

Yes, I support The Dogwood Fund!

Contributor levels

- Fan - \$25 Sponsor - \$500
 Friend - \$50 Patron - \$1,000
 Ally - \$100 Benefactor - \$2,500
 Supporter - \$250 Plant Explorer- \$5,000
 My company matches gifts. I have enclosed a matching gift form.

All contributors will receive The Dogwood Fund decal and updates on research and travel opportunities.

Patron level donors and above will be invited to participate in a hands-on seminar on identifying plants and plant families. \$30 registration fee required.

Benefactors may designate up to \$1,000 of their payment toward airfare for a short course in China. (See back panel for details.)

Plant Explorers may designate up to \$3,000 of payment toward the cost of participation in short course.

(Typical total program cost is approximately \$3,000, of which \$900 - \$1,200 is airfare.)

Contact information

Name.....
 Company.....
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 City.....State.....Zip.....
 Phone.....Fax.....
 Email.....

Payment information

- Cash Check (Payable to The Dogwood Fund)
 Charge my: MasterCard VISA

Card Number:

Expiration Date:

Name on Card:

Signature:

Please allocate 100% of my gift to support the Fund.

Please contact me about allocating part of my gift toward a payment for the Study Abroad Program. I understand that such allocations are not tax deductible.

Send to: The Dogwood Fund, NC Agricultural & Life Sciences Research Foundation, NC State Box 7645, Raleigh, NC 27695. You will receive an official receipt for the tax deductible portion of your contribution.

Or click here...



...to make an online gift!

Explore China as a Plant Explorer!



Contributors to The Dogwood Fund are eligible to register to join students from NC State and Zhejiang University for a three week summer short course on *Plant Resources and Ecology in Eastern China*. Through lectures and field trips to natural areas in eastern China, participants gain skills in field botany and knowledge of wetland and lake ecology, taxonomy, biogeography and plant biodiversity. Faculty leaders also share their broad knowledge of Chinese history, religion, and customs as students enjoy visits to famous Chinese gardens, markets, museums in Shanghai, Hangzhou, and Suzhou, and Buddhist and Taoist temples in the mountains.

The trip is led by Dr. Jenny Xiang, Associate Professor of Plant Biology and dogwood researcher at NC State University, and Dr. David Boufford, Senior Botanist at the Harvard University Herbaria. Dr. Xiang is a native of China with botanical field experience in many areas of China, and a long term collaborative relationship with Zhejiang University. Dr. Boufford is a world famous botanist with extensive field experience in Asia, and is among the most knowledgeable persons in the U.S. on the floras of eastern Asia and North America.

The course registration fee of \$5,000 for non-students includes air and ground transportation, dining, museum and park admission costs, accommodations, and an approximate \$2,000 contribution to The Dogwood Fund.

For additional information contact Dr. Jenny Xiang at 919-515-2728 or jenny_xiang@ncsu.edu.



The Dogwood Fund

Exploring and preserving natural resources

Uncovering the genetic code controlling dogwood flowering and resistance to disease and stress

Translating the secrets of plant science into beauty in the garden



Protect worldwide biodiversity of dogwood species & the future of our native Flowering Dogwood

Contribute to The Dogwood Fund Today.

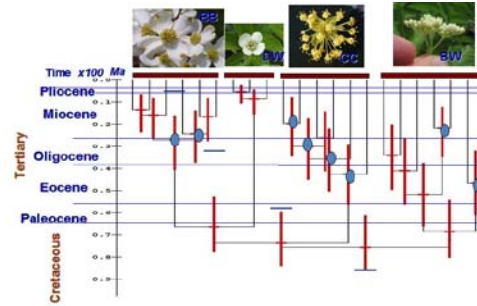


Threat to a Native Beauty

The North American flowering dogwood, *Cornus florida*, is treasured for its beauty in woodlands and gardens, and is a key component in the ecology of forests in the eastern United States. It is economically significant as well, with sales yielding an estimated \$30 million per year for the Tennessee nursery industry alone. However, this beloved tree – as well as other ecologically and horticulturally important *Cornus* species – are under pressure from a number of fungal pathogens. The most significant, dogwood anthracnose, has been reported to cause death in 48 to 88 per percent of the *C. florida* population in certain regions of the southern Appalachian mountains.

Plant scientists have identified cultural techniques to prevent or manage dogwood anthracnose, including mechanical and chemical growth management, water management and fungicide treatment. Even with treatment, many trees succumb to the disease. Preliminary work has been attempted to selectively breed or genetically transfer resistance in ornamental dogwood species (Daughtrey et al. 1996), but forest trees would still remain at risk for the disease.

Additional research is essential to combat the threat to both forest and ornamental dogwood populations.



Keys to Resistance in Genetic Code

How many dogwood species are in the world?

How do they differ and where are they found?

How does this information help us preserve our forests and improve the health and variety of dogwoods in the landscape?

A team of scientists from NC State's College of Agriculture and Life Sciences is pursuing the answers to these questions and more in her research on plant systematics and plant genetics and evolution. The researchers are using molecular data to reconstruct the evolutionary history of the dogwood family (Cornaceae), as well as how its many current and ancestral species dispersed through continental and intercontinental migrations around the world. These molecular studies are also helping resolve longstanding controversy about which species are truly members of the family Cornaceae.

Molecular genetic research holds the key to defeating dogwood anthracnose and other environmental stresses. Asian dogwood species are less susceptible to anthracnose. NC State researchers are working to identify the genetic traits that promote this resistance, and then taking the next step to introduce these traits into North American species.

Breeding Dogwoods of the Future

However, this innovative work cannot thrive without funding. Federal funding that fuels plant systematic and genetic research does not support practical breeding work. With dedicated funding, researchers will work to pioneer an efficient transformation system for the species and identify genes controlling flowering time, floral display architecture and color, and resistance to diseases and drought.

Identification of these genetic controls is the first step in controlled breeding of new dogwood varieties that exhibit new and unusual flower structure, size, color, and bloom time. Most importantly, it will enable scientists to identify the natural populations that carry genetic resources for drought and disease resistance that can be used by dogwood breeders, providing a new line of defense against pressures on horticultural and woodland populations. The research team has established a transformation system for the bunchberry (a beautiful garden groundcover) and is working to identify the genes for flowering display and stress resistance. Additional funding will support work to translate these techniques to other tree species.

The Dogwood Fund

The College of Agriculture and Life Sciences at NC State University has established **The Dogwood Fund** to support research and development of dogwoods with enhanced disease resistance and floral variety. Tax deductible gifts to the fund will fuel plant exploration, genetic research, and development of disease and stress resistant dogwood varieties. Contributors will receive updates on research and opportunities to participate in study abroad trips in Eastern China with NC State dogwood research leadership.

Help ensure that future generations can enjoy the beauty of our native dogwood through your contribution to **The Dogwood Fund** today.