

Developing alternatives to invasive shrubs

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The invasive Japanese Barberry (foreground) will be phased out in Connecticut over the next three years. In the background is the native Buttonbush. Photo by Sheila Foran

(PhysOrg.com) -- Connecticut's largest group of ornamental plant growers recently took a big step towards curtailing the spread of invasive plants in the state. In June, the Connecticut Nursery and Landscape Association announced the phase-out of 25 cultivars of the ubiquitous but highly invasive Japanese Barberry over the next three years.

Taken together, the shrubs that will be phased out are worth an estimated \$7.5 million. Now the state faces an even bigger challenge: What will take the place of these hardy, versatile, and attractive plants that are used in ornamental landscapes statewide?

Jessica Lubell, an assistant professor of horticulture in the College of Agriculture and Natural Resources at UConn, is hoping to answer that question with a new research project in her laboratory. Lubell is conducting experiments with native Connecticut shrubs to determine which - if any - have what it takes to become the next go-to landscape shrub in the state. Her work is funded by the Connecticut Department of Agriculture.

“The nurserymen in Connecticut are dedicated to protecting the environment,” says Lubell. “They came together and said, ‘We need to keep being stewards of the natural world.’ At the heart of it, they love plants and they love greening the environment. But at the same time, they need to sell plants that will do well.”

A recent UConn graduate, Lubell completed her Ph.D. studies under the supervision of Professor Mark Brand. Her doctoral work focused on studying [invasive plants](#) such as Japanese Barberry. That work naturally led her to pursue replacements for the invasive when she joined the faculty in 2008.

Invasive plants are species that spread prolifically and cause damage to habitats that they colonize, most often enabled by the absence of the predators found in their native habitat. These plants can crowd out native species and alter the ecological balance in healthy ecosystems.

Many [ornamental plants](#), which are used widely in non-traditional landscapes such as parking lots and along roads, are cultivated for their hardy characteristics, which are also a hallmark of invasive plants.

“Shrubs in these types of landscapes need to be able to withstand extreme heat and cold, wind, full sun exposure, snow, infertile soils, and salt from cars,” says Lubell. In many cases, the shrubs best suited for these conditions turn out to be invasive.

Lubell has created an experimental plot on the Storrs campus to see whether under-utilized native shrubs can withstand these harsh conditions. Along the edges of UConn's W-lot, a parking lot next to the Husky Village residences, Lubell has planted six species of native shrubs alongside Japanese Barberry and another invasive ornamental shrub, known as Burning Bush. She will monitor them over the next three years to determine how well they would fare in a landscape.

“Native plants are used to growing in natural environments that may not be as challenging as many landscape sites,” she says. “After the winter, the Barberry and Burning Bush will still be standing. If the natives can survive as well as the invasives, then that suggests they might work in a landscape.”

One of these native plants, known as Sweetfern, can be found in infertile, sandy soils, says Lubell. These types of characteristics made certain native plants good candidates for her study.

“There are a lot of plants that could potentially work, but they haven't been tested,” she says. “Before you can start using a new plant, you have to show that it can grow under the right conditions.”

After Lubell discovers which of her plants can grow under these difficult conditions, she will then identify plants that display the best physical characteristics. These plants have to be attractive to be marketable, she says, and shrubs that have glossier leaves, a compact size and shape, and plenty of flowers are usually the most desirable. Her final step will then be to develop protocols for propagating these [plants](#) for commercial use.

Lubell has also been active in the area of green roofs, or gardens on the roofs of buildings. With the support of the UConn Foundation, she's working to optimize nursery production of green roof modules, which are transportable, fully vegetated plant units that are easily installed on

roofs.

“I like to think of the theme of my research as ‘sustainable horticulture’,” Lubell says. She hopes that her work both on native shrubs for landscaping and green roofs will help move Connecticut’s horticulture industry toward greener practices.

Provided by University of Connecticut

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