



Tropentag, October 9-11, 2007, Witzenhausen

“Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs”

Hodgsonia heteroclita* Hook. f. & Thomson (Cucurbitaceae) - A Neglected Oil Plant in Southwest China and its Relationship with the Weaver Ant *Oecophylla smaragdina

JENNIFER LINN SCHREITER¹, GERHARD LANGENBERGER², JOACHIM HELLER¹, JOSEF MARGRAF³

¹University of Applied Sciences Wiesbaden, Faculty of Geisenheim, Germany

²University of Hohenheim, Agroecology in the Tropics and Subtropics, Germany

³Tianzi Biodiversity Research & Development Centre, China

Abstract

Hodgsonia heteroclita is a traditional oil plant used in former times as a Non Timber Forest Product (NTFP) by the mountain tribes of Southwest China. In the 1960s it was identified by Chinese scientists as promising a commercial oil plant because of its oil content of up to 77% in its large seeds. Many experiments for cultivation were conducted but interest in the plant faded due to difficulties in cultivation and management. Juvenile plants obviously do not stand full exposure to sunlight which makes the species problematic for mono-cropping systems. Additionally, the species is dioecious and, so far, it is not possible to distinguish between the young male and female plants. The management is further challenged by the drupaceous fruit characteristic, which is unique in Cucurbitaceae and makes extraction of the seed laborious.

The huge loss of rainforest due to rubber cultivation in Southwest China creates a need for biodiversity protection. *Hodgsonia heteroclita* provides a good example of how protection can be promoted by 'rediscovering' traditional useful plants which are endangered due to habitat loss. As a liana the species is well-suited to be integrated in a diverse forest garden system. Additionally, it shows a distinct ant-plant association with the Asian weaver ant *Oecophylla smaragdina*, which is well-known for its outstanding predatory power and can be used for natural pest control. *Hodgsonia heteroclita* provides glands for the ants containing nutritional fluid as well as suitable habitat to build nests. Furthermore, the liana builds natural bridges for the ants to distribute between the trees they should protect, but this does not affect the trees by overgrowing or strangling them. In a forest garden system with fruit trees, the 'tree-liana combination' can therefore contribute to sustainable harvests of oil-seeds as well as of fruits without the application of insecticides, which makes the species especially interesting for organic farming schemes.

Currently, propagation and large scale integration into orchards and secondary forests are conducted in Xishuangbanna to protect *Hodgsonia heteroclita* and to prepare it for potential future markets.

Keywords: Agroforestry systems, ant plant, biodiversity conservation, forest gardens, natural pest-control, neglected crops, NWFP, organic farming

Contact Address: Jennifer Linn Schreiter, University of Applied Sciences Wiesbaden, Faculty of Geisenheim, Bardenbergerstr. 14, Würselen, Germany, e-mail: linnsch@yahoo.de