts, especially in Australia. Locally, we have a few hummingbird-pollinated plants, notable for their tubularity and red coloration. It has been argued that 30% of world food production

depends on animal pollination. So the importance of pollinators to our human and natural communities is enormous.

Native bees have been shown by Claire Kremen's teams in Yolo County and by Rachel Winfree's people in New Jersey to provide satisfactory crop pollination – if some of the nearby land is left in a somewhat natural state.

However, the non-native honeybee *Apis mellifera*, native to Africa and western Eurasia, is now a cosmopolitan human camp-follower, and we employ these eusocial, highly communicative beasts to provide much of our crop pollination services.

Bees, both native and non-native, like all living things, have

see **Bees** on page 3

## Sacramento Fine Arts Center and ARNHA Plan Fifth Art Gala -- Better Than Ever

by Liz Williamson



On Saturday, May 31, 2014, the Sacramento Fine Arts Center and ARNHA will present the fifth annual Painting Where the Wild Things Are! Art Gala and Auction, the biggest fundraiser of the year for ARNHA and the Effie Yeaw Nature Center.

The Sacramento Fine Arts Center organizes and hosts the juried art show on view between May 13 and May 30 at the Center at 5330 Gibbons Drive in Carmichael. A reception and awards presentation will be held there on Saturday, May 17, from 5:30 p.m. to 8:30 p.m., with the awards presented at 6:30 p.m.

The artwork will be auctioned at the Gala on the beautiful grounds of the Effie Yeaw Nature Center on Saturday, May 31, starting at 5 p.m.

see **GALA** on page 4

**Jack Hiehle Memorial -- May 17 (see page 10)**

# President's Message

Dear ARNHA Members,

If you've been to the Nature Center recently, you know that it's not just the birds chirping, bees buzzing, and wildflowers blooming. Busloads of elementary school children arrive daily for a firsthand experience with nature and with Maidu Indian culture.

I hope you treated yourself to ARNHA's annual Bird and Breakfast in March. It's not just a feast for your eyes and ears but also for your stomach! The weather was superb, and our friends from Sacramento Audubon provided expert birding guides both days, and Carmichael Kiwanis cooked and served a delicious breakfast on Sunday.

It's no secret that every day is Earth Day at the Nature Center, but this year was even more special as ARNHA welcomed our first cohort of the UC Naturalist Program. For ten weeks, this group of 22 Sacramento region adults will learn about the region's flora, fauna, habitats, geology, and interpretive science from subject matter experts. The combined lecture and field study will culminate in capstone projects designed to benefit the nature-oriented non-profits in the region and to provide a well-trained candidate pool of potential docents and staff for these same organizations, local governments, and private businesses.

Mark your calendar for ARNHA's *Painting Where the Wild Things Are* annual art gala. If you haven't joined us at the Gala before, we hope to see you this year. If you have, you know what an enjoyable fund-raiser this event is under the oak trees at the Nature Center. David Peterson and the Sacramento Fine Arts Center are once again taking the lead in coordinating artist participation and judging. We're fortunate that Elliott Fouts has agreed to be this year's juror and that former County Supervisor Muriel Johnson has agreed to serve as Honorary Chair. See you Saturday, May 31!

Recognizing that the Effie Yeaw Nature Center is totally dependent on donations and grants, I know that many of you give generously of your time and money. As always, "Thank you." Your contributions play an important role in creating future stewards of the American River Parkway and introduce thousands of schoolchildren each year to the wonder of nature.

Regards,

Diana Parker, President

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The *Acorn* is published quarterly on partly-recycled paper by ARNHA, a 501(c)(3) nonprofit organization. Letters to the editor should be sent to the address above.



Photos by Linda Thomas

*Above: A team from Sierra College earns credit for their Group Communications class by cleaning up litter from Ancil Hoffman Park during the Great American River Clean Up in April.*

*Right: Julia, Jude, and Joel Cruz gathered several bags of trash near Ancil Hoffman Park at the same event.*

their enemies, including each other and a wide array of parasites and pathogens.

Intensive agriculture and its reliance on the non-native honeybee is often the native bee's worst enemy.

Parasites have devastated the *Apis mellifera*. The *Varroa* mite rapidly wiped out feral honeybee colonies in North America

around 1987. Beekeepers responded with miticides, and more resistant strains of mites developed, some of which are now apparently going feral. *Varroa* mites suck hemolymph from the bees and can transmit some nasty viruses while doing so.

By 2003, the gut parasite *Nosema ceranae* had spilled over from *Apis cerana* in Asia to *Apis mellifera* everywhere. In 2006, the term Colony Collapse Disorder (CCD) was coined to describe the adult honeybee disappearance syndrome which, from 2007 to 2010, cost about 1/3 of the managed bee hives in the USA. There is no sure agent for CCD, although several researchers implicate *Nosema ceranae*, perhaps in conjunction with a virus.

Very likely, CCD has no particular cause. It is a standard strategy of parasitized adult honeybees to leave the hive permanently to avoid parasite transmission. A similar strategy is used by parasitized or cancerous mammalian cells. These cells will often undergo apoptosis (programmed cell death) rather than help out the parasite or selfish DNA.

CCD could be the result, not of one invasive parasite, but of a whole accumulation of stressors including *Varroa*, the miticides themselves, various neo-nicotinoid pesticides, *Nosema*, fungicides used to combat *Nosema*, and various viruses. Honeybees are social animals that share food from their foreguts (trophallaxis), live in permanent hives, and defecate indiscriminately in water sources and on flowers themselves. How could a hive not be an epidemiological hotspot? Actually, the defecation may not be indiscriminate; it may be biological warfare against other bee colonies or species, as they



Carpenter Bee



Leafcutter Bee



Mason Bee



Burrowing Bee

try not to defecate near their own hives. This is poorly studied so far.

Bumblebees are one target (intentional or not) of the rain of yellow *Nosema ceranae* juice. In 2009, Argentine researchers found the virulent gut parasite in native bumblebees, and this year *Nature* published a paper showing that several independent *Nosema ceranae* spillovers from *Apis* to *Bombus* are now occurring in England.

Bumblebees are widespread temperate/boreal bees with about 250 species, usually at higher altitudes and latitudes since they thermoregulate well. Their large furry bodies are well-adapted to cold, as is their habit of spending the winter not as a fuel-demanding hive (like honeybees), but as individual young queens who will start new colonies in the early spring. Bernd Heinrich, author of *Bumblebee Economics* and *The Mind of the Raven*, calculates that a single strong honeybee hive uses the resources of about 100 bumblebee colonies.

Buzz-pollinated plants such as manzanita, blueberries, cranberries and eggplants prefer bumblebees because they sonicate so well. *Bombus* is also better at opening pea family flowers, whose reproductive parts lie hidden in the keel until a big bee comes along. So *Bombus* is a useful pollinator for many native and crop plants. This leads to its own disease problems.

In 1992-1994 *Bombus occidentalis* and *B. impatiens* were shipped to Europe to be mass-raised for crop pollination services in North America. In 1998, the very extensive range of *B. occidentalis* (and three other *Bombus* species) collapsed. Robbin Thorp speculated that some pathogen strain from Europe was responsible, and recent work seems to confirm that *Nosema bombi* is the culprit. There is some evidence (including my own collections in the Sierra Nevada's Crystal Basin) that *B. occidentalis* is starting to recover. But this is hardly a one-time problem.

If a farmer plows from roadside to roadside, little nest or food resources remain for native bees. And if the farmer uses non-native honeybees as the exclusive pollinator, this pollinator 1) reduces native resources, 2) is highly vulnerable to socially-transmitted disease, and 3) may transmit parasites and pathogens to native bees, especially bumblebees.

The history of colony and range collapse of the social bees demonstrates the importance of maintaining native bee diversity to help buffer native and crop pollination systems against the

continued next page

*Bees, continued from previous one*

inevitable epidemiological problems of honeybees.

At present, with the exception of bumblebees and honeybees, we have little knowledge of local bee parasites, pathogens and epidemiology. And we put little management effort into maintaining native bee habitat. Trying to find a simple fix for the amorphous Colony Collapse Disorder is probably doomed, but keeping the natural diversity of native bees around is bound to prove useful. In that sense, CCD is a wake-up call.

*Patrick Foley got his PhD at UC Davis studying evolutionary genetics. Since then, he has mostly worked on extinction modeling of local and metapopulations and on the epidemiology of vector-borne mammal disease including plague and Lyme disease. He teaches entomology, parasitology, ecology and statistics at CSUS, and plays guitar with the local band Xylocopa ... when he is not wandering around California searching for bees and flowers. ■*



*Top: Megachile.*

*Middle: Poppy Halictid.*

*Bottom: Xylocopa.*

*Photos by Patrick Foley.*

*Illustrations are from The Outdoor World of the Sacramento Region.*



*Gala, continued from page one*

Muriel Johnson, former County Supervisor, is Honorary Chairwoman for the 2014 Gala, which features creative interpretations of local nature in a variety of media. Elliott Fouts, the owner of a Sacramento art gallery with a national reach, is juror. The charismatic David Sobon will be the auctioneer. CBS Channel 13's Marianne McClary will be joining Sobon on stage as Emcee.

And the Gala will again be a time for

art patrons, philanthropists, artists and nature-lovers to come together for an evening featuring delicious food from Spoons Encore, beverages, music, and silent and live auctions of juried artwork and other irresistible items.

Tickets for the Gala and Art Auction are available at the Nature Center or online at [SacNatureCenter.net](http://SacNatureCenter.net).

*Liz Williamson is a member of ARNHA's Board of Directors and Chair of its Events Committee. ■*



*Photo by Susan Maxwell Skinner.*

*Left to Right: Works from the 2013 Gala by Terry Pappas, Jian Wang, David Post and Maria Winkler, held by Barbara Lezon, Betty Cooper, David Sobon and David Peterson.*

## Easy Parkway Problem Reporting System in Place

Broken sign? Trail in need of repair? Illegal dumping? Now, there's an easy way in the unincorporated parts of Sacramento County to report non-emergency situations in County parks. Either phone 311 or download Sac County 311 Connect in the app store on your smartphone or visit [311.SacCounty.net](http://311.SacCounty.net).

"Parks users, runners, and bicyclists can report non-emergency concerns directly to 311 and representatives will do the rest," said County Executive Bradley J. Hudson. 311 staff members are available Monday through Friday, 8 a.m. to 5 p.m., to answer questions, route calls, and manage cases for verification and resolution.

On the new 311 smartphone app,

available in the app store for Apple and Android users, you can take a picture of the issue and attach it to your report from your phone.

To report problems in regional park sites anywhere in the incorporated and unincorporated areas of the county, report online to [SacParks.net](http://SacParks.net).

For all crimes and safety related calls, please dial 911 or 916-875-PARK (7275). You can report certain crimes such as vehicle theft and vandalism through the County Sheriff's online reporting website: [RegionalParks.SacCounty.net](http://RegionalParks.SacCounty.net). From the home page, click on Rangers. The online reporting link is in the middle of the Rangers page. ■

# Girl Scouts Study for Badges at EYNC



*Photos by Kari Bauer*

In February and April this spring, Effie Yeaw Nature Center hosted two Saturday sessions for area Girl Scouts.

At the earlier session, about 40 4th grade girls worked on Animal Habitat badges with EYNC Naturalist Mary Jane Boxer and EYNC docents Margaret Rogers, Rachael Cowan, and Kelly Cohen. They learned about our snakes and birds and their habitats as they talked and walked the Nature Study Area.

On April 12, about 50 Daisy Scouts, Kindergarten to 2nd grade, plus an eleven-year-old cadet, focused on the Bug Badge. They heard about bugs and hiked to discover bugs and bug homes in the Nature Study Area. A highlight was the chance for the Daisies to view aquatic bugs that Mary Jane had collected at William Pond Park.

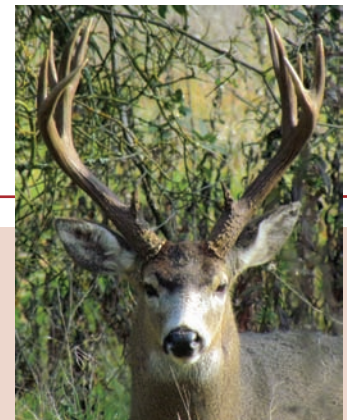
The Scouts plan to return next year to satisfy more badge requirements. ■

## Ask a Naturalist

**Q:** Why do deer lose their antlers and what are they made of?

**A:** Associate Naturalist Mary Jane Boxer: "Male deer grow and shed their antlers each year. Antlers are used primarily to attract females during the mating season and indicate dominance among the males of the herd. They are often used for sparring with other males and as a defense against other deer or predators. When the mating season is over, the antlers fall off over about a two-to-three week period. This does not cause the deer any discomfort. Several months after shedding, the antlers will begin to grow again in preparation for the next mating season."

"Deer antlers are made of a bony substance and start growing around April or early May and continue to grow through late August and early September. Antlers grow from two points on the head called pedicles. As they grow, they are covered with a soft tissue known as velvet. The velvet contains veins and arteries that feed nutrients to the growing bone structure. Once established in the summer months, the velvet falls off, and the hard bony structure remains."



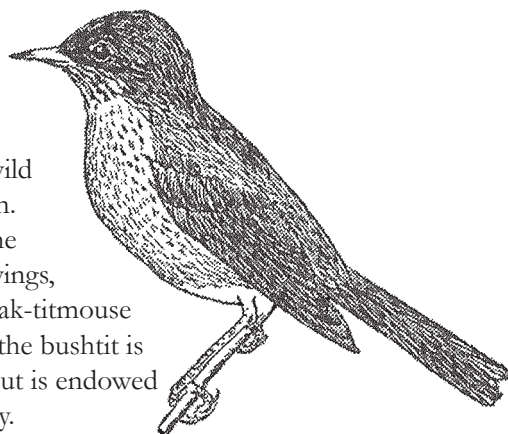
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  - Derrick Lim

**Thank  
you!**

## Little Engineers

Whoever named some of our wild birds didn't have much imagination. The western scrub jay brightens the landscape with bright blue head, wings, and tail and brownish back. The oak-titmouse boasts a lively flute-like song, and the bushtit is almost as tiny as a hummingbird but is endowed with a rare avian engineering ability.



Barely tipping the scales at a fifth of an ounce, the gray-brown bushtits make up for their tiny stature with a penchant for hanging together in flocks of 15 to 20. They have a knack of suddenly materializing in a big Chinese elm or live oak, communicating with each other in high lispy calls, then streaming off by twos and threes to another tree. This togetherness is even more notable in cold weather. Then, they may be found roosting in a row on a branch, pressed together to preserve heat in a sort of mid-winter slumber party.

By late winter, the long-tailed birds break up into pairs and start work on remarkably ornate nests that take as long as six weeks to complete. They use spider webs to create a horizontal rim in the forks of a branch, then work downward, weaving a seven-to-ten inch long, gourd-shaped nest of lichens, mosses, rootlets, and spider webs. The inside is lined with down, feather, and hair, reached through a tiny entrance hole near the covered top.

The parents work in relays to feed the young, bringing insects, spiders, plant lice, and scales to the nest. Most of the bushtit's food consists of harmful pests, so it is a good friend of anyone trying to coax flowers or vegetables out of the ground.

About now, most of the young birds are out of the nest, and family groups have joined forces, busily gleaning sustenance from the trees and demonstrating that birds of a feather do indeed flock together.

*From An American River Journal, published by ARNHA. It features drawings by ARNHA co-founder Jo Glasson Smith and essays by retired newspaper editor, Peter Hayes, an ARNHA associate board member. The book is available for \$9.75 at the Effie Yeaw Nature Center, [arnha.org](http://arnha.org), and selected stores. Visit [arnha.org](http://arnha.org) "Podcasts" to hear readings of the essays by the author.*

## Purchase Your Tickets Now for Taste of Carmichael - Friday, May 16, 2014

Presented by the Carmichael Kiwanis Club, the Taste of Carmichael showcases the best of what the city of Carmichael has to offer!

You'll enjoy samples from Carmichael's best restaurants, bakeries, and markets; wines from local valley and foothill vintners; a classic car display; and live music. The event also includes raffles and a silent auction. Don't miss this wonderful annual fundraiser that benefits programs in Carmichael for youths!

Tickets are \$35 per person and may be purchased at the Effie Yeaw Nature Center Visitor Center using cash or check. **100% of the purchase price of tickets purchased at the Nature Center go to the Nature Center.** ■

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# ARNHA / EYNC

## Student Internship Program Continues in 2014

by *Connie Wade*

ARNHA's Mission Statement includes "... bringing awareness of the beauty and diversity of the natural world to children, families, and the community through education initiatives that foster appreciation, enjoyment, and stewardship of the unique natural and cultural resources of the Sacramento region."

The ARNHA/EYNC Student Internship Program is one of the education initiatives that works to educate and foster stewardship. The ARNHA Nature Study Area Resource Maintenance and Monitoring Committee, RMC (previously called the Preserve Management Committee, PMC) has been administering this Student Internship Program since early 2012.

Our Committee agreed that there were two Nature Study Area (NSA) projects that ranked as priorities. Thus, the Deer and Wild Turkey Survey Student Internship Project and the Oak Tree Caging and Maintenance Student Internship Project were established. Students from California State University, Sacramento (CSUS) served as interns for these two projects in 2012 – 2013.

The 2014 Internship Program has begun with a bang! Through ARC's Cooperative Work Experience Education and Internship Program, very enthusiastic American River College (ARC) students are carrying on the vital work of these internship projects. ARC's Jennifer Neale, PhD, Department of Natural Resources, has well-educated students who are very eager to help in the maintenance and monitoring of the NSA natural resources.

### The Deer and Wild Turkey Survey Student Internship Project

The purpose of this internship project is to collect and record data which will reveal trends in the populations of

both deer and wild turkey within the Nature Study Area. This internship project began in 2012 and is intended to be on going over consecutive years.

This internship project includes surveying along specified trails within the NSA, collecting data for the number, age and gender of the deer and wild turkey. If the ongoing data suggests that the numbers of these animals are increasing, damage due to exceeding the carrying capacity of the habitat within this bounded area may be possible. Such habitat damage could also affect the health of these animals. If the survey data suggests a need for management of these animals within the NSA, appropriate methodologies would need to be developed.

*Photo by Kari Bauer*



*Interns Andrew Palomo; Desirey Morris; and RoseMarie Morgan.*

Advisors to the student interns for this project are RMC Members Peter Cross, Wildlife Biologist and Lead Advisor; Paul Tebbel, Wildlife Biologist and Executive Director of EYNC; and Kelly Cohen, Wildlife Biologist. ■

### The Oak Tree Caging and Maintenance Student Internship Project

This project was deemed a priority because the natural regeneration and maturing of NSA oaks are slowing due to deer and rabbit grazing on the oak tree seedlings and saplings. Also, we are losing Valley Oak trees, believed to be due to a lack of available water. This on-going internship involves:

1. **Caging** the naturally sprouted seedlings, saplings, and the young trees, upsizing the cages as the trees grow larger, and removing the cages when the trees grow beyond the "browsing height" of 4 ½ - 5 feet above ground.
2. **Maintenance** of the caged oak trees includes clearing weeds from the inside and the outside of cage containing a healthy, growing oak tree for about two feet beyond the cage. This maintenance is needed to help eliminate the competition for available soil moisture and sunlight, both required for the survival and growth of oak seedlings and saplings; and to help eliminate the attraction of insects living in weedy areas, which can damage or kill these new oaks.

Advisors to the student interns for this project are RMC Members Smokey Murphy; Jim Hill; and Connie Wade, Native Oak Woodland Ecologist.

ARNHA Board Members, EYNC Staff Members, and the RMC are very grateful to the student interns for their stewardship efforts on behalf of the Nature Study Area.



# March Bird and Breakfast Showcases Wildlife and Good Food

Photo by Linda Thomas



by Jamie Washington

With almost perfect spring weather, this year's two days of Bird and Breakfast dazzled attendees with wonderful views of wildlife behavior and wonderful breakfasts. Both the Traditional Saturday Bird and Breakfast and the newer Family Bird and Breakfast on Sunday were sold out.

Birding experts from Sacramento Audubon guided small groups through the 100-acre nature study area, helping guests see bird activity and nests, deer, and other wildlife. Turkeys astrut with fanned tails and in full mating color put on a show.

Thirty-one ARNHA volunteers signed in guests; prepared wonderful casseroles, fruit salads, and breakfast breads and jams; created gift baskets for the silent auction; passed out parking permits; photographed the event; worked the children's table on Sunday; set up, cleaned up, and more.

On Sunday, Carmichael Kiwanis volunteers prepared and served their signature pancakes and sausage breakfast.

Forty-five different bird species were spotted on Saturday including the unusual sightings of a Barrow's Goldeneye and a juvenile American Bald Eagle. Sunday birders spotted 50 different species.

But even more impressive as Sunday's

event was winding down, some of the children who had gone on the morning walk spotted and identified—*on their own*—a previously unnoticed Bushtit nest just in front of the Assembly Building! How many kids could do that?

*Jamie Washington is Volunteer Coordinator for Effie Yeaw Nature Center ■*



Photo by Kari Bauer

*Top Left: John Huff, Sacramento, points out where to look to see newly built Bushtit nests.*

*Top Right: An Acorn Woodpecker peeks out of his nest in the side of an oak tree.*

*Bottom: Lee Landry and Bird and Breakfast participants check birding guide for more details about the birds they are seeing.*

Photo by Linda Thomas



# Jack Hiehle, Environmental Stalwart

By Peter Hayes

Jack Hiehle, who over 25 years dedicated thousands of hours to local habitat restoration, leading instructive nature tours, and inspiring environmental stewardship, died February 23 at the age of 93. He had been in failing health since he fell cross-country skiing about three years ago and last fall suffered the loss of his wife of 63 years, Zilpha.

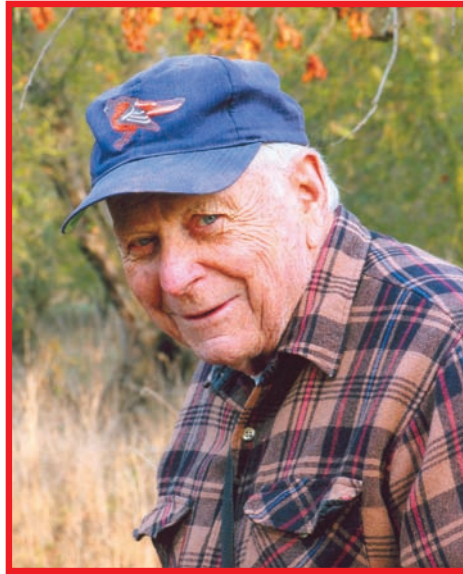
Twice honored by the Sacramento County Board of Supervisors as the Outstanding Volunteer in service to the Parks and Recreation Department, Jack retired in 1984 from the State Department of Parks and Recreation and served as resource ecologist and consultant for the Effie Yeaw Nature Center.

He led volunteer work parties that removed thousands of non-native plants from the EYNC Nature Study Area, including Spanish broom, pampas grass and yellow star thistle. He had a special passion for preserving native oak trees.

"To see Jack's legacy, I need only to look into the EYNC Nature Study Area," said Marilee Flannery, former EYNC executive director and current exhibits coordinator. "There, I'll see many 20- and 30-year-old oak trees growing and filling in the open spaces of the woodland. Jack knew the deer were eating nearly all the baby trees, so he caged any oak sapling he found until it was old enough and tall enough not be food for the deer."

The genial wildlife biologist also lent his expertise to the American River Natural History Association by coordinating its annual American River Parkway Wildlife Count and the popular Bird and Breakfast

Photo by Linda Thomas



fundraiser. He contributed to ARNHA's newsletter, *The Acorn*, as when he authored a lead story on rattlesnakes that cautioned against expecting them to invariably rattle when encountered.

Jack usually drew a crowd when he led nature walks sponsored by Effie Yeaw Nature Center, the Sacramento Audubon Society, or the California Native Plant Society, plus one by the Sierra Club for the visually impaired.

"Even at 90 years old he could out-walk most of us and he had a terrific memory for plant names, both Latin and common, and interesting facts about them," Jamie Washington, EYNC volunteer coordinator, said. "He could spot birds and their nests in trees half a football field away and could talk forever about their habits and traits and what made them interesting."

Bill Dillinger, ARNHA Associate

Board member and retired State Parks chief of public information, cited another reason why Jack was a well-loved nature trip leader. "He would suffer fools gladly even when a neophyte bird-watcher would mistake a robin for a woodpecker," Bill said.

Steve Flannery, Marilee's husband and retired chief parks ranger, submitted high praise about Jack, declaring "No one I know was a better guardian for the wildlife that lived within the American River Parkway, nor was more diligent in removing those plants that did not belong there."

And Jamie Washington, several years ago in a newspaper article, offered perhaps the last word about Jack, declaring, "Everyone working at the Nature Center wants to be Jack when we grow up."

A native of Pasadena, Jack began his remarkable voluntarism career in 1953 as West coast ski patrol leader. "I must have hauled more than 100 people down the hill on a toboggan," he once said.

Jack is survived by his son Torgen, of Carmichael, a granddaughter, nieces, and nephews.

Both Jack and Zilpha will be honored and remembered at a memorial service at which guests may come and go on Saturday, May 17, from 10 a.m. to 3 p.m. in the Assembly Building of the Effie Yeaw Nature Center. The service will feature an ongoing slideshow.

In lieu of flowers, contributions may be made to the American River Natural History Association, P.O. Box 241, Carmichael, CA 95609.

Photo by Linda Thomas. ■

## Anecdotes by Jack

Jack Hiehle always made his guided tours of the American River Parkway a trip to remember by spicing them up with anecdotes, such as the following from a 2008 article by Sacramento Bee reporter, Ramon Coronado:

- "This is Poison Hemlock. A tea was made from it, and this is what did Socrates in."
- "This is the Santa Barbara Sedge. The Native Americans used this plant for their baskets. It stays green all year around, and when other grasses burn, it slows down fires."
- "Mugwort keeps bugs away. Horehound is used for making candy. Miner's Lettuce is also edible as a leafy green."
- "The bulb of the soap plant has nearly a dozen uses. One is to reduce inflammation from poison oak. It really works," he said, recalling how his wife's poison oak rash disappeared after an application. ■

# EYNC Summer Nature Camps 2014

For five weeks this summer, from June 16 through August 1, the Effie Yeaw Nature Center will be abuzz with children ages 6 to 11 exploring nature in a variety of ways, actively learning and discovering while having fun! Will your child or grandchild be among them?

All classes provide expert adult guidance, yet the focus of each class differs. Nature Detective classes are one-week classes for children ages 6 to 8. The Water Wonders class dives into the world of water by investigating plants and animals in the American River and the importance of keeping our rivers clean. For those who are “nuts about nature,” the Nature Nuts class will head for local trails to find animals, plants, and the secrets of our local ecosystem. The City Critters class delves into the wild animals around us and how to create a friendly place for wildlife at home.

Junior Rangers programs are offered for older children, ages 8 to 11. The ever-popular, two-week Outdoor Adventures class includes hiking, fishing, crafts, games, a night hike, and river rafting. One-week Junior Rangers classes include Animal Caretakers, which will be of special interest to children who want to be a veterinarian or zookeeper; Natural Talent, an art class that uses natural art as inspiration; and, Outside & Unplugged, a great way to get outside for hiking, biking, gardening, pond exploration, and wildlife watching.

Classes meet from 9 am to 12 noon at EYNC, but most sessions include at least one off-site field trip that requires that children be dropped off and picked up at a different location.

Nature Detective classes are \$95 per week for ARNHA members and \$120 for non-members. Junior Rangers classes are \$110 per week for ARNHA members and \$135 for non-members; the two-week Outdoor Adventures class is \$200 for ARNHA members and \$240 for non-members.

For dates and more information, and to register, check the website at [SacNatureCenter.net](http://SacNatureCenter.net), call EYNC at (916) 489-4918, or stop by EYNC to pick up a brochure. Don't delay! Classes fill quickly. ■

*Future Scientists at work at Spring Nature Camp.  
Photos by Linda Thomas*

American River Natural History Association  
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## ARNHA Calendar of Events

- **Taste of Carmichael**  
Friday, May 16, 4:30 pm to 8 pm, La Sierra Community Center  
5325 Engle Road, Carmichael (story page 7)
- **30th Annual Nature Bowl Regional Finals**  
Saturday, May 17, 9 am to 4 pm, 3rd-6th grade student teams  
California State University, Sacramento
- **Painting Where the Wild Things Are**  
Saturday, May 31, 5 pm to 8 pm, EYNC (story page 1)
- **The Nature of Things Series: Falconry Seminar\***  
Thursday, June 12 and Saturday, June 14, EYNC
- **Summer Nature Camps**  
Monday, June 16, through Friday, August 1  
Effie Yeaw Nature Center (story page 11)
- **The Nature of Things Series: Rattlesnake Seminar\***  
Thursday, July 10, and Saturday, July 12, EYNC
- **Laurie Lewis Blue Grass Music at EYNC\***  
Saturday, July 12, 7 pm to 9 pm

\* See [SacNatureCenter.net](http://SacNatureCenter.net) for more details.

## Welcome New Members! January-March 2014

- Craig Anderson
- Anna Barela
- Jennifer Barr
- Patsy Barry
- Paul Barth
- Michele & Chuck Beckwith
- Donna Beeson
- Laurie Bellini
- Clifton Billings
- Nancy & Bob Blanc
- Teli Carrazana
- Frankie Christie
- Christl Clinton
- Wesley Collatz
- Liz Conlon
- David Crump
- Amy Dierlam
- Betsy Eaves
- Richard Ellis
- Sylvia & Douglas Enoch
- Dawn Epps
- Jane Ferguson
- Al & Dianna Fichera
- Terri Fuentes
- Mark Germain
- Sharlene Girouard
- Susan Goldstone
- Efren Goodman
- Christi Graham
- Ernest Gudel
- Elizabeth Gutierrez
- Robert Hammes
- Arthur Hartwell
- Justine Hearn
- Jennifer Hobbs
- Vicki L. Johnson
- Sue Keefer
- Ralph Koo
- Kristina Reed Lewis
- Christine Martin
- Susan & Chuck McIntire
- Frank Mele
- Charles T. Mitchell
- Amanda Mutrux
- Susan Oie
- Gibbe Parsons
- Marsha Prillwitz
- Joyce C. Rietz
- Sabryna Roberson
- Christine Sabin
- Joey Salyards
- Jonathan Schaub
- Joanne & Gil Schoefer
- Melissa Shumate
- Jennie Simpson
- Ruth Sitts
- Vickie Smothers
- Jeff & Marijoyce Stenger
- Dan Stone
- Joshua Tillum
- Claire Toney & Family
- Elizabeth Tuckwell
- H. Walter
- Elba White
- Kriss & Gretchen Williams
- Marilyn D. Wolf
- Bradley Wood
- Ty Yu