



Florida Cooperative Agricultural Pest Survey
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Charles H. Bronson,
Commissioner



Second Interim Report: Florida Cooperative Agricultural Pest Survey for *Mikania micrantha* Kunth in Miami-Dade Co., 2009-2010

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2009-2010 Florida CAPS *Mikania micrantha* Kunth, Mile-a-Minute, Survey Report

Second Interim Report:

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INTRODUCTION: *Mikania micrantha* Kunth (Fig. 1), mile-a-minute, is a fast-growing vine on both the Federal and Florida state noxious weed lists (USDA-APHIS-PPQ 2006; FDACS-DPI 2006). It thrives in warm and humid environments, growing almost half a meter per week under optimal conditions. While native to Central and South America, its global range expanded to cover Southeast Asia and the Pacific during the 1940s when it was used as camouflage for airfields. As a rapidly growing climbing vine, it can smother and overwhelm other small plants and even large trees. Left uncontrolled, it can cover abandoned disturbed areas in only a few months and then spill over into agricultural areas. It has been documented as a pest in banana, cacao, cocoanut, oil palm, rubber and rice plantations (Waterhouse and Mitchell 1998). Mile-a-minute is one of the top one hundred global invasive pests.

Mikania micrantha is a perennial vine with flowers present approximately two weeks late in the calendar year (Zhang *et al.* 2004). Seeds are dispersed by wind a month after bloom, but the plant can also reproduce vegetatively, with roots emerging at each stem node.

It can be difficult for specialists to identify. Under casual examination, *M. micrantha* may be confused with *Mikania scandens* (L.) Willd., a close relative and native Florida plant. The heart-shaped leaves of *M. micrantha* are in opposite pairs along the main stem, with small, dense clusters of white flowers (Csurhes and Edwards 1998). It grows in disturbed areas, will exhibit rampant growth and has pale green or yellow-green leaves to further distinguish it from two other *Mikania* spp. On the other hand, *M. scandens* will be found growing mostly in moist natural areas; will exhibit restrained growth and has medium green leaves and pinkish flowers. The second native species, *Mikania cordifolia* (L. f.) Willd., should not present identification problems due to its hairy leaves and large flower head (Dr. Richard Weaver, personal communication).

Populations of the weed were reported in the Redlands area of Homestead, Florida on 23 November 2009 by Dr. Keith Bradley of the Institute for Regional Conservation. Identification confirmations were made shortly thereafter by FDACS and USDA taxonomists.

METHODS: Beginning on 30 November 2009, CAPS and DPI personnel visited the four sites observed by Mr. Bradley to reconfirm his findings and to familiarize themselves with the plant in the field. Survey teams surveyed the initial detection area using major roads as transect lines. The teams drove on the roads or shoulders at ten to twenty-five miles per hour while looking for the presence of the distinctive white clusters of *Mikania* spp. blooms. When suspicious flowers were observed, the surveyors

examined leaf and floral characteristics and compared to high-resolution photographs of confirmed plant material. GPS coordinates were recorded for each suspect site. A plant sample for each suspect plant population was sent to Dr. Richard Weaver, FDACS-DPI botanist, for identification (Fig. 2).

An additional survey conducted the week of 28 December 2009 expanded the original survey area to include major roads outside of the initial survey, approaching natural areas on the east and west sides, and going as far north as SW 168th St and as far south as SW 344th St (Fig. 3).

With the assistance of FDACS-DPI personnel, CAPS began eradication of visible plant material and intensified their survey program the week of 11 January 2009 (Fig 4). It focused on clearing the eighteen areas identified during previous CAPS surveys and DPI nursery inspections. Removal of the noxious weed was achieved using manual stripping of the vine from fences and host plants, as well as uprooting vines at their base when possible.

In order to reduce seed dispersal, surveyors made an effort to bag seed-heads before the cutting and removal process began. Workers also parked upwind of eradication sites and wore clothing with slick surfaces that would not allow seeds to catch and be carried away from work areas. Personnel from outside of the county sealed their work clothing in plastic bags at the end of the day for high-temperature laundering, and washed their vehicles at commercial high-pressure washes in order to prevent the spread of the weed outside of Miami-Dade County.

After clearing a site, the surveyors walked for half a mile in each cardinal direction along both sides of all nearby roads to delimit the full extent of each infestation. GPS coordinates were collected for visible vine endpoints, and for any new sites observed during these examinations.

Plant material collected during the eradication program was sealed in heavy-duty plastic bags for storage in a secure location until the end of the week at which time all bags were transported in a covered truck to the USDA-APHIS Miami Plant Inspection Station for incineration by USDA personnel (Fig. 5).

RESULTS AND DISCUSSION: The weed was observed to be in full flower during the week of 30 November 2009. It was easy to see along the roadside from slow-moving vehicles. Sixteen sites were confirmed as positive for *M. micrantha* (Fig. 3). The vine was observed in places with full sunlight, climbing ornamental plants and fences along the roadside.

On 10 December 2009, a DPI Plant Inspector reported that a population she had identified earlier in the month was no longer in flower, and by 21 December 2009 some sites observed earlier by CAPS personnel were no longer in flower. However, one DPI Plant Inspector reported that one site he had identified was still in bloom as late as 24 December 2009. The original positive sites were revisited during the 28 December 2009

survey, and some portions of these plants were still in bloom. No additional site was identified during that survey. However, due to the overall decline in flowering, further surveys may have to be conducted along the roadside on foot.

On 4 January 2010, a DPI Plant Inspector confirmed the presence of *M. micrantha* in the pots of plants at a nursery which bordered on one of the initial confirmed sites. It was placed under quarantine by DPI pending vine removal and additional inspections

During the 11 - 15 January 2010 survey and eradication program, four additional sites were identified. Over 65 full 55-gallon garbage bags of plant material were collected (Fig. 6). In many locations, eradication was complicated by the thick undergrowth preventing access to rooting vines, or by obscuring separated sections within the canopy of the hosting plant. It was impossible to completely remove the vines from all sites as the weed frequently grew onto private property and also extended vertically beyond the reach of our equipment.

Locations that were exposed to the recent cold weather showed that the upper reproductive part of the plants had become brown and brittle. In spite of mitigation efforts, vine-removal frequently scattered pieces of the plant and seed. Follow-up surveys within the area will be required over time. It was also observed that while the upper portions of the plant were dead and dried, portions of the plant protected within the host canopy or running along the ground were still green and apparently thriving. Fresh and green plants were easier to remove. Sites that were still in bloom were easier to identify from a distance. Some new sites were only identified because nurseries had trimmed back propagative materials from their borders, thus revealing the otherwise hidden weed infestations. Where possible, local DPI Plant Inspectors contacted and surveyed the interior of nurseries where *M. micrantha* was confirmed near their borders.

On 22 January 2010, CAPS Pest Survey Specialists visited several of the sites where *M. micrantha* had been removed and found that young shoots had already emerged from the ground and begun climbing a fence.

Well-managed nurseries which had been contacted prior to this program had less difficulty removing plant material from their borders and from within the nursery. However, given the resilience of the vine, repeat surveys and the use of an herbicide will be necessary. The discovery of several abandoned nurseries and homeowner properties will provide an additional challenge in the pursuit to eradicate this new exotic noxious weed from Florida (Fig. 7).

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PHOTOGRAPHY CREDITS:

Cover page:

Background of Edward Hung on ladder in Miami-Dade County (courtesy of Steve Beidler, FDACS-DPI).

Photographs (left to right) courtesy of:

Mikania micrantha flowers (by Keith Bradley, IRC-Miami-Dade County);

Mikania micrantha seeds (by Steve Beidler, FDACS-DPI);

Mikania cutting and bagging procedure (by Steve Beidler, FDACS-DPI);

Mikania micrantha leaf (by Steve Beidler, FDACS-DPI).



Fig.1. A population of *Mikania micrantha* found in the Redlands agricultural production area, Homestead, Miami-Dade Co. (Photography credit: Andrew Derksen, FDACS-DPI-CAPS).



Fig. 2. Lou Lodyga (FDACS-DPI Region III Administrator), Gregorio Pena (Costa Farms LLC) and Stephen Beidler (FDACS Plant Inspector) examine a population of *Mikania micrantha* found along the roadside. (Photography credit: Andrew Derksen, FDACS-DPI-CAPS).

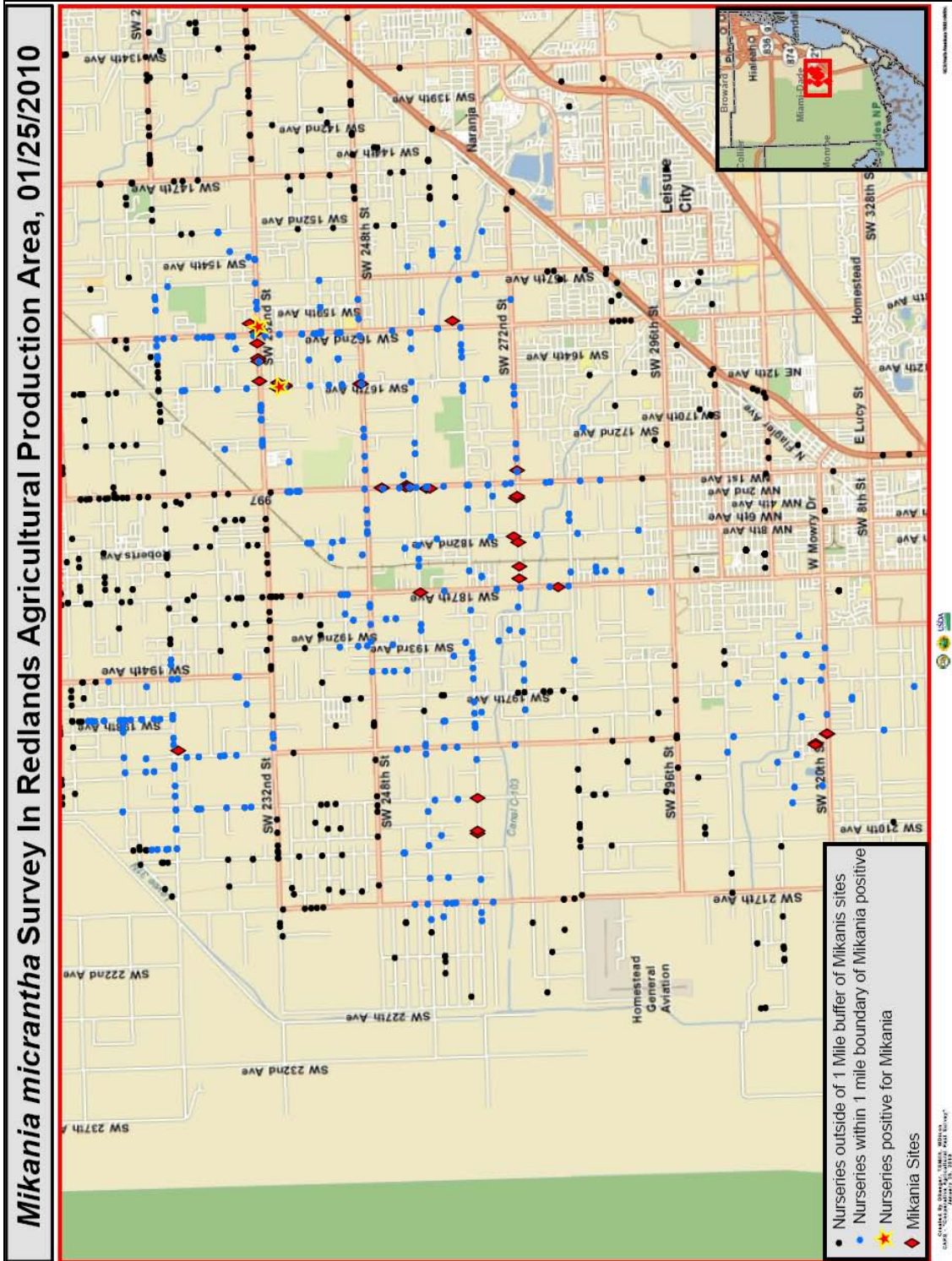


Fig. 3. Map showing positive *Mikania micrantha* locations and nearby plant nurseries in Miami-Dade County.



Fig 4. Douglas Restom-Gaskill (USDA-APHIS-PPQ-CAPS Pest Survey Specialist) and Melba Otero (FDACS-DPI Plant Inspector) work together to remove *Mikania micrantha* from a pitaya (*Hyloceras undatus* (Haworth) Britton & Rose). (Photography credit: Andrew Derksen, FDACS-DPI-CAPS).



Fig 5. Kirk Irby (USDA-APHIS-PPQ) helps to load an incinerator with one of two full loads of collected *Mikania micrantha* for destruction. (Photography credit: Andrew Derksen, FDACS-DPI-CAPS).



Fig. 6. Survey and eradication team removing *Mikania micrantha* in the field in Miami-Dade Co. (Photography credit: Steve Beidler, FDACS-DPI).



Fig 7. Abandoned nursery infested with *Mikania micrantha*. (Photography credit: Andrew Derksen, FDACS-DPI-CAPS).