



## Carroll to be NRS Associate Director

This August, C. Ronald Carroll joins the Natural Reserve System as its first Associate Director. Carroll comes to UC from Baylor University in Waco, Texas, where he is currently an associate professor and assistant director of the Institute of Environmental Studies. He brings to the NRS an international reputation in field ecology, an established track record in acquiring grants, first-hand experience in resource management, and what he describes as "an emotional attachment" to California natural history.

Carroll was first introduced to the importance of protected natural areas in undergraduate field biology classes at UCLA. "I had a long-term interest in desert ecosystems," he recalls. "I used to go out on weekends in an old Chevrolet and just lose myself in the Anza-Borrego Desert. Those field trips helped me to understand the desert in a more analytic way."

Carroll remembers two desert field sites in particular. One was a small oasis that served as a watering hole for migratory birds. "Years later I went back to that site, and it had been destroyed by off-road vehicles," he says. "That was one of the worst moments in my life." The other site—the Philip L. Boyd Deep Canyon Desert Research Center—remains intact as part of the Natural Reserve System.

Since his undergraduate days, Carroll has conducted research on natural reserves in West Africa, Mexico, Central and South America, as well as the United States. An entomologist by training, Carroll has never been content to study insect communities in a vacuum. Instead, he strives to apply ecological principles to the needs of society in general. He's especially interested in the interface between natural and managed systems.

As president of the Texas Center for Rural Studies—a non-profit corporation for public policy development—Carroll has dealt with this interface head-on. "The Center is primarily concerned with some

of the environmental problems that come out of agriculture, such as the misuse of pesticides. We've found that in many cases the impact of the misuse spilled over onto natural areas," says Carroll. "You simply can't pretend that natural systems are totally independent of the world around them."

Carroll stresses this approach to graduate students. At the 1984 meeting of the American Entomological Society, he was asked to deliver the lead address at the graduate forum. His topic: the changing role of ecology in graduate education.

"My feeling is that ecologists today are receiving a training that is much too parochial with respect to the kinds of problems they may have to deal with in the future," says Carroll. "For example, I think ecologists in general are hopelessly naive about the importance of economic and political forces. They tend to pretend that the science they do is unbiased. But it is biased, and they need to explicitly recognize where that bias is going to take them."

"More and more, I think there is an important role for ecologists in agriculture and in the management of natural resources. In order to fill that role properly, ecologists need both more breadth and more depth in their training." At Baylor, Carroll supervises eight graduate students, whose thesis topics range from the movements of fire ant predators in native

grasslands to scale bias in agricultural research.

Some of Carroll's graduate students work on the 119-acre research ranch in central Texas that he and his wife, Carol Hoffman, a plant ecologist, own and operate. "We realized how important it is to have land that you have control over, so you feel your research projects are secure," he says. "Much of the same concern was behind the initiation of the Natural Reserve System."

Described as "an idea man" by a colleague, Carroll has many thoughts about the future of the Reserve System. "I think the NRS should become more involved with other field sites around the world, and should become an international center for research in natural resource management," he says.

Carroll plans to continue his own research as well, and is now looking for projects to conduct on NRS reserves. "What I really look forward to are comparative studies that involve all of the reserves. I could also see developing a course that would use the NRS as a model to discuss natural resource management or basic field ecology."

"I would also like to see the NRS act as a focal point for graduate training in ecology. I think there needs to be much more of a mentor relationship between senior graduate students and new graduate students brought into the individual reserves." *continued on next page*



from Smith 1965

The ecology of the tropical fire ant *Solenopsis geminata* is one of Carroll's main research interests.

## Carroll —continued

"One of my ultimate goals is for the central administrations of each campus to look at their individual reserves and point to them with the same kind of pride that they point to their centers of genetic engineering, their business management institutes, and so forth. I think the reserves are worthy of an awful lot of prestige."

Carroll's commitment to the further development of the NRS as an ecological and educational resource, combined with his experience in teaching, field research, and resource management, make him a valuable addition to the Reserve System. "I'm very eager to get started," he says. And we at the NRS are very eager to have him aboard.

—Sarah Steinberg Gustafson  
NRS Editor



Morning sun silhouettes a blue oak, *Quercus douglasii*, on the Hastings Natural History Reservation. The Reserve shares a 2.5-mile border with the property Fanny Arnold recently acquired.

## News and Notes

**Arnold Adds to Hastings Reservation:** Fanny Hastings Arnold recently purchased a 316-acre parcel adjacent to the Hastings Natural History Reservation with an eye toward donating it to the University.

The Hastings Reservation, which was one of the seven original sites in the NRS, has been an active University field station since 1937. Located in the northern foothills of the Santa Lucia Range, this 1,930-acre reserve in the upper Carmel Valley contains representative samples of mixed evergreen forest, live oak woodland, and native grasslands, among other habitats.

The Arnold property would add about a mile of a foothill stream that includes marshy wetlands not found on the existing Reserve. The parcel would also provide a place to establish a class campground for overnight field trips. And by straightening Hastings' eastern boundary, the added acreage will make the entire Reserve easier to protect.

In the tradition of her mother, the late Frances Simes Hastings, Mrs. Arnold is a long-time benefactress of the Reservation. The Hastings family not only donated their land, but established a reserve endowment fund as well.

Mrs. Arnold has already tendered 40 acres of the new parcel to the University and intends to donate the balance in coming years. In the meantime, Mrs. Arnold's long history of conservation and sensitivity to land-use issues that affect the Hastings Reservation make her an ideal neighbor to the NRS.

Thank you, Fanny!!

## Real Estate Officer Retires

Jack N. Schappell, Associate Treasurer—Real Estate and a member of the Universitywide NRS Advisory Committee since 1973, retires on June 30th. In a letter announcing his retirement, Schappell writes: "As a member of the NRS Advisory Committee, I have had the opportunity to participate in the Reserve System's growth from a non-funded program—which achieved a major portion of its acquisition program through the direct efforts of members who gave of their personal time and finances to select the foremost examples of the diverse habitats

of California and to seek gifts for the acquisition of these properties—to a program which is recognized nationally.

"It is hoped that support for the System will be maintained and grow so that future generations may benefit and so that long-term research may be carried out without the concern of loss of on-going projects due to intrusion of development.

"Thank you for the opportunity that was given to me to participate in this extremely worthwhile project."

Thank you, Jack, and best of luck. The NRS will miss you.

## TV and Radio Programs Feature the NRS

Television viewers have a chance to see some of the NRS reserves on ECONews, a weekly half-hour TV series covering environmental issues. Produced by the Ecology Center of Southern California, the program airs every Friday at 3:30 pm on KLCS (UH-PBS) Channel 58, and at various times on cable outlets nationally. Nancy Pearlman hosts and produces the show; Jon Merritt directs the project.

Dr. Mildred Mathias (Chair of the Universitywide NRS Advisory Committee) and Dr. Michael Hamilton (Resident Ecologist and Director of the James Reserve) appear in "Natural Reserve System of the University of California," which first aired on February 18th. In another NRS-related show, Dr. Bill Bretz (Manager of the San

Joaquin Freshwater Marsh Reserve) shows viewers around the Marsh. Both programs will appear on California cable stations through September.

Radio listeners also learned about the NRS in February, when Nancy Pearlman interviewed Mathias and Hamilton on two episodes of ENVIRONMENTAL DIRECTIONS. This weekly half-hour radio series produced by the Ecology Center airs on stations across the country, including KMGG-FM in southern California and KOZT-FM in northern California.

Videocassettes and cassettes of these programs are available through the Ecology Center of Southern California, P.O. Box 35473, Los Angeles, CA 90035, (213) 559-9160.



The nesting cycle of black-shouldered kites, *Elanus caeruleus*, is currently under study at the Motte Rimrock Reserve.

### **Mottes Donate to Rimrock Reserve:**

Following a pattern they started in 1976, Mr. and Mrs. Charles Motte contributed 10 acres immediately adjacent to the Motte Rimrock Reserve in November, bringing the total acreage of the site to 410 acres. An additional 580 acres of adjacent land are available under use agreements.

The Motte Reserve, located on a rocky granitic ridge on the west edge of the Perris Valley, is dominated by coastal sage scrub and contains a number of well-preserved aboriginal pictographs.

Because the site is only 20 minutes south of the Riverside campus, field classes use it extensively. In addition, the Reserve supports many student research projects, including a current study of the breeding cycle of black-shouldered kites, a protected species that nests on-site. Riverside undergraduates are also involved in a long-term interdisciplinary study of the Reserve's recovery from recent fires (*Transect* Vol. 1, No. 1).

### **Boyd's Contribute Money for Computer:**

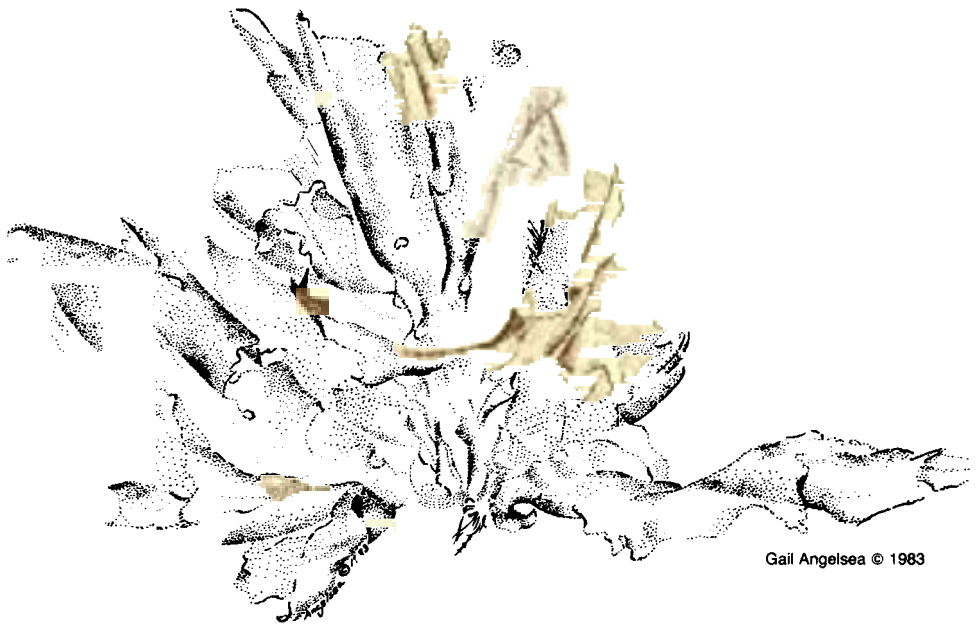
The Philip L. Boyd Deep Canyon Desert Research Center recently received funds to purchase a sophisticated micro-computer system. Mr. and Mrs. Boyd donated \$3,000, the Riverside campus contributed \$5,000, and the Reserve added \$3,000 from various funding sources.

Based on advice from the UC Riverside Computer Center, Reserve Director Al Muth ordered an IBM XT with 640K of RAM memory and a number of peripherals, including a hard disk, a modem card that provides a direct line to the campus mainframe and other off-site computers, and an emergency power source that would supply juice to the computer for at least 10 minutes after an outage.

The \$11,000 package also includes word processing, data-base management, and statistical software, as well as PASCAL, a programming language particularly useful for scientific research.

Al and Vic Muth plan to use the computer for a variety of projects, including inventorying 18 years of weather records, storing and analyzing population study data, and cataloging user statistics. The generosity of the Boyds and the Riverside campus allowed the Reserve to acquire a system adequate for all of these needs.

**UC Field Station Gets NSF Grant:** The White Mountain Research Station (WMRS) recently received a \$150,000, 16-month grant from the National Science Foundation's Biological Research Resources Program. The grant was



Gail Angelsee © 1983

Sea lettuce, *Ulva*, is a medium-sized alga common to the intertidal habitats of the Santa Cruz Island Reserve.

matched with \$50,000 in direct funding from the University.

WMRS is a Universitywide Organized Research Unit located in the White Mountains, which lie just east of the Sierra Nevada in the Inyo National Forest. The Station is not a component of the NRS, but offers comparable opportunities for research and teaching in one of the highest desert mountain ranges on the continent. It consists of four separate field sites, including the Summit Laboratory atop 14,240-foot-high White Mountain Peak and the Barcroft facility. These are the highest and fourth-highest high-altitude research laboratories in North America.

The NSF grant will be used to replace 8.5 miles of power line destroyed in a 1979 ice storm. The new line, which will be buried to protect it from future storms, will restore electrical power to the 12,500-foot high Barcroft facility. This facility supports a variety of research projects, including many concerning high-altitude physiology.

**NRS Funds Santa Cruz Island Study:** A team of scientists from UC Santa Barbara recently received a \$2,000 grant from the Systemwide NRS office to survey the intertidal flora of the Santa Cruz Island Reserve.

The largest of the Santa Barbara Channel Islands, Santa Cruz Island has extensive intertidal habitats, which have been surveyed only in part. The UCSB researchers will produce a comprehensive collection of the marine algae and vascular plants growing in all zones of the Island's rocky intertidal.

The survey team—consisting of Sally J. Holbrook (Associate Professor of Biology and Faculty Manager of the Reserve), J. Robert Haller (Associate Professor of Botany), Wayne R. Ferren (Principal Museum Scientist), James E. Crisp (Staff Research Associate), and Kirk Apt, Carla D'Antonio, and Joyce E. Gauvain (graduate students)—have been making preliminary collections for the past two years. During the next nine months, they will finish surveying eight frequently used study sites on the Island: three on the north side, three on the south side, and one each on the east and west ends.

In addition to collecting and identifying all of the marine plants they encounter, the scientists will photograph each survey site and describe its algal communities and physical parameters, such as slope and exposure.

The team will then prepare three sets of mounted herbarium specimens. One set will remain at the Santa Cruz Island Reserve as an on-site reference collection; the others will become part of the permanent collections at the Santa Barbara and Berkeley campus herbariums. The researchers will also produce a written report consisting of annotated checklists, habitat descriptions and classifications, and photographs. The collections and report should be available by the end of 1986.

The survey will contribute significantly to the understanding of the Island's natural resources, and promises to stimulate interest in and research on the intertidal flora of the Santa Cruz Island Reserve.

# Questionnaire

## Friends of the Natural Reserve System??

In recent months, considerable interest in the formation of Friends of the NRS has developed. Your response to this questionnaire will help us determine if the formation of such a support group is merited.

### Purposes

The Friends of the NRS would serve as an organization dedicated to the philosophy and programs of the Reserve System's teaching and research reserves. Membership in the state-wide organization would also entitle you to membership in regional or reserve-based chapters as they are formed.

### Potential Membership Benefits

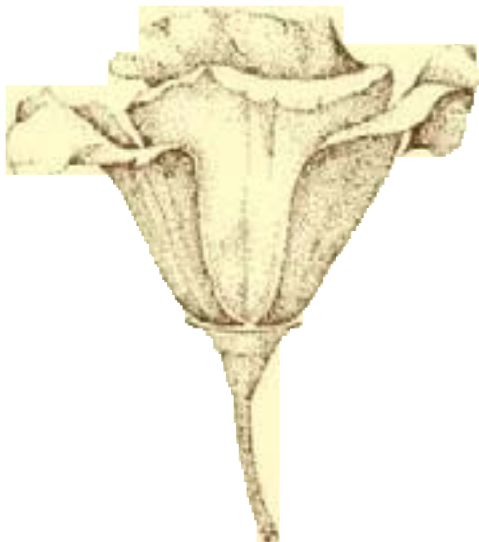
- Subscription to the *Transect* and a NRS Friends newsletter.
- Access to information and publications generated by research conducted on NRS reserves.
- Opportunities to visit reserves on organized tours.
- Admission to special Friends events, including receptions, open houses, lectures, and films.
- A 15 percent discount on Friends sale items such as T-shirts and posters.
- An opportunity to pitch in on special reserve workdays or contribute to reserve projects and programs.

1. Are you interested in knowing more about Friends of the NRS?  
Yes\_\_\_\_\_ No\_\_\_\_\_
2. Do you think you would join Friends of the NRS?  
Yes\_\_\_\_\_ No\_\_\_\_\_ Undecided\_\_\_\_\_
3. What do you think the annual dues should be?  
\$10\_\_\_\_\_ \$15\_\_\_\_\_ \$20\_\_\_\_\_ \$25\_\_\_\_\_ \$100\_\_\_\_\_
4. Should there be a reduced annual dues of \$5 for students? Yes\_\_\_\_\_ No\_\_\_\_\_
5. Does the prospect of reserve tours appeal to you? Yes\_\_\_\_\_ No\_\_\_\_\_
6. Are you interested in learning more about research conducted on the reserves?  
Yes\_\_\_\_\_ No\_\_\_\_\_
7. Would you participate in reserve work days? Yes\_\_\_\_\_ No\_\_\_\_\_
8. Would you like to attend special Friends meetings, receptions, lectures, etc.?  
Yes\_\_\_\_\_ No \_\_\_\_\_
9. What particular events would interest you? \_\_\_\_\_
10. Have you enjoyed reading the *Transect*? Yes\_\_\_\_\_ No\_\_\_\_\_ Haven't read\_\_\_\_\_
11. Which articles do you find most interesting?  
Features\_\_\_\_\_ News and Notes\_\_\_\_\_ Other\_\_\_\_\_
12. Would you be interested in receiving a free copy of our four-color 20th Anniversary Report? Yes\_\_\_\_\_ No\_\_\_\_\_

Additional comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Optional: Name: \_\_\_\_\_

Address: \_\_\_\_\_  
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**News and Notes**

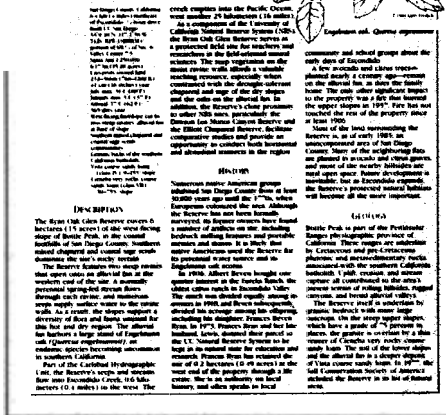
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**New Reserve Brochure:** A brochure on the Ryan Oak Glen Reserve is now available. Designed for prospective Reserve users, this two-page publication by NRS Editor Sarah Steinberg Gustafson describes the natural resources of the site and contains information on Reserve access and regulations. For a free copy, contact the NRS office.

**More Big Creek Publications:** In the past year, the UC Santa Cruz Environmental Field Program has added five studies of the Landels-Hill Big Creek Reserve to its publication series:

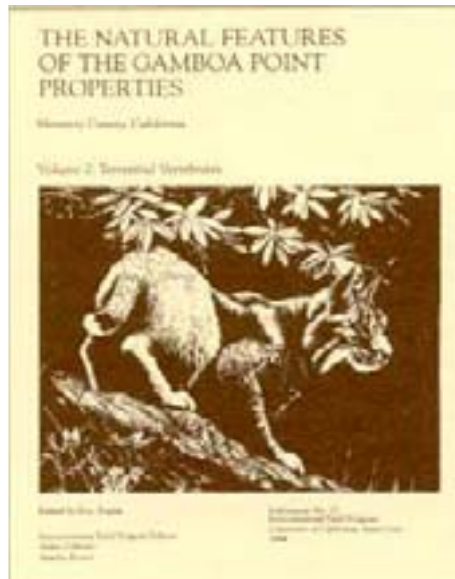
- *The Natural Features of the Gamboa Point Properties, Monterey County, California. Volume 1: Geology, History, Vegetation and Flora*, edited by Eric Engles (1984). 178 pp; \$8.00.
- *The Natural Features of the Gamboa Point Properties, Monterey County, California. Volume 2: Terrestrial Vertebrates*, edited by Eric Engles (1984). 131 pp; \$8.00.
- *Intertidal Plants and Animals of the Landels-Hill Big Creek Reserve, Monterey County, California*, edited by Ava Ferguson (1984). 106 pp; \$8.00.
- *Vegetation and Flora of the Landels-Hill Big Creek Reserve, Monterey County, California, Second Edition*, Charisse Bickford and Paul Rich, edited by Martha Brown (1984). 122 pp; \$8.00.
- *Geology of the Landels-Hill Big Creek Reserve, Monterey County, California*, Richard Norris, edited by Martha Brown (1985). 85 pp; \$6.00.

**Ryan Oak Glen Reserve**



To request copies, contact the Environmental Field Program, 223 Kerr Hall, University of California, Santa Cruz, CA 95064, (408)429-2836; ATSS 8-529-2836. Include \$2.00 per volume for postage and handling, and make checks payable to the UC Regents.

**California Natural Diversity Data Base Seeks Your Participation:** The quality and quantity of information in the Data Base depends on the participation of field researchers. If you have or would like information on any of California's listed or sensitive plant and animal species, contact Deborah Jensen, Natural Diversity Data Base, California Department of Fish & Game, 1416 Ninth St., Sacramento, CA 95814 (916)322-2493; ATSS 8-492-2493.



**Free Subscription**

**tran • sect** (trăn'sékt), n. 1. *Field Science*. A line along which physical and biological data are collected. 2. *Tech. Slang*. A cross-sectional slice of the environment under study.

In a broad sense, the Natural Reserve System is also a transect. It encompasses a cross section of California's natural diversity in a system of natural areas and field stations specifically reserved for teaching and research. Recognizing this, we have chosen to call our newsletter the *Transect*. For a free subscription—two issues per year—write or phone the Systemwide NRS office: (415)644-4211; ATSS 8-532-4211.

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