Three University of Toledo researchers have teamed up with the Green Ribbon Initiative to develop a strategy for partner organizations to prioritize and manage invasive plant species common in the Oak Openings Region.

Dr. Jonathan Bossenbroek, professor of ecology, Dr. Todd Crail, UT lecturer in the Department of Environmental Sciences, and Sara Guiher, a graduate student, are working with the initiative, designed to preserve the natural landscape in the region, to compile a list of what are known as terrestrial invasive plant species. Invasive plant species can be non-native to a region, though only a small percentage of non-native plants qualify as invasive.

UT graduate student Sara Guiher pointed out a black oak at the Kitty Todd Nature Preserve in Swanton. Black oak is one of the native species that the Green Ribbon Initiative is trying to protect.

“Plants that are able to exclude native plants, take habitats away from native animals, those are the ones we are really trying to address,” Guiher said.

The project began in May 2015 with the identification phase, during which Guiher and Bossenbroek devised an assessment for partner organizations to determine where their priorities for invasive species management should be focused. After figuring which invasive plants each partner organization is dealing with, the goal is to develop best management practices for the conservation of the area. The development of the Oak Openings Region invasive species strategy brings together organizations such as the Nature Conservancy, Metroparks of the Toledo Area, the Olander Parks System, and the Ohio Department of Natural Resources, among many others, to make informed decisions about how to control invasive species.

“A big part of this is communication between partners,” Guiher said. “There are all those different agencies, and they each have their own approach; we’re basically trying to bring all of them together and communicate about the spread of invasive plants and decide on consistent strategies to manage them.”

“All these organizations have their own properties and their own, sometimes different management goals — the metroparks have a different mission than the Nature Conservancy, different from the Department of Natural Resources — trying to find a framework for dealing with terrestrial invasive species is what we’ve been asked to do,” Bossenbroek said.

Bossenbroek said his experience includes similar projects geared toward aquatic invasive species, such as the zebra mussel. His work has always included examination into spread of invasive species into the environment they might take over, which translates to this project on terrestrial invasive species as well.

“You use the same tools, the same types of analyses, to predict where things are going to live and how they get around,” Bossenbroek said. “There are usually two ways they move around: They get moved around naturally — birds, wind, streams — or by people. A lot of invasive species are easily transmitted by people.”
Researchers partner with Green Ribbon Initiative to identify invasive plant species

The next phase of the partnership will include digital modeling situations, in which variables such as topography and vegetation can be manipulated to figure out ideal habitats for invasive plant species. This type of model was what Bossenbroek said he used when examining aquatic invasive species.

“The next step is the modeling using software; taking those variables and possible vectors and trying to determine where the plant species may establish in the region, which will streamline the process,” Guiher said. “We can’t necessarily cover all the partners’ land, but we can try to give them guidance as to where those plants might show up.”

To learn more about the Green Ribbon Initiative, visit the Oak Openings Region’s website at oakopenings.org/about.