New Resources for Southern Aquatic Plant Management

Wes Neal, Gray Turnage & Dennis Riecke

MISSISSIPPI STATE UNIVERSITY EXTENSION

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MISSISSIPPI AQUATIC INVASIVE SPECIES COUNCIL

U.S. FISH & WILDLIFE SERVICE

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

ANS TASK FORCE

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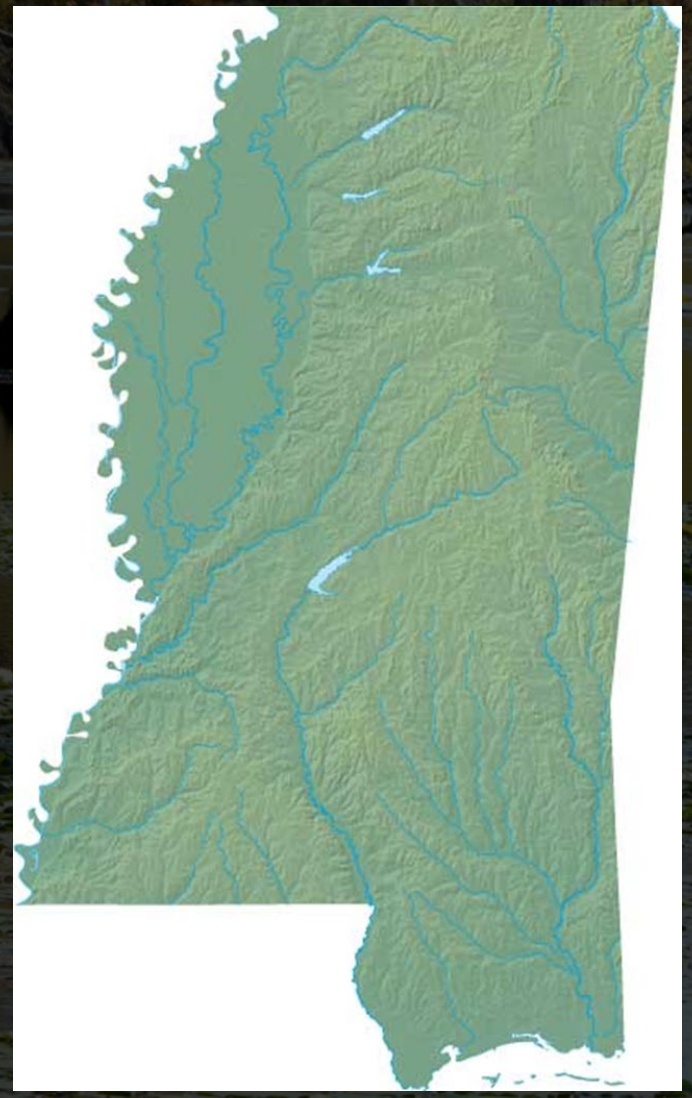
Aquatic Plants in Mississippi and Beyond

- Mississippi water resources:
  - 190,000 acres of ponds
  - 250,000 acres of large lakes
  - 14,000 miles of rivers and streams
- Some are devoid of important aquatic plants
- Many struggle with nuisance plants
- Other southern states face similar issues



Need for Aquatic Plant Resources

- No single repository for aquatic plant information

Existing sources of plant control information:

- Are often outdated or come directly from the product label
- Are based on lab and mesocosm experiments
- Usually difficult to follow, particularly herbicide recommendations
- Assume all plants need to be controlled
- Sometimes incorrect or illegal

Goal: Produce a multimedia repository of up-to-date aquatic plant information and control recommendations.

Specifically, we developed:

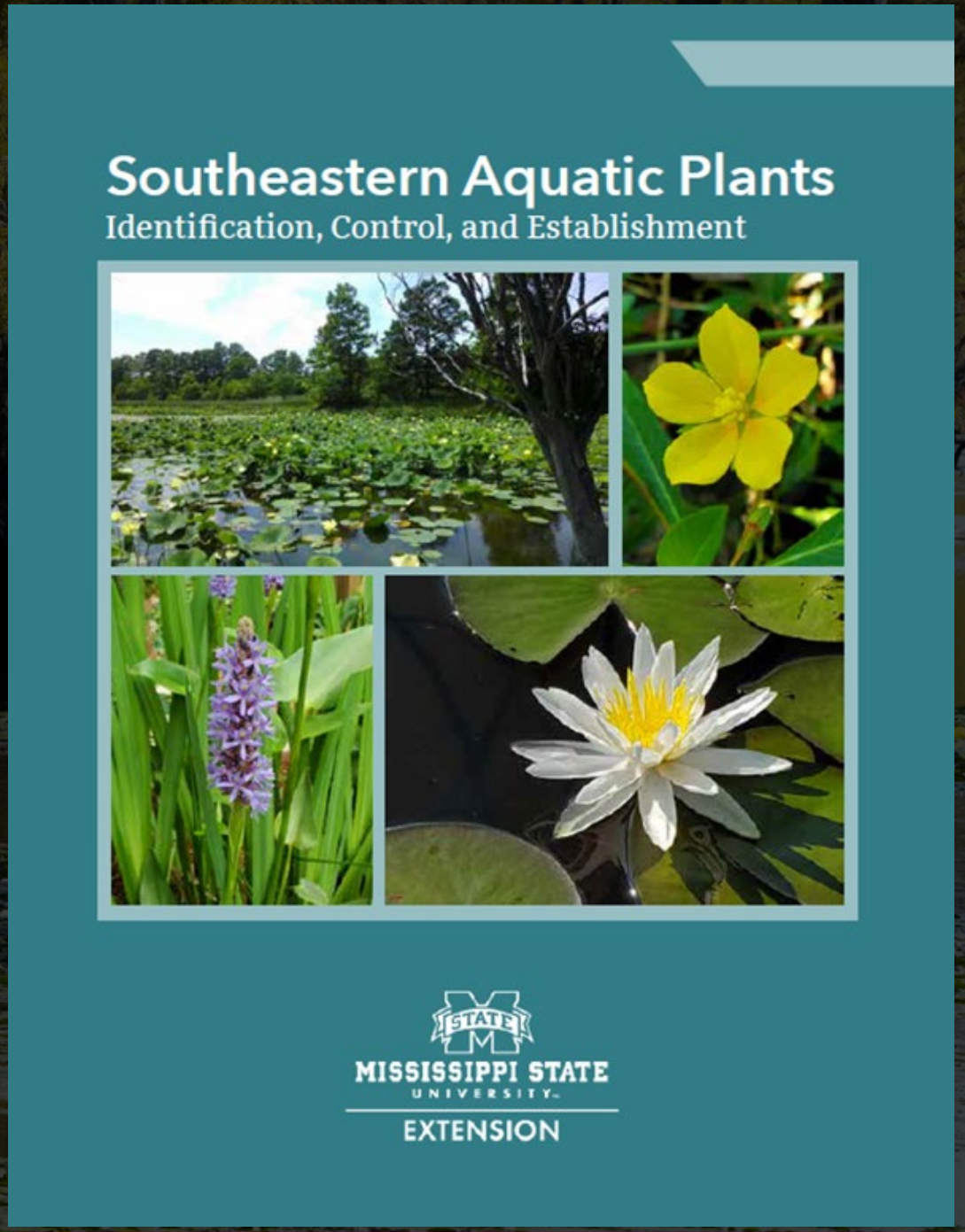
1. A comprehensive hardcopy field reference book
2. A Web-based aquatic plant management resource
3. Print-on-demand taxa-specific fact sheets

What makes these resources different?

- Does not label all aquatic plants as inherently undesirable
- Control recommendations are based on peer-reviewed literature, technical reports, and real-world applications
- Limit recommendations to the most effective options and most affordable when available
- Recommendations are easy-to-follow and base on small quantities for a landowner with little training or equipment

Field Guide

- Water resistant, spiral bound
- Free to professionals



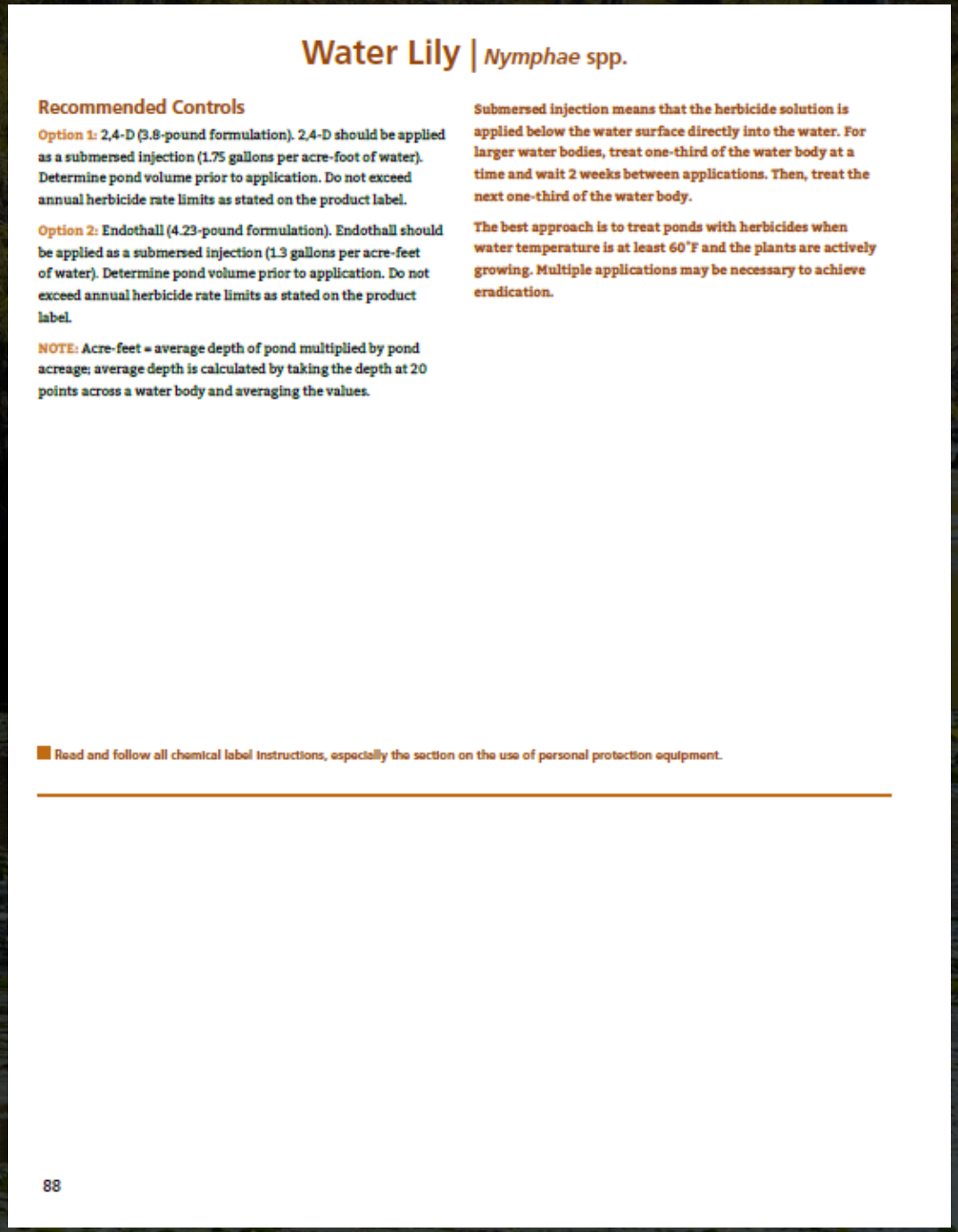
Contents

All the info you need, none that you don't

- Why plants are good
- When plants are bad
- How to establish plants
- How to get rid of plants
- Plant growth forms
- Understanding herbicides and adjuvants
- Mixing and application

Species ID, value, and recommended control

- Don’t need to be a botanist
- Value to wildlife, fisheries, and people (human uses)
- Simplified instructions serve as explanation for complicated labels
- 47 common species or groups



Water Lily | *Nymphae* spp.

Recommended Controls

Option 1: 2,4-D (3.8-pound formulation). 2,4-D should be applied as a submersed injection (1.75 gallons per acre-foot of water). Determine pond volume prior to application. Do not exceed annual herbicide rate limits as stated on the product label.

Option 2: Endothall (4.23-pound formulation). Endothall should be applied as a submersed injection (1.3 gallons per acre-feet of water). Determine pond volume prior to application. Do not exceed annual herbicide rate limits as stated on the product label.

NOTE: Acre-feet = average depth of pond multiplied by pond acreage; average depth is calculated by taking the depth at 20 points across a water body and averaging the values.

Submersed injection means that the herbicide solution is applied below the water surface directly into the water. For larger water bodies, treat one-third of the water body at a time and wait 2 weeks between applications. Then, treat the next one-third of the water body.

The best approach is to treat ponds with herbicides when water temperature is at least 60˚F and the plants are actively growing. Multiple applications may be necessary to achieve eradication.

Read and follow all chemical label instructions, especially the section on the use of personal protection equipment.

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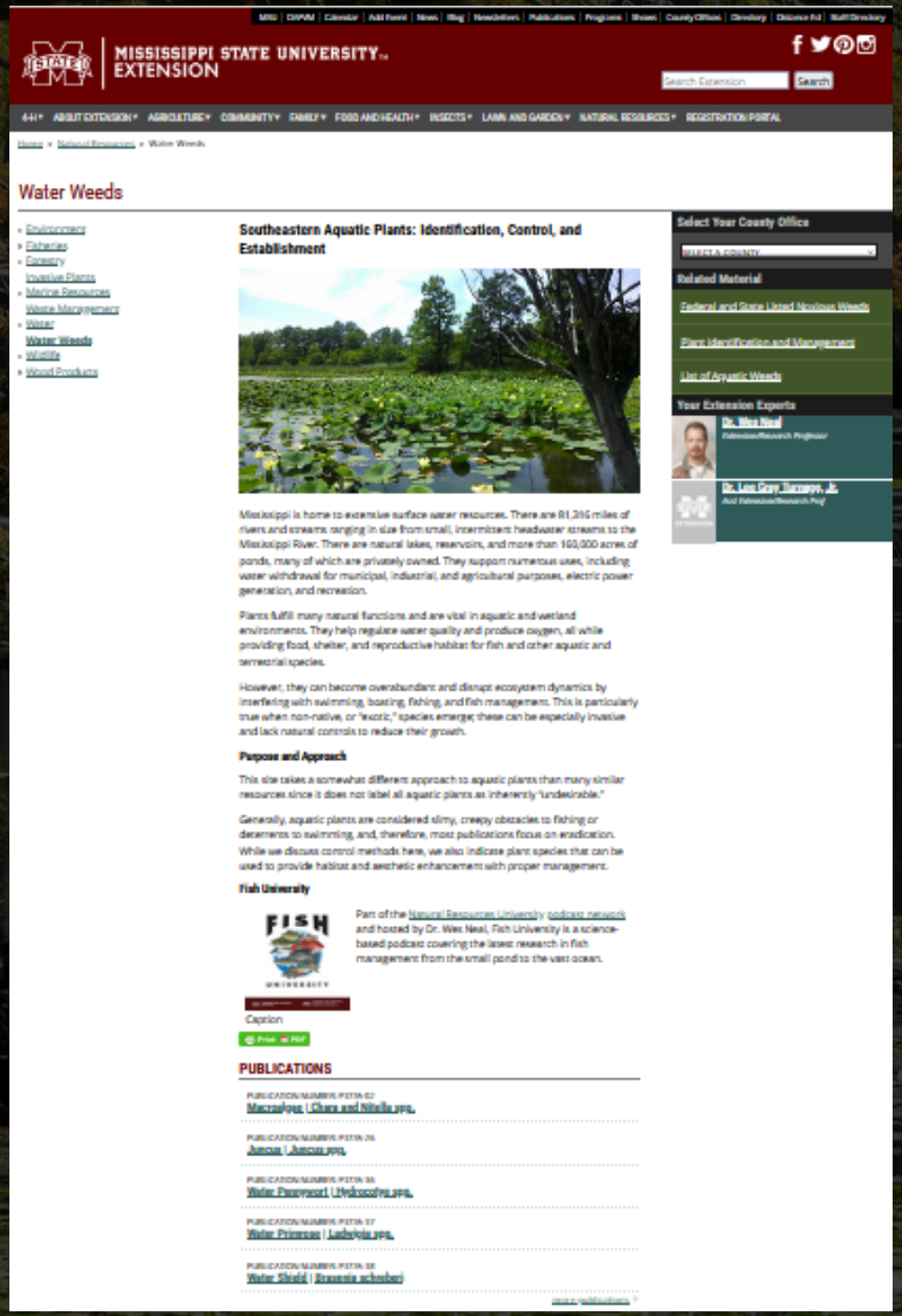

Website

- extension.msstate.edu/waterweeds
  - Google “MSU water weeds”

Water Weeds

- Environment
- Fisheries
- Forestry

Invasive Plants

- Marine Resources

Waste Management

- Water

Water Weeds

- Wildlife
- Wood Products

Southeastern Aquatic Plants: Identification, Control, and Establishment

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Related Material

Federal and State Listed Noxious Weeds

Plant Identification and Management

List of Aquatic Weeds

Your Extension Experts

Dr. Wes Neal

Extension/Research Professor

Dr. Lee Gray Turnage, Jr.

List of Aquatic Weeds

Species Descriptions

In the publications listed below, the individual species descriptions are categorized as algae and the three vascular growth forms of *submersed, emergent,* and *floating.*

MSU Extension personnel: Please order printed copies of these publications through the Extension publications ordering system. Mississippi residents: Contact your county Extension office for printed copies.

Publication Number	Name	Growth Form	Origin
P3735-00	Herbicide Application for Aquatic Plants		
P3735-01	Filamentous Algae | Including Colonial Forms	Algae	Native
P3735-02	Macroalgae | Chara and Nitella spp.	Algae	Native
P3735-03	Planktonic Algae	Algae	Native
P3735-04	Bladderwort | Utricularia spp.	Submersed	Native
P3735-05	Brazilian Egeria | Egeria densa	Submersed	Non-Native

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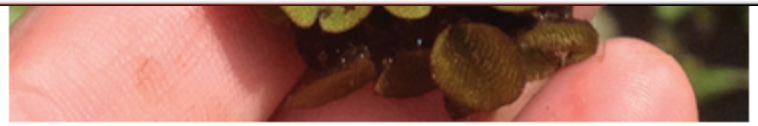

Common salvinia.

impact aquatic biota and human uses of aquatic resources.

Management Value

This plant is non-native and highly invasive. Eradicate on sight.

Giant salvinia.

Recommended Controls

Option 1: Flumioxazin (4.0-pound formulation). For each gallon of water, mix 0.05 ounce flumioxazin and 1.3 ounces non-ionic surfactant. Use a buffering agent when mixing with water with pH greater than 7.0. Spray to wet all exposed plants. Do not exceed annual herbicide rate limits as stated on the product label.

Option 2: Glyphosate (5.4-pound formulation). For each gallon of water, mix 1.0 ounce glyphosate and 1.3 ounces non-ionic surfactant. Spray to wet all exposed plants. Do not exceed annual herbicide rate limits as stated on the product label..

In cold temperatures (less than 50 degrees), apply flumioxazin. In warm temperatures, use glyphosate or a glyphosate plus flumioxazin tank mix.

Read and follow all chemical label instructions, especially the section on the use of personal protection equipment.

Common salvinia.

Dr. Lee Gray Turnage, Jr.

Asst Extension/Research Prof

Related Publications

PUBLICATION NUMBER: P3735-02
Macroalgae | Chara and Nitella spp.

PUBLICATION NUMBER: P3735-26
Juncus | Juncus spp.

PUBLICATION NUMBER: P3735-36
Water Pennywort | Hydrocotye spp.

PUBLICATION NUMBER: P3735-37
Water Primrose | Ludwigia spp.

PUBLICATION NUMBER: P3735-38
Water Shield | Brasenia schreberi

1 2 3 4 5 6 7 ... next › last »

This plant is non-native and highly invasive. Eradicate on sight.

Salvinia | Salvinia spp.

PUBLICATIONS
Publication Number: P3735-44

Filed Under: Water Weeds

View as PDF: P3735-44.pdf

Floating | Non-Native

Common salvinia.

Common salvinia (*Salvinia minima*) and giant salvinia (*Salvinia molesta)* are non-native invasive plant species that are problematic in Mississippi. Salvinia are **aquatic ferns that float** on the water's surface in calm areas.

The leaves of common salvinia are relatively small, ranging from one-fourth of an inch to no more than 1 inch. Giant salvinia is roughly twice as large. **Leaves are hairy** and may be flat, slightly bent, or heavily folded. The "roots" are modified leaves.

Both species are invasive and should be eliminated. Giant salvinia is one of the worst invasive plants worldwide. Under ideal conditions, it can form mats up to 3 feet thick that negatively impact aquatic biota and human uses of aquatic resources.

Management Value

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A work in progress…

- Website is online but developing…
- Recommendations are always changing…
- New species to be added…
- We hope to update frequently.

You can help!

- Use the website and let me (wes.neal@msstate.edu) or the webmaster know if you find errors.

- Make suggestions on how to make these resources more user friendly or suggest additional information for inclusion.

Acknowledgements

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