Notes from the *Lygodium* Research Review Meeting

by Jeff Hutchinson, Ken Langeland, and Amy Ferriter

The first day of the Second Lygodium Research Review kicked off with opening remarks by Dr. Patrick Gleason (former SFWMD Governing Board Member), who compared Old World climbing fern (*Lygodium microphyllum*) to "a plague of biblical proportions that is threatening the Everglades." The meeting took place June 1-2 at the South Florida Water Management District office in West Palm Beach. Sixty-four participants represented federal, state and county agencies, universities, private conservation organizations and landowners. The purpose was to bring together land managers, researchers, program directors, funding agencies, industry representatives, and private landowners to review the current state of Old World climbing fern (OWCF) in south Florida and discuss future directions needed to control this invasive fern.

Amy Ferriter followed with a summary of what we did and did not know about OWCF in 1999 at the first Lygodium Research Review. What was not known in 1999 was compared to current knowledge, and work in progress was discussed.

Topics focused on current research and land management activities involving Old World climbing fern and included:

- Pattern recognition of OWCF using remote sensing
- Reproductive biology, community ecology and landscape spread of OWCF
- Modeling the spread of OWCF in the Loxahatchee NWR
- Model development to identify the most effective treatment strategies for OWCF
- Current status of biological control agent releases to control OWCF
- Initiation of surveys to detect OWCF along the Lake Wales Ridge
- Evaluation of Escort herbicide on OWCF
- OWCF problems on Lykes Brothers properties in south Florida
- Perspectives of private contractors
- Funding sources for private and public lands
- OWCF management in Everglades National Park, Loxahatchee National Wildlife Refuge, Jonathan Dickinson State Park, and along the Florida Turnpike
- South Florida Water Management District Lygodium Initiatives
- Management of OWCF on Southwest Florida Water Management District Properties

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Lygodium engulfing cabbage palms.

Questions that emerged from the management talks included: how often can an infestation be sprayed without damaging the integrity of the native vegetation?; What is the best time of year for initial treatment?; How long after initial treatment should re-treatment occur?; How many re-treatments are required for maintenance control?; Are field personnel contributing to the spread of spores from their clothing, shoes and equipment?; and, Is prescribed fire in OWCF areas good or bad for the natural community?

Dr. John Volin's research group at Florida Atlantic University presented results from a predictive model showing that area coverage of OWCF in south Florida may exceed that of the other top invasive plants by 2014.

Dr. Bob Pemberton of the USDA stated that the first release of a biological control agent, a pyralid moth (*Cataclysta camptozonale*), is scheduled for release in the fall of 2004. Several other biological control agents may be released within the next few years.

Drew Leslie of the Florida Department of Environmental Protection's Bureau of Invasive Plant Management (BIPM) stated that from 1998-2003, his agency awarded $6,422,432 to treat OWCF on public lands. New initiatives by BIPM for 2004 include the formation of a Lygodium Quick Strike force for rapid response

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Table 1. Top five research priorities on Old World climbing fern for the next five years compiled by land managers, researchers, and program directors.

LAND MANAGERS	RESEARCHERS	PROGRAM DIRECTORS
1. Optimal treatment time.	1. What are the limiting factors in OWCF's growth.	1. Control methodologies (what works best) to treat OWCF.
2. Effects of fire as a treatment method.	2. Herbicide efficacy trials.	2. Efficient use of biocontrols.
3. Development of more effective and efficient herbicide(s).	3. Synthesis of management projects (successes vs. failures) to control OWCF.	3. Control methodologies (effects of non-target damage to different communities).
4. Early detection methods.	4. Potential for a rhizome biocontrol agent.	4. Socioeconomic (impacts to landowners).
5. Decontamination of clothes and equipment from spores.	5. Development of an early detection system.	5. Ecological impacts of OWCF on natural communities.

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Fertile fronds on footware?

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to OWCF infestations under 10 acres, and hiring a Lygodium Specialist for Florida Natural Areas Inventory to evaluate past projects and serve as a liaison with the University of Florida's Institute of Food and Agricultural Sciences, public land managers and agencies. It appears that the funds needed to maintain control of OWCF will greatly increase in coming years as the plant continues to spread to many of the wetlands of south Florida.

During breakout sessions on the second day, research priorities for the next five years were established. Participants were separated into three groups: land managers, researchers, and program directors. Each group was asked to prioritize research needs based on current knowledge and what we still need to learn to control OWCF. Results are listed in Table 1 and will be used to update the Statewide Lygodium Management Plan over the next year.

Overall, the consensus among the participants was that an integrated approach is needed to combat OWCF that includes the introduction of several biological control agents, determination of the best time of year to treat OWCF for different natural habitats, testing combinations of herbicides to increase mortality of OWCF and decrease damage to native vegetation, collecting data to support special local need herbicide use permits for OWCF control, and the use of mechanical methods and prescribed burning to dispose of dead rachis mats.

The last event was a meeting of the Lake Wales Ridge Ecosystem Working Group's Invasive Species Committee, a group dedicated to controlling the spread of OWCF and other exotic plants along the Lake Wales Ridge. The group discussed the OWCF problem along the Lake Wales Ridge where lands are owned by multiple public and private entities, and a large amount of land is in private ownership with an increasing number of small lot landowners bordering natural areas. Currently there is a void for funding and assistance in the removal of invasive species when working with small lot landowners. Their goal is to find an agency to fund a program of survey and treatment of OWCF for both public and private landowners, and an entity to coordinate activities on all lands (see *Wildland Weeds*, Summer 2004).

Notes from each presentation and the results of each breakout session will be available soon and posted on the FLEPPC list-serve and web site (www.fleppc.org).

A similar meeting will be held within the next year to discuss current and future research on Japanese climbing fern (*L. japonicum*).

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Quarterly General Meetings with CEU's

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Photos by Jeff Hutchinson, UF-IFAS-Center for Aquatic and Invasive Plants

BUREAU OF INVASIVE PLANT MANAGEMENT LYGODIUM STRIKE TEAM

Since 1998, the Bureau of Invasive Plant Management, Uplands Section, has controlled more than 5000 acres of *Lygodium japonicum* and *Lygodium microphyllum* at a cost of approximately $2.6 million. This acreage does not include work performed by Water Management Districts and federal and local governments.

Effective August 1, 2004, the Bureau of Invasive Plant Management will provide an additional service to public conservation land managers throughout the state. This effort is for populations too large for in-house control efforts but too small to design a formal project and apply for funding at the working group level, and is limited to 10 acres.

If you have a population of either species of *Lygodium* in your management area that is less than 10 acres in size and with areas and access points well-defined and ready to go, the Uplands Section staff will arrange for a qualified contractor to conduct initial herbicidal control of that plant population. This service will include all labor, equipment, herbicide and adjuvants necessary to treat lygodium.

The Lygodium Strike Team will be comprised of experienced weed control specialists under contract with the Bureau. They will provide either foliar applications or “poodle-cuts” (cut vines 4-5 feet up from the ground and apply herbicide to the rooted portion of the plant).

Mr. Andrew Leslie is the Bureau coordinator for this endeavor. He can be reached at (850) 245-2822 or by e-mail at: Drew.Leslie@dep.state.fl.us