

# Rapid version of assessment tool provides easier way to monitor wetland quality

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A modified or "rapid" version of an existing wetland assessment tool can accurately assess the quality of wetlands, according to Penn State researchers. Using the rapid version of the tool, known as the Floristic Quality Assessment Index (FQI), can save time and improve upon wetland monitoring strategies.

"Some U.S. states have lost 90 percent of their wetlands since the 1950s, and, of the ones that are left, many are being degraded," said Sarah Chamberlain, senior research assistant and botanist for Penn State's wetland research center, Riparia, and lead author on the findings published in the current issue of *Ecological Indicators*.

Monitoring the [quality](#) will allow us to protect wetlands in good condition and restore those in poor condition," Chamberlin said.

Wetlands, an ecosystem characterized by the presence of inundation or water-saturated soils and aquatic vegetation, are found all over the world and are home to numerous plant and animal species. If not monitored properly, wetlands are at risk of being degraded by excess sediments and nutrients, as well as being overrun by invasive species.

Since the 1990s, Riparia has developed strategies for natural resource managers through several novel wetland-specific monitoring tools. Much of this work was done in collaboration with other states in the Mid-Atlantic region through the Mid-Atlantic Wetlands Workgroup, which Riparia facilitates with the US Environmental Protections Agency

Region 3. The researchers found in previous work that the FQI tool, which was originally developed to monitor prairie habitats in the Midwest, could also be effectively applied to wetlands. However, the FQI tool requires that the user have a list of all plants in a given wetland, which is not always feasible.

"We have heard from individuals monitoring wetland quality that the FQI was too time-consuming and that the field technicians didn't always have the botanical knowledge to accurately identify all the plants in an area. Additionally, some wetlands are privately owned, so it's not always easy or possible to access those areas to identify what species exist," said Chamberlain.

Wetlands sometimes have more than 80 plant species. It requires advanced botanical knowledge to accurately identify and count each species. Chamberlain and Robert Brooks, professor of geography and founder and director of Riparia, investigated the feasibility of using an abridged list of a wetland's dominant species to save time. In order to classify an area as a wetland, federal regulations require documentation of a wetland's dominant species.

Chamberlain and Brooks tested the rapid model against 87 of the 200-plus wetlands that are actively monitored by Riparia. They used abbreviated species lists they recorded when the wetlands were first studied and found that the rapid version of the model was just as effective at predicting wetland quality as the standard version.

The Riparia team also created a free online calculator with which people can monitor the quality of their wetlands. After inputting a list of existing flora in a given area, a user can see an objective assessment of the quality of a given wetland area. The FQI can also be used to assess the quality of habitat types other than wetlands, such as highlands or mountainous regions.

"Our ultimate goal is to provide tools that states can use to easily monitor [wetlands](#), which will hopefully assist with the preservation of these unique and special areas in the future," said Chamberlain.

Michael Nassry, postdoctoral scholar with Penn State's Department of Geography, provided assistance with the research.

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