

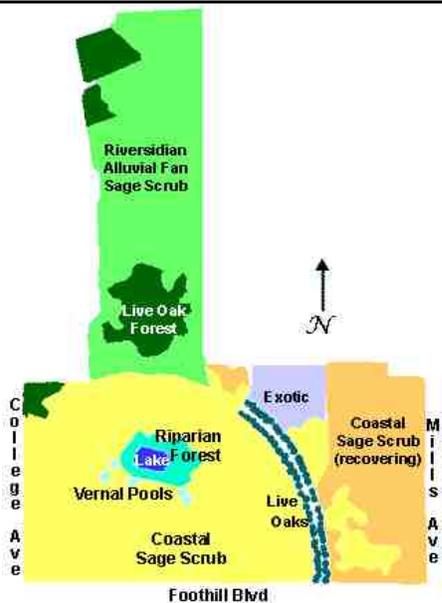
Friends of the Bernard Biological Field Station
P.O. Box 1101
Claremont, CA 91711
The Friends is a non-profit, grassroots organization.

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*“Dedicated to Education
and the Environment”*

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How big is big enough?

A field station is land left in its natural state for use in the study of complex interactions between plants and animals. The usefulness of such natural laboratories depends on size and shape. Extinctions occur frequently in small areas, due to smaller populations. The current 85 acres is just large enough to maintain reasonable stability in the existing ecosystems. Narrow shapes increase the amount of pollution by noise, air, water, and pesticides from surrounding areas, and increase the chances of competition from exotic (non-native) species.

Who uses it?

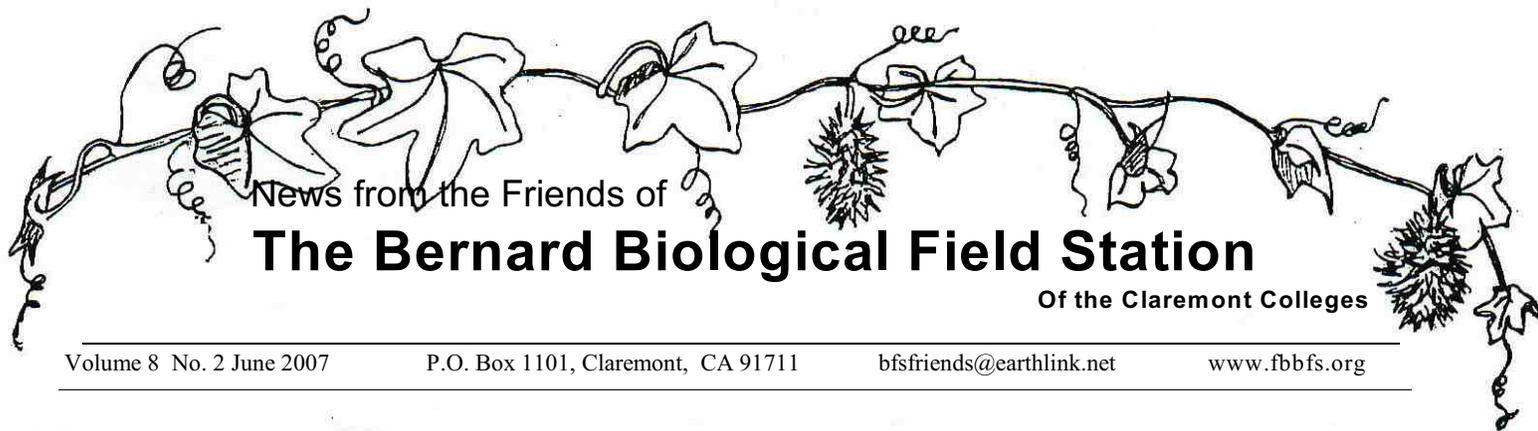
The BFS is used by Claremont Colleges faculty and hundreds of students every year, as well as by many schoolchildren from Claremont and the surrounding areas. It has also been used by college classes from as far away as Long Beach, by scout troops, and by members of the public.

What's there?

There are over 30 acres of the fast-disappearing coastal sage scrub community along with a number of species of state or federal concern.

Since much of Claremont was originally covered with coastal sage scrub, it is a fascinating window into our past.

There is a stand of oak woodland in the north where water wells up along an earthquake fault, there is annual grassland slowly returning to coastal sage scrub in the east, and there is a one-acre, man-made lake excavated in 1978 which is a sanctuary for western pond turtles displaced by development.



News from the Friends of
The Bernard Biological Field Station

Of the Claremont Colleges

Volume 8 No. 2 June 2007

P.O. Box 1101, Claremont, CA 91711

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www.fbbfs.org

***** Join us on the 4th of July!**

We'd love to have you help out at our information table in Memorial Park on the 4th. If you can volunteer an hour or two between 10am and 4pm, please send an email. You can also be part of our marching group in the parade and hold a colorful sign showing one of the field station's plants or animals. Join in the fun!

Introduction Reduction!

About 30 Introductory Biology students attended work days at the BFS to help keep the invasive yellow star thistle, *Centaurea solstitialis*, under control. This species, unintentionally introduced from the Mediterranean, is listed as a noxious weed throughout the United States. The 2 to 3 ft plant starts out as a rosette of slightly sticky, lobed leaves and then puts up branched stems ending in small, spiny, yellow blooms of typical thistle shape. A single plant can produce from 1000 to as many as 150,000 seeds! The seeds germinate very well into thick patches and crowd out the native wildflowers. The plant is toxic to horses and possibly produces chemicals which stunt the growth of nearby plants. A pest everywhere.

Sustainability Efforts

As previously mentioned, 'sustainability' is the underlying theme of Claremont's new General Plan and it is mentioned throughout the document. One of the measures called for in the Plan is the creation of a Sustainability Task Force to be composed of city staff, commissioners, and members of the public. This body is currently being created and staff is considering how to implement the recommendations of the recent Mayor's Ad Hoc Committee on Sustainable Development. The Ad Hoc Committee spent several months determining which areas should be addressed first, what the cutting edge practices were in these areas, and what Claremont should do to move ahead. The conclusions were presented to the City Council as

a "Green Paper". The new Sustainability Task Force will need to address issues of social, economic, political, and environmental sustainability as well as sustainable development.

The League of Women Voters is currently assembling a booklet which will provide some background on sustainable development practices along with how to get more information on its various aspects. This should be available in the fall.

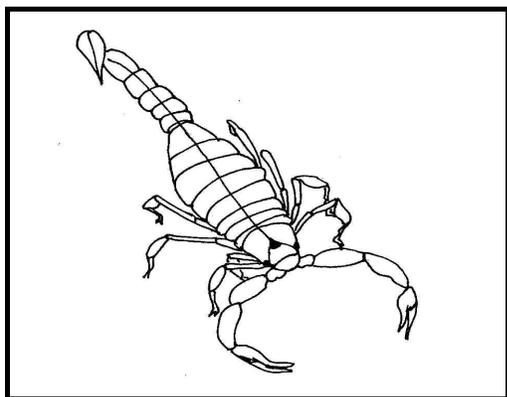


Sightings

- ✓ bright yellow ground-hugging flowers of Sun Cups against rosettes of thin, green leaves
- ✓ pretty purple *Phacelia* contrasting with frilly white popcorn flower.
- ✓ a California Racer speeding across the path, in search of lizards.
- ✓ A tiny scorpion caught in a pitfall trap
- ✓ ground squirrels streaking in and out of the brush
- ✓ a Western Pond Turtle laying eggs in a small meadow south of the lake
- ✓ thousands of tadpoles in the vernal pool
- ✓ cheery blue Chia and purple stars of nightshade
- ✓ harvester ants hard at work collecting seeds
- ✓ hawks circling overhead
- ✓ coveys of quail crossing the road
- ✓ students intent on counting pollinator visits to Yerba Santa in sun and shade
- ✓ more students collecting nectar, competing with the bees
- ✓ Sagebrush finally leafing out with narrow, gray, aromatic leaves
- ✓ a heavy crop of golden currants in spite of the lack of rain
- ✓ vivid blue and purple spires of penstemon



Meet the Inhabitants!



Scorpion

Superstitionia donensis

Superstitionia donensis was first described in the Superstition Mountains in Arizona in 1940 and is named for them. The second part of the name refers to the site where it was found, Don's Camp, which was used by the Don's Society of Phoenix.

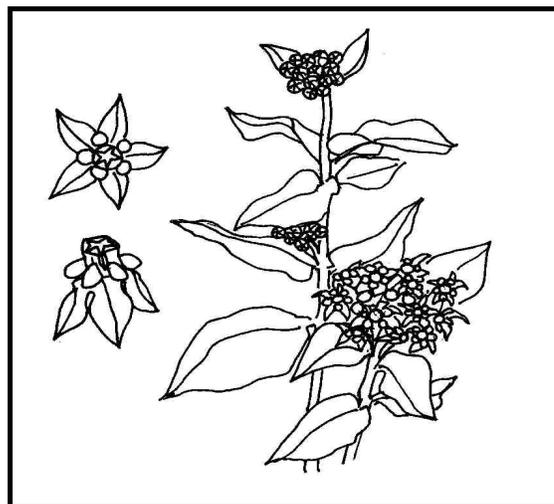
This scorpion belongs to the family Superstionidae which is a most unusual group. All the other species in it are adapted to cave-dwelling and so they are pale, with reduced or missing eyes. Since *S. donensis* still has eyes it is probably one of the older species in its order. It has a wide range and is found in New Mexico, Arizona, the southern edge of Nevada, Southern California, and Baja down to Sonora..

Superstitionia donensis is a very small scorpion with an adult size of about one inch. It is shiny dark brown with some lighter brown. It lives in burrows in the soil at the BFS or under rocks or logs, and is rarely seen. Specimens that have been caught are ones that have fallen into pitfall traps placed to capture insects. Like all scorpions, it is a predator and is venomous, but not know to be dangerous to people. It generally tries to play dead if caught, but it will raise its tiny claws and defend itself if it feels threatened. Not much is known of its feeding or breeding habits.



"A tour of the property readily convinces visitors of the importance of keeping such a beautiful expanse of land, shrubs, and trees for scientific purposes ."

Robert J. Bernard in "An Unfinished Dream" pg 708



Milkweed

Asclepias species

Asclepias californica, *A. eriocarpa*, and *A. fascicularis* are perennials that grow to about 2 feet in dry soil in sun in grassy or brushy areas. *A. californica* (California milkweed, drawn) has broad, hairy, opposite leaves and umbels of purplish flowers with reflexed petals between April and July. *A. eriocarpa* (Indian milkweed) is similar to *A. californica* but the leaves may be whorled and the flowers a pale pink. *A. fascicularis* (narrow-leaved milkweed) has narrow, smooth leaves in whorls of 3-5, and greenish-white flowers.

In all three species pollen is grouped in sticky masses which are carried off on the feet of visiting insects, mainly nectar-loving wasps. Although bees visit frequently for the nectar, they are generally not effective pollinators. Butterflies also drink the nectar and Monarchs lay eggs on the plants. Their caterpillars ingest toxic chemicals as they feed and these help protect them from predation.

The Tongva called this time of year 'Sinticar', the brown and sear time, but despite the heat and dryness, milkweed (Tohachear) thrives and blooms.

Milkweed was an important plant for the Tongva. The roots, flowers, leaves, pods, and stems were boiled and eaten. Parts were added to Manzanita seeds, ground into "flour" and then made into mush or baked as cakes.

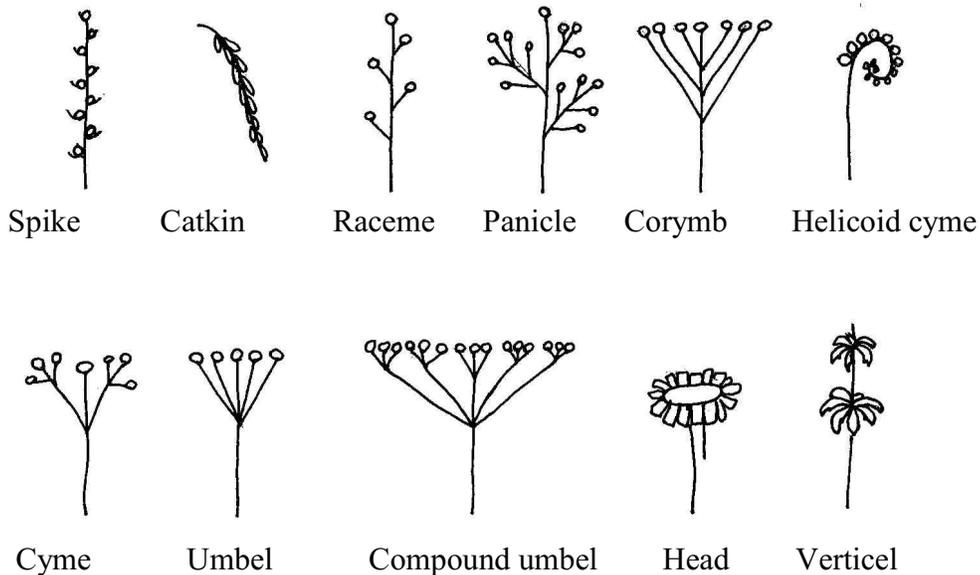
Milkweed also offered its thick milky juice as a protection for cuts and wounds and as a lubricant in tattooing. Milkweed was used to treat bites: *A. californica* for spider bites and *A. fascicularis* for snake bites. Both species were burned and the smoke inhaled for treating asthma.

Probably the most important use was as cordage. String and fishnets were woven from Milkweed; rabbitskin blankets were sewn with Tohachear thread. Tongva men wore hairnets made of *Asclepias* cordage and decorated them with shells. And paintbrushes were made from Milkweed fiber. An excellent "weed"!

Inflorescence Types

Sometimes flowers grow one on a stalk, but many times they grow in groups. Some common inflorescence types are listed below. *Note: simpler types can be combined so that you have, for instance, a panicle of heads, or a raceme of umbels.*

- Catkin:** Male or female flowers only, arranged on a pendulous stalk (willow, oak)
- Corymb:** Flowers arranged alternately on a stalk, but all at the same height due to different length pedicels, giving the group a flat-topped appearance (yarrow, lacecap hydrangea)
- Cyme:** Flowers arranged like a corymb, except that the flower cluster blooms from the center outwards and the main stalk is always terminated by a flower (valerian, cinquefoil, apple)
- Cyme, helicoid:** One-sided, coiled, resembling a fiddle-head (fiddleneck, Phacelia)
- Head:** Cluster of flowers without pedicels, all on top of a single receptacle. In daisy-type flowers, there is often a central section of flowers without petals (disc flowers) surrounded by a ring of single-petalled flowers (ray flowers). The whole group is sometimes mistaken for a single flower. All the flowers may be disc or ray. (thrift, sunflower)
- Panicle:** Flowers arranged on a branched stalk (grapes, toyon)
- Raceme:** Flowers with short pedicels arranged on an unbranched stalk (tomato, monkeyflower)
- Solitary:** One flower which terminates an apex, or only one flower in the axil of a leaf. (daffodil, violet)
- Spike:** Flowers without a pedicel, attached to an unbranched main stalk (Gladiolus, Freesia)
- Umbel, simple:** The pedicels of all flowers start from the end of the main stalk (Pelargonium, Allium)
- Umbel, compound:** As a simple umbel, but the inflorescence is branched. (Queen Anne's lace, carrot)
- Verticel:** Axillary whorls of flowers radiating in many directions (Jerusalem sage, dead nettle)



- apex:** the tip of a stalk or branch (or root)
- axil:** the acute angle where a leaf meets the stem
- pedicel:** a short stalk
- receptacle:** structure to which flowers are attached

*Diagram of inflorescence types modeled after a figure
From **Botany** by Nadakavukaren and McCracken
West Publishing Co 1985*

Teachers and Group Leaders

Any time is a great time to visit the BFS!

**To arrange a visit,
call (909) 625-8701**

Johnson's Pasture: Welcome News!

On June 12, the City Council announced they had reached agreement with all the owners of Johnson's Pasture to purchase the land for \$11.5 million. That means we will get the \$1 million grant from the state. One more piece of relatively undisturbed land saved! Many thanks to all who helped with Measure S.