Garden Is Eyeful & Earful For Birders

by Ruth Voss, Garden Docent
and amateur ornithologist

I know a little garden close where
I would wander from dewy dawn to dewy night

Thomas Browne

Any day one comes to the U.C. Botanical Garden one is greeted by resident birds. It is like finding old friends. With a little effort, a pair of binoculars, and time, the Garden presents the opportunity of learning to know these birds so that they may be recognized anywhere.

As the seasons change, so changes the bird population in the Botanical Garden. In early April, the melodious songs of the Black-headed Grosbeak, Northern Oriole, Warbling Vireo fill the air. By late April, the Olive-sided Flycatcher has arrived, and May brings Swainson's Thrush. By fall and into winter, the Hermit and Varied Thrushes as well as Fox Sparrows have arrived. It's fun to listen and record the exact day each year these birds return.

For now, though, let us learn to know the birds we may see any day in the Garden. One of the commonest residents is the Brown Towhee. A ground feeder, this gray-brown robin sized bird can be found most anywhere in the Garden. With his rufous rump, faint darker necklace and his metallic one pitch "chink", he is easy to identify.

Near the entrance to the Garden, in the Mexican Area when the Salvias are in flower, one may hear a "zzzing" and see rapid flashing bird forms. By focussing with binoculars, one finds a small bird with a green body, white breast, bright red head, neck and breast -- the male Anna Hummingbird. The female Anna is all green with a bit of rufous under her chin and white on her outer tail and breast. Because hummers are extremely territorial, their feeding places are scenes of much activity as they defend or contest their right to their own or another's space. They may be found in the

Summer In The Garden

If your summer plans this year include more day trips in and around the Bay Area, or if you have summer guests, we hope the UC Botanical Garden will have a place on your "sights-to-see" list. Because of the ever-changing nature of the Garden, there are always new and often splendid plantings to greet you.

In addition to the botanical treasures in the Garden, there are some peripheral benefits we thought might interest you, your children, and your guests. So read on, and we hope you will enjoy the Garden more fully as a result.
fuchsia garden above the parking lot, in the Old World Desert, or near the Nicotiana beyond the research building at the entrance to Mather Grove. If you are wearing red, watch out! You may be buzzed!

About eight feet off the ground in the oak trees or shrubs one hears a light, gentle "tsit-tsit" and see much movement of a flock of birds. Looking closer you note this is a group of little all-gray birds with longish tails, tiny bills and brownish cheeks called "Babes of the Woods" or Common Bushtits.

From a low shrub or just under the ground one hears a cat-like "mew" or a rasping scolding. With patient quiet waiting, you may be rewarded by the appearance of a handsome smaller than robin-sized bird. His head and upper parts are black with rows of white spots on back and wings; his sides robin-red, his belly white; his darting eyes are red. Meet the rufous-sided Towhee.

Up near the east end of the Rhododendron Dell where Strawberry Creek trickles down into the Garden is often seen the Black Phoebe. Notice the bull shaped neck, slightly crested head, fine bill. This bird has a black head and breast with white belly. As it sits it wags its tail. Like all flycatchers, it sashes, swoops out to catch an insect, then returns to the same perch. Its call is a distinct "chip" and its song thin, almost plaintive, "gee-bee".

In the eastern part of the Garden from the coastal scrub comes a staccato ringing song on one pitch that starts deliberately and accelerates running into a trill. The bird, a Wrentit, that makes the song is more easily heard than seen. With a long, rounded, slightly cocked tail and streaked brownish breast, this dark sparrow-sized bird is hard to see as it slips through the brush.

At the eastern end of the Garden or along the southern side overlooking the canyon the California Thrasher may be heard. It is larger than a robin, dark brown with a deeply curved bill and pale cinnamon belly. It is difficult to see it, but still possible to enjoy its repertoire of melodious songs.

Space does not permit detailed notes about all of the resident birds. However, there are Stellar and Scrub Jays raucously in evidence. On the lawns is a grand place to look for American Robins. The Common Flicker is seen high in the treetops. A small bird with a black head and flashing white outer tail feathers, it calls in a loose musical trill which identifies it as the Dark-eyed Junco. The Chestnut-backed Chickadee, as well as the Hairy and Downy Woodpeckers work in the oak trees. The nasal "yank, yank!" of the Red-breasted Nuthatcher, the "distressed chick" call of the Hutton's Vireo, the melodious songs of the Bewick Wren, Song Sparrow and Purple Finch; the repetitious song of the House Finch; plaintive call of the Lesser and the clear light call of the American Goldfinches are all heard.

In the spring in the California Native Plant area, a California Quail family may share your stroll. Band-tailed Pigeons and Mourning Doves as well as Starlings are also resident birds. Remember too, to look skyward where you may be rewarded by the graceful soaring of the Red-tailed Hawk, or the wobbly dihedral silhouette of the Turkey Vulture, or the rapid flight of the American Kestrel.

Spring is an exciting time of year for the birds and for birders. It is in the spring months that the birds sing so persistently and add a delightful dimension to the enjoyment of the out-of-doors. Many of the spring visitors stay on until October, a few as late as November. So April, May, and June are exciting months to enjoy these visitors. In July the bird song is less
and August is called the quiet month since for the most part the birds and their families are getting ready or have begun the migrations.

Among the birds that arrive in the Garden in the spring and stay until fall are the Western Flycatcher, which can be found near the moist areas and has a single sharp note; the Western Wood Peewee, which says a nasal "peeeer"; Olive-sided Flycatchers suggest "me 'pearson" from its perch high in a tree; Violet-green Swallows, beautiful flyers, seem never to be still; Solitary Vireos seem always to be questioning and answering with "What's that? "That's what" phrases; Warbling Vireos that sing on and on in short phrases; Yellow Warblers with their bright, cheerful, rapid song; Wilson's Warblers whose song is a trill dropping in energy at the end. These all add to birding interest in the Botanical Garden.

There are two species that are particularly beautiful songsters: the Black-headed Grosbeak and the Swainson's Thrush. The Black-headed Grosbeak arrives in April and stays until November. From a high perch its mellow song made of rising or falling passages, includes a rolling note. It often sings in flight. Its head is black, with a streak of chestnut through the crown; back streaked with black, white and cinnamon, under parts are a rich orange-brown, belly yellow; bill large, breast orange-brown.

The other songster--Swainson's Thrush--is difficult to see, but its song is distinct: a succession of phrases in ascending pitch. It feeds on the ground; as it halts, it draws itself up and faces the observer with a buffy breast spotted with brown. It's in the Garden in late April or early May through August.

For pure striking beauty, the Northern Oriole is hard to beat. A distinct "chuck, chuck" repeated, announces its presence. A flash of bright orange, and black on top of the head with broad bands of white on the wings identifies this very tropical looking bird. Enjoy it from May to September.

The following books complement each other and would be very helpful:

* A Field Guide to Western Birds, by Roger Tory Peterson
* Birds of North America, by Robbins, Brunn and Zinn
* Birds of the Pacific States, by Ralph Hoffmann

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**We're so glad you came**

One of the most pleasant experiences for both the volunteer Docents and the staff of the UC Botanical Garden is hosting the great variety of visitors who come to enjoy the Garden's many collections. And May was a great month for a number of guests from throughout the United States.

On May first, 130 members of the Rhododendron Society came as a part of their national convention program which was held in San Francisco. Then on May fifth, guided tours through the Garden were provided for 150 participants from the American Association of Botanical Gardens and Arboreta's annual meeting again held in San Francisco.

Finally, the African Violet Society sent two contingents of guests: 94 on May 18th and 90 on May 20th. Tour guide coordinator Ruth Halbach gave an introductory lecture to them before they dispersed to tour the Garden on their own. Docent Jim Jones assisted Ruth on May 20th.

**A Special Garden Party**

An early summer garden party will be held in Woodside on Sunday, June 28th, to give the Friends of Pacific Horticulture the opportunity to meet and chat with one another as well as enjoy being in their favorite habitat -- a lovely garden.

Invitations will soon be mailed to those who are members of the group. If you are interested in becoming a member and attending the party, tax-deductible memberships begin at $25 and may be sent to Pacific Horticultural Foundation, P.O. Box 680, Berkeley, CA 94701.
Plant Recovery One Step Ahead Of Space Shuttle

by Roger Raiche, senior nursery technician responsible for the California Area collection

In early March, I was requested by Garden Manager Daniel Campbell to participate in a "Floral Recovery Program" sponsored by the U.S. Air Force. What sounded like a commando raid concocted by a Hollywood scriptwriter was in actuality an opportunity to rescue a number of native plant species in the way of man's exploration of outer space.

The location of the recovery program was Vandenberg Air Force Base, situated to the west of Lompoc on the coast of Santa Barbara County in southern California. The Air Force was waiting to extend and upgrade an existing air field to accommodate the space shuttle, and until the completion of the recovery program no construction could begin.

The Friends of the Botanical Garden provided the funding making it possible for Kurt Zadnik, my staff partner for the California area, to participate with me in this extraordinary opportunity.

Wayne Roderick, Director of the Tilden Botanic Garden, also accompanied us. Well armed with shovels, plastic bags, buckets, and camera equipment, we left on a Thursday afternoon in order to arrive in plenty of time to participate the following morning. Leaving a day ahead also allowed us the opportunity to do some exploring and collecting along the way. Having traveled with Wayne on collecting forays in the past, I knew we would be spending as much time off the road as behind the wheel.

One area in which we did some collecting of particular interest was in the Mission Hills area of the Purisima Hills just due east of Vandenberg. Early Friday morning, on a chaparral sand plain that had been devastated by wildfire a brief four years before, we were able to gather many species that had vigorously re-established themselves. It was our first introduction to the Manzanitas Actostaphylos purissima and rudis, which we would be seeing more of once we were within the boundary of the Floral Recovery Program area.

Leaving the Purisima Hills, we hastily made our way to the main gate at Vandenberg, where according to plan, we, along with the other invited collectors, were to be met by the Base staff botanist. Arriving with time to spare, we received security clearance and were ushered along with the others to the collection site—a windy, forbidding coastal sand plain dissected by a shallow canyon extending all the way to the beach. The site was devoid of any plants above three feet in height due to the constant buffeting of offshore winds. Low growing Ceanothus impressus and ramulosus var. fasicularis and Manzanitas purissima and rudis were the dominant flora, especially the purissima. It extended as far as the eye could see, clingine to the plain like a billowing blanket.

We started collecting in the shallow canyon. Even though the walls and floor of the canyon were entirely shale, many plant species showed an amazing tenacity in their adaptability. Among them was a rare and endangered species, Scrophularia atrata. This Figwort, one of four species of Scrophularia identified by Munz in A California Flora, is a low-sweeping dark green leaved perennial herb which bears small, blackish-maroon globular flowers.

Continuing our collecting up onto the sandy plain, we searched among the manzanitas and found some particularly good vegetative as well as floral selections of both purissima and rudis. Two of the purissima cuttings we obtained exhibited distinctly different characteristics: one, a totally prostrate form; the other, a luxuriant, large-clustered white flowered form. We also took cuttings of an especially rich toned, deep-blue flowered Ceanothus ramulosus var. fasicularis. The wind-swept plain also yielded a small Sanicula ssp. and a Helianthemum scoparium. We took the time to photograph many of the flowering plants in their environs just so we would have a visual record of a habitat soon to be destroyed.

Upon our return to the Garden that same weekend, we took the time to refrigerate our collected materials before heading home to a well-earned hot shower. The job was not
done but that would have to wait until Monday. After the long ride back, I'm sure the cuttings welcomed a night on ice before being potted, recorded, and then introduced to a new life under the watchful eyes of students, researchers, and Garden visitors.

An Island Of Hawaiian Flora

by Dr. Robert Ornduff, Director of the U.C. Berkeley Botanical Garden

Our experience after the "Big Freeze" of December 1972 told us that there is no sure way of determining in advance whether a plant will survive the rigors of a Berkeley winter, at least when planted out of doors. Many species that tolerate below freezing temperatures in their native habitat were lost, whereas others that never experience even light frost survived without any damage. With this information in mind, I gathered seeds of a few interesting Hawaiian plants during two recent collecting trips to the Islands to form the nucleus of a small Hawaiian collection that has recently been established in the Pacific Island area of the Garden. It is already clear that some of these plants are quite unhappy living outside in our climate. Doubtless one or two have already succumbed during our relatively mild winter. Others, however, are doing well and give every indication of being at home in Strawberry Canyon.

The most striking of these Hawaiian plants is a small group of yucca-like Wilkesia gymnoxiphium, called iliau in Hawaiian. There is only this single species of Wilkesia, and it is restricted to a few populations on Kauai; our plants came from seed I collected above Waimea Canyon. Wilkesia, a member of the sunflower family, is a close relative of the Hawaiian silverswords, and is also related to our California tarweeds. The single stem of each plant remains unbranched throughout the life of the plants, eventually reaching ten feet or so in height. After the plants flower, they die.

Related to Wilkesia is the naenae (Raillardiad - or some prefer Dubautia - menziesii). This small shrub is restricted to the inhospitable upper slopes of Haleakala on the island of Maui, growing at elevations of 9,000 feet or more. Plants occur scattered in loose pumice or lava, and are exposed to intense solar radiation during the daytime and to very cold, misty nights all year long. This is truly an alpine habitat, and this species should survive outside here quite well, though whether it will tolerate our heavy acid soil remains to be seen. Unlike Wilkesia, the naenae does not die after it blooms, but grows and flowers over a period of several years. The yellow-orange flowers are borne in small heads. Extra plants of both the preceding species were available at the May plant sale.

Another well-known Hawaiian plant is represented by several different collections in this bed. This is the ohia-lehua (Metro-sideros collina), a relative of the eucalyptus. It forms dense forests in some areas on the islands, but in others, the plants form low rounded shrubs. These and other variants are illustrated and discussed by Sherwin Carlquist in his excellent study, Hawaii, a Natural History. We have both the tree and shrub forms in the Garden. When they flower they should be most attractive, since typically the flowers are a bright red and are doubtless pollinated in nature by birds called honeycreeper. In Hawaii, beekeepers prize this tree and ohia-lehua honey is easily available in supermarkets there.

Wilkesia gymnoxiphium
Other plants of interest are two members of the lobelia family that are doing surprisingly well in the Garden. One of these is the oha-wai (Clermontia kakeana). This species occurs on Oahu, Molokai, and Maui; our specimens came from seeds I collected on Maui not far from Hana, at about sea level. This species is a small sub-shrub bearing in the leaf axils enormous greenish flowers which produce large amounts of nectar and are doubtless visited in the wild by honeycreepers. Another lobeliad from Hawaii is the aku'aku (Cyanea trichomantha), a rainforest species restricted to the Big Island of Hawaii. Our plant comes from seed I collected in a very wet ohia-lehua forest not far from Hilo. The plant resembles a small palm and bears clusters of attractive small white flowers.

A species with an unusual distribution, and one that survived the 1972 freeze, is the shrubby mint (Lepechinia hastata). This species occurs naturally at middle elevations on Maui and also in Baja California. Our plants originally came from about 6,000 feet on the slopes of Haleakala, where a staff member from the U.C. Davis Arboretum collected seeds in 1968. At that time fewer than a half-dozen plants were present in the population, and its present status in Hawaii is unknown.

There are a few other Hawaiian plants in this small collection, some of which have not fared well during the past winter. Among these is the unusual lobeliad Brighamia citrinae, var. napaensis, found only on Kauai's steep Na Pali coast. This plant has a short swollen stem capped by a rosette of leaves that resemble those of a cabbage. Our plants have been grown from seeds sent by the Pacific Tropical Botanical Garden which is attempting to distribute this very rare plant in cultivation. Although our plants are not faring well, others grown in containers out-of-doors elsewhere in Berkeley are thriving. We would be interested in hearing how plants purchased by several shoppers at our last plant sale are faring elsewhere in the Bay Area.

Watering And Mulching Crucial

To Summer Garden Maintenance

by Daniel Campbell, Garden Manager

Most people regard the coming of Summer as a time of pleasant warm weather, increased out-of-door activities and recreation. For gardeners, the pleasures are mixed.

Warm weather brings a host of garden pests. Especially damaging are microscopic mites and thrips on plants with thick green leaves such as Rhododendrons and Viburnums. These two pests attack the chlorophyll of the leaves turning them silver minutely speckled with dark brown. Check with your local nursery for a spray that is effective and yet safe and acceptable to your local city council. (Berkeley has a ban list of chemicals.)

California's dry climate, though pleasant, places many plants under stress. Summer is a time of year in the Botanical Garden when planting is discontinued until the start of the rainy season and when mulching and watering become the chief activities.

We have been recycling all our trimmings into mulch with the aid of a large chipping machine. Many smaller models are available for the home garden, or simply go to your local nursery for mulch. We spread mulch to about four inches thick for moisture retention and weed suppression all in one.

Watering in Summer is an appalling chore. Be sure not to give way to temptation and skimp on watering time. Remember that in heavy soil water won't penetrate far in an hour. Consider using a drip system to save water. If planting on slopes, a drip system will eliminate the need of soil basins and will avoid wasteful runoff. We are using more drip irrigation in the Botanical Garden than ever before. It encourages healthier, deeper root systems and saves on labor: which for you means more time playing tennis, jogging or visiting botanical gardens!
The Information Center Is Worthwhile First Stop

The Garden's Information Center provides a number of services to make your visit more enjoyable. This is the place for everyone to pick up a Garden Highlights brochure for current information on plants of special interest. If you're a relative newcomer to the Garden's collections or accompanied by out-of-town visitors, the informative but brief "Visitor's Guide to the Garden" will enhance your visit.

Those who are more familiar with the Garden will enjoy one of the specialized booklets which provides background and specific information on various collections such as the Carnivorous Plants, the Herb Garden, the Indian Nature Trail, or a contrast of the Old and New World Deserts. Frequent as well as first-time visitors will find a copy of the Garden's Bird List an enriching addition to their Garden experience. The article on birds in this Quarterly should get everyone off to a good start.

After one has wandered through the California Area and enjoyed the diversity of our native flora, there is a great selection of paperbacks in the Information Center with details on the California plant communities and geography, as well as identification handbooks and books on where and how to grow natives in your own garden. If a trip through the Tropical House and Garden of Plants for Mankind excites curiosity about the economic and cultural importance of these species, you can purchase a copy of Plants and Man by Anderson at the Information Center.

Even a trip through a favorite and familiar section of the Garden comes clearer if you take along a hand lens. The Information Center carries some inexpensive types.

It is even possible to take home a "sample" from the Garden's collections. A variety of plants and seeds (with description and culture information) is always available. For those whose garden is a small windowsill that cannot accommodate a living reminder of the Garden, there are several attractive wildflower posters and postcards, including three fine postcards of our Garden.

Whether you want to know the location of the nearest drinking fountain, the name of an eye-catching plant in bloom or the public tour schedule, the Information Center staff is glad to be of assistance - with an answer or a suggestion for where to find the needed information.

The Information Center was designed by architect and Garden volunteer, James Novosel, and partially funded by proceeds from the first plant sales. Financial support from the Friends continues to keep this fine facility and its services available for all Garden visitors. On weekends, from 10 to 4:30, the Center is staffed by work-study students supported in part by funds from the Friends budget. The Center is staffed by volunteers on weekdays from noon until 3 pm, and the Garden would always welcome new members for this important service. Additional volunteers on the staff would allow the Center to remain open longer hours. If you would enjoy participating in this valuable public service activity, on a regular basis for a few hours every other week or even once a month, please contact the Education Program at 642-3352.

Garden Mapping Grant Awarded

Botany graduate student Linda Newstrom has been awarded an Instructional Improvement Grant which will enable her to work on a Garden mapping and inventory project during the summer months.

The grant was awarded by the Campus Council on Educational Development for the purpose of providing additional information on the Garden's collections for the direct benefit of all instructors using the Garden. Beginning with an inventory of the Herb Garden, and upgrading existing maps, Ms. Newstrom hopes to complete a review of all economic plant collections and to also spend time in the California Native Area under the direction of Garden Curator, Dr. Bruce Bartholomew.
PLANT SETTING UP

SOME FUTURE SHADE

JUST DON'T STAB YOURSELF
A RARE TREASURE

"NOW WHICH ONE
DO I WANT?..."

HEY, WAIT FOR ME
One of the fringe benefits for visitors to a garden as rich and varied as the UC Botanical Garden is the host of small creatures who make their homes among its congenial environments. As you stroll along, you may see the quick flit of a lizard or the sinuous glide of a snake or hear the soft plop of a frog as it leaves a lily pad for the depths of its pond. Seeing and identifying these small amphibians and reptiles is one of the added pleasures of a summer day in the Garden.

From the pathway between the African Hill and the Cactus garden, or along the paths between the California chapparal plantings, one can frequently see Western Fence Lizards (Sceioporus occidentalis) and southern Alligator Lizards (Gerrhonotus multicarinatus) taking the sun on a rock or peering from under a spiny cactus. The Western Fence Lizard is extremely common in the Garden making its home near or on snags or downed trees and among rock outcrops where it dines on flies and small insects. Its body is 2½-3½ inches long, excluding the tail, and is of a dusky brown or gray color with dark blotches. A mature male will sport blue patches on its throat and on each side of its belly. Its back is scaled and rough looking.

The southern Alligator Lizard is larger (4-6½ inches body length) and prefers to live in shaded thickets and under rocks and logs. Its movements are slower and more snake-like with its elongated body and shorter limbs. Its forked tongue flicks in and out frequently. Alligator Lizards are good climbers and may ascend trees to escape predators. If caught, it will attempt to bite and smear its captor with feces. Its tail is easily lost, and the severed part thrashes violently. Its body is covered with thick squarish scales with nine or more dusky or brown crossbands on its back. Its belly has a long stripe or row of dashes down its middle, and its food includes insects, spiders and their egg-cases (including the venemous black widow) snails and small mammals such as young meadow mice.

As you continue your garden walk through the Rhododendron Dell and past the lily pool and stream you may be lucky enough to catch sight of a Pacific Treefrog (Hyla regilla), a Red-legged Frog (Rana aurora) or a California Newt (Taricha torosa). The most difficult of these to observe is the small (3/4-1/2 inch) Pacific Treefrog, since its color forms--green, gray, brown, tan--can change from dark to light in a few minutes. It is a pond breeder active from January to July, but most in evidence in the Garden in Spring. You may have to settle for simply hearing its familiar kreek-ek but you will at least know it is there somewhere. Its food consists of insects such as leaf-hoppers, flies, wasps, beetles, and caterpillars, as well as spiders and snails.

Because of the introduction into California of the bullfrog, the Red-legged Frog is a threatened species. Having found a relatively safe refuge in the Garden, it can be seen, both day and night, in the areas in and around the pond and the more wooded parts of Strawberry Creek. It is a larger species (2-5 inches) having a brown to reddish back with small dark flecks and larger blotches, and a dark mask bordered by a pale upper jaw stripe. When you hear a stuttering, grating guttural sound on one pitch often ending in a growl and lasting for about three seconds, you are in the presence of the Red-legged Frog. Since the sound does not carry far, he is close by, probably enjoying a meal of beetles, caterpillars, or isopods.

Tan to dark brown above and orange to pale yellow below, the California newt (Taricha torosa) is 2½ to 3½ inches long, and can be found in the woodland parts of the Garden and along the creek. Its large eyes protrude beyond the outline of its head, and its skin can be highly toxic if eaten or bitten. The bright color on the belly is typical of creatures which secrete a powerful neurotoxin. During the mating season from September to May, the Newt migrates to water to lay its eggs; otherwise the adult form is terrestrial. Such other salamanders (Batrachoseps, sp.) as live in the Garden are nocturnal animals. Thus Garden visitors will not be seeing them.
Five species of snakes live in the Garden, dwelling in those areas most resembling their native terrain. The most ancient species is the Rubber Boa (Charina bottae) which has minute vestigal hind legs that the males use during courtship. The Boa is very secretive in behavior, but if seen can be identified by its plain unpatterned brown coloring and yellow belly. Its blunt tail, resembling its head, has caused it to be called the "two-headed snake." It is chiefly a woodland and forest species which buries itself in sand or loose soil or beneath rotting logs, under rocks or the bark or fallen trees. It eats fence lizards and small mammals and birds.

The Ringneck Snake (Diadophis punctatus) can best be seen during March, April and May, near water and under rocks. Measuring 12 to 15 inches, it is a slender olive to nearly black snake with a dark head and a conspicuous yellow or orange neck band. When disturbed, it emits a fetid odor and will coil up exposing its tail's bright red undercolor like a thimble. It eats salamanders, tree frogs, lizards, other snakes, worms and insects.

Gopher Snakes (Pituophis melanoleucus) are often mistaken for rattlesnakes because of their similar markings. When alarmed, the Gopher Snake hisses loudly, flattens and broadens its head and vibrates its tail which can, among dry leaves, suggest the sounds of a rattler. Despite its appearance, the Gopher Snake is actually not only harmless but beneficial. It can be anywhere from 3 to 4 feet in length. Its basic color is yellow or cream with black, brown or reddish-brown dorsal blotches, and it lives on mice, rats, gophers, squirrels, rabbits, birds and their eggs, and lizards.

Measuring 18-24 inches in length, the Western Terrestrial Garter Snake (Thamnophis elegans) lives in meadows, clearings, and chapparal. Its distinctive markings are a yellowish or cream stripe down the middle of the back, and cream, whitish or pale gray stripes low on each side. Dorsal stripe is typically bright yellow, red, or orange. If handled it exudes a vile odor and will bite or defecate in defense. It eats frogs, slugs, and fish.

If your basic garden is one which contains a dangerous serpent, the Botanical Garden surely qualifies as basic. It can't, of course, boast of a talking snake such as lured Eve to take that fateful bite of apple, but it has its share of rattlers—the Western Rattlesnake (Crotalus viridis), and the visitor ought to be at least aware of this fact. Fortunately the local inhabitants are less aggressive and lethal than those found elsewhere in the state. Our Garden variety are likely to be well off the pathways; still, strollers should be cautious, remaining on the paths and leaving warm stones to themselves since the Western Rattler blends perfectly with the dusty foliage and the grays and browns of rock. This particular snake can strike without the warning rattle and does not need to coil for attack. If on the outside chance one does strike, the victim should be kept still and help summoned immediately.
The rattlers in the Garden are small, averaging about 2 feet, and live in such sunny places as the more remote areas of the California and Mexican areas and in the upper reaches of African Hill. Usually they are active in the early morning and late afternoons. On a hot day they will have gone into retreat among the rocks and underbrush by about 10 a.m.

Professor Harry Greene, Assistant Professor of Zoology and Assistant Curator of Herpetology at the Museum of Vertebrate Zoology, U.C.B., is in the process of removing to his laboratory on Campus the Rattlesnakes found in the Garden. In one of his behavior studies, Professor Greene implanted a radio in one of the snakes and released it in Tilden Park.

"The radio-tagged animal headed for the Botanical Garden over the ten days I watched it," he relates. "I suspect it would have gone there if I hadn't caught it. We need more evidence, but probably short-range transportation of the snakes won't work." Greene plans to continue removing the snakes as they are found, but doubts that they can be completely eliminated from the Garden.

All this is in the way of caution with no wish to alarm our visitors. No one has ever been bitten by a snake in the Garden's history, but that sterling record is no doubt the result of care and vigilance on the part of the Garden's guests.

We wish to thank Professor Greene for his generous contribution of time and information to the development of this article.

CALENDAR

August 6, 13, 20, 27 (Thursdays)
"August Afternoons in the Garden for Children"
Natural History classes for 6-11 year olds. See article for details or call 642-3352.

September 16 (Wednesday)
Docent Training course begins
See article for details or call 642-3352.

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