

# The Double-Trouble Ferns: Status Surveys of *Lygodium* Treatment Sites

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The author surveys *Lygodium* at Black Water River State Forest.

It is well known that the two exotic climbing ferns infesting Florida, *Lygodium microphyllum* (“Old World”) and *Lygodium japonicum* (“Japanese”), are double trouble. They remain difficult targets, both to contain and to control. With several years experience in treating both species, could we glean good information for further improving management practices by taking a careful look at many “control project” sites in a systematic fashion?

Biologists at the Bureau of Invasive Plant Management (BIPM), Florida Department of Environmental Protection thought so. In 2004, they asked the Florida Natural Areas Inventory (FNAI) to develop a protocol and conduct status surveys of the hundred or more treat-

ment sites in Florida public conservation lands where BIPM funding has been involved in treating either of the *Lygodium* species. Fieldwork for these site evaluations began in January 2005 and will continue well into 2006 to provide ground-truthing at all known sites.

When a particular managed area is visited, the survey specialist first reviews maps of the treatment sites with local staff and collects information on the staff’s experience with managing *Lygodium*. The project sites then are surveyed and the observed *Lygodium* stands are geo-referenced. Live and dead plants are characterized by a simple density ranking: single plant/clump; scattered plants; scattered dense patches; dominant cover; or dense monoculture. The heights of pre- and post-treatment ferns are noted as well. Other data collected include the plant community type, non-target damage observed, presence of water and disturbances such as hog rooting or hurricane

damage, and proximity to rare species if any are present.

Once the field survey is completed, a “project summary” is developed for all sites at that managed area. The summary condenses treatment information, including initial and most recent treatment dates, plant community description, observations, geo-referenced coordinates, a few photographs, and a map of points that represent the current *Lygodium* population(s). This summary is provided to BIPM and the local manager. The included GIS data and map are often useful to the local staff for planning further control projects.

By reviewing the details of initial and follow-up treatments at each site and evaluating the current status of treated populations, we hope the size of this “sampling” will yield for all resource managers a clearer pattern of which products and tactics have worked best under different conditions.

The initial geographic focus for the surveys in 2005 was the Central Florida *Lygodium* Strategy Zone (see *Central*

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Double trouble: *Lygodium japonicum* on the left and *L. microphyllum* on the right. Photo taken on private land in Palm Beach County; ferns treated by county Invasive Vine Strike Force.

**Not sure which species you have?** Check a couple of handy resources: “Identification and Biology of Non-Native Plants in Florida’s Natural Areas” by Langeland and Burks (1998), available at the University of Florida IFAS Extension Bookstore (<http://www.ifasbooks.ufl.edu>) or online at [www.fleppc.org](http://www.fleppc.org), or view the Weed Alerts at the BIPM web site: <http://www.dep.state.fl.us/lands/invaspec/>

*Florida Lygodium Strategy: A Regional Approach* in this issue), but the surveys have now expanded into all regions of Florida. As of December 2005, 62 project sites have been surveyed at 36 managed areas in 14 counties of north, central, and south Florida.

While the accumulated treatment information has not yet been analyzed, a few preliminary observations are beginning to surface. Some of these may seem obvious now. For example, ground treatment has been more successful on high-climbing Old World climbing fern stands when the plants first received a “poodle cut”—fronds were cut at roughly 3 ft. in height and the ground-level material pushed down to create a gap between it and the frond portions still hanging in the non-target woody vegetation. A foliar herbicide application is then used on the ground-level mat. The hanging frond portions (and their spores!) can be left to die in place. The created gap makes life

more difficult for any new or re-sprouting fronds intent on climbing again into the canopy—there’s no easy, continuous “ladder” of dead rachis to scramble up. And of course, follow-up treatment of live fronds can be more efficient when all of them are still near the ground.

Clambering stands of Japanese climbing fern rarely have received a similar initial cutting of high reaching fronds, but such a tactic may be useful. This species also uses dead or live rachis (as well as woody vine stems) to aid its climb into the understory, as observed on several occasions during surveys.

Another observation that has turned up from multiple sources is a caution about the use of Escort (metsulfuron methyl). While it provides an efficacy similar to Roundup or Rodeo (glyphosate) with generally less non-target damage, there is an important exception. When cabbage palms (*Sabal palmetto*) are sprayed with Escort, they may be severely stressed

or killed. Use of this chemical probably should be avoided if you are spraying over or near cabbage palms.

A couple of strategies that may help with treatment for either species are: 1) Plan for a follow-up treatment sometime between 6 to 12 months after the initial treatment; the goal is to interrupt the reproductive cycle; 2) Cut climbing vines whenever possible. Clipping climbers can have constructive consequences: it will reduce the height from which spores will spread, and foliar treatment of remaining ground patches should result in less non-target damage.

Managers have suggested other factors that affect the success of a treatment, such as the skill and diligence of the applicator and the proper use of surfactants. Use of a rain-fast product with the herbicide/surfactant formulation also has been suggested for those “iffy” weather days when the timing of rain may be difficult to predict.

Some managers have voiced frustration when, even after multiple treatments, the acres infested still appear to be roughly the same. Use of the density ranking in the site evaluations has shown, however, that often the density of the pest plant has been greatly reduced within that acreage. Hence, we can see that progress has been achieved, if not our dream of near-eradication.

Information on treatment results is very valuable data to share. At least one water management district is already looking into similar evaluations for their *Lygodium* treatment sites. We hope to have the general results from the 100+ BIPM sites by the end of this year. For more on this project—or if you have a “magic mixture” for fern treatment to share—please contact [clockhart@fnai.org](mailto:clockhart@fnai.org).

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