

REVISTA NICARAGUENSE DE ENTOMOLOGIA

N° 106.

Abril 2016

Butterfly Diversity at Lost Canyon Nature Reserve, Nicaragua, including a new country record.

By Hilary E. Erenler, Richard Leonardi, Michael P. Gillman, Jean-
Michel Maes & Erico Téllez.



PUBLICACIÓN DEL MUSEO ENTOMOLÓGICO
ASOCIACIÓN NICARAGÜENSE DE ENTOMOLOGÍA
LEON - - - NICARAGUA

Revista Nicaragüense de Entomología. Número 106. 2016.

La Revista Nicaragüense de Entomología (ISSN 1021-0296) es una publicación reconocida en la Red de Revistas Científicas de América Latina y el Caribe, España y Portugal (Red ALyC) e indexada en los índices: Zoological Record, Entomological Abstracts, Life Sciences Collections, Review of Medical and Veterinary Entomology and Review of Agricultural Entomology. Los artículos de esta publicación están reportados en las Páginas de Contenido de CATIE, Costa Rica y en las Páginas de Contenido de CIAT, Colombia. Todos los artículos que en ella se publican son sometidos a un sistema de doble arbitraje por especialistas en el tema.

The Revista Nicaragüense de Entomología (ISSN 1021-0296) is a journal listed in the Latin-American Index of Scientific Journals. It is indexed in: Zoological Records, Entomological, Life Sciences Collections, Review of Medical and Veterinary Entomology and Review of Agricultural Entomology; and reported in CATIE, Costa Rica and CIAT, Colombia. Two independent specialists referee all published papers.

Consejo Editorial

Jean Michel Maes
Editor General
Museo Entomológico
Nicaragua

Fernando Hernández-Baz
Editor Asociado
Universidad Veracruzana
México

José Clavijo Albertos
Universidad Central de
Venezuela

Silvia A. Mazzucconi
Universidad de Buenos Aires
Argentina

Weston Opitz
Kansas Wesleyan University
United States of America

Don Windsor
Smithsonian Tropical Research
Institute, Panama

Miguel Ángel Morón Ríos
Instituto de Ecología, A.C.
México

Jack Schuster
Universidad del Valle de
Guatemala

Julieta Ledezma
Museo de Historia Natural "Noel
Kempf" - Bolivia

Olaf Hermann Hendrik Mielke
Universidade Federal do Paraná,
Brasil

Fernando Fernández
Universidad Nacional de Colombia

Cover: *Bolboneura sylphis* ssp. *sylphis* at rest (ventral), (Erenler at Lost Canyon, December 2014).

Butterfly Diversity at Lost Canyon Nature Reserve, Nicaragua, including a new country record.

Por Hilary E. Erenler¹, Richard Leonardi², Michael P. Gillman³,
Jean-Michel Maes⁴ & Erico Téllez⁵

RESUMEN

La reserva natural Lost Canyon es una área dinámica de regeneración estacionaria de bosque seco ubicada en el área occidental de montañas en la Meseta central de Nicaragua. Ampliamente reforestada desde 2006-2012 con 7,200 árboles nativos en viveros propios de la reserva, los 98 acres privados incorporan una cantidad de hábitats que incluyen arroyos, pastos y laderas de montañas.

En el presente trabajo se reportan los resultados del primer censo formal de mariposas realizado en el lugar e incluye observación de mariposas que llegan a la reserva desde que está inició.

Se encontró 6 familias de mariposas representadas en el lugar, con un total de 67 especies, incluyendo la presencia de un nuevo registro para el país: *Bolboneura sylphis* (BATES, 1864) (Lepidoptera: Nymphalidae).

Los registros están acompañados de fotografías a color de los especímenes vivos.

ABSTRACT

Lost Canyon Nature Reserve is a dynamic area of regenerating seasonally dry forest located on the far western slope of Nicaragua's central mountains.

Extensively re-planted from 2006-2012 with 7,200 native saplings from the reserve's own nursery, the 98 acre privately owned site incorporates a range of habitats that include streams, pasture and mountain slopes.

This paper reports the results of the first formal butterfly survey carried out at the site and includes casual observations of butterfly visitors since the reserve's inception.

All six butterfly families are represented at the site, with 67 species recorded, including the presence of a new country record, *Bolboneura sylphis* (BATES, 1864) (Lepidoptera: Nymphalidae). The records are accompanied by colour photographs of live specimens.

¹ Landscape and Biodiversity Research Group, The University of Northampton, UK
hilary.erenler@northampton.ac.uk

² Lost Canyon Nature Reserve, Apartado Postal 1163, Managua, Nicaragua info@lost-canyon.org

³ Evolution and Ecology Research Group, University of Lincoln, UK mgillman@lincoln.ac.uk

⁴ Museo Entomológico de León, Nicaragua, jmmaes@ibw.com.ni

⁵ Tours Más Por Menos, Parque San Juan, 2.5 Cuadras al Oeste Masaya, Nicaragua,
erico_tellez@hotmail.com

INTRODUCTION

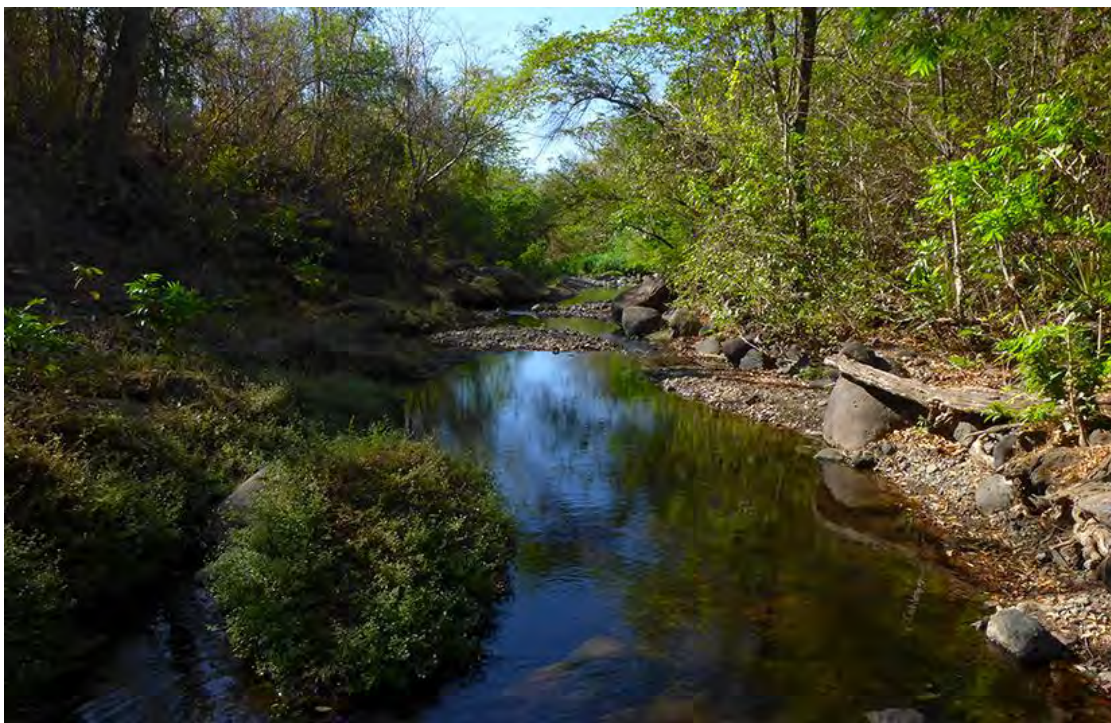
Lost Canyon Nature Reserve is a privately owned wildlife refuge (Figure 1). Located in a broad canyon, that cuts into the western slope of Nicaragua's central highlands ($12^{\circ}42'23.81''\text{N}$, $86^{\circ}25'04.60''\text{W}$), the reserve covers 98 acres and incorporates several distinct habitats. These include a tributary of the Río Sinecapa (Río San Juan de Dios), at 142 AMSL (Figures 2a,b), low-shrub pasture (Figure 3), and regenerating seasonally dry tropical forest over terrain that extends to 358 AMSL (Figures 4a,b).



Figure 1: Lost Canyon mountain. Image: Leonardi (September, 2013)



a



b

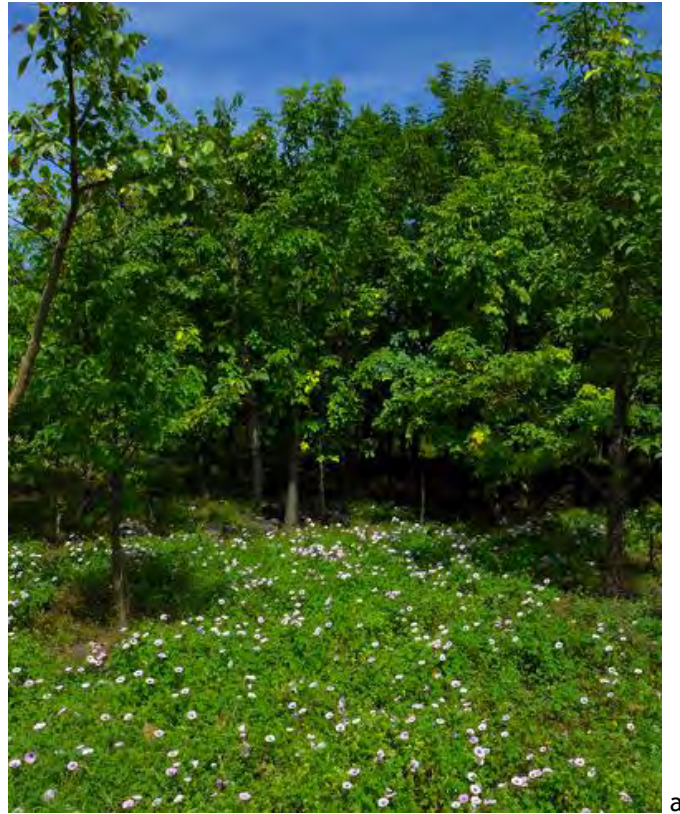
Figures 2a,b: Tributary of the Río Sinecapa, (Río San Juan de Dios) in wet and dry season.
Images: Leonardi (October 2011 & January 2013)



Figure 3: Low-shrub pasture. Image: Erenler (December, 2014)

Established in 2005, the reserve has a number of aims which centre on the importance of protecting seasonally dry forest, a globally rare and diminishing habitat. These aims include:

- Reforestation of areas of the reserve altered by earlier wood extraction and forest clearance for agriculture
- Maximizing water infiltration (and therefore the prevention of soil erosion and evaporation) to support ground-water recharge for the ultimate benefit of Lake Managua (also known as Lake Xolotlán) through appropriate tree planting and tree maintenance regimes
- Supporting local stakeholder involvement by employing village residents to assist with reforestation, trail maintenance, ranger, and conservation activities
- Championing the plight of the rare, and IUCN Red-List Endangered Nicaraguan Spiny-tailed Iguana, *Ctenosaura quinquecarinata* (GRAY, 1842) (IUCN) that resides within the reserve, and relies on dry forest as its core habitat. This has become Lost Canyon's flagship species
- Developing and maintaining a space for nature that enhances *all* local biodiversity, including aquatic invertebrates, insect pollinators, bird fauna and mammals
- Effectively communicating and documenting the progress of the reserve's development through a variety of mediums



Figures 4a,b: Regenerating seasonally dry tropical forest. Images: Leonardi (November 2013 and September 2014).

Reforestation is achieved using native trees and shrubs, many of which were propagated within the reserve's own nursery (Figure 5). Between 2006 and 2012, more than 7,200 native saplings were translocated into the reserve to maximise water infiltration, control soil erosion and increase the variety of food sources for local wildlife.

Tree species are typically selected based on their status as rare or endangered, although secondary considerations, such as rate of re-growth and the ability to create shade-producing canopies, are also important. The use of linear planting strategies optimizes seed dispersal. Due to the steep and rocky terrain, both the accessibility of sites and the planting of saplings present major physical and logistical challenges. Lost Canyon currently hosts and protects approximately 100 species of tree, some of which are facing potentially catastrophic losses in Nicaragua. A list of tree species is available from reserve's website (www.lost-canyon.org).

The creation and maintenance of a limited number of low-impact hiking trails ensures visiting scientists and researchers are afforded sufficient access for recording and monitoring activities, whilst the majority of the site remains void of human disturbance.

Mean annual rainfall at Lost Canyon varies considerably, and is notably altered when Nicaragua experiences the effects of El Niño or La Niña. Annual rainfall typically ranges between approximately 800 - 1,200mm, however during extreme El Niño events this can drop to as low as 400mm or, during La Niña, can rise to 1,400mm. The mean annual temperature is 27°C (Atlas Climático de Nicaragua, 2015).



Figure 5: Lost Canyon tree nursery. Image: Leonardi (May 2008).

METHODS

The list of butterfly fauna observed in the reserve is based on photographic records made by one of the authors (RKL), as well as the use of a standard Pollard walk-and-count technique (Pollard, 1977, Gillman et al., 2012) by HEE & MPG from 26-28th December 2014.

Where possible, digital images of butterflies *in situ* were taken. During the December 2014 sampling period, species requiring specific identification features to be checked were caught in a standard butterfly net and photographed dorsally and ventrally in the hand, before being released unharmed.

Identifications were made with reference to five resources: DeVries (1987a,b), Maes (1999), Glassberg (2007) and the websites Bio-Nica (Maes, 2016) and Butterflies of America (Warren et al., 2015). Additional checks were made against the lists of Hesperidae and Lycaenidae collected in the mid-1970s by Anderson and Sullivan (Anderson, 2007 and Robbins et al., 2012).

The species recorded from the site are presented within families and sub-families. Each is accompanied with an image of a live specimen. The geographic range for each species is given, together with its recorded occurrence in Nicaragua (north to south), based on the work of Maes (1999, 2006, 2007, 2016), Anderson (2007) and Robbins et al. (2012), as well as observations along the Pacific chain of volcanoes in Nicaragua by Erenler, Gillman and Tellez from 2010 - 2016. Host plant information is taken from the resources above and Duarte & Robbins (2010). Common names are from the Butterflies of America website (Warren et al., 2015).

In some cases it was not possible to photograph an individual at Lost Canyon, or the quality of the image was too poor for publication. In the event that the species was known to at least two of the observers present, we include (for illustration purposes) an image of a specimen taken by us from similar dry forest habitat elsewhere in Nicaragua.

In compiling this list from a visit in late December 2014, it is prudent to note that 2014 was one of the driest years on record for the country and region as a result of particularly strong El Niño effects. At the time of publication (March 2016), El Niño effects continue to be felt, with river and stream levels unseasonably low. Local sources suggest that rainfall in 2014-15 was the lowest since 1972 (Leonardi, pers. comm).

RESULTS

A total of 67 species (with representatives from all six butterfly families) have been recorded at Lost Canyon to date. The Nymphalids (Nymphalidae) dominate, with 36 species, followed by Pieridae (11), Hesperidae (10) and Papilionidae (4), with Lycaenidae and Riodinidae with 3 species each.

The following pages give a species-by-species overview.

PAPILIONIDAE
SUBFAMILY: Papilioninae

Heraclides anchisiades ssp. *idaeus* (Fabricius, 1793)

Heraclides anchisiades (Esper, 1788)

Common name: Ruby-Spotted Swallowtail

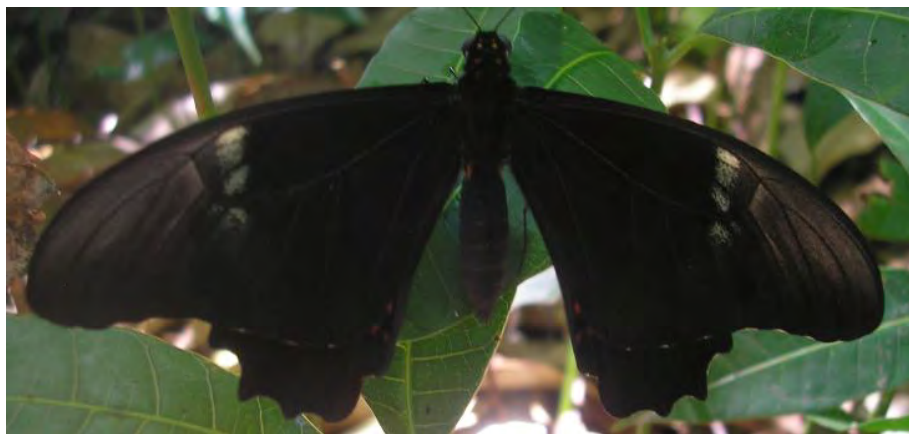
Geographic range: USA to Venezuela

Distribution in Nicaragua: León, Managua, Laguna de Apoyo, Granada, Chontales, V. Maderas (Isla de Ometepe), Zelaya, Corn Island (Maes, 1999, 2006 and Gillman, Erenler & Téllez 2010 - 2016)

Host plant(s): Rutaceae: *Citrus* sp., *Casimiroa edulis*, *Ruta* sp., *Zanthoxylum* sp. (De Vries 1987a, Maes, 1999, 2006)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2015)



Heraclides anchisiades ssp. *idaeus*. Clockwise from top, dorsal and ventral images and at rest on a leaf (dorsal).

Images: Erenler (Volcán Concepción, Isla de Ometepe, 2015)

PAPILIONIDAE
SUBFAMILY: Papilioninae

***Heraclides* sp.**
***Heraclides cresphontes* (Cramer, 1777) or**
***Heraclides thoas* ssp. *autocles* (Rothschild & Jordan, 1906)**

Common name: Eastern Giant Swallowtail (*Heraclides cresphontes*), Thoas Swallowtail (*Heraclides thoas*)

Geographic range: Canada to Columbia (*Heraclides cresphontes*), Texas to Panama (*Heraclides thoas* ssp. *autocles*)

Distribution in Nicaragua: Jinotega, V. Cosigüina, V. Telica/Rota, León, Managua, V. Masaya, Laguna de Apoyo, Granada, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Rivas, Río San Juan, Zelaya (Maes, 1999, 2006)

Host plant(s): Rutaceae: *Citrus*, *Zanthoxylum* sp., *Ptelea* sp., *Ruta* sp., *Casimiroa* sp., *Esenbeckia* sp., *Choisya* sp., *Amyris* sp., *Thamnosma* sp., *Dictamnus* sp. (*Heraclides cresphontes*), Piperaceae: *Piper* sp., *Pothomorphe* sp. (*Heraclides thoas*) (Maes, 1999, 2006).

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 2 (December 2014)
- Leonardi x 1 (2015)



Heraclides sp. dorsal and ventral in the hand.

Images: Erenler (Laguna de Apoyo, 2014 & Volcán Maderas, Isla de Ometepe, 2013)

PAPILIONIDAE
SUBFAMILY: Papilioninae

Neographium philolaus ssp. *philolaus* (Boisduval, 1836)

Neographium philolaus (Boisduval, 1836)

Common name: Dark Kite-swallowtail

Geographic range: USA to Costa Rica

Distribution in Nicaragua: Chinandega, León, V. Momotombo, Managua, V. Masaya, Laguna de Apoyo, Carazo, Río San Juan (Maes, 1999, 2006 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Annonaceae: *Annona reticulata*, *Sapranthus* sp. (De Vries, 1987a, Maes, 1999, 2006)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (June, 2014)



Neographium philolaus ssp. *philolaus* (dorsal), at rest.
Image: Leonardi (Lost Canyon, June 2014)

PAPILIONIDAE
SUBFAMILY: Papilioninae

***Pterourus victorinus* ssp. *victorinus* (E. Doubleday, 1844)**

Pterourus victorinus (E. Doubleday, 1846)

Common name: Victorine Swallowtail

Geographic range: Mexico to Nicaragua

Distribution in Nicaragua: Jinotega, Matagalpa, Chontales, Laguna de Apoyo, Granada, Isla Zapatera, (Maes, 1999, 2006)

Host plant(s): Hernandiaceae: *Hernandia* sp., Lauraceae: *Persea Americana* (aguacate) (De Vries, 1987a, Maes, 1999, 2006)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (October 2012)



Pterourus victorinus ssp. *victorinus* (dorsal & ventral) taking water at San Juan de Dios stream.
Images: Leonardi (Lost Canyon, October 2012)

PIERIDAE
SUBFAMILY: Coliadinae

***Anteos clorinde* ssp. *clorinde* (Godart, 1823)**

Anteos clorinde (Godart [1824])

Common name: White Angled-sulphur

Geographic range: USA to Argentina

Distribution in Nicaragua: Jinotega, Matagalpa, Chinandega, León, Chontales, Managua, V. Masaya, Laguna de Apoyo, V. Mombacho, Rivas (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Caesalpinaceae: *Cassia emarginata*, *Cassia spectabilis*, *Senna* sp.,
Mimosaceae: *Pithecelobium* sp. (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2015)



Anteos clorinde ssp. *clorinde* (dorsal) and various pierids at dry stream bed (both *Anteos clorinde*, *A. maerula* and *Phoebis* sp. present in second image).

Images: Leonardi (Lost Canyon, 2015)

PIERIDAE
SUBFAMILY: Coliadinae

***Anteos maerula* ssp. *maerula* (Fabricius, 1775)**

Anteos maerula (Fabricius, 1775)

Common name: Yellow Angled-sulphur

Geographic range: USA to Peru

Distribution in Nicaragua: Jinotega, Matagalpa, León, V. Momotombo, Chontales, Masaya, Laguna de Apoyo, Granada, V. Mombacho, V. Maderas (Isla de Ometepe), Rivas, (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Caesalpinaceae: *Cassia emarginata*, *Senna* sp. (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2015)



Anteos maerula ssp. *maerula* in the hand and at dry stream bed (dorsal & ventral).
Images: Erenler (Laguna de Apoyo, 2013) & Leonardi (Lost Canyon, 2015)

PIERIDAE
SUBFAMILY: Coliadinae

***Eurema arbela ssp. boisduvaliana* (C. Felder & R. Felder, 1865)**

Eurema arbela (Geyer, 1832)

Common name: Boisduval's Yellow

Geographic range: USA to Costa Rica

Distribution in Nicaragua: Estelí, Jinotega, Matagalpa, V. San Cristóbal, León, Chontales, Managua, V. Masaya, Laguna de Apoyo, Carazo, V. Mombacho, V. Maderas (Isla de Ometepe), Rivas (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Caesalpinaceae: *Cassia* sp. (Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 2 (December 2014)



Eurema arbela ssp. boisduvaliana (ventral).
Image: Erenler (Volcán Masaya, December 2014)

PIERIDAE
SUBFAMILY: Coliadinae

***Eurema दौरa* ssp. *eugenia* (Wallengren 1860)**

Eurema दौरa (Godart, 1819)

Common name: Barred Yellow

Geographic range: USA to Panama

Distribution in Nicaragua: Tisey, Jinotega, V. Cosigüina, Matagalpa, V. San Cristóbal, V. Telica/Rota, León, V. Momotombo, Boaco, Chontales, V. Masaya, Laguna de Apoyo, Granada, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Rivas, Zelaya, Río San Juan (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Fabaceae: *Desmodium*, *Aeschynomene*, *Stylosanthes* (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 19 (December 2014)



Eurema दौरa ssp. *eugenia*. Female dorsal and ventral images in the hand and male taking nectar (ventral).

Images: Erenler (Volcán Masaya, 2013 and Tisey, 2014)

PIERIDAE
SUBFAMILY: Coliadinae

***Phoebis agarithe* ssp. *agarithe* (Boisduval, 1836)**

***Phoebis agarithe* (Boisduval, 1836)**

Common name: Large Orange Sulphur

Geographic range: USA to Peru

Distribution in Nicaragua: Estelí, Jinotega, V. Cosigüina, Matagalpa, V. San Cristóbal, V. Telica/Rota, León, Chontales, Managua, Laguna de Apoyo, Carazo, Volcán Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Rivas (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Caesalpinaceae: *Cassia* sp. and Mimosaceae: *Inga vera*, *Pithecellobium guadalupense* (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2015)



Phoebis agarithe ssp. *agarithe*. Clockwise from top, dorsal and ventral images in the hand and resting on leaf (ventral).

Images: Erenler (Volcán Cosigüina, 2014 and Isla de Ometepe, 2015)

PIERIDAE
SUBFAMILY: Coliadinae

***Phoebis argante ssp. argante* (Fabricius, 1775)**

Phoebis argante (Fabricius, 1775)

Common name: Apricot Sulphur

Geographic range: USA to Uruguay

Distribution in Nicaragua: Chinandega, León, Chontales, Volcán Mombacho, Laguna de Apoyo, Rivas, Zelaya (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Caesalpinaceae: *Cassia biflora* & *C. fruticosa*, Capparidaceae, & Mimosaceae: *Inga laurina*, *Inga ruiziana*, *Inga vera*, *Pentaclethra macroloba* (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2015)



Newly emerged *Phoebis argante ssp. argante* (ventral).
Image: Leonardi (Lost Canyon, 2015)

PIERIDAE
SUBFAMILY: Coliadinae

***Phoebis sennae* ssp. *marcellina* (Cramer, 1777)**

Phoebis sennae (Linnaeus, 1758)

Common name: Cloudless Sulphur

Geographic range: USA through Panama and into most of South America

Distribution in Nicaragua: Estelí, Matagalpa, V. San Cristóbal, V. Telica/Rota, León, Isla Juan Venado, V. Momotombo, Chontales, V. Masaya, Laguna de Apoyo, Granada, Carazo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Rivas, Zelaya, Río San Juan (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Caesalpinaceae: *Cassia biflora*, & *C. obtusifolia*, Fabaceae: *Phaseolus vulgaris*, *Trifolium* sp. *Chamaecrysia* sp. (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 3 (December 2014)



Phoebis sennae ssp. *marcellina* (ventral).
Image: Erenler (Volcán Masaya, 2013)

PIERIDAE
SUBFAMILY: Coliadinae

***Pyrisitia proterpia* (Fabricius, 1775)**

***Pyrisitia proterpia* (Fabricius, 1775)**

Common name: Tailed Orange

Geographic range: USA to Peru

Distribution in Nicaragua: Estelí, Jinotega, V. Cosigüina, Matagalpa, V. San Cristóbal, V. Telica/Rota, León, V. Momotombo, Chontales, Managua, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Rivas, Zelaya (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Fabaceae: *Desmodium* sp. (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 3 (December 2014)



Pyrisitia proterpia - wet season and dry season forms (ventral).
Images: Erenler (Volcán Masaya, 2013) and Leonardi (Lost Canyon, 2016)

PIERIDAE
SUBFAMILY: Coliadinae

***Zerene cesonia* ssp. *cesonia* (Stoll, 1790)**

Zerene cesonia (Stoll, 1790)

Common name: Southern Dogface

Geographic range: USA to Colombia

Distribution in Nicaragua: Nueva Segovia, Tisey, Jinotega, Matagalpa, Chinandega, León, Chontales, Masaya (Laguna de Apoyo), Volcán Mombacho, Rivas (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Fabaceae: *Amorpha fruticosa*, *Indigofera* sp., *Medicago* sp., *Trifolium* sp. (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2015)



Zerene cesonia ssp. *cesonia*. Dorsal and ventral images in the hand, and flight over dry stream bed. Images: Erenler (Tisey, 2014) and Leonardi (Lost Canyon, 2015)

PIERIDAE
SUBFAMILY: Coliadinae

***Ascia monuste ssp. monuste* [Linnaeus, 1764]**

***Ascia monuste* [Linnaeus, 1764]**

Common name: Great Southern White

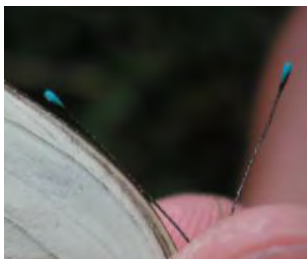
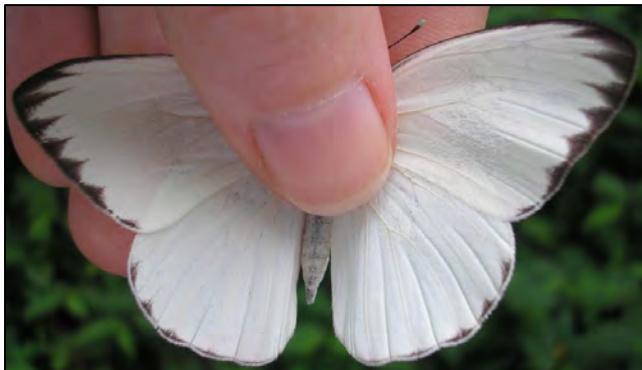
Geographic range: USA to Argentina

Distribution in Nicaragua: Nueva Segovia, Tisey, Jinotega, Matagalpa, Chinandega, León City, V. Momotombo, Managua, V. Masaya, Laguna de Apoyo, Granada, Carazo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Rivas, Río San Juan (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Asteraceae: *Lactuca sativa*, Bataceae: *Batis* sp., Brassicaceae: *Brassica oleraceae*, *Raphanus sativus*, *Lepidium* sp., *Cleome* sp., Capparidaceae: *Crataeva* sp., Chenopodiaceae: *Beta vulgaris*, Tropaeolaceae: *Tropaeolum* sp. (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December 2014)



Ascia monuste ssp. monuste. Dorsal image (with blue antennal tips below) and at rest on a leaf
Images: Erenler (Volcán Masaya, 2013) and Téllez (Isla de Ometepe, 2015)

PIERIDAE
SUBFAMILY: Coliadinae

***Ganyra josephina* ssp. *josepha* (Godman & Salvin, 1868)**

Ganyra josephina (Godart, 1819)

Common name: Giant White

Geographic range: USA to Panama

Distribution in Nicaragua: V. Cosigüina, Matagalpa, V. San Cristóbal, Chinandega, V. Telica/Rota, León, Isla Juan Venado, Managua, V. Masaya, Catarina, Laguna de Apoyo, Carazo, Granada, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Capparidaceae: *Capparis indica*, *C. odoratissima* (De Vries, 1987a, Maes, 1999, 2007)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 5 (December, 2014)



Ganyra josephina ssp. *josepha*. Clockwise from top, ventral and dorsal in the hand and nectaring on Asteraceae (ventral).

Image: Erenler (Volcán Masaya, 2013)

RIODINIDAE
SUBFAMILY: Riodininae

***Anteros carausius* ssp. *carausius* (Westwood, 1851)**

Anteros carausius (Westwood, 1851)

Common name: Carousing Anteros

Geographic range: Mexico to Columbia

Distribution in Nicaragua: Matagalpa, Chontales, Managua (Maes, 1999)

Host plant(s): Unknown

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December 2014)



Anteros carausius ssp. *carausius* nectaring on Asteraceae (ventral).
Image: Erenler (Lost Canyon, 2014)

RIODINIDAE
SUBFAMILY: Riodininae

***Synargis mycone* (Hewitson, 1865)**

Synargis mycone (Hewitson, 1865)

Common name: Rusty Metalmark

Geographic range: Mexico to Columbia

Distribution in Nicaragua: V. Cosigüina, Matagalpa, V. San Cristóbal, V. Telica/Rota, León, Chontales, Laguna de Apoyo, V. Maderas (Isla de Ometepe), Río San Juan (Maes, 1999, 2007 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Unknown

Mutualism with Formicidae (Maes, 1999)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December 2014)



Synargis mycone at rest (dorsal).
Image: Erenler (Lost Canyon, 2014)

RIODINIDAE
SUBFAMILY: Riodininae

***Calephelis* sp. (Strand, 1916)**

Calephelis (Grote & Robinson, 1869)

Common name: Metalmark/Scintillant

Geographic range: USA to Central America

Distribution in Nicaragua: 'Calephelis is known from Jinotega to Río San Juan' (Maes, 1999). V. Telica/Rota, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Unknown

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 3 (December 2014)



Calephelis sp. Nectaring on Asteraceae (dorsal & ventral).
Image: Erenler (Volcán Masaya, August 2010)

LYCAENIDAE
SUBFAMILY: Theclinae

***Electrostrymon joya* (Dognin, 1895)**

Electrostrymon joya (Gognin, 1895)

Common name: Muted Hairstreak

Geographic range: USA to Peru

Distribution in Nicaragua: V. Masaya (Gillman, Erenler & Téllez 2010-2016), Matagalpa, Managua, El Crucero/Las Nubes, Pochomil (Robbins et al., 2012)

Host plant(s): Detritivores. Scavengers on flowers and fallen fruit on the forest floor (Duarte & Robbins, 2010).

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December 2014)



Electrostrymon joya nectaring on *Melanthera nivea* (ventral).
Image: Erenler (Lost Canyon, December 2014)

LYCAENIDAE
SUBFAMILY: Theclinae

Ministrymon clytie (W.H. Edwards, 1877)

Ministrymon clytie (W.H. Edwards, 1877)

Common name: Clytie Ministreak

Geographic range: USA to Costa Rica

Distribution in Nicaragua: V. Concepción (Isla de Ometepe) (Gillman, Erenler & Téllez 2010-2016), Estelí, Matagalpa, Managua, Granada, Pochomil (Robbins et al., 2012)

Host plant(s): Fabaceae: *Acacia*, *Mimosa* & *Prosopis* spp. (Robbins, pers. comm.).

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December 2014)



Ministrymon clytie in the hand and at rest (ventral).

Images: Erenler (Lost Canyon, December 2015) and Téllez (Isla de Ometepe, December 2015)

LYCAENIDAE
SUBFAMILY: Theclinae

Strymon rufofusca (Hewitson, 1877)

Strymon rufofusca (Hewitson, 1877) Common name: Red-Crescent Scrub-hairstreak

Geographic range: USA to Paraguay

Distribution in Nicaragua: V. Cosigüina, León, V. Momotombo, Managua, Masaya, V. Mombacho, V. Concepción (Isla de Ometepe) (Maes, 2016 and Gillman, Erenler & Téllez 2010-2016), Ciudad Dario, Managua, El Crucero/Las Nubes (Robbins et al., 2012)

Host plant(s): Malvaceae: *Cienfuegosia* & *Malvastrum* spp. (Robbins, pers. comm.).

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December 2014)



Strymon rufofusca at rest (ventral).
Image: Erenler (Lost Canyon, December 2014)

NYMPHALIDAE
SUBFAMILY: Biblidinae

***Biblis hyperia* ssp. *aganisa* (Boisduval, 1836)**

Biblis hyperia (Cramer, 1779)

Common name: Red Rim

Geographic range: USA to Costa Rica

Distribution in Nicaragua: Nueva Segovia, Jinotega, Matagalpa, Chinandega, León, Chontales, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Zelaya (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Euphorbiaceae: *Tragia volubilis* (De Vries, 1987, Maes, 1999)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2015)



Biblis hyperia ssp. *aganisa* at rest (dorsal).
Image: Erenler (Isla de Ometepe, December 2015)

NYMPHALIDAE
SUBFAMILY: Biblidinae

Bolboneura sylphis* ssp. *sylphis* (H. Bates, 1864)

***Bolboneura sylphis* (H. Bates, 1864)**

Common name: Crinkled Banner

Geographic range: Previously Mexico to Honduras (now includes Nicaragua)

Distribution in Nicaragua: *NEW COUNTRY RECORD* (Erenler, Gillman & Leonardi - personal observation, December 2014)

Host plant(s): -

Records for Lost Canyon Nature Reserve:

- Erenler, Gillman & Leonardi x 3 (December 2014)



Bolboneura sylphis ssp. *sylphis* at rest (ventral & dorsal).
Image: Erenler (Lost Canyon, December 2014)

NYMPHALIDAE
SUBFAMILY: Biblidinae

***Dynamine postverta* ssp. *mexicana* (D'Almeida, 1952)**

Dynamine postverta (Cramer, 1779)

Common name: Four-spotted Sailor

Geographic range: Mexico to Central America

Distribution in Nicaragua: V. Cosigüina, V. San Cristóbal, Chinandega, V. Telica/Rota, León, Chontales, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción (Isla de Ometepe), Solentiname, Zelaya (Maes, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Euphorbiaceae: *Dalechampia* sp. (De Vries, 1987, Maes, 2015)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December 2014)



Dynamine postverta ssp. *mexicana* at rest (dorsal & ventral).
Image: Leonardi (Lost Canyon, September 2013)

NYMPHALIDAE
SUBFAMILY: Biblidinae

***Eunica monima* (Stoll, 1782)**

Eunica monima (Hewitson, 1877)

Common name: Dingy Purplewing

Geographic range: Mexico to Greater Antilles

Distribution in Nicaragua: V. Cosigüina, Matagalpa, V. Telica/Rota, León, V. Momotombo, Chontales, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Burseraceae: *Bursera simaruba*, Rutaceae: *Zanthoxylum* sp. (De Vries 1987a, Maes, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 7 (December 2014)



Eunica monima at rest (ventral).
Image: Erenler (Volcán Masaya, July 2013)

NYMPHALIDAE
SUBFAMILY: Biblidinae

***Hamadryas glauconome* ssp. *glauconome* (H. Bates, 1964)**

Hamadryas glauconome (H. Bates, 1864)

Common name: Glaucous Cracker

Geographic range: Mexico to Costa Rica (possibly Panama)

Distribution in Nicaragua: V. Cosigüina, Matagalpa, V. San Cristóbal, Chinandega, V. Telica/Rota, León, V. Momotombo, Chontales, Carazo, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Euphorbiaceae: *Dalechampia scandens* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 12 (December 2014)



Hamadryas glauconome ssp. *glauconome* at rest (dorsal).
Image: Leonardi (Lost Canyon, December 2014)

NYMPHALIDAE
SUBFAMILY: Biblidinae

***Hamadryas guatemalena* ssp. *guatemalena* (H. Bates, 1864)**

Hamadryas guatemalena (H. Bates, 1864)

Common name: Guatamalan Cracker

Geographic range: Mexico to Costa Rica

Distribution in Nicaragua: Ocotal, Matagalpa, Chinandega, V. Telica/Rota, León, V. Momotombo, Boaco, Chontales, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción (Isla de Ometepe), Zelaya (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Euphorbiaceae: *Dalechampia scandens* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 3 (December 2014)



Hamadryas guatemalena ssp. *guatemalena* at rest (dorsal).
Image: Erenler (Lost Canyon, December 2014)

NYMPHALIDAE
SUBFAMILY: Biblidinae

***Myscelia ethusa* ssp. *pattenia* (Butler & Druce, 1872)**

Myscelia ethusa (Doyère, [1840])

Common name: Mexican Bluewing

Geographic range: Guatemala to Costa Rica

Distribution in Nicaragua: V. Cosigüina, Matagalpa, V. Telica/Rota, Managua (El Crucero), V. Masaya, Laguna de Apoyo, Carazo, V. Mombacho, Rivas (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Unknown (De Vries 1987a)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2015)



Myscelia ethusa ssp. *pattenia* in the hand (dorsal).
Image: Erenler (Volcán Masaya 2013)

NYMPHALIDAE
SUBFAMILY: Biblidinae

***Pyrrhogyra neaerea* ssp. *hypsenor* (Godman & Salvin, 1884)**

Pyrrhogyra neaerea (Linnaeus, 1758)

Common name: Leading Redwing

Geographic range: Mexico to Panama

Distribution in Nicaragua: Chinandega, V. Telica/Rota, León, Chontales, V. Masaya, V. Maderas (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Sapindaceae: *Paullinia* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2015)



Pyrrhogyra neaerea ssp. *hypsenor* at rest (ventral).
Image: Erenler (Volcán Masaya, 2012)

NYMPHALIDAE
SUBFAMILY: Charaxinae

***Anaea aidea* (Guérin-Ménéville, [1844])**

***Anaea aidea* (Guérin-Ménéville, [1844])**

Common name: Tropical Leafwing

Geographic range: Mexico to Costa Rica

Distribution in Nicaragua: Estelí, León, Chontales, Managua, Laguna de Apoyo, Carazo, Rivas, (Maes, 1999, 2016)

Host plant(s): Euphorbiaceae: *Acalypha macrostachya* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December 2014)



Anaea aidea at rest (ventral).
Image: Erenler (Lost Canyon, December 2014)

NYMPHALIDAE
SUBFAMILY: Cyrestinae

***Marpesia chiron* ssp. *chiron* (Fabricius, 1775)**

Marpesia chiron (Fabricius, 1775)

Common name: Many-banded Daggerwing

Geographic range: USA to Argentina

Distribution in Nicaragua: Chinandega, León, Chontales, V. Masaya, Laguna de Apoyo, Zeleya (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Moraceae: *Ficus* sp., *Brosimum* sp., *Artocarpus* sp., *Chlorophora* sp., *Morus* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Marpesia chiron ssp. *chiron* at rest, dorsal and ventral.
Image: Erenler (Volcán Masaya, 2010, Laguna de Apoyo, 2013)

NYMPHALIDAE
SUBFAMILY: Cyrestinae

***Marpesia petreus* (Cramer, 1776)**

***Marpesia petreus* (Cramer, 1776)**

Common name: Ruddy Daggerwing

Geographic range: USA to Argentina (Northern segregate from USA to Ecuador)

Distribution in Nicaragua: V. Cosigüina, Chinandega, León, Chontales, Managua, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Anacardiaceae: *Anacardium occidentale*, Moraceae: *Ficus citrifolia* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (2013)



Marpesia petreus at rest (dorsal and ventral).
Image: Leonardi (Lost Canyon, June 2013)

NYMPHALIDAE
SUBFAMILY: Danainae

***Danaus gilippus* ssp. *thersippus* (H. Bates, 1863)**

Danaus gilippus (Cramer, 1775)

Common name: Queen

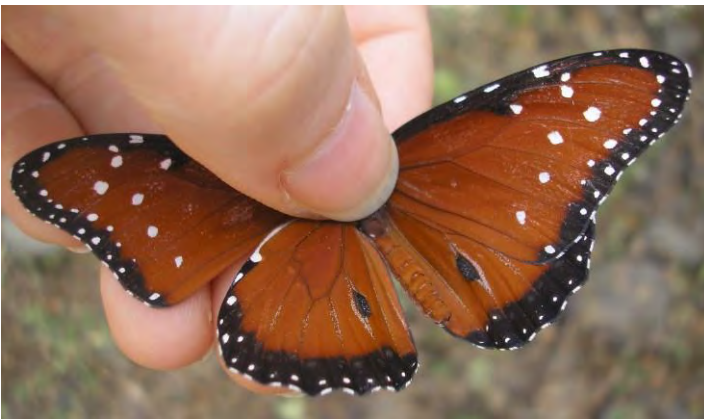
Geographic range: USA to Colombia

Distribution in Nicaragua: V. Cosigüina, V. San Cristóbal, V. Telica/Rota, León, V. Momotombo, Chontales, V. Masaya, Laguna de Apoyo, V. Mombacho, Isla de Ometepe (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Asclepiadaceae: *Asclepias* sp., *Sarcostemma* sp., *Vincetoxicum* sp., (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Danaus gilippus ssp. *thersippus*. Dorsal and ventral images (in the hand).
Images: Erenler (Volcán Cosigüina, March 2013)

NYMPHALIDAE
SUBFAMILY: Danainae

***Mechanitis polymnia ssp. isthmia* (H. Bates, 1863)**

Mechanitis polymnia (Linnaeus, 1758)

Common name: Polymnia Tigerwing

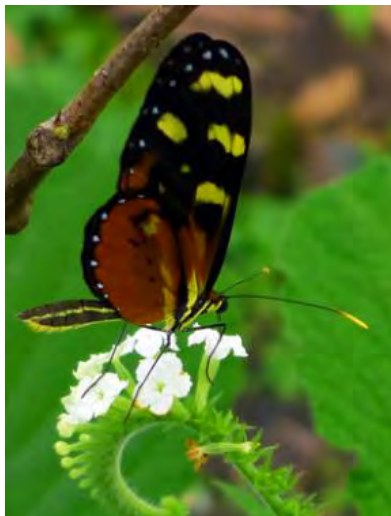
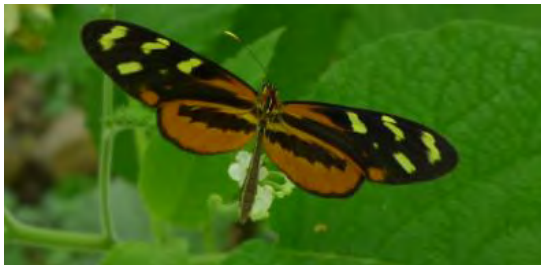
Geographic range: Nicaragua to Panama

Distribution in Nicaragua: Jinotega, Chinandega, V. Telica/Rota, León, Chontales, Managua (Las nubes, El Crucero, Montibelli, El Brujo), V. Masaya, Masaya (Catarina), V. Mombacho, V. Concepción (Isla de Ometepe), Zelaya, Río San Juan (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Solanaceae: *Solanum* sp., *Lycopersicum esculentum* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 2 (July & September, 2013)



Mechanitis polymnia ssp. isthmia.

Clockwise from top: at rest (dorsal view), at rest (ventral view) and nectaring.
Images: Leonardi (Lost Canyon, July and September 2013)

NYMPHALIDAE
SUBFAMILY: Heliconiinae

***Agraulis vanillae* ssp. *incarnata* (Riley, 1926)**

***Agraulis vanillae* (Linnaeus, 1758)**

Common name: Gulf Fritillary

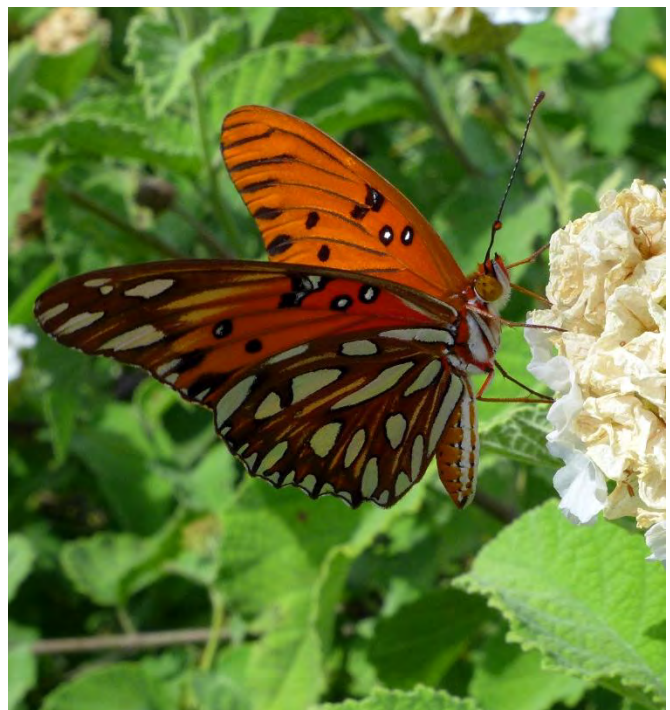
Geographic range: USA through Central America to Hawaii

Distribution in Nicaragua: V. Cosigüina, Matagalpa, V. San Cristóbal, Chinandega, V. Telica/Rota, León, V. Momotombo, Managua, V. Masaya, Laguna de Apoyo, Carazo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Río San Juan, Corn Island (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Passifloraceae: *Passiflora auriculata*, *P. costaricensis*, *P. foetida*, *P. edulis*, *P. ligularis*, *P. quadrangularis* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (July 2013)



Agraulis vanillae ssp. *incarnata*. Dorsal and ventral views (nectaring).
Images: Leonardi (Lost Canyon, July 2013)

NYMPHALIDAE
SUBFAMILY: Heliconiinae

***Dryadula phaetusa* (Linnaeus, 1758)**

Dryadula phaetusa (Linnaeus, 1758)

Common name: Banded Longwing

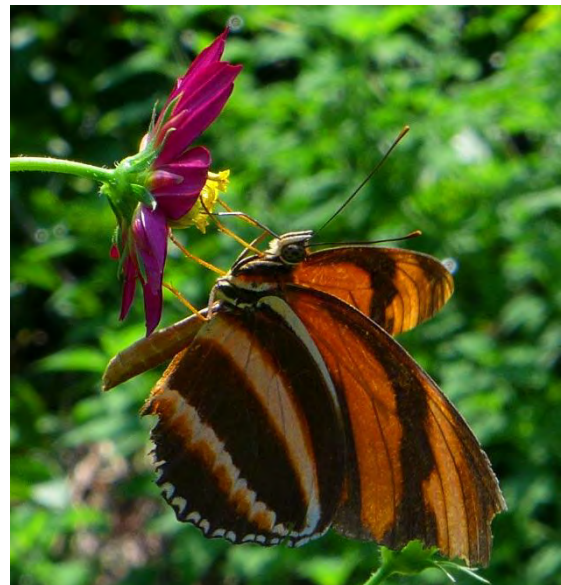
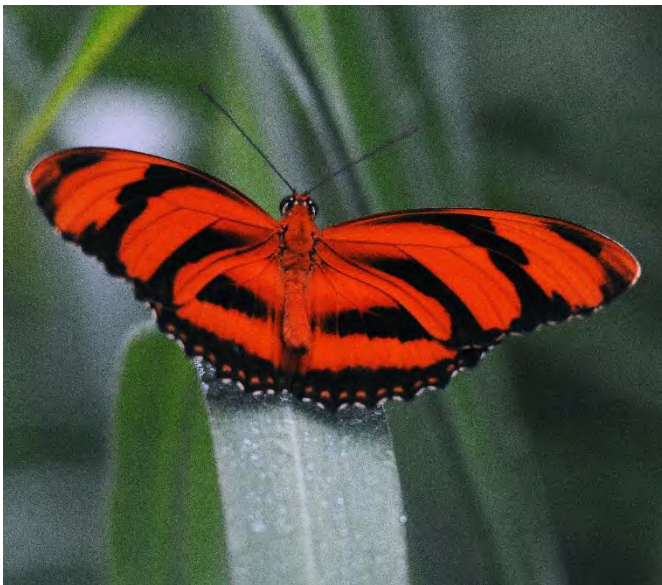
Geographic range: USA to Brazil

Distribution in Nicaragua: V. Cosigüina, Matagalpa, Chinandega, León, Chontales, V. Masaya, Laguna de Apoyo, V. Maderas (Isla de Ometepe), Zelaya, Río San Juan (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Passifloraceae: *Passiflora talamancensis* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 2 (September 2011 & September 2013)



Dryadula phaetusa. Dorsal view (at rest) and nectaring (ventral view).
Images: Leonardi (Lost Canyon, September 2011 & 2013)

NYMPHALIDAE
SUBFAMILY: Heliconiinae

***Dryas iulia* ssp. *moderata* (N. Riley, 1926)**

***Dryas iulia* (Fabricius, 1775)**

Common name: Julia

Geographic range: USA through Central America

Distribution in Nicaragua: V. San Cristóbal, Chinandega, V. Telica/Rota, León, Chontales, V. Masaya, Masaya (Catarina), Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) Zelaya, Río San Juan, Corn Island (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Passifloraceae: *Passiflora vitifolia*, *P. platyloba*, *P. tuberosa*, *P. (Plectostemma)* spp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Dryas iulia ssp. *moderata*. Dorsal view, at rest.
Image: Erenler (Volcán Masaya, February 2010)

NYMPHALIDAE
SUBFAMILY: Heliconiinae

***Euptoieta hegesia* ssp. *meridiana* (Stichel, 1938)**

***Euptoieta hegesia* (Cramer, 1779)**

Common name: Mexican Fritillary

Geographic range: USA to Argentina

Distribution in Nicaragua: V. Cosigüina, Matagalpa, V. San Cristóbal, Chinandega, V. Telica/Rota, León, V. Momotombo, Chontales, Managua (Laguna de Jiloa), V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Turneraceae: *Turnera ulmifolia*, Passifloraceae: *Passiflora* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 5 (December, 2014)



Euptoieta hegesia ssp. *meridiana*. Dorsal and ventral views in the hand.
Images: Erenler (El Brujo, 2013)

NYMPHALIDAE
SUBFAMILY: Heliconiinae

***Heliconius charitonius* ssp. *vazquezae* (W. Comstock & F. Brown,
1950)**

Heliconius charitonius (Linnaeus, 1767)

Common name: Zebra Longwing

Geographic range: USA through Central America

Distribution in Nicaragua: V. San Cristóbal, V. Telica/Rota, V. Momotombo, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Passifloraceae: *Tetrastylis lobate*, *Passiflora* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (September, 2013)



Heliconius charitonius ssp. *vazquezae* (dorsal).
Image: Leonardi (Lost Canyon, September, 2013)

NYMPHALIDAE
SUBFAMILY: Heliconiinae

***Heliconius hecale* ssp. *zuleika* (Hewitson, 1854)**

Heliconius hecale (Fabricius, 1776)

Common name: Hecale Longwing

Geographic range: Mexico to Panama

Distribution in Nicaragua: V. Cosigüina, V. San Cristóbal, Chinandega, León, Chontales, Managua (El Brujo), V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Rivas, Zelaya, Río San Juan (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Passifloraceae: *Passiflora auriculata*, *P. oerstedii*, *P. platyloba*, *P. vitifolia* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (November, 2012)



Heliconius hecale ssp. *zuleika*. Dorsal view, nectaring.
Image: Leonardi (Lost Canyon, November 2012)

NYMPHALIDAE
SUBFAMILY: Libytheinae

***Libytheana carinenta* ssp. *mexicana* (Michener, 1943)**

Libytheana carinenta (Cramer, 1777)

Common name: American Snout

Geographic range: Mexico to Panama

Distribution in Nicaragua: V. Cosigüina, Matagalpa, Chinandega, León, Chontales, Managua (Laguna de Jiloa), Laguna de Apoyo, (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Ulmaceae: *Celtis iguanae* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Libytheana carinenta ssp. *mexicana*. Dorsal and ventral views in the hand.
Images: Erenler (Volcán Cosigüina, March 2014)

NYMPHALIDAE
SUBFAMILY: Limenitidinae

***Adelpha iphicleola* ssp. *iphicleola* (H. Bates, 1864)**

Adelpha iphicleola (H. Bates, 1864)

Common name: Iphicleola Sister

Geographic range: Mexico to Panama

Distribution in Nicaragua: Matagalpa, V. Telica/Rota, Chontales, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Rubiaceae: *Calycophyllum candidissimum*, *Isertia* sp., *Uncaria* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1, Erenler & Gillman x 3, (September 2013 & December 2014)



Adelpha iphicleola ssp. *iphicleola*. At rest (dorsal).
Image: Leonardi (Lost Canyon, September 2013)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Anartia fatima ssp. fatima* (Fabricius, 1793)**

Anartia fatima (Fabricius, 1793)

Common name: Banded Peacock

Geographic range: Mexico to Colombia

Distribution in Nicaragua: Jinotega, V. Cosigüina, Matagalpa, V. Telica/Rota, León, Managua (El Brujo), V. Masaya, Laguna de Apoyo, Carazo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) Solentiname, Zelaya, Río San Juan (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Acanthaceae: *Blechnum* sp., *Dicliptera* sp., *Justicia* sp., *Ruellia* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Anartia fatima ssp. fatima. Dorsal view, nectaring on *Asclepias* sp.
Image: Erenler (Isla de Ometepe November, 2015)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Anartia jatrophae* ssp. *luteipicta* (Fruhstorfer, 1907)**

***Anartia jatrophae* (Linnaeus, 1763)**

Common name: White Peacock

Geographic range: USA through Central America

Distribution in Nicaragua: V. Cosigüina, Matagalpa, Chinandega, León, Chontales, V. Momotombo, Managua (Laguna de Jilola), Carazo, V. Masaya, Masaya (Catarina), Laguna de Apoyo, Río San Juan (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Acanthaceae: *Blechnum* sp., *Ruellia* sp., Scrophulariaceae: *Bacopa* sp., *Lindernia* sp., Verbenaceae: *Lippia* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 4 (December, 2014)



Anartia jatrophae ssp. *luteipicta* (dorsal and ventral).
Images: Erenler (Isla de Ometepe, December 2015)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Anthanassa tulcis* (H. Bates, 1864)**

Anthanassa tulcis (Cramer, 1777)

Common name: Pale-Banded Crescent

Geographic range: USA to Panama

Distribution in Nicaragua: V. Cosigüina, Matagalpa, V. San Cristóbal, V. Telica/Rota, León, V. Momotombo, Chontales, Managua (Laguna de Jiloa), V. Masaya, Laguna de Apoyo, Carazo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Rivas (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Unknown (De Vries, 1987a)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 2 (December, 2014)



Anthanassa tulcis. At rest, dorsal view.
Image: Erenler (Isla de Ometepe, November 2015)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Chlosyne theona* ssp. *theona* (Ménétriés, 1855)**

Chlosyne theona (Ménétriés, 1855)

Common name: Theona Checkerspot

Geographic range: Mexico to Nicaragua

Distribution in Nicaragua: Matagalpa, Chinandega, León, Chontales, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Rivas (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Scrophulariaceae: *Castilleja* sp., *Leucophyllum* sp., Verbenaceae: *Verbena* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Chlosyne theona ssp. *theona*. At rest, dorsal view.
Image: Leonardi (September, 2013)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Chlosyne lacinia* ssp. *lacinia* (Geyer, 1837)**

***Chlosyne lacinia* (Geyer, 1837)**

Common name: Bordered Patch

Geographic range: Mexico to Panama

Distribution in Nicaragua: Matagalpa, Chinandega, V. Telica/Rota, León, V. Momotombo, Chontales, Managua (Laguna de Jiloa, Montibelli), V. Masaya, Laguna de Apoyo, Carazo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Asteraceae: *Ambrosia* sp., *Calyptocarpus* sp., *Eupatorium* sp. *Gaillardia* sp., *Grindelia* sp., *Helianthus annuus*, *Heterotheca* sp., *Palafoxia* sp., *Parthenium* sp., *Silphium* sp., *Simsia* sp., *Verbesina* sp., *Viguiera* sp., *Xanthium* sp., *Ximenesia* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 2 (September, 2013)



Chlosyne lacinia ssp. *lacinia*. Pair in cop. (ventral).
Image: Leonardi (Lost Canyon, September 2013)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Chlosyne melanarge* (H. Bates, 1864)**

***Chlosyne melanarge* (H. Bates, 1864)**

Common name: Cream-banded Checkerspot

Geographic range: Mexico to Costa Rica

Distribution in Nicaragua: Matagalpa, Chinandega, V. Telica/Rota, León, Chontales, V. Momotombo, V. Masaya, Laguna de Apoyo, Carazo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Acanthaceae: *Aphelandra deppiana* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (October, 2013)



Chlosyne melanarge. Taking water at Río San Juan de Dios (Dorsal & ventral).
Images: Leonardi (Lost Canyon, October 2013)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Colobura dirce* ssp. *dirce* (Linnaeus, 1758)**

***Colobura dirce* (Linnaeus, 1758)**

Common name: Dirce Beauty

Geographic range: Mexico to Argentina

Distribution in Nicaragua: Matagalpa, V. San Cristóbal, Chinandega, León, Chontales, Managua (El Crucero), V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Zelaya, Río San Juan (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Moraceae: *Cecropia* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014) & Leonardi x 1 (January, 2016)



Colobura dirce ssp. *dirce*. Ventral view, at rest.
Image: Leonardi (Lost Canyon, January 2016)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Historis acheronta* ssp. *acheronta* (Fabricius, 1775)**

Historis acheronta (Fabricius, 1775)

Common name: Tailed Cecropian

Geographic range: USA to Brazil

Distribution in Nicaragua: Chontales, Laguna de Apoyo, V. Maderas (Isla de Ometepe), Zelaya, Río San Juan (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Moraceae: *Cecropia* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (June, 2015)



Historis acheronta ssp. *acheronta*. Ventral view (at rest).
Image: Leonardi (Lost Canyon, June 2015)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Historis odius ssp. odious* (Lamas, 1995)**

Historis odius (Fabricius, 1775)

Common name: Orion Cecropian

Geographic range: USA to Argentina

Distribution in Nicaragua: Matagalpa, Chinandega, León, Chontales, Managua (Montibelli), Laguna de Apoyo, Volcán Mombacho, V. Maderas (Isla de Ometepe), Zelaya, Río San Juan (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Moraceae: *Cecropia* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (July, 2013)



Historis odius ssp. odious. Dorsal view at rest and combined dorsal and ventral view at rest.
Images: Leonardi (Lost Canyon, July 2013)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Junonia evarete** (Cramer, 1779)**

Junonia evarete (Cramer, 1779)

Common name: Tropical Buckeye

Geographic range: *Possibly East Mexican segregate - Southern Texas to Central America

Distribution in Nicaragua: V. Cosigüina, V. San Cristóbal, V. Telica/Rota, León, Chontales, Managua (Laguna de Jiloa), V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Verbenaceae: *Avicennia germinans*, *Lippia* sp., *Stachytarpheta jamaicensis* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Junonia evarete. At rest, dorsal view.
Image: Erenler (Isla de Ometepe, November 2015)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Microtia elva* ssp. *elva* (H. Bates, 1864)**

Microtia elva (H. Bates, 1864)

Common name: Elf

Geographic range: Mexico to Costa Rica

Distribution in Nicaragua: Matagalpa, Chinandega, V. Telica/Rota, León, Managua (Laguna de Jiloa), V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción, Rivas (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Unknown (De Vries, 1987a)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 3 (December, 2014) & Leonardi (June, 2013)



Microtia elva ssp. *elva*. At rest, dorsal view.
Image: Leonardi (Lost Canyon, June 2013)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Siproeta stelenes* ssp. *biplagiata* (Fruhstorfer, 1907)**

Siproeta stelenes (Linnaeus, 1758)

Common name: Malachite

Geographic range: USA to Amazon

Distribution in Nicaragua: Jinotega, Matagalpa, V. San Cristóbal, Chinandega, V. Telica/Rota, León, V. Momotombo, Chontales, Managua (El Brujo, El Crucero, Montibelli), V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Zelaya, Río San Juan (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Acanthaceae: *Ruellia* sp., *Justicia* sp., *Blechum* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (May, 2013) & Erenler & Gillman x 1 (December, 2014)



Siproeta stelenes ssp. *biplagiata*. At rest, dorsal view and pair in cop. (ventral).
Images: Leonardi (Lost Canyon, May 2013) and Erenler (Volcán Masaya, August 2010)

NYMPHALIDAE
SUBFAMILY: Nymphalinae

***Smyrna blomfildia* ssp. *datis* (Fruhstorfer, 1908)**

Smyrna blomfildia (Fabricius, 1781)

Common name: Blomfild's Beauty

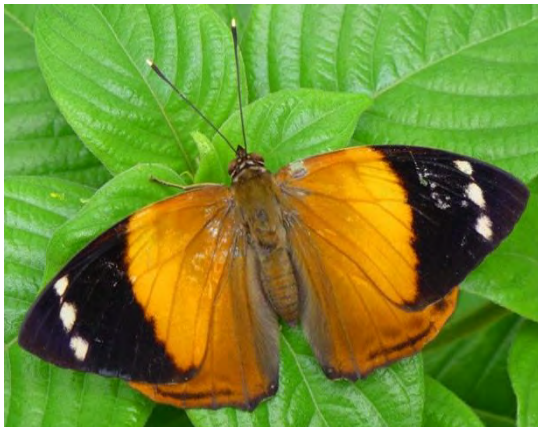
Geographic range: Mexico to Panama

Distribution in Nicaragua: Jinotega, Matagalpa, Chinandega, V. Telica/Rota, León, Boaco, Chontales, Managua (El Crucero, Laguna de Jiloa, Montibelli) V. Masaya, Laguna de Apoyo, V. Mombacho, V. Maderas (Isla de Ometepe), Zelaya (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Urticaceae: *Urera baccifera*, *Urticastrum* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (July, 2014)



Smyrna blomfildia ssp. *datis*. At rest, dorsal and ventral views.
Images: Leonardi (Lost Canyon, July 2014)

NYMPHALIDAE
SUBFAMILY: Satyrinae

***Caligo telamonius ssp. memnon* (C. Felder & R. Felder, 1867)**

Caligo telamonius (C. Felder & R. Felder, 1862) Common name: Pale Owl-butterfly

Geographic range: Mexico to Nicaragua

Distribution in Nicaragua: Jinotega, Matagalpa, V. San Cristóbal, Chinandega, León, Boaco, Managua (El Crucero, El Brujo, Montibelli), V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe), Solentiname, Zelaya, Río San Juan, Los Guatuzos (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Heliconiaceae: *Heliconia* sp., Musaceae: *Musa sapientum* (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (January, 2015)



Caligo telamonius ssp. memnon. Sap feeding (ventral) and in the hand (dorsal).
Images: Erenler (Volcán Mombacho August 2010 & San Juan de la Concepción July 2013)

NYMPHALIDAE
SUBFAMILY: Satyrinae

***Morpho helenor* ssp. *narcissus* (Staudinger, 1887)**

Morpho helenor (Cramer, 1776)

Common name: Common Morpho

Geographic range: Nicaragua to Panama

Distribution in Nicaragua: Nueva Segovia, Jinotega, Matagalpa, V. San Cristóbal, Chinandega, V. Telica/Rota, Chontales, Managua (Las Nubes, El Crucero, Montibelli, El Brujo), V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) Zelaya, Río San Juan, Los Guatuzos (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016)

Host plant(s): Bignoniaceae: *Paragonia* sp., Fabaceae: *Arachis hypogaea*, *Dalbergia* sp., *Dioclea* sp., *Eryhrina* sp., *Inga* sp., *Lonchocarpus* sp., *Machaerium* sp., *Medicago* sp., *Mucuna* sp., *Platymiscium* sp., *Pterocarpus* sp., *Swartzia* sp. (De Vries, 1987a, Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (July, 2012)



Morpho helenor ssp. *narcissus*. At rest, dorsal and ventral views.
Images: Leonardi (Lost Canyon, July 2012)

HESPERIIDAE
SUBFAMILY: Eudaminae

***Astrartes fulgerator* ssp. *azul* (species complex) (Reakirt, 1867)**

Astrartes fulgerator (Walch, 1775)

Common name: Two-barred flasher

Geographic range: USA to Paraguay

Distribution in Nicaragua: Matagalpa, León, Chontales, V. Masaya, Masaya (Catarina), Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016), Managua, Bluefields, Nueva Guinea (Anderson, 2007)

Host plant(s): Asteraceae: *Calea* sp., Fabaceae: *Erythrina* sp., Rhamnaceae: *Karwinskia* sp., Trigonaceae: *Trigonia* sp., Verbenaceae: *Vitex* sp. (Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Leonardi x 1 (July, 2013)



Astrartes fulgerator ssp. *azul*. At rest (dorsal).
Image: Erenler (Volcán Masaya, August 2010)

HESPERIIDAE
SUBFAMILY: Eudaminae

***Cabares potrillo* ssp. *potrillo* (Lucas, 1857)**

Cabares potrillo (Lucas, 1857)

Common name: Potrillo Skipper

Geographic range: USA to Costa Rica

Distribution in Nicaragua: V. Telica/Rota, León, V. Masaya, Laguna de Apoyo, Carazo, V. Mombacho, V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016), Matagalpa, Managua, Granada (Anderson, 2007)

Host plant(s): Not listed/unknown (Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Cabares potrillo ssp. *potrillo*. At rest (dorsal).
Image: Erenler (Isla de Ometepe, November 2015)

HESPERIIDAE
SUBFAMILY: Eudaminae

***Cogia calchas* (Herrich-Schäffer, 1869)**

Cogia calchas (Herrich-Schäffer, 1869)

Common name: Mimosa skipper

Geographic range: USA to Argentina

Distribution in Nicaragua: Matagalpa, V. Telica/Rota, León, Chontales, Masaya (Catarina), Laguna de Apoyo, V. Mombacho, V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016), Rama, Las Nubes, Bluefields, Granada, Pochomil, San Carlos (Anderson, 2007)

Host plant(s): Fabaceae: *Indigofera* sp., Mimosaceae: *Schrankia* sp. (Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 2 (December, 2014)



Cogia calchas pair in cop. (ventral).
Image: Erenler (León, December 2014)

HESPERIIDAE
SUBFAMILY: Eudaminae

***Polythrix asine* (Hewitson, 1867)**

***Polythrix asine* (Hewitson, 1867)**

Common name: Asine Longtail

Geographic range: Mexico to Panama

Distribution in Nicaragua: Known from Nicaragua type-specimen (Maes, 1999, 2016), V. Telica/Rota, V. Momotombo, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Maderas (Isla de Ometepe) (Gillman, Erenler & Téllez 2010-2016), Managua, Granada (Anderson, 2007)

Host plant(s): Not listed/unknown

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Polythrix asine at rest (dorsal) and pair in cop. (dorsal).
Images: Erenler (Volcán Masaya, 2013 & Isla de Ometepe, 2015)

HESPERIIDAE
SUBFAMILY: Pyrginae

***Antigonus erosus* (Hübner, [1812])**

***Antigonus erosus* (Hübner, [1812])**

Common name: Common Spurwing

Geographic range: Mexico to Paraguay

Distribution in Nicaragua: V. Cosigüina, Matagalpa, León, Chontales, Managua (Laguna de Xiloa), V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016), Santo Tomás, Jinotepe, Pochomil, Las Nubes, San Carlos (Anderson, 2007)

Host plant(s): Sterculiaceae: *Guazuma* sp. (Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 8 (December, 2014)



Antigonus erosus (dorsal).
Image: Erenler (Isla de Ometepe, December 2015)

HESPERIIDAE
SUBFAMILY: Pyrginae

***Chiomara georgina ssp. georgina* (Reakirt, 1868)**

***Chiomara georgina* (Reakirt, 1868)**

Common name: White-patched Skipper

Geographic range: USA to Costa Rica

Distribution in Nicaragua: No records or material from Nicaragua (Maes, 1999, 2016), V. Masaya (Gillman, Erenler & Téllez 2010-2016), Managua, Pochomil (Anderson, 2007)

Host plant(s): Malpighiaceae: *Gaudichaudia* sp. (Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Chiomara georgina ssp. georgina at rest (dorsal).
Image: Erenler, Lost Canyon, December 2014)

HESPERIIDAE
SUBFAMILY: Pyrginae

***Heliopyrgus domicella* ssp. *domicella* (Erichson, [1849])**

Heliopyrgus domicella (Erichson, [1849])

Common name: Erichson's White Skipper

Geographic range: USA to Venezuela

Distribution in Nicaragua: Matagalpa, V. Telica/Rota, León, V. Momotombo, Chontales, Masaya (Catarina), V. Mombacho, Isla de Ometepe (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016), Managua (Anderson, 2007)

Host plant(s): Fabaceae: *Indigofera* sp., Mimosaceae: *Schrankia* sp. (Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Heliopyrgus domicella ssp. *domicella*. At rest (dorsal & ventral).
Images: Erenler (Lost Canyon, December 2014)

HESPERIIDAE
SUBFAMILY: Pyrginae

***Mylon pelopidas* Fabricius, 1793**

Mylon pelopidas (Fabricius, 1793)

Common name: Pale mylon

Geographic range: Mexico to Paraguay

Distribution in Nicaragua: V. Cosigüina, V. Telica/Rota, León, V. Momotombo, Chontales, V. Masaya, Laguna de Apoyo, V. Mombacho, (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016), Managua, Pochomil (Anderson, 2007)

Host plant(s): Not listed/unknown. (Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Mylon pelopidas nectaring on *Melanthera nivea* (dorsal).
Image: Erenler (Volcán Masaya, December 2011)

HESPERIIDAE
SUBFAMILY: Pyrginae

***Pyrgus oileus* ssp. *oileus* (Linnaeus, 1767)**

***Pyrgus oileus* (Linnaeus, 1767)**

Common name: Tropical checkered skipper

Geographic range: USA to Costa Rica

Distribution in Nicaragua: V. Cosigüina, Matagalpa, V. San Cristóbal, V. Telica/Rota, León, V. Momotombo, Chontales, V. Masaya, Laguna de Apoyo, V. Mombacho, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016), Managua, Rama, San Carlos (Anderson, 2007)

Host plant(s): Malvaceae: *Sida* sp., *Sidalcea* sp., *Hibiscus* sp., *Malva* sp., *Abutilon* sp., *Malvastrum* sp. (Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 3 (December, 2014)



Pyrgus oileus ssp. *oileus* probing for nutrients (dorsal).
Image: Erenler (Isla de Ometepe, December 2015)

HESPERIIDAE
SUBFAMILY: Pyrginae

***Xenophanes tryxus* (Stoll, 1780)**

Xenophanes tryxus (Stoll, 1780)

Common name: Glassy-winged skipper

Geographic range: USA to Argentina

Distribution in Nicaragua: V. San Cristóbal, Chinandega, Chontales, V. Masaya, Laguna de Apoyo, V. Concepción & V. Maderas (Isla de Ometepe) (Maes, 1999, 2016 and Gillman, Erenler & Téllez 2010-2016), Managua, Bluefields, Pochomil, Nueva Guinea (Anderson, 2007)

Host plant(s): Not listed/unknown (Maes, 1999, 2016)

Records for Lost Canyon Nature Reserve:

- Erenler & Gillman x 1 (December, 2014)



Xenophanes tryxus at rest (dorsal).
Image: Erenler (Isla de Ometepe, December 2015)

DISCUSSION

Nicaragua is a known area of high diversity for butterflies (Robbins et al., 2012) yet it remains under-sampled in comparison to other Central American countries (Erenler et al., 2014). Intense sampling sessions at specific localities yield detailed information that can be used as markers for species' presence in particular years or seasons (Gillman et al., 2012; Debrix et al., 2014; Maes & Hernandez, 2016). Such records also permit comparisons across sites with shared characteristics, such as lowland Pacific dry-forest (Erenler et al., 2014).

Despite the data given here representing only two days of sampling during what is known to be a period of heightened dryness as a result of a severe El Niño season, the list of 67 species forms a baseline from which further monitoring can take place. This will allow a comparison between and within years of similar/different rainfall at Lost Canyon, as well as monitoring the (anticipated) increase in diversity of the area as the regeneration of the forest continues following extensive re-forestation efforts.

The importance of documenting the occurrence of species at a locality cannot be underestimated, as this forms a snapshot in time of what is present. Without the earlier diligence of previous collectors and recorders in Nicaragua, such as Thomas Belt in Chontales in the late 19th century (Godman & Salvin, 1901), or Anderson at a number of locations in Nicaragua in the 1970s (Anderson, 2007) we would not be able to refer to previous sightings of species and draw conclusions about their likely distributions and potential threats.

Of the 67 species listed here, 48 were also recorded by Belt in Chontales (Godman & Salvin, 1901). Whilst this 72% overlap may suggest that the species present at Lost Canyon are generalists, or nationally common, this is not born out by the data.

Although certain species recorded at Lost Canyon (and in Chontales by Belt) are ubiquitous across the country in seasonally dry forest, such as *Pyrisitia proterpia* (Pieridae), *Synargis mycone* (Riodinidae) and *Biblis hyperia* ssp. *aganisa* (Nymphalidae) (Gillman & Erenler unpublished data), others, such as *Pterourus victorinus* ssp. *victorinus* (Papilionidae) and *Anteros carausius* ssp. *carausius* (Riodinidae) represent first sightings for us. To put this in context, our recording (HEE, MPG & EMT) in Nicaragua extends from dry forest in the north at Volcán Cosigüina, to Volcán Maderas on Isla de Ometepe, over a 9 year period and encompassing more than 14,000 individual butterfly sightings. As both *Pterourus victorinus* ssp. *victorinus* and *Anteros carausius* ssp. *carausius* are known from earlier records in Chontales, our lack of previous encounters suggest that they may previously have been more widespread, and/or have exacting and possibly restricted habitat requirements.

The new country record for *Bolboneura sylphis* ssp. *sylphis* (Nymphalidae) represents a potential range expansion from the north for this species, possibly as a result of changes in climate and more extreme El Niño events.

Lost Canyon Nature Reserve places a strong focus on the base of the food chain via its intensive tree-planting program. This offers tangible benefits for all forms of dry-forest biodiversity, from its flagship species, the IUCN Red-List Endangered Nicaraguan Spiny-tailed Iguana (*Ctenosaura quinquecarinata*), to the butterfly fauna that is reliant on the presence of suitable host-plants. At a time when so much tropical dry forest is being lost to logging or converted to other uses such as agricultural land, it is only through the genuine protection and enhancement activities, such as those being carried out at Lost Canyon, that Nicaragua can preserve its rich dry-forest heritage.

ACKNOWLEDGEMENTS

HEE and MPG wish to thank Richard Leonardi and his family for permitting and facilitating the work at Lost Canyon Nature Reserve. We also wish to acknowledge the help of Robert Robbins at the Smithsonian Institution for assistance with the identification of the *Ministrymon* individual.

REFERENCES

Anderson, R.A. (2007) A list of HesperIIDae collected in Nicaragua 1973-1976. *Bulletin of the Allyn Museum*, 146, pp. 1-19.

Atlas Climático de Nicaragua (2015). Online. Available from: http://web-geofisica.ineter.gob.ni/mapas/Nicaragua/clima/atlas/Precipitacion/PP_media_anual.jpg (accessed 04.01.2016).

Debrix, A. Soza, A.E. & Maes, J.M. (2014) Mariposas de la Reserva Natura. *Revista Nicaragüense de Entomología*, 81, 1-113.

DeVries, P. J. (1987a). The butterflies of Costa Rica and their natural history. Volume I. Papilionidae, Pieridae and Nymphalidae. Princeton, USA: Princeton University Press.

DeVries, P. J. (1987b). The butterflies of Costa Rica and their natural history. Volume II. Riodinidae. Princeton, USA: Princeton University Press.

Duarte, M. & Robbins, R.K. (2010) Description and phylogenetic analysis of the Calycopidina (Lepidoptera, Lycaenidae, Theclinae, Eumaeini): a subtribe of detritivores. *Revista Brasileira de Entomologia* 54 (1): 45-64.

Erenler, H.E., Gillman, M.P. & Téllez, E.M. (2014) Confirmed additions to the butterfly Fauna of Nicaragua. *Revista Nicaragüense de Entomología*, Numero 75, pp. 1-23.

Gillman, M.P., Erenler, H.E. & Téllez, E.M. (2012) Butterfly diversity and distribution in Masaya Volcano National Park, Nicaragua. *Revista Nicaragüense de Entomología*, Numero 72, Suplemento 1, pp. 1-28.

Glassberg, J. (2007). A Swift guide to the butterflies of Mexico and Central America. New Jersey, USA: Sunstreak Books.

Godman, F.D. and Salvin, O. Eds. (1901) *Biologica Centrali-Americana, Insecta, Lepidoptera-Rhopalocera*. London: R.H. Porter.

IUCN Red List of Threatened Species *Ctenosaura quinquecarinata* (GRAY, 1842) Online. Available <http://www.iucnredlist.org/details/44193/0> (accessed 03.01.2016).

Lost Canyon Nature Reserve. Online. Available from: <http://www.lost-canyon.org> (accessed 28.12.2015).

Maes, J.M. (1999). *Catálogo De Los Insectos Y Artropods Terrestres De Nicaragua (Volume III)*. León, Nicaragua: Print.

Revista Nicaragüense de Entomología. Número 106. 2016.

Maes, J.M. (2006) Papilionidae (Lepidoptera) de Nicaragua. *Revista Nicaraguense de Entomología*, Numero 66: Suplemento Electrónico 3 pp. 1-241.

Maes, J.M. (2007) Pieridae (Lepidoptera) de Nicaragua. *Revista Nicaraguense de Entomología*, Numero 67: Suplemento Electrónico 1, pp. 1-313.

Maes, J.M. (2016). Bio-Nica website Online. Available: <http://www.bio-nica.info/topic/index.html> (accessed 03.01.2016).

Maes, J.M. & Hernandez, B. (2016) Mariposas de la Cuenca baja del Rio Grande de Matagalpa. *Revista Nicaraguense de Entomología*, Numero 104, pp. 1-309.

Robbins, R.K., Anderson, R.A. and Bolling Sullivan, J. (2012) The Nicaraguan hairstreak butterfly fauna (Theclinae: Eumaeini), its biogeography, and the history of Nicaraguan collectors. *Journal of the Lepidopterists' Society*, 66(2), pp. 61-75.

Warren, AD, Davis, KJ, Grishin, NV, Pelham, JP & Strangeland, EM (2015) Illustrated Lists of American Butterflies (North and South America) 28-VIII-2015. Online. Available from: <http://www.butterfliesofamerica.com/L/Neotropical.htm> (accessed 03.01.2016).

Revista Nicaragüense de Entomología. Número 106. 2016.

La Revista Nicaragüense de Entomología (ISSN 1021-0296) es una publicación de la Asociación Nicaragüense de Entomología, aperiódica, con numeración consecutiva. Publica trabajos de investigación originales e inéditos, síntesis o ensayos, notas científicas y revisiones de libros que traten sobre cualquier aspecto de la Entomología, Acarología y Aracnología en América, aunque también se aceptan trabajos comparativos con la fauna de otras partes del mundo. No tiene límites de extensión de páginas y puede incluir cuantas ilustraciones sean necesarias para el entendimiento más fácil del trabajo.

The Revista Nicaragüense de Entomología (ISSN 1021-0296) is a journal of the Nicaragua Entomology Society (Entomology Museum), published in consecutive numeration, but not periodically. RNE publishes original research, monographs, and taxonomic revisions, of any length. RNE publishes original scientific research, review articles, brief communications, and book reviews on all matters of Entomology, Acarology and Arachnology in the Americas. Comparative faunistic works with fauna from other parts of the world are also considered. Color illustrations are welcome as a better way to understand the publication.

Todo manuscrito para RNE debe enviarse en versión electrónica a:
(*Manuscripts must be submitted in electronic version to RNE editor*):

Dr. Jean Michael Maes (Editor General, RNE)
Museo Entomológico, Asociación Nicaragüense de Entomología
Apartado Postal 527, León, NICARAGUA
Teléfono 505 (0) 311-6586
jmmaes@ibw.com.ni
jmmaes@yahoo.com

Costos de publicación y sobretiros.

La publicación de un artículo es completamente gratis.

Los autores recibirán una versión pdf de su publicación para distribución.