# 34th Annual Desert Horticulture Conference
# May 9, 2025

## SPEAKER ABSTRACTS AND BIOS

## PLANTS AND DESIGN

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**Changing Phenology in a Warmer Climate**
Dr. Theresa Crimmins, USA National Phenology Network

The timing of life cycle events such as leaf-out, flowering, and fruit ripening is directly shaped by recent conditions including temperature, daylength, and precipitation. Here in Arizona, plants implement a variety of tactics to buffer themselves from highly variable conditions. Even so, recent shifts in climate conditions are affecting when plants undergo seasonal events. Carefully recording when individual species exhibit various developmental stages is key to understanding how populations may be affected under continuing climate change. In this presentation, I will share what we know about plant phenology in the southwest as well as how we can expand that understanding.

**Theresa Crimmins** is the Director for the USA National Phenology Network and works enthusiastically to support growth in *Nature's Notebook* and a broader appreciation of phenology among scientists and non-scientists alike. Theresa is also an Associate Professor in the School of Natural Resources and the Environment at the University of Arizona and has published over 70 peer-reviewed articles and book chapters in journals including *Nature, Geophysical Research Letters, Global Change Biology,* and *Journal of Ecology*. Her writing has appeared in *Scientific American, The Hill, Eos, Nautilus, Popular Science,* and the *Arizona Daily Star*, and she has had several appearances on NPR as well as PBS, The Weather Channel, and Fox Weather. In 2022, she was recognized by the University of Arizona as a Woman of Impact. Her book, *Phenology*, came out in spring 2025.

**The Future of Landscape Maintenance: A Smarter, More Natural Approach**
Wendy Proud, Kinship League

For decades, landscape maintenance has been defined by rigid schedules, frequent interventions, and a constant push to keep things under control. In this talk, Wendy Proud introduces a transformative approach to landscape maintenance—one that reduces labor, saves resources, and allows plants to flourish by working with nature rather than against it. By aligning maintenance with natural cycles and the seasons rather than arbitrary schedules, we can create landscapes that are more resilient, biodiverse, and deeply engaging. Attendees will learn how to shift from maintenance-heavy landscapes to dynamic, self-sustaining environments—while gaining practical strategies to reduce over-maintenance, enhance plant vitality, and cultivate spaces that invite deeper human connection for all. Join Wendy in rethinking landscape care.

**Wendy Proud** has worked in the nursery industry for over 35 years. She earned an ornamental horticulture degree from Cal Poly, Pomona, worked at Monrovia as a sales rep, plant manager and grower. She created stunning container plantings at Southern California's famed Roger's Gardens, where she launched a monthly seminar series and hosted a weekly cable TV show. Wendy's business experience includes ownership of the landscape design and installation company Proud Murphy and Proud Plant Sales. She is the founder of the

Kinship League, educating and helping all levels of plant care professionals to plant enthusiasts alike about the important relationship between proper plant maintenance and the human connection to an outdoor space. Wendy has been featured in *Sunset, San Diego Home & Garden*, and *DIY Home & Garden Network.* She is a past president of the Los Angeles chapter of the California Association of Nurseries and Garden Centers.

**Tree Blowdown**
Expert Panel: Juan Barba, Juan Barba and Assoc., Dave Herman, Town of Marana, and Nick Shipley, Civano Growers

Panelists will discuss the damage past storms have caused to trees in desert landscapes ranging from branch damage to major casualties of trees. Aspects of plant quality at the time of transplanting, including the structure of root systems, soil volume for future root growth, and desired above ground traits of transplants will be reviewed. Trees in the landscape can be predisposed to storm throw based on their root growth, soil, and irrigation; potential interventions can improve the rootzone environment and increase the stability of trees in a storm. Landscape damage issues and observations as well as specific site concerns will be shared.

**Juan Barba** graduated from the University of Arizona with a BS in Landscape & Environmental Horticulture. He is an ISA Certified Arborist and Consulting Arborist and practiced in and instructed all facets of arboricultural and horticultural care. He is a past president of Western Chapter, ISA, and former chair of Trees for Tucson. He supported ACTC tree climbing championships and contributed to the magazine Southwest Trees & Turf.

**Dave Herman** is with the Parks Department of the Town of Marana. He is a graduate of Rutgers Professional Golf Turf Management Program and worked in the golf industry for 35 years. His professional qualifications include Certified Golf Course Superintendent, ISA Certified Arborist, and Urban Forest Professional with Tree Risk Assessment Qualification. His employment includes Landscape Manager at the University of Arizona Grounds, Superintendent and now Project Specialist / Staff Training & Certifications for The Town of Marana.

**Nick Shipley** co-owns Civano Growers in Tucson, Arizona, and has been the Chief Operations and Grow Officer since 2014. He previously worked as Reclamation Manager overseeing the salvage of native trees and cacti from land slated for development. Nick has patented over 25 arid-adapted landscape plants, and introduced numerous hardy cultivars. He has been an ISA-certified Arborist since 1998. Nick is dedicated to improving the Southwest urban landscape by introducing beautiful, pollinator-friendly, resilient plants.

**Water Requirements and Cooling Potential of Vines**
Dr. Ursula Schuch, UA Plant Sciences

Vines can provide an option for shade or a screen in areas without sufficient space for trees. This presentation will discuss the results of a 2024 study where vines grown in the low desert of Arizona were irrigated with three levels of irrigation. The cooling potential of different species depends on their growth rate, coverage of the trellis, the ability to function during high temperatures, and tolerance to insect and disease pressure. The audience will learn about vines suitable for low water use landscapes and those thriving with medium irrigation.

**Dr. Ursula Schuch** is a University of Arizona Extension Specialist and Professor with responsibility in environmental horticulture. She presents seminars and workshops for professionals in the green industry and conducts research to address relevant issues in horticulture production practices and landscape management. Her research interests include irrigation requirements of trees and shrubs, abiotic stress affecting landscape and other plants, and minimizing inputs in nursery production and landscape management.

**New Succulent Creations: New Cultivars of Adenium, Aloe and Agave**
Michael Chamberland, Maricopa County Cooperative Extension

New succulents of hybrid origin are becoming available and attracting attention for those with an eye for new standout introductions. Fantasy aloes, hybrid Adeniums, and Mangaves - what is the origin of these new plants? How are they suited for our climate? What's up with the names on these plants? Are they patented? Learn how to use these new succulent creations!

**Michael Chamberland** is the Assistant Agent for Urban Horticulture with the University of Arizona Maricopa County Cooperative Extension. His career has involved years of experience with curation and management of living plant collections at botanical gardens, including the Desert Botanical Garden, Cheekwood Estate & Gardens in Nashville Tennessee, the U.S. National Arboretum in Washington DC, as well as the Tucson Botanical Gardens. His training and education in botany led to nearly a decade working in University Herbaria in Arizona and Michigan.

**Growing Shrubs in Containers**
Noelle Johnson, AZ Plant Lady and Carianne Funicelli, Strategic Habitats

Container gardening is one of the most popular ways people like to grow plants and with good reason. It allows you to grow plants in limited spaces and create ideal conditions for them to flourish while adding beauty to the landscape. However, instead of planting thirsty, high-maintenance annuals, consider replacing them with attractive shrubs. Carrianne Campbell of Strategic Habitats and Noelle Johnson, aka 'AZ Plant Lady', will share why they have ditched flowering annuals and embraced growing shrubs in containers - they require less water, fertilizer, and maintenance. In this presentation, you'll learn how to create ideal microclimates, the best types of containers and soil types, and the best pruning, fertilizing, and watering practices. Carianne and Noelle will inspire you to plant shrubs in your containers by sharing their favorites.

**Noelle Johnson** is an author, horticulturist, and landscape consultant. Noelle is the author of the new book The Water-Smart Garden and the award-winning book The Dry Climate Garden. Her work has appeared on CNN, NPR, PBS, and Martha Stewart Living. Popularly known as "AZ Plant Lady," Noelle serves on the innovation board of Arizona Wholesale Growers and works alongside the Water Use It Wisely campaign. Her passion and goal are to teach and inspire desert-dwellers with the tools to grow and maintain beautiful gardens that thrive in a hot, dry climate.

**Carianne Funicelli** is a well-known advocate for native plant conservation and restoration and has conducted projects large and small throughout the southwest region, both in wild areas and urban landscapes. She has worked in the government, business, and non-profit sectors over the past 25 years. Now with her own consulting firm, Strategic Habitat Enhancements (SHE), Carianne helps clients bring nature to their yards with strategic native plant choices.

# PLANT HEALTH

**TRACK SPONSOR** College of Agriculture, Life & Environmental Sciences

**Pesticide Accidents, Analysis and Lessons Learned**
Brian Kennedy, Arizona Department of Agriculture

The Arizona Department of Agriculture – Pest Management Division (PMD) is the state agency that regulates Arizona's non-agricultural pest control industry. Whether pesticides are an integral part of your business or not, understanding how the PMD may impact your business is important to anyone in the pest control and landscaping industries. Through a series of case studies, Brian will examine ways others have come to know the PMD under less-than-ideal circumstances, so you can avoid doing the same. Brian will also briefly discuss options for those attendees that would like to employ the use of herbicides in their business but need more information on the legalities of doing so.

**Brian Kennedy** has been with the Arizona Department of Agriculture (AZDA) Pest Management Division (formerly Structural Pest Control Commission and Office of Pest Management) for 28 years. He currently serves as the program's Compliance Supervisor, overseeing a team of six compliance inspectors. In addition to his work with the AZDA, Brian serves on several committees with the Association of Structural Pest Control Regulatory Officials (ASPCRO). He holds a B.S. in Environmental Science with a Biology emphasis from Northern Arizona University.

**Physiology of Heat and Drought Stress in Trees and their Management**
Dr. Ursula Schuch, UA School of Plant Sciences

This presentation will cover how desert-adapted trees respond to heat and drought stress, their coping mechanisms, consequences of prolonged heat and drought, and potential subsequent risks of insects or disease intrusion. Strategies for managing and mitigating these stress conditions and biotic impacts to preserve tree health will be addressed. We will learn about preventative and acute interventions to maintain optimum tree health for desert-adapted trees.

**Common and Emerging Infectious Diseases Threatening Urban Trees**
Dr. Alex Hu, UA Plant Sciences

Each year, my plant diagnostic laboratory identifies sooty canker, Phytophthora crown and root rot, and cotton root rot as top-ranking diseases that affected and killed numerous tree species in AZ landscapes and home yards. In December 2024, citrus greening disease (HLB) was first confirmed in Nogales, Arizona. This talk will provide in-depth information on disease symptoms, diagnostics, epidemiology and management of these important tree diseases that matter to Arizona citizens and industries.

**Dr. Alex Hu** is an associate professor and extension plant pathologist in the School of Plant Sciences at the University of Arizona. He is stationed on the main campus in Tucson and is the leader of the UA Extension Plant Pathology programs for field crops and fruit nut crops. He received his Ph.D. in plant pathology from Virginia Tech University. Alex manages cooperative efforts to provide disease diagnostic support and develop disease management strategies and information that improve crop production efficiency.

**Rodent Management in the Landscape**
Dr. Shaku Nair, Maricopa Co. Coop. Extension

Several landscapes face recurring problems caused by small burrowing rodents such as gophers and ground squirrels. These animals can disfigure landscapes with their feeding and nest-building activities and cause aesthetic concerns. Further, some of these activities can also be trip hazards resulting in serious injuries. In this session, Dr. Nair will provide an overview of the biology and behavior of these pests, which is extremely critical in managing them effectively. The use of different kinds of traps and chemical methods will also be discussed.

**Shaku Nair** is an entomologist by passion and profession, with a keen interest in integrated pest management, which is a holistic approach to managing pests. Her career has focused on promoting and educating about safe and effective ways to manage pests in community environments that are people-centered. She earned her PhD in Entomology at the University of Georgia and has been serving as an Extension Entomologist at the University of Arizona since 2013. She loves going on insect collection trips and dabbles in insect-themed art.

**Insect Pests and Beneficials throughout the Seasons in Urban Landscapes**
Gene Hall, UA Entomology

Arizona, especially the southeastern region of the state, is home to some of North America's highest amount of insect and other arthropod diversity. The majority of these species are harmless to plants, humans, and other animals. This talk will highlight the major groups of insects occurring in Arizona throughout the year, with emphasis on those inhabiting urban landscapes.

**Gene Hall** has studied insects of the Sonoran Desert for 40 years and is manager of the University of Arizona Insect Collection. He also provides insect and other arthropod identifications for the UA's CALES Cooperative Extension Insect Diagnostics Clinic. Gene is interested in museum collections as resources to preserve and document our planet’s biodiversity, using specimens and associated data for scientific research and public outreach worldwide.

**Plant Responses and Visual Effects Following Herbicide Applications** – Kai Umeda, Emeritus, Maricopa County Cooperative Extension

Although herbicides are employed to control undesired plants in the landscape, they can damage non-target plants including trees and shrubs. Pre-emergent and post-emergent herbicides control weeds through various biochemical pathways. This results in different visual symptoms on both weeds and desirable plants. This presentation will describe some of the more typical observations of herbicide injury symptoms on plants.

**Kai Umeda** earned a BS degree in pest management from the University of California, Berkeley and an MS degree in weed science from Southern Illinois University. Prior to joining the University of Arizona Cooperative Extension, he worked in private industry conducting agrichemical research and development. Kai has been an area extension agent for turfgrass science from 2003 until his recent retirement, working with golf course superintendents, sports turf managers, and commercial landscapers in Maricopa County and adjacent counties in Arizona. His turfgrass extension program areas emphasized weed science and pest management.

# WATER / URBAN LANDSCAPES

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**Update on Tree Establishment and Root Development using Smart Watering**
Dr. Bo Yang, UA Landscape Architecture and Planning, Grant McCormick, UA Enterprise GIS, and Dr. Vanessa Buzzard, UA Natural Resources

Increased water scarcity and drought have led to the pursuit of innovative solutions for watering young trees during establishment. This presentation reports on a two-year controlled experimental study assessing establishment watering techniques for four drought-tolerant trees used in desert southwest urban landscapes (Desert Willow, Live Oak, Ironwood, and Canyon Hackberry). Presentation highlights include water savings during establishment for four tree species comparing five smart water treatments, along with preliminary results exploring the variation in below-ground (root development) and above-ground (canopy and height) development of Canyon Hackberry trees in relation to different smart watering techniques.

**Dr. Bo Yang** is a Professor in the School of Landscape Architecture and Planning at the University of Arizona. His research interests include urban green infrastructure, landscape performance assessment, and environmental planning and technology. He has authored/co-authored three books on these topics, including *"Evaluating Landscape Performance: A Guidebook for Metrics and Methods Selection*." Dr. Yang was Vice President for Research and Creative Scholarship for the Council of Educators in Landscape Architecture (CELA) from 2016 to 2018. Dr. Yang is a Fellow of the American Society of Landscape Architects.

**Dr. Vanessa Buzzard** is a research scientist at the UA School of Natural Resources and the Environment and the founder of the University of Arizona' Campus Living Lab in Green Stormwater Infrastructure. Dr. Buzzard's research has focused on understanding drivers of biodiversity and ecosystem function in response to climate and anthropogenic disturbances. Her research aims to quantify shifts in physical, chemical, and biological soil health indicators in response to green stormwater infrastructure practices to understand restoration of ecosystem functions and co-benefits generated by stormwater capture and reuse.

**Grant McCormick,** UA's Director of Enterprise GIS, has worked on integration of storm water management practices with water harvesting techniques as part of transforming campus landscapes into green infrastructure, and similar projects throughout the Tucson region. As an Adjunct Professor for the Department of Environmental Science, he currently teaches courses on Water Harvesting and Green Infrastructure. His education includes a Master's Degree in Landscape Architecture from the University of Arizona and a Bachelors of Agriculture emphasizing Landscape Contracting from the University of Oklahoma.

**Climate and Weather Outlook for the Arizona Green Industry**
Matt Meko, UA CLIMAS

Arizona's climate varies year to year under the influence of El Niño-Southern Oscillation (ENSO) among other sources of variability, and at decadal time scales, similarly with influence from Pacific Sea surface temperature variability. This variability has, since at least the mid-20th century, coincided with a long-term trend of increasing temperatures, which is projected to continue. The warming trend will affect water supply and water processes via increasing saturation specific humidity, greater evaporative demand, and a larger deficit of actual

evapotranspiration versus potential evapotranspiration. Future trends in precipitation are uncertain; future variability may increase because of the effect of warming on sources of variability like ENSO; extreme precipitation events are expected to increase. Past variability remains a useful model for the future because of uncertainty about the pace of future warming, and uncertainty around the effect of warming on sources of precipitation variability.

**Matt Meko** is a Climatologist with CLIMAS, the Climate Assessment for the Southwest. CLIMAS is a NOAA-funded partnership between University of Arizona, New Mexico State University, and the Inter-Tribal Council of Arizona, serving Arizona and New Mexico by bringing the best-available knowledge to bear on challenges relating to weather and climate in the Southwest. Matt's recent work includes investigations of Rio Grande basin surface water availability in the context of past climate variability and future trends, and efforts to better understand the complex role of climate in shaping wildfire risk across different landscapes.

**El Rio Preserve - Native Planting, Erosion Control, Water Harvesting, Management of Invasives**
Alex Stoicof, McGann& Associates and Janine Spencer, Friends of El Rio

The El Rio Preserve is a 104-acre riparian habitat and passive recreation destination in Marana, Arizona, at the foot of the Tucson Mountains. Over the last 10+ years, the Town of Marana in conjunction with the Friends of El Rio Preserve have worked to create an interpretive plaza and observation deck, secure year-round water in the pond for wildlife, and manage flooding from the adjacent Santa Cruz River. Janine Spencer and Alex Stoicof will specifically discuss the vegetative rehabilitation strategies at El Rio, including volunteer management of invasive species.

**Alex Stoicof** is a landscape architect and cartographer who specializes in public spaces and green infrastructure. She has been involved with the El Rio Preserve for nearly a decade as the lead designer of the interpretive plaza and co-founder of the Friends of El Rio Preserve. Alex received her Master's in Landscape Architecture at the University of Arizona and currently works at McGann and Associates.

**Janine Spence**r is a retired wildlife biologist who worked at federal, state, and local agencies, as well as in private consulting. In her capacity as Environmental Project Manager at the Town of Marana, she initiated the El Rio Preserve Project and the Friends of El Rio Preserve. She holds a BS in Biology from Oregon State University and a Master's in Wildlife Management from Prescott College.

**Building Climate Change Resiliency Within a Managed Community**
Hans Huth, Agua Dulce Home Owners' Association

The Agua Dulce Homeowners Association (AD) hosts 411 homes in the Tucson Mountains. Over the last eight years, volunteers have implemented Watershed Management Group and Pima County Smartscape practices within common areas in order to build climate change resiliency on the landscape. In response, AD has saved 6.4 million gallons of water and $22K in utility costs. By taking a smarter approach to landscape maintenance, AD has lowered contractor costs while improving the aesthetic of our community. This presentation will summarize respective successes, lessons learned and resources to help other HOAs interested in a similar journey. The presentation will conclude with a summary of how the presenter turned water harvesting data collected during the 2024 monsoon into music using tools developed by NASA engineers.

**Hans Huth** earned his Master's Degree in Hydrology from the University of Arizona in 1998. During his 23-year tenure with the Arizona Department of Environmental Quality, he managed projects for improving surface water quality in impaired binational watersheds. Project cost-match requirements were frequently met by volunteers that helped improve watershed conditions through water harvesting and erosion control projects.

Inspired by these positive experiences, Huth founded the Water Harvesting and Erosion Control Committee for the Agua Dulce Homeowners Association, which he has managed since 2015.

**Turf Rebate and Vegetation Replacement Program**
Irene Ogata, Valeria Galindo, and Cody Wooden, City of Tucson

Tucson has been experiencing prolonged drought (since late 1990's), decrease in water delivery from the Colorado River's Central Arizona Project (CAP) and climate extremes resulting in hotter, longer summers. Tucson Water is committed to water conservation and now incentivizes commercial customers to decrease their outdoor water use; approximately 40% of commercial property consumption goes to external use. This session is geared to assist landscape companies working with commercial clients removing non-functional turf to better understand the turf removal and vegetation replacement rebate requirements and process; and to apply best management practices during removal, selection and planting drought-tolerant plants for replacements and modification of irrigation.

**Irene Ogata**, Urban Landscape Manager: Professional Landscape Architect with certifications as an arborist and professional public manager. Irene has worked internally across departments and externally, between jurisdictions to address and implement green stormwater infrastructure, awareness in urban heat islands, and outdoor conservation measures such as rainwater harvesting, community gardens and development of the commercial rainwater harvesting ordinance.

**Valeria Galindo**, Public Information Specialist: worked in a number of community-facing programs. She was a Community Outreach Assistant at the University of Arizona's Cooperative Extension's sustainable landscapes education program, Pima Smartscape. Valeria is bilingual and interfaces with the Spanish-speaking communities. Working in water conservation, she helps to advance conservation through improvements in programing, rebate expansion and educational outreach.

**Cody Wooden**, Commercial Conservation Program Manager: a biologist by trade, has been working in various conservation science capacities for state agencies, non-profits and municipalities in wildlife ecology and GIS. Most recently, Cody served as the HOA and commercial program coordinator at Scottsdale Water, helping to develop a data-driven and hands-on approach to reducing outdoor water use across large landscapes. New to Tucson, he now manages the Ornamental Turf Removal Rebate program, encouraging commercial and multi-family properties to reduce their grass areas and see water and financial savings.

**Creating a Resilient Wildland-Urban Interface**
Kari Hackney, Tucson Bird Alliance

Wildfires, development, invasive species, and a warming climate have degraded arid landscapes. Incorporating nature-based solutions during the design process can mitigate erosion, wildfire risk, and invasive species establishment while protecting the local ecosystem. In this presentation, Kari Hackney shares strategies for approaching the design and management of these landscapes through best practices for ecological restoration and permaculture design.

Kari Hackney is the Habitat Restoration Sr. Program Manager at Tucson Bird Alliance. She holds a B.S. in Biology, a B.S. in Parks and Recreation, and an M.S. in Natural Resource Management. In her role at TBA, she leads the planning, implementation, and management of habitat restoration projects in urban, wildland, and urban-wildland interface settings, incorporating ecologically appropriate strategies in landscape design. She works with individuals, communities, businesses, NGOs, and municipalities to support and guide habitat stewardship for the benefit of people and wildlife.