Cherry blossoms attract tourists and UW researchers

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[University of Washington Quad cherry blossoms 2017](#). Credit: Wikimedia Commons [Creative Commons Attribution-Share Alike 4.0 International](#)

Couples strolled, TikTokers danced and friends shared takeout under the gnarled branches dappled in pale pink blossoms on the University of

Washington's Quad on the last night of winter.

With the help of record heat over the weekend, the blossoms exploded into peak bloom—when at least 70% of buds have emerged—Tuesday. The exact date the Quad's Yoshino cherry trees may burst into puffs of pale pink and white blossoms varies each year.

But university researchers are trying to add clarity to the annual bloom that draws thousands of tourists and locals. In 2018, they began collecting data on bud development and bloom for more than 100 trees covering 25 species on campus, to help inform local events centered on the bloom.

If successful, the project could also help predict how climate change will affect when these trees flower. Records in Kyoto, Japan, and Washington, D.C., suggest those cities' cherry trees are blooming earlier in response to a changing climate. UW researchers have hypothesized the bloom would also be earlier as a result of increases in spring temperatures but only if the trees experienced winter temperatures cool enough to complete their dormant, or rest period.

Researchers in 2011 found peak bloom in D.C. could be as much as four weeks earlier by 2080 depending on how much warming occurs.

"The cherry blossom has been kind of used as an indicator of climate change that we can see," said Soo-Hyung Kim, a UW professor of environmental and forest sciences who helped launch the project in Seattle and co-authored similar research on the trees in D.C.

A long history

Scrolling through a roll of microfilm on Monday, lead researcher Autumn Maust paused on a page of The Daily, UW's student newspaper,

from April 9, 1976. She adjusted the brightness and contrast to reveal a photo of a tree branch carrying blossoms hovering over the silhouette of gothic buildings.

The team has been digging into archives, searching for any sign of when the trees blossomed over the years. The clips they've found also share blips of history: "U.W. Campus Visit Reassuring Fashion-Wise" one April 1969 Seattle Times headline read above a photo of a "well dressed coed," Laura Rasmussen of Poulsbo; in March 1978, "A Blooming Good Time" for a 2-year-old running through a Quad full of the blossoms; and in March 1995, Seattle Times photographer Alan Berner captured a moment with two kids—one hanging from a branch—playing around a tree in bloom.

"What's been really exciting for me is just how charismatic and stunning and compelling these trees are and being able to be a part of this story that I think is so close to home for so many people," Maust said.

"I'm hoping that it can be very helpful from a management perspective. But ... the great thing about charismatic species is a lot of people study them and so you can take this really broad lens, look at how climate change is changing their phenological patterns on this sort of huge scale that we don't often get to do."

The university bought the Quad's Yoshino cherry trees in 1939 and planted them in the Washington Park Arboretum. They were replanted in the Quad in 1962 due to construction on State Route 520, Maust said.

Cherry trees have deep roots in the Seattle area, going back to the early 20th century when Japan gave the city more than 3,000 cherry trees. It's not clear if any on UW's campus are scions from the gifted trees.

The study at UW fits into a long pattern of researchers exploring

published works to understand these flowering trees and get a glimpse of their futures.

Scientists in Japan have combed through hundreds of years of history—old diaries and chronicles—to build a historical record of bloom times, Kim said.

In another study, Kim and other researchers adapted a computer model with several decades of National Park Service peak bloom records and temperature records from Reagan National Airport to build an understanding of how the changing climate could affect the famous cherry trees along Washington, D.C.'s, Tidal Basin.

Projections were made using two climate change scenarios developed by the Intergovernmental Panel on Climate Change. A scenario with moderate warming suggests that by the 2050s the peak bloom could be five days earlier and by the 2080s about 10 days earlier.

On Sunday March 17, the cherry blossoms in D.C., tied for their second-earliest peak bloom, Axios reported.

The full flowering of Kyoto's cherry trees in 2021 was observed on the earliest date recorded in over 1,200 years, according to a 2022 study. The study found that human-induced climate change after about the 1930s led to earlier flowering, with an estimated shift of about 11 days in the present climate and 17 days by 2100.

In general, the warmer it is, the sooner the trees are likely to bloom, Maust said. On the other hand, if winters are not cool enough, trees won't get enough time in their dormancy period, and that may push back the timing of the bloom.

If fruit trees don't experience enough cool temperatures, they sometimes

have trouble flowering and producing fruit, Kim said. Warmer winters also invite insect herbivores and pests out early, increasing the vulnerability of trees that didn't fully rest.

Because Seattle experiences milder winters than D.C., researchers expect UW's trees to respond to different temperature thresholds. Maust hypothesized the bloom would be earlier due to increases in spring temperatures caused by climate change only if the required chilling thresholds continue to be met at the same pace.

In short, warmer winters result in a slower bloom, while warmer springs result in a faster bloom. Since both seasons are affected by the warming climate, researchers have to determine the interactions of both processes.

'We cherish them'

Susan Hooker smiled as she looked up, studying the buds and blooms on the upper branches of a cherry tree near the UW Medical Center early Tuesday.

"The first time I was here, on campus, was in '97, which was a long time ago," Hooker said walking down the steps of Red Square. "That was my most favorite place to hang out. I would go to the Hub, get my sandwich, sit in the Quad, eat my sandwich, hang out and do homework. It was great."

Hooker, who is studying biology, returned to school last spring after about two decades off to raise her kids. When the opportunity to document cherry tree bloom appeared in her inbox, she jumped on it. UW students, she said, want to preserve the trees.

"We cherish them," Hooker said.

On Tuesday, Hooker wandered to the row she's responsible for. She looked high into the branches where birds and bees loomed and began punching in observations on her phone. Hooker and 20 other undergraduate students visit every cherry tree on campus at least twice a week on average, often swinging by between classes.

On each visit, they use an app to choose which bloom stage the tree appears to be in and how much of that stage is complete. Each tree is individually identified by number, location and species.

The phases of UW's cherry blossoms

There are more than 100 cherry trees on campus. The main species is Yoshino, including the trees in the Quad. Other varieties include the Higan, Hisakura, Kwanzan, Mt. Fuji and Shirofugen trees that can be viewed at locations across campus. The Yoshino trees bloom earlier than many of the other species.

The research began under Michael Bradshaw, a former doctoral student in the School of Environmental and Forest Sciences, a self-described "plant addict" who now teaches mycology at North Carolina State University. Bradshaw connected with Kim, who had previously developed models that help predict Washington, D.C.'s, cherry tree blooms, in hopes of providing the same for Seattle.

Now, the university has collected seven years of fine-scale data on each tree on campus, looked back in the archives to build historical estimates of bloom data and accessed historical temperature data. The field data collection is expected to continue indefinitely.

Researchers have already created the model to predict bloom time based on weather data and are finalizing the results.

Bradshaw's successor, Maust, led a team of more than a dozen undergraduates researching and tracking campus cherry blossom development from 2021 to 2023. Her colleague Marlee Thiel has taken over the training and ongoing data collection.

Now, Maust is working with co-authors to finalize the results of the research and plans to submit it for peer review as soon as this summer.

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