



The Arizona  
Native Plant  
Society

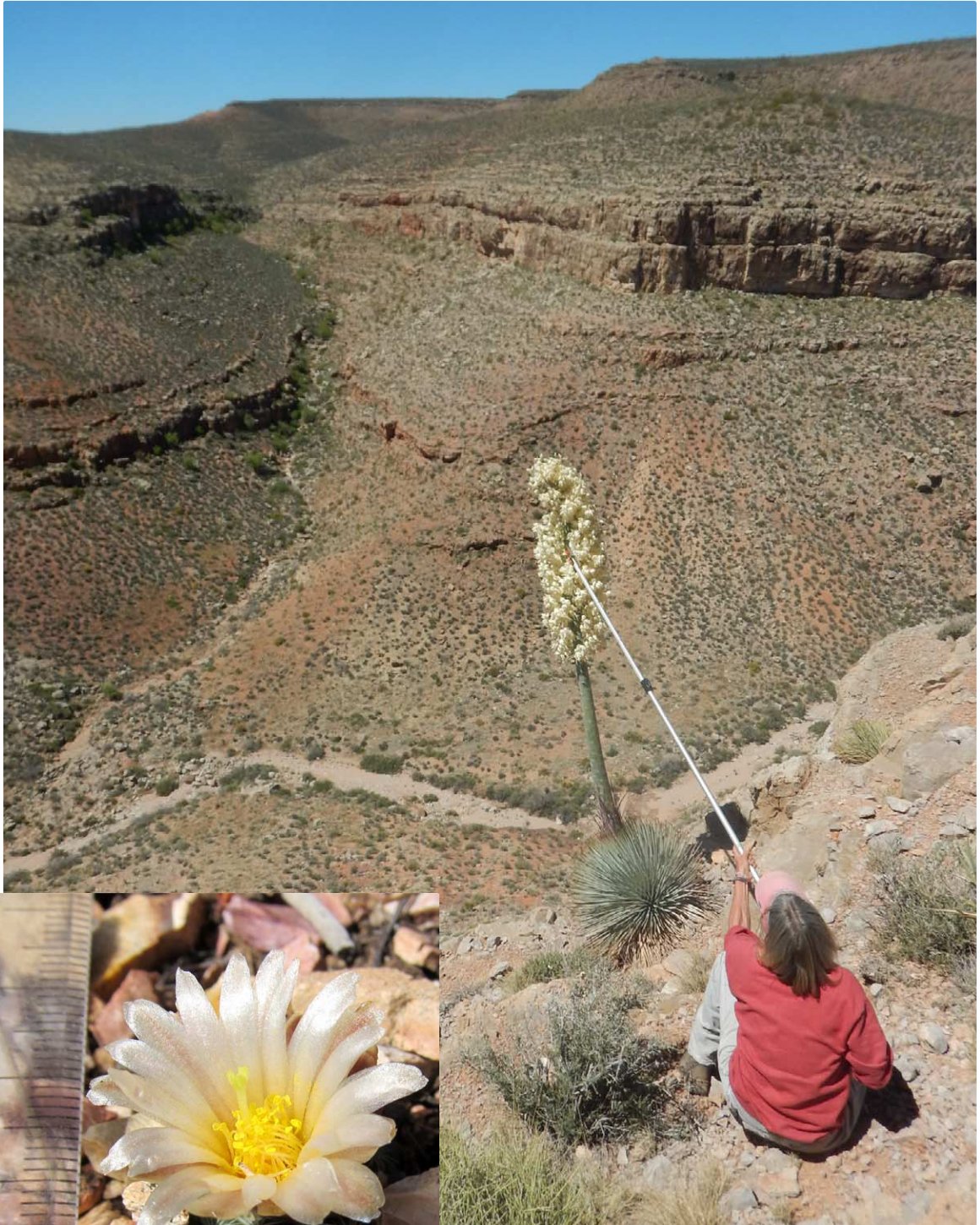
## Arizona Botany 2020 Symposium: *Celebrating Arizona's Native Flora*



When: Monday, Tuesday, and Wednesday, October 5, 6, and 7  
From 7:00–9:00 PM (Pacific Daylight Time/Arizona Time) Each Night

*Symposium Program*  
[aznativeplantsociety.org](http://aznativeplantsociety.org)





Above: Wen Hodgson trying to collect flowers of Newberry's mock yucca, *Hesperoyucca newberryi*. Photo by Carrie Cannon.

Left: The rare *Pediocactus paradinei*, the Kaibab pincushion cactus.

# Arizona Botany 2020 Sympopsium

Monday, October 5, 2020, 7:00–9:00PM

7:00 PM

## ***Welcome and Introduction to the Arizona Native Plant Society and the Botany 2020 Symposium***

Douglas Ripley, President, Arizona Native Plant Society [jdougripley@gmail.com](mailto:jdougripley@gmail.com)

This introduction will consist of a short history of the Arizona Native Plant Society and a summary of its current activities, followed by an overview of the conference agenda.

7:15 PM

## ***Keynote: Major Ecoregions/Biotic Communities of Arizona with Some of Wen's Favorite and Representative Plants***

Wendy Hodgson, Desert Botanical Garden, Phoenix, Arizona [whodgson@dbg.org](mailto:whodgson@dbg.org)

Botanists and plant enthusiasts know well of Arizona's extraordinary plant diversity, the state being home to 4,000 or more described species (and counting). Wendy will identify and briefly discuss the major ecoregions in the state, as well as a few plants characteristic of these regions. She will also share some of her favorite plants within the regions, including species new to science, and those rare and/or endemic to the state, with plenty of images of plants and their habitats. Plants within these regions that she will discuss include yuccas, thistles, and other spiny plants, that DBG scientists and their collaborators are studying.



Wendy Hodgson

*Wen has lived in and loved the Sonoran Desert for more than 50 years. She is herbarium curator emerita and Senior Research Botanist with the Desert Botanical Garden. She studies Southwest US and northern Mexico floristics, rare and endemic plants, and taxonomy and systematics of Agave, Yucca and Hesperoyucca, including the study of pre-Columbian agave domesticates. Other current projects include the study and documentation of the flora of the Grand Canyon region, including the evolution and distribution of certain plant groups as affected by the unique factors characteristic of this area. She is an ethnobotanist as well, publishing Food Plants of the Sonoran Desert, winner of the 2001 Mary Klinger award presented by the Society for Economic Botany. She loves to make high-quality herbarium specimens in difficult groups like Agavaceae, Cactaceae and even thistles. She is a believer in the power of education and engaging the public, including and especially Native communities.*





Crassulaceae, *Graptopetalum bartramii*, Salero Ranch, 21 Oct 2015

# Arizona Botany 2020 Sympopsium

Monday, October 5, 2020, 7:00–9:00PM

8:00 PM

## Blurring the Borders: Cool Plants of the Arizona–Sonora Frontera

Sue Carnahan, Arizona Native Plant Society, Tucson Chapter, Arizona  
carnahan.sue@gmail.com

The Arizona–Sonora border is a landscape of rocky grasslands, remote canyons, and rugged mountain ranges. More recently, it is also a bulldozed wall construction zone. Plants don't watch the news or obey regulations, however — they expand and contract across this transnational zone all the time. Hear about botanical migrants in the borderlands: boat-spine acacia, Mexican croton, ball moss (*Tillandsia*), smallflower agave, chiltepin, and Sierra Madre lobelia...to name just a few!



### Sue Carnahan

*Sue Carnahan lives in Santa Cruz County, Arizona, where her specialty is the flora of bouldery slopes and chigger-filled grasslands. Her latest publication is Diversity in a Grassland: Flora of the Salero Ranch, Santa Cruz County, Arizona (Canotia Vol. 16). Sue is co-author with Richard Felger and Jesús Sánchez-Escalante of a forthcoming Flora of the Guaymas region of Sonora, Mexico.*



Solanaceae, *Capsicum annuum*, Nacapule, 28 Oct 2015





The American cancer-root (*Conopholis americana*) — Broomrape Family.

# Arizona Botany 2020 Sympopsium

Monday, October 5, 2020, 7:00–9:00PM

8:30 PM

## Floristic Diversity in the Sky Islands of Southern Arizona

Jack Dash, Arizona Native Plant Society, Tucson Chapter [pjdash23@gmail.com](mailto:pjdash23@gmail.com)

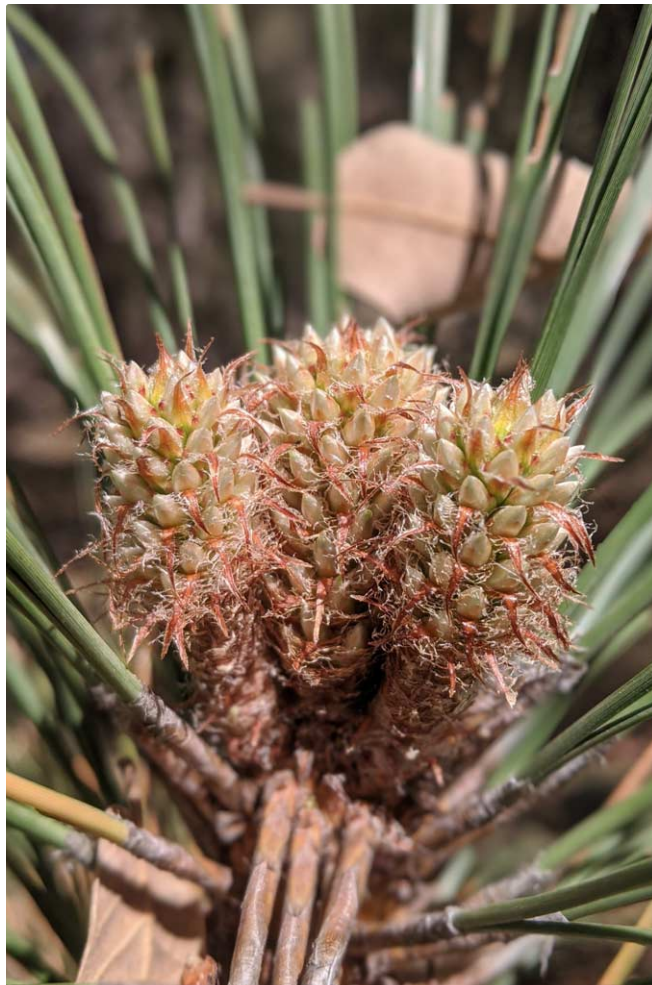
The Sky Islands of Southern Arizona are rich with biodiversity. Existing at the confluence of several major ecosystems, the Sky Islands harbor a varied flora and fauna related to their surrounding biomes, but unique due to the geographic isolation of the mountain islands in an arid sea. This presentation will cover a small subsection of the flora present in these mountain ranges, identifying plants from each of the main ecosystem types found as one moves upward in elevation. In this talk, we will go from Sonoran Desert Scrub to Mixed Conifer Forest in our journey up the Madrean Archipelago.



### Jack Dash

*Jack Dash avidly explores the Sky Islands of Southern Arizona. He is a member of the Tucson Chapter of the Arizona Native Plant Society and works at Desert Survivors Native Plant Nursery. Jack is currently at work on an annotated flora of the Atascosa Highlands west of Nogales.*

Maturing striobili on *Pinus engelmannii* in the Chiricahua Mountains.



# Arizona Botany 2020 Sympopsium

Tuesday, October 6, 2020, 7:00–9:00PM

7:00 PM

## Woody Plants of the Mogollon Highlands

Carl and Joan Tomoff, Arizona Native Plant Society, Prescott Chapter  
tomoff@northlink.com, joantomoff@gmail.com

The Tomoffs will introduce their book, *Woody Plants of the Mogollon Highlands — A Field Guide and Botany Companion*. This colorful guide to over 80 species of trees, shrubs, and succulents of the region also presents relevant basic botanical and ecological principles.

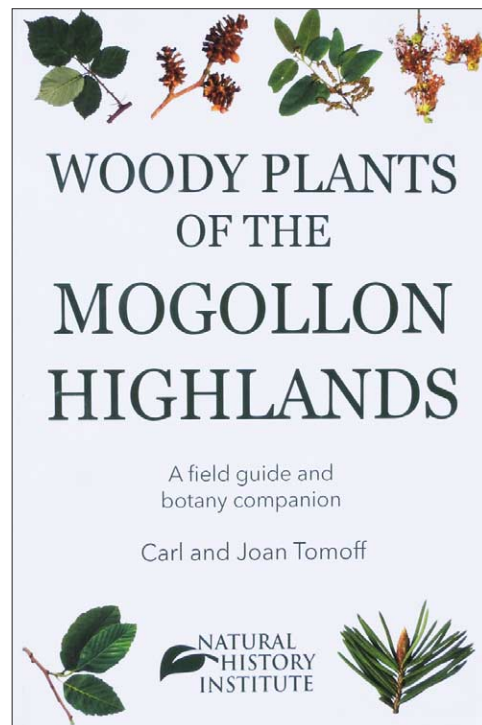


### Carl Tomoff

*Fascinated with nature since early childhood, Carl Tomoff has shared his knowledge and insights with college students and other nature enthusiasts throughout Arizona for five decades. He is Professor Emeritus at Prescott College. He was founding president of the Prescott Audubon Society and he reactivated the Prescott chapter of the Native Plant Society. He has led numerous educational and community organizations throughout his career. He enjoys exploring the beauty of the natural world and its interrelationships. Carl's Ph.D. is in community ecology.*

### Joan Tomoff

*A lifelong camera hiker who enjoys photographing the light on plants, Joan made a career of teaching science and math classes from middle school to college. After leaving the mathematics classroom, she taught community college biology, got a good digital camera, learned to use Photoshop, and began making high resolution scans of little-noticed plant traits. She enjoys learning new things and sharing her discoveries. Joan's Ph.D. is in Educational Psychology.*







From top: Desert Ironwood, Fairy Duster.

# Arizona Botany 2020 Sympopsium

Tuesday, October 6, 2020, 7:00–9:00PM

7:30 PM

## Living the Vida Flora on Arizona's West Coast

Karen Reichhardt and Val Morrill, Arizona Native Plant Society, Yuma Chapter  
yumanativeplant@gmail.com

The western counties of Arizona —Mohave, La Paz and Yuma — display a panorama of extremes. The region's Basin and Range landscape hosts high-elevation fir and aspen in the Hualapais to low desert pavements, sand sheets, and creosote flats to the south. And a river replete with gorges, oxbows, reservoirs, and marshes runs along its western flank. Characteristic plants adapted to these extremes include age-old trees, succulent cacti, plant parasites, and short-lived annuals. These plants can be enjoyed in their native habitat in many publicly accessible locations throughout the region. Some plants native to the area are successful choices for gardening and landscaping, though acquiring them may sometimes be a challenge.



Valerie Morrill

*Valerie Morrill is the current President of the Yuma Chapter AZNPS. She also serves as a Master Gardener and on the boards of Arizona Wildlife Federation and the Yuma Conservation Garden. She is a retired conservation manager for the U.S. Army.*

Karen Reichhardt

*Karen Reichhardt is Vice President of Yuma Chapter of AZNPS. She is co-founder and board member of Native Seeds/SEARCH and a volunteer at the Arizona Western College Herbarium. Her career in natural resources management has taken her to most of Arizona — most recently the Bureau of Land Management in Yuma.*

King Valley, Kofa National Wildlife Refuge







# Arizona Botany 2020 Sympopsium

Tuesday, October 6, 2020, 7:00–9:00PM

8:00 PM

## **The Sacred and the Beautiful: Portraits of a Few Iconic Northern Arizona Plants**

Andrea Hazelton, Springs Stewardship Institute, Museum of Northern Arizona, Flagstaff, AZ [ahazelton@musnaz.org](mailto:ahazelton@musnaz.org)

Arizona's botanical story is one shaped by elevation and the seasonal timing of scarce precipitation. But in Northern Arizona, the flora is subject to an added twist: the geologic setting creates dramatic landforms and unique soils not seen elsewhere in the state. Occupying the state's highest peak, deepest canyon, and only cold desert, the plants of Northern Arizona are as iconic as its landscapes. For each of Northern Arizona's most iconic landscapes, I profile an equally iconic plant. As a scientist I present the evolutionary and ecological stories of these plants, and as a human I present the stories available to me about their importance to the people who live in this region. While the scientific accounts of these plants are fascinating to those of us who appreciate natural history, the human stories allow us to fully appreciate this stark landscape and its often sparse flora as truly beautiful and even sacred.



### **Andrea Hazelton**

*Andrea Hazelton was born and raised in Phoenix, Arizona. She earned a Masters of Science degree from Arizona State University, where she studied riparian plant ecology under Julie Stromberg. After college, she worked on endangered plant management, first as an employee of the Navajo Nation and later as an environment consultant. She had the privilege of being involved with The Flora Project from 2015–2017, when she developed a field guide to the plants of Seville National Wildlife Refuge in central New Mexico. The plant descriptions written for that guide and descriptions for many other Arizona and New Mexico plants are publicly available on SEINet under the "Field Guide" tab. Andrea is currently working at the Springs Stewardship Institute, a small nonprofit dedicated to advancing the understanding of springs ecosystems.*

From top: Grand Canyon. Vermilion Cliffs National Monument.





"Cristate" saguaro, Sonoran Desert, Arizona

# Arizona Botany 2020 Sympopsium

Tuesday, October 6, 2020, 7:00–9:00PM

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## The Sonoran Desert: Land of Tall Cacti and Small Trees

Philip Brown, Docent Program Coordinator, Arizona-Sonora Desert Museum,  
Tucson, AZ [pbrown@desertmuseum.org](mailto:pbrown@desertmuseum.org)

The Sonoran Desert is the lowest and warmest of the North American deserts. It is also the most biologically diverse, in part because it is a maritime desert with highly varied topography and with two rainy seasons annually. It is at the confluence of several biological provinces, and thus hosts species from the Rocky Mountains, the Sierra Madre Occidental, the Great Plains, and from Tropical Thornscrub. Floristically the Sonoran Desert is dominated by tall cactus and small trees. It is the only North American desert in which columnar cacti are found, and the only one in which trees of more than one species dominate parts of the landscape. This program will introduce some of the more prominent and observable of these plants. We'll look at the columnar cacti — the iconic Saguaro, the Organ Pipe Cactus, and the Senita — and other cacti, like prickly pears and chollas. Woody legumes are dominant, including the Blue and Foothills Palo Verdes, and shrubs such as Catclaw, White-thorn Acacia, Coursetia, and Fairy Duster. Two other shrubs are also important: Jojoba, and the Creosote Bush (not restricted to the Sonoran Desert, but dominating much of its landscape because it is the most drought-tolerant plant in North America).



### Philip Brown

*A resident of Tucson, Arizona, for nearly 20 years, Philip is a Californian by birth. He studied zoology and botany at Humboldt State University, and has held jobs as diverse as summer camp naturalist, aquarium store manager, zookeeper, and Assistant Curator of Education at the Santa Barbara Museum of Natural History. He has been with the Arizona-Sonora Desert Museum since 2001, and is currently the Docent Program Coordinator.*



Saguaro National Park (West), Arizona





Clockwise from top left: *Hyles lineata*, *Novomessor cockerelli* carrying a *Datura wrightii* seed, *Diadasia* in an *Opuntia engelmannii* flower, and *Acromyrmex versicolor*.

# Arizona Botany 2020 Sympopsium

Wednesday, October 7, 2020, 7:00–9:00PM

7:00 PM

## Partnerships and Betrayal: Plant/Insect Interactions

Jillian Cowles, Arizona Native Plant Society, Tucson Chapter  
jillian@mindspring.com

Insects and plants have been evolving together for over 100 million years. Plants bribe, reward, and sometimes cheat their insect partners, while insects pollinate, protect, cultivate, and sometimes steal from their plant partners. Often the beneficiary of a partnership is an opportunistic third party. Some relationships can be exploitative, in which insects “commandeer” the growth of a plant, forcing it to provide special structures to house the insect’s offspring. Other relationships are true partnerships, so interdependent that neither party can survive without the other. In this presentation we will explore some of these dramas, featuring a cast of cacti and bees, orchids, ants, and angel trumpets.



Jillian Cowles

*Like many good stories, mine started with a road trip. At the age of eighteen I came to southern Arizona in a third-hand Chevy van with the dream of seeing a Gila monster in the wild. I fell in love with the desert (and my spouse) and stayed. My vocation has been working as a clinical microbiologist at University Medical Center in Tucson (now retired), but my avocation has been to document the plants and animals of the desert. I started with photographing wildflowers, and the occasional crab spider or green lynx spider would insinuate itself into the photos. Before I knew it, spiders and other arachnids had practically hijacked the photographic database, resulting in the publication of my book, *Amazing Arachnids*, published by Princeton University Press in 2018. And sometimes dreams really do come true; I have been lucky in not only seeing Gila monsters in the wild, but can now say that some are my familiar friends and neighbors, as we share the same bit of desert to live in. I could not ask for more.*





Ash-throated Flycatcher

# Arizona Botany 2020 Sympopsium

Wednesday, October 7, 2020, 7:00–9:00PM

7:30 PM

## Birds and Native Plant Relationships

Rich Hoyer, Professional Guide with WINGS Birding Tours  
Worldwidebirdernaturalist@me.com

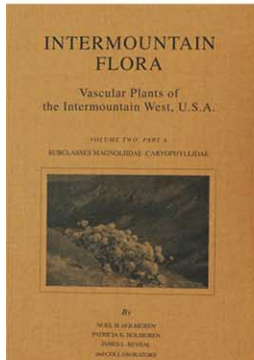
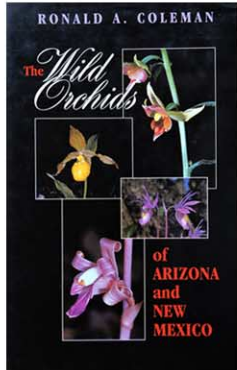
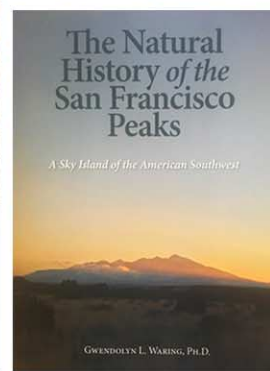
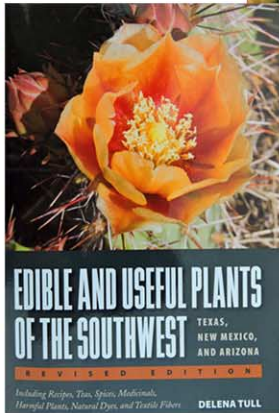
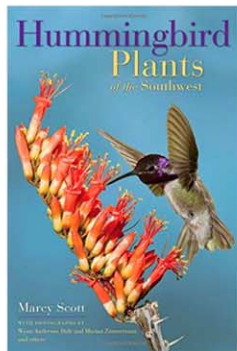
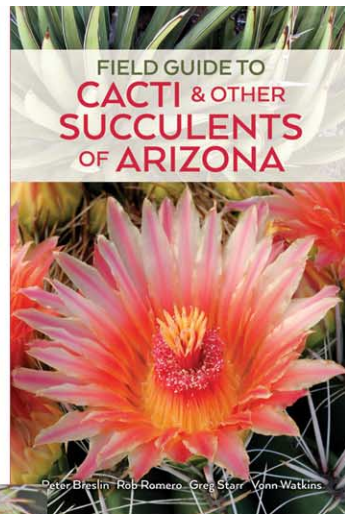
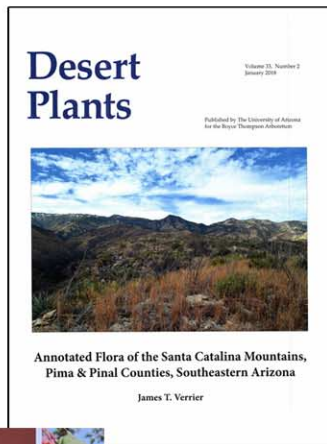
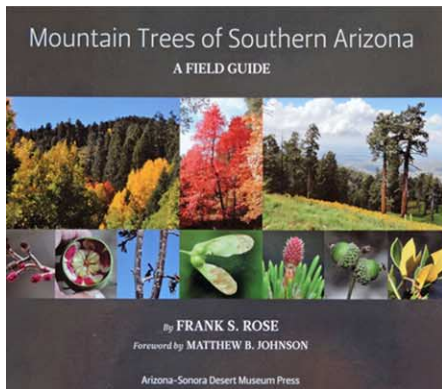
Plant relationships with birds are not as specific and tightly bound as they are with many insects. Throughout their annual life cycle, birds need cover, water, food, and a place to nest, and there simply aren't many plants that would supply a bird's every need. Yet there are still some close and relationships between birds and plants that make it worth knowing your way around both. Rich will discuss a few native species of Arizona plants that will hone your bird-finding skills and perhaps encourage you to create a better home for them in your yard.



### Rich Hoyer

*Rich Hoyer has been an avid birder since the age of 14, but well before then was already keying out plants, rearing butterflies in his bedroom, and identifying protozoans under the microscope. His first job after obtaining a B.S. in Zoology and a B.A. in German at Oregon State University was conducting point count surveys of birds in the southeastern Arizona sky islands for a Forest Service study. There he began learning a whole new suite of plants and one of the study's goals had him looking for ways to understand the bird-plant relationships he was seeing in this birder's paradise. He lived in Arizona for 25 years while leading birding and natural history tours throughout the Neotropics. He recently moved to Eugene, in his home state of Oregon, and continues to lead tours for WINGS..*






Arizona - New Mexico Chapter

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## Welcome to SEINet

The SEINet data portal was created to serve as a gateway to distributed data resources of interest to the environmental research community within Arizona and New Mexico. Through a common web interface, we offer tools to locate, access and work with a variety of data. SEINet is more than just a web site - it is a suite of data access technologies and a distributed network of collections, museums and agencies that provide environmental information.

To learn more about the features and capabilities available through this site, visit the [Symbiota Help Pages](#). Join SEINet as a regular visitor and please send your feedback to [seinetAdmin@asu.edu](mailto:seinetAdmin@asu.edu). Visit the [Data Usage Policy](#) page for information on how to cite data obtained from this web resource.

Visit some of the other regional data portals that are fellow members of the SEINet Network.

- Consortium of Midwest Herbaria
- Consortium of Southern Rocky Mountain Herbaria
- Intermountain Regional Herbarium Network
- Madrean Discovery Expeditions (MDE)
- Mid-Atlantic Herbaria Consortium
- North American Network of Small Herbaria
- North Great Plains Herbaria
- Red de Herbarios del Noroeste de México (northern Mexico)
- SERNEC (Southeast USA)
- Texas Oklahoma Regional Consortium of Herbaria (TORCH)

### Plant of the Day



**What is this plant?**  
Click here to test your knowledge

# Arizona Botany 2020 Sympopsium

Wednesday, October 7, 2020, 7:00–9:00PM

8:00 PM

## ***Wrap Up and Summary of Conference, Short Summary of Arizona Native Plant References and Field Guides***

Douglas Ripley, Arizona Native Plant Society, Cochise Chapter  
dougripley@gmail.com

8:30 PM

## ***Activities, Projects, and Future Events for AZNPS Chapters***

Representative from each AZNPS Chapter



Douglas Ripley

*Doug is currently the president of the Arizona Native Plant Society. A native of San Francisco, his academic background is in botany and plant ecology. Entering the U.S. Air Force in 1969, he served in a variety of assignments overseas and in several US States, ranging from a faculty member in the Department of Biology at the U.S. Air Force Academy to overseeing the management of natural and cultural resources conservation programs on Air Force lands throughout the country and overseas. Following retirement from the Air Force in 2006, he settled with his wife Arlene in southeastern Arizona where he promptly became involved with the Arizona Native Plant Society.*

### **2020 Arizona Botany Symposium Organizing Committee**

Kara Barron, Upper Gila  
Diane Kelly, Tucson  
Lyn Loveless, Tucson  
Kirstin Olman Phillips, Flagstaff  
Douglas Ripley, Cochise  
Pat Sanchez, Tucson  
John Scheuring, Tucson  
Ray Harwood, President, GoodClix, LLC  
Graphic Design by Julie St. John