News from the

Volume 18, No. 2, November 2017

Email to: friends@fbbfs.org
Website at: www.fbbfs.org

FRIENDS OF THE BERNARD BIOLOGICAL FIELD STATION

Make a note on your calendar about the March 2018 Silent Auction!

Meet the Inhabitants

Bush Sunflower (*Encelia californica*)

California bush sunflower is one of the prettiest small shrubs to be found in coastal sage scrub. It grows quickly into a sprawling evergreen mound about 3'x4', with more or less diamond-shaped leaves about 3" long. In spring the plants are covered with 2" wide bright yellow daisies which are usually full of bees and butterflies. They make good garden additions although they are relatively short-lived and tend to be summer-deciduous if kept dry. With a little additional moisture the plants will self-sow, bloom most of the year, and keep their leaves. There are some reports that the Gabrielino Indians treated aching joints with a paste made by boiling the plant. Unfortunately, the plants at the BFS seem to have been removed during the renovation of the Infirmary for the Redford Conservancy-the photos above are of the plants that were to the east of the old nurses' quarters.

Raccoons (***Procyon lotor psora***) make their homes throughout the city, including at the BFS. They eat a wide variety of foods including fruits, nuts, worms, insects, lizards, eggs, and fish (the ones in the photo were probably looking for mosquito fish at the edge

Sightings

- ✓ Energetic volunteers seeking out horehound to remove
- ✓ Permeable pavers on the new access road from Amherst
- ✓ Another new shrub, as yet unidentified
- ✓ Rabbits scurrying away
- ✓ Coots sailing on the lake
- ✓ Lots of red toyon berries–the plant for which Hollywood was named
- ✓ Lizards darting through the shrubbery
- ✓ The crinkle and rustle of dry grass as you walk through it
- ✓ Semi-dormant sagebrush, looking pretty peaked
- ✓ Many small ant hills–no Harvester ants, which are dormant til spring
- ✓ Plenty of insects still looking for nectar
- ✓ The scent of laural sumac

of pHake Lake). Body length ranges from 16-28" long with an equally long tail, and they weigh from 8-20 lbs. They generally only live 2-3 years in urban areas, with males and females forming separate, small groups, only meeting during mating season. They prefer areas with trees and ponds or streams, and like to form dens in hollow trees or rock crevices and even in our attics and garages. The females produce 2-5 'kits' in spring and raise them alone. The kits are blind an deaf for the first few weeks, weaned at about 4 months and on their own at a year. Raccoons are nocturnal and the characteristic black 'mask' is thought to help reduce glare and improve their night vision. Raccoons aren't fast at running or good at jumping but they can swim, and even climb down trees headfirst by rotating their hind feet so they point backwards! They are good at problem solving, and have good memories. They have an especially good sense of touch and use it to identify objects.

BFS Research Highlights (Wallace "Marty" Meyer, BFS Director)

The Bernard Field Station's importance as a regional center for ecological research is too often underestimated. Composed primarily of critically endangered California sage scrub habitat, the BFS offers an opportunity for researchers, most often Claremont College students, to contribute key conservation insights. Being surrounded by suburban habitats and having smaller areas dominated by non-native grasslands also allows researchers to test how these landscape modifications influence biodiversity, species interactions, and important ecosystem processes such as nutrient cycling, litter decomposition, and water infiltration.

The BFS is a microcosm of southern California where researchers can address some of the most critical regional and global environmental issues of our time. In this newsletter, I want to highlight some of the current BFS research findings and praise the hard work of the many researchers who dedicate their time to understanding the ecology of our home.

- Professor Diane Thomson (Keck Science) and her students just published a paper in Ecosphere examining evolutionary traits that allow some of our beautiful native annual plants to coexist in the presence of non-native grass invasions.
- Research by current Pomona students John Little, Lilly Thomey, and Caitlin Halligan is addressing how herbivory influences plant composition in sage scrub ecosystems, particularly after fire disturbances. As the role of herbivory in the sage scrub ecosystem has rarely been addressed, we have some interesting new findings. One of the most interesting natural history findings is that, after rabbits, white crowned sparrows were identified as the most important herbivore consuming sagebrush and buckwheat seedlings.
- In addition to herbivory, seed predation is also poorly characterized in the California sage scrub ecosystem. Jenna Loesberg (Pitzer) and Savannah Meadors (Pomona) are conducting separate experiments that will

Top: Caitlin Halligan and Wallace Meyer building exclosures around an area burned in the May 2017 fire. Seedlings will be tagged here and in control plots to monitor mortality with and without mammal herbivores.
Middle: Jenna Loesburg's setup to allow or prevent ant, mammal or bird access to seeds. The motion sensor camera documents all seed predation events.
Bottom: Bobcat with rabbit-- captured as part of the Ellen Harris's project monitoring vertebrate diversity at the BFS

help us understand how seed predators (ants, birds and rodents) influence the diversity and abundance of native plants.

- Jack Halsey (Pitzer) is contributing to these efforts by examining how fire disturbances influence seed banks.

These combined research efforts provide a holistic perspective on how species interactions, common disturbances, and evolutionary traits helps to shape contemporary plant communities, and provide valuable information to conservation practitioners who aim to protect and restore our native habitats.

Research efforts at the BFS are also focused on understanding how animal species are distributed across southern California's mosaic landscape which is dominated by suburban/urban areas around islands of native sage scrub and non-native grasslands.

- Professor Jonathan Wright (Pomona College) and Rose Osborn (Pomona College Alum) just had a manuscript accepted for publication in the Journal of Molluscan Studies which examines physiological and behavioral traits that allow native snails to survive the harsh hot-dry conditions found in our native habitats. Most of the snails and slugs you see in your yards are non-natives and require water from sprinklers and irrigation for their survival.
- Similarly, Weston Staubus (Pomona College Alum), who contributed to multiple BFS publications while a student, is working on a manuscript that demonstrates that while non-native arthropods are common in suburban habitats, most non-native species are unable to establish populations in more natural habitats (sage scrub and non-native grasslands) without additional water.
- Professor Nina Karnovsky and student Ellen Harris (Pomona) are continuing a 4-year project examining vertebrate diversity and distributions in various habitats at the BFS. Many of these species (kangaroo rats, wood rats, bobcats, etc.) are rarely found in suburban/urban areas.

Combined, this research is highlighting that we have the power to limit the spread of non-native species and support many native species if we reimagine southern California landscaping, focus on planting native species, and on eliminating water subsidies.

This was only a small sample of the current BFS research. You can access research papers on the Bernard Field Station website (http://www.bfs.claremont.edu/publications/index.html) and be alerted to new publications and activities through our Facebook page (https://www.facebook.com/BernardFieldStation).

Update on Redford Conservancy Renovation

The Infirmary (left: north side) and the two new outdoor classrooms with solar panels and rain barrels (right)will be ready for spring semester classes. Brinda Sarathy, the Conservancy Director, plans to arrange public tours soon. Almost all the existing shrubs and one large oak have been

removed from the area around the Infirmary and replaced by a number of young oaks and lots of mulch. We have been told that more planting will be done. In the area to the west of the Infirmary where the scrub was removed for a sewer line, (right) volunteers planted natives grown by Rancho Santa Ana Botanic Garden from cuttings and seeds of BFS plants so that the local gene pool wouldn't be affected. A walking path (below left) was created through the coastal sage scrub from the existing dirt road east of the lake down to Foothill so entrance doesn't depend on continued permission to use the present road which is on the part of the BFS currently owned by Harvey Mudd.

At the Foothill end of the path, several large stone walls (bottom right) are under construction, presumably to identify the new entrance to the Conservancy. Perhaps they will also identify the BFS?

Again we ask:

If the center part of the BFS which the lawsuit settlement calls the "temporarily restricted property" is now permanently protected as CUC promised, why not say so? If it isn't, then why not? Please email Claremont University Consortium CEO Stig Lanesskog and ask. stig_lanesskog@cuc.claremont.edu*.*

In Memoriam:

Long-time supporter Carol Cox died this summer. She loved the BFS and all natural areas. She staffed the booth, walked in the parade, addressed newsletters, donated to the auction, volunteered at BFS workdays, and was always a delight to be around. She will be missed very much.

Some Recent Photos

BFS volunteers (Marty on right): Lemonade berry; non-native horehound about to be pulled up

More Photos

Left: Water dripping from outlet of sink in temporary classroom south of lake, with lush, green plants enjoying it

Below: CSS in normal winter colors at this time of year

Below: Ants quickly colonized the new path; pHake Lake looks good all the time!

Below: Croton flowers and fruits

Below: The last of the California asters

Lower right: Toyon berries decorate a shrub that is recovering well from the fire a couple of years ago

Right: Some late blooms on pinebush

Tours of the BFS

Community and school groups can arrange to take tours. If you are interested in bringing your group to the BFS to learn about what is there, contact the Director: 909-398-1751 wallace.meyer@pomona.edu

BFS Volunteer Days

First Saturday of the month, 10:00 a.m. until noon, followed by a tasty pizza lunch for the volunteers. If you have questions or want to be added to the volunteer list, please contact the BFS Volunteer Coordinator: Nancy Hamlett (909-964-2731) (hamlett@hmc.edu)

Claremont Garden Club

Free and open to everyone interested in any type of gardening. Meetings are second Wednesday of most months, 6:30-8:30 pm at the Napier Center at Pilgrim Place, 660 Avery Rd. Talks start at 7pm. For more about the club:
info@claremontgardenclub.org
www.claremontgardenclub.org

Friends website

www.fbbfs.org
for past newsletters and a map showing which colleges now own which parts of the Field Station.

City of Claremont: www.ci.claremont.ca.us
P.O. Box 880, Claremont, CA 91711
City Clerk: 399-5460
Claremont Colleges: www.claremont.edu
The Claremont Courier : (909) 621-4761
114 Olive St, Claremont, CA 91711

The Friends is a non-profit, grassroots organization

"Dedicated to Education and the Environment"

The BFS: A Facility of the Claremont Colleges

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. 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.

The current 85 acres from College to Mills is just large enough to maintain reasonable stability in the existing ecosystems. The center bit of the BFS alone, which is all that is currently protected, would not be sustainable if Harvey Mudd, Scripps, and Claremont Graduate University build on the parts they have now purchased.

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 and for research by other institutions.

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. 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.

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

"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