Advisory Council on the Environment  
Nature Conservation Subcommittee  

Confirmed Minutes of the meeting held on 2 June 2009  
at 4:00 pm in Room 4690, 46/F., Revenue Tower, Wanchai  

Present:  
Professor CHAU Kwai-cheong (Chairman)  
Professor LAM Kin-che, S.B.S., J.P. (ACE Chairman)  
Mr. Hans Michael JEBSEN, B.B.S.  
Dr. MAN Chi-sum, J.P.  
Mr. TSANG Kam-lam  
Dr. YAU Wing-kwong  

Absent with apologies:  
Ms. Betty HO  
Mr. LAU Che-feng, Edwin  
Professor LAM Kwan-sing, Paul, J.P.  
Mr. WONG Ka-wo Simon, J.P.  

In Attendance:  
Mr. Albert LAM Deputy Director (2), Environmental Protection Department (EPD)  
Mr. Vincent TANG Assistant Director (Nature Conservation & Infrastructure Planning), EPD  
Mr. J K CHAN Assistant Director (Conservation) (Atg.), Agriculture, Fisheries and Conservation Department (AFCD)  
Mr. Simon CHAN Senior Conservation Officer (Biodiversity) (Atg), AFCD  
Miss Vivien LI Senior Administrative Officer (Nature Conservation), EPD (Secretary)  

In Attendance for Agenda Item 3  
Mr. Patrick LAI Senior Conservation Officer (Technical Services)  
Mr. Boris KWAN Conservation Officer (Scientific Interest)  

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The Chairman welcomed Members to the meeting of the Nature Conservation Subcommittee (the Subcommittee).
Agenda Item 1: Confirmation on Minutes of the Last Meeting held on 10 February 2009

2. The draft minutes were confirmed without any amendments.

Agenda Item 2: Matters Arising

3. There were no matters arising from the minutes of the last meeting.

Agenda Item 3: Field Study on the Effectiveness of Using *Cuscuta* (菟絲子) Species in Control of *Mikania micrantha* (薇甘菊) (NCSC Paper 3/09)

4. The Chairman invited Mr. Boris KWAN to brief members on the paper.

5. In response to a member’s enquiries, Mr. Patrick LAI said that *Cuscuta campestris* (dodder) was a local species which could be commonly found in Hong Kong. However, results of experiments revealed that seed germination rate of dodder was relatively low without pre-treatment with acid, and hence unlikely to germinate on its own in large quantity in the natural environment. In addition, once the dodders were germinated and infested a host plant, they would die together with the host (*Mikania micrantha*) (hereinafter “Mikania”). Owing to their low germination rate, dependence on host plant and ineffectiveness in seed dispersion, dodders did not occur in large quantity in the natural environment, and therefore it was unlikely that dodders would become another pest plant.

6. A member asked AFCD about the history of *Mikania* in Hong Kong, the effectiveness of methods employed to control *Mikania*, and the side effects dodders might pose to the natural environment. He asked whether the places with similar climate to that of Hong Kong had any measures to tackle *Mikania*. Mr. Patrick LAI said that record showed *Mikania* had been found in Hong Kong for over 100 years. Due to the downturn of agriculture industry since the 1970s, many farmlands were abandoned, which might have triggered the spread of *Mikania*, and its effect on the environment had become more serious in the last few decades. Other humid and warm places like India, Malaysia and South China had also conducted studies of *Mikania* control. In India, attempts were made to use fungus to control *Mikania*, and in Malaysia, studies were carried out to use insects feeding on *Mikania* to control the latter. However, both methods were proven to be far from success. In recent years, some laboratory results of studies done in South China found dodder species to be effective in attacking *Mikania*. AFCD believed that their study was one of the first few field trials around the world of using dodders to control *Mikania*. Having understood the relationship between dodgers and *Mikania*, AFCD would try to work out the protocol of application. Further, once it was proven that dodgers were effective in
controlling *Mikania*, AFCD could apply it in combination with planting of tree seedlings to facilitate the establishment of woodlands. Once the woodland had established, *Mikania* would less likely to return to attack the tree plantations because the canopy of the trees would have shaded out the ground where *Mikania* could not germinate.

7. Upon a member’s enquiries, Mr. Patrick LAI said that the current study focused on how effective the impacts dodders had on the growth and reproduction of *Mikania*. To further investigate the sustainability of the dodders, experiments had to be carried out in different sites to test whether both dodders and *Mikania* would die in the end, and whether trees could grow subsequently. It would be a good approach to introduce dodder seedlings to the sites seriously infested by *Mikania* only after such applications were proven to pose no side effect to the natural environment.

8. A member asked how serious *Mikania* was affecting the local environment, and whether AFCD had conducted any study to show the relevant degree of impacts. Mr. Patrick LAI said that it was difficult to quantify the adverse impacts of *Mikania*. There were a few attempts to apply advanced technologies, i.e. satellite imaging and infra-red sensing techniques, to map out *Mikania* distribution, but it was unsatisfactory as the *Mikania* could not be easily distinguished from other vegetations when using these technologies. Besides, it was not cost-effective to map out all areas manually. In terms of the damage that *Mikania* caused, the woodland edges often suffered the most, because when trees were located at the edges, *Mikania* could grow above their canopies and block the photosynthesis process, and the trees under attack would die eventually. The member asked if AFCD took *Mikania* control measures in the areas of ecological significance. Mr. Patrick LAI said that one of AFCD’s measures to tackle the problem of *Mikania* in ecologically important sites was to clear the Mikania at woodlands edges annually. For other government lands, Land Department would act on complaint in removing *Mikania* manually.

9. The Chairman enquired how *Mikania* (host) and dodders (parasite) could co-exist after the *Mikania* died and dodders could no longer feed on the nutrients of the *Mikania*. Mr. Patrick LAI said that *Mikania* normally came back from the remaining unaffected portion first due to its higher growth rate. From AFCD’s experimental result, dodders could only reduce the *Mikania* growth rate and could only kill a certain proportion of *Mikania* and hence, *Mikania* could grow again after the dodders died. Notwithstanding this, the shorter life cycle of dodders could help suppress the growth and reproduction of *Mikania*, as dodders could return to attack *Mikania* more than once during the year.

10. Upon a member’s enquiries, Mr. Patrick LAI said that control measures on *Mikania* were usually taken on government lands instead of on privately-owned lands. To further promote the introduction of biological control agent to private lands, pubic education
programmes and management agreement projects under the New Nature Conservation Policy were the possible approaches.

11. In response to a member’s enquiries, Mr. Patrick LAI said that concentrated sulphuric acid was applied to dormant and dry dodder seeds to assist germination. The Chairman advised AFCD not to pull down live Mikania in removing Mikania during the fruiting period as that could promote seed dispersion. Mr. Patrick LAI fully agreed with such suggestion and said that AFCD had published a practice note for the contractors and suggested them to carry out the removal work before the flowering/fruiting period of Mikania, i.e. spring and summer, in order to reduce the spreading of Mikania seeds.

12. Upon a member’s enquiries, Mr. Patrick LAI advised that the law provided for controlling the import of specific plant species, but not on planting invasive plants on private lands.

13. A member said that the Tai Po District Council (TPDC) would be willing to help identify suitable private lands for testing methods to control Mikania and pest. He suggested AFCD and TPDC to cooperate closely on this issue.

14. In response to the Chairman’s question, Mr. Boris KWAN said that AFCD aimed to first carry out small-scale trial in protected areas including Site of Special Scientific Interest (SSSI), country parks and wetland, to test the effectiveness of dodders in controlling Mikania. Mr. Patrick LAI further explained that to thoroughly test the effectiveness and appropriateness of using dodders to control Mikania, AFCD would need around three years to carry out further studies, while the current study had been conducted for one and a half year only.

15. The Chairman said that the Mikania was a notorious weed affecting our environment over many decades. AFCD was aware of this problem and referred to overseas experiences in seeking ways to control Mikania. The Chairman concluded the discussion as follows –

(a) Members were concerned that dodder as a biological control agent of Mikania might become the weed itself. AFCD confirmed that it would very unlikely be the case based on the current understanding;

(b) Members accepted using biological control agent as one of the Mikania control methods, and agreed that AFCD should continue the study of using dodders (including Cuscuta japonica as well) as biological controls to Mikania;

(c) Members suggested AFCD to consider using the sowing of seed method to introduce dodders to Mikania, because it would widen the application of using
dodders as biological control in future, as compared to other methods such as fresh stem cutting or transfer through intermediary host;

(d) Members were concerned about the spread of *Mikania* in privately-owned lands, and AFCD agreed to give priorities to protecting ecologically sensitive areas from the attack of *Mikania*, including but not limited to wetlands (e.g. Mai Po Marshes); and

(e) AFCD should consider controlling the spread of *Mikania* through legislative means when the time became opportune.

**Agenda Item 4: The Proposed Action Plan for the Conservation of Amphibians in Hong Kong (NCSC Paper 4/09)**

16. The Chairman invited Mr. Simon CHAN to brief Members on the paper.

17. In response to a member’s enquiry, Mr. Simon CHAN said that Po Toi was recommended as a potential country park in previous studies, but there was no concrete plan for its immediate designation.

18. A member commented that the government should consider designating Po Toi as an SSSI, to recognize its importance for Romer’s Tree Frog. Mr. Albert LAM responded that AFCD could give some thoughts on the suggestions to protect Po Toi, and considerations could be given to support the same if consensus could be reached.

19. Upon a member’s enquiries, Mr. Simon CHAN said that three amphibian species including Hong Kong Newt, Romer’s Tree Frog and Hong Kong Cascade Frog were under the protection of Wild Animals Protection Ordinance (Cap. 170). The Ordinance provided that no person was allowed to hunt these species, among others. He added that over-harvesting and illegal hunting were not problems in Hong Kong, but other parts of the world.

20. In response to a member’s enquiry, Mr. Simon CHAN said that most of the important amphibian habitats were located in the upland areas, and land excavations and land-filling activities usually occurred in low-lying regions. If frog habitats were located in privately-owned lands, AFCD would have difficulty to implement any protection measures. As regards development control, the Town Planning Ordinance and Environmental Impact Assessment Ordinance provided for prohibition of incompatible development in these areas.

21. A member asked if there was any plan to promote the knowledge about frogs. Mr. Simon CHAN said that Year 2008 was the Year of the Frog, hence a series of activities were held. Currently, AFCD was working closely with Kadoorie Farm and Botanical Garden
and Ocean Park to continue promoting the importance of amphibian protection. A member enquired whether AFCD would set a theme hall for amphibians, drawing reference from the Reptile House in Tuen Mun Park operated by the Leisure and Cultural Services Department. Mr. Simon CHAN responded that AFCD had already put some native amphibian species in Hong Kong Wetland Park for education purposes.

22. In replying the Chairman’s question, Mr. Simon CHAN said that monitoring wildlife and their habitats was part of AFCD current duties. For the study of amphibian disease and chytridiomycosis, additional funds would be required annually. The University of Hong Kong had been carrying out studies relating to frog disease, but that too would be a short-term one lasting for a few years only, as it was also subject to the availability of funds.

23. The Chairman concluded that –

(a) Members supported the continuation of AFCD’s study on amphibian conservation management, including habitat enhancement and conservation plan for specific species. AFCD should also continue with relevant education programs;

(b) Subject to the availability of fund, the study on chytridiomycosis would be carried out to prevent a drastic drop in frog population. Seeking funds to continue the research proactively was also necessary;

(c) Members were concerned about the need to have a more proactive approach to protect Po Toi, possibly designating it as a country park, SSSI or special area;

(d) Members were concerned that the Administration lacked control over privately-owned lands where activities posing threats to the ecological value of the sites occurred frequently. The Administration could consider re-thinking how to tackle the problem; and

(e) AFCD to report back to the Subcommittee in future on further amphibian conservation management measures.

24. The Chairman reminded Members that the next meeting will be held in the afternoon of 10 November 2009. There being no other business, the meeting adjourned at 6:00 pm.

Secretariat, Nature Conservation Subcommittee
July 2009