A Feasibility Study for Sustainable Butterfly Production in the Iwokrama Rainforest and the North Rupununi District, Guyana, South America.

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Introduction

Local people and their inter-dependency (immediate and economic) on the rainforests in which they live is increasingly recognised in development dialogue. Indigenous peoples have used their resources wisely for centuries, but as populations and pressures from different sources on shared land grows, value added and alternative forest product use such as non-timber forest products (NTFPs) must be addressed. (van Ginkel 2000)

Butterflies are an example of NTFP that have been harvested and farmed in countries in Africa, South America, North America and Europe. The Arabuko Sokoke Kipepeo Project in Malindi, Kenya, has had a substantial impact on local communities, promoting present day use of the resource while at the same time allowing for future use through the protection of the environment from which the butterflies are harvested (Ashley 1999).

The Project

The Iwokrama International Centre, along with other project partners, with financial assistance from The Darwin Initiative is implementing a similar programme in Guyana, South America. "Biodiversity And Sustainable Development Of Butterfly Production Livelihoods in Guyana" is a three year project which began in 2006 and is documenting the butterfly diversity and their host plants present within the Iwokrama forest and North Rupununi region. The North Rupununi is mostly savannah. The pilot butterfly farming entity, situated in Fair View village (a West Indigenous land), will provide an income generating activity for the indigenous Makushi Amerindian communities that traditionally used the Iwokrama forest and North Rupununi.

Little is known about the ecology of the butterflies within the Iwokrama forest and North Rupununi region, Guyana. Two groups of butterflies, with high market value potential are the Morpho's and Heliconius. My research project will contribute to the above mentioned Darwin project by developing methodology for the sustainable production of local butterflies with good export potential.

Goals

1) To investigate the feasibility (a socio-economic assessment) of setting up a butterfly farming business
2) Identify the host plants and life cycle Morphos, and
3) To investigate the growth rate potential of two Heliconius butterfly species

Methodology

This project will investigate the biological and social implications of butterfly farming in the Iwokrama forest and North Rupununi region, Guyana.

Biological

Morpho Host Plant Identification

Two rim Iwokrama is being inspected to observe Morphos egg-laying in their natural environment. This project will also conduct egg laying experiments with plants from Cochlaceae, Poaceae, Fabaceae, Menispermaceae, Moraceae, Bignoniaceae, Tiliaceae, Sapindaceae, Lauraceae, Guttiferae, Myrtaceae, Melastomaceae, Gunneraceae and Erythroxylaceae families. Constantino (1997) has documented Morpho host plants within these families so my project will test other plants, within these families, for their potential as Morpho host plant.

Heliconius Growth Rate

Heliconius sara fulgidus and H. burneyi f. cathemicus are potentially high value trade species that are abundant in the research area. Their caterpillar stages have been observed on Passiflora coriacea and P. coccinea, respectively (personal observations).

An experiment to investigate the influence of different host plants on the growth rate of Heliconius sara fulgidus and H. burneyi f. cathemicus caterpillars is being conducted. Leaves from P. coccinea, P. auriculata and an unidentified Passiflora sp. is being fed to the caterpillars of the two Heliconius species to test their growth rate potential. Growth rate will be measured by the length of time taken from the neonate stage to the final instar.

Social

Participatory rural appraisal methodology is being used to gather community knowledge of butterflies and their ecology. The project will also study the socioeconomic aspects of sustainable butterfly farming, the legal and logistical requirements for exporting farmed butterflies from the production site to the international market.

Project Updates and Next Steps

Morpho Egg Laying Experiment

To date, 10 species from four plant families were used in the Morpho egg laying experiment. No eggs have resulted from these investigations. However, a female Morpho helenor was observed egg laying on an high grass/Poaceae plant during one of the transect walks. The egg was collected and successfully hatched.

Heliconius Growth Rate Experiments

Experiments are now underway with the neonates of the two species.

Some Economic Developments

Several outreach and training visits were made to 18 communities. The first of two questionnaire surveys to assess attitudes and awareness were conducted.

The pilot site is located in Fair View village and the butterfly farm is near completion. Discussions for a business partnership agreement commenced in 2007. The relevant chain of custody arrangements and costs are to be finalized.

References

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Acknowledgements

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