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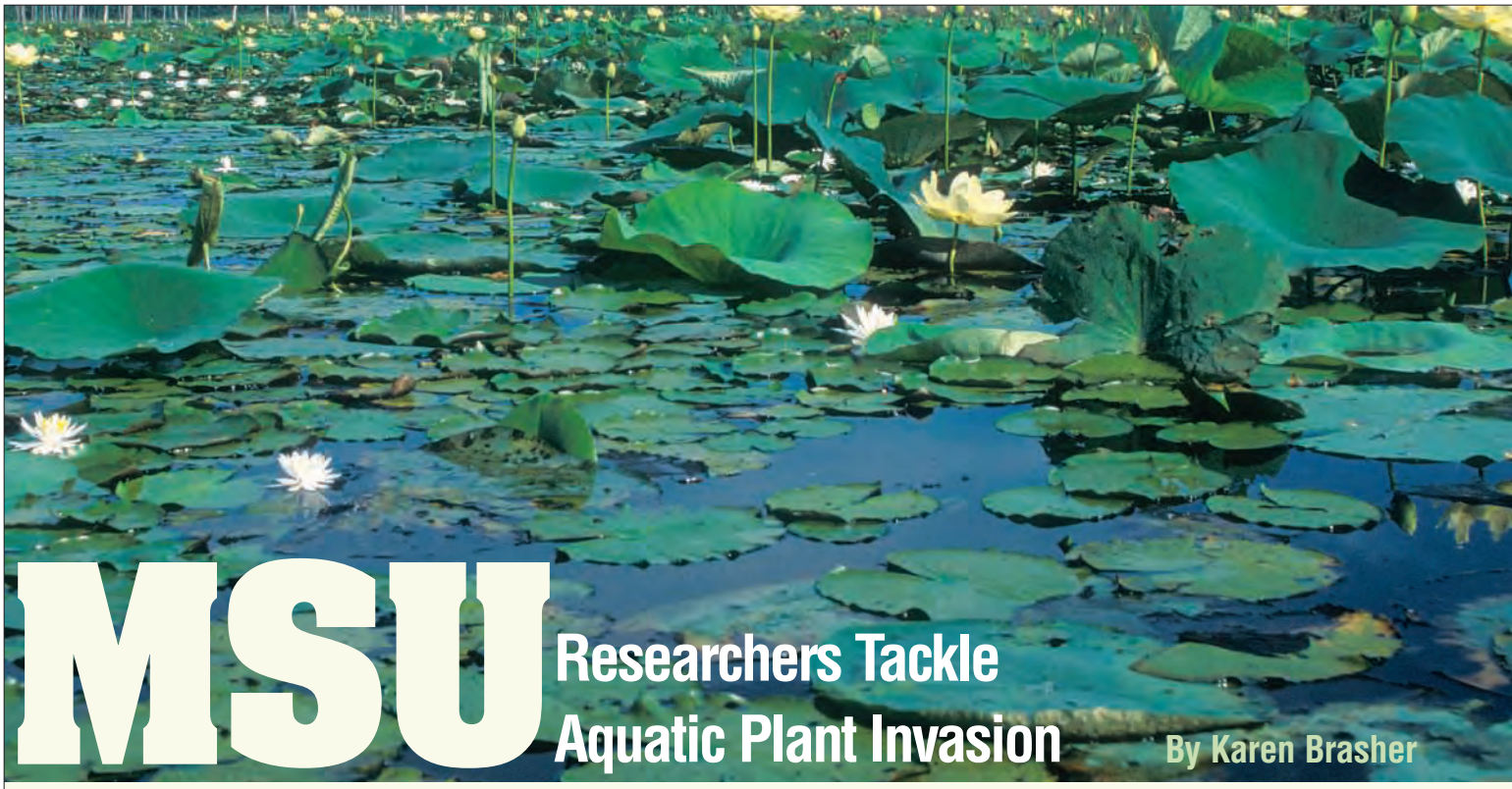


MSU Researchers Tackle Aquatic Plant Invasion

By Karen Brasher

Many species of alligators, fish and birds make their home at Mississippi's largest surface water impoundment, the Ross Barnett Reservoir. Now, however, new residents—aquatic plants that are not native to the area—are invading the reservoir.

Built in 1966, the Ross Barnett Reservoir contains 33,000 acres, mostly between Madison and Rankin counties. The reservoir, managed by the Pearl River Valley Water Supply District, is the primary source of drinking water for the city of Jackson.

"The reservoir provides many recreational opportunities, including campgrounds, parks and trails, as well as residential areas," said John Madsen, assistant research professor in MSU's GeoResources Institute. "However, in recent years, invasive species have become an increasing problem on the reservoir."

Introduced from other parts of the world, invasive aquatic plants affect aesthetics, drainage, fish and wildlife habitat, water quality, irrigation, navigation, recreation, and ultimately land values, Madsen added.

To gain a better understanding of the plant invasion, scientists in the Mississippi Water Resources Research Institute and MSU's GeoResources Institute are developing an aquatic plant management plan for the Ross Barnett Reservoir.

"The first step in developing a long-term aquatic plant management plan is to assess the reservoir's plant community by mapping their current distribution," said Ryan Wersal, research associate in the GeoResources Institute.

To map the distribution of plants, the team used a handheld personal digital assistant outfitted with a GPS receiver. Scientists mapped more than 1,423 points during the study. In addition to sampling for aquatic species, researchers also recorded light intensity and environmental parameters, such as depth, pH and water temperature.

"Of the 14 aquatic plant species observed, only three were exotic or invasive," said Mary Love Tagert, assistant research professor in Mississippi Water Resources Research Institute. "However, these invasive species occurred one-third as many times as native plants."

The invasive plants are so prevalent now, Tagert added, that a series of warm winters could allow them to spread to new areas throughout the reservoir.

One of the problems with these invasive species is that they are floating and mat-forming plants that shut out light for more desirable native species.

"The reservoir is a shallow body of water and has the potential to support many rooted submersed native plants," Tagert said.

Invasive species not only affect water quality, in particular oxygen and temperature, they also can play havoc with fish populations.

"Invasives completely change the structure of the shallow, weeded areas of the reservoir, which impacts the growth, survival and health of fish populations," said Eric Dibble, associate professor and fisheries biologist in MSU's Forest and Wildlife Research Center.

The problem is, Dibble added, that invasive species add so much structure to the system compared with native plants, that they can reduce fish populations and health. The long-term result would be a significant reduction in recreational fishing on the reservoir.

The new plants also affect other wildlife, such as birds,

making it difficult for them to find a good meal because of the massive floating plant communities. Fewer birds would impact another popular recreational activity at the reservoir—bird watching.

One of the newest invasive species found in the reservoir is hydrilla.

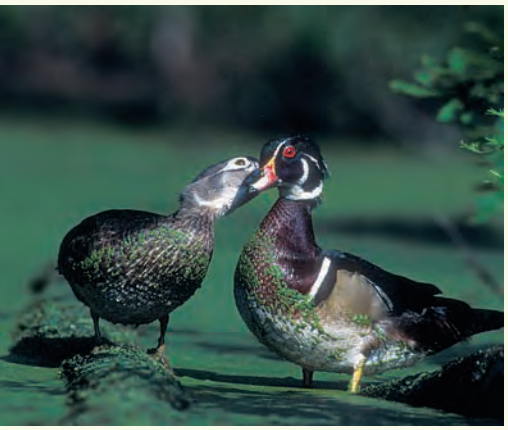
"Hydrilla is a submersed rooted plant that forms a dense mat and has been detected in several locations in the reservoir," Wersal said. "If invasive species such as hydrilla are not controlled, an infestation could easily encompass more than 7,000 acres of the reservoir."

Funded by the Pearl River Valley Water Supply District, scientists are actively working to assess changes and the spread of nuisance species populations on the reservoir.

"We will continue to monitor the distribution of invasive species as well as implement and assess techniques to control the nuisance plants," Wersal said. "Our goal is to promote the growth of desirable native plants and improve the water quality in the reservoir and other bodies of water in Mississippi."

The Mississippi Water Resources Research Institute is a unit of MSU's Forest and Wildlife Research Center. The GeoResources Institute is an affiliate of MSU's High Performance Computing Collaboratory.

Photos by Joe Mac Hudspeth, Jr.



Wildlife photographer Joe Mac Hudspeth, Jr., often has to navigate an ocean of invasive aquatic plants as he photographs birds and animals at Ross Barnett Reservoir. (Photo by Jim Johnston)

Invading Plants Squeeze Out Wildlife Photographer

Joe Mac Hudspeth, Jr., wildlife photographer and native Mississippian knows firsthand the problem with invasive species. Hudspeth has been photographing Ross Barnett Reservoir for more than 20 years.

"I've all but lost all of the places I've photographed over the last 16 years. You can't get to the place where the image of me in the boat was taken," Hudspeth said. "The east side of Pipeline Road on the east side of the reservoir (Rankin County) was 'taken over' five or six years ago."

Hudspeth went on to say that he would probably lose complete access to the wetlands off Pipeline Road on the west side of the reservoir (Madison County) within the next two years.

One of Hudspeth's favorite reservoir spots to photograph blue-winged teals is now uninhabitable because of invasive plants.

"I wasn't able to photograph blue-winged teals last spring because the 'hole' they had been frequenting for several years is so thick that they can't land in any water, and I can't walk to it," Hudspeth added.

The problem is such that Hudspeth did not even attempt to photograph on Pipeline Road this year or last year.

Hudspeth indicated that other places in Mississippi are also suffering from the invasion.

"The back waters of Bluff Lake at Noxubee National Wildlife Refuge were invaded so badly that park officials drained Loakfoma Lake to try to stop the nuisance plants," Hudspeth said.

Hudspeth, a Lafayette County native, has been published more than 900 times in national, regional and statewide publications. In 1993, he received national recognition when his image of an immature least bittern, taken on Ross Barnett Reservoir, was selected from more than 2,000 wildlife calendar photographs and awarded the Grand Prize for Wildlife by the Roger Tory Peterson Institute for Natural History.

Hudspeth's photos have appeared on nine Mississippi Duck Stamps and 10 Mississippi sportsman's licenses.