The “State of the State” of Old World Climbing Fern

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Lygodium microphyllum (Cav.) R. Br.
OLD WORLD CLIMBING FERN
(Lygodium microphyllum) MANAGEMENT PLAN
FOR FLORIDA

Florida Exotic Pest Plant Council
Lygodium Task Force

2006
Second Edition
Methods

• Personal or phone interviews with 35 stakeholders
  • Water management districts
  • Federal, State, and County Agency Personnel
  • Invasive plant contractors
  • Conservation organizations

• Private landowners not included

• 15 questions, interviews lasted ~45 minutes (30-90 minutes)
Bibliographic Development

• APIRS database, Google Scholar, CAB Abstracts, Agricola
• Surveyed all relevant published literature (2006-2015)
• Summarized 26 papers
Expanding North, West, and Southwest (Ferriter and Pernas, 2005)

122,787 acres (48,341 ha)

Present in Florida for ca. 48 years

Wildland Weeds: Spring 2006
11,389 confirmed sites

https://www.eddmaps.org/
1. How long have you been dealing with OWCF in your current and/or previous position(s)?
2. Describe your OWCF Strategy

• Widespread application of adaptive management
  • Survey/detection
  • Prioritization
  • Treatment
  • Monitoring
  • Reassessment
  • Follow-up treatment
2a. Survey/Detection/Mapping Approaches

- No current statewide survey in place
- Piecemeal/Opportunistic approach due to budgetary and personnel constraints
- Digital Aerial Sketch Mapping

- Contractors do not always have a clear picture of infestations when bidding jobs
- The application of remote sensing has not manifest for OWCF
2b. Treatment timing:

- Treatments applied in all 12 months
  - Perception of January timing as less effective
- Often hydro period driven
  - Site access is limited
  - Temporary inundation of rachis mats = poor control
- Highly desirable to treat prior to peak spore production

“Treat when you can get into the site”
2c. Techniques used

• Aerial foliar
• Ground based foliar
• Integrated mechanical/chemical (poodle cutting)
Aerial: Metsulfuron @ 2 oz/A
Ground based foliar: Glyphosate
Poodle cut + glyphosate
What about fire?
3. What are the specific herbicide strategies you use for OWCF?

1. Glyphosate
3. What are the specific glyphosate concentrations you use for OWCF?

![Bar chart showing the number of respondents using different glyphosate percentages. The chart indicates that the majority of respondents use 3% glyphosate concentration.](image)
3. What are the specific herbicide strategies you use for OWCF?

1. Glyphosate
2. Metsulfuron
3. Triclopyr (infrequently used)
4. Aminopyralid (unconfirmed)
5. Imazapyr (non-target damage limits use)
4. What adjuvants do you use for OWCF control?

• Wetters, Spreaders, Stickers, and Water Conditioners
  • Non-ionic surfactants
  • Non-ionic silicone blends
  • Methylated seed oils
  • Ammonium sulfate
    • Hard water

• REALITY: Applicators develop a relationship with adjuvant suppliers or use the cheapest adjuvants that suit their needs
5. Have you noticed any difference in efficacy among adjuvants for OWCF control?

- **NO!**
- Applicators use adjuvants they deem to work and that fit their programs
- Rarely had any respondent paid attention to this issue
- Only two things prompted applicators to really ask this question
  - A lack of treatment efficacy not attributed to other issues
  - Rapid foliar burn
    - Limonene based surfactants
    - NIS in the hottest part of the summer
6. Have you experienced any catastrophic treatment failures, when you are confident that you did everything correctly?

• 100% have never observed herbicide treatment failure with either glyphosate or metsulfuron

• Incomplete control commonly observed during follow-up monitoring
  • Poor coverage due to thick rachis mats, difficulty in accessing areas to treat, or applicator error in missed swaths or missed patches
  • Follow-up treatment of these types of missed areas has always resulted in control
A lack of herbicide resistance to glyphosate and metsulfuron begs the question, “Why not?”

• **Possible Reasons**
  • A lack of selection pressure (we are simply not treating at a high enough frequency)
  • High propagule (spore) numbers both from the spore bank and from new spores moving into treated areas from untreated stands
  • A severe fitness cost due to resistance (not likely)
7. Following herbicide treatment, do you primarily observe OWCF recovery from what source?

![Bar chart showing the source of OWCF recovery](chart_image)

- **Rhizomes**: 10% of respondents
- **Spores**: 30% of respondents
- **Both**: 10% of respondents
- **Not sure**: 50% of respondents (N=25)
8. In your current OWCF strategy, are you (gaining, holding, or losing) ground, or not sure?
10. Are you seeing any positive impacts of the current biocontrols on OWCF?
• Limited brownout observed
• Limited establishment an issue
• Long distance dispersal of mite promising

• We are not yet there on biocontrol
9. What type of tool or tools do you think would most improve your OWCF management strategy?

- 47 total responses!
  - Herbicide (13)
  - Detection/monitoring (8)
  - Biocontrol (8)
  - Money and personnel (7)
  - IPM (5)
  - Fire (3)
  - Lygodium biology and ecology (3)
11. Do you see buy in from surrounding private landowners to treat OWCF? What will it take to get buy in?

• Interactions b/w public land managers and private landowners very limited
• Not a forage production issue for ranchers
• Cost prohibitive for most private landowners
• High value hunting lease areas often engaged
• Central Florida Lygodium Strategy
  • Surveyed ~20,000 A
  • Treated over 1,300 A
12. What are key non-target impacts that need to be lessened when treating OWCF?

An incredibly complex, yet surprisingly simple issue
Do nothing, lose everything...
Non target damage...

- Rarely seen where poodle cutting + glyphosate used
- Avoided by pulling vines off of desirable shrubs before treatment
- Avoided by aerial treatment when cypress are dormant

- Expected when glyphosate is used across mixed stands
  - “Some collateral damage is better than losing everything”
Non-target damage of concern

- Glyphosate aerial: way too hard on most woody species
- Metsulfuron aerial is a safer option on most woody species and is safe on sawgrass
- Metsulfuron is hard on:
  - Palms
  - Ferns
  - Maple
- Overall, few species discussed regarding non-target damage
13. Do we need an OWCF task force? If so, what should be its role?

- Majority of respondents reported YES
  - Update Lyg mgmt plan
  - Increase communication and collaboration

- Time is precious, frequent meetings not needed
- Focus on the big picture of Lygodium as a State issue
Summary

• A lot of questions still need to be answered
• We are making considerable progress on many public lands

• Private lands are a great concern
• Common Needs
  • Biocontrol (more, better bugs)
  • New selective herbicides
  • Understanding hydro period effects
  • Understanding fire effects
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Questions?

Comments?

Post-talk analysis?

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