

CA&ES OUTLOOK

A publication for alumni and friends of the College of Agricultural and Environmental Sciences • UC Davis • Spring 2000

What are we doing about the...



ENVIRONMENT!

CA&ES OUTLOOK

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CA&ES OUTLOOK

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WHAT ARE WE DOING ABOUT THE ENVIRONMENT?

The environment plays a major role in the College of Agricultural and Environmental Sciences' research agenda. Across campus, a diverse group of researchers brings its own unique perspectives and experiences to environmental issues and research. "Environment" means something slightly different to each researcher. Each individual contributes important information that helps piece together the bigger picture of the environmental mosaic.



Kyaw Tha Paw U



Roger Shaw

Biometeorologists **Kyaw Tha Paw U** and **Roger Shaw**, both of the Department of Land, Air and Water Resources, are intensely interested in biophysical activities at the interface between living vegetation and the atmospheric environment. Their studies range from direct observations of carbon dioxide (CO₂) uptake in a southern Washington old-growth forest to computer simulations of the fine details of complex turbulent airflow through vegetation.

These researchers and their graduate students often are found above an old-growth forest canopy in the state of Washington, suspended in a gondola from a gigantic construction crane some 80 meters above the ground. Using a procedure called eddy-covariance, their state-of-the-art instruments measure the rate at which the forest absorbs or releases carbon dioxide, providing direct observations of photosynthetic and respiration rates.

Not long ago, it was thought that



Professor Kyaw Tha Paw U installs a sonic anemometer on a tower to measure atmospheric turbulence in an almond orchard. Such measurements are used to determine vertical fluxes of water vapor and carbon dioxide.

Photo by Patricia Aschford



Graham Fogg, Department of Land, Air and Water Resources, walks beside Putah Creek on the Russell Ranch facility.

old-growth forests were dormant and in a state of non-growth. New evidence sheds new light on this old idea and suggests that old-growth forests are as valuable to the ecosystem as the South American rain forest.



Believing in the importance of more fundamental aspects of their work, Shaw and Paw U also conduct studies that emphasize the physical linkage between vegetation and the atmosphere in which it is immersed.

The seemingly chaotic turbulent motions of the air are responsible for bringing CO₂ to leaf surfaces and for carrying transpired water vapor into the free atmosphere. Computer animations of turbulence showing intermittent penetrations and ejections of air into and from the vegetation indicate that such flows are not purely chaotic and random but, rather, contain repeated and well-defined structure. Such knowledge leads to improved representations of land surface processes in global change models.

Professor **Caroline Bledsoe**, Department of Land, Air and Water Resources, studies mycorrhizal fungi. Her enthusiasm for what is happening in the soil is obvious as she looks at photographs of tree

roots, showing an incredible biodiversity of black, white, iridescent gold, purple and orange mycorrhizal fungi. To collect these images, Bledsoe uses microscopes, nuclear magnetic resonance (NMR) imaging systems and miniature “minirhizotron” cameras inserted into small glass tubes burrowed into the soil.

“The study of mycorrhizal fungi is one of symbiosis,” Bledsoe explains. “The benefit to the plant is that the fungi helps the plant take up mineral nutrients and water needed for growth and helps fend off parasitic pathogenic organisms that otherwise might invade the root system. It’s interesting that often it isn’t only one fungal organism but two or more that form a partnership with roots. The partnership is formed in the soil where it is hard to



Caroline Bledsoe



Robert Zasoski

see (Out of sight; out of mind?).”

As you walk down the hall from Bledsoe’s office to **Robert Zasoski’s** office, you see a cartoon of a mother

worm chastising her baby to “Be quiet and eat your dirt.” To Bledsoe and Zasoski, this “dirt” is their life’s work. (The proper term is “soil.”)

Zasoski, a professor in the Department of Land, Air and Water Resources and vice-chair of soils and biogeochemistry, is a soil chemist and plant nutritionist. He studies how acidic soil conditions may reduce plant growth or release potentially toxic elements.

“Our solutions are helping to feed billions of people throughout the world today,” Zasoski says. “The standard of living is increasing, and people - especially in developing countries - need more nutritious food. Our research examines several aspects of soil chemistry and plant nutrition that may help feed people and reduce contamination. Working with colleagues and students is the best part of my job. The collaboration keeps me refreshed.”

Zasoski was born in Minnesota and raised on a farm in California’s Central Valley. “I remember walking barefoot as a kid, feeling the ground beneath my feet. I wondered how soil fed the crops. Then I discovered soil science, and it became my life.”

Environmental problems have been identified and solutions are being sought in work undertaken by UC Davis Tahoe Research Group scientists, led by limnology professor **Charles Goldman**, Department of Environmental Science and Policy. The research team estimates that Lake Tahoe will lose 66 feet of clarity by 2030, if current annual clarity loss continues.

Scientists studying the lake since 1962 can show that factors including urbanization, habitat destruction, air pollution and soil erosion have interacted to degrade the Tahoe basin’s air and water quality, landscape and streams. The Lake Tahoe Watershed Assessment reports that some of the same features that maintained the exceptional water quality historically now threaten its future.

“We now know that once nutrients enter the lake, they remain in



Charles Goldman, left, and staff research associate Bob Richards aboard the vessel John Le Conte on Lake Tahoe

the water and can be recycled for decades,” says **John Reuter**, associate research ecologist in the Department of Environmental Science and Policy. Reuter is also director of the Lake Tahoe Interagency Monitoring Program, a multi-agency monitoring and research effort formed to understand the effects of watershed and atmospheric processes on the water quality of Lake Tahoe.

“The ability of Lake Tahoe to dilute nutrient and sediment inputs to levels with no significant effect on lake water quality has been lost,” Reuter added.

Best management practices (BMPs) are underway to improve or protect the quality of Lake Tahoe’s water and, ultimately, its clarity. Reuter says some practices are required by regulatory agencies as conditions for new construction projects.

BMP examples include lining ditches with rock; using natural or restored vegetation to remove sediment and nutrients for urban runoff; and installing sediment traps and basins to remove sediment from runoff. Researchers suggest working with the water resource, regulatory and planning agencies at Lake Tahoe to develop a priority of ranking

restoration projects, with consideration given to those that reduce nutrient and sediment input.

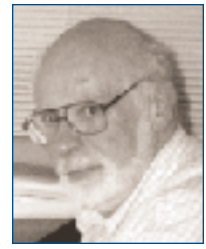
Another researcher aware of water quality is dairy waste management specialist **Deanne Meyer**, Department of Animal Science. She spends her time researching and educating people about proper dairy manure management and about prevention of contaminants in water and air.

Meyer works with many others in the college as well as Cooperative Extension advisors in the counties to address manure-related issues. One recent project with co-worker **Edward DePeters**, professor, Department of Animal Science, and graduate student **Terry James** addressed the effect of dietary manipulation on ammonia emissions from dairy heifers. The work was published in *The Journal of Dairy Science*.

Meyer feels that the college is a world leader in this important area of research. “While some animal scientists are working to eliminate odor,” she says, “our scientists are concentrating on quantifying and reducing environmental injury. This is not alchemy. We will figure it out eventually.”



Deanne Meyer



Alvin Sokolow

Photo by Patricia Axelrod

Alvin Sokolow is a Cooperative Extension specialist and associate chair in the Department of Human & Community Development. A public policy analyst and authority on community governance, he provides research-based information and advises community organizations, local governments and state agencies about policies and techniques for farmland protection.

“Tensions in California over land, water and air quality have escalated to new heights in the past 10 years,” Sokolow explains. “City expansion and other forms of urbanization take at least 23,000 acres of agricultural land out of production every year. Farmland conversion often evokes emotion, speculation and hand wringing.”

Sokolow works with communities to help them make educated choices in this important public policy arena.

Joseph Cech and **Peter Moyle** also see the importance of education for influencing policy. They are professors in the Department of Wildlife, Fish and Conservation Biology. Both were born and raised in the Midwest, and both have a love for water and the life forms in it. Together they’ve built worldwide reputations in the field of aquatic biology. They study California’s natural and man-made waterways,

focusing on the biology of indigenous and introduced fish species. Their research has a significant impact on California fisheries management policies and is well appreciated by both water users and regulators.



Photo by Patricia Axelrod



Joseph Cech, left, and Peter Moyle of the Department of Wildlife, Fish and Conservation Biology

well appreciated by both water users and regulators.

“Peter and I feel quite fortunate to be able to research important problems for the betterment of our aquatic resources,” says Cech. “Our students graduate and become key players in the decision-making process for best management and conservation of our fisheries and the wildlife supported by our streams and rivers.”



Another perspective on the environment is seen in the Department of Environmental Toxicology where Professor **Marion Miller** is chair. Department researchers work to understand how chemicals affect both the environment and human

health. Some faculty study chemical fate, looking at how toxics such as oil and its byproducts move through water, soil and air. Other faculty members such as Miller use a biological approach and study cellular and molecular responses to xenobiotics (from the Greek “foreign” to “life”) including pesticides and industrial pollutants as well as naturally occurring compounds such as arsenic.

“The excitement in this field is understanding chemical and biological mechanisms of toxicity and coming up



Marion Miller

with ways to predict and prevent toxicity,” Miller says. “There are so many interesting studies; it’s hard to choose just one to talk about.”

One example in the department is Professor **Michael Denison** who is developing bioassays that can be used to quickly screen for the presence of dioxin-like chemicals in Northern California bodies of water such as the San Francisco Bay.

Miller’s research interest is focused on how chemicals can affect reproduction. “This research area has become especially topical with the recent media interest in the possibility that worldwide human sperm counts might be declining,” Miller explains. “But the jury is still out as to whether trends in sperm numbers are real and whether chemical exposure is influencing reproductive health.” Miller’s work has shown that often it is a metabolite and not the parent compound itself that damages reproductive capabilities.

Why did Miller end up studying toxicology? Her answer is simple: “Curiosity. The whole process of ‘finding out’ fascinates me,” she says. “Children are always curious; but, adults often forget that curiosity is the key to exciting discoveries. You can’t be a happy researcher unless you *really* want to know.”

Miller is among college scientists committed to understanding the world around us. **Graham Fogg** is another.

Fogg studies groundwater sustainability and the movement of contaminants in subsurface water. He is professor in the Department of Land, Air and Water Resources and vice-chair of its Hydrology Program. He moved to California in 1989 to



Graham Fogg

join the CA&ES faculty and remains intrigued by what he finds in his ‘regional backyard.’ Fogg grappled with the Cosumnes River reduced stream and river flow

and asked the question: What can be done regarding groundwater management to help bring back the fish? Looking at Lake Tahoe, he and his students showed that - under current levels of water development - hydrobiological processes that created one of the largest wetlands in the Sierra Nevada during the last 2,000 years never would have occurred.

Fogg also is focusing on groundwater pollution beneath Lawrence Livermore National Laboratory, as well as exposure of residents of Rancho Cordova to perchlorate via public supply wells. Perchlorate is a rocket fuel component produced by a local defense contractor. Fogg also has addressed non-point source water pollution caused by farm pesticides and fertilizer.

And, in concert with Marion Miller's work, Fogg examined a non-point source pollution - dibromochloropropane (DBCP), a mite fumigant associated with male sterility. Outlawed for 20 years, DBCP is showing up in Fresno County wells.

"Contaminants are harder to get

out than in. Basically," Fogg explains, "people have not been very successful in cleaning up groundwater. This is partly because contaminants diffuse into the often overlooked, less pervious regions of the subsurface. For contaminants that tend not to biodegrade in groundwater (salts, nitrates, methyl tertiarybutyl ether/MTBE), these immobile zones can retain the pollutants for decades to centuries, extending the time scale of the contaminant legacy somewhat indefinitely. The only solution in many instances may be contaminant plume isolation and containment, not clean-up."

Neal Van Alfen, new dean of the College of Agricultural and Environmental Sciences, sees these and other environmental concerns as challenges.

"The college has unlimited opportunities to research, teach and learn," Van Alfen says. "We are situated in the heart of the most diverse agricultural land in the world and have the opportunity to interface across campus with

world-renown scientists. With one eye on the past and one eye on the future, we're trying to understand our environments and preserve them for future generations. We're busy helping solve environmental and agricultural problems."

College faculty and students tackle a number of environmental questions every day. Toxicologists, biologists, zoologists, hydrologists, physiologists, geologists and meteorologists unite in analyzing, plotting, planning, experimenting and problem solving.

"Fundamental to our success is a collegial spirit," says Van Alfen. "Teacher and student, intern and expert work side-by-side. Sharing ideas enriches this interdisciplinary approach. Players work together to generate the strongest, most creative, most exciting effort in environmental research. The college has one of the most highly recognized, highly respected research programs in the world."

Mark Van Horn, associate director of the Student Experimental Farm, Department of Pomology, reminded farmers at Eco-Farm 2000, the nation's largest annual gathering of organic farmers, that "anything that comes from something alive is compostable."

At UC Davis, huge compost piles are filled with waste from campus cafes and festivals, said Van Horn. For the past few years, the campus has experimented with corn starch-based plastic utensils, along with paper plates and food waste in an effort to reuse all trash.

"It might look strange to see a plastic fork on a compost heap," Van Horn said, "but within weeks, it will start to turn dark and twist and, within months, basically it's gone."

Van Horn said that compost generated from campus waste is used on Student Farm organic fields.



Notes from the Dean:



Neal K. Van Alfen

The College of Agricultural and Environmental Sciences has a unique combination of faculty expertise

to address the complex problems that face our communities, our state and our planet.

The college works diligently to identify problems and develop solutions that address agricultural, environmental and human challenges.

You may wonder what the college is doing to address environmental concerns. Or, you may wonder how our research impacts you?

College researchers are working to improve our environment and well-being from campus laboratories, forest canopies and the cold waters of Lake Tahoe. Environmental research addresses natural and managed ecosystems and issues relating to sustainable agriculture, biological conservation, water and watersheds, land use, air quality, and range and forested ecosystems.

This issue of *CA&ES Outlook* highlights several environmentally focused projects now underway. Never before has there been more attention drawn to environmental protection and resource utilization. Never before has there been a time of such enormous environmental, social and technological change.

The year 2000 brings new challenges and new opportunities to our college. We know that our teaching, research and public service efforts have wide-ranging consequences and that our work relating to the environment is essential. We're proud to share our experience with you.

CA&ES Leadership Team

Neal Van Alfen (Ph.D., '72, Plant Pathology) became dean of the College of Agricultural and Environmental Sciences on September 1, 1999. A three-division structure was introduced as the result of a year-long reorganizational effort. The new structure includes the Divisions of Agricultural Sciences, Environmental Sciences and Human Sciences.

James D. MacDonald (B.S., '73; M.S., '75; Ph.D., '77, Plant Pathology), serves as executive associate dean of the college. He joined the Department of Plant Pathology in 1978 and holds a courtesy appointment in the Department of Environmental Horticulture.

MacDonald held several leadership positions in the college, including serving as department chair for four years and serving as chair of the Steering Committee for Academic & Strategic Planning (SCASP). His research expertise is in soil-borne fungi and root diseases of nursery, ornamental and landscape plants.

Lovell S. "Tu" Jarvis is associate dean of the Division of Human Sciences. He joined the Department of Agricultural and Resource Economics in 1984 and later served on the College Executive Committee, chaired the Academic Committee on Research and the International Agricultural Development Graduate Group.

Jarvis received his B.A. in economics from the University of Kansas in 1964 and Ph.D. in economics from the Massachusetts Institute of Technology in 1969. His research focuses on economic policy in developing countries, relating to agricultural production and international trade.

Michael P. Parrella is associate dean of the Division of Agricultural Sciences. He joined the Department of Entomology in 1988 and has a courtesy appointment in the Department of

Environmental Horticulture. His research expertise is the development of integrated pest management strategies in nursery and greenhouse crops. Parrella served as department chair for eight years.

Parrella earned a B.S. in animal science at Rutgers University in 1974 and a Ph.D. in entomology at Virginia Tech in 1980. He was a member of the UC Riverside faculty before coming to UC Davis as an associate professor.

Randal J. Southard, professor, Department of Land, Air & Water Resources, was named interim associate dean, Division of Environmental Sciences. He came to UC Davis in 1983. He served as vice-chair, soils and biogeochemistry in LAWR and on the Steering Committee for Academic and Strategic Planning.

Southard received his B.S. ('76) and M.S. ('81) degrees at Utah State University and Ph.D. ('83) in soil science at North Carolina State University, Raleigh.

His area of research is in soil genesis, porphology and classification; soil-geomorphic relations; and soil mineralogy.

Annie King, professor, Department of Animal Science, serves as associate dean for undergraduate academic programs. She received her B.S. in food science and nutrition in 1976 from North Carolina Agricultural and Technical State University and her M.S. in 1979 and Ph.D. in 1983 from North Carolina Sate University.

King chairs the advisory committee of the California Food & Fiber Future (CF3) Project funded by the W. K. Kellogg Foundation. Her field of research is prevention of lipid oxidation in poultry muscle, eggs and commercial products; association of lipid and proteins; reduction and determination of cholesterol and its oxides in poultry muscle, eggs and their commercial products.

Award of Distinction Recipients



Ten individuals and one couple were presented the 1999 Award of Distinction, the highest recognition presented by the College of Agricultural and Environmental Sciences to individuals whose contributions and achievements enrich the image and reputation of the college and enhance its ability to provide public service.

Left to right, front: **Robert W. Munyon**, businessman and farmer; **Emanuel Epstein**, professor emeritus,

tus, Department of Land, Air & Water Resources, UC Davis; **Chris Floyd Zaiger**, founder and owner, Zaiger's Genetics, Inc.; **Robert C. Pearl**, Extension emeritus, Department of Food Science & Technology, UC Davis; **Amy Rucker**, Jones & Stokes.

Left to right, rear: **Joan Cortopassi**, author and businesswoman; **Evert I. Schlinger**, professor emeritus, Entomology, UC Berkeley; **Glenn A. Goldsmith**, founder, Goldsmith Seeds; **Norman W.**

Montague, agriculturalist; **Michael T. Clegg**, dean, College of Natural and Agricultural Sciences, UC Riverside; **Walter G. Jennings**, professor emeritus, Department of Food Science & Technology, UC Davis; co-founder, J&W Scientific.

Not pictured: **Dean Cortopassi**, president and CEO, San Tomo Group.

For 2000 Award of Distinction nomination forms or information, contact Sharon Lynch, 530/752-1602; selynch@ucdavis.edu.

Mark your calendar for College Celebration 2000 on October 7!

Agricultural-Interest Dorm

UC Davis students have the opportunity to live in a "special-interest" or "theme" community that offers activities unique to a specialty program. The campus' new agricultural-interest dorm is home for 49 students with an interest in agriculture. They reside in Ryerson Hall with resident advisor Kara Green.

Students in this new special-interest community are interested in crop and livestock production and research, food processing, marketing, business and policy. Programs available to them explore career options and feature speakers from industry and faculty. Residents have the opportunity to discuss agricul-

tural issues and review the relationship of agriculture to the environment. They participate in tours of campus research projects and of California's agricultural industry.

For information about the dorm, contact Nancy Tibbitts, 530/752-2868; nrtibbitts@ucdavis.edu

Three New Department Chairs



Robert Page
Department of Entomology

Professor Robert Page was named chair of the Department of Entomology effective October 1999 when Michael Parrella, former department chair, was named associate dean for the Division of Agricultural Sciences.

Page received his B.S. in entomology at San Jose State University and was a graduate student in the UC Davis Department of Entomology from 1976 to 1980, receiving his Ph.D. in 1980. He joined the UC Davis faculty in 1989 after serving on the faculty at Ohio State University. He explains that, "returning to UC Davis and becoming chair of entomology is a dream come true."

Page says that the greatest challenge facing his department is keeping in step with current revolutions in communication and biology. He believes that together, they will transform the world during the 21st century.

Page's area of research is behavioral genetics of honeybees. He recently was awarded the Alexander von Humboldt Senior Research Prize and was elected a foreign member of the Brazilian National Academy of Science.



Patricia Harrison
Department of Environmental Design

Architect and professor Patricia Harrison was named chair of the Department of Environmental Design in July 1999, overseeing activities of the Landscape Architecture Program and the Design Program. A graduate of UC Berkeley with degrees in history, design and architecture, she was a member of a large architectural firm in San Francisco before coming to UC Davis. Harrison hopes to develop a strong professional focus for the department that includes design industry partners in textiles, clothing, furniture and visual communication.

Harrison's research area is low-income housing and related design with emphasis on non-urban environments. She is working on designs for small dwellings for migrant farm workers and their families.

Harrison won two awards for her design work from the California Women in Environmental Design, one for Village Park, low-income housing focused on southeast Asian families, and one for a Sacramento transitional housing project for homeless individuals.



Richard Bostock
Department of Plant Pathology

Professor Richard Bostock was named chair of the Department of Plant Pathology in October 1999 when James MacDonald, former chair, became executive associate dean for the college. Bostock has been a member of the department faculty since 1981.

Bostock earned his B.S. in biology from Rhodes College and received his Ph.D. in plant pathology from the University of Kentucky. He held two summer internships with the Tahoe Research Group and was a member of the Cosumnes River Water Quality Monitoring Team.

Bostock's research and teaching interests are the biochemistry and molecular biology of plant-microbe interactions. He also is a co-principal investigator with the Center for Engineering Plants for Resistance Against Pathogens (CEPRAP) and leads an active applied research program on fungal and bacterial diseases of orchard crops.

"Our department faces the challenge of effectively addressing the needs of California's diverse agriculture with diminishing resources and educating the public about our efforts in biotechnology and transgenic modification of crops," Bostock said.



Dean Neal Van Alfen, left, talks with DAC member Paul Ecke, Jr. of Paul Ecke Poinsettia Ranch in Encinitas.

Dean's Advisory Council

Members of the Dean's Advisory Council (DAC) travel to campus twice each year to learn more about the college and advise Dean Neal Van Alfen on issues relevant to the college's growth and success. At the group's two-day fall meeting, members were briefed on the science and economics of genomics and attended a water and science policy panel discussion moderated by Professor Dennis Rolston, Department of Land, Air & Water Resources.



Robert McLandress (M.S., '79; Ph.D., '83, Ecology), DAC Chair

"Life's a Picnic... Let's Celebrate!"

Thousands of people are coming to campus on Saturday, April 15, 2000, to participate in UC Davis' annual Picnic Day celebration. Come watch the parade; enjoy eats, treats and sweets; chat with students, faculty, alumni and friends of the college; and enter the annual Picnic Day CA&ES "Jacket Basket Contest."

The Dean's Office of the College of Agricultural and Environmental Sciences is presenting a UC Davis Aggie sports jacket to one lucky winner. **For your chance to be the winner, complete the registration below and drop it into our "Jacket Basket" at the CA&ES hospitality table on Picnic Day.** You need not be present to win.

Even if you don't enter our Jacket Basket contest, stop by the college's hospitality canopy on the corner of North Quad and West Quad, just west of Freeborn Hall. Dean Neal Van Alfen and CA&ES staff and students will be on hand to say hello and answer your questions. Pick up information on departmental displays and open house activities at the canopy. We'll be there from 9 a.m. to noon.

Life's a picnic; so...come on... let's celebrate!



Watching the Picnic Day parade may not be "rocket science," but sometimes the parade floats are! This one was designed and built by members of Antique Mechanics Society. Students operate equipment at Picnic Day each year. Visit their indoor/outdoor display at the UC Davis Airport on Saturdays from 12 noon to 4 p.m. For more information, check the Web site at <http://www.engr.ucdavis.edu/~antiques/> or contact Victor Duraj, 530/754-9888; vduraj@ucdavis.edu.

"JACKET BASKET" ENTRY FORM

College of Agricultural and Environmental Sciences Picnic Day • Saturday, April 15, 2000

Yes! I'd like to win the FREE UC Davis Aggie sports jacket. I understand that I do not have to be present at the time of the drawing to win. In fact, the only thing I have to do for a chance to win is drop this Entry Form into the "Jacket Basket" at the CA&ES College Canopy on the corner of North Quad and West Quad. Wish me luck!

Name _____

Address _____

City / State / Zip _____

Phone **W:** (____) _____ **H:** (____) _____

Alumni Student Staff Faculty Friend of the College

I Cannot Help Thinking About ...

By Rick Swantz

...the words to one of the songs from the musical "Oklahoma." Dad played that album all the time on our Hi-Fi (Any of you young readers know what that is?), and the song in my head is "Oh, the farmer and the cowman should be friends."

Today's rendition of this song goes "Oh, the agriculturalist and environmentalist should be friends."

Turns out they are.

An anonymous donor has established an endowed research fund to promote problem-solving research for the benefit of California range cattle producers, the environment and the public. The goal is to strengthen the research continuum among research faculty, Cooperative Extension specialists, county-based Cooperative Extension advisors and range cattle producers. Evidence is growing that properly managed rangeland grazing operations can be beneficial to rangeland ecosystems. Examples include wildlife habitat improvement and weed control.

Another donor, Lloyd Swift (see What's New in Development?), gifted 325 acres of his family's cattle ranch, located in El Dorado County, to the UC Davis Foundation. The foundation may keep or sell the real property. Proceeds from the lease or sale will be used to establish an endowment in the Department of Wildlife, Fish and Conservation Biology. The endowment will provide support for undergraduate students who intend to pursue careers in environmental systems related to wildlife and fish conservation. The donor's environmental ethic began to form on that ranch long ago. His education at UC Davis prepared him for a distinguished career in natural resource management. His legacy is one of educating the public about conservation.

In one of the best examples of the positive interface between agriculture and our environment, rice growers are improving the quality of life in our Northern California communities.

By not burning rice straw at harvest's end, they are improving air quality. By careful water management, they are maintaining water quality for downstream users. By flooding the harvested fields, they are providing excellent habitat for some of our winter visitors-migrating waterfowl. These feathered visitors return the favor by helping to decompose the rice straw in preparation for next season's crop.

Our Departments of Agronomy & Range Science, Wildlife, Fish and Conservation Biology, and Land, Air & Water Resources are cooperating on these important research areas.

People whose vocations and avocations are tied to the outdoors have led the conservation and environmental efforts throughout our history. Farmers, fishermen, birders, hikers and hunters observe that our agriculture and our environment are inseparable. Our college thanks our donors for their support of our productive efforts in this most important arena.

What's New in Development?

* In 1995, **Romilda P. Gould** of St. Helena created a Charitable Remainder Trust benefiting several charities. Soon after she died on October 8, 1999, the Department of Viticulture and Enology learned that it would be one beneficiary of that trust with a gift of \$50,000. Later, it was learned that Romilda Gould was the widow of Francis Lewis "Paco" Gould, one of the earliest and most admired wine writers in Napa Valley.

Both Romie and Paco were authors, and their works and their gift will be memorialized by naming The Romie and Paco Gould Office for them at the Oakville Experimental Vineyard's Harry E. Jacob Research Facility, a \$2,700,000 building constructed with charitable donations.

* **Victor M. Parachini** gifted securities valued at over \$67,000 in support of the Dennis G. Raveling Waterfowl Professorship endowment fund. The purpose of the \$1.1 million endowment is to insure a permanent funding source for the research, teaching and outreach activities necessary for the future health of wetlands and waterfowl, with emphasis on agricultural land in California.

* Professor Kent Bradford, Department of Vegetable Crops and director of the new UC Davis Seed Biotechnology Center, announced a \$200,000 gift from **Novartis, Inc.** and a recent \$250,000 commitment from the **Ralph M. Parsons Foundation** to the campaign to build the center. Funds committed to the \$1.5 million campaign goal now total \$1,130,000.

* **Alan R. Hoefler**, president of the Hoefler Family Foundation, established The Hoefler Fund with a gift of \$50,000 to the UC Davis Foundation. The fund is designated for the benefit of the Department of Viticulture & Enology; specific designation of the fund will be made at a later date.



* *Lloyd and Rose Swift contributed 325 acres of his family's ranch to the UC Davis Foundation. The property, appraised at \$1,000,000, is located in El Dorado County. The foundation may keep or sell the real property, and proceeds from the lease or sale will be used to establish an endowment in the Department of Wildlife, Fish and Conservation Biology. It will provide support for undergraduate students, with primary preference given to entering and second-year students who intend to pursue careers in environmental systems related to wildlife and fish conservation. Student recipients will be known as Lloyd Swift Scholars.*

* When Marvin Sands, founder of Canandaigua Brands, passed away, his "industry friends" pledged over \$400,000 to establish an endowment in the Department of Viticulture & Enology to honor and memorialize him. To date, **Southern Wine & Spirits of America, Inc.** has contributed \$100,000; the **Goldring Family Foundation** awarded a grant for \$50,000; and the **Wirtz Corporation** contributed \$100,000.

Plans call for an endowed chair honoring Mr. Sands.

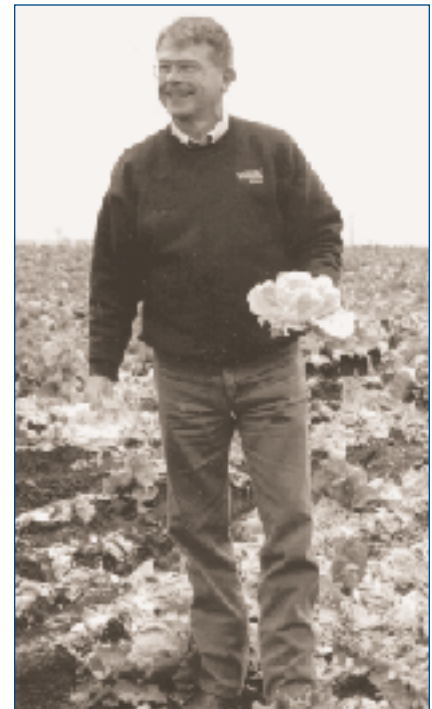
* **Alvin F. Aggen**, prominent Ventura agriculturalist, recently gave \$10,000 to the Joe A. Heidrick, Sr. Western Center for Agricultural Equipment's \$2,500,000 campaign. This gift brings his total contributions to the campaign to \$25,000.

In response to this gift and to Al's long-term support of the Department of Biological & Agricultural Engineering, the lobby of the new Western Center facility is being named for Al Aggen.

* **Dr. and Mrs. Alexander Swantz** added a gift of \$106,000 of securities to the Charitable Remainder Unitrust they established in November, 1997. The gift is undesignated at this time; but, the donors are supportive of the college's new environmental initiatives, particularly the study of water-use policy.

* In 1993, **John P. and Mary Louise Gifford** established the first of three trust arrangements that ultimately will benefit the college's John P. Gifford Center for Population Studies. The funds will be used to support administration and staffing of the center, to provide scholarships and fellowships for students interested in human population studies and to enhance instruction in human population control.

In order to begin the important work of the Gifford Center during their lifetimes, the Giffords used a portion of the trust income over the past two years to fund 50 percent of the salary of the center's director, Kathryn G. Dewey, Department of Nutrition professor.



*Rick Swantz
Director of Development*

Doctoral student **Bibit Halliday Traut**, ecology, is using her \$75,000 Canon scholarship to examine coastal marshes at the Point Reyes National Seashore. She is investigating the ecologically crucial zones where marsh becomes dry land. Traut believes her research will help national park land rangers.

The Canon scholarship is designed to attract the best and the brightest to national park research. Winners conduct biological, physical or social science research.

Michelle Leinfelder, crop science and management, is the recipient of a \$1,000 scholarship from the 1999 California State Fair. The scholarship program seeks “well-rounded, high academic achievers in pursuit of careers, favoring individuals with broad personal, civic and academic experience.” Nineteen students received scholarships for the 1999-2000 school year.

Tracy Ackerly and **Christopher Hartley**, graduate students in the Department of Agronomy & Range Science, are recipients of the Milton D. and Mary M. Miller Plant Science Award.

R. J. Starr, managerial economics, was named “Division II College Football Scholar Athlete” by Burger King Corporation. The company donated \$10,000 to a UC Davis general scholarship fund in his name, honoring his outstanding athletic and academic achievements and commitment to mentoring community youth.

Debra Denton, hydrologic sciences, was elected to serve on the Society of Environmental Toxicology and Chemistry (SETAC) board of directors for the next three years, according to Professor Graham Fogg, Department of Land, Air & Water Resources. Denton served as chair of



CA&ES Dean's Office peer advisors, left to right: **John Nguyen**, **Myrna Yuson**, **Tyson Eckerle**, **Dionne Evans** and **John Peconom**

the 18th annual SETAC meeting, on various national committees and as past president of the regional NorCal chapter and NorCal board.

SETAC is a professional, nonprofit organization of over 6,000 individuals from 60 countries in the fields of environmental chemistry and toxicology, biology, ecology, atmospheric sciences, health sciences, earth sciences and environmental engineering.

Members are involved in environmental education, research, environmental management, regulation, risk assessment and chemical manufacture distribution. Members represent academia, government and industry.

Several UC Davis students participated in an internship program that led to helping Winters' residents construct new homes. The second annual Rural California International Program attracts people into affordable housing careers and gives

students actual field experience. In addition to building homes, students gain experience working with housing development organizations and with people in the affordable housing field.

Program participants included **Remigio Mendoza**, international agricultural development major, and **Cynthia Bastidas** and **Matt Huerta**, both majoring in community and regional development.

The college sponsored a competition in 1999 among Victoria Rivers' textile design students, asking them to design a “college scarf.” The college hopes to add a scarf to its custom apparel program.

The winning design, selected by a panel from the Dean's Office, was created by **Annette Leslie**. The panel also awarded Honorable Mentions to **Andrea Boykins**, **Jillian Folickman** and **Joyce Wong**



Three design students are recipients of the President's Undergraduate Fellowship Grants: **Kyoko Jackson**, left, for “Costuming a Dance Recital,” collaborating with a dance group; **Angelina Marez** for “Indian Animal Art,” creating three-dimensional textile constructions which employ animal by-products; and **Susan Yonts** for “Creative Exploration of 20th Century Women's Costume,” producing interpretations of four major clothing designers of the 20th century.

CA&ES Student Organizations: Providing a Healthy College Environment

This is the second article in a two-part series about student organizations, clubs and service groups.

Student organizations play an integral role in the quality of the campus environment and the educational process for students, faculty, staff and the community at large. The experiences that students gain through participation in extra-cur-

ricular activities help them meet friends, clarify values, apply classroom learning, gain a sense of accomplishment, develop role models and learn to work cooperatively with others. These experiences reinforce personal development and contributions during a student's education and also provide skills, behaviors and insights for use throughout life.

Entomology Club

Senior Toby Glik is busy organizing get-togethers for members of the Entomology Club and others on campus interested in insects. Jay Rosenheim, professor in the Department of Entomology, remembers that the Entomology Club was very active about 20 years ago; however, it wasn't chartered until 1999.

According to Glik, the purpose of the organization is to collect insects. Group activities include hikes to collect insects; "insect" movies (such as "Microcosmos" and "Joe's Apartment"); "sort nights" at the Bohart Museum (when members sort insects into groups before passing them on to experts for further identification); and volunteer activities for Picnic Day. His favorite "collecting trip" with the club was camping at the UC reserve in Mendocino County.

Glik has several ideas for future activ-

ities. He would like to begin a club program through which members and insects visit local elementary school classrooms. He also has discussed with Student Experimental Farm director Mark Van Horn the possibility of club members collecting bugs at the farm site.

"We're hoping to attract undergraduates to our membership," Glik said. "Some of our members are from entomology; others minor in entomology; still others come from unrelated majors and have an interest in insects."

For more information, contact Glik at 530/758-3905 or by e-mail at tegl@ucdavis.edu



Avian Sciences Club

The avian sciences major is home to the active Avian Sciences Club. Members are as diverse as the bird interests they share.

Members travel to exotic bird collections, visit poultry shows and take behind-the-scenes tours at zoological gardens. A variety of activities create student/faculty interaction. Club members organize potluck dinners and invite the faculty to make short presentations after the meal. In turn, faculty host welcome parties for students in the major and host an end-of-year picnic/awards ceremony for the club.

The Avian Sciences Club competes in regional events with other collegiate poultry/avian sciences clubs. Members design and staff extensive avian exhibits each year at Picnic Day. In 1999, their exhibits were judged "Best of Show" for the entire campus.

Club members have the opportunity to develop leadership and organizational skills while serving as club officers and committee members. In addition, faculty routinely take interested students with them to industry conventions and to scientific society meetings. Francine Bradley, poultry specialist, Department of Animal Science, serves as faculty advisor.

Bradley staffs her educational hatcheries at the California State Fair and the American Family Pet Expo by hiring club students. James Millam, professor and vice chair of the Department of Animal Science, involves students in the Psittacine Outreach Project. All Cooperative Extension faculty welcome students who wish to ride with them on field calls or attend regional industry events.

The club currently has 35 members. If you'd like more information, call Francine Bradley at 530/752-6316.

Dean's Student Advisory Committee (DSAC)



Michelle Rodrigues, DSAC President



The dean of the College of Agricultural and Environmental Sciences solicits student input on how academic and administrative issues might affect students.

The Dean's Student Advisory Committee (DSAC) was established in 1997 for that purpose.

The committee is comprised of students, run by students and represents students. Committee members facilitate intra-college communications among students, teachers and researchers.

Ideally, each major in the college has a minimum of two DSAC representatives. Each serves for a minimum of one year. The dean, executive associate dean and associate deans serve as ex-officio members.

Senior Michelle Rodrigues, animal science and management, is DSAC president. She assists committee officers in planning meetings and serving as representatives to the college's faculty committees. She gathers information from members and students across the college and brings those issues to monthly DSAC meetings.

"Dean Van Alfen meets with us almost every time," Rodrigues said. "If he is not able to be there, he sends a representative. The dean is very open and provides us good information. We feel that he listens

to our ideas and concerns."

DSAC members may participate on the Executive, Policy, Outreach or Communications sub-committees.

DSAC is involved in the Activities Fair and hopes to get involved in Agricultural and Environmental Sciences Field Day and Picnic Day in the future. "We'd like to participate in dorm programs," Rodrigues said.

Rodrigues explains that DSAC involvement has been a great experience for her. "I've learned a lot about leadership and have had lots of organizational experience," she said. "I'd

like students to know that this is a wonderful opportunity to voice student concerns and opinions and be heard by faculty, staff and administrators. DSAC allows us to make contacts within the college and help other students reach their goals."

DSAC hopes to link up with other campus organizations so that a broad student voice is represented. If you or someone you know is a good candidate for DSAC membership, give Rodrigues a call: 530/792-0673; mrodrigues@ucdavis.edu

Hepcats Swing Club

Senior David Brinkerhoff, left in the photo below, is co-founder of the Hepcats Swing Club, a two-year-old campus club established to offer lessons and host dances at a local studio. Brinkerhoff is a senior majoring in agricultural systems and the environment. He's thrilled to be part of the swing dance craze that is sweeping campuses across the country.

The Hepcats Swing Club has about 150 members. With an increasing number of requests for dancers to perform at campus and other events, the club established a performance team of 10 members who practice and social dance about 20 hours a week. The team also performs during half-time at Monarchs' professional basketball games.

Members of the Hepcats love the music, the physical exercise and the sociability of swing dance. "We want to recruit people and get them onto the floor," Brinkerhoff said.

For information: 530/757-7541 or 530/400-8158; dbrinkerhoff@ucdavis.edu





Cooperative Extension specialist **James Hill** (Ph.D., '72, Plant Physiology), Department of Agronomy & Range Science, was selected by

the UC Davis Academic Federation to receive its James H. Meyer Distinguished Achievement Award. The award recognizes exceptional career achievement among members of the Academic Federation on the UC Davis campus. Recipients are chosen from candidates nominated by their peers.

Hill was instrumental in the rice industry's rapid adoption of semi-dwarf rice varieties that increased yields by 50 percent during the 1980s, boosting California's rice yield to the world's highest level.

In response to a severe phase-down of rice-straw burning by the California legislature mandated in the early 1990s, Hill initiated and led an interdisciplinary team to solve the straw problem for the California rice industry, as well as preserve habitat for migrating waterfowl and increase biodiversity. Hill also worked with the industry to develop and promote systems for recovering excess water from rice fields, further reducing pollution.

As a direct result of these efforts, pesticide residues from rice fields have been reduced 98 percent from the 1981 level.

Programs developed by Hill with growers and industry members have been praised internationally for insightfully dealing with agricultural problems and the environment. One USDA review characterized him as "the pre-eminent rice Extension agronomist in the nation."

Hill currently is on a three-year leave at the International Rice Research Institute in the Phillipines.

Mark Francis, landscape architecture professor, Department of Environmental Design, was elected a Fellow of the American Society of Landscape Architects (ASLA) and recognized for his contributions to the profession. The award was presented at ASLA's Centennial Conference in Boston. Francis also received an ASLA Honor Award for his new book, *The California Landscape Garden*, (VC Press) and an ASLA Merit Award for Research for his UC Davis Medical Center Urban Wildlife Preserve project.



Robert Webster, professor, Department of Plant Pathology, received the 1999 California Rice Industry Award acknowledging outstanding and distinguished service and contributions to the California rice industry. He was recognized for his "dedication to basic research and its application to solving real problems in growers' rice fields." At the award ceremony, Webster was thanked for his time and effort in solving rice disease problems. "Your footprints are in most California rice fields," the presenter said.

Alan Hastings, professor, Department of Environmental Science & Policy, was elected president of the Society for Mathematical Biology. He serves through 2001. The organization is the world's major society concerned with using mathematics to understand biological problems.

Emmy Werner, professor emerita, Department of Human & Community Development, is recipient of the Dolley Madison Award for Outstanding Lifelong Contributions to the Development and Well-being of Children and Families. From Zero-to-Three, a national organization concerned with the well-being of young children and their families, presented its Presidential Award to Werner at a ceremony in Anaheim. Werner's new book, *Through the Eyes of Innocents*, chronicles how children endured World War II. The book is based on the diaries and journals of 200 children.

Vegetable crops professor **Alan Bennett** ('77, Botany) was named executive director for research, administration and technology



transfer effective March 15, 2000, and moves to the UC Office of the President. He joined the CA&ES faculty in 1983 and recently served as associate dean of plant sciences for the college. Bennett received his undergraduate degree at UC Davis and earned a doctorate in plant physiology from Cornell University.

As executive director, Bennett hopes to manage the technology transfer operation in ways that promote research in the university, improve the university's interface with the private sector and develop better information to gauge the full extent of the economic and social impact of UC technology.

Bennett is a member of the American Association for the Advancement of Science, American Society of Plant Physiologists and several editorial boards. He is a council member of the National Agricultural Biotechnology Council and, in 1997, served as a visiting professor at France's Ecole Nationale Supérieure Agronomique de Toulouse.

David Burger, professor and chair of the Department of Environmental Horticulture, and **Frank Zalom**, director of the Statewide Integrated Pest Management Project, were among 12 individuals singled out by their peers for outstanding contributions to the teaching, research and public service mission of the UC Division of Agriculture and Natural Resources.

Burger received the 1999 Distinguished Service Award in the "Outstanding Faculty" category. He was acknowledged particularly for bringing a sense of structure to the environmental horticulture program, improving communication among CE advisors and helping develop the Ornamental Horticulture Research and Information Center.

Zalom received the Distinguished Service Award in the "Outstanding Administration" category. The award recognizes leadership and professional credibility, furthering development of the IPM Project. The award stated that Zalom's support was crucial in helping UC pest management scientists and Extension personnel promote and adapt IPM practices.

Catherine Morrison Paul, professor, Department of Agricultural and Resource Economics, was ranked 11th among 50 applied econometricians in a recent article in the *Journal of Applied Econometrics* ("Applied Econometrics Rankings 1989-1995" by Badi Baltagi).

Since coming to Davis, Paul has worked in areas including market and technological structure in U.S. meat products industries, efficiency in the New Zealand agricultural sector, technological and structural change in U.S. food processing industries and environmental damage from chemical use in U.S. agriculture. Her area of research is applied production theory.



Vegetable crops/weed science Extension specialist Joseph DiTomaso, Department of Vegetable Crops, was called when the unit production manager for the film "Bicentennial Man" needed advice on how to deal with poison oak on the set. It seems star Robin Williams is highly allergic to poison oak, and he refused to film outdoors until he was assured that the poison oak problem was handled.

DiTomaso travelled to several filming sites, including a secluded cove in Half Moon Bay where the film crew had built a house. All sites had large

amounts of poison oak. Workers trying to remove it by hand ended up in the hospital.

DiTomaso recommended that workers wear protective clothing, cut the plants to the base, cover the ground with cloth tarp and cover the tarp with sand. He told them: "The area returns to its original form. It takes about a year."

After filming, DiTomaso received a note from the crew saying that everything went well on the set and that after his visit, nobody contracted dermatitis. What a happy ending!

Ning Pan, professor, Division of Textiles & Clothing, was elected vice president of The Fiber Society, recognized worldwide as the major professional society focusing on fiber and textile engineering and science programs. Pan has been a member of the society's governing council since 1998. His research involves the mechanics and transport phenomenon in various fibrous structures such as textiles, papers and fiber-reinforced composites.

Daniel Sumner, the Frank H. Buck, Jr. professor, Department of Agricultural & Resource Economics, and director of the UC Agricultural Issues Center, was selected to oversee the Agricultural Personnel Management Program. The program

is within the Division of Agriculture and Natural Resources (DANR).

Dale Kester, professor emeritus, Department of Pomology, received the Curtis J. Alley Award of Merit at the Western Regional annual meeting of the International Plant Propagation Society. He helped found the organization, serving on many of its committees and as its president in 1996-97.

John Bruhn, in the Department of Food Science & Technology, was presented the Harry Havefland Citation Award by the International Association of Milk, Food and Environmental Sanitarians. He was honored for his dedication to the ideals and objectives of the society

and his accomplishments in the field of milk safety.



Miguel Marino, professor of hydrologic sciences and civil and environmental engineering, Department of Land, Air and Water Resources,

was inducted into Mexico's National Academy of Engineering at a ceremony held in Mexico City.

Marino also was elected to a four-year term as vice president of the International Commission on Water Resources Systems of the International Association of Hydrological Sciences. He organized an international symposium on integrated water resources management being held at UC Davis.

Kent Bradford, professor, Department of Vegetable Crops and director of the Seed Biotechnology Center; **Martina McGloughlin**, director of UC Davis' Biotechnology Program; **Calvin Qualset**, professor emeritus, Department of Agronomy & Range Science, and director of the Genetic Resources Conservation Program; and **Lee Baldwin**, professor, Department of Animal Science, addressed the FDA public meeting on biotechnology in Oakland in December. It was the last of three such meetings, the only such meeting held on the West Coast.

The forum was held to describe FDA's current safety and labeling practices for foods made from genetically modified plants, solicit views on whether these practices should be changed and gather information to help the agency inform the public about genetically modified food products.

Joe Cech, professor, Department of Wildlife, Fish and Conservation Biology, received the 1999 Mentoring for Professional Diversity in Fisheries Award honoring an individual who exemplifies mentoring for diversity in the fisheries profession. The award was presented

by the Equal Opportunities Section of the American Fisheries Society at its annual awards luncheon in Charlotte, North Carolina.

Research scientist **Greg McPherson**, Western Center for Urban Forest Research and Education, received the 1999 Award of Research from the Western Chapter of the International Society of Arboriculture. McPherson was recognized for important contributions in quantifying the benefits and costs of urban forests and their impacts on quality of community life.



Department of Human and Community Development chair **Beth Ober** congratulates **Richard Ponzio**, 4-H Center/Youth Development director. He was presented the Early Career Achievement Award in the area of human development and family issues by the National Association of Cooperative Extension Service Specialists. The award recognizes work that promotes science literacy among youth. Ponzio's Youth Experiences in Science project reached over 10,000 youth in 32 counties.

W. B. Jim McHenry, weed science specialist emeritus, Department of Vegetable Crops, was presented a Lifetime Achievement Award at the Forest Vegetation Management Conference in Redding in January. He was recognized for outstanding lifelong contributions to the practice of forest vegetation management.

McHenry developed many of the weed management principles still used to control problematic vegetation in forest plantations. He published papers on poison oak and

blackberry control and identification, published the earliest work on control of perennial pepperweed, developed management practices for control of noxious weeds and was involved with non-crop lands and aquatic environments.

D. R. Wagner, design lecturer, Department of Environmental Design, is including his petit point tapestry in major exhibitions in Sacramento, Las Vegas, Kansas City, Missouri, and Boulder, Colorado. "Death Ship," a tapestry displayed in an invitational exhibition titled 'Men in Cloth,' will travel nationally for two years. It also will be featured at the national Surface Design Conference in Kansas City in June. Wagner has been invited to prepare an electronic signboard exhibition as part of the national conference.

Y. Hossein Farzin, associate professor, Department of Agricultural and Resource Economics, was appointed associate editor of the *Review of Development Economics*, an international journal published by Blackwell, Oxford. He serves through August 2003. View the publication at <http://www.ag.iatate.edu/journals/rde/>.

In addition, Farzin's paper, "Pollution Abatement Investment When Environmental Regulation is Uncertain," made *Social Science Electronic Publishing's* top 10 download list for the journal/topic 'Public Choice and Political Economy' All-Time Hits.



Gary Polis, professor and chair of the Department of Environmental Science & Policy, received a Fellowship from the Aldo Leopold Foundation, a program operated by Oregon State University on behalf of the Ecological Society of America. The goal of the Aldo Leopold Leadership

Program is to provide advanced leadership and communications training to a select group of environmental scientists. It seeks outstanding scientists interested in playing a more active role in communicating scientific knowledge to the broader world and in providing leadership within the scientific community. Each year, 20 tenured academic environmental scientists are chosen to be Fellows. UC Cooperative Extension turkey specialist **John Voris**, Department of Animal Science, was named Person of the Year by the California Poultry Industry Federation. The award, rec-

ognizing his many years of service to the poultry industry, was presented at the group's annual conference in Fresno.

Extension horticulturist **Richard Evans**, Department of Environmental Horticulture, was awarded a \$28,000 grant from California Department of Food and Agriculture's Fertilizer Research and Education Program to investigate nitrogen use during production of large container landscape plants. Evans also was awarded a Fulbright grant to investigate landscape water use in Barcelona, Spain.

College Wins First-Place Web-Site Award

The College of Agricultural and Environmental Sciences received the CASE District VII award of excellence for the best World Wide Web site among those entered in the organization's 1999 Awards for Excellence Program. The Council for Advancement and Support of Education (CASE) Circle of Excellence Program identifies and rewards excellence in 44 categories in the areas of alumni programming; institutional relations; electronic and news media; and periodicals and publications.

The award program recognizes the best efforts in institutional advancement by CASE members, with particular acknowledgement of creativity,

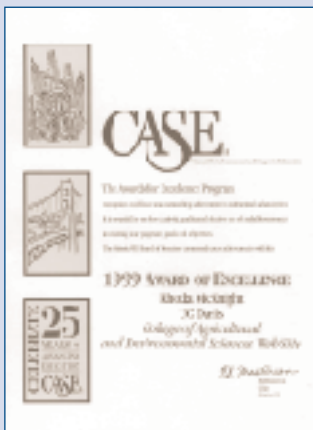
quality and effective use of available resources in meeting stated goals and objectives. One Award of Excellence and up to three Awards of Distinction are presented in each category.

The CA&ES site went online in January 1999. Student intern Ian Brewer ('99, Design) provided design and

technical expertise, with support from student intern Margarita Camarena ('98, Design), now a career employee in the Dean's Office, and Jack Holmes, Dean's Office computer resource specialist.

Design and development of the site was coordinated by college publicist

Rhoda McKnight of the development and relations unit, CA&ES Dean's Office.



Visit the CA&ES Web site at www.aes.ucdavis.edu.

CA&ES

IN
MEMORIAM

Thomas H. Burkhardt

Assistant Professor
Department of Biological &
Agricultural Engineering
July 11, 1999

Katherine E. Howell

Lab Technician
Department of Animal Science
September 23, 1999

Herbert Bashford Currier

Professor Emeritus
Department of Plant Pathology
November 5, 1999

Oliver Henry "Harry" Gee

Postdoctoral Scholar
Department of Vegetable Crops
November 11, 1999

Kinsell Coulson

Professor Emeritus
Department of Land, Air
and Water Resources
December 22, 1999

James M. "Scud" Marshall

('37, Agriculture)
Farmer
December 25, 1999

G. Ledyard Stebbins

Professor Emeritus
Division of Biological Sciences
Evolution & Ecology
January 19, 2000

John B. Hartman

('97, Ph.D., Genetics)
Department of Vegetable Crops
January 30, 2000

D. Marlin Brandon

(Ph.D., '77, Soil Science)
Rice Extension Agronomist
Department of Agronomy &
Range Science
February 1, 2000

Aqua-Answers and More

Bernie May, adjunct professor, **Department of Animal Science**, founded the Genomic Variation Laboratory when he came to UC Davis in 1995. Research in the laboratory employs the latest molecular genetic techniques and analyses to address a wide variety of questions for both improvement of aquacultural species and for the conservation of threatened and endangered species.

Graduate students are conducting 11 research projects in May's lab:

1. Investigation of the population structure of migratory catfish currently threatened by hydropower in SE Asia - Zeb Hogan, ecology
2. Development of microsatellite markers to estimate relatedness and pedigree structure in captive white sturgeon - Jeff Rodzen, genetics
3. Characterization of the population structure of the endangered lake sturgeon - Eve McQuown, animal science
4. Assessment of the effects of common contaminants in the Sacramento-San Joaquin Delta on red swamp crayfish, an indicator species - Tasha Belfiore, ecology
5. Use of molecular genetic markers to assist aquaculture managers in the development of strains of disease-resistant trout - Fernanda Rodriguez, genetics
6. Investigation of the global stock structure of the endangered blue whale - Carole Conway, ecology
7. Delineation of a baseline of genetic variation for chinook salmon within the Central Valley - Kevin Williamson, ecology
8. Assessment of hybridization and population structure in endangered sturgeon and suckers using multiple genetic markers - Greg Tranah, ecology
9. Investigation of population structure and ecological benefits of philopatry in cackling Canada geese - Ada Fowler, ecology

10. Test of breeding group models and of the biogeographic paradigm using genetic variation in yellow-bellied marmots - Chris Floyd, ecology

11. Genetic characterization of subspecies of the northern goshawk to identify evolutionarily significant units - Rick Topinka, ecology

All It's Quacked Up To Be

A team of wildlife biology researchers is studying the impact of a new mechanical decoy called "moto-duck." The hunting aid consists of a motorized revolving disk - one side painted white and the other brown or black - that produces a strobe effect that may mimic the flashing wings of landing ducks.

*According to John Eadie, associate professor, **Department of Wildlife, Fish and Conservation Biology**, "moto-duck" is reported to lure ducks in droves when placed among more traditional decoys.*

Eadie doesn't know if the decoy is having an impact on California's waterfowl populations. He is leading the study of the "moto-duck's" effect on duck response, hunter success, seasonal effects, extent of use and effect on harvest.

Issues raised by the "moto-duck" controversy extend to social and ethical considerations. "Although the device is remarkably simple," Eadie said, "it has revealed many of the undercurrents involved in wild-life management."

Old Growth, New Data

According to Kyaw Tha Paw U, professor of atmospheric science, **Department of Land, Air and Water Resources**, carbon dioxide concentrations in the atmosphere have been increasing rapidly because of human-caused technological development. Most atmospheric scientists predict some form of atmospheric warming from the concentration increase. Evidence shows that terrestrial forests and other plant ecosystems may be responsible for the absorption of a large amount of carbon dioxide.

The U.S. Department of Energy, through the National Institute for Global Environmental Change (NIGEC) at UC Davis, funds the study of emission and absorption of carbon dioxide by plant ecosystems. LAWR has been funded by NIGEC to study the carbon dioxide exchange within a 200-foot-tall, old-growth forest in Washington state. The site, between 400 and 600 years old, has the largest construction canopy crane in the world. (The crane was used to build a library in San Francisco before being moved to the forest.) UC Davis meteorological sensors are attached to the crane, and ecologists from many institutions make measurements within the canopy.

LAWR researchers have been recording micrometeorological carbon dioxide exchange data at the old-growth site and hope to continue for another four years.

For many years, people assumed that old-growth forests did not absorb carbon dioxide and may, in fact, be releasing carbon dioxide into the atmosphere. LAWR data show that old-growth forests are absorbing carbon dioxide as vigorously as many other younger forests and that they are among many of the forest ecosystems and other plant ecosystems helping to reduce the amount of carbon dioxide increase caused by human activity.

Fungi Research Among Three Institutions

A unique collaboration is underway as the result of an excellent research proposal and a grant from the National Science Foundation. Scientists from UC Davis, UC Riverside and Southern Oregon University are teaming up to study the relationship between oaks and fungi, with each of the three institutions working with regional sites, each with a different variety of oak. The group will use the Web for data sharing and collaborating.

"We're very excited about this project," said Caroline Bledsoe, professor in the **Department of Land, Air & Water Resources**. "Thirty proposals were submitted. Ours was one of five funded nation-wide." Bledsoe heads the UC Davis research team for the tri-institutional study.

Collaborating with Bledsoe are Professor Robert Zasoski and Assistant Professor William Horwath, Department of Land, Air & Water Resources, and David Rizzo, associate professor, **Department of Plant Pathology**.

"I've never had the opportunity to be a part of a team like this," Bledsoe said. "This gives me the chance to work in a lab and in the field and with students. I'll be 'doing,' not just 'managing.'"

Joining the UC Davis team

are graduate students Zachary Aanderud and Xiamei Cheng.

"It's a rare opportunity for any graduate student to be part of such a huge collaborative effort," Aanderud said, "to bounce ideas off professors and to go to other labs."

"There are endless opportunities working on this team, and the quality of the people in this group is phenomenal," added Cheng.

The team will study whether individual oak trees are linked by mycorrhizal fungi, creating a common network which allows oak trees to transfer nutrients. Team members believe that if the study shows that fungal networks connect oak trees and that oak trees use the network to pass nutrients from tree to tree, the results could be astounding. Zasoski explained that the five-year project allows the team to focus on the issues long enough to actually understand something about them. "We'll have the time to look at this at several levels," he said. "This grant gives us a lot of freedom and flexibility. People often chase the money rather than the ideas. This grant gives us the opportunity to chase ideas."



Researchers, left to right, William Horwath, Robert Zasoski, Caroline Bledsoe and David Rizzo represent UC Davis in tri-institutional study.

Berry, Berry Nice!

The **Department of Pomology** received the Golden Strawberry Award from the Spanish province of Heulva. The Freson de Oro Award, presented in the town of Lepe, Spain, honors a business or organization that has contributed generously to Heulva's agricultural industry. Presenters noted that the research by UC scientists was responsible for the introduction and vigorous growth of the strawberry industry in the province.

During nearly five decades of research, UC Davis scientists have used selective-breeding techniques to develop new varieties that are larger, more colorful and flavorful and more productive over a long growing season. The California strawberry industry, which raises 80 percent of the strawberries consumed in North America, now produces strawberries year-round.

The UC Davis strawberry breeding program currently is in the hands of Professor Douglas Shaw of the **Department of Pomology** and pomologist Kirk Larson, Cooperative Extension specialist. Researchers continually work to improve commercial strawberries in terms of fruit quality, production efficiency and resistance to pests and disease.

On Task

Neal K. Van Alfen, CA&ES dean, Bruce Kirkpatrick, professor, **Department of Plant Pathology**, and Andrew Walker, professor, **Department of Viticulture & Enology**, were named by UC President Richard C. Atkinson to a 12-member UC task force of eminent scientists and educators to help growers combat Pierce's disease, a bacterium-caused disease that kills grapevines and is a major threat to California's grape industry.

Kirkpatrick is conducting experiments to determine whether infection by the bacterium responsible for Pierce's disease can be prevented by boosting levels of essential plant micronutrients in grapevines, such as zinc, iron and molybdenum.

The UC Pierce's Disease Research and Emergency Response Task Force will develop a science-based strategy and set of research priorities to guide the university's short- and long-term studies for managing Pierce's disease. The task force also will report on efforts by UC to extend technical assistance to vineyard owners in wine grape-growing regions where the disease is a problem.

Family Secrets Revealed

In looking for the genetic ancestors of important grape varieties, biologist Carole Meredith, **Department of Viticulture & Enology**, and her colleagues analyzed DNA from the leaves of 300 varieties of grapes, including some that no longer are commonly grown. Researchers employed classic DNA profiling techniques now widely used to link parents and children.

Wine experts were surprised and amused to find that wine varieties held in high regard, such as Chardonnay, had very humble origins.

Research showed that a grape variety once banned as inferior and unworthy actually is the parent of some of France's most highly prized wines. Sixteen of the most popular French wines came from the genetic pairing of the classic Pinot variety and the humble Gouais blanc, a grape scorned by winemakers for centuries and banned from France.

"There is less than one chance in a trillion that we're wrong," Meredith said. She feels that the discovery illustrates the wisdom of keeping old plant varieties for new crossbreeding programs.

Crucial Collaborations

A new CA&ES program enhances interactions among scientists addressing rhizosphere issues that are crucial for the sustainability of natural plant and crop communities. The Rhizosphere Biology Program (RBP) draws on expertise of CA&ES scientists and Division of Biological Sciences colleagues.

According to Donald Phillips, professor, **Department of**

Agronomy & Range Science, research and training activities in RBP will improve plant productivity and health by identifying mechanisms and principles governing the control points that regulate rhizosphere interactions contributing to safe, productive ecosystems.

An example of work being done by RBP scientists is directed at understanding how beneficial bacteria grow on roots. Phillips and his associates asked whether one bacterial species that requires an external source of carbon dioxide for growth can obtain that gas from plants by increasing root respiration. Their work was published in the *Proceedings of the National Academy of Sciences, USA*. Other RBP scientists are studying how mycorrhizal fungi, nematodes, pathogens and insects interact with roots, as well as how specific plant processes and molecular structures contribute to the normal, productive rhizosphere communities observed in nature.

Measureable Results

Gregory B. Pasternack, professor of watershed hydrology, **Department of Land, Air and Water Resources**, was approached by The Nature Conservancy to discuss a project that directly benefits the environment by enhancing on-going restoration projects. Pasternack's resulting proposal, "A New Approach to Habitat Restoration Using Seismic Technology," was funded by the Seaver Foundation for \$168,300.

"One thing that makes this research notable," Pasternack said, "is that it is part of a newly established partnership between UC Davis and The Nature Conservancy, joining our research strengths with their hands-on conservation know-how."

According to the proposal, problems that face restoration specialists include selecting the most promising sites and choosing appropriate restoration techniques for each site.

The Nature Conservancy of California proposes to use a new seismographic technology to help

solve those two problems. They want to apply the innovative technology to a potentially pathbreaking riparian-tidal wetlands restoration project on a 1,600-acre leveed island in the Delta. Technology would be used not only to help select the best restoration sites and techniques but also to foster development of appropriate wetland channels when tides and floodwaters are allowed once again to access the island.

Sweet Smell of Successful Research

In the most recent advance in textile technology, Gang Sun, assistant professor, **Division of Textiles & Clothing**, has found a way to keep sweaty clothes odor-free. The technology is anti-microbial, preventing the growth of bacteria and other microorganisms that produce odors and disease. The treatment can be "recharged" to 100 percent effectiveness with a simple rinse in a chlorine solution.

The technology uses compounds called N-halamines that contain chlorine atoms, effective in killing many viruses and bacteria, but in a form that doesn't cause skin irritations. The coating, used on cotton fabrics and cotton blends, probably will appear first in the form of athletic clothing and kitchen fabrics, including towels and dishcloths.

Testing Testosterone

Professor Barry Wilson, **Department of Animal Science**, wants to study the impact of agriculture on the wildlife resources of the state by providing a new tool for studying the ecosystem and human health. He worked with veterinary medicine professor Bill Lasley and graduate student Joseph Billitti to develop a noninvasive biomarker for male reproduction.

Using an antibody to the male hormone testosterone developed by Lasley, the group adapted the assay to measure the levels of male hormone in droppings of field mice. This enables agricultural scientists to study the reproductive state of the

resident mice without injuring them.

The first test of this method was part of a UC Davis project to study the controversial fuel additive methyl tertiary butyl ether (MTBE). Researchers showed that high levels of MTBE did not affect the testosterone content of mouse droppings.

The next step is for graduate student Brian Faulkner to develop a similar assay for raptors, using a colony of American Kestrels kept by the Department of Animal Science.

Faulkner, Wilson and Lasley plan to study the impact, if any, of agricultural practices on the food chain of mice to birds.

Whooo Knows?



The spotted owl exists at very low population densities throughout most of its range, according to two researchers in the Department of Animal Science. Professor Wesley Weathers and graduate student Peter Hodum are investigating whether this primarily reflects food limitation or some other factor(s).

Direct measurements of reproductive effort indicate that most bird species do not work to their physiological capacity when rearing young. This and other evidence suggests that parent birds may not be routinely food-limited. The importance of prey as a limit on reproductive success is unclear but undoubtedly varies both among species and temporally within species.

By measuring the field metabolic rate and assimilation efficiency of

spotted owls fed natural prey items, Weathers and Hodum determined the owls' food requirements during the breeding season. Field metabolic rates of owls - determined using stable isotope techniques - average only 52 percent of those expected for parent birds the owls' size, suggesting an evolutionary response to routine food limitation.

Ban Brings Big Results

A ban on highly polluting two-stroke boat engines dramatically reduced MTBE and other fuel pollution in Lake Tahoe this past summer, compared with previous years, according to Brant Allen and John Reuter of the **Tahoe Research Group**. Scientists sought to determine which action had the greater impact on methyl tertiary butyl ether (MTBE) pollution: service stations in the Tahoe basin selling MTBE-free gasoline or the ban on certain types of engines.

"The engines had more impact," said Reuter of the **Department of Environmental Science and Policy**. "The studies are significant because they show that MTBE can be controlled through boating practice management."

The elimination of two-stroke boat engines imposed by the Tahoe Regional Planning Agency at the beginning of the 1999 boating season reduced both MTBE and toluene concentrations in the Sierra Nevada lake by 90 percent or more.

Designer Genes

The National Science Foundation awarded a \$3.8 million federal grant for a three-year cotton gene research project directed by molecular geneticist Thea Wilkins, associate professor, **Department of Agronomy & Range Science**. "We're researching cotton genes that determine what makes a fiber, with the goal of making a better fiber and more fiber," Wilkins said.

Scientists are studying tens of thousands cotton genes to determine what proportion are linked to the creation of fibers. The process

involves a process of elimination. By scrutinizing defective cotton fibers, researchers are trying to determine which genes are flawed.

"By looking at which ones have gone bad, we find out which ones are critical to the fibers. We're building a tremendous database that will be invaluable," Wilkins explained.

What's Bugging You?

UC Statewide Integrated Pest Management (IPM) Project coordinates an array of research projects from field ecology and cultural controls to biological control and decision support in commodities as varied as poultry, fruit trees and turf to tomatoes, cotton and rangeland.

Information available on IPM's Web site includes pest management guidelines for 41 major crops, leaflets on more than 70 home and landscape pests, a weed photo gallery, degree-day calculator, weather databases, phenology models for different pests, crop disease models, research results and California pesticide-use summaries.

The IPM Web site may have the solution for what's "bugging" you. Check out www.ipm.ucdavis.edu/.

Different - Not Better!

Michael Barbour, plant ecologist, **Department of Environmental Horticulture**, has been working with a small team of scientists from UC Davis and UC Riverside for the past two years, involved in a watershed assessment of the Lake Tahoe area. The study was initiated in response to President Clinton's visit to Lake Tahoe.

Barbour explains, "Our objectives are to summarize the health of the ecosystem; to prepare a conceptual ecosystem model linking air, water, vegetation and soil so that the full repercussions of present and future human activities can be predicted; and to suggest sensitive ecosystem attributes that should be monitored to tell if management is producing the results desired."

Associate Professor David Rizzo, **Department of Plant Pathology**,



A prescribed (or introduced) fire often is discussed as an essential component of restoring forest health in the Tahoe Basin.

explains that almost all vegetation in the Tahoe Basin is different than it was 150 years ago before human contact. Many of the differences have enhanced the quality of life; however, from a more ecosystem-centered perspective, none of the differences has been beneficial.

Complexity of the vegetation has been reduced; biodiversity has been reduced; resistance to stand-replacing crown fires has been reduced; the area of meadows and wetlands that serve as a buffer and filter between land and lake has been reduced; lake clarity has been reduced; air purity has been reduced; and soil stability has been reduced.

Fragmentation in the landscape has increased in the last 50 years as the number of roads and homes have increased. Only 5 percent of forested land is in old-growth status.

“A definition of future desired conditions is important because that vision will drive management plans and actions for the next several decades.” Rizzo said.

Superfund is Super Opportunity

Research on the human health effects of hazardous substances in the environment, particularly those found at leaking waste-disposal sites, will continue as the result of a \$20 million grant renewal from the National Institute of Environmental Health Sciences to a UC Davis team participating in the federal Superfund Basic Research Program. The grant distributes \$4 million annually for five years.

According to Professor Bruce Hammock, **Department of Entomology**, the proposal received one of the highest ratings in the renewal process among 35 applications.

Thirty faculty investigators will work on nine integrated research programs. They will study the fate and movement of hazardous materials in groundwater, surface water and air as they move from toxic waste sites. Researchers are developing sensitive systems that use biological markers to detect and evaluate exposure to such toxins.

The program also is exploring new technologies for cleaning up toxic waste sites and is addressing possible health risks associated with those technologies.

UC Davis received initial funding of \$5.5 million from the Superfund Basic Research Program in 1987.

Vine Decline

As two related grapevine diseases grow increasingly troublesome to California winegrape growers, scientists at the University of California are stepping up their research efforts, but stress that the fungal diseases don't pose a major threat to the industry.

Black-foot disease and young grapevine decline are characterized by slowed growth, smaller trunk size and a reduction in foliage. Vine sap turns dark brown or black, a symptom that has earned the diseases the nickname “Black Goo.” If the problem is identified early enough, vines can be coaxed back to health, but most growers find it more economical to remove the

affected vines and replant.

Although more cases of these fungal diseases are turning up in California, only about 10,000 of 900,000 acres - slightly more than 1 percent of the vineyard area - are affected, according to Deborah Golino, Cooperative Extension plant pathologist and director of **Foundation Plant Materials Service**.

The diseases are part of a complex of vine ailments associated with five different fungi. Tests indicate that black-foot disease is caused primarily by one species of *Cylindrocarpon* and that young grapevine decline is caused by one or more species of *Phaeoacremonium*.

Golino urges growers who suspect their vines may be infected with black-foot or vine-decline disease to contact county farm advisors for an accurate diagnosis.

Tag.. You're It!

David Neale and Claire Kinlaw, **Department of Environmental Horticulture** affiliates, recently received a \$1 million award from the National Science Foundation for pine genomics research. The award is from the NSF Plant Genome Research Project and is through a sub-contract from North Carolina State University. The title of the proposal is “Wood Formation in Loblolly Pine.” Neale and Kinlaw will contribute towards development of an expressed sequence tagged (EST) database for genes expressed in wood forming tissues and will construct genetic maps and identify candidate genes for commercially important wood property traits. They are affiliated with the Institute of Forest Genetics, Pacific Southwest Research Station, USDA Forest Service located at the Department of Environmental Horticulture.

Getting To the Root of It all

John Duniway, professor, **Department of Plant Pathology**, has been studying the physiology of how a beneficial bacteria might improve the root health of strawberries. He is trying different methods

of applying the bacteria, such as dipping strawberry roots into a solution before transplanting into the soil or distributing the bacteria in fruiting fields through drip irrigation lines.

UC SAREP funded several other projects studying alternatives to methyl bromide in grapes, orchards, ornamental crops and post-harvest control of insects. It also has granted money for a project called Biological Agriculture Systems in Strawberries that demonstrates methods of growing strawberries without methyl bromide. Funding for the research projects came from a \$1 million grant allocated by the state legislature through the state Department of Pesticide Regulation.

Studying Milk?

A new laboratory for research and teaching related to milk, cheese, ice cream and other dairy products is slated for construction this year at UC Davis, according to Professor John Krochta who holds the Peter J. Shields Endowed Chair in Dairy Food Science at UC Davis. The 1,500-square-foot facility will be housed in Cruess Hall in the **Department of Food Science & Technology's** pilot food-processing plant. It will be used by food-science researchers, undergraduate students and continuing-education classes taught through University Extension. "The Dairy Foods Research and Education Facility will be a modest but flexible and efficient facility allowing us to teach and conduct research about the science and related technologies of milk and other dairy products,"

Krochta explained. "We hope the facility plays a part in maintaining California's position as the leading milk-producing state in the nation."

The four-room complex, which should be completed and operational in the summer of 2001, will provide space and equipment for receiving, separating, homogenizing and pasteurizing milk. One room is designed specifically for cheese production; it also will be usable for ice cream and other dairy products. One room is designed as a lab to support activities of the facility. A third room will provide storage space for dairy-processing equipment.

The UC Division of Agriculture and Natural Resources and the College of Agricultural and Environmental Sciences are funding the \$250,000 facility. Krochta committed \$100,000 of Shields endowment income for new equipment.



Carl A. Schoner, Jr. (B.S., '51, Animal Science; M.Ed., '62, Agricultural Education) was named 1999 Agri-Business Person of the Year at the 32nd annual Farm-City Banquet in Yolo County. Schoner once served as Yolo County Farm Bureau director and as a member of the Yolo County Agriculture Extension Service. In accepting the award, he said, "I feel lucky to have been born into a farming family. Farming has been my life."

Jim Kissler (B.S., '57, Agricultural Economics; M.S., '57, Horticulture) received an Award of Merit at the 1999 Integrity Award Banquet of the Lodi-Woodbridge Winegrape Commission. He was recognized for decades of service to the Lodi wine and grape industry.

Kissler pioneered many of the strategies fundamental to the success of the local grape industry. He worked as the San Joaquin County viticulture farm advisor from 1957 until his retirement in 1986.

Gurdev Khush (Ph.D., '60, Genetics), principal plant breeder and head of the Plant Breeding, Genetics and Biochemistry Division of the International Rice Research Institute, was awarded the 2000 Wolf Prize for Agriculture. He was selected for his "extraordinary contribution to theoretical research in plant genetics, evolution and breeding, especially of rice, with regard to food production and alleviation of hunger."



Khush and his colleagues established the first molecular genetic map of rice and tagged many genes for disease and insect resistance and for stress tolerance. The

genetic maps of molecular and traditional markers in rice that Khush and his team developed are used widely in

Jaleh Daie (M.S., '75, Horticulture) is director of science programs for the David and Lucille Packard Foundation in Los Altos. A noted plant biologist, she was professor at the University of Wisconsin prior to joining the foundation.

Daie has 20 years experience in research, management, education, and policy in academia, government and non-profit organizations and has served on many boards and acted as a consultant to corporations, foundations and various public institutions.

After a post-doctoral fellowship in 1983, Daie was appointed assistant professor at Utah State University and later was recruited to Rutgers University as associate professor and Henry Rutgers Research Fellow. She held several administrative positions at Rutgers including department chair, interdisciplinary center director, university-wide graduate program director and the George H. Cook Honors Program chair.

Daie joined the University of Wisconsin as professor and senior science advisor of the 26-campus /150,000 student UW system in 1993.



In 1996 and 1997, Daie served as science liaison to the president's National Science & Technology Council, a cabinet-level body that advises the president on all aspects of science and technology policy. She worked closely with White House staff on presidential policy initiatives and served as special assistant to the chief scientist at the national Oceanic and Atmospheric Administration at the U.S. Department of Commerce.

Daie is recipient of many honors and awards including Fellow, American Association for the Advancement of Science; Fellow, Association for Women in Science; Henry Rutgers Research Fellow; and Fellow of the University of Wisconsin Teaching Academy.

Daie's research has resulted in nearly 100 publications on the mechanisms controlling plant productivity, especially molecular and cellular physiology of carbohydrate transport and metabolism. Her research also has resulted in invited reviews, book chapters and seminars in the U.S. and abroad.

studying the origin and evolution of other important grain crops such as wheat, maize and barley. Khush also was honored on India's Republic Day with the Padma Shri Award for contributions to food security. India's president will present this prize to Khush at a ceremony in Delhi in March.

Khush was CA&ES commencement speaker in 1999.

Christine E. Barnes ('73, Design) worked as an intern for *Sunset Magazine* after graduating from UC Davis and then earned her M.S. in journalism. She has written and edited home decorating and crafts books for Sunset Books as well as quilt books for Martingale & Co. Her recent book, *Color: The Quilter's Guide*, includes photos of work from design alums **Patrice Sims** ('74,

Design) and **Maggie Potter** ('78, Design).

Barnes and editors of Sunset Books just released *Color for Your Home*, a book that "takes the mystery out of decorating with color."

Design lecturer Helge Olsen, Department of Environmental Design, consulted on the book.

Liz Applegate (B.S., '78, Biochemistry; Ph.D., '83, Nutrition), lecturer, Department of Nutrition, authored a nutrition book with a full page devoted to new research on chocolate. *Eat Your Way to a Healthy Heart* tells us that chocolate isn't as bad as we might have thought. "But, as with anything," she reminds us, "moderation is the key."

Applegate says that associate professor Andrew Waterhouse, Department of Viticulture & Enology, found that chocolate contains significant amounts of phenols, the same agent in red wine that fights heart disease.

Her healthiest suggestion? Make hot chocolate with cocoa powder and nonfat milk. You'll get a good dose of phenols and calcium with only a speck of fat!

Paul W. Bosland (B.S., '76, Genetics M.S., '77, Vegetable Crops) lives in Las Cruces, New Mexico, with his wife **Judy** (M.S., '78, Vegetable Crops). He is professor, Department of Agronomy and Horticulture, New Mexico State University (NMSU), and a chile breeder and geneticist. He also is director and co-founder of the Chile Pepper Institute.

Judy Bosland is a senior research analyst for the Office of Institutional Research at NMSU.

Paul Bosland breeds a spiceless jalapeno chile pepper. "The mild 'NuMex Primavera' pepper eliminates the need for a diluting agent in making mild or medium salsa," he explains. "The mild jalapeno chile pepper dilutes the heat without changing the flavor."

Check out the Chile Pepper Institute's Web site at <http://www.nmsu.edu/~hotchile>.

Gail Feenstra ('78, Dietetics), nutrition and food systems expert, was named state community food security co-liasion by USDA Agriculture Secretary Dan Glickman. She serves as point-of-contact and resource coordinator for all USDA-associated community food security and anti-hunger activities within California. Feenstra was coordinator of the Community Development and Public Policy Program for the statewide UC Sustainable Agriculture Research and Education Program.

Richard Collins ('83, Agricultural and Managerial Economics) is president of *California Vegetable Specialties, Inc.*, the world's largest producer of red endive. He started commercial production of endive in 1983, sowing five acres near Vacaville. The firm moved into a new 30,000 square foot production facility in Rio Vista in 1995 and harvested 350 acres of root-stock in 1998.



Collins said that his company is focusing on marketing now, particularly the education of trade buyers and consumers regarding the elegance, value and versatility of endive.

For information about endive, including recipes such as "Endive Soup" or "Endives and Ham Party Dip," check their Web site at www.endive.com.



Linda M. Fernandez ('85, International Agricultural Development) is assistant professor at UC Riverside in the Department of Environmental

Sciences. She earned her M.S. in agricultural and resource economics at the University of Hawaii in 1989 and her Ph.D. in agricultural and resource economics at UC Berkeley in 1996.

Fernandez lectured at UC Santa Barbara until she began her current position. She worked with the U.S. Environmental Protection Agency from 1989 to 1993. Her research interests focus on resource economics, trade, development and water resources policy.

Rachael Freeman Long (M.S., '87, Entomology) is Yolo County's bat expert. According to Long, bats are incredibly important in pest control and in helping to keep down insect population.

Bat delicacies, such as moths, commonly are found on agricultural fields. According to Long, a single bat colony near Fairfield has an estimated 30,000 bats which eat 3.5 tons of bugs per night, insects that otherwise would munch away on fruit and field crops.

To study bats, Long built and installed bat houses on the sides of barns and farmhouses throughout the county and atop poles high off the ground. She learns about bats by examining their droppings and can determine which bat houses are popular and why. Long advises area growers on how to construct bat houses and where to install them. Everyone seems to benefit.

Jeanette M. Van Emon (Ph.D., '87, Agricultural & Environmental Chemistry) was honored with the Environmental Protection Agency Office of Research and Development's Statesmanship Award. It is one of the highest awards available to US-EPA personnel, recognizing employees who demonstrate diplomacy and tact

in promoting the Office of Research and Development's interests outside the organization. Van Emon also received two U.S. Senatorial commendations.

Van Emon directs the immunochemistry program at the US-EPA National Exposure Research Laboratory, Human Exposure Research Branch, Las Vegas, and is considered to be the agency's expert in immunochemistry and its application to environmental protection. She has pioneered the development of immunochemical methods for environmental monitoring and human exposure assessment studies.

Sophia Yin (B.S., '89, Biochemistry; DVM '93 Veterinary Medicine) offers readers insight and advice on living with animals through her *San Francisco Chronicle* home and garden column, "Pet Tails." She is a small-animal veterinarian in Davis with an animal-behavior Web site at www.nerd-book.com/sophia.

Dave Paige ('89, Fermentation Science) is winemaker at the newly formed Cloninger Winery near Monterey. According to Paige, he does everything from work the vineyards to make the wine.

Following graduation, Paige worked at Shenandoah Vineyards, Sterling Vineyards, Saltram Wine Estates in Australia's Barossa Valley and at Jekel Winery.

CA&ES alumni and faculty are involved in developing alternatives to the chemical methyl bromide used on southern and central coastal strawberry fields.

Jenny Broome (M.S., '90; Ph.D., '94, Plant Pathology) is newly appointed associate director of UC Sustainable Agriculture Research and Education Program (SAREP). She also is lead scientist and administrator of a new grants program on developing alternatives to the soil fumigant methyl bromide. The fumigant no longer will be available to most growers after 2005.

Kirk Larson (B.S., '80, Inter-

national Agricultural Development; M.S., '84, Horticulture) is a UC Davis pomologist at the South Coast Research and Extension Center in Irvine. Larson is exploring whether growers could transplant small plants called "plugs" rather than roots. Coastal growers generally purchase bare strawberry roots for transplant in the fall. Nursery-raised plugs would be grown from mother roots in a soil-less medium that would not require fumigation with methyl bromide. "This would be a major change in the strawberry industry," he said.

Alan Wackman ('90, Agricultural and Managerial Economics) and brothers Howard and Mike planted their first vineyard - 30 acres - in 1991. Now the family works about 620 acres of vineyards in southern Sacramento County.

The Wackman family grew alfalfa, corn, sunflower seeds and grass for hay on land south of Elk Grove for five generations, dating back to the 1850s. Now they grow grapes and ship to wineries in Napa, Sonoma, Amador, San Joaquin and Monterey Counties.

At the recent Environmental and Resource Sciences Internship & Career Fair on campus, several alumni were available to meet with students and talk about opportunities. It was good to see them again:

Bryan Young ('92, Wildlife & Fisheries Biology) - natural resource supervisor, Sacramento Regional Wastewater Treatment Plant
Julia R. Chang ('95, Environmental Policy Analysis & Planning) - project manager, ENSR

Roger Jones ('92, Environmental Resource Science) - senior natural resource specialist, Sacramento Regional County Sanitation District
Ronald Lam ('88, Atmospheric Science)

Rachelle Rounsavill ('95, Environmental Toxicology)

Nabil Ahmed ('98, Environmental Toxicology) - project manager, ENSR
Kean-Seng Goh (B.S. '74; M.S., '76, Entomology) - program supervisor,

California Department of Pesticide Regulation

Patrick Lauridson ('96, Wildlife & Fisheries Biology) - waterfowl programs biologist, California Waterfowl Association

David Maul ('72, Environmental Planning & Management; M.S., '74, Ecology) - assistant division chief, California Energy Commission

Arnold Roessler ('89, Range & Wildlands Science) - natural resource specialist, U.S. Bureau of Reclamation

Autumn Bernstein ('99, Wildlife, Fish and Conservation Biology) - director of environmental education, Planning and Conservation League

Christine Arthur ('92, Design) is living in San Mateo, developing an e-commerce site for a retail/wholesale home furnishings company in Burlingame. She also does product photography and product development. Check out her virtual gallery at www.fiberarts.com.

Jose Andreas Reimann (M.S., '93, Community Development) is a visiting lecturer in the landscape architecture program. He taught landscape architecture at the University of Dresden. In addition to his teaching, Reimann was selected for a 6 month appointment as a Cooperative Extension urban horticultural specialist, co-sponsored by the landscape architecture program and the Department of Environmental Horticulture.

Reimann and Professor Mark Francis of the landscape architecture program collaborated on a book celebrating California's native plants and wildlife, *The California Landscape Garden: Ecology, Culture and Design*.

Erik Beever ('93, Biological Sciences) completed his Ph.D. in Ecology, Evolution and Conservation Biology at University of Nevada, Reno (UNR). He currently is engaged in a postdoctoral appointment through the UNR Biological Resources Research Center, investigating biogeographical patterns of species richness in isolated mountain ranges of the Great Basin.

Beever chaired the first Great Basin

Biological Research Conference in Reno in 1999 and created the Great Basin Biological Research Consortium of professionals from 18 institutions and organizations in six states.

Lily Kuan ('93, Design) returned to Taipei, Taiwan, after graduation and works for a small interior design firm, Mark Lintott Design. Her work focuses on commercial and hospitality design - restaurants, bars, boutiques, movie theaters and hotels. Kuan and husband Lawrence are proud parents of son Benjamin Tien-Jie.

J. R. Campbell (B.S., '94, Design; M.F.A., '96) and **Melissa English** ('95, Design) moved to Ames, Iowa, where he is an assistant professor in the textiles and clothing department at Iowa State University. Melissa started a small clothing design business called M.C. English Productions. Daughter Willow Rachel was born in 1999.

Mary Yaeger ('94, Design; M.F.A., '96, Textile Arts/Costume Design) works at the Boulder, Colorado, Extension office of the Southwest Research Institute while continuing her textile work. In 1998, she received the Fellowship Award in Visual Art from the Colorado Council of the Arts. Her work appeared in the September 1998 Rule Modern and Contemporary Gallery exhibition titled "Fashion Show: Art Of and About Fashion."

Blake Meyers (M.S. '95 Genetics; Ph.D., '98, Genetics) worked on a physical map of maize as a visiting scientist at DuPont Genomics in Newark, New Jersey. His individual research involved repetitive sequences in the maize genome to learn the organization and structure of the sequences and how they affect the distribution of genes.

Meyers recently returned to UC Davis to work in the Department of Vegetable Crops to study disease resistance in Arabidopsis and work with Professor Richard Michelmore. **Sally Irwin** (M.S., '95 Genetics) is completing her Ph.D. in Genetics in Maui, Hawaii. She serves on the fac-

ulty at Maui Community College, teaching microbiology and chemistry to undergraduate students, mostly pre-nursing and pre-med, and is writing the curriculum for a fall 2000 introductory genetics class. She previously worked at the University of Hawaii Agricultural Experiment Station.

Irwin, her husband and two children have been in Hawaii for four years. "If you want to see gorgeous sunsets and the best beaches, waves and waterfalls," she says "check out Maui! And, Aloha!"

John Beaulieu (Ph.D. '96 Plant Biology) spent a year-and-a-half as a postdoc in Porto, Portugal, studying postharvest quality and Vitamin C retention in fresh cut Portuguese kale. He now resides in New Orleans with wife Isabel and son Tiago Lima.

Beaulieu is a plant physiologist with USDA-ARS, working on flavor, texture and postharvest qualities of fresh fruit.

Carri Benefield (M.S., '98, Plant Biology) is an associate agricultural biologist at the California Department of Food and Agriculture, Integrated Pest Control Branch, in Sacramento. Her work involves managing a project on Purple Loosestrife, an aggressive wetland invader, including surveying, detection and mapping; education and awareness; and a control and monitoring project in the CALFED Bay-Delta Watershed. Benefield also works on a quarterly newsletter, assists in developing grassroot working groups and coordinates a K-12 weed education work group.

Brandt Hoekenga ('98, Design) is living in Santa Rosa and working as a Webmaster/designer/public relations assistant at DeLoach Vineyards. Take a look at the Web site he developed at www.deloachvineyards.com.

Tranh Pham ('99, Design) is one of 25 designers whose plans for custom-built dog houses were selected to be built for the juried exhibition "Dog Haus: Architecture Unleashed" held

at the Oakland Museum. The dog houses had to be buildable, stylish, well proportioned, weatherproof, maintainable and adequately ventilated, using no materials toxic to dogs. The exhibition was sponsored by the Council on Architecture and the Oakland SPCA. Following the exhibition, the dog houses were auctioned with proceeds benefitting the Oakland Museum and the SPCA.

Ken del Rosario Gumiran ('99, Design) recently won a contest to design an entrance for the city of American Canyon, California. Stories about Gumiran and the contest appeared in the *Vallejo Times Herald* and in the *Napa Valley Register*. Read about it at <http://www.amcanchamber.org/currentnews1.htm>.

Lisa Dicke ('99, Environmental Resource Science) is an environmental analyst with EDAW, Inc. in Sacramento and is loving her work. She has plenty of opportunity to use her GIS experience.

EDAW is doing a restoration project on the Upper Truckee River in Lake Tahoe, the same river Dicke worked on with the Tahoe Research Group when she was a student. "The job seems like a perfect fit," she said when she found out that she was selected for the position. "I'm very excited."

Dicke shared her good news with Joe Stasulat, program manager, Internship and Career Center. She wanted him to know that his tremendous encouragement and support through the interviewing process made a big difference.

ATTENTION PURDUE-AREA ALUMNI
UC Davis is visiting Purdue June 24-28, 2000. Watch for your invitation to join us while we're in town for the National Agricultural Alumni and Development Association's "Silver Jubilee."

For details, contact Sharon Lynch, 530/752-1602; selynch@ucdavis.edu.

THE COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES

COLLEGE CUSTOM APPAREL PROGRAM



Sweatshirt
85/5 Cotton/Poly Sweatshirt.
Embroidered logo on left chest
and left bicep.
Color: Navy
Sizes: S-XL \$20.00; XXL \$21.00



Pique Polo
100% cotton tri-colored pique knit
polo. Embroidered logo on left
chest and left sleeve.
Colors: White/Navy/Gold
Sizes: S-XL \$30.00; XXL \$32.00



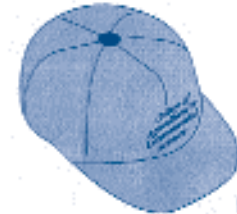
Pique Polo
100% cotton Navy pique
polo. Embroidered logo on left chest
and left sleeve.
Sizes: S-XL \$25.00; XXL \$26.00,
XXXL \$27.00



Denim Shirt
100% cotton denim shirt, button down
collar. Embroidered logo on left chest
and left cuff.
Sizes: S-XL \$25.00; XXL \$26.00;
XXXL \$27.00



T-Shirt
Navy 100% cotton t-shirt. Screened logo
on left chest.
Sizes: S-XL \$10.00; XXL \$11.00



Ball Cap
Navy Wool Blend 6-panel
constructed ball cap. Embroidered
logo on front, embroidered UC Davis
on back.
\$14.00

Proceeds from the College Custom Apparel Program Support Student Leadership and Recruitment Activities.

ITEM	DESCRIPTION	S	M	L	XL	XXL	XXXL	PRICE	TOTAL
Item #1	Navy 85/5 Cotton/Poly Sweatshirt Embroidered Left Chest and Left Bicep							S-XL \$20.00	
								XXL \$21.00	
Item #2	Tri-Colored Pique Knit Polo 100% Cotton Embroidered Left Chest and Left Sleeve							S-XL \$30.00	
								XXL \$32.00	
Item #3	Navy Pique Polo 100% Cotton Embroidered Left Chest and Left Sleeve							S-XL \$25.00; XXL \$26.00	
								XXXL \$27.00	
Item #4	Denim Shirt 100% Cotton Embroidered Left Chest & Left Cuff							S-XL \$25.00; XXL \$26.00	
								XXXL \$27.00	
Item #5	Navy 100% Cotton T-Shirt Screened Logo Left Chest							S-XL \$10.00	
								XXL \$11.00	
Item #6	Navy Wool Blend Baseball Cap Embroidered Front and Back							One Size Fits All \$14.00	

Add 3% for Shipping & Handling
Ohio Residents Add 5.75% for State Sales Tax

Credit Card No. - Circle: Visa Mastercard AMEX Discover	
Expiration Date:	
Exact Name as it appears on card:	

Name _____

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Phone () _____

Orders may be phoned directly to Kingston at 1-800-406-6433.
Please include a check made out to Kingston, or provide your credit card information above.
Orders may be faxed to Kingston at 614-291-7883

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Alumni Information Sheet

This alumni section is a favorite among our 44,000 readers. People like to know where you're living and what you're doing. Take a moment to drop us a note.

Return this form to the address below or send us the same information electronically at outlook@agdean.ucdavis.edu. If you send us a photo, we'll scan and return it to you immediately.

Name _____

Street Address _____

City _____ State _____ Zip _____

Home Phone (_____) _____

Year Graduated _____ Degree _____ Major _____

Occupation _____ Employer _____

Business Address _____

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Business Phone (_____) _____ E-Mail _____

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