

WORKSHOP REPORT

Inception and Consultation Workshop

Conserving Arthropod Biodiversity and Ecosystem Services in Rice Environments of Hainan Island, China



22-23 March, 2010
Wu Zhi Shan Hotel, Haikou,
Hainan, China



by
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Summary

The Inception and Consultation workshop of the Hainan Project was held in Hai Kou Wuzhishan International Hotel, Hainan, China on 22-23 March 2010. This project, a partnership between IRRI, Kadoorie Charitable Foundation (KFC) based in Hong Kong, Hainan University and the National Agro-Tech Extension and Service Center (NATESC), has parallel activities as in Output 3 of the Rice Planthopper Project. The Hainan Project will assess biodiversity and ecosystems services in rice environments, understand farmers' knowledge, attitude and practices with regard to biodiversity conservation and develop strategies for conservation.

Dr. Xia Jingyuan, Director General of NATESC gave the keynote address and Prof. Dr. Xiaoping Diao, Vice President, Hainan University, delivered the welcome remarks. Mr. Ronald Li represented the KCF. Dr. KL Heong, the principal investigator of the project introduced the project concepts and emphasized that the launching of this project was most fitting because 2010 has been declared by the UN as the International Year for Biodiversity. Dr. M. Escalada discussed the concepts, activities and uses of a farmer survey on biodiversity conservation knowledge, attitudes and practice in Hainan.

The workshop developed a workplan that will include a study tour for Hainan partners to Zhejiang to observe the ecological engineering site in Jin Hua, a 2 week training course on arthropod taxonomy to be held in Danzhou campus of Hainan University, a training on sociological tools and focus group discussions and initial exploration sampling of rice ecosystems.

Background

Rice in Hainan Island is grown in environments ranging from intensive monocrops to diverse patchworks of terrestrial and aquatic habitats that are rich in biodiversity and ecosystem services. In these environments, resistance to pest invasion and pest regulation services provided by predators and parasitoids are vital in keeping pest populations below economic thresholds. At least 200 species of parasitoids and 150 species of predators live in and around Hainan rice fields. Since rice is an ephemeral habitat, the most important pest species are exogenous invaders. Many of their natural enemies, particularly generalist predators, on the other hand, are resident species, such as spiders and crickets. These species tend to take refuge in surrounding non-crop habitats when rice is harvested and re-enter the rice fields when the crop is re-established. Factors such as landscape structure, habitat biodiversity, cropping patterns, and farmers' crop management practices are important to these species and the services they provide. High pesticide use is a well-known cause of breakdowns in ecosystem services, and has led to uncontrollable outbreaks of the brown planthopper. Only by reducing pesticide use, and hence strengthening ecosystem services, will it be possible to reverse this situation.

Hainan's unique location, with beautiful beaches, strengthens its tourist industry. Besides making rice production environmentally sustainable, preserving local biodiversity will also enhance the pollination services important for the fruit, flower, and

plantation crop industry. Intensive agriculture, especially when the use of neonicotinoid and pyrethroid pesticides is high, may be associated with a decline in bee biodiversity and pollination, for example, in Europe and Japan (<http://Ricehoppers.net>). Preserving local biodiversity and reducing pesticide use will also help reduce threats to local butterflies, birds, and mammals.

Today, close to 100% of rice grown in Hainan are hybrid varieties. The genetic biodiversity is low, coupled with farmers being encouraged to apply insecticide routinely 3 to 4 times per season, making many farms vulnerable to pest outbreaks. Farmers had not been taught to appreciate the value of biodiversity and natural biological control services and their routine sprays were deteriorating the services further. Government officials, university professors, and researchers retain traditional thinking and are dependent only on pesticides for pest management. The excessive spraying has also caused rapid developments in insecticide resistance (often > 200-fold) and farmers are using higher concentrations.

In February 2010, the Kadoorie Charitable Foundation (KCF) based in Hong Kong has provided a grant to IRRI to work collaboratively with local scientists in Hainan Island to assess arthropod biodiversity and ecosystem services in rice environments, to understand farmers' knowledge, attitude and practice with regards to biodiversity conservation and to develop strategies for conservation.

The year 2010 has been declared by the UN as the International Year for Biodiversity (IYB2010 <http://www.cbd.int/2010/welcome/>) and the launching of this project to develop strategies to conserve biodiversity is most fitting.

Workshop objectives:

1. To get stakeholders and collaborators well acquainted with the project concepts, methodology and key outputs and better acquainted with one another.
2. To develop a workplan of activities to achieve the project milestones for the next 12 months.

Resource persons

Dr. KL Heong

International Rice Research Institute
Los Baños, Laguna

Dr. Zhongxian Lu

Zhejiang Academy of Agricultural Sciences
(ZAAS), Hangzhou

Dr. Monina M. Escalada

Department of Development Communication
Visayas State University, Leyte, Philippines

Participants

China

Dr. Xia Jingyuan	Director General, National Agro-Tech Extension and Service Center (NATESC), Beijing
Dr. Zeng-Rong Zhu	Zhejiang University, Hangzhou
Mr. Zhu Qingmin	Deputy Director-General, Department of Agriculture Hainan Province
Mr. Wang Hongliang	Deputy Director-General, Department of Agriculture Hainan Province
Prof. Dr. Xiaoping Diao	Vice President, Hainan University
Prof. Fucong Zheng	Dean of College of Environment and Plant Protection Hainan University
Prof. Dr. Xinwen Hu	Dean of College of Agriculture, Hainan University
Mr. Shijia Hua	Director of Foreign and Overseas Chinese Affairs Office, Hainan University
Prof. Dr. Chaohe Chen	Director of Scientific Research Office Hainan University
Dr. Cai Ducheng	Hainan University
Dr. Dan Jianguo	Hainan University
Prof. Qianhua Yuan	Hainan University
Dr. Wei Hu	Hainan University
Mr. Cai Dejiang	Plant Protection Station of Hainan Province, NATESC
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Mr. Luo Hongwei	Agro-Tech Extension Center, NATESC Sanya City, Hainan Province

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Mr. Ronald Li

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Dr. Alberto Barrion

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Ms. Josie Lynn Catindig

Crop and Environmental Sciences Division

Ms. Sylvia Villareal

Crop and Environmental Sciences Division

Dr. Fang Ming Xie

Plant Breeding, Genetics & Biotechnology Division

Workshop outputs

1. Workplan

Activity	Date
Collection of samples for Taxonomy workshop	July
Professional visits to Zhejiang and Jin Hua	Mid or late July
Ecological methods workshop	Mid or late July
Field sampling of arthropods	August - December
Taxonomy training course	Early August
Sociological training	Late August

2. Details of workplan

Professional visits

Dr. Lu will host the professional visits of four Hainan staff (Prof. Yuan and company) to Zhejiang and Jinhua, Hangzhou where he will demonstrate the different sampling devices for sampling arthropods in the field. Dr. Lu will also conduct the ecological methods workshop during their visit.

Field sites and sampling of arthropods

Two sites were identified for field sampling: Ling Shui Town in Sanya City and Hongqi in Haikou. Field sampling of arthropods by net sweeping, yellow pan trap and blow-vac

will be carried out in a spray and a non-spray rice fields during the second cropping season in August to December 2010.

Taxonomy training course

Dr. Alberto Barrion will handle a two week training course on taxonomy in early August at the Danzhou campus in Hainan University. Before the workshop, Dr. Cai's students will collect the arthropod materials from the field for use during the training.

Workshop participants will include six students of Dr. Cai who will be later be hired to sort and identify the field samples from Sanya and Haikou.

Dr. Barrion will bring the sampling devices during his trip to Hainan in early August.

Sociological workshop

Dr. Monina Escalada will conduct the sociological and decision making tools workshop in late August. The workshop is open to plant protection specialists, biologists and university staff who will conduct the farmer survey.