Agriculture, Fisheries and Conservation Department
Conservation Branch

Nature Conservation Practice Note

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Clearing Mikania

1. Purpose

1.1 The purpose of this practice note is to provide general technical guidance to relevant government departments, landscape contractors and interested parties on the clearance of Mikania.

2. Background

2.1 Mikania (*Mikania micrantha*) is an exotic perennial herbaceous vine belonging to the family Asteraceae. It is native to tropical South and Central America but is now widely distributed in India, Southeast Asia, Pacific islands and South China including Guangdong and Hong Kong.

2.2 Similar to the habit of other climbers, Mikania climbs up other plants to reach the canopy for more sunlight. Mikania will gradually cover up the host plants and reduce the sunlight reaching the host plant for photosynthesis, thus adversely affecting the growth of the host plants. Besides, Mikania is known to have allelopathic potential by producing biochemicals that can inhibit seed germination and seedling growth of other plants. In Hong Kong, Mikania sprawls out rapidly in spring and summer.

2.3 Mikania is considered a noxious weed that affects plantation crops and afforestation programmes in Southeast Asia and India. In Hong Kong, it is usually found in low-lying, moist and disturbed areas with ample sunlight such as derelict field, abandoned agricultural land, fishpond bund, roadside, disturbed/modified water course and woodland edge around village environs. Mikania has not caused significant adverse impact on established woodland areas.

3. Characteristics of Mikania

3.1 Mikania is a perennial herbaceous vine with opposite leaves and slender, much branched and hairless to very slightly hairy stems. Each Mikania leaf has a leafstalk (1 - 6 cm long) and a leaf blade (3 - 13 cm long and up to 10 cm wide) that is characteristically

heart-shaped with tapering apex and irregularly coarsely dentate margins. When in bloom, Mikania produces numerous small heads of densely clustered white flowers with fragrance. The flowers will develop into small, black dried fruits, each with a terminal tuft of white bristles for wind dispersal. Please refer to the photos at the end of the Note for reference.

3.2 Mikania reproduces both sexually by seeds and vegetatively by rooting at nodes. In South China, Mikania starts flowering from June and sets fruits from November to February the following year. It produces huge amount of seeds that rapidly germinate with very high successful rate. The high reproductive capacity and rapid growth allow Mikania to spread quickly. However, fruiting, seed germination and seedling growth can be hindered under low temperature and inadequate sunlight. Therefore, shady environments, such as mature woodlands and plantations, are often less susceptible to the proliferation of Mikania.

4. Methods of Clearing Mikania

4.1 Regular monitoring and clearing provide an effective way to protect plants and habitats from the proliferation of Mikania. Clearance should be arranged promptly when Mikania is found, particularly for areas of conservation importance.

Physical control

4.2 Like all other climbers, Mikania can readily be removed by slashing with hand tools or clearing with a brushcutter. The stem should be cut off as close to the ground as possible and the aerial part should be removed and disposed properly. For those that hang on trees, the aerial part should be cleared to about 3 metres from the ground while the rest will wither and die off naturally. However, there may be regrowth from the base and repeated clearing should be carried out if necessary. Manually pulling out the plants allows removal of roots but could be very labour intensive.

Chemical control

4.3 Mikania is susceptible to herbicides such as glyphosate and sulfometuron-methyl. However, application of herbicide is not suitable for sites near water sources, active agricultural lands, gardens and residential areas, and should be used with caution under all circumstances. When the surrounding environment does not permit the use of herbicide, removal of Mikania by physical means should be adopted. After the application, Mikania and other vegetation in the treated area may wither altogether which could be unsightly for a period of time. Vines and herbs are more likely to be affected by herbicide when compared with trees and shrubs. Skilled workers should be engaged for the application of herbicide with all the required safety precautionary measures. The “Code of Practice for

the Safe and Proper Use of Pesticides in Public Areas"[1] and "Safe and Proper Use of Pesticides – Turf and Landscape Management"[2] should be followed for the safe and proper use of herbicides.

Habitat management

4.4 Mikania has lower germination and growth rates in shady environment. Planting of trees and shrubs at infested sites after clearance of Mikania could provide the shade required to suppress the weed from regenerating. The suitability of growing condition, implication on surrounding environment and the existing plant community, desirable effect, maintenance need and resource availability should be taken into account when selecting the plant species to be used. Repeated clearing of regrown Mikania at the infested site should be carried out until the planted trees and shrubs have established. This method is comparatively more resource demanding and the effect may take longer to be observable. However, it is a more sustainable solution for the control of Mikania.

5. Important Precautions

- **To clear Mikania from a safe and firm position.** Mikania grows vigorously and may cover up the entire area including the ground and the canopy. Workers should pay extra care not to fall into caves, cliffs or crevices that are covered up by Mikania and other vegetation.

- **To pay attention of personal safety.** The work of clearing Mikania may involve the use of hand tools, machines or chemicals. Workers should observe relevant occupational safety and health guidelines and wear appropriate personal protective equipment.

- **To properly dispose of Mikania that has been cut off.** The aerial parts that have been cut off should not be left on the ground but should be packed in bags for proper disposal. Roots of Mikania can grow from nodes of stems that have been cut off and regenerate readily.

- **To clear Mikania before it sets fruits.** The fruiting period of Mikania is from November to February the next year, but may vary across different years. The fruit of

[1] Code of Practice for the Safe and Proper Use of Pesticides in Public Areas jointly issued by the Agriculture, Fisheries and Conservation Department, the Food and Environmental Hygiene Department and the Leisure and Cultural Services Department (2014) at https://www.afcd.gov.hk/english/quarantine/qua_pesticide/qua_pes_safe/files/COP_public_area_ENG.pdf

[2] Safe and Proper Use of Pesticides – Turf and Landscape Management by Agriculture, Fisheries and Conservation Department (2017) at https://www.afcd.gov.hk/English/quarantine/qua_pesticide/qua_pes_safe/files/Turf_Landscape_2017.pdf

Mikania is lightweight and is easily dispersed by wind. It would be advisable to treat Mikania physically or chemically before it sets fruits and produces seeds so as to prevent it from further spreading.

- **To pay attention to other climbing plants.** Native climber species including common species, such as Climbing Bauhinia (*Bauhinia glauca*), and some rare or protected species, such as Hong Kong Mucuna (*Mucuna championii*) and Illigera (*Illigera celebica*) form part of our natural environment. When grown in large extent over hillsides, these native climbers may be mis-identified as Mikania from a distance. During on-site assessment, particular attention should be paid to avoid unnecessary disturbance to these native climbers.

- **To use only registered herbicides and strictly follow the instructions on labels.** Only registered herbicides[3] should be used. The user instruction including the application rate, dilution rate, when and where to use the herbicide, and precautionary measures as stipulated on the product label should be strictly followed. The user should wear the necessary protective clothing and gears during the application of herbicides and properly clean them and dispose of the empty containers after the application.

6. Additional Remarks

6.1 This Practice Note aims at providing general guidance on the clearance of Mikania for reference only and users should carefully consider other site-specific constraints and requirements when planning or implementing any Mikania clearance operation. Advice should also be sought from relevant authorities or landowners regarding the necessary arrangement prior to conducting any Mikania clearance work. Government departments or concerned parties may appoint landscape contractors, skilled landscape workers or gardeners to clear Mikania in areas under their jurisdictions.

[3] Please refer to http://www.afcd.gov.hk/english/quarantine/qua_pesticide/qua_pes_pes/files/common/Registered_Pesticides_List_Part_II.pdf for the list of the pesticides registered in Part II of the Pesticide Register.

6.2 Various Government departments would carry out vegetation maintenance work as appropriate in accordance with their respective areas of responsibilities. Development Bureau Technical Circular (Works) No. 6/2015 Maintenance of Vegetation and Hard Landscape Features sets out the departmental responsibilities for the maintenance of vegetation under different categories of government land. The basic principle adopted is given below[4]:

Category of Land[5]	**Maintenance Department**
Allocated government land	Allocatee department
Along non-expressway public roads (outside country parks)	Leisure and Cultural Services Department
Within the boundary of expressways	Highways Department
Country parks (outside the boundary of expressways)	Agriculture, Fisheries and Conservation Department
Along footpaths in village environs and access roads maintained by HAD	Home Affairs Department (HAD)
Unleased/unallocated government land not maintained by other departments	Lands Department

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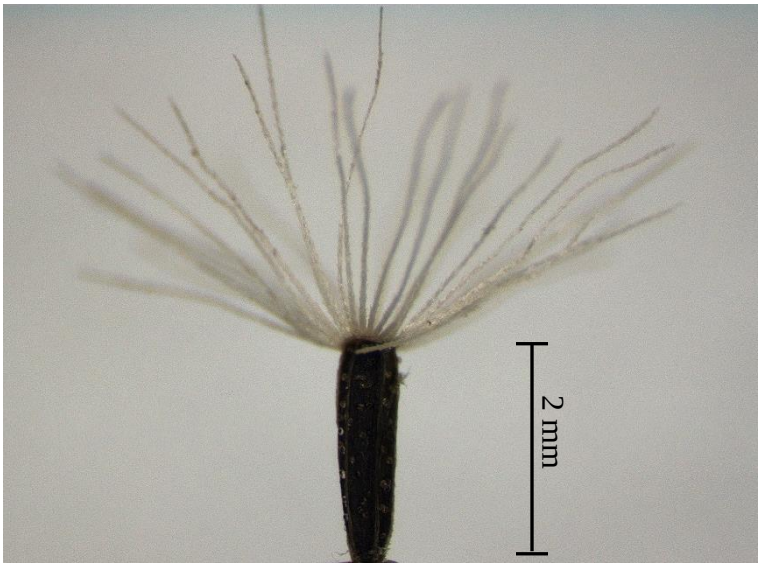
[4] Paragraph 15 to 20 of DEVB TCW No.6/2015 provides further details on the demarcation of maintenance responsibilities and the arrangement for vegetation on existing landscaped areas.
[5] Regardless of the land categories, the vegetation on Government SIMAR slopes should be maintained by the slope maintenance department. Departmental responsibilities for the maintenance of SIMAR slopes are given in DEVB TCW No. 6/2011 Maintenance of Man-made Slopes and Emergency Works to Deal with Landslides.



Mikania micrantha (Top) in habitat; (Middle) dried specimen; (Bottom) a dried fruit with a terminal tuft of white bristles.

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