THE PYRALOID PLANET

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A newsletter for the Pyraloidea fans

Editorial

Welcome to this fifth issue of our newsletter for the aficionados of Pyraloidea.

This year in March I had the opportunity to visit Vitor Becker in his Serra Bonita Reserve, in Bahia, Brazil. After a career at EMBRAPA (the Ministry of Agriculture of Brazil), Vitor embraced the life of the conservationist with the goal of acquiring a nice chunk (7500 hectares) of Atlantic forest for protection. More than 2000 hectares (more than 45 separate properties) have been purchased so far. Vitor, his wife Clemira, and friends have also founded the NGO Instituto Uiraçu and have built a science centre holding Vitor's huge collection, and a solid stone and brick lodge with eight rooms equipped with shower and toilet.

Fig. 1. Vitor Becker sorting specimens on workbench in one of several offices out of collection room, the door of which is visible in background.

Vitor has the third most important collection of Neotropical moths in the World (250,000 specimens; 15,000 named species). Anyone contemplating revisionary work on any moth group from this region, from the largest to the smallest, should imperatively borrow his well prepared and preserved specimens. James Hayden can attest to that, as well as Sjaak Koster, whose revision of Neotropical *Cosmopterix* and *Pebops* contain 29 (out of 49) new species described from Vitor's material.

Vitor and Clemira now earn their living from paying visitors, mostly naturalists, eager to see the numerous endemic rarities of the reserve, or the collection. I can only encourage all interested in the New World fauna to visit Serra Bonita (wwwuiracu.org.br/en/serrabonita.html) for the collection, but also for mothing as I have seen at light a few species of Crambinae that were not yet represented in Vitor's collection. In addition, Clemira is a great cook, and there are no mosquito-borne diseases on the reserve!

Fig. 2. The science centre of Serra Bonita still under construction. Now the vegetation prevents any full view of the place from the ground.

Fig. 3. Part of Vitor's collection room. Altogether there are five such walls of insect drawers.

Fig. 4. Lodging facility at Serra Bonita. There are eight adjacent rooms with separate doors, toilet and shower, two beds, a sofa, a well-lit workbench, a rear balcony opening to the forest, and a porch that provide space to come in and out of a car unimpeded by rain.

After all, don't we ultimately work for the conservation of the animals we love?

As usual please send any changes of address to me and you may suggest additions to the 'Membership List' as well as send PP to whoever you like. Also, if you would like to take over as editor of future issues of PP, please don't hesitate, and let me know.

Bernard Landry

This issue was made possible with the help of Vitor Becker, James Hayden, Houhun Li, Joël Minet, Matthias Nuss, Alma Solis, and Kevin Tuck.

The **logo** of **The Pyraloid Planet** was created by **Florence Marteau** of the Muséum d'histoire naturelle, Geneva, Switzerland, and the layout of this issue was made by **Corinne Charvet** of the same institution.

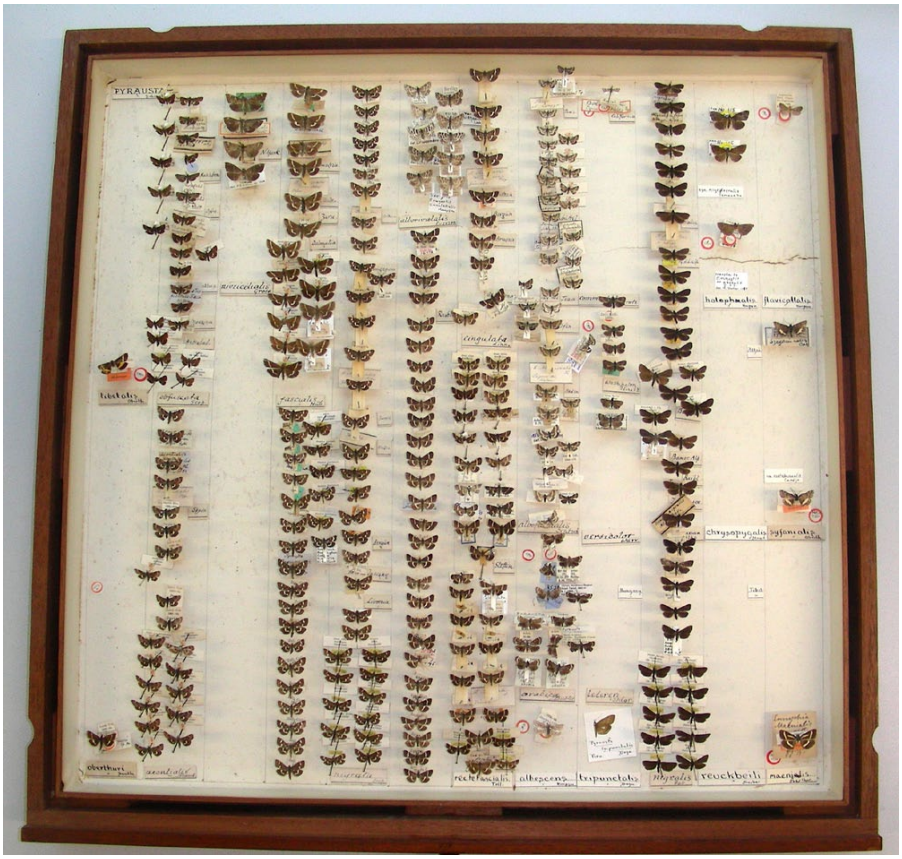

Fig. 5. A hard cork-bottomed drawer of the BMNH Pyralidae collection prior to transfer to unit trays.

Progress at the BMNH

Many readers of *The Pyraloid Planet* will be aware that in recent years the Lepidoptera collections at the BMNH were moved into temporary accommodation whilst the old Entomology building was demolished. Subsequently they have been moved into a brand new facility – the Darwin Centre Phase II ("DC2") building – which occupies the same site as the original building. Thus the Lepidoptera collections are now housed in state-of-the-art new cabinets on easily moveable compactors in dedicated collections rooms with controlled temperature and humidity levels.

What has happened since then? During the last two years work has concentrated on improving and updating the way the specimens are housed within these new cabinets. Old pest-vulnerable wooden drawers (Fig. 5) are being emptied and their hard cork slats disposed of. Specimens are being transferred into new plastazote-lined unit trays (Fig. 6) made of conservation grade white card, facilitating much easier revision and handling of the collections. Every drawer has a unique number and these are all database on an Excel spreadsheet.

Fig. 6. An example of the new unit tray storage system for the BMNH Microlepidoptera collections, including the Pyraloidea.

Thus all the "pyralid" families are now housed on just one floor (the Lower Ground floor) and everything is in one or other of just two sizes of drawer – a rectangular drawer size for the main world collection and a square drawer size for old British collections.

The "pyralid" collections are not yet entirely databased to species level, but plans are in hand for this to be undertaken. In the meantime the old "pyralid card index" is still available, and the systematic half of this index has already been transformed into digital images which are viewable in the online database *Lep Index* – see http://www.nhm.ac.uk/research-curation/research/projects/lepindex/. The latter is also currently being updated and improved.

Kevin Tuck

GlobIZ News 2011

Twelve months have passed since volume 4 of our Pyraloid Planet Newsletter has been published in 2010. During this time, the number of valid species included in the Global Information System on Pyraloidea (GlobIZ) increased by 843 (+ 397 synonyms) to a total of 12,508 (+4,871 synonyms).

According to registered changes, Bernard Landry has been the busiest team member during this period, completing the catalogue of the world's Crambinae. For a long time, he has been scratching at the landmark of 2,000 valid crambine species names, but this landmark remains unattained by two. It has become thrilling to expect the kind of discovery by which this landmark will be exceeded. Will it be from continuous work on the catalogue, descriptions of new species, or the possible inclusion of taxa by phylogenetic analyses?

In second place is Richard Mally, who increased the data for Spilomelinae to 3,146 valid species (+ 1,268 synonyms). He will continue to improve the data set while working on his PhD. thesis on the systematics of this megadiverse group.

Beside the increasing number of species group names entered in GlobIZ, efforts of editing data are more and more shifting to improve the quality of records, e.g., by verifying original references as well as adding the references for generic transfers and status changes of taxa.

Matthias Nuss

Collecting acentropine aquatic immatures in a New Mexican creek

At the Entomological Society of America Annual meeting I presented a talk entitled "The lonely aquatic moth: *Petrophila avernalis* Grote (Crambidae: Acentropinae)" as part of a symposium that I co-organized entitled: "Valles Caldera National Preserve: Plant, Animal, and Human Diversity on an Ancient Volcano." This talk summarized my findings about the one species of Acentropinae that occurs at Valles Caldera National Preserve in New Mexico. In many localities multiple species of Acentropinae make it impossible to match the aquatic immature with the adults. But at Valles Caldera I had picked up only one species, *Petrophila avernalis*, in light traps, so in July 2010 I went in search of the immatures of this species. I arrived in the mid-afternoon and in the late afternoon we (me, Mike Pogue, Mark Metz, and Reed Watkins) drove to other sites to place the traps out for the night. As we drove along I kept my eyes out for potential habitats for this moth. We got to the bridge over the San Antonio Creek and I said we should stop at this point to look around. Mike Pogue was the first to see white insects that could be moths flying under the bridge (which was dark) and he swung to collect them. I verified that they were *Petrophila avernalis*. Then everyone started disturbing the grass next to the creek and the moths flew up. We collected many adults in this area and set up a trap to see if we would collect any that night. The next morning Mike and Mark went to collect the traps and they dropped me off at the sight early in the morning so that I could look for immatures. The ambient temperature was about 35 degrees Fahrenheit (1.6 Celsius) and the water felt much colder as I worked in the creek (it was so cold I had to run up and down the road to warm my feet up while I was waiting for Mike and Mark to pick me up). I waded into the water and pulled a few rocks out of the water to inspect. With my forceps I found the characteristic tunnel webbing and caterpillars on top of the rock. On the underside of the rocks were the cocoons

Fig. 7. Female (above) and male (below) of Petrophila avernalis.

Fig. 8. Mike Pogue and Mark Metz collecting adults of Petrophila avernalis *at midday along the San Antonio Creek.*

and pupae. By the time Mike and Mark came back from collecting the multiple traps, I had placed a number of rocks with *P. avernalis* immatures in plastic containers to take back. At the lab I was able to film the moving larvae after pulling up the tunnels and to collect immatures for further study.

I am currently on a temporary assignment as Acting Associate Director of the Beltsville Agricultural Research Center. This is temporary, 3 weeks to 3 months I was told. I have been working on Leptree when I have downtime in this position.

I recently hired Dr. Paul Goldstein to work on pyraloids. He is currently working on glaphyriine and epipaschiine projects.

Alma Solis

News from Jim Hayden

In March 2011, I left my post-doc position at the Carnegie Museum to take the position of Curator of Lepidoptera at the Florida Department of Agriculture and Consumer Services, Division of Plant Industry (FDACS-DPI). This is the position from which John Heppner retired the previous year. I am responsible for identification of lepidopteran samples submitted to DPI, primarily from state plant inspectors. My office is located next door to DPI, in the McGuire Center for Lepidoptera and Biodiversity (Florida Museum of Natural History at the University of Florida). The Lepidoptera of the Florida State Collection of Arthropods (FSCA) were physically integrated with the McGuire Collection (MGCL) a few years ago, so it is my pleasure to be involved with what I think is one of the largest communities of professional lepidopterists in the US, plus a much larger circle of contributors. The FSCA and MGCL pyraloid collections are impressive, with particularly large holdings from the southern US and SE Asia, thanks largely to John Heppner's collecting efforts.

Fig. 9. Jim Hayden at the McGuire Center in the Florida Museum of Natural History. The window displays the bench where technicians spread butterflies. It happens that almost all of the drawers behind the bench are occupied by the FSCA & MGCL's Nearctic pyraloid and microlepidoptera pro tempore holdings. Credit: Mike McCowan.

Research continues after hours. One paper from the Carnegie postdoc (on Midilinae) is in review, and the *Cliniodes* revision is in press. Other projects are on hold while I adjust to the job and learn the leps of Florida. Two local projects are of interest. I would like to obtain immature stages of *Diplopseustis* Meyrick and *Sufetula* Walker for morphological study, because I believe that native or adventive species could be root-borers in palms and sugarcane in Florida. Another project is the relationships of *Duponchelia fovealis*, which has rapidly spread among Floridian nurseries since its detection late in 2010. It seems to be closely related to native *Penestola* species and some Southeast Asian genera (*Hymenoptychis*, *Tatobotys*) that are detritivores in the leaf litter of mangrove swamps. This little group of spilomelines shares several unique characters, and I am curious if more relatives occur in other geographic regions.

New possible projects land on my desk daily. I encourage you to keep on me about getting the Odontiinae phylogeny in publishable shape.

My new address is provided in the Membership list, but here is additional information: James.Hayden@freshfromflorida.com; Phone: (352) 273-2003; Fax: (352) 334-0737.

James Hayden

New website on Afrotropical moths

There is a new website under construction at the Université Libre de Bruxelles. This website will have almost the same structure as the Global Gracillariidae database (http://gc.bebif.be), but it will hold information on ALL Afrotropical Heterocera. At this moment, virtually all names are entered, and we are adding bibliographical and distributional data daily. Also, info on the larval foodplants will be included, but not on the parasitoids. Dr. Heughebaert (head of the developing team) informed us that the website might be ready to go online during summer.

Willy De Prins

A project on the Phycitinae fauna of China

Phycitinae is the second largest subfamily of Pyraloidea and includes many serious agricultural and forest pests. It is currently composed of more than 5000 species worldwide. In China over 380 phycitine species in 110 genera have been recorded, most of which were described originally by taxonomists outside of China based mainly upon specimens collected by Dr. H. Höne during the 1930s. Currently we are carrying a study of the Chinese Phycitinae supported by the National Natural Science Foundation of China. With the progress of this project, additional new species will be identified and more species will be newly recorded for China. By the end of 2015, a volume "Fauna of China (Lepidoptera, Pyralidae, Phycitinae)" will be completed, which is the objective of the project.

Presently, we are trying our best to overcome all sorts of taxonomic problems with the help of some kind and generous colleagues and friends.

Houhun Li

Fig. 10. Adults of Merulempista *species from China (from Ren, Liu & Li, 2011, Zookeys 77:70).*

DNA Barcoding of Pyraloidea

Although the effectiveness of DNA barcoding has been much debated since 2003, the approach has already been adopted as a standard tool by many taxonomists. Probably less known is the fact that there are now 43,000 DNA barcodes from nearly 5,000 species of pyraloids in the Barcode of Life Data System (www.boldsystems.org). Matthias and Richard (Dresden) are screening every pyraloid species with specimens younger than 15 years and the Canadian Centre for DNA Barcoding has already provided them with 1,600 sequences representing 430 species of 230 genera plus 708 unidentified specimens. The dataset becomes much larger when regional barcoding projects (Australia, Europe and North America) are considered. For example, in Europe, Peter Huemer (Innsbruck) is barcoding the pyraloids of the Alps, Andreas Segerer (Munich) those of Bavaria and Marko Mutanen (Oulu) those of Finland. Looking into the data on European Scopariinae, an old passion of Matthias, not everything that was thought to be properly identified matched with the barcoding results. Careful examination revealed that specimens identified without dissection of genitalia had an identification error of 4.4 %. After correcting these cases, 88 % of the species were unambiguously identified with DNA barcodes. For the remainder, we found just two species pairs which could not be discriminated by barcodes. One case involves the *Scoparia manifestellalitalica* complex in the European Alps which shows little morphological divergence and also very limited barcode variation. The second case is much more surprising : *Scoparia ambigualis* and *basistrigalis*. These two species have well differentiated forewing patterns as well as differing male and female genitalia, but their barcode sequences do not show any gap. We are examining more genes to better understand the cause of this mismatch. All other cases of discrepancy between barcodes and morphological data involve cases of deep barcode divergence within single morphospecies, stimulating re-investigation of their morphology. In summary, all cases of mismatches that we have found point to the usefulness of DNA sequence data in aiding the interpretation of species defined on morphological characters only. Because barcode data are stimulating new research in Dresden, we are continuing with this work.

There are other interesting projects which also need to be mentioned. For example, DNA barcoding of all pyraloid taxa within the Australian National Insect Collection (ANIC) is approaching completion. Although the ANIC specimens have benefited from curation by Michael Schaffer and Marianne Horak, identifications in several subfamilies need to be checked by pyraloid specialists. At the Canadian National Insect Collection, DNA barcoding of the Munroe collection is in its early stages, but this work is benefiting from improved methods that allow barcode recovery from specimens up to 60 years old.

We share this brief message on barcode progress with the goal of encouraging colleagues to submit specimens of pyraloid species which currently lack barcode coverage. The Taxonomy Browser on the Barcode of Life Data System lists the species which have barcode coverage and those under analysis. It also provides images of specimens so that experts in a particular genus or subfamily can point out errors in identification. Efforts will begin in fall 2011 to create a website which summarizes the species from each continent which still require barcode coverage.

Matthias Nuss & Paul Hebert

Pierre Viette †

Sadly, we learned that lepidopterist Pierre Viette (Fig. 11) passed away on 30 April 2011 at 89 years of age. Dr Viette spent his entire career, starting in 1945, at the entomology lab of the Muséum national d'histoire naturelle, Paris, where he was in charge of the Lepidoptera Service for a long time and assistant to the director for 18 years, until 1988, the year I met him briefly. He wrote more than 400 publications, mostly on the fauna of Madagascar, but also on that of Réunion and French Oceanic Islands. He edited more than 70 of the 91 volumes of the *Faune de Madagascar*, a country he came to know like no one else, following eight missions on the island, starting in 1951. He published on various groups of Lepidoptera, and Pyraloidea was a favorite. GlobIZ includes 16 pyraloid generic names attributed to Mr Viette and 199 species or subspecies names, but this list may be incomplete. Highly respected the World over, he received many distinctions, such as the Karl Jordan Medal of the Lepidopterists' Society in 1978. Look for more information in a future issue of the *Bulletin de la Société entomologique de France*.

Fig. 11. Pierre Viette in June 2006. Credit: Joël Minet.

Miscellanea

I would like to start a new PP section in which people can make requests of specimens for ongoing or planned projects. And, although I have sent personal requests to several museums and collectors (about 25 so far) I am inaugurating this section by asking for specimens of *Catharylla* (Crambinae), a small Neotropical genus that a MSc. student and I are revising. The moths are all quite similar in forewing pattern (see Figs 12, 13) and are generally 2 cm or over in wingspan.

In prevision to the SEL meeting in Luxembourg last May we (M. Nuss and I) had started to organize a workshop on Pyraloidea, but the meeting organizers fused all workshops into the regular sessions, which were all held in the same room. There were presentations on Pyraloidea by M. Nuss, D. Rubinoff, and myself, and several posters on pyraloids by Shen-Horn Yen and his students.

My research on Pyraloidea these days mostly concentrates on *Catharylla*, but I am also involved in adding images and various information on Crambinae onto leptree.net (see Morphology project, Image galleries, Pyraloidea Gallery, and under Knowledge Project, Taxa information). This information, describing the morphology of all life stages, for example, is also available on eol.org. I am also finishing the transfer of all taxonomic information from the catalogue of Crambinae of Bleszynski and Collins (1962) onto GlobIZ.

Fig. 12. Specimen of Catharylla *from French Guiana, wingspan 2 cm.*

Fig. 13. Catharylla *specimen at light, Serra Bonita, Brazil.*

Concerning my query in the fourth issue of PP on *Ecpyrrhorrhoe*, *pyrrhos* means "flame-colored" and *rhoë* means "flow" (r is doubled when between two vowels), presumably referring to the wing color. From James Hayden.

Bernard Landry

A new citation index for taxonomy?

Citation indexes are repeatedly under criticism for their suitability to provide an objective measure for the value of scientific publications. This holds especially true for taxonomic publications, which are usually rarely cited and cannot compete with publications in fields like immunobiology or cancer research. Valdecasas (2011) now developed a new tentative index for taxonomy only. The T-Index analyses the number of new and revised taxa by an author for a certain taxonomic group in relation to the number of taxa previously known for that group. Thus, the T-Index is merely appreciating the assiduity of a taxonomist, but those who are working in species rich taxonomic groups are penalized as they need to describe or to revise many more new taxa than those who are working on a small group. Moreover, those who are working on a fauna of a certain geographic region, describing and revising always few species per family group only, may often get a T-Index of zero for their publication. Nevertheless, in a world dominated by money and values, the T-Index might become an interesting tool for taxonomy. But, as Albert Einstein already mentioned "Not everything that counts is countable, and not everything that's countable counts".

Matthias Nuss

Reference

Valdecasas, A. G. 2011 : An index to evaluate the quality of taxonomic publications. – Zootaxa 2925 : 57–62. [Freely available at http ://www.mapress.com/zootaxa/2011/f/zt02925p062.pdf]

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