

News from the Friends of

# The Bernard Biological Field Station

Of the Claremont Colleges

Volume 14 No.2 June 2013

P.O. Box 1101, Claremont, CA 91711

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[www.fbbfs.org](http://www.fbbfs.org)

## This is the last paper newsletter!

If you would like to be on the email list please send a note to:

[bfsfriends@earthlink.net](mailto:bfsfriends@earthlink.net)

This will help save time, money, and trees, and allow us to include color photos and active website links, so please give it a try!

*(You can of course remove yourself from the mailing list at any time, and the newsletters will also continue to be posted on the website.)*

## 4<sup>th</sup> of July

We will once again be setting up an info booth at the 4<sup>th</sup> of July celebration in Memorial Park. If you have a hour or so to help, please let us know.

The annual parade will start at 4pm and we would love to have you join us—we have some spiffy signs with pictures of BFS plants and animals. Stop at the booth to find out where our starting location is, or send an email to ask.

## BFS Receives Funding from the National Science Foundation!

*Wallace Meyer, Director, Bernard Field Station*

I am excited to report that the Claremont Colleges has been awarded a National Science Foundation (NSF) planning grant to develop an integrated and collaborative research network focusing on the biomonitoring and conservation of Southern California ecosystems. The centerpiece of this effort will be the Robert J. Bernard Field Station (BFS; <http://bfs.claremont.edu/>). The grant will support two workshops to bring together Southern California researchers and land managers to achieve the following goals:

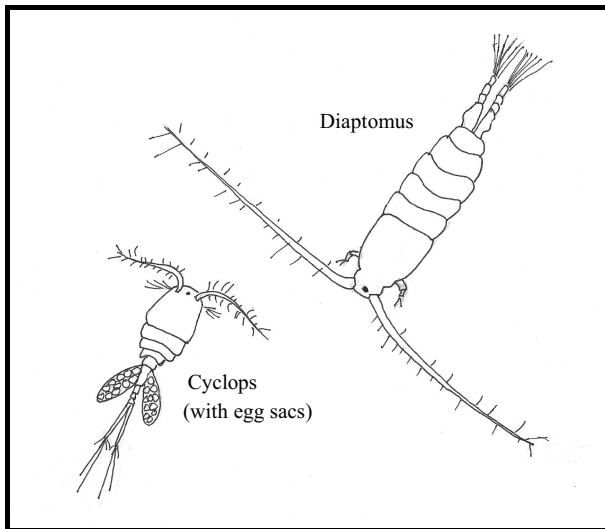
1. **develop a network of collaborators focusing on the ecology, biodiversity and conservation of Southern California ecosystems**
2. **design a biological and climate monitoring program at the BFS that provides a foundation for future research and educational activities**
3. **improve the ability to collect, access, archive, and disseminate ecological and climatic data sets.**

## ❖❖❖ Sightings ❖❖❖

- ✓ Beautiful blues sipping nectar from pink and white buckwheat blossoms
- ✓ Baby coots-totally cute!
- ✓ Gorgeous purple-tinged white trumpets and dark green leaves of Datura
- ✓ Masses of yellow bloom and a noticeable buzz of bees on the palo verde
- ✓ Lizards doing pushups
- ✓ Harvester ant nest openings accumulating a ring of discarded stalks and petals
- ✓ Soft, grey mounds of doveweed
- ✓ Short, yellow stubble in grassy areas, cut down to eliminate invasive thistles
- ✓ Rushes blooming at the lakeside
- ✓ Dragonflies darting in orange and blue splendor
- ✓ Families of quail erupting from the shelter of the sagebrush
- ✓ Golden currants heavy with fruit
- ✓ Cheerful, energetic volunteers!

A product of this effort will be a 10-year strategic plan that will outline the implementation of bio- and climate monitoring programs and a data management program at the BFS and describe how these programs can be incorporated into curricula at the Claremont Colleges and collaborating institutions. These planning efforts will have a regional research focus to provide diverse research opportunities for students at the Claremont Colleges and exploit the unique location of the Claremont Colleges to play a leadership role in regional ecology and biodiversity research.

## Meet the Inhabitants!



### Copepods

Copepods ("oar-feet") are found in all sorts of wet areas including lakes, the ocean, swamps, puddles, the water-filled recesses of bromeliads, caves, sinkholes, and other wet areas, including, of course, pHake Lake at the BFS.

These members of the zooplankton are generally quite small, generally under a millimeter long, but a few species found at the poles are almost one centimeter long. Like other crustaceans, such as shrimp, lobsters and pillbugs, they have a hard exoskeleton rather than internal bones to support their muscles. Since they are so tiny, this tough outside support is still quite thin and because of this, transparent enough so you can see the internal organs through it. This small size means that they also do not need a heart or circulatory system to

move nutrients or oxygen around. In fact, most simply absorb oxygen from the water directly into their bodies. The majority of copepods have a single compound eye, (often bright red!) set right in the center top of their heads—hence the common name “cyclops” for one genus—although some species that have evolved in caves have lost their eyes entirely. Copepods have two pairs of antennae; in some species the first pair are very long.

Copepods occur in huge numbers in the zooplankton, and are major food organisms for many other aquatic organisms. They are very important to maintaining global ecosystems. Copepods themselves can be herbivorous, feeding on algae or single-celled phytoplankton, or they can be omnivorous. Larger ones may add other small animals to their diet, including smaller copepods and even some fish fry. They have long bristles that bend in water currents, allowing them to tell the difference between nearby predators and prey and to act accordingly!

Some species of copepods can survive for months in outdoor containers and will attack, kill, and eat younger mosquito larvae so they are being investigated as a method for mosquito control. Copepods are also sensitive to heavy metals in the water and are sometimes used as bioindicators. A fascinating part of the microscopic world!



### Canchalagua

*Zeltnera venusta* (formerly *Centaurium venustum*)

Canchalagua (also called “charming centaur”) is one of the prettiest annual wildflowers at the BFS. It is a California native common throughout the state in open areas of coastal sage

scrub, chaparral, and grassland. It's short, never more than a foot tall and usually about half that. Some plants have a single stalk but others branch out, creating a bushier look. It usually occurs in large drifts. The leaves are smooth, pale green, and narrow, more or less oval with a pointed end. They occur in pairs along the stem, an arrangement termed "opposite" for obvious reasons. The leaves don't have a stem (a petiole) but are sessile, meaning they are attached directly to the plant stem.

There is one beautiful, trumpet-shaped flower at the end of each branch. These have five bright pink petals, each with a pointed white patch at the base, and a yellow throat. The five stamens have lozenge-shaped anthers that twist open spirally when visiting pollinators visit the flowers. The pistil has a long, thin style expanding into a two-part stigma looking somewhat like an open book. This creates a largish area for pollen to land. Canchalagua blooms from April to July, the exact timing depending on how wet the season has been. California Native Americans used an infusion of canchalagua to reduce fever.

### Consider:

- ★ The Nature Conservancy has listed the Mediterranean Biome as rare and endangered
- ★ Coastal sage scrub (CSS) is part of this biome
- ★ CSS is much less common than rainforest and is disappearing at 4x the rate
- ★ Well over 85% of CSS has now disappeared
- ★ Biodiversity is very high in CSS with many plants and animals found nowhere else
- ★ Most of the BFS is covered by CSS including the rare subtype of Riversidean Alluvial Fan Sage Scrub
- ★ A small area makes it hard to maintain a stable ecosystem, increasing effects of light, noise, water and air pollution on organisms
- ★ Habitat loss has a large ripple effect on what can live in an area, causing populations to crash
- ★ Habitat forms one continuous whole, with each part depending on the resources in the other
- ★ Opportunities for teaching and research in local natural areas are already limited
- ★ Natural habitat is more sustainable than any construction
- ★ **The importance of preserving the BFS**

### Favorite quote:

*"We should preserve every scrap of biodiversity as priceless while we learn to use it and come to understand what it means to humanity."*

E. O. Wilson

## The BFS website news page

showcases plants, animals, and volunteers with terrific photos and entertaining descriptions—go take a look ([www.bfs.claremont.edu](http://www.bfs.claremont.edu)) !

You'll be glad you did!

## Tours of the BFS

Community and school groups can take tours of the BFS. If you are interested in bringing your group up to learn about what is there, please call or send an email (909-398-1751, [wallace.meyer@pomona.edu](mailto:wallace.meyer@pomona.edu)).

## BFS Volunteer Days

First Saturday of the month, 10:00 a.m. until noon, followed by a tasty pizza lunch! You can see photos of some of the hardy volunteers on the BFS blog (click "News" at [www.bfs.claremont.edu](http://www.bfs.claremont.edu)).

For questions or to be added to the volunteer list, please contact the BFS Volunteer Coordinator, Nancy Hamlett ([hamlett@hmc.edu](mailto:hamlett@hmc.edu)) or 909-964-2731.

## Sustainable Claremont Garden Club

Free and open to everyone interested in any type of gardening. Info at [sustainableclaremont.org](http://sustainableclaremont.org) or email [gardenclub@sustainableclaremont.org](mailto:gardenclub@sustainableclaremont.org).



*"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

Friends of the Bernard Biological Field Station  
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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, so the center bit of the BFS alone would not be sustainable.

### Who uses it?

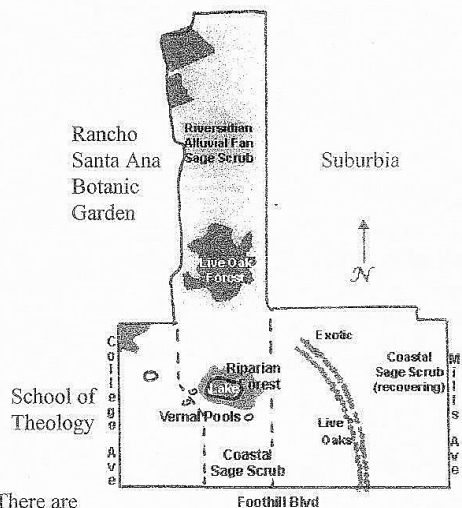
The BFS is used by Claremont Colleges faculty and hundreds of students every year, as well as by many schoolchildren from Claremont and the surrounding areas. It has also been used by college classes from as far away as Long Beach, by scout troops, and by members of the public.

### 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.



There are 3 parts to the BFS:

Owned by HMC	← Owned by CUC →	Owned by CUC
Temporary protection		No protection

**Note:** west part now owned by CGU and HMC; eastern part to be sold to Pitzer, HMC and Scripps  
Limited protection on narrow center strip  
See fbbfs website for map showing divisions