

Assessment date 2016

<b><i>Mikania micrantha</i> ALL ZONES</b>		<b>Answer</b>	<b>Score</b>
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to Florida's USDA climate zones (0-low; 1-intermediate; 2-high) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	y	1
2.04	Native or naturalized in habitats with periodic inundation North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	y	2
3.02	Garden/amenity/disturbance weed	y	2
3.03	Weed of agriculture	y	4
3.04	Environmental weed	y	4
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	y	1
4.02	Allelopathic	y	1
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	y	1
4.06	Host for recognised pests and pathogens	unk	0
4.07	Causes allergies or is otherwise toxic to humans	n	0
4.08	Creates a fire hazard in natural ecosystems	unk	0
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	unk	0
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	y	1
5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	n	0

6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally	unk	-1
6.04	Self-compatible or apomictic	n	-1
6.05	Requires specialist pollinators	unk	0
6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)	0	1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y	1
7.02	Propagules dispersed intentionally by people	n	-1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal	y	1
7.05	Propagules water dispersed	y	1
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	y	1
7.08	Propagules dispersed by other animals (internally)	n	-1
8.01	Prolific seed production	y	1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	n	-1
8.03	Well controlled by herbicides	y	-1
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05	Effective natural enemies present in U.S.	?	
<b>Total Score</b>			<b>21</b>
<b>Implemented Pacific Second Screening</b>			<b>No</b>
<b>Risk Assessment Results</b>			<b>High</b>

section	# questions answered	satisfy minimum?
A		11 yes
B		9 yes
C		21 yes
total		41 yes

	Reference	Source data
1.01		cultivated, but no evidence of selection for reduced weediness
1.02		
1.03		
2.01	<p>1. PERAL NAPPFAST Global Plant Hardiness (<a href="http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif">http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif</a>). 2. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896</a> (0-00-0000).</p>	<p>No computer analysis was performed. 1. Global hardiness zone: 9, 10, 11, 12, 13 ; equivalent to USDA Hardiness zones: 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11a: to USDA Zone (40 °F) USDA Zone 11b: to (45 °F) USDA Zone 12a: to (50 °F) USDA Zone 12b: to (55 °F). 2. Native to Northern America Northern Mexico: Mexico - San Luis Potosi, - Sinaloa, - Tamaulipas Southern Mexico: Mexico - Campeche, - Chiapas, - Colima, - Guerrero, - Hidalgo, - Jalisco, - Michoacan, - Nayarit, - Oaxaca, - Puebla, - Tabasco, - Veracruz, - Yucatan Southern America Brazil: Brazil Caribbean: Cuba; Dominica; Dominican Republic; Grenada; Guadeloupe; Haiti; Jamaica; Martinique; Puerto Rico; St. Lucia; St. Vincent and Grenadines; Trinidad and Tobago Mesoamerica: Belize; Costa Rica; El Salvador; Guatemala; Honduras; Nicaragua; Panama Northern South America: French Guiana; Guyana; Suriname; Venezuela Southern South America: Argentina Western South America: Bolivia; Colombia; Ecuador; Peru</p>
2.02		
2.03	<p>1. Köppen-Geiger climate map (<a href="http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf">http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf</a>). 2. GBIF <a href="http://www.gbif.org/species/113586212">http://www.gbif.org/species/113586212</a> (4-26-2016)</p>	<p>1. Distribution in the native/cultivated range occurs in Am Aw, As, Cfa, BSh, Bsk</p>
2.04	<p>1. Climate Charts. World Climate Maps. <a href="http://www.climate-charts.com/World-Climate-Maps.html#rain">http://www.climate-charts.com/World-Climate-Maps.html#rain</a> (8-19-2015)</p>	<p>1. Native to regions with rainfall from 26 inches to 97 inches annually</p>
2.05	<p>1. Invasive Species Compendium <a href="http://www.cabi.org/isc/datasheet/34095">http://www.cabi.org/isc/datasheet/34095</a> (4-26-2016) 2. PIER <a href="http://www.hear.org/pier/species/mikania_micrantha.htm">http://www.hear.org/pier/species/mikania_micrantha.htm</a> (4-26-2016)</p>	<p>1. It was introduced into India and Indonesia as ground cover in the 1940s and then somehow spread to the Pacific Islands, New Guinea and much of South-East Asia 2. One of the worst invaders among many Pacific Islands (including Rarotonga, Fiji, Palau, Guam, Niue, American Samoa, Samoa, Tonga, Vanuatu, Wallis &amp; Futuna)</p>
3.01	<p>1. Flora of China <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=242423293">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=242423293</a> (4-26-2016) 2. Drake, J. A., H. A. Mooney, F. di Castri, R. H. Groves, F. J. Kruger, M. Rejmanek, and M. Williamson. 1989. Biological Invasions: A Global Perspective. J. Wiley, Chichester ; New York. 525 pp.</p>	<p>1. Naturalized in China 2. Naturalized in India, and possibly invasive</p>
3.02	<p>1. Haeringer. 2006. Introduced Species Summary Project <a href="http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Mikania_micrantha.htm">http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Mikania_micrantha.htm</a> (4-26-2016) 2. Natural Resources Conservation Service Invasive Species Fact Sheet <a href="http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_036713.pdf">http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_036713.pdf</a> (4-26-2016)</p>	<p>1. Initially colonizing the degraded forestland, it then invades adjoining gardens, causing severe damage to natural forest ecosystems as well as agro-forestry, home-gardens and plantations. 2. A scrambling or climbing vine capable of producing a dense tangled mat of trailing stems that can smother shrubs and small trees. Very rapidly invades and overgrows abandoned areas. Plant litter has an allelopathic effect that inhibits the growth of vegetation.</p>

3.03	<p>1. University of Florida IFAS Extension  <a href="https://edis.ifas.ufl.edu/ag338">https://edis.ifas.ufl.edu/ag338</a> (4-22-2016) 2. Global Invasive Species Database  <a href="http://www.issg.org/database/species/ecology.asp?si=42">http://www.issg.org/database/species/ecology.asp?si=42</a> (4-23-2016) 3. PIER  <a href="http://www.hear.org/pier/species/mikania_micrantha.htm">http://www.hear.org/pier/species/mikania_micrantha.htm</a> (4-26-2016)</p>	<p>1. It is a significant pest in plantation crops and commercial forests in West Africa and India and throughout Southeast Asia and the Pacific Islands. 2. <i>M. micrantha</i> is one of the three worst weeds of tea in India and Indonesia and of rubber in Sri Lanka and Malaysia. In Samoa, incursions of <i>M. micrantha</i> have caused the abandonment of coconut plantations, and the weed has been reported to kill large breadfruit trees. It also causes serious problems in oil palm, banana, cacao and forestry crops, and in pastures. While it does not grow well in rice paddies, it can encroach from the edges to smother the crop. 3. A major weed in plantations, pastures and along roadsides, and an intermediate weed in crops and forestry.</p>
3.04	<p>1. Sherley, G. 2000. Invasive species in the Pacific: A technical review and draft regional strategy. South Pacific Regional Environment Programme. 190 pp. 2. Randall, J. M. 2007. The Introduced Flora of Australia and its Weed Status. CRC for Australian Weed Management, Department of Agriculture and Food, Western Australia, Australia. 528 pp. 3. Tiwari, S., B. Adhikari, M. Siwakoti, and K. Subedi. 2005. An Inventory and Assessment of Invasive Alien Plant Species of Nepal. IUCN - The World Conservation Union, Nepal. 116 pp.</p>	<p>1. Significant weed of natural forests in Pacific islands 2. Environmental weed in Australia 3. Kills plants it smothers</p>
3.05	<p>1. Holm, L. G., J. V. Pancho, J. P. Herberger, and D. L. Plucknett. 1979. A Geographical Atlas of World Weeds. Krieger Publishing Company, Malabar, FL. 391 pp.</p>	<p>1. <i>Mikania congesta</i> is a principal weed in Malaysia. <i>Mikania scandens</i> is considered a serious weed in several countries</p>
4.01	<p>1. Flora of China  <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=242423293">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=242423293</a> (4-26-2016)</p>	<p>1. No evidence of these features</p>
4.02	<p>1. SPC Land Resources Division <a href="http://www.spc.int/lrd/mikania-project/mikania-micrantha">http://www.spc.int/lrd/mikania-project/mikania-micrantha</a> (4-26-2016) 2. Chen. 2009. Effects of the invasive plant <i>Mikania micrantha</i> HBK on soil nitrogen availability through allelopathy in South China. Biological Invasions. Biological Invasions 11(6):1291-1299 3. SHAO Hua, PENG Shaolin, ZHANG Chi et al. Allelopathic potential of <i>Mikania micrantha</i>[J]. cje, 2003, (5): 62-65.</p>	<p>1. <i>Mikania</i> has also been shown to have allelopathic properties i.e. release chemicals that can inhibit the growth of plants. Recent studies have isolated these allelopathic chemicals and demonstrated their growth-inhibition properties on young seedlings. <i>Mikania debris</i> incorporated into soil was also shown to inhibit germination and seedling growth in some crops. 2. The results showed that <i>M. micrantha</i> significantly affected soil nutrients and N transformation. Soil beneath <i>M. micrantha</i> had inhibitory effects on seed germination and seedling growth of test plant, and had significantly higher C, N, ammonia, net nitrification rate than those of open soil. 3. The allelopathic potential of <i>Mikania micrantha</i> was investigated. The bioactivity of the aqueous extract (branches and leaves, roots, litters and soils), organic extracts (branches and leaves) were evaluated on the growth of the following plants: radish (<i>Raphanus sativus</i>), rye grass (<i>Lolium multiflorum</i>), white clover (<i>Trifolium repens</i> L.). The results showed that the aqueous extract of the branches and leaves inhibited the growth of the receptor plants obviously, and the aqueous extract of the roots also influenced the growth of the plants but less significant. The litters had no obvious effect. The petroleum ether and ethanol extract inhibited the growth of the plants, too. However, the ethyl acetate extract had much more impact. The ethyl acetate extract retarded the germination of the seeds, and the height of the plants decreased to 10%, which implied the existence of the allelochemicals.</p>
4.03	<p>1. Flora of China  <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=242423293">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=242423293</a> (4-26-2016)</p>	<p>1. No evidence of these features</p>

4.04	1. Natural Resources Conservation Service Invasive Species Fact Sheet <a href="http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_036713.pdf">http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_036713.pdf</a> (4-26-2016) 2. Haeringer. 2006. Introduced Species Summary Project <a href="http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Mikania_micrantha.htm">http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Mikania_micrantha.htm</a> (4-26-2016)	1. Can be used as fodder for grazing animals. 2. suitable for grazing and animal feed.
4.05	1. Tiwari, S., B. Adhikari, M. Siwakoti, and K. Subedi. 2005. An Inventory and Assessment of Invasive Alien Plant Species of Nepal. IUCN - The World Conservation Union, Nepal. 116 pp. 2. APFISN. No Date. Mikania micrantha: Mile-a-minute weed. Asia - Pacific Forest Invasive Species Network (APFISN). Last accessed June 15, 2010, <a href="http://www.doacs.state.fl.us/pi/enpp/botany/images/mikania-pest-fact-sheet-APFISN.pdf">http://www.doacs.state.fl.us/pi/enpp/botany/images/mikania-pest-fact-sheet-APFISN.pdf</a> .	1. In Nepal, cattle that feed around patches of this often suffer from liver fluke. This is attributed to the high densities of snails, which are an intermediary host and live in Mikania patches 2. Mikania is known to cause hepatotoxicity and liver damage in dairy cattle
4.06		no evidence
4.07		no evidence
4.08		no evidence
4.09	1. University of Florida IFAS Extension <a href="https://edis.ifas.ufl.edu/ag338">https://edis.ifas.ufl.edu/ag338</a> (4-22-2016) 2. Global Invasive Species Database <a href="http://www.issg.org/database/species/ecology.asp?si=42">http://www.issg.org/database/species/ecology.asp?si=42</a> (4-23-2016)	1. This plant does not typically grow well in heavily shaded areas. 2. Although intolerant of heavy shade it readily colonises gaps.
4.10		Lack of evidence
4.11	1. PIER <a href="http://www.hear.org/pier/species/mikania_micrantha.htm">http://www.hear.org/pier/species/mikania_micrantha.htm</a> (4-26-2016) 2. Invasive Species Compendium <a href="http://www.cabi.org/isc/datasheet/34095">http://www.cabi.org/isc/datasheet/34095</a> (4-26-2016)	1. A smothering vine. 2. This weed could climb and smother rubber trees as tall as 25 m.
4.12	1. Grice, A. C., and M. J. Setter (eds.). 2003. Weeds of Rainforests and Associated Ecosystems. Cooperative Research Centre for Tropical Rainforest Ecology and Management. Rainforest CRC, Cairns, Australia. 116 pp. 2. Wright, J. 2009. Tropical plant reproduction biology. Smithsonian Tropical Research Institute (STRI).	1. Forms dense tangled infestations in pastures, plantations and disturbed forests 2. Forms dense thickets by the numerous intermingled stems and stolons
5.01		Family: Asteraceae
5.02		Family: Asteraceae
5.03		Family: Asteraceae
5.04	1. Flora of China <a href="http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=242423293">http://www.efloras.org/florataxon.aspx?flora_id=2&amp;taxon_id=242423293</a> (4-26-2016)	1. No evidence of these features
6.01		no evidence
6.02	1. Global Invasive Species Database <a href="http://www.issg.org/database/species/ecology.asp?si=42">http://www.issg.org/database/species/ecology.asp?si=42</a> (4-23-2016) 2. Tiwari, S., B. Adhikari, M. Siwakoti, and K. Subedi. 2005. An Inventory and Assessment of Invasive Alien Plant Species of Nepal. IUCN - The World Conservation Union, Nepal. 116 pp. 3. Invasive Species Compendium <a href="http://www.cabi.org/isc/datasheet/34095">http://www.cabi.org/isc/datasheet/34095</a> (4-26-2016)	1. Reproduces sexually by seeds 2. Reproduces by seed 3. Seed propagated
6.03		no evidence
6.04	1. Hong, L., H. Shen, W. H. Ye, H. L. Cao, and Z. M. Wang. 2008. Secondary pollen presentation and style morphology in the invasive weed Mikania micrantha in South China. Botanical Studies 49(3):253-260. 2. HONG, L., SHEN, H., YE, W. H., CAO, H. L. and WANG, Z. M. (2007), Self-incompatibility in Mikania micrantha in South China. Weed Research, 47: 280-283.	1. This species is a secondary pollen presenter, which is a strategy to promote outcrossing 2. Self-Incompatible
6.05		no evidence

6.06	1. Global Invasive Species Database <a href="http://www.issg.org/database/species/ecology.asp?si=42">http://www.issg.org/database/species/ecology.asp?si=42</a> (4-23-2016) 2. Haeringer. 2006. Introduced Specxies Summary Project <a href="http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Mikania_micrantha.htm">http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Mikania_micrantha.htm</a> (4-26-2016)	1. Vegetative reproduction is also efficient and vigorous. 2. The plant is adapted to a wide range of habitats and can grow easily from the tiniest fragment of vine as well as from seed. The vine will root readily when in contact with moist soil or when left on plant debris and will grow at an extraordinary rate once established, climbing on any vertical support it finds in its way.
6.07	1. FAO <a href="http://www.fao.org/forestry/13376-05d702161c15b1e3defa6bf9c8e6c4f82.pdf">http://www.fao.org/forestry/13376-05d702161c15b1e3defa6bf9c8e6c4f82.pdf</a> (4-26-2016)	1. Fruit setting occurs between September and February, initiated 17 - 21 days after flowering... A single plant may cover over 25 square metres within a few months
7.01	1. University of Florida IFAS Extension <a href="https://edis.ifas.ufl.edu/ag338">https://edis.ifas.ufl.edu/ag338</a> (4-22-2016) 2. Global Invasive Species Database <a href="http://www.issg.org/database/species/ecology.asp?si=42">http://www.issg.org/database/species/ecology.asp?si=42</a> (4-23-2016) 3. PIER <a href="http://www.hear.org/pier/species/mikania_micrantha.htm">http://www.hear.org/pier/species/mikania_micrantha.htm</a> (4-26-2016)	1. Wet areas, forest borders, clearings, canal banks, rivers, roadsides, pastures, and other agricultural areas. Mile-a-minute generally invades disturbed areas. 2. Mikania micrantha is native to Central and South America, where it grows in and near forests, along rivers and streams and in disturbed areas such as roadsides. 3. a scrambling or climbing vine found at elevations from near sea level to about 800 m as a pernicious and often abundant weed on the edges of forest, in clearings, thickets, second-growth forest, and pastures, and along roadsides
7.02	1. Invasive Species Compendium <a href="http://www.cabi.org/isc/datasheet/34095">http://www.cabi.org/isc/datasheet/34095</a> (4-26-2016)	1. Taiwan <i>M. micrantha</i> was introduced for soil conservation in the 1970s and is now found throughout the island. It was introduced into India and Indonesia as ground cover in the 1940s [No recent records of intentional distribution]
7.03		no evidence
7.04	1. University of Florida IFAS Extension <a href="https://edis.ifas.ufl.edu/ag338">https://edis.ifas.ufl.edu/ag338</a> (4-22-2016) 2. Global Invasive Species Database <a href="http://www.issg.org/database/species/ecology.asp?si=42">http://www.issg.org/database/species/ecology.asp?si=42</a> (4-23-2016) 3. PIER <a href="http://www.hear.org/pier/species/mikania_micrantha.htm">http://www.hear.org/pier/species/mikania_micrantha.htm</a> (4-26-2016)	1. Seeds are tufted, making them well-equipped for wind dispersal. 2. Each seed has a terminal pappus of white bristles that facilitates dispersal by wind or on the hair of animals 3. The seeds are dispersed by air currents and germinate readily on moist bare soil.
7.05	1. FAO <a href="http://www.fao.org/forestry/13376-05d702161c15b1e3defa6bf9c8e6c4f82.pdf">http://www.fao.org/forestry/13376-05d702161c15b1e3defa6bf9c8e6c4f82.pdf</a> (4-26-2016) 2. Invasive Species Compendium <a href="http://www.cabi.org/isc/datasheet/34095">http://www.cabi.org/isc/datasheet/34095</a> (4-26-2016)	1. Seeds are dispersed over long distances by wind, animals and water currents. 2. Water dispersal possible
7.06		no evidence
7.07	1. Global Invasive Species Database <a href="http://www.issg.org/database/species/ecology.asp?si=42">http://www.issg.org/database/species/ecology.asp?si=42</a> (4-23-2016) 2. PIER <a href="http://www.hear.org/pier/species/mikania_micrantha.htm">http://www.hear.org/pier/species/mikania_micrantha.htm</a> (4-26-2016)	1. Each seed has a terminal pappus of white bristles that facilitates dispersal by wind or on the hair of animals 2. Each seed has a terminal pappus of white bristles that facilitates dispersal by wind or on the hair of animals
7.08		no evidence of consumption
8.01	1. Global Invasive Species Database <a href="http://www.issg.org/database/species/ecology.asp?si=42">http://www.issg.org/database/species/ecology.asp?si=42</a> (4-23-2016) 2. Zhang, L. Y., W. H. Ye, H. L. Cao, and H. L. Feng. 2004. Mikania micrantha H. B. K. in China – an overview. Weed Research 44(1):42-49.	1. A single plant may cover over 25 square metres within a few months, and release as many as 40,000 viable seeds every year. In some locations flowering and seed production are during short days only. 2. Seed germination is as high as 96 percent. It can produce up to 170,000 seeds per square meter

8.02	<p>1. Chen. 2012. Characteristics of the Seed banks and seedling banks of <i>Mikania micrantha</i>-invaded soils different in type of habitat. <i>Journal of Ecology and Rural Environment</i> 29(4):483-488</p>	<p>1. Characteristics were studied of the seed banks and seedling banks of the five places that are different in habitats but all invaded by <i>M. micrantha</i> in Longchuan County, Dehong Prefecture of Yunnan Province, China, using the method of field sampling and germination test in laboratory. Results show that seeds in the soil samples germinated and were identified to be of 40 plant species belonging to 18 families. They differed in species composition, characteristics and spatial distribution of seed germination and seedling bank between habitats. The <i>M. micrantha</i> seed density of rubber forest, woodlot, bushland, grassland, and river bank, the five different habitats, was 75, 109, 165, 124, and 53 seed · m<sup>-2</sup>, respectively, showing significant difference between them (P&lt;0.05). The in-laboratory germination experiment shows that germination of <i>M. micrantha</i> seeds may last for 8 weeks, and concentrated during the period from the 3rd to the 5th weeks. Vertically, its seeds were concentrated mainly in the 0-2 cm soil layer, and then in the &gt;2-5 cm layer, and the &gt;5-10 cm layer, accounting for 81%, 17%, and 2% of the total seeds in the 0-10 cm soil layer, respectively. In the field, germination of <i>M. micrantha</i> seeds may last for 6 months, that is, from May to October, and was concentrated mainly in the period from June to August.</p>
8.03	<p>1. Global Invasive Species Database <a href="http://www.issg.org/database/species/ecology.asp?si=42">http://www.issg.org/database/species/ecology.asp?si=42</a> (4-23-2016) 2. Haeringer. 2006. Introduced Species Summary Project <a href="http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Mikania_micrantha.htm">http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Mikania_micrantha.htm</a> (4-26-2016)</p>	<p>1. Control of <i>Mikania micrantha</i> is difficult, because of the high output of viable seeds, and because new plants can grow from even the tiniest stem fragments. Other than complete destruction of all the stems, herbicides provide the only suitable method of control at present 2. Herbicides seem to provide the only suitable method of control at present.</p>
8.04	<p>1. Tiwari, S., B. Adhikari, M. Siwakoti, and K. Subedi. 2005. An Inventory and Assessment of Invasive Alien Plant Species of Nepal. IUCN - The World Conservation Union, Nepal. 116 pp. 2. Raju, R. A. (ed.). 1999. Ethnobotany of Rice Weeds in South Asia. Today and Tomorrow's Printers and Publishers, New Delhi, India. 235 pp. 3. Drake, J. A., H. A. Mooney, F. di Castri, R. H. Groves, F. J. Kruger, M. Rejmanek, and M. Williamson. 1989. <i>Biological Invasions: A Global Perspective</i>. J. Wiley, Chichester ; New York. 525 pp.</p>	<p>Burning is not recommended because it is deep-rooted and can easily regenerate. Mature infestations are difficult to eradicate because small stem fragments can regenerate the plant 2. Regenerates with vigor after cutting 3. Species is adapted to periodic disturbance</p>
8.05		no evidence