Distribution of Hydrilla and Giant Salvinia in Mississippi in 2005

An Annual Report to the Mississippi Bureau of Plant Industry for 2005

John D. Madsen, Ryan M. Wersal, and Wilfredo Robles
GeoResources Institute and Department of Plant and Soil Science
Mississippi State University
Box 9652
Mississippi State, MS 39762-9652

GeoResources Institute Report 5002
January 6, 2006

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GeoResources Institute
Mississippi State University

Introduction

Invasive aquatic plant species are a significant threat to the water resources and wetlands of the nation, including the State of Mississippi. Since water resources are not directly linked to agricultural production, the potential economic impact of these problems is often overlooked. Two species in particular, hydrilla (*Hydrilla verticillata*) and giant salvinia (*Salvinia molesta*), spread rapidly and produce significant nuisance problems. These two species are listed as noxious weeds on both the Federal Noxious Weed List and the Noxious Weed List for the State of Mississippi.

Little information exists on the geographic distribution of these two species. Pursuant to that, Mississippi State University entered into a Memorandum of Agreement with the Mississippi Bureau of Plant Industry to survey for giant salvinia.

Methods and Materials

For hydrilla, we developed potential sites by contacting natural resource agencies in the state, as well as encountering hydrilla infestations as part of our other research activities.

For giant salvinia, we had contracted specifically to search southern Mississippi counties. Unfortunately, the MOU was not approved until September 8, 2005, by which time Hurricane Katrina struck southern Mississippi. This natural disaster has prevented us from performing the survey. We will attempt to perform a survey in spring 2006.

Results and Discussion

Hydrilla (*Hydrilla verticillata*) is a non-native invasive submersed aquatic macrophyte that chokes waterways, clogs irrigation pumps and boat motors, changes nutrient cycles, interferes with fishing efforts, and alters native aquatic plant communities. In Mississippi, hydrilla has been located and mapped in Columbus, Aberdeen, Aliceville Lakes, and the Ross Barnett Reservoir (Figure 1). Hydrilla was found at three locations during a survey of Lake Columbus in July of 2005 (Figure 2). These locations were in the northern portion of the lake away from heavy boat traffic. In Lake Aberdeen, hydrilla was observed in two locations; however a whole lake survey was not conducted. Hydrilla was observed for the first time in the Ross Barnett Reservoir in July 2005. The hydrilla beds were mapped for location and size within the reservoir (Figure 3). Generally, hydrilla infestations in all water bodies were primarily in shallow water (<2 feet) along the shorelines of secluded bays, however, plants have been

observed growing in deeper depths. In most instances hydrilla was observed growing with waterhyacinth, which may reduce hydrilla biomass through shading of hydrilla plants. Table 1 provides a complete list of sites with coordinates depicted in the maps.

Giant salvinia (*Salvinia molesta*) is a non-native floating aquatic fern with a rapid growth rate. Giant salvinia can form dense mats of up to 1 meter thick that negatively affect crop production, access to waterways for humans and livestock, and can interfere with transportation, irrigation, and hydroelectric power. In Mississippi, giant salvinia has been located and eradicated in the Leaf River system near Petal (Figure 1). Another site near Hattiesburg in Forest County was found, and biocontrol insects released. A new population was located in the Pascagoula River system, near Gautier in Jackson County (Figure 1).

Giant salvinia presence was also, evaluated on Columbus, Aberdeen, Aliceville Lakes, and the Ross Barnett Reservoir. Giant salvinia was not observed in any of these lakes. However, the nonlisted invasive species *Salvinia minima* was observed growing in Lake Columbus and Lake Aberdeen. *Salvinia minima* have not reached nuisance levels in either lake. Its distribution is generally patchy and associated with water hyacinth growth. *Salvinia minima* may be able to compete with waterhyacinth later in the growing season, when colder temperatures reduce the growth rate of water hyacinth. The reductions in water hyacinth growth later in the season may allow *S. minima* to expand its distribution to infest new areas. Therefore, the susceptibility for giant salvinia to invade this niche cannot be overlooked.

Contact Information:

Dr. John D. Madsen
Mississippi State University
GeoResources Institute
Box 9652
Mississippi State, MS 39759-9652
Ph. 662-325-2428
E-mail: jmadsen@gri.msstate.edu

Table 1. Locations with known hydrilla populations, as depicted in Figures 1-3.

County	Nearest Town	Latitude	Longitude
Monroe	Aberdeen	- 88.525563	33.845326
Pickens	Pickensville, Al	- 88.314324	33.238677
		- 88.283480	33.232509
Lowndes	Columbus	- 88.483106	33.580825
		- 88.487498	33.581801
		- 88.484082	33.586193
Madison	Canton	- 89.929189	32.507530
		- 89.939837	32.520760
		- 89.944032	32.517533

Table 2. Locations with known giant salvinia populations, as depicted in Figure 1.

County	Nearest Town	Latitude	Longitude
Forest	Hattiesburg	- 89.223130	31.274635
		- 89.222078	31.273810
Jackson	Gautier	- 88.621667	30.420077
		- 88.619408	30.420648

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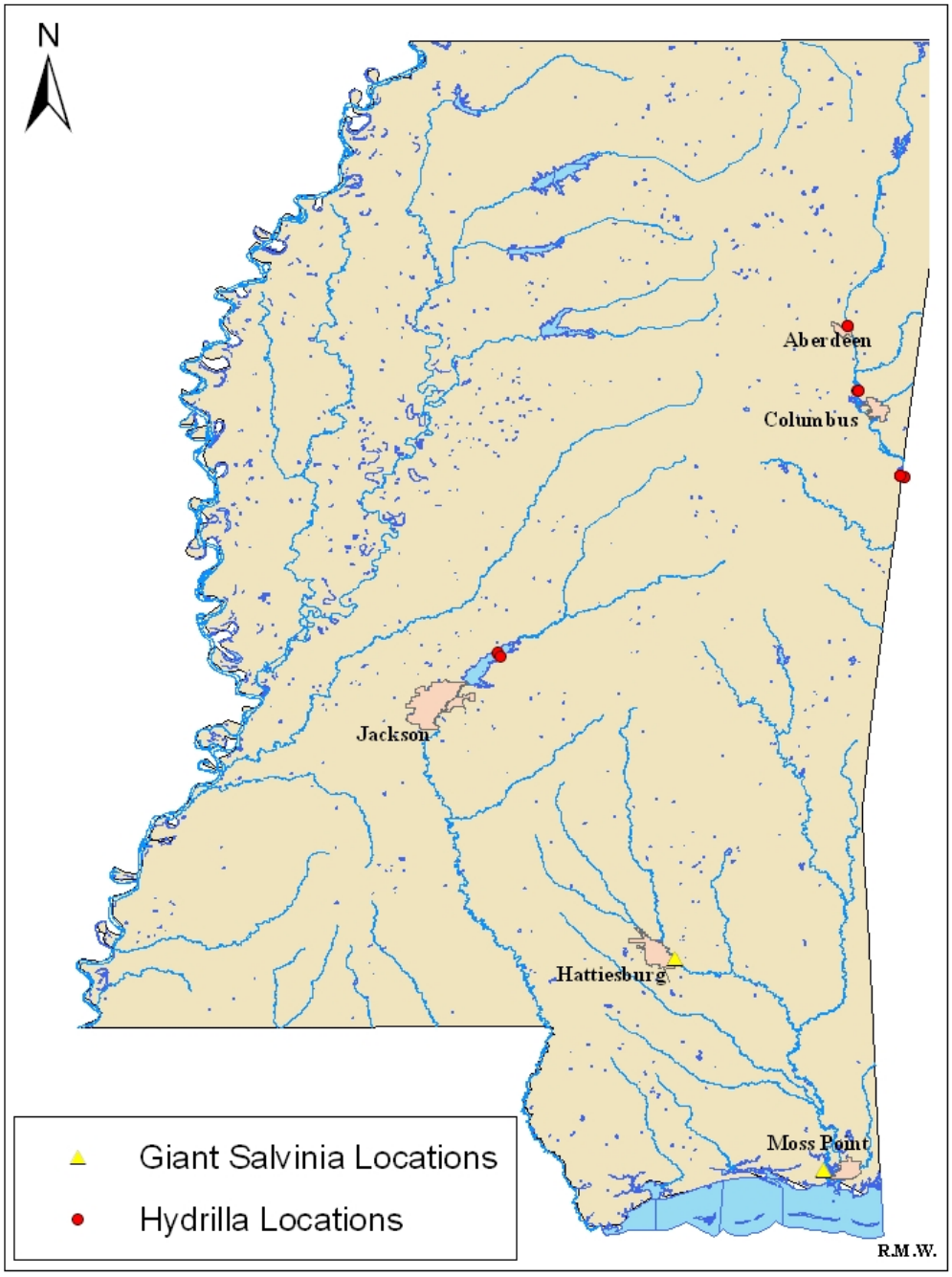

Figure 1. Mapped locations of hydrilla and giant salvinia in Mississippi.

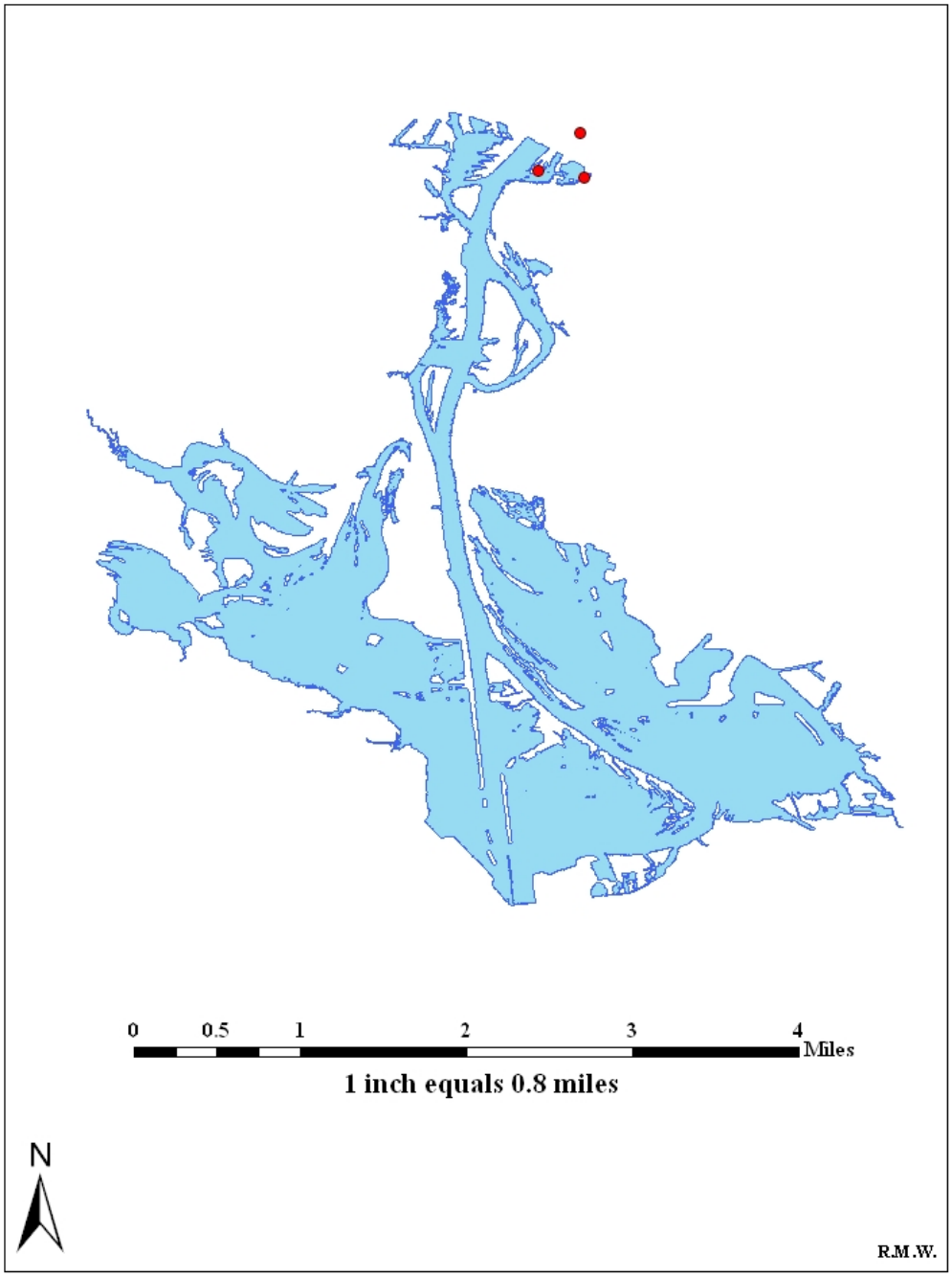

Figure 2. Locations of hydrilla in Lake Columbus, Lowndes County.

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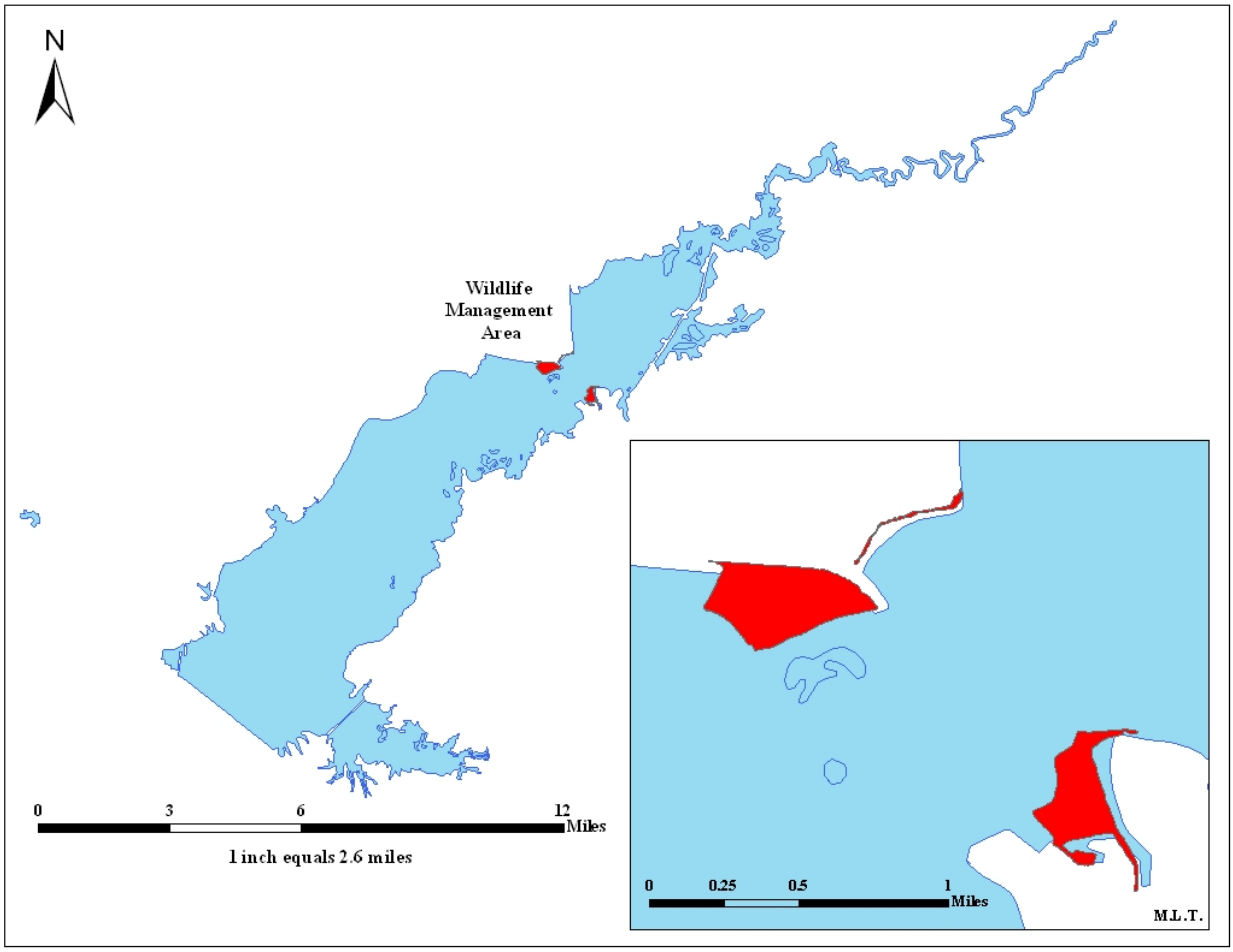

Figure 3. Locations of hydrilla in the Ross Barnett Reservoir.