

News from the Friends of

The Bernard Biological Field Station

Of the Claremont Colleges

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Fourth of July

This year we had both an information booth and a children's game booth as well as a parade entry. Lots of people stopped by the info booth to chat. We were able to display one of the wonderful notebooks produce during the Leadership in Environmental Education Program which takes place each spring at the field station. This program brings many elementary school children from Claremont and Pomona to the BFS each week to work with college students and learn about our local native ecosystem.

Several hundred children visited the game booth. The first hundred or so had happily spun the wheel when quite unexpectedly it began to wobble and separated from its stand! A quick substitution of activity, however, and we were able to continue. The wheel is being repaired for our booth at Village Venture. For the first time we offered badge-making as an activity and it was extremely popular. The children either colored in a picture of a BFS plant or animal or drew their own and then proudly wore their work of art.

For the parade, we made signs to carry depicting organisms which have appeared in this newsletter. The one that got the biggest response was of "Blue Dicks".

Our thanks to all those who donated their time to help with this important event.

The Qwaoar connection

You may have read that astronomers at CalTech recently found a large solar satellite (designated 2002 LM60) beyond Pluto and about half its width. You may also have heard that it is called Qwaoar (kwah'-oh-ar) and wondered how it got this unusual name. The discoverers decided to break with the tradition of Greek and Roman names and asked the local Southern California Gabrielno-Tongva (yes, the native Americans who historically occupied Claremont, including the field station) to name it. Friend's Board member Mark Acuna proposed the name given by his tribe to the creative force behind the universe, the one who sang it into existence.

✓✓✓ Sightings

- Many migrants since the desert has been so dry that birds have been forced towards the coast, some landing at pHake lake, even white pelicans.
- Large flocks of Phainopeplas up in the neck.
- Young Coopers hawks and Red-tailed hawks have been growing up and hunting on the station.
- Our resident roadrunners were out and about, terrorizing lizards no doubt.
- Two young coyotes have been seen on several occasions (and much scat has been evident!).
- The California buckwheat has turned a lovely, rust color and its seeds are being avidly collected by the native harvester ants.
- The cheerful yellow blooms of Goldenbush.
- Many cattails have been removed from around the lake, bringing to light once again the small island which was part of the original design of the lake but which had disappeared over time. Thanks to manager Stephen Dreher!.

City Council Election

There will be three seats on the ballot in March. Since CUC's master plan for the future of the land it holds (the quarry, golfcourse, and the Field Station) is likely to be brought before the City within the next few years, it is very important that we elect new City Council members who will be sympathetic to some kind of preservation. Learn all you can about the candidates. The February issue of this newsletter will carry statements about the BFS from all candidates who are willing to make one.

Meet the Inhabitants!

There are 31 species of willow in California, all of them found where water is plentiful. Occasionally willows can be found in the desert where they provide a clue that water is



Arroyo Willow

Salix lasiolepis

below the surface. Most willows are trees, some are multi-trunked shrubs. The Arroyo Willow grows to about 30 feet and is found at the BFS around pHake Lake. It provides nesting sites for birds and homes for many other animals. In the spring, the leaves sport areas that look like bright red M&Ms. These "galls" are the homes of sawfly larvae. The female sawfly lays an egg in the leaf and injects chemicals which cause the leaf to produce a nutritious, and protective tumor to house the developing offspring.

All willows are dioecious, that is, there are separate male and female trees. The spring blooms are small and grouped together so that they resemble a cat's tail, hence the name "catkin". Some species of willow contain a toxic chemical called "salicin" which has evolved to deter herbivores from eating the plant. It is closely related to acetylsalicylic acid, more commonly known as aspirin.

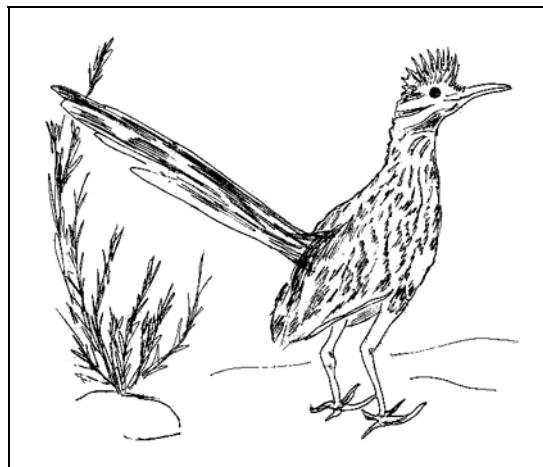
The willow (Sashat) was an important plant for the Tongva. It was the foundation of village life, from which they built their homes, arbors, the small family sweat houses and the great communal sweat lodges, fences, acorn granaries, cradleboards to hold their infants, seed beaters to gather the numerous tiny seeds for cakes and soups, and fish traps to ensnare great steel head trout.

Tongva myths relate that the first willow and reed house was a gift from the giant Nekish. He wore a basket cap made of willow and reed. When he saw the first humans, he pitied them in their cold unsheltered nakedness and gave them his cap to live in. Since he was a giant, his cap made a wonderful large home for the first ancient ones. They, in turn, used his cap as a model for the building of other homes. Birds and squirrels ate open the first door which faced east to greet the rising sun.

Willow was one of the great medicinal plants. The roots were made into a decoction for diarrhea and fever, and a thick tea was made to produce vomiting to purge the

body of "infected blood". The leaves and flowers were made into a mild tea for colds, to soothe sore throats, and to alleviate general aches and pains.

Leaves, combined with bark, twigs, and roots, were turned into a tea (the elders always warned that the tea made from roots alone was often fatal), dried and pounded into powders for washes and poultices for swellings, fevers, infections, and bleeding. Smashed leaves were used in a wash for sore eyes. The bark was made into a poultice for skin eruptions. "Sashat" tea was prescribed for headaches and the bark was chewed for toothaches.



Greater Roadrunner

Geococcyx californianus

These birds would rather run than fly and have been clocked at 15 mph! They are about 22" long and are brown and white. They have four toes, two pointing forwards and two pointing back so their tracks look like Xs. They have a crest of feathers which they can lower or raise, and generally keep their tails angled up. They do not go "beep beep" like the cartoon roadrunner, but make a rattle or a cooing noise like a dove. During the night, their body temperature drops to save energy and during the day the birds bask in the sun to warm up. They eat lizards, snakes, small rodents, some insects, other bird's eggs, and occasionally fruit and seeds (mostly cactus).

A male roadrunner may offer a tasty lizard to his intended as he courts her. Pairs stay together in their territory all year. The eggs are laid over a number of days and the males sit on the eggs to incubate them. The young hatch over a period of days too so a nest may contain offspring of different sizes. The bigger ones get the most food and so have the best chance of survival, especially in lean times. Roadrunners are very good parents and spend considerable time teaching the young how to survive in the coastal sage scrub.

Featured Project:

Edge Effects in the Coastal Sage Scrub Plant Community at the Bernard Field Station

Research by Tracy Perfors; article by Nancy Hamlett

In this issue, we present a student research project by Tracy Perfors, who graduated from Harvey Mudd College last May. Tracy's project dealt with "edge effects"—effects exerted by the surrounding environment on the edges of isolated patches of habitat. For example, edges are differentially affected by light, wind, moisture, access, noise, nutrient inputs, and chemical pollution, and they have different microclimates compared to the interior of a habitat patch.

Edge effects constitute a major focus of the discipline of Conservation Biology, but they have not been previously examined at the BFS. Understanding edge effects at the BFS is important for managing the BFS habitat and for understanding the consequences of development on or adjacent to the BFS.

To examine the effects of edges on the coastal sage scrub plant community at the field station, Tracy marked out sixty-three 1 m × 1 m regularly spaced plots in the southwest corner of the BFS, which contains the largest tract of coastal sage scrub. During the spring, at the height of the growing season, Tracy identified and counted every plant growing in each of her plots as well as measured nitrate concentrations. She then analyzed the data to see how the community varied as a function of distance from Foothill Blvd and College Ave.

As shown in the Table below, Tracy found several significant edge effects. Both species richness and species diversity were reduced at one or both edges, nitrate was higher near College Avenue, and some individual plant species had more or fewer plants near an edge than in the interior.

Measure affected by edge	Difference at edge compared to interior	Approximate extent of edge effect
<i>Species richness</i>	Fewer species near both edges	26.5 m from Foothill 8 m from College
<i>Species diversity</i>	Lower diversity near College Ave edge	8-13 m
Red-stemmed filaree, <i>Erodium cicutarium</i> (exotic)	Fewer plants near Foothill edge	26.2-52.2 m
Yerba santa, <i>Eriodictyon trichocalyx</i> (native)	More plants near Foothill edge	21.2 m
Unidentified croton <i>Croton californicus</i> ? (native)	Fewer plants near College Ave edge	8 m
Nitrate concentration	Higher near College Ave edge	26.5 m

Editor's note: It is clear that reducing the BFS would have significant effects on the plants and thus animals there.

*Tracy graduated from Harvey Mudd College with High Distinction and Honors in Biology.
She will is currently serving in the U.S. Army Medical Corp.*

Opportunities to help!!

to help with booths, newsletter, Farmer's market, phone tree, or fund-raising, call 621-6381 Donations are always welcome. Please send to our PO Box.

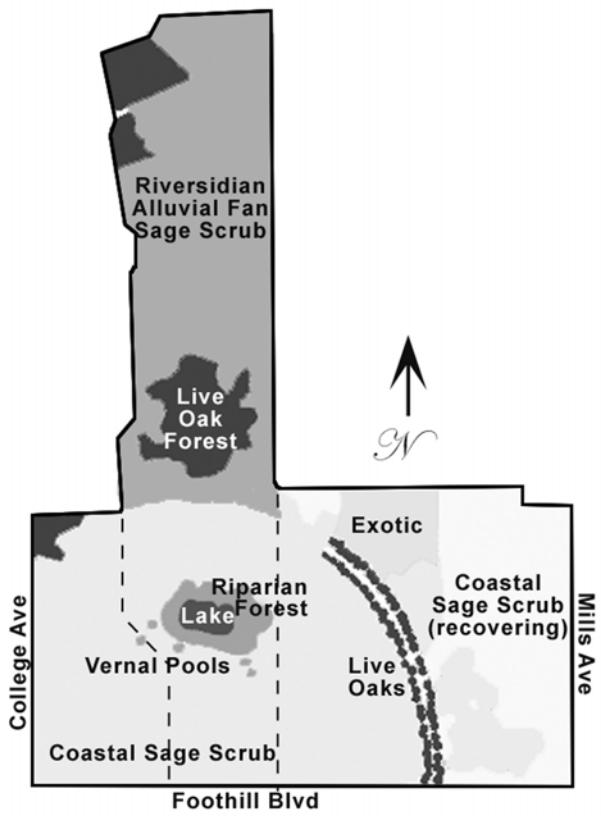
Village Venture

Stop by the information and game booths if you come to Village Venture on Oct 26.



"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"



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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 with a number of Species of Special 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.

Useful addresses

City of Claremont: P.O. Box 880, Claremont, CA 91711
www.ci.claremont.ca.us

Claremont Colleges: www.claremont.edu

The Claremont Courier: 111 S. College Ave, Claremont CA 91711
 Phone: 621-4761

The LA Times: Inland Valley Edition, 5555 Ontario Mills Parkway,
 Ontario CA 91764

Inland Valley Daily Bulletin: 2041 E. Fourth St., Ontario CA 91761

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