Using hands-on and high tech to thwart invasive flowering rush

The plants are lovely — their delicate, soft pink petals blooming on tall stems above the water. But pretty as it is, the flowering rush is an unwanted and uninvited lodger in Ohio waterways, displacing native species used by area fish and wildlife. An interdisciplinary BGSU team is developing a method of identifying the invader from satellite images in order to predict where it might go next, in hopes of thwarting its spread.

It is already a problem from eastern Canada through the upper Midwest, said biologist Dr. Helen Michaels, the project leader. "It was brought in as an ornamental plant and then gradually made its way into the Great Lakes. No one has clearly documented its economic impact on wildlife and recreation yet," Michaels said.

Funded by the U.S. Fish and Wildlife Service, a group of graduate and undergraduate students led by Michaels has been braving the high heat and humidity this summer to find and map the plant in the waters of the Ottawa National Wildlife Refuge. Heading out in the early morning, going by canoe or in high waders where the growth is too dense to navigate by boat, they locate patches of the flowering rush for the "ground truthing" component of the project.

Arisca Droog, a second-year master's student in geology, is participating in the research project for her master's thesis, "Remote Sensing for Detection of Invasive Flowering Rush." She is mentored by Dr. Peter Gorsevski, School of Earth, Environment and Society.

"We use a Trimble GPS — a little yellow machine on a long pole — to precisely locate pre-selected sampling locations and ourselves in relation to those locations, and then mark off a one-meter by one-meter quadrant," she explained. "We score the quadrant with marks for the rushes and the other plants. The biology students can identify them. And then we move on to another quadrant."

Biology graduate students Jacob Meier and Mike Plenzler, and undergraduate Stephanie Kuck, an environmental science major, help create the map of the plants and their surroundings to yield a comprehensive picture.

The "ground truthing" is in preparation for gathering the "spectral signature" — the wavelength of light emitted — for the flowering rush and its neighboring plants, by which they can be identified in high-resolution images from aerial photography provided by the refuge, U.S. Fish and Wildlife Service, and, eventually, the LandSat satellite.

"Aerial photography is very expensive, so we want to be able to use the free LandSat images," Droog said. "The whole idea is to be able to find flowering rush based on its spectral signature."

Gorsevski is co-investigator along with Dr. Enrique Gomezdelcampo, environmental science, on the project. He will work on mathematically "decomposing" the aerial images, correlating them with the ground truthing data, to separate the flowering rush's spectral signature from its surrounding plants and water.

Meanwhile, "the muskrats are starting to use it for their houses, and last week I noticed they had had a lovely supper on the flowers," Michaels said.

Because flowering rush spreads so easily, on the feet of birds, by boats and through buds that break off near its rhizomes and float away, it is extremely difficult to control, Michaels said.
In addition to the spectral signature grant project, Michaels and Kuck are also studying the effects of flowering rush on germination of native species from the marsh.

**An American defends the French language**

A new book by Dr. R-J. Berg, French, is already causing waves across the Atlantic. *Péril en la demeure, Regards d'un Américain sur la langue française* (Time Is of the Essence: An American’s Views on the French Language), published in French for a French audience by Editions France Univers, is a rallying cry for the preservation of the language Berg has come to love and to which he has devoted much of his professional activity.

While calls for defending the French language are by no means new, Berg’s book is unusual on several counts. As an American, he does not take his adopted language for granted (he is unabashed in his affection for it), and he has no illusions about its endangered state today and the full urgency of arresting the alarming “English-ification” of French grammar and vocabulary.

Although the book is highly polemical, Berg often employs humor and personal anecdotes to make his points, offering hilarious but disturbing examples of what can happen when English is substituted willy-nilly for French. The cover illustration of a seated man (Berg) looking across the Seine at the Institut de France, home to the Académie française, the bastion of the French language and official regulating body whose role is to set standards for grammar and vocabulary, was done by BGSU undergraduate art major Kelli Fisher. In her first paying job, Fisher captured the light-hearted style of famed French illustrator François Avril.

In this short but provocative argument, Berg pulls no punches, calling out by name those august authorities who, he feels, have neglected their sworn duty to protect the language. He criticizes the glacial pace of the Académie at coming up with necessary new words — which Berg says they have been so slow at as to almost insure that the handy English versions will be adopted instead.

Berg examines and explodes the prevailing myths about why French should be preserved, taking a no-nonsense approach to creating a living language available to all needs. “French needs to compete on the level of business and practicality,” he said.

He systematically refutes a common refrain: “Those who repeat that ‘a living language has to evolve’ are simply belaboring the obvious. No one is claiming the contrary. The question is not whether French will and must change, but how it is changing and what we can do about it.”

Rather than simply lamenting the situation, he offers a real agenda for reversing the trend. Like many others in France, he favors a legislative approach. “Language is part of the heritage, an integral component of national identity. As such, it can and should be defended legally.”

In spite of *Péril en la demeure’s* criticism of some of its members, the association Défense de la langue française (DLF) has given the book its official stamp of approval — it appears on the cover — and advertised it prominently in the latest edition of its review. The magazine Valeurs actuelles also plans a profile of Berg and the book.