

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, so the center bit of the BFS alone would not be sustainable.

Who uses it?

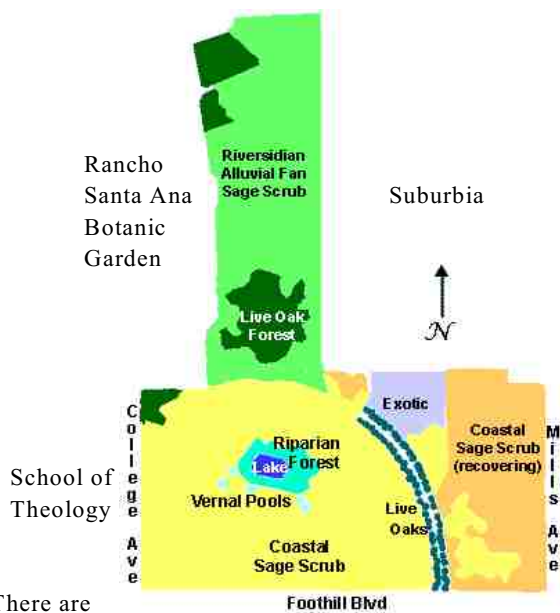
The BFS is used by Claremont Colleges faculty and hundreds of students every year, as well as by many schoolchildren from Claremont and the surrounding areas. It has also been used by college classes from as far away as Long Beach, by scout troops, and by members of the public.

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.

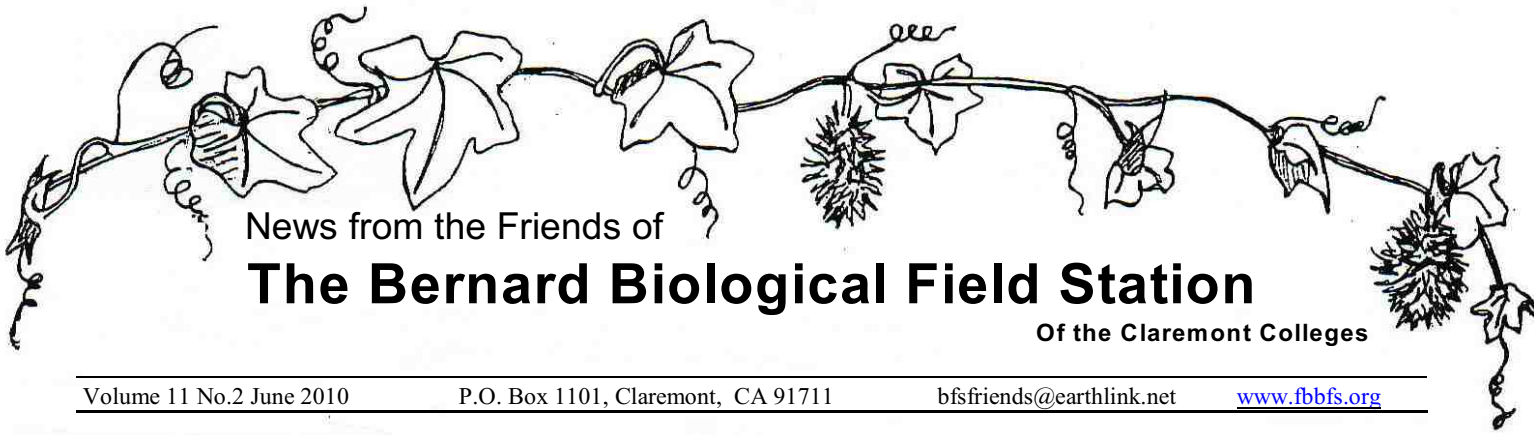
Since much of Claremont was originally covered with coastal sage scrub, it is a fascinating window into our past.

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	→
Temporary protection		No protection	



News from the Friends of

The Bernard Biological Field Station

Of the Claremont Colleges

Volume 11 No.2 June 2010

P.O. Box 1101, Claremont, CA 91711

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www.fbbs.org

Join us on the 4th of July

Stop by the booth and chat about the latest news (if you can help staff it for an hour or two, please let us know). Join us in the parade at 4pm!

Sightings

- ✓ a great blue heron improbably balanced on an upturned boat, looking for fish
- ✓ bright blue dragonflies, looping and darting, fencing among the cattails
- ✓ vivid pink stars of *Centaureum venustum* dotting the paths
- ✓ drifts of electric blue *Eriastrum*
- ✓ a landscape covered in clouds of buckwheat flowers and punctuated with spires of blue and purple penstemons
- ✓ golden currants full of orange, red, and black fruit
- ✓ hundreds of happy college and non-college folk at the Open House
- ✓ dozens of excited schoolchildren on tours
- ✓ eleven white herons circling the lake, looking for just the right tree to rest in
- ✓ bright red leaves on the poison oak
- ✓ cheery scarlet delphiniums rising above the gray-green sagebrush
- ✓ calabazilla vines sprawling across the ground, with big, triangular leaves and bright yellow squash blossoms on stems a dozen feet long
- ✓ mysterious holes in the ground, possibly housing ground nesting bees
- ✓ lazy lizards startled into rapid motion

Update on Harvey Mudd plans

The City approved the tentative parcel map that divided the part of the BFS owned by HMC (see map) into four pieces. HMC will keep two and sell the other two to Claremont Graduate University so that it too can build there.

HMC presented its new master plan to the Architectural Commission for comments June 23. Although this does not specify building on the BFS, it does confirm that HMC expects in the future to build on this natural area which is an irreplaceable resource for undergraduate study. The master plan will now go to the Planning Commission.

Meet the Inhabitants



Worker



Nest ringed with buckwheat petals

Harvester Ants

(*Pogonomyrmex californicus*)

Favorite Quote:

“It is that range of biodiversity that we must care for - the whole thing - rather than just one or two stars.”

David Attenborough

Note: we have just added about 100 more species to the BFS invertebrate list.

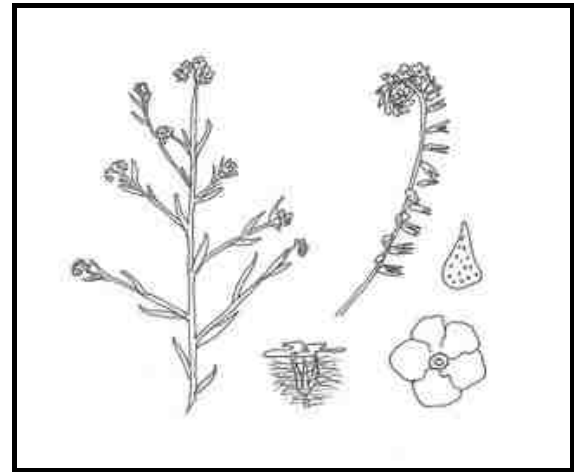
Because of habitat loss, our native red harvester ants are in decline, but there are many still on the field station. These are large ants, about 1/4 inch long, and usually red. Although they do bite and sting, they will not do so unless seriously disturbed. The venom from these stings was used by some native Americans as a hallucinogenic agent in some rituals (don't try this!)

As with other ants, Harvesters live in colonies composed of a reproductive queen, who produces all the new ants, and many sterile female workers who collect food and care for the young. Males are produced only in the spring and are short-lived. Males and new queens are winged and sometimes are mistaken for termites during the mating flight. After mating, the males die and the queen loses her wings and establishes a new nest. California harvester ant queens fly in late spring. In this species, queens do not live only on their body reserves during the first few weeks of nest establishment but must find local food in order to do well.

Harvester ant nests can be found in fairly open areas where they may be damaged by off-road vehicles. The nests are quite extensive underground, and have a clear area, which may be up to a foot wide, around the crater-like nest opening. There may be as many as 12,000 ants in one nest. Nests may continue for many years, although the colony closes up and hibernates during the late fall and winter. Every night during the spring and summer the ants collect sand and small pebbles and block the entrance to the nest to keep out predators. Their wide heads and strong mandibles, along with a 'beard' of hairs, helps them collect sand, as well as small seeds.

As their name suggests, these ants eat a lot of seeds, collecting them from the ground but also climbing up stems to collect fruit from grasses and other species. Before eating or storing the seeds, the ants clean them. In the late summer and fall, nests at the BFS are ringed with a wide band of russet petals removed from buckwheat fruits. Food is usually stored in the upper chambers of the nest and the queens and nursery are in the lower levels. Although seeds are enough, colonies do even better if they capture some small insects.

Where there are many nests, the ants can have a significant effect on the ecosystem around them. They can change the types of plants around their nests by selective foraging. When they carry seeds they may drop them and unintentionally spread some species. They dig the soil, changing its texture and composition by adding nutrients. They may affect local animal populations through competition for resources. Harvester ants are the preferred food for the endangered horned lizard. (This rare lizard has historically been found at the BFS but has not been seen for several years.) We are very happy that Harvester ants flourish at the BFS!



Popcorn flowers
(*Cryptantha* species)

Following the explosion of yellow *Amsinckia* in March and the masses of purple *Phacelia* in April come charming drifts of annual white popcorn flower, *Cryptantha* species, in May and June. The size of the plants varies considerably depending on the amount of water and sun available at the time and in the location. The most robust plants of *C. intermedia* may be up to 18 inches tall and wide, with many branches and relatively large flowers (up to 1/3"), while in less favored locations, flowering plants may be only 4 inches tall and wide with smaller flowers.

This variability makes it difficult to identify different species in the field. The most reliable method is to pick some of the tiny fruits and look at the nutlets which are distinctive in shape and surface decoration. This, however, takes an expert and we were lucky this spring to have the help of Kristen Hasenstab, a PhD student at Rancho Santa Ana Botanic Garden who worked on this group for her Master's thesis. She was able to identify 6 different species this month at the BFS, from the relatively large *C. intermedia*, to the tiny-flowered *C. micromeres*, to the sticky-fruited *C. barbiger*. This is an astonishing amount of diversity for an area as small as the BFS. Next year we may find even more.

Popcorn flowers generally have an open look, with thin green stems covered in white hairs. Leaves are small, relatively long and narrow and also hairy. Young plants have a basal rosette of leaves which die as the plant matures. The flowers are produced in scorpioid cymes (along one side of a coiled flowering stem) which unfurls as the flowers mature from the bottom up. Flowers are white, sometimes with a yellow 'eye'. The stem of this inflorescence and the calyces of the flowers, like the rest of the plant, are covered in white hairs, and so are the tiny fruits. All these hairs may make the plant less appetizing to

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between newsletters, send us your email address

insects and larger predators, and those on the fruits make them likely to stick to passersby which aids in dispersal.

BFS 30th Anniversary Open House

Stephen Dreher, BFS manager

On Friday, May 2nd, 1980, the Bernard Field Station was officially launched with ceremonies and an open house. Robert J. Bernard was on hand to deliver a speech to a crowd of professors, College administrators and the public. The classroom, lake and perimeter fencing had all been completed, outdoor labs set up and classes begun. We thought it fit to mark the Field Station's 30th birthday with a gala public Open House on May 1st, almost 30 years to the day from the original opening.



1980 L to R: Robert J. Bernard, Clyde Eriksen, Joe Platt



2010 Open House

Anyone who has organized a large event knows just how much work goes into pulling one of these off successfully. Fortunately, we had a formidable group of energetic college students volunteering for various projects at the BFS, without whose contributions this Open House would have been impossible. Though many were involved, special thanks go to Miranda Holeyton, Michele Kaufman, Liza Baskir, Lindon Pronto, Acacia Hori and Rebecca Armstrong for impressive dedication to the BFS

The Open House, free to students, faculty and the public, featured delicious fresh and grilled culinary

treats, liquid refreshments, live music, tours, displays of faculty and student BFS research, t-shirt sales (student-designed and manufactured and sold out!), lively conversation and an opportunity for many to see the BFS for the first time. The student committee organized the music--all student groups, with styles ranging from a *capella* to folk to rock and a schedule that was actually followed! They planned the menu, raised the money to fund the "free lunch", and staffed the grill. An excellent promotional campaign was also designed and implemented, both around the Colleges and in town.

For my part, I designed a variety of interpretative posters on various plants and animals at BFS, the construction of pHhake Lake and the history of the old infirmary among other things. The posters were graciously printed up in fine quality by Dr. Sheila Pinkel at the Pomona College Art Department, so thanks to her for that big help. Thanks to those students who lent posters showing their BFS research projects. Dr. Sue Schenk and her BFS tour guide group provided tours and the folks at Central Facilities Services provided safe power for the music groups and other support.

All the visitors appeared to have a great time and we hope to make such events a more regular habit at the BFS--pencil in attending the BFS Open House for next spring!

Sustainable Claremont

sustainableclaremont.org

Check the website for info about meetings and projects.

Energy saving: CHERP is seeking homeowners interested in reducing their energy use and cost. If you are interested, check out the SC website.

Gardeners: Photos of native plants for gardens can be found under the Constructed Landscape page on the Sustainable Claremont website

BFS Tours: Stephen Dreher, (909) 447-5052

Powerpoint Presentation: Send us an email if your group would like to arrange for a presentation about what is on the BFS and who uses it



"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