

ASSOCIATION FOR TROPICAL LEPIDOPTERA

NOTES

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Butterflies of Oil Palm Forests, Liberia, West Africa

Introduction

The Upper Guinea Forest Ecosystem is one of the most diverse in Africa. It is home to 972 native butterflies recorded to date (Larsen 2008). The Liberia forests, part of the Upper Guinea Forests, are home to an estimated 725-775 species of Lepidoptera. Forty-three of these are thought to be endemic (Larsen 2008, Fox et al. 1965). Liberia's lowland tropical broadleaf forests have been ravaged by a 14-year civil war. These forests are threatened by commercial and subsistence factors, including hunting, small scale collecting of non-timber forest products, and small and large scale farming. As a result, many forest butterflies may have been unable to survive because of the absence of a closed canopy. Others may be well adapted to survival in disturbed habitats (Larsen 2008).

I was interested in butterflies colonizing fragmented forest patches and edges adjacent to water bodies. I selected seven different forest habitats to survey. These included two oil palm plantations, three rubber plantations, an urban forest on a river, and a forest disturbed by iron ore mining. The two oil palm habitats showed higher species richness than the other habitats combined. These notes list the butterflies collected from these two oil palm habitats and offer some comments on a few noteworthy species.

Butterfly Collecting

We collected butterflies from two oil palm habitats adjacent to a creek, either within a forest patch, or along a forest edge. We collected daily, twice a day, in the morning and in the afternoon for an eight day period. Butterflies were also collected at night by looking for sleeping or roosting individuals, when feasible (Bakowski & Doku-Marfo, 2006).

We had to get permission from each village chief before collecting. Our request was met with great interest when we entered each village and we always found children happy to help us catch butterflies. Butterfly specimens were primarily collected with hand-held nets, mostly while walking transects along trails on the forest edge or within a forest patch and near the creek. We also used bait traps with a homemade fermented concoction of bananas, sugar, and yeast.

Butterflies Inhabiting Oil Palm Forests

Oil palm has been traditionally farmed in Liberia at least since I was growing up there in the sixties. As far back as I can remember, oil palm farms have been a common sight when travelling up into the interior. Collecting at the two oil palm habitats turned out to be productive. Sixty-three species of

butterflies in four families were represented.

The following taxa were recorded: **Papilionidae** - *Graphium polices*; **Pieridae** - *Pseudopontia paradoxa paradoxa*, *Colotis euippe euippe*, *Catopsilia florella*, *Eurema hecabe solifera*, *Eurema senegalensis*, *Belenois calypso calypso*, *Appias sylvia*, *A. epaphia epaphia*, *Leptosia alcesta alcesta*, *L. medusa*; **Lycaenidae** - *Mimeresia libentina isabellae*, *Axiocerses harpax*, *Hypolycaena antifaunus antifaunus*, *H. scintillans*, *Larinopoda eurema*, *Euchrysops malathana malathana*, *Zizula hylax*; **Nymphalidae** - *Neptis nemetes nemetes*, *N. morosa*, *Junonia octavia sesames*, *J. sophia*, *J. oenone oenone*, *J. terea terea*, *Ariadne enotrea enotrea*, *A. actisanes*, *Cymothoe caenis*, *Bebearia theogenis*, *Euryphura chalcis*, *Hamanumida daedalus*, *Euphaedra justicia*, *Hypolimnas misippus*, *Acraea rogersi*, *A. alcinoe*, *A. encedon encedon*, *A. encedana*, *A. caecilia*, *A. camaena*, *A. serena*, *A. neobule*, *A. epea epea*, *A. bonasia*, *A. acerata*, *Bicyclus sandace*, *B. dorothea dorothea*, *B. funebris*, *Ypthima doleta*, *Elymnias bammakoo bammakoo*, *Danaus chrysippus chrysippus*, *Amauris damocles*, *A. niavius*.

Butterflies of Note

Graphium polices, the Common Striped Swordtail, does a good job of surviving in both wet and dry forested areas. It is commonly found around farming areas. They mudpuddle around creeks and rivers where villagers gather to bathe and wash clothes and are usually found with *Belenois* species (Larsen 2005). We collected a single butterfly at a bathing creek near where palm oil was being processed. *Pseudopontia p. paradoxa*, the Ghost, is a little butterfly found in most of West Africa. It prefers wet habitats and the shade conditions under the canopy cover of an



1. Oil Palm Habitat



2. Worker Toting Oil Palm Fruit



3. *Graphium policeses*



4. *Pseudopontia p. paradoxa*

intact forest. The Ghost is rarely seen and usually flies slowly very low (Larsen 2005). Several of us were able to catch flying individuals with our fingers. *Colotis e. euippe*, Round-Winged Orange Tip, is well-adapted to agricultural and other degraded areas and is typically not found under full canopy cover. This is the only one of the 40 species in the genus always expected to be found in disturbed areas (Larsen 2005). Six genera were represented in the Lycaenidae, collected from the vicinity of the creek. Among these, *Axiocerses harpax*, the Common Scarlet, is noteworthy. It typically occupies dense forests and does not colonize disturbed habitats (Larsen 2005). The presence of the Common Scarlet in an oil palm plantation suggests adaptation to degraded or secondary forest habitats. *Euchrysops m. malathana*, the Smoky Bean Cupid, which can be a pest of

bean crops (Larsen 2005), is common in disturbed areas where Fabaceae species grow abundantly with oil palm. With eleven species, the genus *Acraea* was the largest representative among Nymphalidae. *Acraea e. encedon*, is common in villages and surrounding forests. An interesting reproductive feature of this species is that more than half of all broods are all-female. In Sierra Leone, Larsen (2005) recorded 95% out of 61 broods as female. This happens when male embryos are killed off by parasitic and sometimes symbiotic bacteria in the genus *Wolbachia* (Jiggins *et al.* 1998). Also of note is *Danaus c. chrysippus*, the Common Tiger, a dry season species commonly found in disturbed forest areas. Breeding grounds located in dry river beds are inundated and destroyed when the rainy season comes in. It is not until the rains stops six months later that this species can breed again (Larsen 2005).

Individual Lepidoptera species are closely linked to their habitat and host plants. However, these species appear to be well adapted to survival in disturbed areas, including oil palm habitats. This collection took place during the dry season so any species not in flight during this time were excluded. Our next collection will be taken during the rainy season and will likely produce many other species not in flight during the dry season.

Acknowledgements

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2012 Annual ATL - McGuire Center Photocontest

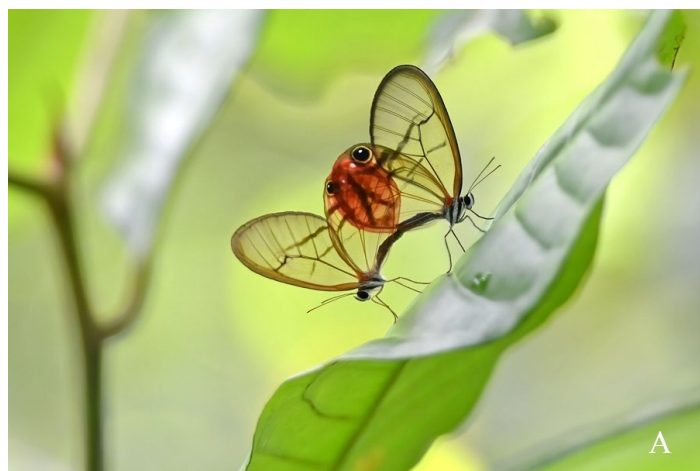
The 2012 photo contest attracted 43 entries from eight photographers. It was judged by four independent judges in three categories (Butterflies, Moths, and Immatures) based on scientific and aesthetic merits of the pictures. The winning photographs are published in this issue:

Butterflies Category

1st place: (C) Roberto Rezende Greve: *Marpesia chiron marius* (Nymphalidae), feeding on the banks of the Iguazu River. Photographed in Iguassu National Park, Iguassu Falls, Paraná, Brazil, Camera: Sony DSC-W70 camera.

2nd place: (B) Alexandr Chuvilin: *Pyrgus malvae* L. (Hesperiidae), Russia, Kaluga region.

3rd place: (A) Geoff Gallice: *Cithaerias pireta pireta* (Nymphalidae),



Isla Colon in Bocas del Toro, Panama, July 14, 2012. Narrative: "I was walking through the forest to a large tree, in order to climb it. My camera was buried under the climbing gear. I noticed the mating pair of *Cithaerias pireta* as I scared them away - I instantly thought: "what a great photo it would be." Fortunately, they alighted on a nearby leaf and waited long enough for me to snap this photo." Equipment: Nikon D7000 and a 70-200mm lens.

Moths Category

1st place: (E) Lary Reeves: *Calpinae* sp. (Noctouidea), Sepilok, Sabah, Borneo; the moth was found feeding on figs at night; Equipment: Canon 7D.

2nd place: (F) Alexandr Chuvilin: *Zygaenta trifoli* (Zygaenidae), Russia, Tula region.

3rd place: (G) John Gamble, Arctiid moth.

Immatures Category

1st place: (H) Alexandr Chuvilin: *Apatura ilia* (Nymphalidae), Russia, Tula region.

2nd place (and a photo that scored the highest for its aesthetic qualities): (I) Lary Reeves: *Hyles lineata* (Sphingidae), Wilcox, Pima Co. Arizona; Larvae crossing a road during outbreak; Equipment: Canon 7D.

3rd place: (J) Roberto Rezende Greve: Lycaenidae: Theclinae, Iguassu Falls, Paraná, Brazil; Sony DSC-HX1 camera.

Honorable Mention: (D) Lary Reeves, *Neptis* sp. (Nymphalidae), Northern Negros Forest Preserve, Negros Occidental, Philippines; This butterfly is imbibing from a dead erebid larva; Equipment: Canon 7D.



E



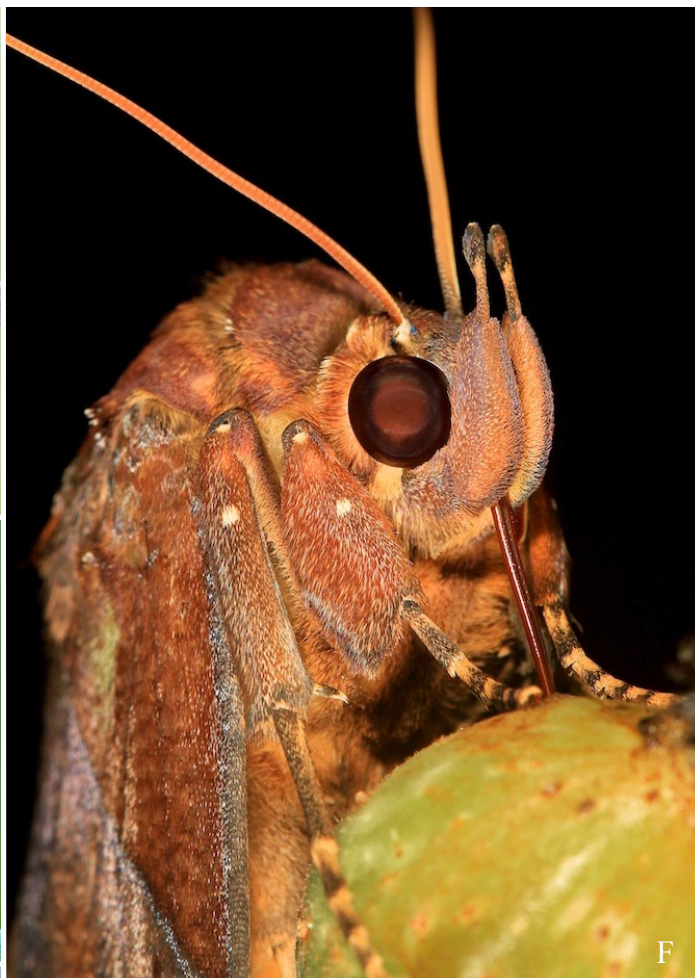
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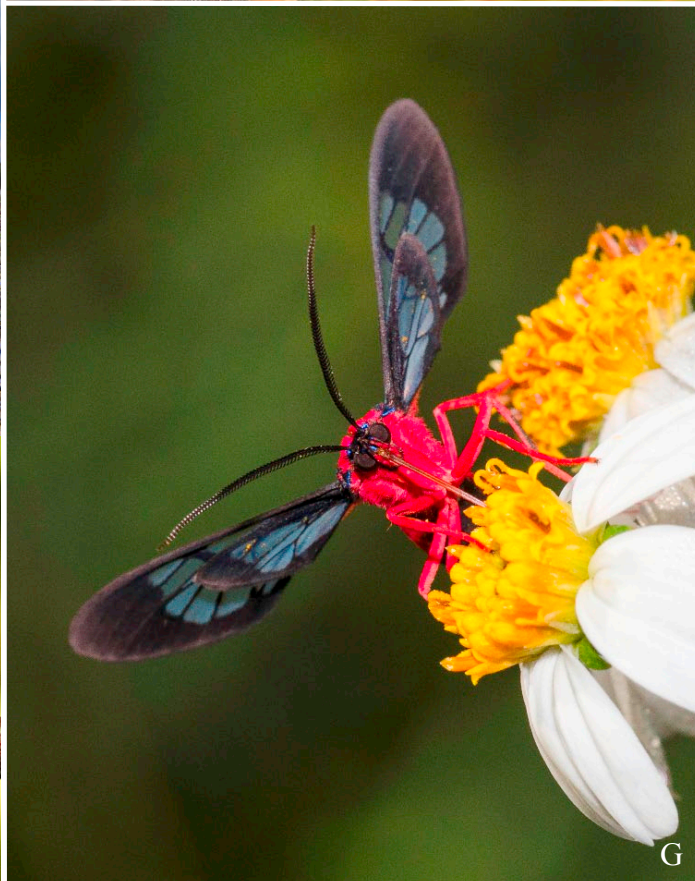
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