

Department of Environmental Horticulture • University of California, Davis

# GROWING Points

## Center for Urban Forest Research Celebrates Tenth Anniversary at UCD

by Dr. Greg McPherson, Center Director

The USDA Forest Service's Center for Urban Forest Research celebrated its tenth anniversary in April 2003. Affiliated with the Environmental Horticulture Department, the opening of the Center on the UC Davis campus in April of 1993 was inspired by Dr. Rowan Rowntree, a USDA Forest Service Senior Scientist, now retired. It was his vision and the support of Ray Tretheway of the Sacramento Tree Foundation, Dr. Jim Harding of the UC Davis Department of Environmental Horticulture, Dr. Enoch Bell of the USDA Forest Service Pacific Southwest Research Station and former Congressman Vic Fazio that made it all happen.

On Monday, April 7, 2003, we held an open house at the Center to celebrate this

very special milestone. A short ceremony recognized the vision and inspiration of those that made our success possible. We then highlighted the accomplishments of the past ten years and addressed our Center's "vision" and goals for the next ten years.

### *The Honorees – How They Helped Us Get Started*

In the early 1990s, Dr. Rowan Rowntree, then a US Forest Service Senior Scientist, realized the need for an urban forest research center in the western states. He saw cities in this region developing at a rapid pace, with increasing numbers of people choosing to live, work, and play in urban forests, making the field of urban forestry critical for healthy and sustainable living. While I was working in Chicago, he asked me to serve as director of this new research unit and I came to Davis in 1993, along with several talented urban forestry researchers, to begin establishment of the Center.

Ray Tretheway is founder and Executive Director of the [Sacramento Tree Foundation](http://www.sacramento-tree-foundation.org), and a member of the Sacramento City Council. He carried Dr. Rowntree's vision to Congressman Vic Fazio, who worked tirelessly to bring all the partners together. Ray brought 50 people together to

develop a State of the Urban Forest report for Sacramento just as we were getting initial data from our study. He'd been planning it for years—so when it comes to the politics of trees, Ray has no equal.

Jim Harding, professor and former Chair of the Department of Environmental Horticulture at UC Davis, was the facilitator—the man who made the vision happen on the ground. The founding of the Center took place while Jim was helping to create a new undergraduate major in urban forestry at UC Davis. His efforts were instrumental in the building of our new office facility which was completed in 1996.

Enoch Bell, retired Assistant Director of the Pacific Southwest Research Station, has been the key to our success. He has educated a string of Forest Service Directors on the importance of urban forestry and the value of investing in urban forestry research. Being an economist, he emphasized how urban forest research generates a steadily increasing return from the expertise and energy of the Center.

### *Highlights of the Past 10 Years*

1993 – Modeling Benefits and Costs of Community Tree Planting. It was the first comprehensive accounting of the benefits and costs of trees 30 years after planting in 12 U.S. cities.

1994 – Culmination of the work started in Chicago. The Chicago Urban Forest Climate Project was published and was the

*Continued on page 4*



<http://envhort.ucdavis.edu>



From left to right, Enoch Bell, Jim Harding, Rowan Rowntree, Greg McPherson and Ray Tretheway prepare to serve cake celebrating the Center's tenth anniversary.

**In This Issue...** *FireWise Communities Workshop Coming in October- page 2 • Rare Titan Arum Plant Blooms at UCD Botanical Conservatory-page 4 • Retail Education Days Coming in August-page 5 • Notes from the Chair- page 6 • STRATUM Street Tree Management Tool-page 7 • Sudden Oak Death Update- page 8*

# Green to Gold - Helping California Stay Out of the Black

by Cheryl Miller and Ken Blonski

## October Firewise Workshop Provides Opportunity for Green Industry to Collaborate in Fire Safety Planning

Each summer western wildfires consume acres and grab headlines. The declining health and vulnerability of our landscapes make national news. But rarely does the sensational media focus on the human contributions to these fire conditions, or more importantly, on sustainable solutions.

Indisputably, the primary component that fuels western wildfires is the vegetation. Human introduced plant species play an expanding role in fires at the interface of urban and wildland areas. Lush spring growth of non-native annual grasses seasonally transforms California hills to their signature gold creating readily ignitable conditions. Invasive plants, such as French broom, acacia, pampas grass and eucalyptus, result in fire ecosystems that are more explosive as they crowd out native species adapted to low intensity, high frequency fires. Every wildfire season highlights the costs to our California communities of these domesticated and escaped non-native species. How can the green industry help California stay out of the black, charred aftermath of fire?

The urban wildland interface (UWI) is particularly rich in issues for environmental horticulturists. Researchers have contributed information on specific pathogens, the damage and recovery level of certain forests, alternatives to invasive landscape species and application of urban forestry tools to fire management at the UWI. The green industry can impact the fire issue at all levels from services to individual homeowners, commercial landscape installations, parkland developments, large-scale vegetation management and even propagation of new plants with desirable characteristics. Yet the information developed by and for the green industry sometimes does not get disseminated effectively. This October the fire organizations of Alameda and Contra Costa Counties are sponsoring a two-day workshop to discuss the UWI fire issue and potential solutions. This workshop can serve as a forum for increased



*Fighting fire with fire...This prescribed burn on Mallory Ridge in the San Francisco East Bay will enhance whipsnake habitat on Contra Costa Water District property.*

professional collaboration related to fire safety and the environmental professions.

### Firewise Workshop in San Ramon, October 15-16

Join us at the [Firewise Communities Workshop](#) Wednesday and Thursday October 15-16, 2003 at the San Ramon Conference Center at 3301 Crow Canyon Road, San Ramon, CA. The East Bay has been selected as one of the locations for the FIREWISE Community Workshops being sponsored by the [California Fire Alliance](#) throughout California. This nationally recognized program developed by the National Fire Protection Association brings together elected officials, local government representatives, horticulturists, designers, environmental planners, developers, fire departments, contractors and more.

The Firewise workshop provides a comprehensive look at the factors that can serve as a basis for any community's fire mitigation program. Using a GIS based computer model, participants will work through a variety of exercises that highlight case studies to create more fire safe communities. Using a variety of themes such as infrastructure, land use, transportation, fuel loads, fire incident, and values at risk, participants will learn to rank wildland fire hazards. Other exercises will look at how to reduce a hypothetical subdivision's hazard rating and how to evaluate a proposed develop-

ment. These techniques can be directly translated to landscape design, installation and maintenance practices.

Three specialized California segments of the workshop will focus on planning policies and techniques. These planning tools can create opportunities for increased research or expanded business in the green



industry.

New guidelines entitled "Hazard Mitigation: Fire Hazard Planning and the General Plan"<sup>1</sup> will provide examples of how fire hazard mitigation can be integrated into the analysis, policies and mitigation programs created by communities as they prepare their State mandated General Plan Elements.

An overview will be provided of the requirements established by the federal Disaster Mitigation Act of 2000

(DMA2000)<sup>2</sup> to ensure future eligibility for grant funding from the Federal Emergency Management Agency (FEMA). The session will address the process and content for local Multi-hazard Mitigation Plans that must be completed by November 2004.

The third specialized segment will introduce the performance-based UWI model codes<sup>3</sup> and provide a tool based on the latest UWI testing and research.

As these mitigation policies are incorporated into a community's plans, the demand for firewise services potentially increases. Direct rewards are possible for those in the industry prepared to deliver the needed research, development of new plant materials, landscape design, installation or maintenance services.

Additional Firewise Community Workshops are planned in Fortuna (November) and San Luis Obispo (December). More information about the Firewise program can be found at <[www.firewise.org](http://www.firewise.org)>. The Firewise website includes information on national programs, available resources, and current topics.

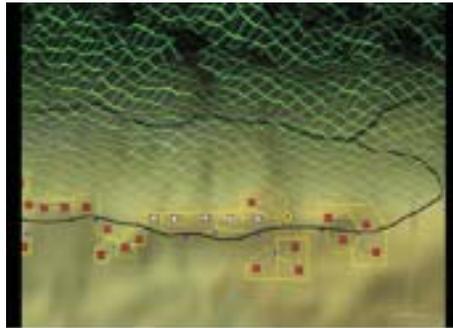
### Additional Information Resources for Fire Issues

For those individuals who are unfamiliar with UWI fire issues, we are fortunate in northern California to have several research facilities and organizations that can provide a variety of resources. In addition to the Center for Urban Forestry featured in the Winter 2003 issue of *Growing Points*, UC Division of Agriculture and Natural Resources (DANR) has sponsored a wide variety of UWI fire related research. A good overview of the UWI fire situation and recent research findings, including information on fire safe vegetation, can be found at the UC Forest Products Laboratory web site at <[www.ucfpl.ucop.edu/fmizone.htm](http://www.ucfpl.ucop.edu/fmizone.htm)>. The DANR Richmond Field Station also hosts a demonstration house that provides first hand information on both structures and landscapes. The Diablo Fire Safe Council provides dynamic opportunities for ongoing collaboration. This non-profit group meets bimonthly to promote fire safety in Alameda and Contra Costa Counties (see <[www.diablofiresafe.org](http://www.diablofiresafe.org)> for their meeting schedule).

Whether you are involved in research, teaching, technology transfer, plant propagation, invasive species, design, installation or maintenance your participation is

desired in the October Firewise workshops. In addition to expanding your own knowledge, professionals in the green industry have important contributions to help our California communities become fire safe and stay out of the black.

For more information about the East Bay's October Workshop contact Amber Bach, Executive Coordinator Diablo Fire Safe Council at (510) 893-9888, e-mail: [amber@diablofiresafe.org](mailto:amber@diablofiresafe.org) or Cheryl Miller, Hills Emergency Forum at (510) 893-9888, email: [amphion@value.net](mailto:amphion@value.net).



*GIS-based computer models are used in the Firewise Communities Workshops to help participants analyze how factors such as infrastructure, land use, transportation and fuel loads contribute to fire hazards in the urban wildland interface.*

*Cheryl Miller, Registered Landscape Architect, is principal with the Oakland based planning and design firm of Amphion Environmental Inc. She was project manager for the development of the East Bay Hills Fire Hazard Mitigation and Fuel Management Plan; a FEMA funded model project completed in 1995 as a direct result of the 1991 Tunnel Fire in the Oakland-Berkeley Hills. She has provided staff support services to the Hills Emergency Forum since 1997. The firm also provides professional services to several Fire Safe Councils.*

*Kenneth S. Blonski is the Statewide Extension Advisor-Fire Mitigation and Program Advisor, University of California*

*Office of the President, Division of Agriculture and Natural Resources for the State-wide Urban-Wildland Interface (UWI) Fire Mitigation program. He is currently Co-chair for the Diablo Fire Safe Council and California Fire Safe Council. He also serves as a member of the State Fire Marshall's Urban Wildland Interface Building Standards Working Group. He was previously Deputy Director of Fire and Aviation Management for the USDA Forest Service R-5, after a 24-year career in various positions fighting wildland fires*

*throughout the nation.*

<sup>1</sup> Governor's Office of Research and Planning's new guidelines entitled "Hazard Mitigation: Fire Hazard Planning and the General Plan", see <[www.opr.ca.gov/publications/PDFs/HazardMitigation.pdf](http://www.opr.ca.gov/publications/PDFs/HazardMitigation.pdf)>.

<sup>2</sup> DMA 2000 guidelines published in the Federal Register, see <[www.fema.gov/txt/library/fr02-4321.txt](http://www.fema.gov/txt/library/fr02-4321.txt)>

<sup>3</sup> These model codes address structure components such as roofs, venting, windows, walls, eaves, and decks, as well the combined effects of vegetation hazards, see <[www.ucfpl.ucop.edu/Performance\\_codes/default.htm](http://www.ucfpl.ucop.edu/Performance_codes/default.htm)>. GP

## Rare Titan Arum Plant Blooms at UCD Botanical Conservatory

On June 9, 2003, the UCD Botanical Conservatory joined the privileged ranks of less than 20 plant institutions in the USA that have nurtured the world's largest "flower" into bloom. Commonly called the titan arum or "corpse flower", this eight-year-old specimen of *Amorphophallus titanum* was named "Ted the Titan" by conservatory staff. The opening of the flower, technically a spathe and spadix inflorescence measuring nearly four feet high, was a major event for the conservatory and drew over two thousand visitors during the brief, week-long bloom period. Countless others witnessed the event on the Internet thanks to a well-placed web cam that recorded the opening and fading of the giant flower.

Those lucky enough to visit Ted during the first hours of bloom were treated to the unique fragrance responsible for its common name of "corpse flower". Described as everything from rotting fish and dead rats to hot garbage and sweaty athletes, the flower's scent would normally attract flies and carrion-eating insects as pollinators in its native Sumatran rainforest habitat. As a pampered specimen in UCD's Botanical Conservatory, however, Ted drew new visitors to the facility, allowing curator Ernesto Sandoval to "get them excited about the world of plants".

Because the conservatory is also a research facility, several UCD plant scientists took advantage of the rare flowering event to gather data on this fascinating species. Temperature probes measured a peak of 91.5°F in the central spadix during the first hours of bloom. This heating is thought to trigger the release of the volatile chemicals responsible for Ted's aroma. Air samples were taken to analyze and identify the source of the stench. Castings of the surface of the spadix were made with dental impression paste in order to study the distribution of stomata under the scanning electron microscope to better understand the flower's ability to regulate heating and water loss.

Ted's flower was hand-pollinated by conservatory staff in the hopes of creating the next generation of titan arums. With the end of blooming, Ted returned to life as an underground corm the size of a basketball. Plants of this species can live up to forty years and spend several months each year underground. A single large leaf up to 12 feet tall is produced annually and only rarely does a colossal flower appear. UCD's Botanical Conservatory has three more mature titan arum plants that may bloom next year and four young plants being carefully cultivated for future flowering. For more information, visit <<http://greenhouse.ucdavis.edu/titan/>>.



*Ernesto Sandoval, curator of the UCD Botanical Conservatory, takes in the fragrance of Ted the Titan Arum during its bloom in early June. (Photo by Doug Walker, DBS)*

### Continued from page 1

most complete analysis of urban forest structure, function and value to date.

1995 – Sacramento Shade Evaluation of Tree Planting and Energy Conservation Potential. The study was funded by the Sacramento Municipal Utility District and the Sacramento Tree Foundation. It provided new data used to shift program goals from number of trees planted to present value of benefits trees produce, based on their location.

1996 – Sacramento State of the Urban Forest report and Sacramento Urban Forest Ecosystem Study. These initial research findings form the core of the Sacramento region's first shared vision for stewarding a sustainable urban forest.

1997 – Began researching the effects of tree shade on parking lot microclimate and evaporative hydrocarbon emissions in Davis. This research went on to evaluate ordinance compliance in Sacramento and calculate benefits foregone of \$2.2 million annually due to non-compliance. The study resulted in revised Sacramento and Davis ordinances, and new ordinances in Los Angeles and Salt Lake City.

1998 – Conducted field research that led to the Modesto municipal urban forest benefit-cost analysis and "Tree Guidelines for San Joaquin Valley Communities." Our Center partnered with the City of Modesto and the Local Government Commission to produce the first benefit/cost analysis for street and park trees and the first of three guides for California climate regions.

1999 – Carbon Dioxide Reductions Through Urban Forestry. This publication provides a step-by-step process for calculating carbon dioxide reductions and was the first method to include data on regional tree growth and mortality, carbon dioxide released by decomposition and tree maintenance practices, building characteristics, power plant emission factors, etc.

2000 – Published Proceedings of the Symposium on Strategies to Reduce Infrastructure Damage by Tree Roots. We partnered with UC Davis, the Western Chapter of the International Society of Arboriculture, practitioners, and researchers to define current knowledge in the field and identify future research needs.

2001 – We began research on a Computerized Decision Support Tool for Urban Watershed Management in Los Angeles. Initial funding was provided by the California Department of Forestry. We developed partnerships with TreePeople, Earthview Computing, and UC Davis to measure the effectiveness of residential Best Management Practices, develop numerical models, and create a web-based interface. It has evolved into ecoSmart Design Software.

2002 – We began development of STRATUM, a street tree benefit-cost analysis and management tool. The initial application was developed by Scott Maco with funding from the City of Davis and the California Department of Forestry for his UC Davis Master's thesis. The first version will be unveiled in the summer of 2003 with our partners in San Francisco.

2003 – The FireWise component of ecoSmart

was completed with funding from the National Fire Plan and partners/scientists at NIST and Earthview Computing. The interactive computer program allows users to assess the fire threat posed to a home by different configurations of trees and shrubs. Also, we are working with Oakland ReLeaf in the summer of 2003 with a \$300,000 CalFed grant to plant 1,800 trees to reduce runoff into San Francisco Bay.

### A Vision for the Next 10 Years

Our overall goals for the next ten years of work at the Center for Urban Forest Research revolve around making the urban forest "come alive" for those who live in it and developing an appreciation in our modern society of the value of urban trees. To realize this vision we will:

1. Refine our research on the benefits and costs of trees to increase the accuracy of estimates, broaden the scope of our green accounting and evaluate effects of trees on human health as well as the environment.

2. Develop science-based tools that professionals can use to quantify landscape performance of trees and meet sustainability and safety goals.

3. Conduct research and develop tools that allow urban forest managers to project impacts of funding decisions on future management and funding needs.

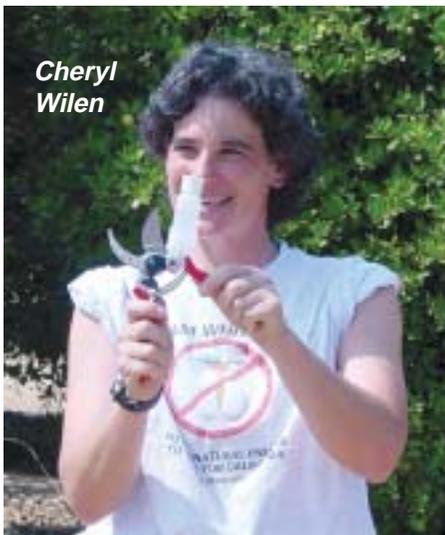
4. Provide technical assistance and research expertise for projects that demonstrate the human, environmental, social and economic health benefits of urban forests. <<http://cufr.ucdavis.edu>> **GP**

## Retail Education Days Sponsored by CANGC, UCCE, UCIPM and CCN Pro Set for August 2003

The California Association of Nurseries and Garden Centers (CANGC) and University of California Cooperative Extension (UCCE) will join forces with the UC Statewide Integrated Pest Management Program (UCIPM) and the California Certified Nursery Professional Program (CCN Pro) to present two educational conferences during the month of August. These annual "retail education days" were originally designed as advanced training for CCN Pros and Master Gardeners but have quickly grown in popularity to become valuable for anyone in the green industry looking for an intense day of education. Education days are offered twice a year, once in Northern and once in Southern California. The goal of these meetings is to provide an overview of current regional horticulture issues and management strategies.

### Northern California Program on "Healthy California Landscapes"

The Northern California conference will focus on "Healthy California Landscapes" and is scheduled for Thursday, August 14, 2003 at the Walter A. Buehler Alumni and Visitors Center, University of California, Davis. This event, set from 8 a.m. to 3:30 p.m., is co-



Cheryl Wilen

sponsored by CANGC, UCCE and UC IPM. Mary Louise Flint, director of IPM Education and Publications and UCCE entomologist at UC Davis, will begin with a presentation on "Residential Use of Pesticides in Northern California and Water Quality Issues: Results of a 2002-2003 Survey".

A series of breakout sessions (rotating one-hour sessions) will follow. A session on problem diagnosis including displays and hands-on diagnosis for insects, diseases, and other plant problems will be led by Steve Dreistadt, UC

IPM Program; Mario Moratorio, UCCE Yolo-Solano Counties; and Lynn Wunderlich, UCCE El Dorado County. Ellen Zagory and Ryan Deering of the UC Davis Arboretum will lead another session involving a tour of the UC Davis Arboretum with emphasis on native plants- their common problems and cultural practices to improve their health. A third session will involve a tour of the UC Davis Environmental Horticulture Department focusing on current research activities related to nursery and landscape plants and conducted by Richard Evans, UCCE Environmental Horticulture Specialist, UC Davis, and department staff and students. The final breakout session centers on irrigation issues in the landscape and for container plants. Larry Schwankl, UCCE Irrigation Specialist, UC Davis, and Loren Oki, UCCE Landscape Horticulture Specialist, UC Davis, will demonstrate irrigation equipment and methods for assessing water moisture in the landscape.

The afternoon will conclude with general presentations by Brian Kempf of the Urban Tree Foundation in Visalia, Calif. On "Selecting Quality Container Plants" and by Alison Stanton of BMP Ecosciences, South Lake Tahoe, and board member of the California Exotic Pest Plant Council on "Invasive Species in the Nursery".

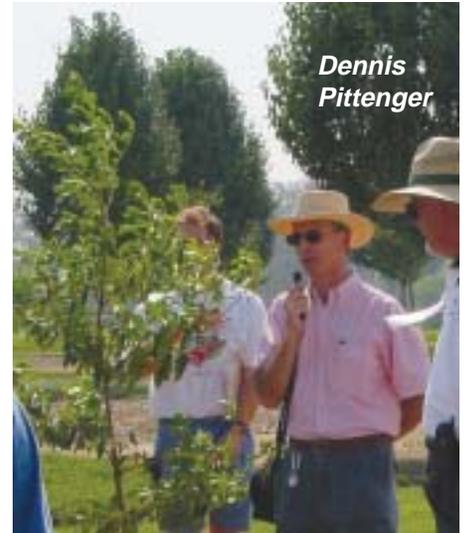
A continental breakfast, lunch, and afternoon refreshments will be provided. The agenda and registration form can be downloaded from the CANGC website: <[www.cangc.org/documents/dayNorthReg.pdf](http://www.cangc.org/documents/dayNorthReg.pdf)>.

Registration is \$75 for CCN Pros or Master Gardeners and general registration is \$85. Add \$10 to the registration fee if postmarked after August 2, 2003.

### Southern California Program on "Horticulture Training and Updates"

The Huntington Library, Art Collections and Botanical Gardens in San Marino will be the site for the Southern California retail education day co-sponsored by CANGC, UCCE and CCN Pro on Thursday, August 28 from 8:00 a.m. to 3:15 p.m. Darren Haver, UCCE Watershed Management Advisor for Orange and San Diego Counties, will start off the day with a presentation on "Reducing Fertilizers and Pesticides in Urban Runoff Water: What is a Retail Nursery's Role?"

Participants will then break into groups and rotate among three sessions. Donald Hodel, UCCE Environmental Horticulture Advisor for Los Angeles County will lead a tour of plant materials in the Huntington Botanical Gardens. Cheryl Wilen, UCCE Area IPM Advisor for the Central Coast and South Region will focus on "Implementing IPM in the Landscape and Gar-



Dennis Pittenger

den". "Landscape Water Conservation Strategies and Technologies" will be the topic of the final session led by Dennis Pittenger, UCCE Area Environmental Horticulture Advisor for the Central Coast and South Region.

The morning will conclude with a presentation on "Blueberries for Southern California" by Donald Merhaut, UCCE Nursery and Floriculture Specialist, UC Riverside.

The afternoon general session will begin with a presentation by Victor Gibeault, UCCE Turfgrass Specialist from UC Riverside, on "New Turfgrasses for Home Lawns". Janet Hartin, UCCE Environmental Horticulture Advisor for San Bernadino and Los Angeles Counties, will continue with "Diagnosing Abiotic Problems in Home Lawns". John Kabashima, UCCE Environmental Horticulture Advisor for Orange and Los Angeles Counties, will conclude the afternoon with his "Update on Important Landscape Insect Pests".

A continental breakfast, lunch, and afternoon refreshments will be provided. The agenda and registration form can be downloaded from the CANGC website <[www.cangc.org/documents/daySouthReg.pdf](http://www.cangc.org/documents/daySouthReg.pdf)>.

Registration is \$75 for CCN Pros or Master Gardeners and general registration is \$85. Add \$10 to the registration fee if postmarked after August 16, 2003.

### Continuing Education Units Available

Continuing Education Units (CEU) are applied for through various accredited organizations based on the current agenda, including but not limited to the California Dept. of Pesticide Regulation (CDPR), International Society of Arborists, the Golf Course Superintendents Association of America and the Society of American Foresters. Eight CEUs are available for CCN Pros for either education day. The sponsors have applied for CDPR/PCA hours. For more information, contact CANGC:

(800)748-6214 or <[www.cangc.org](http://www.cangc.org)> GP



## Notes From the Chair...by Heiner Lieth

Our annual reception for graduating students took place on June 13, 2003. Before devouring a huge carrot cake, we had the

opportunity to recognize their achievements and encourage them on their future endeavors. Among those honored was Nancy Sweet who received the gold cords to adorn her commencement robes indicating her graduation with Highest Honors (see photo).

On June 18, 2003, the EH Department and the California Ornamentals Research Federation (CORF) hosted a one-day conference on "Water Quality Management" for nurseries. The meeting was well attended by growers and representatives of allied industries. The morning session featured presentations on evaluating irrigation water quality, sand filtration systems, reverse osmosis and other membrane filtration systems, drainage water recirculating systems and control of pathogens in recirculating systems. During the afternoon, participants toured **Hines Nursery** and **Four Winds Nursery** in nearby Winters (see photo).



*Nancy Sweet receives the golden cords to wear with her commencement robes for graduating with Highest Honors.*

The Superior Chapter of the **California Association of Nurseries and Garden Centers (CANGC)** held their June meeting at the EH Department featuring a barbecue. This was a valuable opportunity for students, staff and faculty to interact with local nursery representatives.

### Student Achievements

An article co-authored by **Fabrice de Clerck**, geography graduate student working with **Michael Barbour**, was featured as the cover

story in the **April/June issue of California Agriculture**. Entitled "Looking back 60 years, California soils maintain overall chemical quality", the authors compared archival soil samples collected in 1945 with samples from the same locations collected in 2001. Although the chemical quality of California soils has not decreased significantly, increased clay percentages in recent samples may be interpreted as a sign of accelerated erosion.

**Kimberly Hunter**, who worked with **Lin Wu** and received a double MS in Horticulture & Agronomy and International Agricultural Development in Fall 2002, was selected for the **Presidential Management Intern Program (PMI)**. This program, established by Executive Order in 1977, attracts to the Federal service outstanding individuals from a wide variety of academic disciplines who have an interest in, and commitment to, a career in the analysis and management of public policies and programs.

Two EHUF undergraduate students, **Robyn Conley** and **Kristin Dzurella**, received **Ellen C. Thomason Scholarships** for the 2003-2004 academic year. The awards ranged from \$1,000 to \$2,000.

The scholarship was established in memory of **Ellen C. Thomason**, a resident of Davis from 1927 to 1957, who had a love of gardening.

Six EH graduate students were awarded **John and Terry Kubota Scholarships**. In 1984, after a 32-year career as a Staff Research Associate in EH, John established a scholarship "in recognition of the encouragement scholarships can provide to outstanding students". This year's awards ranged from \$500 to \$1,400, and went to **Jennifer Buck**, **Neil Mattson**, **Joshua Meidav**, **Alice Warrick**, **Steve Wathen**, and **Jeanne Wiltberger**.

During August 11 to 24, a group of graduate and undergraduate students will be touring horticultural research and industry sites in Germany. I am leading this group in conjunction with **Prof Fritz-Gerald Schroeder** at the University of Applied Sciences in Dresden. The German Academic Exchange Service (DAAD) is providing some financial support that amounts to most of the local costs in Germany. The tour starts in Dresden and makes a large loop through Germany, going as far south as Munich and the "story-book castle" at Neuschwanstein, back north along the Rhein River to inspect viticultural interests. Then we will travel via Hannover to Berlin.

Some of us will be staying in Berlin for an **International Society for Horticultural Sciences** conference on "Models for Plant Growth and Control of Product Quality in Horticultural Production".

### Faculty Activities and Visiting Scientists

**Michael Reid** is the recipient of the 2003 **Alex Laurie Award for Research and Education** given by the **Society of American Florists**. He is being recognized for his broad-scope,



*Participants in the CORF Water Quality Management conference tour the water recycling facility at Hines Nursery, Winters.*

long-lasting contributions to research and education in the floriculture industry. Congratulations, Mike!

**Truman Young** will spend the month of August at the **Mpala Research Centre** in Kenya. He will continue working on a long-term experiment determining the effects of large animal grazing on an arid savanna ecosystem.

We are honored to have a number of visiting scientists coming to UC Davis. **Dr Wan Soon Kim** will be returning to the department for a 6-month visit. He and I are collaborating on a hydroponics research project funded by his organization, the Rural Development Administration in South Korea. In August, **Dr Byoung Ryong Jeong**, Professor of Horticulture at Gyeongsang National University (GSNU) in Chinju, South Korea will join me to work on a collaborative project on greenhouse flower crops.

### Staff News

**Robin Williams**, computer programmer in **Dave Neale's** research group, gave birth to a baby girl, **Shannon Joy Jackson**, on April 28, 2003. Dad **Anthony Jackson** was reportedly shaky but happy.

**Garth Brown**, a researcher also in **Dave Neale's** group, and wife, **Kim Marshall**, welcomed a baby boy, **Mason Marshall Brown**, on June 11, 2003. Garth swears the most often overheard comment in the hospital was: "Oh my, that is the most beautiful baby I've ever seen!" **GP**

# **STRATUM: Street Tree Resource Analysis Tool for Urban Forest Management** *from the Center for Urban Forest Research*

STRATUM-Street Tree Resource Analysis Tool for Urban forest Managers-is an easy to use, computer-based tool that enables any community to conduct a street tree assessment that fosters community support in their program, secures funding, and provides baseline data that can be used to effectively manage the resource.

Utilizing a rapid sample inventory technique or an existing inventory of street trees, this software allows managers to evaluate current benefits, costs, and management needs.

## **Who should use STRATUM?**

STRATUM was developed for urban foresters, arborists, non-profit tree organizations, landscape architects and contractors, planners, environmental consultants, and anyone else with a vested interest in their community's urban forest.

Scientists at the Center for Urban Forest Research in Davis, CA, have customized this product for each of the eight distinct climate regions that comprise the 17 western states based on regional tree growth models and default regional costs and benefits. Users import data collected in a sample or complete inventory and input community specific information (e.g., program management costs, city population, and price of residential electricity) to customize the benefit-cost data.

STRATUM uses this information to calculate the resource's structure (species composition, extent and diversity), function (the environmental & aesthetic benefits trees afford the community), value (the annual monetary value of the benefits provided and costs accrued) and resource management needs (evaluations of diversity, canopy cover, and pruning needs). Reporting consists of graphs, charts, and tables that managers can use to legitimize funding, create program enthusiasm & investment, and promote sound decision making.

With STRATUM, users can answer the most important question related to their tree program: Do the accrued benefits of street trees outweigh their management costs? In addition, STRATUM will aid managers in improving the return on their investment dollar. For example, STRATUM will help managers determine what kind of trees should be

planted to maximize canopy cover and benefits that are important to their community.

## **How does STRATUM work?**

STRATUM utilizes growth curves modeled by US Forest Service scientists for significant urban tree species within each of eight different climate zones in the western U.S., along with other regionally specific data: regional climate data, building construction and energy use patterns, fuel mix for energy production, and air pollutant concentrations. This information is used to model the environmental benefits and costs as well as effects on property value.

After the user imports their sample or full inventory, STRATUM calculates the structure of the resource, net annual benefits and costs, and indicators of management sustainability. Reports compare canopy cover for different neighborhoods, species diversity, conflicts with powerlines and sidewalks, and species performance. Users can choose charts and histograms that display results at the city or neighborhood level, by tree type or species.

## **What if our city doesn't have an inventory?**

STRATUM was designed to incorporate an existing street tree database where DBH (diameter at breast height) size classes are present for each tree. However, for communities without inventories, a methodology for conducting an accurate ( $\pm 10\%$ ) sample inventory is presented. The method was designed to be rapid, with a minimal input of time and investment. Using a team of two paid personnel or volunteers, experience has demonstrated that this technique can be completed-from start to finish- within six weeks. Cities that choose to employ this rapid sampling method will possess all the data needed to utilize the full capabilities of STRATUM.

## **What makes STRATUM different?**

STRATUM differs from other urban forest analysis software in many ways. STRA-



*The benefits trees provide depend on their location as well as species, size and health.*

TUM is designed for analyzing street tree populations, not the entire urban forest. As such, it is intended to be utilized as a management tool, going beyond the display of benefits accrued and forgone. Costs of management-rather than benefits alone-are incorporated to provide a platform for strategic planting. STRATUM is not GIS-based, requiring only basic inventory data. State of the art research provides a scientific underpinning for STRATUM's economic reports-the benefits and environmental costs of maintaining street trees comes from exhaustive field research and laboratory modeling for each of the eight climate zones.

Simply, STRATUM functions as a resource management tool to assist managers in developing policy, setting priorities and making decisions.

## **How can I get STRATUM software?**

STRATUM software is currently being produced as an addendum to the Center for Urban Forest Research's Community Tree Guide series and is available for Microsoft Windows compatible systems that include Microsoft Access and Excel.

Conducted by the Center, a two-day annual STRATUM training seminar is provided to interested parties; call 530-752-7636 for dates and location or log on to: <http://cufr.ucdavis.edu>. GP

## Update on Sudden Oak Death

Past articles on SOD can be found in the Spring/Summer 2000 and Spring 2001 issues of *Growing Points*

As of June 2003, the California Oak Mortality Task Force (COMTF) has identified several more hosts of *Phytophthora ramorum*, the pathogen responsible for the disease now known as "Sudden Oak Death" (SOD). Formed in August 2000, the COMTF is a coalition of the California Forest Pest Council (CFPC), the California Department of Forestry and Fire Protection (CDF), research and educational institutions, public agencies, non-profit organizations, and private interests who are addressing this new threat to California's wildlands. The group coordinates research, management, monitoring, education, and public policy efforts regarding this exotic plant disease.

In two Oregon locations during the latter half of 2002, *P. ramorum* was isolated from poison oak (*Rhus diversiloba*) showing symptoms of bleeding bark and from salmonberry (*Rubus spectabilis*) exhibiting necrotic leaf lesions. In January 2003, grand fir (*Abies grandis*) in the Santa Cruz Mountains of Santa Clara County tested positive for the SOD pathogen isolated from dying twigs and small stems.

Recent inspections during April and May 2003 have detected *P. ramorum* in four California nurseries. *Camellia sasanqua* 'Bonanza' in a Stanislaus County nursery tested positive although the variety had been propagated on site for 10 years. 1700 plants were incinerated as well as all other known host plants within 3 meters of the infected plants. The same variety of camellia tested positive for *P. ramorum* in a

Santa Cruz County nursery. The plant had been shipped from Stanislaus County. A rhododendron shipped from a Santa Cruz County nursery to a nursery in Alameda County was found to be infected and was destroyed along with other rhododendrons and camellias in the same shipment. The first report of *Phytophthora ramorum* on *Camellia japonica* and *Viburnum tinus* in the U.S. came from a nursery in Marin County, located in a generally infested area. The portion of the holding area where the symptomatic plants were detected is adjacent to a stand of *Phytophthora ramorum*-infected California bay laurel trees. According to California Department of Food and Agriculture protocol, the affected nurseries will be placed under permit restricting their sales to the regulated area and the infestations will be delimited and eradicated.

Meanwhile, the United Kingdom has recorded 264 *Phytophthora ramorum* outbreaks on rhododendron (7 species), viburnum (11 species), *Camellia japonica*, *Kalmia latifolia*, *Pieris japonica*, *Pieris formosa forestii*, *Arbutus*, and *Syringa*. Some of the findings have been in large gardens open to the public and associated with plant nurseries or garden centers. An intensive survey is ongoing.

The current goals of the California Oak Mortality Task Force are to minimize pathogen spread, provide management strategies and information to sustain California forests, and promote public safety. In addition, the group seeks to further the understanding of Sudden Oak



*Symptoms of Phytophthora ramorum infection on leaves of Camellia japonica found at a nursery in Marin County. (Photo by Cheryl Blomquist, CDFA)*

Death, *Phytophthora ramorum*, associated organisms, and environmental factors that contribute to tree and plant mortality, as well as to identify ecological impacts. COMTF is also charged with planning and coordinating a sustained Sudden Oak Death program for California. This program includes guidance for individuals, agencies and businesses on how to prevent pathogen establishment and spread, how to recognize symptoms, practice proper sanitation, and how to maintain public safety in infested areas. For more information, visit the COMTF website: <[www.suddenoakdeath.org](http://www.suddenoakdeath.org)>



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