



SPRING 2016

Friends of Ironwood Forest

Desert Mistletoe: A Misunderstood Native Plant

By Kelsey Marie Yule

If you've ever been in the Sonoran or the Mojave desert, you've undoubtedly seen desert mistletoe (*Phoradendron californicum*), but you may not have paid attention to the dense, amorphous blobs of its foliage in the ironwoods, mesquites, acacias, and palo verdes.

People who know mistletoe often think of it only as a nuisance. Sure, mistletoe takes up to 80% of its carbon and all of its water and nutrients from its host tree, but being a parasite does not mean a species is lacking in positive qualities.

Indeed, a few people, including myself, travel to desert locales, such as Ironwood Forest National Monument, to seek out this misunderstood native plant. We see it as a crucial and fascinating part of our local ecology and truly an emblem of the desert scrub habitats of the Southwest.

Desert mistletoe provides much-needed resources to our Sonoran fauna in fall and winter. For example, a shiny black, crested bird perched atop a mistletoe-laden tree is a familiar sight to local bird enthusiasts. The phainopepla (*Phainopepla nitens*) is dependent on mistletoe berries for food, particularly in fall and winter. It will defend a territory rich in mistletoe, nest in its clumps in spring, and feed its young the berries.

While many species of birds and mammals feed on desert mistletoe berries, the phainopepla is far and away the most

Continued on page 2



***Barrels of Fun on page 5!
Bighorn news on page 9!***

Photo by Kelsey Yule

important from the mistletoe's point of view. Phainopepla has special digestive adaptations that allow the berries to be digested while the seeds pass through unharmed. The seeds are thus deposited on the branches of suitable host trees and new plants established.

The interaction between the phainopepla and desert mistletoe can be thought of as a mutually beneficial trade of food for seed transportation. Indeed, when cold weather damages the crop of mistletoe berries, phainopepla populations go through precipitous declines.

The phainopepla is not the only animal to benefit from mistletoe's presence. Stealing resources from its host tree, mistletoe is able to flower early in winter when few other plants can. Thus it provides a critical food resource for many pollinators. In dry winters, locally raised honeybees provision their nests almost entirely with desert mistletoe pollen. Without the pollen and nectar provided by mistletoe many of our native pollinators, such as syrphid flies and solitary bees, would also suffer.



Male phainopepla feeding berries. Photo by Doris Evans

does so exclusively as a caterpillar. Many mistletoe species have even been found to play a key role in the nutrient cycling of the ecosystems they inhabit, indirectly benefitting a large number of species.

In addition to helping you recognize the ecological benefits of mistletoe, I hope to dispel the unfortunate misconception that it is a voracious "tree killer." No evidence exists that desert mistletoe can cause the death of a host tree under normal circumstances.

Of course, there are many anecdotes of individual trees that were infected with dozens of mistletoe parasites and died, apparently because of the infestation. Trees have limited lifespans, so it should not be surprising when trees with heavy mistletoe infections, which have undoubtedly taken decades to establish, die.

Mistletoe infections should be thought of as more analogous to the common cold for their tree hosts than to a devastating plague. The majority of desert trees become infected at some point in their lives, and only those that are already sick or otherwise weakened suffer an appreciable increase in mortality risk.

Importantly for my work, desert mistletoe provides a unique system with which to understand host-parasite and disease transmission dynamics in nature. We can use desert mistletoe, its host trees, and the phainopepla as a model of vector-transmitted disease.



Mistletoe plants flower early in winter. Photo by Kelsey Yule

In addition, the dense cover provided by clumps of mistletoe makes them a preferred nesting site for many birds besides the phainopepla. Without mistletoe, predation of eggs and nestlings would likely rise.

Many insects and mammals, including cattle, feed on the green foliage of desert mistletoe, and the beautiful great purple hairstreak butterfly

Indeed, it is far easier to track in real time the dynamics of plants and birds than mosquitoes and malaria parasites, but the fundamental processes of natural selection shaping the interactions are the same. We are currently using this system to ask a number of questions, such as “How does the behavior of vectors influence how parasites will be distributed in space?” and “Are parasites on different host species different genetically?”

Being able to study these broader questions with a plant that serves as an important keystone member of its ecosystem makes our work even more exciting.

Even after I’ve relayed these amazing aspects of desert mistletoe biology, many people still want to know how to get rid of it. I am certainly opposed to any large-scale efforts to remove mistletoe, especially from public lands. However, I respect that many people may be interested in protecting a particular tree in their yard.

While chemical products claiming to control mistletoe exist, I am unaware of any study supporting their effectiveness at killing the plants. Nor have studies investigated potential negative effects on the host tree.

Alternatively, mechanical removal of the visible parts of the plant is simple. The vegetation is often brittle and will break off fairly easily when knocked with a broomstick, for example. This method is unlikely to kill the mistletoe, which can re-sprout from the same spot within months.

The only way to ensure that mistletoe is dead is to remove the branch on which it grows, a strategy that may cause more damage to your tree than the mistletoe could. Therefore, my advice is to enjoy the benefits of any existing adult mistletoe plants.

If you are instead concerned with staving off future infections, brushing off mistletoe seeds before the plants can establish is the best solution. The seeds are white or gray in color and about a quarter inch in length. They can be easily dislodged from the bark, and I would recommend doing so once a year after mistletoe plants have stopped fruiting in early summer.

Participating in many interactions with other species, both positive and negative, desert mistletoe is more than just a sap-sucking parasite. In my eyes, it is a species deserving of some of the same reverence many reserve for the mighty saguaros and ironwoods.

The author: Kelsey Yule is a PhD candidate in Ecology and Evolutionary Biology at the University of Arizona, where she researches species interactions from theoretical, genetic, and field-based perspectives. Her fieldwork concerns the biology of desert mistletoe in the Tucson Basin. She currently serves on the board of Friends of Ironwood Forest.



Dislodge mistletoe seeds to prevent growth. Photo by Kelsey Yule

Looking for a Champ

We’d like to find the largest desert ironwood in Ironwood Forest National Monument, and we need your help.

Just pay attention to the ironwoods as you hike, and you’ll soon recognize the bigger ones. Find a really big one and let us know where it is. A big tree hunter will measure it.

GPS coordinates are best, but a really clear set of directions may help us find the tree. A photo of the tree would be good.

You can also help by doing a rough measurement. Estimate the height and the crown spread of the tree. Then gauge the trunk diameter at breast height, about 4.5’ above the ground.

The largest so far? It is 25’ tall, 35’ wide, and 2.5’ in diameter. That gives it 128 points, i.e., height + 1/4 of the spread + the circumference in inches.

Send your tree nomination to:

info@ironwoodforest.org

Good big tree hunting!



In the Backyard

with Monument Manager Claire Crow

While trimming the Mexican bird-of-paradise tree in my backyard, I glance down at the diminutive fairy duster shrub, which has almost miraculously recovered from the brown, nearly leafless appearance it had a month ago. I had worried that I would lose it.

On my first few trips out to the Ironwood Forest National Monument (IFNM) a few years ago, I learned the common names of the plants I found most captivating, so that I could purchase the same species from local native plant growers and replace most of the non-native plants in my yard with species found in IFNM. That fairy duster means a lot to me, as it connects me to the IFNM while I am not physically there.

This is an interesting property of the human mind. We can value and feel engaged with natural and cultural resources, even when those resources are not immediately available to any of our senses. I can derive joy from just knowing that there are special places where people can hike across the desert without a trail, enjoying views of rugged desert peaks, listening to cactus wrens, and finding a petroglyph.

The IFNM provides the opportunity to truly experience the crispness of early morning and the searing heat of summer days.

The Monument also provides amazing connections with people who share these values. IFNM volunteers work together with purpose and a great sense of fun. Neighbors notify the BLM of erosion issues and unauthorized activities. A rancher teaches our border restoration youth interns how to build a fence. Recently, a hunter discovered the second organ pipe cactus known in IFNM!

A special acknowledgement and celebration of volunteer contributions will take place on the IFNM on April 13. Exceptional thanks is due to FIF President Gaile James, who puts in many hours of planning outstanding events, keeps communication flowing between FIF and the BLM, and brings delicious food to volunteers in the field at special volunteer events.



The second organ pipe cactus in IFNM. Photo by K. Cook

Every volunteer brings something important to IFNM, so that the Monument can continue to bring amazing experiences, inspiration, and joy to all of us.

The author: *Claire Crow is the IFNM Monument Manager. She earned her MS degree in Wildlife Management and Conservation from the University of Arizona. Claire loves to ponder the parallels and connections between the microcosmic and macrocosmic realms. She also immensely enjoys hiking and meditating in the Sonoran Desert.*

Roll Out the Barrels

by Bill Thornton

Ironwood Forest National Monument (IFNM) may be best known for its namesake tree, but the monument also encompasses a particularly rich and diverse Sonoran desert habitat with many other botanical treasures, oddities, and curiosities.

The Waterman Mountains, for example, are the only location in Arizona where the ranges of three of the state's five indigenous barrel cacti overlap. One of these is an endangered species.



Large fishhook barrel cactus. Photo by Scott Roederer

The most common barrel cactus in our area is the fishhook barrel cactus (*Ferocactus wislizeni*). Like other barrel cacti, it is often called “compass cactus” because of its tendency to lean toward the south as it grows older and larger. And it does grow large, reaching six feet or taller. It is widely distributed through central and southern Arizona, ranging south into Sonora, Mexico and east into New Mexico.

In IFNM and nearby areas, the plant occasionally develops abnormally long spines that can form a spiral or curlicue pattern. The botanical name *Ferocactus* (literally “iron

cactus”) fits well. It's tough. If reasonable care is taken, it nearly always survives transplanting, even when much of the original root system is lost. The Cactus Rescue Program of the Tucson Cactus and Succulent Society (TCSS) has salvaged thousands from sites slated for development, with an estimated replanting success rate approaching 90%.

If you want a landscape plant that needs very little water and thrives on neglect, you can't go wrong with our fishhook barrel cactus. Native plants and a golden-spined variety developed by Cactus Rescue Program cofounder Chris Monrad are available at several local nurseries.

TCSS has sales of rescued cacti each year, including the “Bloomin' Barrel” sale, usually held in August when the plant is in full bloom. Check their website at www.tucsoncactus.org/ for information on sales and a list of business sponsors that includes nurseries.

The Watermans are at the eastern limit of the range of our second barrel cactus, the fire barrel or California barrel cactus (*Ferocactus acanthodes* aka *F. cylindraceus*). IFNM is one of the



Fire barrel cactus. Photo by Scott Roederer



Nichol's Turk's head cactus. Photo by Scott Roederer

few areas where its range overlaps with the fish-hook barrel cactus. Fire barrel is the common barrel cactus in the Phoenix area. Like the fish-hook barrel, it can reach six feet or more in height. It ranges across central, western, and southwestern Arizona into southern California, southern Nevada, southern Utah, and south into Mexico.

The fire barrel cactus is a beautiful plant with brilliantly colored spines ranging from red to golden. Although found in the Watermans, the fire barrel is not abundant. Your best bet to see the plant in habitat is along trails in the Phoenix Mountain Preserve. Magnificent specimens are easily seen along I-8 between Imperial Valley and Desert View Tower near Jacumba, CA.

To date TCSS has not conducted cactus rescue operations in fire barrel habitat, but plants are available at some local nurseries and possibly at the Desert Botanical Garden sales in Phoenix.

Our trio of barrels is complete with the endangered Nichol's Turk's head cactus (*Echinocactus horizonthalonius* var. *nicholii*), believed to be a relict population at the western limit of what was once a contiguous distribution of Turk's head cactus (*E. horizonthalonius*). It is a common Chihuahuan desert cactus widely distributed on limestone hills in eastern New Mexico, from Albuquerque south to west Texas and

south into Mexico. For reasons unknown, the populations that occupied the area between southern New Mexico and southern Arizona died out, leaving the isolated Arizona populations to evolve separately into a recognized subspecies.

The Nichol's Turk's head cactus strongly resembles its Chihuahuan desert cousin but grows somewhat larger. The Nichol's Turk's head tops out at about a foot. Its Chihuahuan desert cousin is a little shorter. Ribs of mature specimens often show a distinct right or left swirl.

As a federally listed endangered species, it is illegal to possess a Nichol's Turk's head cactus without proper documentation. The Chihuahuan desert Turk's head cactus is available from local nurseries.

Meet the Monument Moves to Spring

The fifth annual Meet the Monument, a public education program organized by Friends of Ironwood Forest, drew over 200 participants on Nov. 14, 2015.

Guided hikes, nature walks, and programs by local experts highlighted the event.

The FIF board hopes to attract even more people by moving MTM to spring. The date has not yet been set.

Check future editions of this newsletter or the FIF website for more information:

ironwoodforest.org

Volunteers ...



... lead hikes, restore former mining roads, maintain trails, organize Meet the Monument for 200+ participants, and do lots of other work for Ironwood Forest National Monument!



To volunteer, email Gaile James:
gaile@ironwoodforest.org

2015 Members and Supporters

Thank you to everyone who donated to Friends of Ironwood Forest for our fiscal year 2015, which ended in September.

Because we are an all-volunteer organization, your generosity and your love of Ironwood Forest National Monument are doubly appreciated.

The people and organizations listed here donated last year. If your name should have been on this list and isn't, please let Board President Gaile James know at gaile@ironwoodforest.org.

Briggs & Pat Ackert	Mary Hoover & Vaughn Smith	Alburt Pifer
William D Adler	Suzanne Horst	Lollie B Plank
John Alanis	William Horst	Dale Pogorelski
Dabney Altaffer	Peter & Evelyn Hubbell	Clive Probert
Jim Ambrose	Bob & JoAnne Hungate	Shelley (Rochelle)
Florence Andersen	Cheryl Hunter-Houser	Rasmussen
Peter B Andersen	Dianne Huston	Bill & Alice Roe
Barry Armstrong	"Tom" Taylor James	Scott & Julie Roederer
Jenny Neeley & Sergio Avila-	Tom & Gaile James	Karl Sachs
Villegas	Ann Johnson	Paula Schlusberg
Jim Avramis	Michael Johnson	Paul & Diane Simmons
Ray Bagley	Caryl Jones	Claire Stahler
Sandy Bahr	Diane Kelly	David G Stevens
Royce Ballinger	Dale L Keys	Barry & Sandy Stevenson
Peter Bazzoni	Bart & Julie Koehler	Nancy Surdoval
Deron Beal	Carl & Sharon Koprowicz	Michael Tamarack
Peter Bengtson	Sue Kozacek	Donna Tang
Anita Benike	Ruth & James Kurtis	Wayne & Rita Thelen
Lynn Bevill	Marvin Larson	Bill & Sue Thornton
Jeffery Blackburn	Laurie Larwood	Ann Tousley
Thomas Blandford	Kathi LaTourrette	Jim Treat
Maria Platia & Michael	Phil & Pam Lopes	Virginia Vander Veer
Bookman	John & Rosita Lutzel	David Yetman
Rodney & Connie Boorse	Wanda Wynne & Craig	Wylene Vinall
Gary Borax	Marken	Frances Ann Walker
Kay Botel	Ross Markwardt	Nancy Wall
Bruce & Carmelita Brown	Beau McClure	Don & Audrey Weber
Cheryl Cage	C. Gene & Barb McCormick	Meg Weesner
Carol & Bill Coburn	Mary Elizabeth McCullogh	Frances Werner
Glendon & Marion Collins	Pat & Rachel McCusker	Esther White
Stephen Joel Coons	Pat & Carol McDonald	Bill Astle & Karen Wiley
Ed & Cheryl Daum	Shela McFarlin	Cynthia Williams
William Doelle	James & Nan McKay	David Willsey
Don & Carol Eagle	James & Carole McLean	Bill & Beth Woodin
Larry & Judy East	Matthew McWen	John Woodin
Butch Farabee	Charles Miles	Susan Worboys
Gloria Fenner	Saralaine Millet	Sally Ziegler
Daniel Fischer	Drew Milsom	Elaine Zielinski
Paul & Vicki Flemm	Karen & Larry Morrison	
Fred Fruchthendler	Don Musshafen	
James Gessaman	Jessica Myrick	
Leslie Glass	Ed & Carol Nigl	
Bruce & Vivianne Gold	Emily Nottingham	
Lucinda Grace	Katharine Olmstead	
Kenneth Hall	Thomas & Anna Panka	
Steve & Kathy Hansen	Tom & Barbara Patterson	
Marilyn Hanson	Karen & Michael Payne	
Gordon Hanson	Judy & Paul Petterson	
David Hardy	Joan Person	
Don & Marilyn Heller	Jim & Marcia Phillips	
Marian & Ron Hill	Lorel V. Picciurro	

Become a member of Friends of Ironwood Forest Today

We care about IFNM. We hope you do, too. We rely on the financial support of members to help us with our mission of protecting the resources of IFNM, enhancing the visitor experience there, and creating awareness.

Please join FIF today.

Basic membership is \$35, but additional contributions help us with our efforts.

Contribute online with a credit card or PayPal at:

www.ironwoodforest.org

or by sending a check payable to Friends of Ironwood Forest to:

738 N. 5th Ave.,
Suite 114
Tucson, AZ 85705

Be sure to include your name, address, and email address.

Community Supporters

Arizona Lottery
CLF
Long Realty—Cynthia Williams
MET Foundation,
Pima Federal Credit Union
Public Lands Foundation
Trico Electric Cooperative

**Late
breaking
news on the
next page!**

Our Mission: Friends of Ironwood Forest is a local non-profit organization that works for the permanent protection of the biological, geological, archaeological, and historical resources and values for which the Ironwood Forest National Monument was established. The Friends provides critical volunteer labor for projects on the Monument, works with the Bureau of Land Management and many other partners, and strives to increase community awareness through education, public outreach, and advocacy.



NPS photo

Bighorn Sheep Spotted in Saguaro NP West after 60 Years

The *Arizona Daily Star* reported that visitors saw two desert bighorn sheep in Saguaro National Park West on March 15. The sighting was confirmed by a photo from a remote wildlife camera used by the National Park Service to monitor animal activity.

Based on tracks and other factors, Park biologists believe the two young rams traveled to Saguaro NP from Ironwood Forest National Monument, northwest of the Park.

According to Park biologists, there was a herd of bighorn in the Tucson Mountains in the 1930s. There are no reports of sightings in the Park after the 1950s.

Biologists said young bighorn often move around looking for new territories. They asked visitors to be sensitive to the bighorns by not approaching them.