

the BULLETIN Output Publication of the Friends of the Arboretum

Fall 2013 Vol.37, No.1 & 2

Wildfires Rip Through Arboretum Research Sites in the Sierra and in the Santa Monica Mountains: What the Arboretum Can Do

A fire that as of this writing continues to burn into Yosemite may have damaged several *Dudleya* populations and another fire last spring in southern California devastated populations of a rare species of *Dudleya*. The Springs Fire, which started in the Camarillo Springs area and burned through a large section of the Santa Monica Mountains, burned over all of the populations of the rare and Threatened Verity's liveforever, *Dudleya verityi*, in May 2013. Parts of some populations were wiped out, but some rock outcrops had so little vegetation to carry the fire that the *Dudleya* survived. In the worst hit areas, no flowers, seeds or plants could be found. It is not known how seeds in the soil have fared. The Arboretum is working with the US Fish and Wildlife Service, National Parks, and California State Universities, to come up with possible actions to take.

Dudleya verityi was named by Kei Nakai in the 1980's after UCLA researcher, David Verity, who took Kei to the site where it grows. Though one person assured David the species was "fine" because they saw unburned individuals across from the sewage treatment plant, researchers have only confirmed 10 live plants there. I visited the site and saw perhaps 10 plants were not burned and around10 dried flower stalks that might have seed. There might have been another 10 or so living plants higher up the cliff. However, walking and climbing about 50 feet further, one finds that perhaps as many as 99% of the plants in the total population look dead. We don't yet know if more than two of the six populations have live plants left. The species is State and Federally listed as threatened and is on list 1B.2 for the California Rare Plant Rank.



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"The Arboretum Changed My Life"

People occasionally ask why there is so much enthusiasm for the Arboretum. Below, we discuss a seemingly disconnected group of visitors, students, donor, volunteers (some of whom have passed away recently), and staff who have all had connections through the Arboretum. Some have been inspired by the Arboretum and some have inspired the rest of us.

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Inspiration of Visitors?

I was at a family-style dinner at a dining hall the Tassajara retreat center where people were introducing each other, asking where are you from, what do you do? A woman and her grown daughter, a sculptor, sat across from us. "You work at the UCSC Arboretum? I visited the Arboretum. The Arboretum changed my life." I was taken aback. The mother said she had two gardens, one at home in the Berkeley hills and another at her art studio. After visiting the Arboretum, she did more gardening and her palette of plants completely changed so that she incorporated South African and Australian plants in each garden in her frequently changing horticultural compositions. After the first time, she visited again and came to our plant sales. Then, as the plants we introduced became more widely available, she'd get some of them from other gardens and nurseries closer to her. I thought about our conversation that night and wondered if she was serious and if I could use her comments.

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Dudleya verityi

news & notes

Fire Near the Arboretum Doused Quickly



Empire Grade fire

On August 26, 2013 a small, rapidly moving grass fire was stopped in its tracks by a swift response from local air attack water delivery systems. The planes and helicopters barely stopped the fire from crossing Empire Grade towards Family Student Housing, the R lot, Oakes College and the Arboretum. We were busily wetting down vegetation near buildings and trellises when the smoke started to dissipate. For a very brief period of time, the wind was blowing right at the Arboretum, though most of the time, it appeared to be blowing towards the west entrance to campus. Three cheers for the firefighters!

- Stephen McCabe and the Arboretum staff

Solar energy research conducted by UCSC professor and NASA

This experimental, florescent colored greenhouse at the Arboretum is great for growing plants and producing energy as pointed out in a recent article on Dr. Susan Carter's solar energy research that is partly being done at the Arboretum. See AlgaeIndustryMagazine.com and SantaCruz.com



Sue Carter's greenhouse

Arboretum Will Collect Entrance Fees Every Day

The Arboretum has had people collecting admission on week-ends and has used the honor system for collecting admission on weekdays. We will be moving towards having a person collecting entrance fees on weekdays also, except for our free first Tuesday of the month. Members and UCSC students get in free every day, so encourage your friends to become members. Contact Vicki Garside at *Vickigarside@comcast.net* if you would like to assist our Meet and Greet folks collect admission to help the Arboretum.

\$300,000 available in matching funds, if we raise that much by June 2014.

The University will give the Arboretum \$250,000 in matching funds towards lowering our debt if we raise that much money towards our regular operating expenses by June 2014. Additionally, if we reach the threshold of \$300,000 in donations by then, they will put \$50,000 in an endowment account for us. Reading the fine print of the agreement, we see that new donations or a person who has increased their donation this fiscal year will have their new money matched two to one, not one to one. **Your gift** will still support Arboretum operations and the match will offset existing debt.

We have been successful at reaching these thresholds for the first two years. Let's try to succeed in the final year of this matching program!

The Arboretum has significantly lowered its debt over the last two years. For those of you who have just tuned in, the debt was accumulated during a previous administration. The Arboretum's endowments are far exceed the debt, though most of the endowments earmarked for particular types of spending, such as supporting student workers and so can't be used to pay down the long-term debt.

Founding Director Ray Collett left his estate to a private trust to benefit the Arboretum. This year there were several significant donations from the Ray Collett Trust to fund projects and activities that Ray advocated, such as student work, Arboretum mapping, the native plant garden, and the Australian Rock Garden. Other donors have supported work such as the rock work in the Erica Garden, Australian Rock Garden, and behind Norrie's Gift Shop. Volunteers were invaluable in staffing Norrie's and producing plants for sales and in each of our areas of fund-raising. Every year is an adventure, but our volunteers and donors have risen to the challenge to help make it work. Thank you all!

-Stephen McCabe and Brett Hall

Editor: Stephen McCabe

The Bulletin is published quarterly by the Friends of the Arboretum, a non-profit organization that provides support for the Arboretum at UCSC.

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* MARCAN States

Fall Plant Sale Saturday, October 12th

Complete Arboretum plant sale list will be available on our web site by October 4th - *arboretum.ucsc.edu/* Here is a selection of some of our featured plants in the sale.

- Helen Englesberg



Epilobium 'Hummingbird Suite' This is a new selection of California Fuchsia by the Arboretum. It is a profuse bloomer with bright red flowers in late summer. Suitable as a groundcover, it stays low growing and has small silver leaves.



Prostanthera magnifica This Prostanthera becomse a medium sized shrub, blooming during the spring and summer with gorgeous two-toned purple and lilac flowers. It is native to Western Australia where it grows in hot dry areas with sandy soils.



Tetratheca 'Amethyst Eyes'

It is a bright little evergreen perennial with dark green leaves and vibrant magenta flowers with dark purple centers. A recent Koala Blooms plant introduction.



Calothamnus gracilis 'Spring Torch' The small evergreen shrubs have needle like foliage and showy red new growth. Brushy red flowers. Drought tolerant once established. It is a recent Koala Blooms plant introduction.



Protea repens 'Embers' This selection blooms late fall to spring and has flowers with deep red tipped bracts fading to creamy white at the base. One of the more frost hardy proteas (to 20° F).



Protea cynaroides King Protea Spectacular, large pink-red and white flowers and dark green leaves make this a show stopper. It is the national flower of South Africa, and it is not readily available in this country.



Changed My Life (cont'd - p. 1)

Students?

Some of the people have been affected by the Arboretum have also had an effect on it. Volunteer, intern, work-study employee, then graduate, then temporary employee of the Arboretum, Sara Reid is following up on her undergraduate thesis at the Arboretum with her graduate school research at UC Berkeley. We are using a printed copy and the on-line version of her California Plant Uses brochure as part of our educational program. For its 50th anniversary, the UC Santa Cruz campus is looking for stories like hers that tell how students and others have been positively affected by the campus.

Several past students have had their weddings at the Arboretum, including three days before this was written.

Almost 40 years ago Luen Miller went to work at the Arboretum as a student and became enthused about the horticulture industry. I recall he started with a small group of potted plants in the side yard of his house. He now has a successful career and business as co-owner of Monterey Bay Nursery.

Sylvie Childress, who tended Australian plants at the Arboretum for four years as a student, travelled to Australia after graduation. There, she worked for West Australian nursery owners she had met at the Arboretum. Sylvie wrote, "Every day brings new adventures. My stay with Kevin and Kathy Collins at the Banksia Farm was one of my most valuable life experiences so far." She said the Arboretum, "changed my whole perspective on the outdoors and it made me really like plants." She just started a new job in the horticulture industry in Berkeley. As the previous batch of students leaves, we hope the next crop of students will be excellent as well.

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Inspiration from our friends, even after they have passed away:



Carla Reiter

In recent months we have lost some of those for whom the changes went both ways, where the Arboretum blessed

them and they blessed the Arboretum. One of the first donors of plants to the

Arboretum in 1976 was the late Victor Reiter Jr. In 1986, shortly before his passing, he gave us many choice Echeverias that he and Frank Reinelt had hybridized. His widow, Carla Reiter, a wonderful woman who died this past spring, financially supported his Arboretum plants through the many years since Victor's passing.

Kathy Cairns

A spark plug at Norrie's,

Kathy Cairns started volunteering with succulents before she moved over here from the Silicon Valley. Starting

with no landscaping, Kathy transformed her living space to a place surrounded by succulents. At the shop her contagious enthusiasm and welcoming nature helped bind the community together.

Barbara Shields



Barbara Shields would often come by after a Spring Plant Sale or Dried Flower and Succulent Sale and drop off a check. She appreciated how hard her friends worked

on the fund-raising events, so that even though her garden was floriferous and full, making it unnecessary for her to purchase anything, she wanted the income from the sale to look better for her hardworking friends. Though she didn't talk much about why she did it, she believed in the Arboretum enough to make the second largest single gift ever by a living donor to the Arboretum: \$250,000. That endowment pays out each year and is worth over \$300,000 now.

Frank Bloss



Frank Bloss passed away after helping set up the Monterey Bay Cactus and Succulent Show and Sale this past spring. The garden he shared with his

family was dotted with a number of his Arboretum favorites planted around Naomi Bloss's succulents. Frank helped transport perhaps as many as 20,000 plants that the Bloss family donated for sale over the last 26 years or so. As a former rocket scientist, he had skills with many aspects of technology and assisted us with equipment for recording sales or projecting images for PowerPoint shows.

There have been several memorials at the Arboretum - families want to remember their loved ones by visiting the Arboretum - these things are an indication of the close ties between the volunteers and their Arboretum. We feel the positive impact of so many friends as we walk the gardens.

Each year, there are many large shoes of students, volunteers, and donors to fill to help us keep making the garden the significant part of people's lives that it has been.

All seven staff members were UCSC students, more student inspiration

Brett Hall started in 1975 a young college student started working at the fledgling Arboretum. In the years since, Brett Hall, has helped build the Australian collection to be the largest outside of Australia and has become the director. The New Zealand collection is one of the largest in the world. The conifer collection is one of the best in the world. Many of the plants are used by students and faculty at UCSC and other institutions for research. After 38 years at the Arboretum, one can guess that not only has the director had a large hand in crafting the Arboretum, but also that working at the Arboretum has been transformational for him. As you can see in the Director's report in this issue, he in turn was inspired by the first Director. In all, the Arboretum staff have over 160 years of experience working at the Arboretum.

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So the next morning, as people gathered around the dining hall in anticipation of hot coffee and a delicious breakfast, the woman we'd met the night before asked about nurseries she and her daughter could visit on the way home. Then I asked her, "So did you really mean that visiting the Arboretum changed your life?" There might have been the slightest twinkle in her eye due to the audacity of the question, but she responded with a single word, a resounding, "Yes!"

- Stephen McCabe

from the director



Brett Hall

Remembering Ray and his wonderful collections

Remembering Ray is easy and comes naturally to us here in the Arboretum. It's like a

conversation you might have with a friend while on a trip. There is no beginning or ending. You're free to start in the middle and wander, sometimes seemingly in a circle. From time to time important, vivid memories emerge filled with all the imagery, tastes, smells and feeling that makes you think that all you need to do is press the play button!

Î recently took a quick trip to Arcata to attend the fall CNPS Chapter Council meeting. Travelling alone afforded plenty of time to think, prodded by the unfolding countryside and memories of so many adventurous collecting trips we shared with Ray over the years. Ray grew up in northern California and southern Oregon and he returned throughout his life to explore the North Coast Ranges, the Klamath Range,

South Cascades, Sierra Nevada, and beyond. He spent extensive periods of time tracking down all kinds of rare and unusual species and populations. These included endemic conifers, *Silene* species restricted to serpentine soils in the Siskiyou Mts, hybrid

swarms of *Iris*, double-flowered *Philadel-phus*, and more. He had many special interests in the plant-tracking realm but one that especially captured his imagination was his search for exquisite *zauschnerias* (now *Epilobium*) for the horticultural trade. Among the selections we introduced during Ray's zauschneria years were *Epilobium canum* ssp. *canum* 'Hurricane Point', *Epilobium septentrionale* 'Select Mattole', *Epilobium canum* ssp. *latifolium* 'Brilliant Smith' from

the south fork of the Smith River, and *Epilobium canum* ssp. *canum* 'Cloverdale' from along the Russian River at the base of "Squaw Rock" or "Frog Woman Rock".

Cloverdale' is an exceptionally brilliant and floriferous cultivar that is still circulating in the trade after nearly 30 year

trade after nearly 30 years. Curiously, Ray did not want to name it after the Rock or the rock slide where we collected it. One reason is the evolution of the meaning of the name Squaw having become derogatory ("Narragansett **squaws 'woman'** with related forms in the Algonquian language"). The other reason was that Ray did not want to reveal the exact location of the collection.

"Squaw Rock" is in Mendocino County and nearby Cloverdale is in Sonoma County, which helps add to Ray's zauschneria

riddle. I recall giving a presentation and introduced *Zauschneria* 'Cloverdale' as having originated from Mendocino County. After the talk, some Mendocino locals pointed out to me that Cloverdale is not in Mendocino County.

Ray's zauschneria years were synchronized with the tail end of Peter

Raven's revision of the Onagraceae and the rerouting of the genus *Zauschneria* into the genus *Epilobium*. The change created a great stir in the horticulture and botanical communities. *Zauschneria* was and is very beloved for obvious and multitudes of rea-

ced during Ray'ssons—late summer flower, brilliant orangeEpilobium canumthrough red (mostly red) flowers and heapsPoint', Epilobiumof hummingbirds! Name changes are oftenattole', Epilobiumdifficult and back then (1970s and 1980s),liant Smith' fromfolks were not as accustomed as we are to-



Hurricane Point

difficult and back then (1970s and 1980s), folks were not as accustomed as we are today to the weekly name changes coming out of the consortium. Raven's research and analysis has been sustained with the ongoing molecular evidence. At some past stage in the evolu-

tion within Onagraceae,

one branch of the fam-

ily shifted from bee to hummingbird pollination: Epilobium section Zauschneria. Following Peter Raven's publication in the Annals of the Missouri Botanic Garden, in 1976, Ray started sending specimens to Dr. Raven, which Ray thought challenged the new circumscription of Epilobium section Zauschneria. These zauschneria exchanges between Ray and Dr. Raven were never heated and seemed like great fun from my perspective back in those early years and I had often wondered if Dr. Raven's take on it was similar. Fortunately I had an occasion last year to ask Dr. Raven and he recalled being both intrigued by Ray's persuasion and humored by his portrayal.

The point of all this is that *zauschnerias* (*Epilobium canum* and *E. septentrionalis*) are beautiful, interesting, and worth traveling for. They are tough and made to survive and will continue flowering through Thanksgiving!

[Note: Ray Collett was the founding Director of the Arboretum. He died February 2012. The "Zauchneria" we are selling at the upcoming sale is 'Hummingbird Suite' and may well be a garden seedling of one of those mentioned above.]

Plant Sale (cont'd - p. 3)



Epilobium 'Cloverdale'

Achillea millefolium 'Lost Coast' Large very white short flower stalks with dense flat-topped heads extending above the foliage. Great as a ground cover, attracts native pollinators.



Mimulus 'Glinda' Another seedling monkey flower in the Arboretum's Wizard of Oz series, 'Glinda' blooms with a delicate light pink pastel flower providing summer color to the garden.



calendar of events Fall 2013

october

COMMUNITY DAY

Tuesday, October 1 1st Tuesday of every month. Free

admission to the Arboretum.

EVENING LECTURE

Thursday, October 3 7 pm, (NO potluck)

Sudden Oak Death: New Infestations and Hotspots. A webinar, broadcast to the UCSC Arboretum. By Dr. Matteo Garbelotto, (Live from Berkeley) "Results of the 2013 volunteer survey of Sudden Oak Death in California and analyzing the value or five years of volunteer data to predict the spread of SOD."

TOUR OF THE ARBORETUM

Saturday, October 5 Meet at Norrie's at 11:00 am

1st Saturday of every month, free with admission.

ARBORETUM AND CALIFORNIA NATIVE PLANT SOCIETY "GARDENING WITH NATIVE PLANTS" CLASS

Tuesday, October 8 7-9 pm (NO potluck)

Speakers: Joni Janecki. (Joni L. Janecki and Associates). "Designing with native plants"

Rick Flores. (UCSC Arboretum) "Gardening with edible native plants"

Kevin Bryant. (Santa Clara County CNPS). "Success with Native Plants for Beginners: Tips for Getting Started".

ARBORETUM AND CNPS FALL PLANT SALES

Saturday, October 12 10 am - noon Members of the Arboretum or Santa Cruz County CNPS, Noon-4 pm, public sale.

november

TOUR OF THE ARBORETUM *Saturday, November 2*

Meet at Norrie's at 11:00 am

1st Saturday of every month, free with admission.

COMMUNITY DAY

Tuesday November 5

1st Tuesday of every month. Free admission to the Arboretum.

EVENING LECTURE

Thursday November 14 6:00 potluck, 7:00 talk

Sudden Oak Death program by expert, Dr. Matteo Garbelotto

Sudden Oak ecology and the means by which it spreads. Evidence of disease tolerance in tan oaks and the possibility of replanting tan oaks in hard hit areas

ARBORETUM HOLIDAY GIFT AND WREATH SALE AND NORRIE'S HOLIDAY OPEN HOUSE

Saturday, November 23, 10 am – 4 pm Sunday, November 24, 10 am – 4 pm

december

COMMUNITY DAY *Tuesday December 3* 1st Tuesday of every month. Free admission to the Arboretum.

TOUR OF THE ARBORETUM

Saturday, December 7 Meet at Norrie's at 11:00 am

1st Saturday of every month, free with admission.

january

TOUR OF THE ARBORETUM

Saturday, January 4 Meet at Norrie's at 11:00 am

1st Saturday of every month, free with admission.

VOLUNTEER TRAINING CLASSES

Tuesday Jan 7 – Feb. 11, six Tuesdays, 9:30 am – noon.

COMMUNITY DAY *Tuesday, January 7*

1st Tuesday of every month. Free admission to the Arboretum.



Nikki at the plant sale

Wildfires Rip Through Arboretum Research (cont'd - p. 1)

The Arboretum has over 30 years experience growing and studying the species, and we have representative plants from four of the six populations of *D. verityi*. In cultivation, we have collected pure seed from the different populations. If the decision is made to replant, we can train students from UCSC, Cal State Northridge, or Cal State Channel Islands to plant the seeds, tend them, and replant plants in the wild. We plan to collect more non-hybridized seed next year from our research plants.

Over the last few years the Arboretum has been collaborating with UCSC researchers on the systematics of the genus. Using DNA research, we try to find how the plants are related and then decide which names to put on the plants. Working with PhD. student, Jenn Yost, former student Megan Bontrager, and faculty member, Kathleen Kay, we found that *D. verityi* is either closely related to *D. blochmaniae blochmaniae* or has hybridized with that subspecies. Matt Ritter, from the faculty at Cal Poly also worked on the study.

The Arboretum also has *Dudleya cymosa* research sites in areas that were probably burned in the on-going Rim Fire in the Groveland to Yosemite area. In addition to looking at the ecology of the species, one of the research questions is whether or not the

plants in the area represent an uncommon and unnamed species or are just members of a widespread subspecies.

To look at this, a year ago I took a little 400-mile day trip from Santa Cruz through where the Rim Fire has since burned. I found unusual populations of non-waxy, yellow-flowered plants of *D. cymosa* that Yerba Buena Nursery had told me about, as well as several populations that may never have been documented. They had small to medium sized rosettes, and short inflorescences. Most of the populations I visited that day are within the burn area and some facilities right next to one of the populations have reportedly been destroyed by the fire.

Have we done too good a job teaching people about fire-adapted plants that need to burn? While there are a number of great stories about adaptations of long-dormant annuals, pines, and chaparral plants resprouting from seed or from their bases after fires, a number of California plants probably survived in spite of fires by growing in places that were too wet or where vegetation is too sparse to carry a hot fire. Unlike some California natives, the Dudleya do not seem well adapted to fire, but probably survived previous fires by growing on rocky habitats where, at least in the past, many might have survived because there is little fuel on the rocks.

There may be more fuel now, however. Research scientist Stuart Weiss has demonstrated that wildlands near freeways can receive nitrogen deposition in excess of normal amounts and this addition, of what is essentially fertilizer, can increase grass growth and the numbers of certain species and types of vegetation. It is not known if the *Dudleya verityi* populations were affected by hotter fires in an unnatural buildup of fuel due to added nitrogen from the nearby Ventura Freeway. Looking at the aftermath of the intense fires, it makes one wonder.

We have been given some *D. verityi* with no collection data, so they can't be used for restoration. The Arboretum volunteers will propagate from these so we'll eventually have a few to sell to the public. If you would like to help Verity's Liveforever recover, please consider a sponsorship of an individual plant through a \$50 donation, or a \$1000 donation to help with the Arboretum's work on all of our plants of that species in cultivation. This will further our goal of helping the species recover in the wild.

Make checks payable to UCSC Foundation and send c/o Rare species, Arboretum, 1156 High St., University of California, Santa Cruz, CA 95064. Or email smccabe@ ucsc.edu.

- Stephen McCabe

THE ARBORETUM IS STRONGLY ROOTED Support the educational, horticultural, conservation and research goals of the Arboretum!

Yes, I want to give a donation, a gift membership, or renew my Arboretum Associates Membership!

New Member Renewal Gift Membership* Donation Only (no benefits)		
 Check (payable to <u>UCSC Foundation</u>) Check Cash Please bill my [] Visa [] MasterCard Card No Cardholder's Signature 	[] Discover [] American Express Exp. Date	Membership Levels \$45 Calif. Poppy \$65 Salvia \$\$100-\$249 Kauri Circle
*Gift from (Name, Complete Address):		\$\$250-\$499 Erica Circle \$\$500-\$999
Member Name (two names for Salvia or above)	Phone Number	Banksia Circle \$\$1000 or + Protea Circle
Street Address	E-mail (for occasional reminders)	\$2500 Life
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The UC Santa Cruz Arboretum is a living museum inspiring stewardship of the world's biodiversity through research, education, and the Conservation of rare, endangered, and extraordinary plants.

Moving? Please let us know the address of your next garden... Thanks

nursery discount program

Arboretum Associates can enjoy 10% discounts on plants (and sometimes on related merchandise) at the following nurseries:

Drought Resistant Nursery 850 Park Ave., Monterey, CA 93940 • (831) 375-2120

Garden Company (*plants only*) 2218 Mission St., Santa Cruz, CA 95060 • (831) 429-8424

Gold Rush Nursery 3625 N. Main Street, Soquel, CA 95073 • (831) 465-0314

Golden Nursery 1122 Second St., San Mateo, CA 94401 • (650) 348-5525

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Pot Stop (*pots only*) 2360 Highway 1, Moss Landing, CA 95039 • (831) 768-7557

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ProBuild Garden Center 235 River St., Santa Cruz, CA 95060 • (831) 423-0223

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2133 Elkhorn Rd., Castroville, CA 95012 • (831) 632-0482

And, of course, **Norrie's Gift Shop & Nursery** *at the Arboretum.*

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The Arboretum is open daily from 9AM-5PM. Norrie's Gift Shop & Nursery is open daily 10AM-4PM The Jean & Bill Lane Library is open Wed-Sun 12PM-3PM. Visit the Arboretum's website at: **arboretum.ucsc.edu** For information, or if you have any disability-related needs, call (831) 427-2998 or fax us at (831) 427-1524. 87 **Arboretum** University of California Santa Cruz 1156 High St. Santa Cruz, CA 95064

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