



Rattlesnakes and Rattles

By Jack Hiehle

Don't always expect a rattlesnake to announce its presence with a heart-warming (or heart-stopping) rattle. I tried recalling the rattlesnakes I've seen in the wild and with the help of a few notes, I came up with 56. Less than one in eight of the venomous snakes rattled when first encountered

There are a number of reasons for this. Rattlesnakes are members of the cold-blooded group (poikilotherms) that have no internal heating mechanism. When they are cold, they are very lethargic, and if you encounter one, the chance of it rattling is rare. An active, warm snake is much more likely to rattle.

Another more important reason is that members of the Western Rattlesnake species, *Viridis*, the

most abundant and widespread of the six California species, are generally non-aggressive and are more interested in escaping. They usually rattle only when harassed or cornered

Lastly, the reason you might not hear a rattlesnake rattle is because it can't.

Most people looking at a rattlesnake in the wild spend more time looking at the business end of them than at the tail. They don't notice that the rattle is attached perpendicularly to the body.

The rattle has definite top

and bottom sides. The top side keeps the rattle from drooping even when it has a number of segments. If a rattle was turned upside down, the rattle would droop. This is nature's adaptation to keep a rattle from dragging on the ground.

When a snake moves along the ground, it usually holds its rattle well above the horizontal; when alarmed and rattling, it holds the rattle in an upright position. In spite of its safeguards to keep the rattle intact, it gets banged around and often loses the button, the horny structure that the newborn snake has at the end of its tail.

Rattlesnakes give live

see Rattle page 3



ARNHA Board of Directors

Noah Baygell
President

Lee Wilner
Vice President, Membership

Peggy Kennedy
Vice President, Newsletter

Pete Hayes
Vice President, Publications

Claudia Hulbe
Recording Secretary

Paula Baldi
Corresponding Secretary

Roberta Wilner
Treasurer

Members at Large

Bill Davis
Lou Heinrich
Shirley Merrick
Greg Voelm
Jamie Washington
Larry Washington

Associate Members

Lisa Agoitia
Katie Baygell
Carol Doersch
Bud Getty
Mia Hershiser
Georgia Jones
Molly Keller
Ed Littrell
Pamela Maybury
Diana Parker
Kip Skidmore
Jo Smith
Lynn White

Representatives to other groups
Commission on History and Science
Greg Voelm

Parkway Advisory Committee
Noah Baygell

Parkway Master Plan Revision Committee
Lou Heinrich

American River Parkway Coalition
Lou Heinrich & Pam Maybury

Parkway Funding Group
Dodie Backus

Save the American River Ass'n.
Bud Getty & Pam Maybury

ARNHA

P.O. Box 241
Carmichael, CA 95609
(916) 489-4918 • www.arnha.org

The ACORN is published quarterly by
ARNHA, a 501(c)3 nonprofit organization

President's Column

As ARNHA moves into the autumn season, you will be pleased with what your organization is doing to "bring the American River Parkway to the People and the People to the Parkway."

Two evening forum programs are planned. On September 21, the program will detail archeology along the American River. On December 6, the program will discuss Swainson's Hawks. Both programs are at 7 p.m. in the Assembly Building and are free to the public. Refreshments will be provided.

We are full participants in the new update of the American River Parkway Update Committee and the American River Parkway Coalition, which is seeking permanent funding for the Parkway.

With other stakeholders, we continue to monitor the unsettled situation on Oat Hill, the nearly five-acre parcel adjacent to the Nature Center.

We continue to support the Effie Yeaw Nature Center with grants to schools for transportation to the Center and funding for programs.

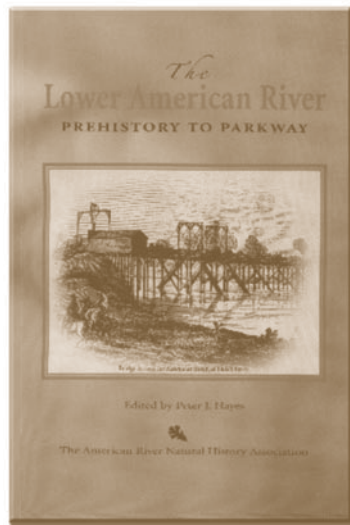
October events we support are Maidu Indian Day at the Center and the Salmon Festival at Nimbus Fish Hatchery. December events include, in addition to the above-mentioned Forum, the annual wildlife count and the holiday sale at the Nature Center store.

The new edition of *The Lower American River: Prehistory to Parkway* is now for sale in area book stores and at the Center. Last year's new edition of *The Outdoor World* continues to sell well. You may want to buy one or both books for your collection and other copies for family and friends.

Finally, I urge you to recruit at least one member for ARNHA. As you know, our organization has a dedicated membership. We think we can be even more effective in keeping the Parkway natural and the Effie Yeaw Nature Center robust with an even larger group. For this reason ARNHA is sending out membership recruitment forms in County utility bills. You should see them soon. If you tell your friends about ARNHA, they are more likely to join with you in supporting this good cause.

Noah Baygell

ARNHA President



ARNHA has just published a new, revised edition of its "History of the Lower American River." Here is a fact-filled account of a "pure gold" asset of California's heartland. It's the story of those who tapped the riches of the American River from Sacramento City to Folsom Dam. Here are Nisenan, the early trappers, the gold-seekers, the growers, the entrepreneurs, the empire builders and the latter-day heroes who still protect and preserve the 23-mile-long parkway. Dozens of vintage photographs, drawings, a historic map and timeline are included.

134 pages, \$14.95 at the Discovery Shop inside the Effie Yeaw Nature Center and local bookstores.

Rattle, from page 1

birth to their young, which are born in August through September. When first born, the snake can't rattle. Seven to ten days later, it sheds its skin and forms the first segment of the rattle. The new skin starts and conforms to the inside of the button. When the skin dries, it

consumed. It can shed as many as three times a season if it has a good food source. The shape of the rattles is quite pointed at first as the snake grows rapidly. All or most of a mature snake's rattle segments are the same size and by now most of the smaller segments have been broken off. A fully grown snake might eat only enough to maintain its size and shed only once a year.

Why does a rattlesnake rattle? Shaking a tail is a nervous reaction to an outside disturbance, and it occurs in a number of snakes besides rattlesnakes. It is interesting to know that rattlesnakes do not hear sounds but respond to ground vibrations and sight. They also respond to heat-sensing of prey and smell through the use of their tongues.

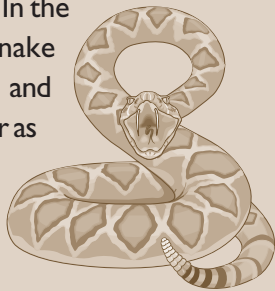
Not all rattlesnakes have the same-sounding rattle. Young snakes with few segments in their rattles sound differently from ones with more segments. A pygmy rattler from Mexico has a rattle

so small that it sounds like an insect, if it can be heard at all. Some people think the sound of a cicada resembles the snake's rattle. While I was riding a horse along a rock fence in the lava fields of Tehama County, a cicada suddenly buzzed, and my horse made a wild leap to the side. Horses apparently think cicadas sound like rattlers, too!

Author Jack Hiehle, retired Supervising Ecologist of the California State Parks Department, is a longstanding, tireless field trip leader and habitat improvement activist for ARNHA, Effie Yeaw Nature Center, California Native Plant Society and Sacramento Audubon Society. A Forestry graduate from UC Berkeley, Jack, 84, began his nationally recognized voluntarism career in 1953 as West Coast Ski Patrol leader ("I guess I hauled more than 100 people down the hill on a toboggan."). He has also volunteered with the Boy Scouts and Indian Guides. Jack and his wife Zilpha live in Carmichael. ■

In Snake Country

The rattlesnake, this area's only dangerous reptile, is not usually aggressive unless cornered. ARNHA's "The Outdoor World of the Sacramento Region" field guide quotes the California Department of Fish and Game as advising that when in snake country you should wear over-the-ankle boots and loose-fitting long pants, stick to well-used trails and watch where you step and place your hands. In the event of a snake bite, stay calm and get to a doctor as soon as possible.



shrinks inside the button and the loose button enables the snake to make its first rattle noise. As the snake grows, it has to shed its skin to allow for a larger body, and each time it sheds its skin, it adds a new segment to the rattle.

Each new skin starts in previous segments and, when dry and hard, becomes loose. The only part of the rattle that is firmly attached to the snake is the last segment. The rest of the segments are loosely formed together. When the snake vibrates its tail, each previous loose segment rubs against the one before, resulting in the rattling noise.

The number of times a snake sheds its skin depends on the amount of prey

Oh Give Me A Home Where the Valley Elderberry Longhorn Beetles Roam . . .



by
Michael
Plotkin

We seem to respond viscerally to a certain sort of species when we know their existence is threatened. The species that readily draw our passion are typically large, charismatic, doe-eyed, fierce, or delicately charming—the eagles, wolves, seals, redwoods, butterflies, larkspurs, salmon, elk. Unfortunately, most species in peril are not nearly so dramatic or commanding. Consider for example, the vilified lousewort (a vilification much enabled by its regrettable name), or the obscure snail darter. Consider the ephemeral and severely unappreciated scrap of our native fauna named the fairy shrimps, that spend their brief lives swimming on their backs in vernal pools. And consider the valley elderberry longhorn beetle. Though seldom seen, these insects make oval holes in the stems of mature elderberries; the holes reveal the presence of this small beetle known to science as *Desmocerus californicus dimorphus*. Of all the creatures that share the American River Parkway, few are as obscure as the valley elderberry longhorn beetle. And few, in their endangerment, can claim to be as iconic of the vanished grandeur of an entire ecosystem—the riparian gallery forest.

see Beetle, page 6

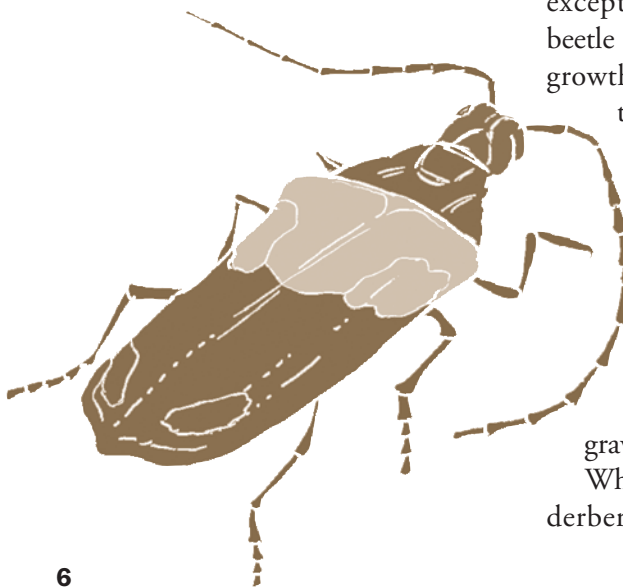
The Longhorn Beetles: Family *Cerambycidae*

The longhorn beetles are the seventh largest family of beetles, and there are about 1,100 species in North America. They typically have long antennae, sometimes twice the length of the body and are frequently brightly colored, making them popular with insect collectors. You can usually even find species from exotic locations for sale on eBay.

Many longhorn beetles specialize on particular plants, just as the valley elderberry longhorn beetle does. If you search milkweed plants, you might find a bright red beetle. This is a longhorn known as the red milkweed beetle. It sequesters the milkweed toxins in its body and becomes toxic itself, a fact it advertises with its striking coloration. Another brightly colored longhorn, the locust borer is yellow and black striped and very active, suggesting a yellow jacket. You can find images of these and more on the internet using the word “cerambycidae” or “longhorn beetle.”

In addition to the bright colors, many longhorn beetles have an interesting feature that can only be experienced in live individuals. If you pick them up, they produce a distinct chirping sound by rubbing their body segments together.

Unfortunately, many longhorns are woodborers in their larval stages, so they sometimes become pests. They impact a wide variety of trees, including pines and other conifers, locusts, fruit and nut trees, willow, elm, mesquite, mulberry, and many others.



Beetle, from page 3

Valley elderberry longhorn beetles complete their life cycle only in elderberries (*Sambucus sp.*), which are common members of valley riparian forests. These great forests used to occur along all Central Valley watercourses, extending up to three miles out from banks. They were fantastic and rather scary to settlers, with their massive trees, impenetrable thickets, and tangled jungle-like growth of festooning vines. (Some of the area near the Effie Yeaw Nature Center can give you an idea of what the former riparian forests probably looked like.) Most of these forests have been cleared—only about 1.5% of the original remains—and the beetle, perhaps never overly common, has, not surprisingly, become

exceptionally rare. Fortunately, the beetle does not depend strictly on old growth riparian forest and could, in theory, survive in the remaining patches of riparian vegetation. Unfortunately, these are often degraded by grazing, pesticide drift, river dredging, and bank stabilization. Introduced Argentine ants (*Linepithema humile*) are the primary predators of the beetles and may represent their gravest long-term threat.

When viewed up close, the valley elderberry longhorn beetle is actually

quite attractive. The females have dark metallic green backs with a red margin. The males have a bright red back with several black spots. The antennae of both genders are at least as long as the body, hence the common name “longhorn.”

In spring, around the time that the elderberry flowers, adult beetles emerge from the tree leaving the tree trunks with distinctive oval holes 6-10 millimeters in diameter. They eat the foliage and flowers of the elderberry, search for mates, and pass the few short weeks of their adulthood in the canopy. After mating, the females lay eggs on the bark or leaves of mature elderberry trees. Eggs hatch in a few days, and the grubs gnaw their way into the tree, where they will remain for one or two years. The larvae pupate in the tunnels where they have lived, but first they bore the escape holes and plug them with frass (droppings and wood debris). Since the adults are not long-lived and may be hard to find even when they are present, the primary clue that the valley elderberry longhorn beetle exists in a suitable habitat is the holes in the tree trunks.

The valley elderberry longhorn beetle was listed under the federal Endangered Species Act as “threatened” in 1980. (The state of California does not list the beetle.) The elderberries that provide its critical habitat (those with stems over one inch in diameter) are now usually protected too. The Fish and Wildlife Service recommends a buffer zone of at least 100 feet around elderberries to prevent any impact from human activities.

Recent field surveys have found only remnant populations of the valley elderberry longhorn beetle along some of the rivers in the Central Valley. The American and Sacramento rivers are important refuges for the beetle, along with the San Joaquin, Kings, Kaweah, and Tule rivers.

Marcel Holyoak and his students at UC Davis currently study the conservation of the beetle. They, and other re-

continued next page

searchers, have discovered a number of interesting things. For example, they have shown that the beetle prefers shrubby elderberry (with numerous stems) rather than isolated trees, branches that are 5-10 cm diameter and no more than 1 meter from the ground. More significantly, they have found that, at a local level (within a watershed), new sites frequently gain or lose their beetles. But at a larger scale (between watersheds) little colonization or extinction occurs.

Scientists have realized that metapopulations (a group of local sub-populations linked by dispersal) can persist even when a continuous population becomes fragmented—which is what has happened to the beetle. However, persistence of a metapopulation depends on migration between isolated patches. The valley elderberry longhorn beetle seems to have little tendency to colonize new areas. Clumps of elderberry that were previously colonized during one study tend to be surrounded by more currently occupied sites than clumps of elderberry that were not previously colonized. This suggests that the beetle may not disperse very effectively, which in turn suggests how crucial conservation of habitat patches will be to maintaining the species.

The results of the studies of Holyoak and his collaborators suggest strategies for conservation of the valley elderberry longhorn beetle. The research on the beetle also yields understanding of how to conserve and restore the habitat on which the valley elderberry longhorn beetle depends—the riparian forests. Thus an obscure species may have something important to tell us about how to keep our rivers vital, if we can only learn to listen.

Michael Plotkin, a frequent contributor to the Acorn, teaches classes in gardening, native plants and garden design. He is currently at work on a botany textbook and a bilingual book on Mexican gardens. ■

Valley Elderberry Longhorn Beetles Online

You can find a drawing of the beetle suitable for children to color in the Endangered Species Picture Book

• www.epa.gov/espp/coloring/doc19.htm

There is a description of the beetle and its critical habitat at

• www.sacramento.fws.gov/es/animal_spp_acct/valley_elderberry_longhorn_beetl.htm

Conservation Guidelines are given at

• www.sacramento.fws.gov/es/documents/velb_conservation.htm

Finally, you can find great pictures of the beetle and information about its life cycle from Theresa Talley, a student of Marcel Holyoak, at

• www.des.ucdavis.edu/students/talley/

PAGES FROM THE ALMANAC

War Paint

The approach of autumn may cause transplanted easterners to start missing the brilliant colors of the season back home. But not to worry. The valley and foothills do offer swatches of red and orange foliage, although we're talking here about poison oak. You take your fall color where you find it in this Mediterranean-type climate. Unfortunately, poison oak's brilliant colors do not lend themselves to table decorations since their leaves give off oil particles that irritate the skin of those who are allergic.

This feature is embodied in the old-fashioned warning, "Leaflets three, let it be; berries white, hide from sight." Each poison oak leaf stem contains three-lobed leaflets that resemble the leaves of our native oaks, although poison oak is not an oak but a member of the sumac or cashew family and a cousin of the East's poison ivy.

Poison oak's whitish or brown berries often remain on the shrub all winter, providing important food supplies to woodpeckers, magpies and other birds. They aren't affected by the plant's poisonous qualities, just as rabbits, deer and bears can browse on the leaves with impunity.

Poison oak's fall war paint reminds us that most early-day American natives also were immune to the plant. The juice from its leaves and stems turn black on exposure to the air, and the natives used it as a dye in designs worked into their beautiful basket-making. But for most of us, poison oak must remain a look-but-don't-touch accessory to the fall landscape.

Reprinted from ARNHA's "An American River Almanac: Reflections on nature throughout the year," with essays by Peter J. Hayes and color photographs by George Turner and Tom Myers. It can be purchased at the Effie Yeaw Nature Center and selected bookstores.



American River Natural History Association

P.O. Box 241
Carmichael, CA 95609-0241
(916) 489-4918
www.arnha.org
Address Service Requested



Nonprofit Organization
U.S. Postage
PAID
Permit No. 226
Carmichael, CA

EVENTS CALENDAR

- Great American River Clean Up
September 17; 9 to noon
www.arfp.org for more information
 - Archeology along the American River
September 21; 7 p.m. EYNC
 - Maidu Indian Day
October 1; 10a.m. to 4 p.m. EYNC
 - Salmon Festival
October 8 & 9; 10 a.m. to 4 p.m.
Nimbus Fish Hatchery
 - Christmas Wild Animal Count
December 3
 - EYNC Store Holiday Sale
December 3; 9 a.m. to 1:30 p.m.
 - Swainson's Hawks
December 6; 7 p.m. EYNC
- *EYNC: Effie Yeaw Nature Center

Task Force Approves Indian Heritage Center

A state task force has approved a plan to build a California Indian Heritage Center on a 201-acre site along the American River Parkway where early Nisenan peoples once speared salmon and snared small game. The site is a natural area near Northgate Boulevard in the city of Sacramento.

But many questions remain on the scope, design and financing of the project—with input from nearly a dozen government agencies—and it was expected to be a matter of years before construction is started.

Costing upward of \$100 million, the center would attract both Native Californian groups and those interested in early American history. It would have areas for tribal meetings, a museum, a theater and gardens of native plants.

The California Indian Heritage Center Task Force, made up of state parks, Indian Heritage Commission and tribal representatives, voted 7-1 for the Northgate site. Chairwoman Cindy La Marr dissented and resigned, having favored an alternate site in Folsom on Lake Natoma. She expressed concern over delays at the Northgate site caused by legal challenges, possible flood damage and the problem of displacing the homeless who live in the area.

Northgate was strongly supported by Sacramento Mayor Heather Fargo, who called it “a gorgeous site” and said that it could serve as a catalyst for revitalizing that part of the city and parkway. Many parkway activists favor preserving the Nisenan legacy in the parkway with such a facility. But they’re concerned about the lack of details about a project that is envisioned in preliminary designs as a 60,000 square foot center with some elements on stilts in a naturalistic setting. “Nobody wants an eyesore like that in the parkway,” says Alan Wade, president of the Save the American River Association.

Annual Holiday Shopping Event!

**Saturday, December 4th
from 9:30am-1pm at the
Effie Yeaw Nature Center Discovery Shop**

Featuring Holiday Music & Refreshments

Gifts for all ages – see what’s new!

2004 Edition of *Outdoor World of the
Sacramento Region*.

Stocking Stuffers

Local artists and photographers

Free gift-wrapping of your purchases

Members get 10% discount (20% off retail)
(excludes original art on consignment)

*The Nature Discovery Shop in the Effie Yeaw
Nature Center offers a variety of books for
children and adults, jewelry, puppets, toys,
nature t-shirts, ornaments, decorative gifts and
more. All profits go toward environmental
education programs along the American River
Parkway. Questions? Call 489-4918.*

All ARNHA members who want to learn more about becoming a member of the Board of Directors are invited to a reception at 6:00 pm before the September 14 meeting of the Board at the new Assembly Building at the Effie Yeaw Nature Center. Refreshments will be served.