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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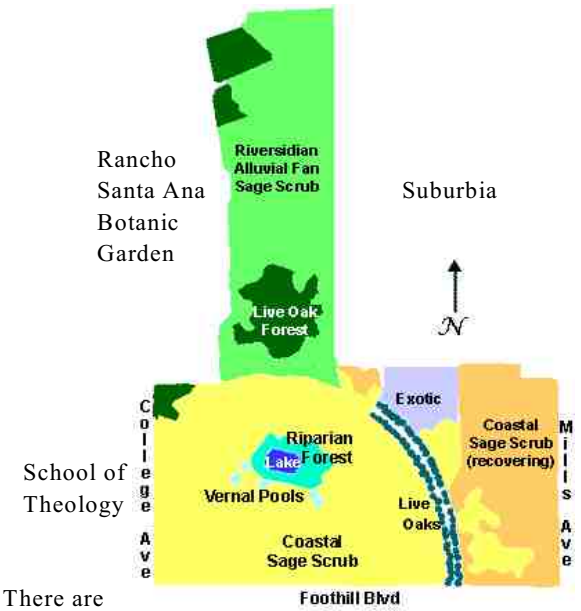


There are 3 parts to the BFS:

Owned by HMC

← Temporary protection

Owned by CUC →

No protection

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 10 No 3 October 2009 P.O. Box 1101, Claremont, CA 91711 bfsfriends@earthlink.net www.fbbfs.org

Village Venture

Please stop by our booth at Village Venture and chat. We'll be on the south side of 1st St between Harvard and College.

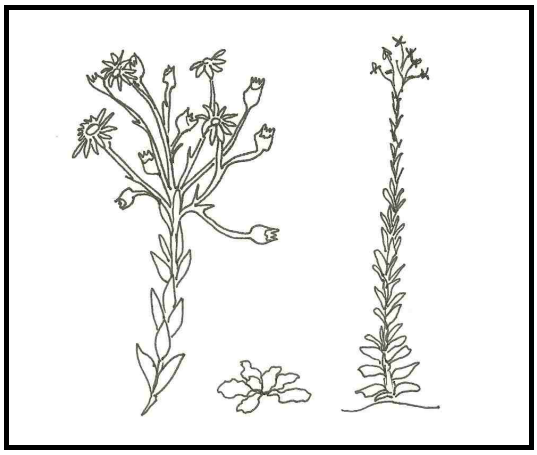
New Pond at the BFS

Bodies of water are not common in our area and this makes it hard for some species to survive. Our California toads are a case in point. Adults live in the brush at the BFS, staying in burrows during the hot day and foraging at night, but like all toads and frogs, they need a wet place for their eggs to develop into tadpoles. The best places are shallow ponds without predators that would eat the eggs and young.

For many years, the BFS toads have used the vernal pool in the middle of the area now owned by Harvey Mudd. This pool is filled by spring rains. The water does not drain away because the mound of soil under the pool is not our native Claremont soil. It was brought to that location in the early 1970s when CUC considered making the area into a golf course. The imported soil has more clay than ours and that prevents the water from draining away. It does evaporate, but usually stays around long enough for the tadpoles to turn into toads. Every spring the pool is ringed with thousands of tadpoles, much to the delight of schoolchildren and college students who see them, or the tiny toads they develop into.

Although Harvey Mudd will most likely not build a parking lot on the area, as it originally planned, they continue to view the land as room for expansion of their campus. This would destroy the pool. Consequently, and because a second pool is good to have in any case, another one is being created on the mound to the south of the lake which we hope the toads will like!

Meet the Inhabitants



Telegraph Weed
Heterotheca grandiflora

Along roads and in open areas at the BFS, as well as in many areas in town, you can see tall, leafy, single-stemmed plants with crowns of cheerful daisies, blooming now in the early autumn heat. These are telegraph weed, which is a California native and very common.

The plants are annuals and start out as a gray-green rosette of hairy, oval leaves about 6" long. Later in the year, the stems elongate to 3-6 ft tall. The leaves change size and shape along the stem, with the ones at the top smaller, narrower, and with a shorter petiole. They get stickier as they get smaller. The top of the stem develops into a multi-branched group of very sticky, bright yellow daisies about 1" wide. Each daisy is a group of small flowers. The outside ones (ray florets) produce a single large petal. The central ones (disc florets) have no petals. The seeds are small and pointed, with a tuft of hairs at one end which helps the wind disperse them. They also are

carried on the fur (or clothes!) of animals that brush by them.

There are two suggestions for how this plant got its name. One is that it is tall and thin and looks like a telegraph pole. The other is that it rapidly colonizes disturbed soil like that around the places where telegraph poles were placed.

Although telegraph weed is native to California, it has spread throughout the southwest and northern Mexico, and has invaded Hawaii and Australia, where it is competing with some of the native dune plants because it grows happily in dry, sandy soil, without much water.

This plant is a food source for the very rare Wandering Skipper (*Panoquina errans*), a dark brown butterfly with cream spots. Its larvae feed on salt grass so the butterfly is mostly confined to the coast, and not likely to be found in Claremont

As they did with most resources in their environment, Native Americans found a use for telegraph weed, using its long, straight stems for arrow shafts.

Galls

Big green 'apples', bright pink spiky balls, upside down funnels, brilliant red disks, fuzzy 'caterpillars': these are descriptions of some of the many hundreds of different galls which can be seen on our native plants. When a tiny wasp or fly lays eggs in a root, stem, leaf, or flower, the larvae produce chemicals which cause the plant to produce a mass of cells called a 'gall' in which the larvae live. Each insect species stimulates the formation of a particular shape, size, and color of gall, and it is possible to tell which species it is just by looking at the gall.

Gall wasps are tiny, only a few millimeters long and they only sting plants. They can have very complex life cycles. Some have two distinct, alternating forms which not only look very different but which produce differently-shaped galls on different parts of the host plant.

Oaks are host to more types of galls than any other plant, and many of these can be found on the oaks at the BFS. The most obvious are the 'apples' on oak twigs, which start out green but turn brown as they mature. These can grow to over 2" in diameter. The inside is spongy, and may feed and house as many as ten larvae. These pupate inside the gall, and the adults chew their way out. In this species, the wasps are all female and they lay unfertilized eggs in the fall which develop into next season's adults in the spring.

Some other oak galls take the shape of tiny spheres on the backs of oak leaves. These fall to the ground when the new wasp is ready to emerge, and as they work their way out, the wasps make the galls jump (a video of this can be seen at (http://www.youtube.com/watch?v=iyuSb2jH7jg)

Some gall wasps stimulate the plant to produce a sugary coating on the gall. This attracts yellow jackets and ants which eat it or collect it for their own larvae, and which are quite willing to fight off other insects that might damage the gall.

Galls rarely affect the health of the plant, and they make up an important part of the food chain, as they provide food and shelter for many other animals, including parasites of the gall wasps themselves, weevils, solitary bees, spiders, lizards, and birds.

Although most galls house wasps, some are produced by tiny flies. The willows around pHake Lake sport dime-sized, bright red disks on their leaves each spring which house willow sawfly larvae.

Native Americans used oak galls to produce an eyewash and a dye, and these galls also have been used in tanning and in the manufacture of ink. The US constitution may have been written with gall-based ink.

❧Favorite Quote:

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect." *~Aldo Leopold, A Sand County Almanac*

Sustainable Claremont

sustainableclaremont.org

Increased awareness of what it means to be sustainable can only improve the chances of preserving our open spaces. Sustainable Claremont is working to increase understanding of what it means to be a sustainable city, and of how we can become one. All aspects of sustainablilty are interconnected–as John Muir famously stated: "When we try to pick out anything by itself, we find it hitched to everything else in the universe."

If you would like to join SC in helping us to move forward, check out the calendar on the SC website for meeting dates for the different action groups. The Natural Habitat Action Group meets the fourth Monday of the month at 6:30 pm at 845 N. Indian Hill Blvd.

➜**Sustainable Claremont is having its 1st Annual Meeting** on Saturday, October 17 from 10am to noon in the Padua Room at Hughes Center, 1700 Danbury Rd. Everyone is invited to attend and to learn about recent and current projects.

Teachers and Group Leaders

To arrange a tour

call the station manager

Stephen Dreher, (909) 447-5052

Powerpoint Presentation Available

Send us an email if your group would like to arrange for a presentation about what is on the BFS and how it is used.

"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

BFS Use Data for 2008-2009

Number of college classes:	**18**
Number of College students:	**992**
Number of faculty:	**25**
Independent research/senior theses:	**49**
Long-term/ongoing projects:	**8**
Elementary school students :	**150**

➜**To get news as it breaks**, join the email list. Send a request to bfsfriends@earthlink.net

❦ Sightings ❦

- ✓ Bobcat in the manager's back yard, likely the female, taking a nap
- ✓ Coyotes in all parts of BFS at all times
- ✓ Reddish drifts of delicate annual buckwheat contrasting with the pale gold remnants of grass and amsinckia in the east field
- ✓ Ruddy ducks, along with a pair of coots and a couple of female mallards
- ✓ Cattails being removed, opening up one of the original "marsh" areas in the lake
- ✓ Egrets, herons, kingfishers, checking it out
- ✓ A good crop of the tiny, annual yellow lessingia, still dotting the paths
- ✓ White crowned sparrows arriving for the winter season, busily foraging for seeds on the open ground.
- ✓ The usual busy hummingbirds, especially Anna's and Allen's.
- ✓ Ground squirrels disappearing underground for the season
- ✓ The usual fall bloom of yellow-green algae on the lake
- ✓ Leaves curling and dropping from the elderberries, preparing to go dormant
- ✓ Cheerful, yellow daisies on telegraph weed, pinebush, and scalebroom
- ✓ Dark green leaves of yerba santa contrasting with the now brown stalks of sagebrush
- ✓ A good crop of berries on the poison oak
- ✓ Native harvester ant mounds surrounded with russet petals from buckwheat flowers
- ✓ Blue-eyed darners and pondhawks, dragonflies skimming the lake
- ✓ Great horned owl, asleep in a pine