



THE PYRALOID PLANET

Volume 10 – December 1, 2016
A Newsletter for Pyraloidea Fans

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Editorial

It has taken me some time to put this newsletter together for several reasons, including reacquainting myself with InDesign. I hope next time it won't take me as long. I welcome suggestions to improve the newsletter and any published paper you wish to highlight. I appreciate all of the items sent for this newsletter and I hope everyone enjoys them.

Our wholehearted **thanks to Bernard Landry** who put this newsletter together for NINE years!

M. Alma Solis

GlobIZ News 2016

The Global Information System on **Pyraloidea** (GlobIZ) is still growing in terms of the quantity of taxa. Since the last newsletter, the number of valid species included in the database increased by 227 (+ 136 synonyms). Altogether, there are 25,119 pyraloid names for 2,094 genera (+ 1,388 synonyms) and 15,434 species (+ 6,203 synonyms).

We are not registering how many times there are efforts to increase quality of the records that are included in the database, but this kind of effort is certainly higher now than entering new records.

This northern hemisphere winter, we are going to improve GlobIZ, providing a permanent link to every name, adding fields for URL's and DOI's as well as improving the incorporation and display of photos. Further suggestions for improvements are welcome.

Once again, thanks to everybody who contributed to GlobIZ. We are still looking for further support filling some remaining gaps in **Phycitinae** and **Pyralinae** as well as carefully checking data.

Matthias Nuss

CNC Pyraloid types are now online

Images and data for +1300 primary type specimens of Lepidoptera deposited at the Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, Canada became available online in September of this year. There are 54 **Pyralidae** and 211 **Crambidae** types, including Munroe's held at the CNC (e.g. see images to the right), but also includes those described by McDunnough, Bleszynski, Mutuura, B. Landry and others. An image of the labels is also included for each type.

To view the images, follow these steps:

- 1) go to: <http://www.cnc-ottawa.ca/taxonomy/TaxonMain.php>
- 2) click on "SEARCH Specimens"
- 3) in "Taxon Search" field, type "Lepidoptera" and click "Find Taxon"
- 4) from drop down menu on the left, select "Lepidoptera Linnaeus 1758"
- 5) in the TYPE box at the right, from the drop down menu select "holotype"
- 6) click "search" at the bottom of the page
- 7) click on the "Gallery" button to see the thumbnail images. Click on each image to see the high resolution photograph.

Images are available to share and re-use under Creative Commons attribution (Non-Commercial Share-Alike).

Vazrick Nazari

Holotype of *Syllepis aurora* Munroe, 1959 at the CNC



Progress Report on the Pyraloids of Borneo Hybrid Publishing Project

By 'hybrid publishing' in this case we mean that we are publishing data and images on a website and using printed volumes as portals (gateways) to these data and images. We use a QR code next to the image of a set specimen in the printed volume to link directly to that species' entry in the website via a QR code app on a smart phone. Provided broadband is available the link is made in seconds. This set-up reduces printing costs tremendously as all the text is on the website. Moreover updating can be done whenever needed, without waiting for a new edition of the book. There is effectively no limit to the amount of text that can be added to the website. We have provision on the site for 11 categories of data for each species entry, including DNA barcoding links and 3D imaging (just now becoming more of a reality for such things as images of genitalia and labial palps).

Please see <http://pyralidsofborneo.org/>

As reported in PP previously, we published the 1st printed volume in September 2015. We expect to have a 2nd volume out in mid 2017 and a third volume in late 2018. We have sufficient funding in the pipeline. The 1st volume was itself a hybrid in the sense that the Thyridoidea were included with the **Pyraloidea**, **Pyralidae**. We received extra funding to use QR codes to link the thyridids to the website as an experiment. We could not link the pyralids in Vol I because the funding window closed before the pyralids could be uploaded to the website. However, we are promised sufficient funding to print Vols II & III entirely with QR codes. Please see <http://stephensutton.info/home/category/news/> (QR Codes & A New World of Moths Explored Across Three Continents) for an account of how to use the website and how the Pyralids of Borneo project has developed.

We now have some 600 **Pyraloidea**, **Crambidae** uploaded to the website, but they will not be on public view until we sort out issues over availability of images. If necessary we will send a request to you, the Pyraloid Planet community, for help in locating some hard-to-find images of set specimens in good condition.

We plan that Vol II will contain all the crambid subfamilies, although only the first third of the Spilomelinae can be fitted in. Vol III will be the rest of the spilomelines. We would welcome named images of living specimens, as we intend to include 100 or so of these in each of Vols II & III to help newcomers to pyraloids to link live specimens to set ones. All images will be acknowledged.

We think the total number of Bornean pyraloid entries (species & morphotypes at or near the species level) for this project will be around 2,000. We will include species which have been recorded in nearby territories if their distributions suggest that they will, in time, be recorded in Borneo as well.

Details of Vol 1: Size - A4; Weight - 850g; Pages - 89; Ring bound; ISBN 978-983-812-162-0. Index to genera and species; published by Natural History Publications (Borneo) in association with Southdene.

For a quote to purchase of Vol 1 'A Preliminary Guide to the Pyralid Moths of Borneo', or any of the 18 volumes of J.D. Holloway's 'Moths of Borneo' contact: Henry Barlow at Southdene hsbar@hotmail.com. Price Vol I USD30.00+ P&P (please note that this book is quite heavy, so postage will be significant).

We would like to thank members of the Pyraloid Planet community for their help with this project, particularly Bernard Landry, who has been on hand with advice at all times.

Stephen Sutton, Henry Barlow & Terry Whitaker, in association with Lim Kooi Fong of Biovis Informatics, Kuala Lumpur (digital biodata, pattern recognition and augmented reality development). email address: stephensutton7@gmail.com

Stephen Sutton



The Next Red List

of German Pyraloidea

The last edition of the Red Lists of Animals, Plants and Fungi of Germany contained the first Red List of German **Pyraloidea** (see volume 8 of the Pyraloid Planet 2014). Since then more objective and verifiable algorithms have been introduced to place species into categories. In Germany, Red Lists should be updated every 10 years and so it is time for the preparation of the next edition. This time, we are going one step further and will also make the original data used for the analysis publicly available. For butterflies and moths, a project began this year to compile all of the records and distribution data available from different databases. It will include a tool for quality control and possible corrections of data. It is funded by the German Federal Agency for Nature Conservation and runs until 2019.

Matthias Nuss, Robert Trusch,
Axel Steiner & Franziska Bauer

First Survey of Pyraloids of the Andean Eastern Slopes in Peru

Analyzing moth communities along gradients of altitudes or anthropogenic disturbances can help us to better understand patterns of distribution and diversity. A few relevant references on the topic are listed below, and pyraloids were partly incorporated in those studies (Brehm et al. 2003; Axmacher et al. 2004; Fiedler et al. 2007; Schulze & Fiedler 2003). This year, Gunnar Brehm and I successfully applied to the German Research Foundation for a German-Peruvian cooperation for the investigation of the diversity of moths along an elevational gradient in South East Peru. The cooperation is intended to foster the investigation of substantial parts of the extremely

species rich moth communities in the wet tropical Andes – for the first time along a complete elevational gradient. During three weeks of August and September, we had a first field workshop in the Cosñipata Valley, where Gerardo Lamas (2015) already recorded 2,224 species of butterflies (Hesperiidae, Hedylidae, Papilionidae, Pieridae, Lycaenidae, Riodinidae and Nymphalidae). The emphasis of the field workshop was about practical aspects, such as the development of joint working and sampling methods during field work, as well as to check the conditions in the field and the suitability of the area for the planned studies. Our stay mainly took place at the scientific stations of Wayqecha (3000 m) and Villa Carmen (500 m) of the Asociación para la Conservación de la Cuenca Amazónica. For light trapping, we successfully tested LED-lamps, newly developed by Gunnar Brehm and running with power banks.

Depending on the altitude, we captured impressive quantities of moths, and of which we are going to analyze geometrids and arctiines (Gunnar Brehm) as well as **pyraloids** (Matthias Nuss). For the accelerated delineation of species, the samples will be sorted by external morphology and DNA Barcoding (COI gene). During our field workshop in Peru, we were accompanied by Gerardo Lamas and Juan Grados from the Zoological Museum in Lima as well as by Daniel Bolt from Switzerland.

We are going to organize a second workshop in Dresden, Germany to be held during March 2017. In addition to our Peruvian counterparts, we will invite further colleagues. The aim of the second workshop will be the discussion of experiences and first results during fieldwork in Peru. As an outcome, we plan to formulate two or three specific research proposals to be submitted in mid-2017.

References

Axmacher, J. C., G. Holtmann, L. Scheuermann, G. Brehm, K. Müller-Hohenstein & K. Fiedler 2004: Diversity of geometrid moths (Lepidoptera: Geometridae) along an Afro-tropical elevational rainforest transect. *Diversity and Distributions*. 10 (4): 293–302.

Brehm, G., D. Süssenbach & K. Fiedler 2003: Unique elevational diversity patterns of geometrid moths in an Andean montane rainforest. *Ecography*. 6 (4): 456–466.

Fiedler, K., N. Hilt, G. Brehm & C. H. Schulze 2007 (“2006”): Moths at tropical forest margins – how mega-diverse insect assemblages respond to forest disturbance and recovery. Pp. 39–60. In: T. Tschardt, C. Leuschner, M. Zeller, E. Guhardja & A. Bidin, *The stability of tropical rainforest margins, linking ecological, economic and social constraints of land use and conservation*. Springer Verlag, Berlin.

Lamas, G 2015: Las mariposas diurnas de Cosñipata, Perú: Estudio de un transecto altitudinal. Conference abstract of V Encuentro de Lepidoptera Neotropicales: Ecología, Biogeografía, conservación y evolución, Tucumán, Argentina.

Schulze, C. H. & K. Fiedler 2003: Vertical and temporal diversity of a species rich moth taxon in Borneo. Pp. 69–88. In: Y. Basset, V. Novotny, S. E. Miller & R. L. Kitching, *Arthropods of tropical forests. Spatio-temporal resource use in the canopy*. Cambridge University Press.

Figures on the right from top to bottom:

Gerardo Lamas & Gunnar Brehm smiling

Gunnar Brehm collecting

Daniel Bolt collecting

Mountain scenery at Wayqecha, Peru



NEWS FROM.....

BOB HECKFORD

At the SEL meeting in Germany last year Bob Heckford reported on “*Musotima nitidalis* (Walker, [1866]): Discovery of the early stages in England” [Evans, D. J., Beavan, S. D., Clarke, J. H., Heckford, R. J. & Parsons, M.S. 2014. *Atropos* 51, Spring 2014: 7-19]. This paper describes the hunt for and discovery in England of the larvae of an Australian and New Zealand **musotimine** species, *Musotima nitidalis*. It was first discovered in Hurn Forest, Dorset, and the immature stages are described and beautifully illustrated. In fact none of those stages had previously been illustrated by photographs anywhere before. Larvae were found feeding on Broad Buckler-fern, *Dryopteris dilatata* (Hoffm.) A. Gary (Dryopteridaceae). *Musotima nitidalis* is established in Hurn Forest and Merritown Heath in Dorset, and Ash-down Forest in East Sussex. They speculate that its introduction is the result of a discarded fern at a composting site in Dorset.



BERNARD LANDRY

I am very pleased that Alma Solis accepted to take over the editorship of our Pyraloid Planet newsletter. This is our 10th issue! It has been fun to edit the first nine and from the positive comments received, I think that our newsletter has accomplished its mission to promote communication and exchanges in our field of interest.

In 2015, I had the opportunity to visit and collect **pyraloid** moths in Nicaragua in three different habitats during the first three weeks of December. I was helped in this respect by Jean-Michel Maes, director of the Museo entomológico de León, who obtained for me the export permit for the samples obtained. As per one of the obligations mentioned on the permit, I am preparing a full list of the species collected. In terms of Pyraloidea, 288 species were collected even though the season was not the best in two of the collecting localities. Among the highlights of the trip were a yet unidentified species of **Diptychophorini** (Fig. 1) and a specimen of *Guyanymphula* (Fig. 2), the first from outside of French Guyana.

Fig. 1. An unknown species of Diptychophorini from Bartola, Nicaragua.



Fig. 2. *Guyanymphula* sp. (probably *cayennensis* Heppner, 2015), from Bartola, Nicaragua.



In 2016 I decided to finish some manuscripts. I am pleased to have done so for my study of the **Spilomelinae** of the Galápagos Islands, my third most important paper ever in terms of the number of pages. It treats and fully illustrates 44 species, including 11 described as new, including two with A. Solis. It has just been published and is available at https://www.researchgate.net/profile/Bernard_Landry/publication. Thanks to the many colleagues who helped with various issues on this project!

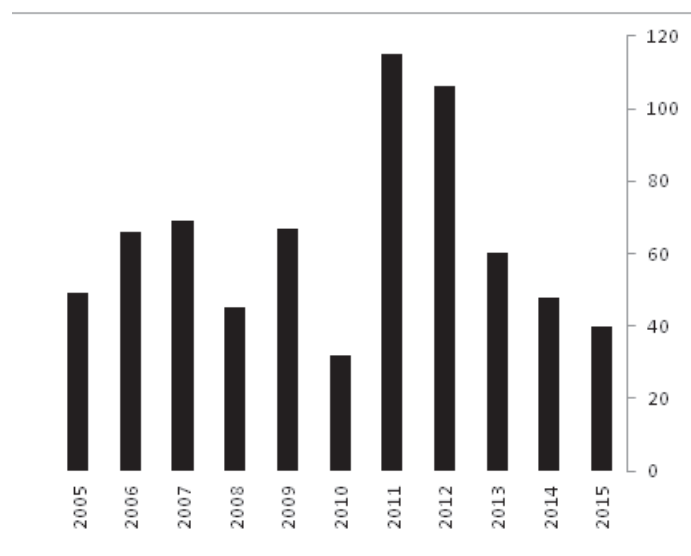
Théo Léger's doctoral project with Matthias Nuss and myself to investigate the phylogeny of **Crambinae**, **Scopariinae** and related groups continues to make progress. Théo presented his results at the SEL meeting in Radebeul, Germany in September 2015, and he is planning to give an updated presentation at the next SEL meeting in Croatia in April 2017. It would be nice to see many of you at this meeting and I am inviting you all to join (see <http://sel2017.conferenceatnet.com>)!

*Here in my Museum I was recently able to purchase a small, albeit interesting collection of 2024 specimens of **Pyraloidea** from the French Pyrenees. It was assembled by and belonged to Mr Robert Mazel from Perpignan and includes 276 species. It represents an addition of about 10% in the number of pyraloid specimens for our collection. One paper in two parts by Brusseau et al. (2000, 2001) in *Alexandor* are partly based on these specimens.*

On a final note I have continued to be involved with updating GlobIZ and I have calculated the numbers of new taxa published in the last 10 years based on the data entered in GlobIZ. 2015 was the second less prolific of the 10 with 40 n. spp., 3 n. gen., and 1 new family-group name. 2011 was the most prolific year

in terms of new species, with 115, while in terms of genera, 2007 was the best year, with 16 new taxa described. Apart from 2015, only one other family-group name was described during this decade, and that was in 2007. The crude numbers and a graphic image follow, the averages being 63.4 species and 4.8 genera per year, with a slight increasing trend in new species numbers. May you all be able to continue this important descriptive work and keep these numbers growing in the future!

Year	New species	New genera	New Family Group Name
2015	40	3	1
2014	48	2	0
2013	60	10	0
2012	106	6	0
2011	115	7	0
2010	32	3	0
2009	67	2	0
2008	45	1	0
2007	69	16	1
2006	66	3	0



JAMES HAYDEN

Florida (USA) is sagging under the weight of invasive species and exotic pests. The 70% decline of Florida's famous citrus industry due to pathogens and pests means proportionally less fee revenue for the Florida Department of Agriculture, Plant Industry (FDACS-DPI), which causes a self-perpetuating downward spiral as we have fewer field inspectors and less technical support for diagnosticians such as myself to identify new pests as they arrive. Increased trade increases our need for vigilance; for example, the widened Panama Canal will mean more arrivals from Asia. We need the help of the global community. The identifications done by DPI as a regulatory agency may have legal consequences, so we must base our determinations carefully on the best science available. Thus we need taxonomic revisions, authoritatively identified reference specimens, and photographs and dissections of type specimens. Moreover, we need to discover and trade information about our native faunas. We need to get to the point where we can distinguish new introductions from the native species in real time, not years afterward. Native species also matter because Florida farmers' attempt to diversify into crops other than citrus, such as peaches and olives, means that natives that were previously not problems might become problems.

I have made about 3300 dissection slides FSCA and McGuire Center material over five years, focusing on pests and native Florida species of all families, unillustrated species, and of course miscellaneous pyraloids. A good Lepidoptera collection should have a good slide collection. We need more photos of genitalia on line. I make the slides, but photographing them and putting the images on line remains

a bottleneck. If you want to collaborate on photography, let's talk. Public demand and international collaboration justify the existence of both the Florida State Collection of Arthropods and the McGuire Center for Lepidoptera as public services. That said, my ability to handle identification requests from outside of Florida is limited, because I'm only one person who primarily serves my Department.

I want to work toward a genitalia "atlas" for Florida, but on line in a dynamic format like <http://mothdissection.co.uk>. Regional resources can be built piecemeal and melded into a global resource. A good example of synergy is Bernard Landry's designation and dissection of the lectotype of *Phalaena costata* Fabricius [see picture below and Landry, B. 2016. Taxonomic revision of the Spilomelinae of the Galápagos Islands, Ecuador. *Revue suisse de Zoologie* 123(2): 315–399] which will help solve multiple problems for several purposes.

FDACS-DPI publishes new records for the State and Continent and new host records in *Tri-ology*, which refers to our three diagnostic bureaus (<http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Plant-Industry-Publications/Tri-ology-FDACS-DPI>). Invasions are quotidian, time is short, and a photo and paragraph are sufficient. Unfortunately, PDFs of issues older than two years are no longer kept on line due to limited IT support. The same is true of DPI's Circulars. If you want an older issue, contact me, the DPI Library, or DPI Helpline (see link for numbers).



ALMA SOLIS

Within the United States Department of Agriculture (USDA), I am the Lepidoptera Project Plan Principal Investigator and I wrote in collaboration with the other team members, Paul Goldstein and Mark Metz, a 5-year plan for research on Lepidoptera. Finally, last week we received our certification letter that allows us to move forward with our research project. My part, Pyraloidea, includes working on **spilomeline** genera of the Janzen & Hallwachs material from Costa Rica.

Besides the usual business as President of the Systematics, Evolution & Biodiversity (over 1000 members) section of the Entomological Society of America, I was also involved in the scheduling of some of the talks for over 6000 participants at the International Congress (ICE) of Entomology in Orlando, Florida. At ICE I presented a talk entitled “**Pyraloidea**: resolution with highly derived taxa and additional taxa” for the Lepidoptera symposium organized by Andreas Zwick. It was an update about higher level phylogeny and pointed out that future studies should include some of the unique taxa that have been discovered recently that may clarify relationships within the Pyraloidea at higher levels. Andreas organized a Lepidoptera dinner and 43 lepidopterists attended. Needless to say, it was a huge event!

This year I was also trying to push out miscellaneous papers in various groups, such as a new genus of **Phycitinae** from Panama (larvae were found using a crane) with Herb Neunzig and a new species of **Musotiminae** from southeast Asia for biological control of the Old World Climbing fern.

In Costa Rica I also worked on **Acentropinae** manuscripts with Eugenie Phillips at the Museo Nacional de Costa Rica, formerly known as the INBIO collection.

I was heavily involved in workshops this year: (1) Lepidoptera Taxonomic Training workshop held at UFL, Gainesville, July 17-23. I made 3 presentations on **Pyraloidea adults & larvae** and Lepidoptera eggs. They were filmed and will be accessible on the web eventually; (2) Identification of economically important **moth larvae**, especially those of pyraloids, August 21 to September 3 at EARTH University for the Costa Rican Phytosanitary Service of the Ministry of Agriculture and Veterinary Science. There were 20 participants and I gave a total of 15 presentations in Spanish (slides in English) during the five mornings, and the participants used keys to identify their larvae during the afternoons; (3) **Pyraloidea workshop** at the 2016 Northwest Lepidopterists' Workshop on October 22-23 and the Keynote address on Saturday night entitled “Path to Pyraloidea: from Texas to the World”. It was sponsored by the Oregon State Arthropod Collection and the Department of Integrative Biology, Oregon State University (OSU), Corvallis, Oregon. I also sorted their Pyraloidea material so that it can be databased for the LepNET project.

OSU is part of the LepNET project in the United States: Lepidoptera of North America Thematic Collections Network (LepNet TCN), which serves as a hub for integrating millions of occurrence records for Lepidoptera. The project is funded by the NSF-ADBC program (\$3.2 million, 2016-2020) and includes 27 core museums, many at universities distributed across the United States. <http://symbiota4.acis.ufl.edu/scan/lepnet/portal/index.php>

SELECTED NEW PAPERS

Willy de Prins & Paolo Mazzei

Some faunistic notes on selected moth species (Lepidoptera) from the Seychelles. 2016. Phelsuma. 24: 21-34. This little gem includes Pyraloidea and a beautiful plate of pyraloids. I have a pdf of this paper if anyone is interested (Alma Solis).

Colin W. Plant

An annotated systematic, synonymic and distributional checklist of the Pyraloidea of Bulgaria (Insecta, Lepidoptera, Crambidae & Pyralidae). 2016. Neue Entomologische Nachrichten 72: 1 - 231.

Abstract. -The pyraloid fauna (Lepidoptera, Pyralidae & Crambidae) of Bulgaria is reviewed. All known records for the group, from all time to the end of year 2015 within the present day political boundary of the Republic of Bulgaria have been collated to form a single database for research. There are valid records for 389 taxa (386 species plus three additional subspecies); these comprise 165 within the Pyralidae (164 species plus 1 subspecies) and 224 taxa within the Crambidae (222 species plus 2 subspecies). 16 taxa mentioned in the literature are formally excluded from the Bulgarian fauna. All taxa are discussed and a selection of important habitats are illustrated in colour (see picture right and above). Distribution maps are presented for most of the species. Colour images of set specimens are presented for most of the Pyraloidea (see picture top right). A number of taxonomic changes are introduced in this paper.

If you would like a pdf of this paper you can email a request to Colin [cpauk1@ntlworld.com].



Ancylosis cinnamomella (DUPONCHEL, 1836)



Plate 22: Sub-alpine meadows in the Rila Mountains.

(Photo credit: B. ZLATKOV).

Finally.....

A beautiful day on a walk with fellow pyraloidologists Matthias Nuss & Bernard Landry after the SEL Meeting in Radebeul, Germany in 2015.



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Please welcome Matthew Cock,
David Lees, Guillaume Leraut, and
Flemming Vilhemsen to this list.

Forward to me names & email contact of anyone who has an interest in pyraloids so I can add them to the mailing list.