



# NATIONAL WILDFLOWER RESEARCH CENTER

# wildflower

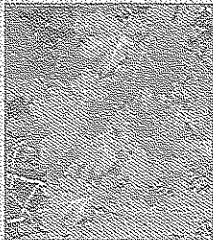
September/October 1997

Volume 14, Number 5

## Autumn Color by Numbers

Spring may be a great time to see colorful flowers, but autumn is the best time to see colorful leaves! If you happen to be on the road, consider calling these numbers to find the best looking routes. If you know of fall foliage hotlines in states not listed or have corrections to this list, send this information to the Wildflower Center for next year's list.

By Michael Alder



- Arkansas: (800) NATURAL
- Alabama: (800) ALABAMA
- Connecticut: (800) 282-6863
- Delaware: (800) 441-8846
- Idaho: (800) VISITID
- Illinois: (800) 223-0121
- Indiana: (317) 232-4002
- Iowa: (515) 233-4110
- Kansas: (913) 296-2009
- Kentucky: (800) 225-8747
- Maine: (800) 533-9595

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## NATURE'S WEBMASTERS

Spiders may occasionally frighten people, but ecologically they are very important predators in gardens, fields, and forests. North America is home to about 3,000 of the more than 35,000 named spider species, and they occur in nearly every habitat -- from bare rock and sandy desert to lush forests. There are even some truly aquatic species!

Agricultural studies show that spiders may be important predators on pest insects. Wolf spiders consume substantial numbers of leafhoppers in rice fields, and lynx spiders are major predators on cotton pests. Studies in wheat fields indicate that aphids are a major component of spider diets there. And in experiments where spiders were removed from citrus trees, the trees suffered more damage from insect pests. Another carefully controlled experiment demonstrated that spiders can limit pest numbers in mixed vegetable gardens: Investigators added mulch to experimental rows of veg-

etable plants, which increased spider densities substantially; crop damage was less where spiders were abundant.

Overall, spiders are the good guys in a garden.

### What Are Spiders?

Like insects, crabs, centipedes, and shrimp, spiders are *Arthropods*, which are joint-legged invertebrates with an external skeleton. In particular, spiders and their kin form a unique class called the *Arachnida*. The *Arachnida* are mostly eight-legged creatures with no antennae and a fused head and thorax (called a *cephalothorax*). Eight legs and the absence of three distinct body parts are what separates the *Arachnids* from the true insects. Scorpions, harvestmen, whipscorpions, mites, and ticks are also in the *Arachnida*, but they are not spiders. Within the spider group, tarantulas and trap-door spiders form their own sub-group from the many families of true spiders (while



tarantulas and trap-door spiders look just like other spiders from a distance, they are placed in their own sub-group based on small physical characteristics, such as the attachment of the mouthparts and the number of lungs).

After mating, females lay one or more egg sacs, each sac containing up to hundreds of eggs. Tiny, newly hatched spiderlings disperse and start foraging. The more the spiderlings eat, the faster they grow. At intervals, they shed their external skeleton and molt to a larger size. If they survive predators (such as birds and lizards) and parasites (such as wasps and flies), spiderlings molt to adulthood and reproduce. While most true spiders live for only one season, tarantulas may live as long as 20 years.

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Director's Report:

### Money Doesn't Grow On Wildflowers

To accomplish our mission, the Wildflower Center relies on several sources of revenue. This table illustrates our fund sources over five years, showing each revenue source as a percentage of total revenue.

As with any nonprofit organization, contributions are an important and appreciated source of support. In the past five years, we received about one-fifth of our total revenue from contributions. In 1995, the ratio was higher due to two grants totaling \$225,000 supporting new exhibits. It's important to note that we receive no financial support from federal, state, or local government sources, and we rely on contributions from individuals, corporations, and foundations.

Our capital campaign raised \$7.5 million dollars. We invested that money, together with more than \$500,000 in investment income and \$2 million from our reserve fund, in building the new Wildflower Center facility.

Since moving to the new Center in 1995, fund

Budget	1993	1994	1995	1996	*96/97
Contributions	18%	19%	30%	18%	22%
Capital Campaign	41%	34%	11%	2%	0%
Fund Raising Events	7%	9%	17%	15%	16%
Membership	19%	19%	16%	21%	19%
Store Sales	9%	11%	13%	21%	20%
Admissions & Tours	0%	0%	3%	9%	7%
Facility Rental	0%	0%	1%	6%	4%
Education Program Fees	0%	2%	1%	2%	4%
Licenses & Royalties	1%	1%	1%	1%	1%
Investment Earnings	5%	5%	7%	5%	7%
Total revenue	100%	100%	100%	100%	100%

### Sources of Wildflower Center Revenue

\* January through  
September; change  
in fiscal year.

raising events are a more important source of revenue, going from 9% to 16% of total revenue. We hope that once we raise an adequate endowment, we will not be so dependent upon fund raising events.

Membership dues represent one-fifth of our revenue. Before opening the new Center, we acquired members primarily through direct mail campaigns. These efforts are very costly, and we do not realize net income until members renew twice. At the new Center,

we also acquire members who join while visiting. Acquiring new members this way is far less expensive.

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Greg Grace, CPA, is  
Director of Finance and  
Operations at the  
Wildflower Center

The purpose of the  
National Wildflower Research Center  
is to educate people about the  
environmental necessity,  
economic value, and  
natural beauty of native plants.

Founder  
*Lady Bird Johnson*

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## NEWS! WILDFLOWER CENTER NEWS!

A grant from the Meadows Foundation will allow the Education Department to enhance the indoor and outdoor spaces at the Children's Little House. Grants from the Brown Foundation and the Rockwell Fund, Inc., will help begin production of a series of regional booklets, which will replace the state-by-state Factpacks currently provided by the Clearinghouse.

A generous grant from the T.L.L. Temple Foundation will allow a much-needed expansion of *Wild Ideas: The Store*. The ground-breaking takes place this fall, and the expansion should be completed in time for the spring rush.

The Wildflower Center received three awards from the Texas Festival & Events Association for products associ-

ated with the annual Wildflower Days Festival: Best Program, Best Print Ad, and Best PR Campaign.

The National Arbor Day Foundation named the Wildflower Center the recipient of its Good Steward Award. This annual award recognizes individuals or organizations for excellence in conservation work and stewardship on private property.

Volunteers from gardens across North America will visit the Wildflower Center September 18 - 20 for the INTERaction '97 Conference. The Wildflower Center is delighted to host this international conference. For more information, call Peggy Bud at (512) 292-4200 ext. 102.

# SPIDER FACTS

Some tropical orb-weaver spiders of the genus *Nephila* spin webs that stretch more than 18 feet across and can capture insects, small birds, and bats.

The smallest spider in the world is the Samoan moss spider (*Patu marplesti*), which is about the size of the period at the end of this sentence.

The largest spider in the world is the giant bird-eating spider (*Theraphosa blondi*) of South America. Females may have a leg-span of 10.5 inches, a body length of 3.5 inches, and may weigh as much as 4.3 ounces.

Most spider species have eight simple eyes. Some spider classification is based on the number and arrangement of the eyes.

Spitting spiders have glands on their cephalothorax which produce a sticky secretion they squirt to subdue prey.

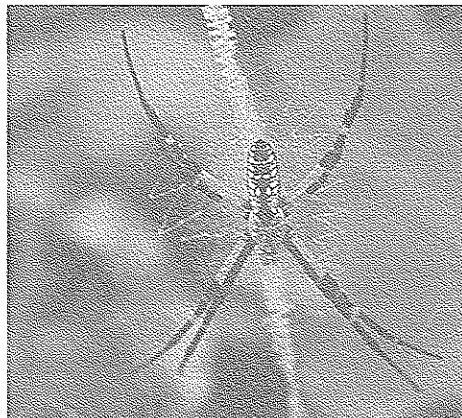
The venom of the female black widow spider is especially poisonous to humans. Male black widow spiders do not bite.

## Thanks!

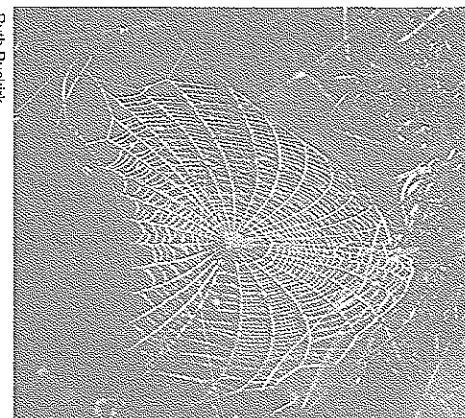
Thank you for sending information about your favorite native plant nurseries, growers, and landscapers! Our Clearinghouse database now lists more than 4,000 native plant sources across North America.

Clearinghouse information is available to Wildflower Center members at a discount as one benefit of membership. For a Clearinghouse Order Form, write to the Wildflower Center or e-mail your address and request to [nwrc@onr.com](mailto:nwrc@onr.com).

Ruth Buskirk



Ruth Buskirk



Spiders continued from page 1

## Friends For Dinner

All spiders are predators, and use venom to kill or paralyze prey. Spiders have evolved many different ways of capturing prey. Some, like trap-door spiders, build elaborate, camouflaged traps on the ground. When they detect the vibration of prey walking by, they leap out and grab their meal. Other spider species spin simple to complex webs and wait until something falls, flies, or stumbles in. Still others throw loops of silk around their struggling prey like a cowboy roping a steer – one way spiders can capture and subdue prey larger than themselves.

Most spiders are fairly general feeders; they will accept any prey they can catch as long as it's the right size. As a result, spiders feed on a wide variety of insects, and will feed most often on those common to their habitat.

## Web Browsing

All spiders make silk, a fibrous protein they produce as a liquid in silk glands. The liquid silk is stretched into a solid as it is pulled out of spinnerets at the tip of the abdomen. A spider continuously drags a fine

line of silk as it moves, occasionally tacking it down.

Spiders use silk to prepare egg sacs as well as to construct their retreats. Tiny spiders actually can use silk for aerial dispersal. These miniature “balloonists” release a bunch of silk and let it waft in the breeze until it lifts them into the air.

Many families of spiders spin characteristic types of webs. Have you heard of the funnel-web spiders or the bowl-and-dozily web spider? How about the nursery-web spider? In fact, some spiders' webs are so unique, they are used as the basis for the spiders' classification.

Spiders that build geometric orb-webs use both sticky and non-sticky silk in construction. Many orb-weaving spiders build a fresh orb every day, at dawn or at dusk, depending upon the activity time of the spider. The spider then sits in the center of the orb or just off to the side, waiting for prey. Before calling it a day (or night), the orb-weavers gather up the sticky silk from their web and eat it. This way, these spiders can recycle and conserve nutrients in the silk.

## Final Thoughts

Before you rush off to introduce spiders to your gar-

dens as bio-control agents, keep in mind that spiders do not specialize on specific pest species. They sometimes eat helpful predators and even other spiders! All in all, though, spiders occur in such high numbers and in so many ecological niches you probably have enough to protect your plants without introducing more.

If you would like to learn more about spiders, take a look at the classic book *American Spiders*, by W. J. Gertsch, or the more technical *Biology of Spiders*, by R. F. Foelix.

Attractive, helpful drawings of common spider families and a lot of useful information also can be found in the Golden Nature Guide *Spiders and Their Kin*.

Perhaps the best way to learn about spiders is to watch these fascinating creatures in action. Your observations may even turn you into your own “webmaster.”

*Dr. Ruth Buskirk is a Senior Lecturer & Research Scientist at The University of Texas at Austin. She also is director of The University of Texas at Austin summer undergraduate research program in molecular biology.*

# Wildflower

## B I G B U G S

### Spiders may be best known for the fascinating webs they weave

Although all spiders have the ability to produce silken threads, not all spiders build webs. Webs are just one way many types of spiders capture prey. Web builders strategically place their webs so that insects become entangled in their trap.

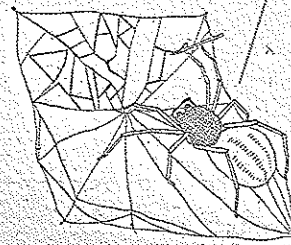
When an insect lands on the web, the spider rushes over, bites the prey, and injects a paralyzing poison. The insect then is wrapped in silk. Now it's time to eat! The spider spits up digestive juices over its prey so that the prey becomes liquid. The spider then "drinks" its dinner. Yum!



### It's a spider's life

Gather your friends and try out a game that will give you a "feel" for a spider's life. Go to the marked area behind the Theme Gardens. Here you will find a giant spider web on the ground. Choose one person to be the "spider," and one to be the "fly." The other players can make a circle around the web to form a boundary. The spider must try to capture the fly while only walking on the web. The fly must try to avoid being tagged by the spider, being careful not to step on the web! The game is over when the fly steps on the web, is tagged by the spider, or time is up.

Dear kids, we spiders are so often misunderstood. We do so many things to help the Earth. We keep a check on insect populations. I guess you could say we're the mountain lions of the bug world. Thank you for being a special, super spider-friend.



### Try it at home: Spider speak

Fill in the  with a vowel (a, e, i, o, u) to make a spider word.

- w  b
- s  l k
- p r  y
- r  c h n  d
- w r  p
- p   s  n
- s p  d  r
- t r  p

BONUS:

- d  g  s t  v  j   c  s

Pages from our On-Site  
Activity Book  
*BIG BUGS for Little People*  
for ages 3 -12 years of age.



## HOT LINE

*continued from page 1*

Massachusetts: (800) 227-MASS  
Minnesota: (800) 657-3700  
Missouri: (800) 898-8895  
Montana: (800) VISITMT  
New Jersey: (800) JERSEY7  
New York: (800) CALLNYS  
North Carolina: (800) VISITNC  
Ohio: (800) BUCKEYE  
Oklahoma: (800) 652-6552  
Rhode Island: (800) 326-6030  
South Carolina: (800) 849-4766  
Tennessee: (800) 697-4200  
Texas: (800) 452-9292  
Vermont: (802) 828-3239  
Virginia: *Skyline Drive & Shenandoah National Park:*  
(540) 999-3500  
*Blue Ridge Parkway:*  
(704) 298-0398  
West Virginia: (800) 225-5982  
Wisconsin: (800) 372-2737

In addition, the National Forest Service runs the National Fall Foliage Hotline, which may be reached at (800) 354-4595.

# F *From the* E L D

## Mid-Atlantic

**New Hope, PA:** *Blending Horticulture, Design & Ecology, September 13, Asters & Goldenrods, September 27, Tree Identification, October 25, Contact:* Bowman's Hill Wildflower Preserve, Box 685, New Hope, PA 18938, (215) 862-2924.

**Richmond, VA:** *Go Native! Reclaiming the Wild Heritage of Your Home Garden, October 3-4, Contact:* Lewis Ginter Botanical Garden, 1800 Lakeside Ave., Richmond, VA 23228, (804) 262-9887.

## Southeast

**Atlanta, GA:** *8th National Urban Forest Conference, September 17-20, Contact:* American Forests, 8th National Urban Forest Conference, Box 2000, Washington, D.C. 20013, (800) 368-5748.

**Memphis, TN:** *Mid-South Native Plant Conference, October 24-26, Contact:* Larry Wilson, c/o MSNPC-LC, 5992 Quince Rd., Memphis, TN 38119, (901) 680-9756.

**Ft. Lauderdale, FL:** *Ecological Restoration and Regional Conservation Strategies, November 12-15, Contact:* ALCA, 150 Eden St., Suite 270, Herndon, VA 20170, (800) 395-2522.

## Oklahoma/Texas

**Austin, TX:** *Plant Identification, September 13, Contact:* Wild Basin Wilderness, 805 N. Capital of Texas Hwy., Austin, TX 78746, (512) 327-7622.

**Austin, TX:** *Fall Field Day, September 21, Contact:* National Wildflower Research Center, 4801 La Crosse Ave., Austin, TX 78739, (512) 292-4100.

## North Central/Midwest

**LaFox, IL:** *Prairie Hike, September 13, Contact:* Garfield Farm Museum, LaFox, IL 60147, (630) 584-8485.

## Southwest

**Gallup, NM:** *1997 Annual Meeting of The Native Plant Society of New Mexico, September 12-14, Contact:* The Native Plant Society of New Mexico, Box 5917, Santa Fe, NM 87502.

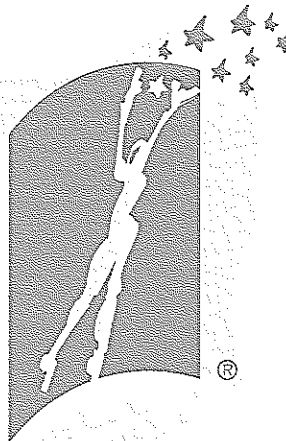
**Tucson, AZ:** *Annual Meeting of the Arizona Native Plant Society, October 25, Contact:* Arizona Native Plant Society, Box 41206, Sun Station, Tucson, AZ 85717.

## California

**San Marino, CA:** *New Trends in Succulent Classification, September 27, Contact:* The Huntington, 1151 Oxford Rd., San Marino, CA 91108, (626) 405-2160.

*Editor's Note:* The Wildflower Center receives workplace contributions through Earth Share of Texas, an affiliate of the national Earth Share organization. This article answers questions about how the Center benefits from Earth Share.

## Help the Wildflower Center Through Earth Share



Max Woodfin  
Executive Director  
Earth Share of Texas

You may have noticed the Earth Share logo on the back of your newsletter or, perhaps, heard that the Wildflower Center is a member of Earth Share of Texas. You also may have wondered what Earth Share is and what this means for the Center and its supporters.

Earth Share is headquartered in Washington, D.C., and represents 70 national, state, and local environmental organizations as their fiscal agent for workplace payroll deductions. Earth Share of Texas is one of three state affiliates; the others are in California and Washington. As a member of Earth Share of Texas, the Wildflower Center

gains increased visibility among Texas employees and is represented in workplaces across the country by Earth Share affiliates.

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Earth Share allows the Wildflower Center to devote more time to research and education.

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Together with the Wildflower Center, other well-respected national and international organizations represented by Earth Share are the National Audubon Society, Ducks

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Unlimited, the Izaak Walton League, The Nature Conservancy, the Sierra Club Foundation, the Union of Concerned Scientists, The Wilderness Society, and the World Resources Institute.

In Texas, all state employees; most federal employees; and municipal employees in Houston, Austin, and Dallas have the opportunity to contribute to the Wildflower Center and Earth Share. In addition, employees at Dell Computers and Whole Foods Markets also find the Wildflower Center and Earth Share listed on their payroll choice cards. On the national level, Kinko's, Sears, Wells Fargo Bank, REI, Allstate Insurance, and Cirrus Logic all list the Wildflower Center and Earth Share in their payroll plans.

It's easy to find out if you have the option to further the goals of the Wildflower Center through Earth Share. Simply ask your employer if the Wildflower Center and Earth Share are listed among the choices on your payroll deduction pledge card. If not, you can call Earth Share at (800) GREENTX.

Another revenue source that increased in importance is store sales. They doubled as a percentage of total revenue, going from 9% in 1993, to 20% in 1997. Once we complete our store expansion, we hope to increase this number.

At the old Wildflower Center, visitors were free to drop by, and we conducted limited numbers of tours. At the new Center, however, we charge a small admission fee and conduct many more tours, especially in the spring.

Once we moved into the new Center, we began renting space to groups who use it for meetings and seminars during the day and for social events after hours. The Wildflower Center also has become a popular site for weddings!

The Education Department charges fees for its public programs, conferences and seminars, consultations, publications, and Clearinghouse orders. These activities are, of course, the heart of our mission, and the fees charged do not come

anywhere near offsetting the related costs.

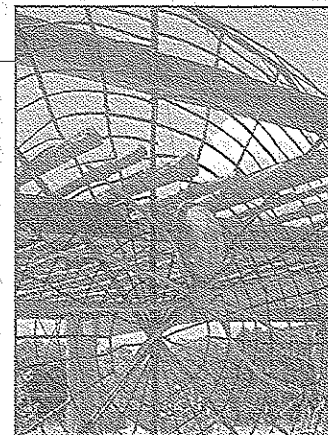
We continue to receive funds through several licensing agreements. For example, we have agreements with Abbeville Press for production of wildflower books and calendars, which you can find at our store and stores across the country. We hope to capitalize on the growing popularity of the Wildflower Center as a means of expanding this source of funds.

Finally, investment earnings are a constant, yet currently small, source of revenue. This income is primarily from reserve fund investments. We hope to raise a substantial endowment that will provide increased investment earnings.

We depend upon contributions and fund raising events for 40% of our operating budget. Our goal is to become even more self-sufficient through additional memberships, store sales, admissions, tours, rentals, licensing, investment earnings and an endowment. With your continued support, we can reach our goal.

### Ya Just Gotta See 'Em!

The BIG BUGS outdoor sculpture exhibit continues to amaze and enchant Wildflower Center visitors, and will do so through November. Don't miss this opportunity to see a truly unique exhibit in a truly unique setting. Enjoy the exhibit free with Wildflower Center admission.



NATIONAL WILDFLOWER RESEARCH CENTER  
4801 LA CROSSE AVENUE, AUSTIN, TEXAS 78739

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Austin, Texas

- ✿ General Information, (512) 292-4100
- ✿ *Wild Ideas: The Store*, (512) 292-4300
- ✿ Membership, (512) 292-4200
- ✿ Web Site, [www.wildflower.org](http://www.wildflower.org)



The Wildflower Center is a member of Earth Share of Texas

## Grow Native

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