

# A biodiverse hotspot brings botanist back to Russian homeland



As a young woman, Tatyana Shulkina, Ph.D., would trek through the Greater Caucasus Mountains, collecting seeds for the Komarov Botanical Institute in her Russian homeland. It was an uncommon sight indeed, and unwed men in remote villages would woo her with dances and songs as she traveled the region collecting plants.

But Dr. Shulkina was single-minded in her mission, even during times when the region was under the close watch of the KGB. Now the Evanston resident is regarded as one of the most renowned botanists of the Caucasus, a mythical region of wild grapes, walnuts, and pears that has been a haven for relic species for a million years.

Shulkina is lending her extensive knowledge of the region's flora, institutions, people, and politics for a plant collection trip to the Republic of Georgia that will bring together the

scientific communities of the Caucasus and the United States, including a team from the Chicago Botanic Garden. From late August to early September 2016, Shulkina, Garden horticulturists, and U.S. partners from the Plant Collecting Collaborative (PCC) will journey to Tusheti, a woody, landlocked valley bordering Chechnya; the area around Akhaltsikhe along the Georgian border with Armenia and Turkey; and the milder Colchic region, bordering the Black Sea. The goal is to bring back seed collections of desired plants, including those of conservation concern, to incorporate in collections. The trip is being funded, in part, by a \$20,000 grant from Botanic Gardens Conservation International.

The trip is part of the Garden's Ten-Year Plant Expedition Plan, which proposes collection trips to China, South Korea, Japan, and Eastern Europe, as well as domestic sites in the Great Plains and southern United States. Part of that includes staff exchanges with foreign institutions, collections training, and the employment of international seed collectors as ways the Garden can elevate its stature internationally.

"We have the capacity that other institutions don't, and it's incumbent on us to share that capacity," said Andrew Bunting, assistant director of the Garden and director of plant collections. "We're not interested in going to a country once. We want to develop a long-term relationship."

As author of *Red List of the Endemic Plants of the Caucasus: Armenia, Azerbaijan, Georgia, Iran, Russia, and Turkey*,

The Caucasus is the region of origin for many plants, including oriental poppy (*Papaver orientale*) and many species of primroses (*Primula*).



Shulkina knows the Georgia area well. “This region was isolated from other parts of the world for many decades,” she said. “Just a few Americans know where it is situated. In 1997, when I was about to go to Georgia, my colleagues at the Missouri Botanical Garden asked me: ‘Where are you going? To Georgia? Is it Atlanta?’ ”

Shulkina also brings expertise in how plants adapt to climate change. She is credited with revising botanical understanding of growth form—the way in which plants respond to environmental changes through structural adaptation, altering their root systems, stem structure, and seasonal fruiting and flowering cycle in the interest of survival. For her, a key goal for the project is to collect and study seed-grown specimens from Georgia that are believed to be hardy in Chicago and other temperate zones.

“Everybody talks about climate change. Knowing what features and characteristics of a plant can be changed is our basis for understanding climate changes,” she said. “The famous botanist Carl Linnaeus based his [binomial nomenclature] system on the structure of flower and fruit. Many botanists still believe the body of plants can change and be adaptive in new areas under new conditions. Some are and some are not. If we collect some seeds and grow them in Chicago, we can compare them with Chicago’s collections and see the results.”

As a locus of exploration, Georgia is particularly appealing, said Boyce Tankersley, director of living plant documentation at the Garden and the U.S. lead on the project. For one, it contains the only biodiversity hotspot in a temperate climate, making it a home for some 4,300 species, ranging from evergreens to peonies to tulips. It includes the ancient kingdom of the Colchis, canonized in the Greek myth Jason, the Argonauts, and the Golden Fleece, and sits on the northern branch of the Silk Road connecting Asia and Europe. The Caucasus is the region of origin for many plants, including oriental poppy (*Papaver orientale*) and many species of primroses (*Primula*).

Shulkina added that the country’s uniquely isolated geography—bounded by the Greater Caucasus Mountains

along the northern border with Russia, the Southern Caucasus Mountains near the southern border with Turkey, the Caspian Sea to the east and the Black Sea to the west—helps insulate the region from development. For that reason, Georgia is popular among international seed collectors looking to preserve rare native seeds or propagate edible plants to sell.

“Once in cultivation, these plants will not disappear from the planet. Endemic plants, in theory, will not disappear,” Shulkina said.

This trip will mark the fourth time Garden staff has traveled to Georgia on collections trips. This time, the team will stay overnight in a research guest house resembling a ski chateau and journey to two locations that were off limits on previous trips due to security concerns. While all this may sound wildly romantic, Tankersley said the trip will include plenty of hard work—hikes of two to three hours on slopes at high elevations, extensive data logs, and bedside lamp-lit hours decanting seeds and preparing accessions and herbarium vouchers.

In all of this, Shulkina is the glue, an honored scientific ambassador who is delighted to take part in a trip that will return her to her homeland and to the botanical richness of the Caucasus Mountains. Amid political strife in the early 1990s, she was forced to flee, bound for the United States with \$200 and all her belongings packed in two suitcases. Now her emigrant journey has come full circle.

### Learn more

[chicagobotanic.org/collections](http://chicagobotanic.org/collections)



The Caucasus has been a haven for biodiversity for a million years.