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very year, nearly 600,000 tourists come to see the cherry blossoms in Washington, D.C. They bring money to the local economy and take home photographs and memories of the beautiful blossoms.

Future visitors will have the U.S. National Arboretum in Washington to thank for a special gift—500 cherry trees propagated from the Yoshino trees presented by Japan to First Lady Helen Herron Taft in 1912.

Over the past 2 years, arboretum horticulturist Ruth L. Dix has grown the new trees, *Prunus x yedoensis*, from cuttings

taken from the original Yoshinos. Those were given as a thank-you to President William Howard Taft for his support of Japan during the 1905 Russo-Japanese War, when he was U.S. Secretary of War.

Trees don't live forever, and Yoshino cherry trees average 40 years. The surviving trees from the 1912 gift that surround Washington's Tidal Basin will be 87 years old when their blossoms open this spring. Not unexpectedly, it's estimated that only 125, or about 4 percent, of the original trees remain.

Last spring, a *Washington Post* newspaper article quoted retired National

Arboretum botanist Roland M. Jefferson and other botanists and landscape architects as saying something should be done to preserve the original cherries. In the 1980s, Jefferson devoted the last years of his career to collecting, evaluating, and preserving flowering cherry germplasm, in collaboration with the arboretum's shrub-breeding research program headed by the late Donald R. Egolf.

"We really didn't have a program to propagate replacements from the original trees. We just maintained the population from commercial nurseries," says Robert DeFeo, the National Park Ser-

SCOTT BAUER (K5877-18)

# Cherry Blossoms

Restoring a National Treasure



vice's chief horticulturist for the National Capital Region. In the 1930s, William Clarke of the W.B. Clarke Nursery in San Jose, California, gave a seedling selection of Yoshino called Akebono (meaning daybreak) for planting around the Tidal Basin. Those trees have pink flowers.

DeFeo says the Park Service keeps the Tidal Basin covered in springtime pinks and whites through its "Blossoms for Our Future" program, which receives contributions—often given as memorials—to replace dying trees with American nursery stock. But he says the National Park

Service understands why people get passionate about historic trees.

"There is a movement in the United States to preserve so-called witness trees," says DeFeo. "The sycamore that stood during the Battle of Antietam is another example. Employees with the National Park Service see that sycamore or the Yoshino cherries as giving living testimony, and they treat the trees like children," he says.

When the *Post* article came out, arborum director Thomas S. Elias and National Park Service officials decided to ensure the survival of the remaining orig-

inal cherry lines. "Tom Elias was great," DeFeo recalls. "He called me up and said, 'Just let us know what we can do.'"

Elias put DeFeo in touch with Margaret R. Pooler, a geneticist in the arboretum's Floral and Nursery Plants Research Unit. Pooler and DeFeo decided they should start taking cuttings right after cherry blossom time.

Complications pushed back the date to June 20—close to the end of the optimal time for cuttings. But Pooler knew that if the cherry trees could be propagated, Ruth Dix could do the job. Dix had already successfully propagated cherry





trees at the U.S. Naval Observatory that were part of the original 1912 gift.

It had taken two attempts to bring the cherry trees to Washington in 1912. The first shipment was diseased and had to be destroyed. The second contained 3,020 trees—mainly Yoshino and some later blooming *Prunus serrulata*—far more than the Tidal Basin could accommodate.

“The trees were too crowded, so they replanted some at other Washington landmarks, such as the Supreme Court, U.S. Naval Observatory, and Library of Congress,” says DeFeo, who used to work with Jefferson at the arboretum. “The library didn’t even know what they had until Roland found the records and told them.”

Those little-known plantings provided researchers a means of differentiating original trees from later replacements around the Tidal Basin and were an invaluable second source of original material for propagation.

“We couldn’t be too choosy,” says Dix of her time gathering cuttings at the Tidal

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**Horticulturist Ruth Dix (left) and geneticist Margaret Pooler check the progress of 2-year-old trees propagated from the historic Yoshino cherries given to the United States by Japan in 1912.**

Basin. “For any living thing, renewal and regeneration get harder as it ages—and these trees had already lived twice their normal lifespan.”

### Willing and Able Support

Cost was a significant factor in the propagation effort, which included fingerprinting of DNA by Pooler to help confirm the trees’ identity.

The project was financed in part by the J. Frank Schmidt Family Charitable Trust established by J. Frank Schmidt & Son Co., a wholesale grower of shade, flowering, and ornamental trees in Oregon.

“The cherry trees in Washington, D.C., are a national treasure,” says Jan Schmidt Barkley, who chairs this trust that supports horticultural research and education across the country. “The nursery industry and the public have benefited from the U.S. National Arboretum’s work. We have been happy to give back by underwriting the propagation effort.”

The nursery is also testing new cherry

## The Cherries’ Champion

Botanist Roland M. Jefferson has always loved Japanese flowering cherry trees. And he’s shared his passion with the world—from the Adachi Ward of Tokyo to the Tidal Basin in Washington, D.C. It was at the Tidal Basin that Jefferson fell in love with the historic 1912 Yoshinos, as an 11-year-old on a family outing in 1935.

After serving in World War II, Jefferson earned a degree in botany in 1950 from Washington’s Howard University. “I’d been accepted in dental school, but I never answered,” he says. “I knew I wanted to work in botany, so I accepted a job at the U.S. National Arboretum.”

Even with his degree, the only job he

could get with the arboretum in 1956 was labeling plants. And though he was promoted to botanist a year later, it wasn’t until 1972 that he began cherry tree research.

“I felt lucky that no one was doing anything on the history of the cherry trees,” he says. “I went to the National Park Service, the National Archives, and other libraries, assembling thousands of records that I put together into a history.”

*The Japanese Flowering Cherry Trees of Washington D.C.; A Living Symbol of Friendship* caught the attention of Tadashi Furusho, who was then mayor of the Adachi Ward section of Tokyo—the very place where the Japanese obtained cherry trees to give to the United States 87 years ago.

In 1980, the mayor sent a three-member team to visit the director of the arboretum, John L. Creech. They wanted to meet Jefferson. They had in mind a friendship park that would be filled with cherry trees.

But Yoshinos had become rare because of World War II damage and subsequent development. The National Park Service had provided some cuttings to the Adachi Ward earlier, but more were needed. Jefferson already had a solution.

“As part of my studies, each year I recorded the blooming dates of Potomac Park cherries,” says Jefferson. “Over time, I could see the original trees were aging and dying. So I got permission to take cuttings, and I propagated over 100 trees between 1976 and 1979.”



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tree hybrids developed by Pooler and her predecessor, Egolf.

“It is exciting to us that Dr. Pooler is working on cherry breeding; it’s very important to the nursery trade,” says J. Frank Schmidt’s horticultural expert,

Keith Warren. “We are evaluating several of her new cherry cultivars here in Oregon. We feel her work has great potential.”

Cherry trees have a beauty and compact size many urban gardeners like, but

they are vulnerable to insects, diseases, and flooding, Warren says. “That’s why Pooler’s work to toughen these trees up is so valuable.” Stronger cherries would require less fertilizer and pesticides.

Warren says that woody ornamentals are important not only to his company, but also to the economic well-being of his entire state.

“Nursery crops are the number-one moneymaker in the state of Oregon,” he says. “Last year, in terms of dollars earned, they brought in more than barley, wheat, or cattle.”

This kind of research will become even more important with the growing environmental horticulture industry—which includes trees, bulbs, and other outdoor landscaping plants. It has mushroomed from \$4.6 billion in 1986 to \$6.9 billion in 1997.

But while Pooler’s efforts may focus on new ornamental cherry hybrids, she is also exploring the genetic value of the 1912 trees. The ones still living may be extremely well-suited to city life—another

One of those trees was presented to Japanese ambassador Yoshio Ogawara in 1981 by First Lady Nancy Reagan. It was named the President Reagan cherry tree by Gov. Shunichi Suzuki of Tokyo. Mayor Furusho then invited Jefferson to come to Japan to see the Toneri Park grounds where the Reagan cherry and 1,200 cuttings that Jefferson had helped take would be planted.

“The Reagan cherry is doing well,” says Kiyoshi Hashimoto, who tends the tree. “Many people come to see it bloom every spring.”

Before retiring in 1987, Jefferson made several trips to Japan, collecting more than a half million seeds between 1982 and 1986. His efforts have brought genetic diversity to American cherry

trees—a protection against future diseases, pests, and flooding. He has also found blossoms of spectacular beauty.

Jefferson continues to help save the Potomac Park cherry trees in Washington. And last April, Adachi Ward members brought him back to Toneri Park, where the trees are now taller than he is.—  
By **Jill Lee, ARS.**

*Roland M. Jefferson is retired from the U.S. National Arboretum and currently lives in Seattle, Washington. He recently donated his historic research papers and letters to the arboretum’s library. For more about the majestic Yoshinos, contact the arboretum at (202) 245-4539.*



**Mayor Tadashi Furusho of the Adachi Ward section of Tokyo invited former U.S. National Arboretum botanist Roland Jefferson to Japan to tour the park where 1,200 Yoshino cherry cuttings Jefferson had helped take would be planted.**



er potentially marketable trait.

“Cherries are small trees and undeniably beautiful. As landscapes become smaller they’re going to be more in demand,” says Warren.

### At the Root of Good Cuttings

Most people think of taking cuttings as simply breaking off plant stems and placing them in water. Saving antique cherry trees, however, requires a lot more care. Dix brought years of experience to the task.

“You look for the most juvenile new growth,” she explains. “Many people think the top of a tree is the best place for cuttings, but that’s not always the case.”

Dix performed the delicate task of turning hundreds of cuttings, carefully wrapped in wet towels and stored in an ice chest, into 500 healthy trees.

First, she cut them into smaller parts. Then, “To start propagation, I made a wound on the stem at the base of the cutting,” she says. “The wounding process actually creates more surface area for the rooting hormone to penetrate.”

Afterward, she planted the cuttings in a growing medium on a greenhouse bench equipped with an automatic misting system. Artificial mesh leaves triggered the mist when they dried out.

All of Dix’s work paid off with an 80-percent rooting success rate. “You always feel so exhilarated when you see your cuttings take root,” says Dix. “Plus, it makes you feel really good to be part of preserving history.”

But as the trees grew, Dix had to turn from tender loving care to tough love. Most cherry trees have weak apical dominance, which basically involves hormones instructing one branch to become the main stem of a tree. Some cherry trees would be happy enough just being cherry bushes.

This meant Dix had to cut off stray, straggling branches and stake the trees to bamboo poles to grow them into upstanding members of the Tidal Basin community.

The new trees will be a welcome addition, but they do present DeFeo with a challenge. Genetic authenticity is great, but too little genetic diversity in a planting leaves the trees vulnerable to diseases and pests.

“The guideline is to plant less than 10

ences in the trees and help him plan which trees might need extra protection in the future.—By **Jill Lee**, ARS.

*This research is part of Plant, Microbial, and Insect Germplasm Conservation and Development, an ARS National Program described on the World Wide*



**First Lady Nancy Reagan presented a regrown Yoshino cherry tree to Japanese Ambassador Yoshio Ogawara during a White House ceremony in January 1981.**

percent of the same species, 20 percent of the same genus, or 30 percent of the same family,” says DeFeo. “But I’m working with 100 percent species similarity, so I need all the diversity I can get.”

Pooler’s DNA work will help uncover whether the trees have subtle genetic differences. It will also confirm DeFeo’s hunch that there are some genetic differ-

*Web at <http://www.nps.ars.usda.gov/programs/cppvs.htm>.*

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