



Branching Out

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Our mission is to inspire people of our region to understand the importance of the urban forest through education and training, volunteer citizen forestry, planting and stewardship, and community partnerships.

Branching out is
Designed by Ruth Williams
Edited by Mike Ozonoff and Shelley Gardner
Sponsored by California ReLeaf



Owen Ross checks a young *Paulownia* tree for structural stability. Will there be enough trees shading Davis when Owen grows up? See Pg 3.

How Trees Clean Our Air

It's official, summer is here and Spare-the-Air days are just around the corner. As the Sacramento Valley air becomes more polluted and less healthy for sensitive groups, let's take a look at how trees help filter out pollutants and improve our air quality. The USDA Forest Service, Center for Urban Forest Research, located on the UC Davis Campus, has studied this complex issue. Here is what they report about trees and air quality:

Trees provide air quality benefits in five ways

- Absorbing gaseous pollutants (e.g., Ozone (O₃), nitrogen oxides [NO_x], and sulfur dioxide [SO₂]) through leaf surfaces.
- Intercepting particulate matter (e.g., dust, ash, pollen, and smoke) on plant surfaces.
- Releasing oxygen through photosynthesis.
- Transpiring water and shading building surfaces and paving, which lowers local air temperatures, thereby reducing ozone levels.
- Reducing evaporative hydrocarbon emissions from parked vehicles.

Trees clean the air we breathe by converting carbon Dioxide to oxygen as a byproduct of photosynthesis. Net annual oxygen production varies, depending on tree species, size, health, and location. For example, a healthy 32-foot tall ash tree produces about 260 pounds of oxygen annually. A typical person consumes 386 pounds of oxygen per year. Therefore, two medium-sized, healthy ash trees can supply the oxygen required for one person over the course of a year.

The amount of gaseous pollutants and particulates removed by trees depends on tree size and architecture, as well as local meteorology and pollutant concentrations. Uptake rates are high when pollutant concentrations and leaf surface areas are high.

Human activities, primarily fossil-fuel consumption, are adding greenhouse gases to the atmosphere, resulting in gradual temperature changes. This warming is expected to have a number of adverse effects. With 50 to 70 percent of the world's population living in coastal areas, a predicted sea level rise of 6 to 37 inches could be disastrous.

Trees have been recognized as important storage sites for carbon dioxide (CO₂), the primary greenhouse gas (Nowak and Crane 2002). At the same time, private markets dedicated to economically reducing CO₂ emissions are emerging (McHale 2003). Carbon credits are trading for \$0.11 to \$20 per metric ton, while the cost for a tree planting project in Arizona was \$19/metric ton (McPherson and Simpson 1999). As carbon reductions become accredited and prices rise, carbon credit markets could become monetary resources for community tree programs.

Principal Carbon Dioxide Reduction Benefits of Trees

Urban trees reduce atmospheric CO₂ in two ways:

- Trees directly sequester CO₂ as woody and foliar biomass while they grow.
- Trees near buildings can reduce the demand for heating and air conditioning, thereby reducing emissions associated with electric power production.

As an example of what is happening in one region, Sacramento, California's six million trees remove approximately 335 thousand tons of atmospheric CO₂ annually, with a value of approximately \$3.3 million (McPherson 1998). Of the total amount removed, 76 percent is sequestered and 24 percent is from avoided power plant emissions. Carbon dioxide released by tree care activities is only 3 percent of the total sequestered and avoided annually.

The key point is that the carbon dioxide reduction by Sacramento's trees offset only 1.8 percent of total CO₂ emitted annually as a byproduct of human activity. This offset could be substantially increased by ensuring that tree planting, care, and preservation are an integral part of planning decision making, improving the strategic planting of trees to conserve energy, and committing to long-term stewardship of trees that maximizes future energy savings from new tree plantings.

Trees absorb gaseous pollutants, retain particles on their surfaces, and release oxygen and volatile organic compounds. By cooling urban heat islands and shading parked cars they can reduce ozone formation.

In urban areas, perhaps the greatest benefit from trees is the role they play in reducing the impacts of parking lots. Parking lots occupy about 10 percent of the land in our cities. They act as miniature heat islands and are sources of motor vehicle pollutants. By shading cars and lowering parking lot temperatures, trees can reduce evaporative emissions of hydrocarbons (HC) that leak from fuel tanks and hoses (Scott et al. 1999). HC emissions are involved in O₃ formation; parked cars contribute 15 to 20 percent of total motor vehicle HC emissions. Parking lot tree planting is one practical strategy communities can use to meet and sustain mandated air quality standards.

By Greg McPherson and Jim Geiger

Tomorrow's Trees

Many Davis residents look around and think our urban tree canopy looks pretty good. We have a lot of shade trees here in town, and we do a pretty good job replacing trees as they are removed. In some areas, however, our efforts are not enough to ensure adequate canopy cover 20 years from now. In partnership with the City of Davis, TREE Davis is looking to focus on a few areas where we are not planting enough trees for our future.

Downtown: The downtown environment is stressful for a young tree. Vandalism, soil compaction, soil pollution from vehicular traffic, and careless drivers damage trees. These factors weaken trees' immune systems, making them more susceptible to disease and untimely death. Removing and replacing soil in some tree wells before replanting will improve retention of young downtown trees.

Parking Lots: For many of the same reasons, parking lot trees tend to have a high mortality rate early in life. Some property owners have a love-hate relationship with their trees, appreciating the shade, but concerned by tree maintenance costs. By educating property managers and providing tree planting assistance, we can increase canopy cover, and coincidentally reduce the city's heat island effect.

New Neighborhoods: Proper pruning in the first and fifth years of a tree's life are the basis for future structural stability. In 2005 Tree Davis will be visiting neighborhood associations to teach residents proper pruning and leading groups of volunteers to prune young trees for structure and strength.

Summer Watering Tips

Do Your Trees Need Water?

Adapted from The Sacramento Tree Foundation Web site: www.sactree.com

The hot, dry summer months can be difficult for young and newly planted trees. Even some mature trees can show signs of stress during this period. Sometimes it's hard to know if a tree needs water or if it is suffering from too much water.

A young or newly planted tree may wilt during really hot weather, because its root system may not be able to supply enough water yet for the leaves. Always check the soil by digging down at least a foot with a shovel. Is the soil moist like a wrung out sponge (just right), dry or crumbly (needs water), or like mud pies (too much water)? Even with soggy wet soil, a young tree may not have an extensive enough root system to supply the leaves with moisture during the heat of the day. Watering more could rot the roots and produce the same wilting symptoms.

A tree may develop some yellow or discolored leaves or even drop leaves during the summer months. You can be confident the tree is not dying if it has new buds, is producing new growth, or appears green when the bark is lightly scraped.

Lawns can withstand the supersaturated soil conditions created with everyday watering, but trees need to have oxygen in the soil for healthy roots and foliage. If you water daily, your tree may be getting too much water!

Don't forget established or mature trees, Many trees that are native to cool, moist climates or regions that receive summer rainfall need a deep watering every few weeks in our climate.

Wise Watering

Young trees should be watered deeply and slowly, at least 10 gallons at a time, by placing a hose near the trunk and letting it trickle all day or night. Keep the root ball moist, but be careful not to over-water. Deep watering every three to seven days is usually sufficient, depending on soil conditions.

Meet our Board of Directors:

New officers were elected at our April annual meeting and several new board members have been appointed. TREE Davis Board Members are committed to inspiring urban forest stewardship in our community.

Welcome New Board Members!

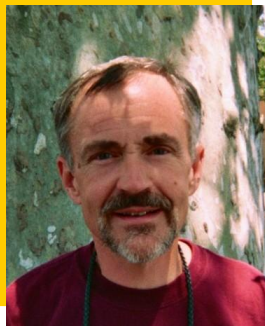
Shelley Gardner

Shelley is an Urban Forester at the Center for Urban Forest Research at UCD. Her areas of expertise are urban forestry, marketing, forest ecology and forest recreation and resource management. She is the publications committee chair. Shelley's other volunteer activities include California Native Plant Society and U.S. Dogue de Bordeaux Rescue.



David Robinson

David has a long-term interest in horticultural issues as well as the trees of Davis. He has served on the City of Davis Tree Commission since 1986, and enjoys gardening and genealogy. His experience as a small business owner and long-time Tree Commissioner will be assets to TREE Davis. David is the chair of the Fundraising Committee.



Rob Cain

As the City Arborist, Rob has an inside perspective on how we can most effectively strengthen our urban forest. A logical choice to strengthen our communication and partnership with the City of Davis, Rob joined the board in March. He enjoys spending time with his wife and three children.



Bruce Berry

A certified Arborist with over 20 years of experience, Bruce looks forward to helping to teach pruning clinics and participate in elementary school outreach. He also enjoys playing basketball and soccer and back-packing in the Trinity Alps.



Mike Ozonoff, President
Community Member

Phil Kitchen, Vice President
Owner, Three Palms Nursery

Bette Bowen, Treasurer
Tax Exempt Internal Revenue Agent

Dee Johnson, Secretary
Staff Research Associate, UC Davis

Vashek Cervinka
Agricultural Engineer, California
Department of Water Resources

Edith Vermeij
Staff Research Associate, UC Davis

Shelley Gardner
Urban Forester, Center for Urban
Forest Research, USDA Forest Service

Bruce Berry
Certified Arborist, Owner,
Trinity Tree Service

David B. Robinson
Owner, Aspen Pest Management

Rob Cain
Certified Arborist, City of Davis

Thank You California ReLeaf!

TREE Davis is pleased to accept a substantial grant from California ReLeaf to revitalize our education and outreach program.

Components include:

- **Lots of Shade** — Increased parking lot shade monitoring and property owner education
- **Technolo-tree** — Elementary and secondary school tree education incorporating GPS technology with writing and science activities
- **A fresh new look** for our newsletter and other publications

Wish List

TREE Davis would find the following items very useful for continuing our stewardship of our urban forest. If you would like to donate, please call us at 758-7337:

- Board Room Table
- Digital Camera
- DBH Tape Measures
- LCD or DLP Projector
- Pick-Up Truck

Programs

New and Renewing Members

Members make our programs possible.

Tree planting — Since 1992, TREE Davis has planted over 7000 trees in Davis parks, greenbelts, city streets, and local wildlife areas. We provide volunteers, tools, and planting facilitation in partnership with the City of Davis.

Small Tree Partnership — We partner with the City of Davis to involve citizens in the planting and maintenance of city street trees for strong, healthy structure and form.

Honorary Tree Program — Trees are planted throughout designated city parks and greenbelts in honor of individuals or organizations. These trees not only foster the growth of the urban forest, but they are lasting gifts to the community.

Trees for Tomorrow — Offers educational programs and shade tree grants to schools and childcare centers.

Parking Lot Shade Enhancement — We monitor privately-owned parking lots for shade ordinance compliance and provide assistance to landowners to enhance their parking lot shade.

Landmark Tree Walk — A guided tour of downtown Davis that highlights and showcases the largest and most historically significant trees.

Giving Tree

Mr. & Mrs. W. E. Howard
M. Induni
Howard & Georgina Kratzer
Sarah Mungas
Georgie Waugh
Ms. Marlene Dunaway
Jim Alford
Paul and Linda Baumann
B. & D. Bodenhorn
Mark Drabkin
Jim Harding
Mr. Milton Hildebrand
Alfred Hollmann
Dr. & Mrs. Ronald C. Jensen
Mary Ann & Victor Jung
Ms. Marjorie March
David Neale
Eric & Channa Roe

Grove

John and Christine Bruhn
Richard J. Frost
Patrick & Susie Hunt
Marian & Scott Keene
Mary Ann Morris
Walter & Barbara Sherwood
Dr. & Mrs. Norman Tresser
Judith J. Wydick

Landmark

Ms. Janet Balcom
Geyne Crispi
Nancy Heistand & Dean Vogel
Romeo R. Favreau
Sandy & Kelly Harcourt
Phil Kitchen
Bryan Levin
Linda & Peter Lindert
Mike & Carlene Ozonoff
Margot Anderson, Landscape Architect

Heritage

Mr. David H. Adams
Mr. & Mrs. Robert C. Laben
Kay & Wilson Smith

Oak Leaf Partners

B. Hart
Laura Hofmeister
Lois Wolk

Spring Honorary Trees were planted for:

Edla Reynolds Miller
Herschel Leon Turner
Susan Nelson-Kluk

For Information about Honorary
Trees, Please Call 758-7337.



*A special thanks to
Kendra Smith who used
her Bat Mitzvah as an
opportunity to contribute
to TREE Davis!*



I ♥ Trees!

And I want to join TREE Davis

Membership Categories

- Giving Tree.....\$25
- Grove (Family).....\$35
- Landmark.....\$50
- Heritage.....\$100 or more
- Oak Leaf Partner.....\$500 each year
for three years

Name _____

Address _____

Phone _____

Email _____

- I prefer to receive correspondence by email.
- Please do not send a thank you gift, I prefer my entire donation to benefit tree stewardship efforts.

Mail to:
TREE Davis
P O Box 72053
Davis, CA
95617

Membership Benefits:

TREE Davis appreciates its members and donors. Membership benefits include a one-year newsletter subscription, special invitations and discounts to TREE Davis events, and thank you gifts in the following categories:

\$25.....TREE Davis Bumper sticker

\$35.....Set of five elegant note cards featuring Davis trees

\$50+ TREE Davis Tote Bag

*If you are giving a membership as a gift, please send us name and address of the recipient and we will send them a membership gift in your name.



TREE Davis
P.O. Box 72053
Davis, CA 95617

(530) 758-7337
treedavis@dcn.org
www.treedavis.org

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