



FORUM HERBULOT NEWSLETTER

VOL. 3 ISSUE 1

DECEMBER 2012

CONTENT

7TH FH MEETING SOUTH AFRICA

EDITORIAL	1
REPORT BY C. COVELL	1
GROUP PHOTOS	3
IMPRESSIONS FROM SOUTH AFRICA	4
LEPIDOPTERA INVENTORY FOR MOGALE'S GATE	6
MEETING ABSTRACTS	8

GENERAL MATTERS

PRE AVISO FH 2014	12
FORUM HERBULOT FUND	12
J. WOJTUSIAK 1942 - 2012	13
CATALOGUE OF FAMILY GROUP NAMES	13
NEW LITERATURE	13

7TH FORUM HERBULOT, MOGALE'S GATE GAME RESERVE, SOUTH AFRICA

Editorial

Dear 'Herbulotians'

It was our board member Charlie Covell who surprised us during the 7th Forum Herbulot in Gauteng, South Africa, calling us 'Herbulotians' creating a new word for a reality having grown over the last 12 years and having made our scientific community not only into a large group of friends (120 members), but also into a powerful tool of research. So we leave it up to Charlie to present his view on the FH meeting in South Africa organized by Hermann Staude with so much competence, love and diligence.

During FH2012 we have decided to organize an editorial team for the FH Newsletter. Ad interim this includes Jeremy deWaard, Patrick Strutzenberger and Axel Hausmann. For this issue 3/1 we have closely involved Charlie Covell, as well as the 'key player' of the meeting in South Africa, Hermann Staude.

Final business meeting, Forum Herbulot VII

The scientific sessions of FH7 were held in a comfortable conference room at the Mogale's Gate Biodiversity Centre, a short walk from the

housing and eating area. The talks were given with plenty of time for each speaker, and also ample time to prepare moths collected at Hermann Staude's "beach umbrella"-light traps." Also, many of us took time for some butterfly collecting in an area where most of what we collected were completely new to us. A summary of the talks can be seen in the published abstracts. Morning and afternoon "tea breaks" featured some very tasty pastries. After the last presentation had been delivered on the morning of February 16 Axel Hausmann presided at a short final business meeting, a summary of which follows.

Manfred Sommerer expressed concern about the great expense of attending international meetings such as Forum Her-



This white rhinoceros and its young are just two of the many spectacular animals the participants were able to observe during game drives. © P. Strutzenberger

bulot, and suggested that we establish a fund to subsidize travel expenses for those who might not otherwise attend our meetings. It would be good if more students could attend. There was agreement about the idea, and we also felt that the idea could be publicized in our newsletter. Steve Collins urged that this idea be established on a business-like basis. Axel stated that his vision for Forum Herbulot does not include forming a new association or society.

Paul Hebert referred to FH as “a boutique,” and believes that we should have some kind of meeting output, or “product,” such as “a collective publication” resulting from the meetings. Having the meetings at a field station, as we have done this time, is the best plan. If this is done, the FH will “not be just another scientific meeting.” There was general agreement on this point.

Hermann Staude pointed out that the underlying idea is to keep the FH meetings as inexpensive as possible. He credited the Standard Bank, main supporter of the Mogale’s Gate Biodiversity Centre, and the hard work of Willem Prinsloo, Alistair Tuckett and their staff as making such a fine experience possible for us at a minimal cost. He said that a meeting with similar amenities would have cost three to four times as much if held elsewhere in South Africa. He further stated that “we need to produce something substantial before the next FH meets in 2014.” The one thing we are doing, with Hermann’s help, is creating a checklist of the Lepidoptera we have collected during the meeting, to “give something back” in the form of collection records to the Mogale’s Gate Biodiversity Center staff.

Axel said that a newsletter will be prepared and circulated soon – probably within the next two

months. He asked delegates to help with identification of specimens on BOLD, offer to be assigned responsibilities, and have their projects and skills regarding geometrids to be featured on our website. We need to send him photos of this meeting, and plans to set up a site where the photos can be seen. Also, abstracts of this meeting need to be sent to him if that has not already been done.

The next meeting (2014) is tentatively scheduled for Thuringia in Germany, first week of July. Sven Erlacher, Axel Hausmann and Hans Löbel will be our hosts. Also, Luis Parra has offered to host a future FH in Chile. For this meeting it is planned to discuss strategies to accelerate species descriptions by the help of modern tools like www, digitized information and DNA barcoding. Our ‘compact’ geometridologists community would be ideal to define scientific minimum standards for that.

The meeting ended with enthusiastic applause for Hermann and Louisa Staude and their family, program chairman

Martin

Krüger, and the Mogale’s Gate staff. Hermann reminded us that the meeting was a “team effort,” and to that we heartily agree.

This most successful meeting closed, with post-meeting collecting and a bus trip to Pretoria next day to visit the Transvaal Museum. Martin Krüger gave us a

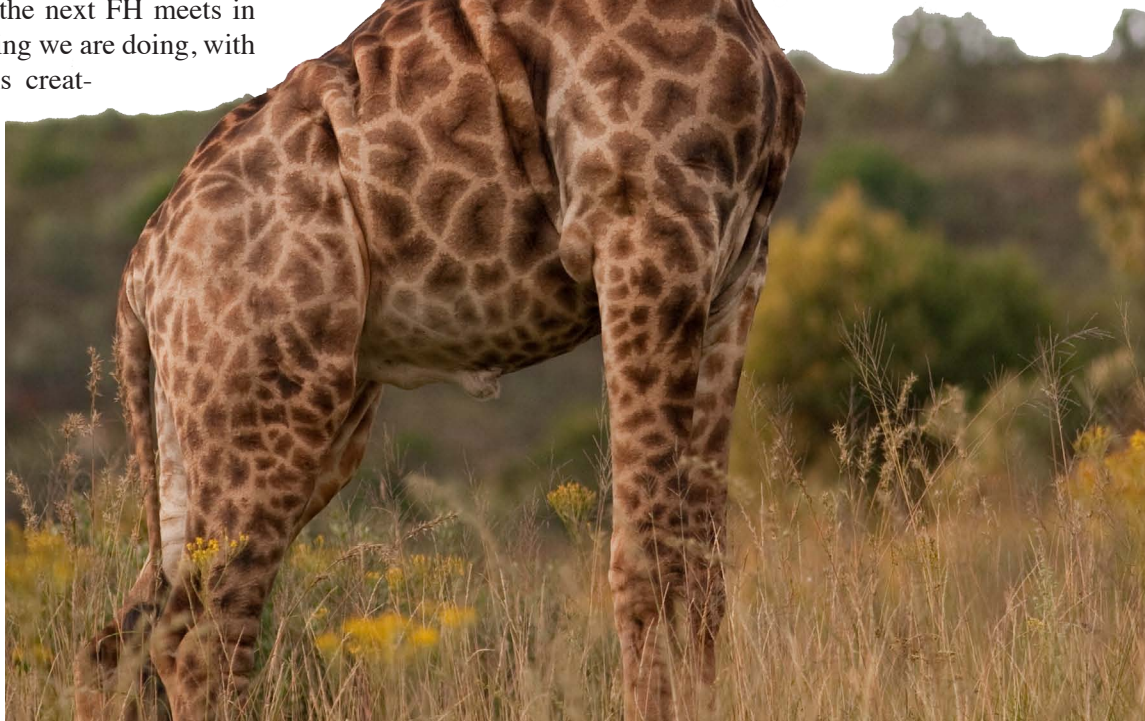
tour of the collection and rare fossil room. After that we visited the Cradle of Humankind Museum at Maropeng, and enjoyed our gala banquet at the nearby Maropeng

Boutique Hotel. Before dinner Hermann gave out a number of awards to several of the delegates. Next day the “herbulotians” headed off in all directions, returning with renewed interest in our beloved geometrids.

We will long remember the wonderful hospitality of our hosts for FH2012.

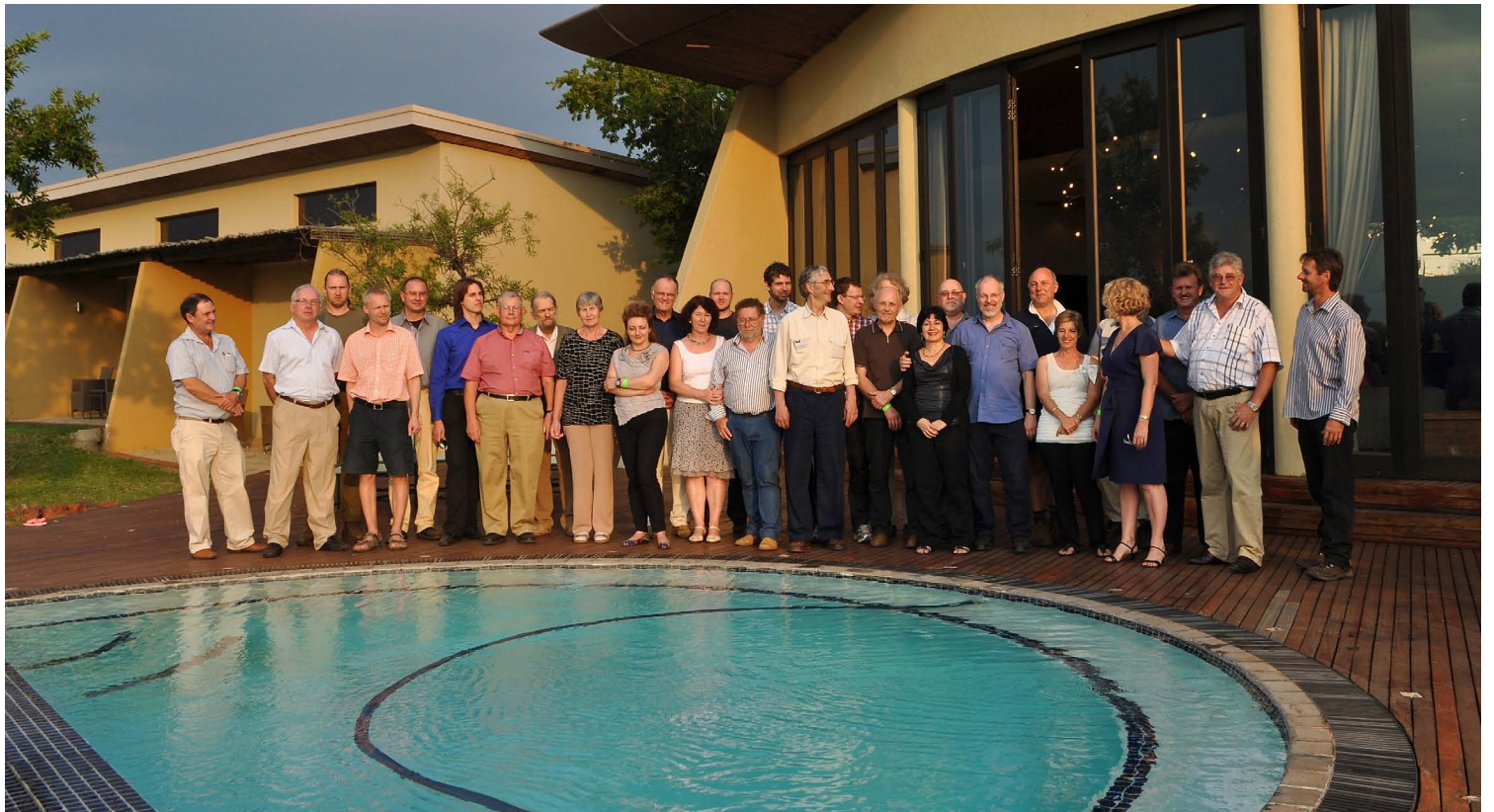
Charlie Covell (ccovell@flmnh.ufl.edu)

One of nine giraffes that roam the Mogale’s gate game reserve is looking on as the conference delegates are heading back to the camp after a most exciting game drive. © P. Strutzenberger





Participants during a conference break: (front row; from the left to the right) Hermann Staude (South Africa), Martin Krüger (South Africa), Hans Löbel (Germany), Iva Mihoci (Croatia), Pasi Sihvonen (Finland), Andy Young (Australia), Jeremy de Waard (Canada), Axel Hausmann (Germany), Eckhard Wierig (Germany), Steve Collins (Kenya). (back row, standing; from the left to the right): Mladen Kucinic (Croatia), Jaan Viidalepp (Estonia), Manfred Ströhle (Germany), Guy Sircoulomb (France), Michael Schaarschmidt (Germany), Paul Hebert (Canada), Patrick Strutzenberger (Canada), Manfred Sommerer (Germany), Charlie Covell (USA), Erki Ounap (Estonia), Douglas Kroon (South Africa), Sven Erlacher (Germany).

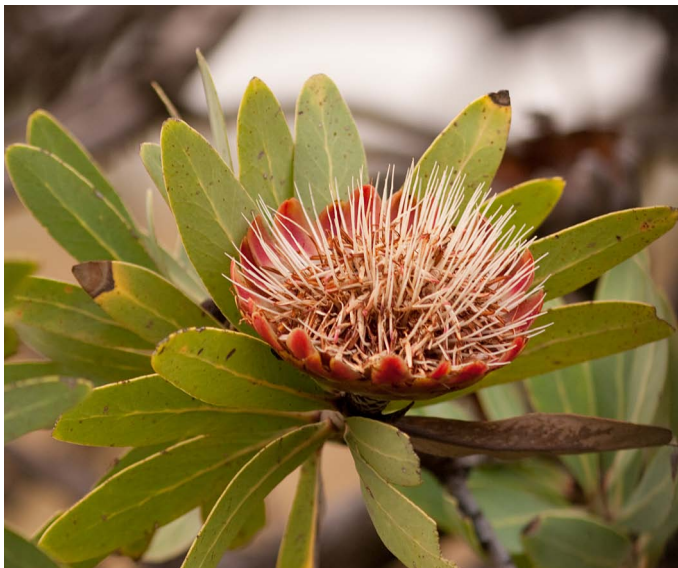
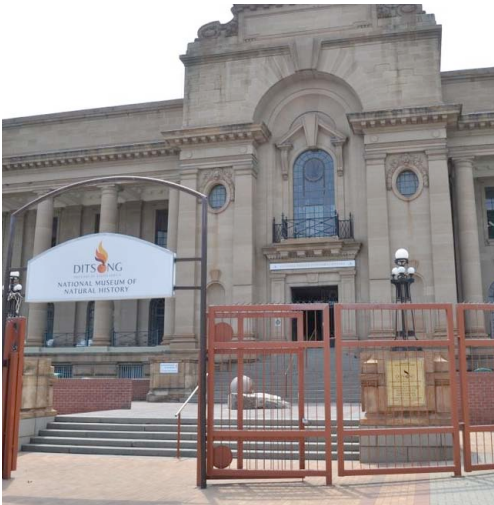


Participants during the Meeting dinner (from left to the right): Steve Collins (Kenya), Paul Hebert (Canada), Erki Ounap (Estonia), Pasi Sihvonen (Finland), Sven Erlacher (Germany), Patrick Strutzenberger (Canada), Charlie Covell (USA), Jaan Viidalepp (Estonia), Valli Viidalepp (Estonia), Iva Mihoci (Croatia), Eckhard Wierig (Germany), Gertraud Löbel (Germany), Mr. Viidalepp jun. (Estonia), Hans Löbel (Germany), Jeremy de Waard (Canada), Manfred Sommerer (Germany), Michael Schaarschmidt (Germany), Guy Sircoulomb (France, front), Silvia Hausmann (Germany), Manfred Ströhle (Germany), Axel Hausmann (Germany), Andy Young (Australia), Mrs. Prinsloo (SA), Louisa Staude (South Africa, front), Alistaire Tuckett (rear, covered), Willem Prinsloo (South Africa), Hermann Staude (South Africa), Reinier Terblanche (South Africa).

IMPRESSIONS FROM SOUTH AFRICA

BY SVEN ERLACHER, AXEL HAUSMANN AND PATRICK STRUTZENBERGER





A DNA BARCODE-ASSISTED LEPIDOPTERA INVENTORY FOR MOGALE'S GATE, GAUTENG, SOUTH AFRICA

JEREMY R. DEWAARD, AXEL HAUSMANN, MANFRED SOMMERER, HERMANN STAUDE, CHARLES V. COVELL JR., JILL BERGSTROME & PAUL D.N. HEBERT

Introduction

Delegates of the Forum Herbulot 2012 meeting in Gauteng, South Africa, were tasked with constructing a preliminary checklist of Lepidoptera for the conference venue – Mogale's Gate Environmental Education Centre. While individual delegates are morphologically identifying their personal collections to aid compilation of a master checklist, DNA barcoding is being employed to tentatively identify species for a subset of the overall collection. The objective is to evaluate this rapid approach for the construction of inventories and reference libraries in hyper-diverse taxa and locales. Here we report the initial findings and the direction forward.

Materials and Methods

Specimens were collected Feb 13–17, 2012 from several sites on the property of Mogale's Gate Environmental Education Centre near Hekpoort in Gauteng, South Africa (25.9S, 27.6E). Specimens were collected using UV light stations, UV light traps, malaise traps and day netting. Individuals were field-pinned, labeled, databased, imaged and tissue-sampled for genetic analysis at the Biodiversity Institute of Ontario in Guelph, Canada. Standard barcoding protocols were followed using the LepF1-LepR1 full-length primer set to retrieve 658 base pairs of the cytochrome oxidase I (COI) gene. The barcode sequences, images and collateral data are stored in Barcode of Life Data Systems (BOLD). The dataset is publicly available at dx.doi.org/10.5883/DATASET-LMGC1.

Preliminary Results

A total of 3,487 specimens have been analyzed to date and barcode sequences were recovered from 3448 (98.9%) individuals. These records included 883 representatives of 883 BINs (= presumptive species). The BINs were, on average, represented by 3.9 individuals (range = 1 – 45) with 341 (38.6%) represented by just one specimen. A sample-based rarefaction analysis (Figure 1) computed in EstimateS suggests that 1244 BINs are present at the site, suggesting that our inventory for the five days of collection is roughly 71% complete.

The barcoded specimens include representatives of 37 families – a number that will certainly rise when the 128 (14.5%) BINs that are only identified to an ordinal level are assigned to family (Table 1). With minimal expert advice, 294 of the BINs have been identified to species (see Figures 2 and 3), although 90 (30.6%) identified BINs are currently associated with more than one species. A large proportion of the BINs are identified only to a generic level or higher, reflecting the novelty of the collection as 503 (57%) of the BINs collected at Mogale's Gate represented first records for BOLD.

Future Plans

Prior to our final analysis, we will sequence another 150 specimens collected by AH and MS, as well as butterfly specimens held at the Nairobi Butterfly Centre in Nairobi, Kenya. We are seeking the assistance and expertise of the Forum Herbulot members to identify the 'mystery' BINs, either by viewing the specimen images on BOLD, or by requesting a loan of material. This study provides a model for the acceleration of biodiversity surveys through the use of DNA barcoding, rapid public release of data, and crowdsourcing.

Acknowledgements

Support for this work was kindly provided by the delegates of the Forum Herbulot 2012, Mogale's Gate Environmental Education Centre, the International Development Research Centre, and the government of Canada through Genome Canada and the Ontario Genomics Institute.

Table 1. Family breakdown of the Mogale's Gate survey. Note that a small fraction of BINs have more than one tentative family assignment or have not yet been assigned a family (bottom row).

Family	Species/BINs	Specimens
Adelidae	3	16
Alucitidae	4	9
Arctiidae	31	112
Blastobasidae	2	2
Coleophoridae	2	2
Cosmopterigidae	14	22
Cossidae	3	5
Crambidae	108	341
Elachistidae	7	36
Erebidae	85	375
Eriocottidae	1	1
Euteliidae	1	1
Gelechiidae	15	41
Geometridae	133	678
Gracillariidae	10	16
Hepialidae	3	15
Hesperiidae	6	9
Lasiocampidae	11	48
Lecithoceridae	1	26
Limacodidae	9	35
Lycaenidae	11	17
Noctuidae	222	746
Nolidae	24	113
Notodontidae	10	32
Nymphalidae	6	17
Papilionidae	2	6
Plutellidae	1	2
Psychidae	1	1
Pterophoridae	23	62
Pyrilidae	51	165
Saturniidae	4	9
Sphingidae	14	60
Tineidae	2	13
Tortricidae	20	85
Uraniidae	3	7
Yponomeutidae	1	2
Zygaenidae	1	2
Not identified to family	128	308

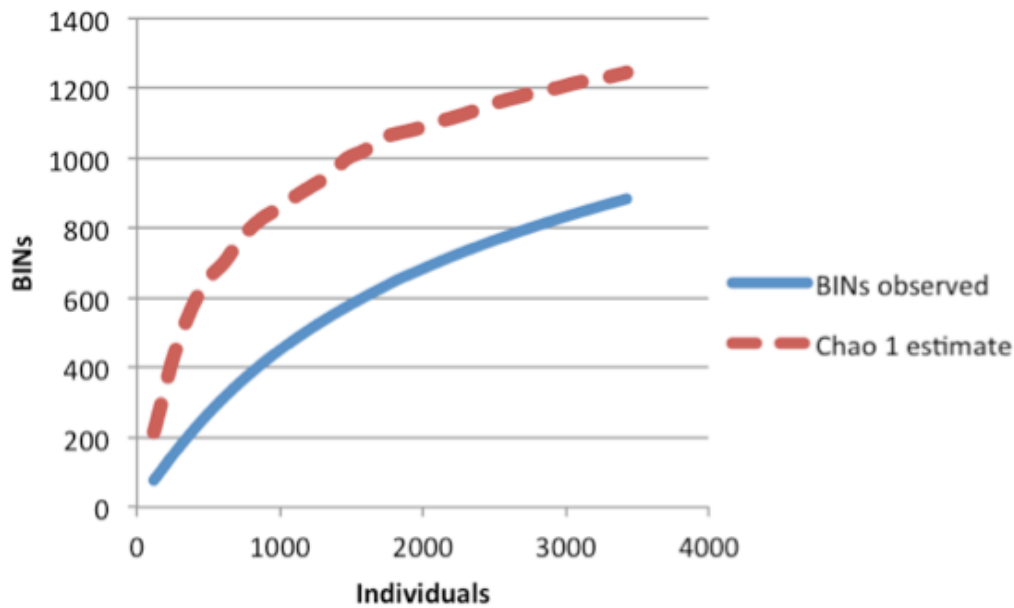


Figure 1. Sample-based accumulation curve for Barcode Index Numbers (BINs) captured at Mogale's Gate in February 2012.

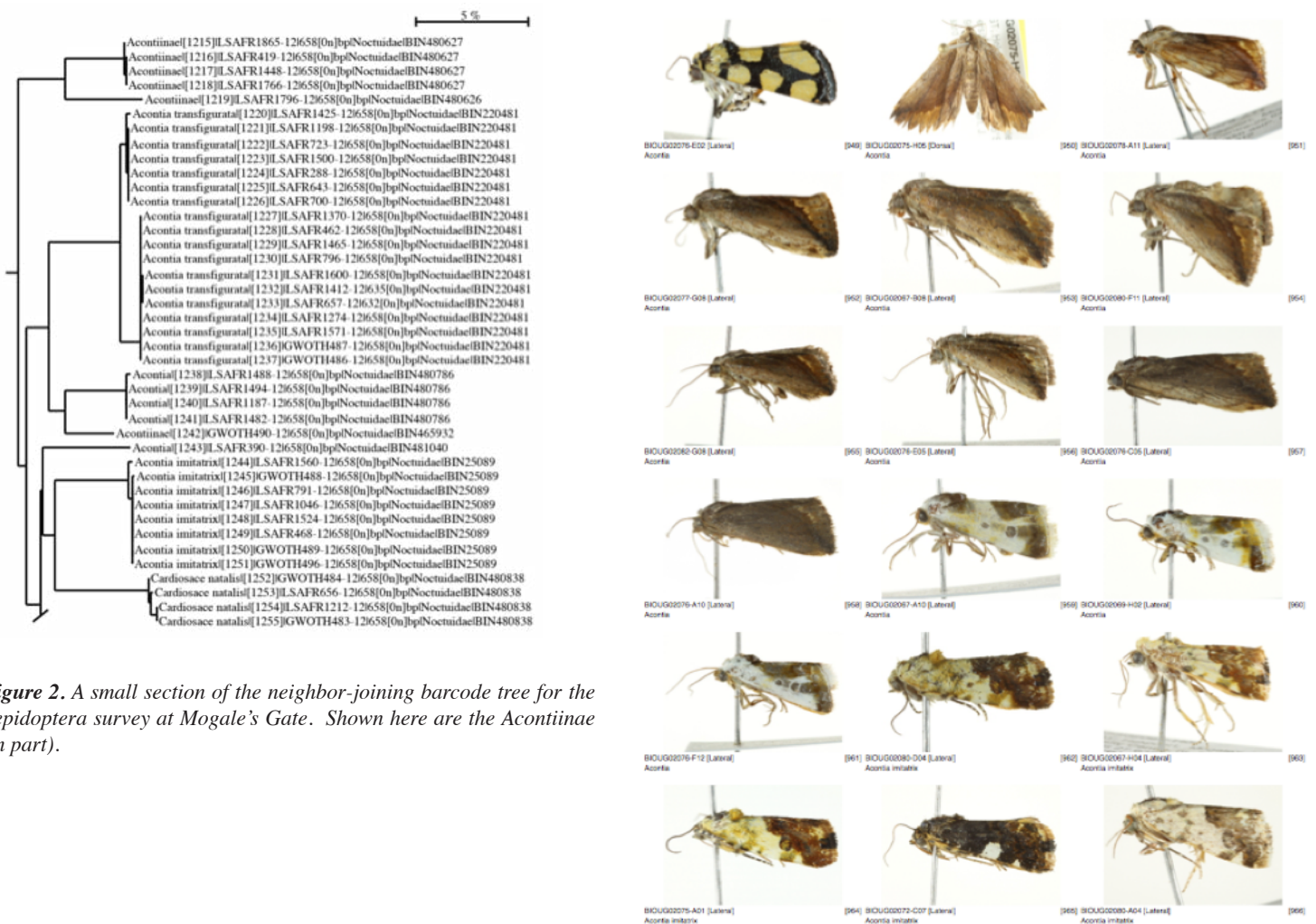


Figure 2. A small section of the neighbor-joining barcode tree for the Lepidoptera survey at Mogale's Gate. Shown here are the Acontiinae (in part).

Figure 3. A few representative moth specimens (Noctuidae: Acontiinae) collected at Mogale's Gate in February 2012. All specimens were imaged prior to genetic analysis.

ABSTRACTS FORUM HERBULOT 2012

HERE WE REPORT A SELECTION OF 12 OUT OF 20 TALKS THAT WERE GIVEN DURING THE 7TH FORUM HERBULOT 2012 IN MOGALE'S GATE, SOUTH AFRICA.

THE 2010 FORUM HERBULOT AND GEOMETRIDAE OF HONDURAS SURVEY

CHARLES V. COVELL

Gainesville, Florida, U.S.A
email: ccovell@flmnh.ufl.edu

Memoirs and images of the FH VI in Gainesville, Florida are presented, along with an account of the after-meeting collecting trip to Pico Bonito Lodge in Honduras. The list of Geometridae we recorded is presented and discussed, as well as information about the overall Honduras Lepidoptera Survey.

THE GENUS *GNOPHOS* FROM SOUTHERN AFRICA

SVEN ERLACHER

Museum of Natural History
Moritzstrasse 20
D-09111 Chemnitz, Germany
email: erlacher@naturkunde-chemnitz.de

Since the original description by Prout almost 100 years ago only two species of *Gnophos* from South Africa were known: *Gnophos delagardei* and *Gnophos rubricimixta*. At the beginning of the 21st century another species, *Gnophos euryta*, was listed in a checklist of the species of Lepidoptera recorded in southern Africa by Váry, Kroon & Krüger. In 2005 Krüger eventually discovered two new species from Lesotho: *Gnophos spinicosta* and *Gnophos truncatipennis*. Up to now, 14 species have been identified which are widely distributed in South Africa and Zimbabwe. Presumably the genus *Gnophos* also occurs in Namibia, Botswana, Mozambique and Swaziland. The species known so far are classified into three new subgenera which are also well supported by DNA barcoding. The sister taxon of the South African *Gnophos* groups is still completely unknown. There are some morphological similarities to the representatives of the subgenus *Kemtrognophos* of northern Africa which might help to answer this question.

65% OF THE WORLD'S GEOMETRID MOTH SPECIES ARE DNA BARCODED: STATUS REPORT AND VALIDATION PLAN FOR THE IBOL GEOMETRID CAMPAIGN

AXEL HAUSMANN

Zoological State Collection
Munich, Germany
email: axel.hausmann@zsm.mwn.de

PAUL HEBERT

Lepidoptera have served as a model group to test the effectiveness and utility of DNA barcoding. The campaign to barcode all species of Geometridae represents one of the most ambitious components of the overall barcode effort on Lepidoptera. Reflecting work carried out since 2006, the Geometridae are now the most heavily sampled family worldwide, both numerically (>90K barcodes in BOLD), taxonomically (>15K species), and geographically (samples from >145 countries). Because of its status as a core component of the International Barcode of Life Project, the geometrid campaign is progressing at a rapid pace and we expect barcode coverage to reach at least 80% (18.4K species) of all known geometrid species by 2014 or 2015. In this presentation, we provide a status report from the Geometrid campaign, we present an overview on sampling gaps and challenges and we propose a strategy for creating a network for taxonomic data validation. We highlight the importance of data release publications with examples drawn from our campaigns on "Barcoding Fauna Bavarica", "Geometrids of Europe" and "Geometrids of Africa".

THE IBOL GEOMETRID CAMPAIGN: PERSPECTIVES AND APPLICATIONS

AXEL HAUSMANN

Zoological State Collection
Munich, Germany
email: axel.hausmann@zsm.mwn.de

PAUL HEBERT

Geometridae are a successful model group to show the effectiveness and utility of DNA barcoding. So far, the campaign provided >90K barcodes for >15K species (65% of the total number of described geometrids). In this presentation, we emphasize the crucial role of DNA barcoding for the rapid assessment of global biodiversity, as well as for taxonomy, and show results and patterns from sequence analyses of the Geometridae. The application of barcode data in various disciplines of biodiversity science, ecology, applied entomology and industry are shown based on case studies drawn from the geometrid campaign.

STATUS REPORT ON THE PROJECT “GEOMETRIDAE MUNDI” OF THE BAVARIAN STATE COLLECTION OF ZOOLOGY MUNICH (ZSM)

HANS LÖBEL

Sondershausen, Germany
email: Hans.Loebel@web.de

AXEL HAUSMANN

The project Geometridae mundi aims to construct an illustrated html-data bank of the global biodiversity of Geometridae based on the updated checklist of the world's Geometridae (Scoble & Hausmann 2007, http://www.lepbarcoding.org/geometridae/species_checklists.php). Because of the large amount of data the project was split into three parts: Part I: Subfamilies Archiearinae, Oenochrominae, Desmobathrinae, Geometrinae, Sterrhinae (ca 7,900 taxa). - Part II: Subfamily Larentiinae (ca 7,970 taxa). - Part III: Subfamily Ennominae (ca 13,300 taxa). We will provide digital photographs for all taxa (both sexes, underside) at three functional levels: Overview pages (100 species each in systematic order), genus pages (one genus only with larger images) and species pages, including all photographs at high resolution. We plan to include also images of genitalia. Distribution maps may be added later on such as short texts with additional information on each species. Overview pages, genus pages and species pages are linked with each other, but genera and species can also be browsed directly through an alphabetical index. The structure of the database is ready for the first two parts and most of part III. Currently, the data bank contains about 28,500 photos of 7,600 species including 65% of the collection Herbulot, the collection of the ANIC and the collection Löbel. The following steps are planned for the future: (1) Providing photographs for all species available in German collections and museums, subdivision to the faunas of the main zoogeographical regions, electronic publication. (2) Providing photographs of genitalia. (3) Organizing photographs of missing species through co-operations, with appropriate accreditation of the partners. (4) Providing text information for each species, compiling a related literature data bank. Steps (2) – (4) can partly be performed in parallel and will not be finished quickly. After the first data release publication the users of the offline-version should receive regular updates in intervals of 2-3 years. The data bank is planned to be published online later on.

THE INFLUENCE OF HOMINIDS (FAMILY HOMINIDAE) ON THE BIODIVERSITY OF MOGALE'S GATE, A MEDIUM SIZED GAME FARM, IN THE GAUTENG PROVINCE, SOUTH AFRICA

WILLEM PRINSLOO

Cashan Environmental Services CC
P.O. Box 34, 1791 Hekpoort, South Africa
email: Willem.Prinsloo@standardbank.co.za

ALISTAIR TUCKETT

Mogale's Gate, 3060 ha, is a private game farm situated in the Mogale City district in the Cradle of Humankind World Heritage Site (COHWHS). The influence of the hominids on Mogale's Gate biodiversity starts with *Homo erectus*, 1 million years ago in Early Stone Age era. The Swartkrans excavation site produced the oldest evidence yet discovered of domestic use of fire by *Homo erectus*. Looking at the effect the various eras of modern man (*Homo sapiens sapiens*) had on the area. The Difaqane, (1823) and Mfecane, (1827), invasions of the Tswana area. The first European to reach the old Transvaal (North-West Province) was Thomas Hodgson, a Methodist Missionary who built his stone house in 1823. (In 1896 the last white rhinoceros was spotted in the old TVL near the Sabie River. Thus in just 73 years the white rhino in the TVL was wiped out by the Europeans). The South African War of 1899 to 1902 was fought severely in the Magaliesburg area. Lord Robberts "scorched earth" policy was also implemented in the area, December 1900. Gold was discovered only 50 km from the COHWHS, Johannesburg was laid out in 1886 after thousands of fortune seekers descended on the area. The Gough family were the first farmers to fence Springfarm (two thirds of present day Mogale's Gate), between 1949 and 1959. Mogale's Gate was obtained in 1985 by the present owners. In 1988 the first game was translocated here, a total of 210 animals consisting of 10 different species. Presently Mogale's Gate manages over 1500 animals of twenty two different species of which six occurred here naturally. The farm falls in the summer rainfall area (between 635 – 724mm per annum), experiencing temperate summers and frosty winters, generally the veld is classified as sourveld. Mogale's Gate is managed as an in-house facility that caters for the owners eco-tourism needs; therefore it is not open to the general public. The only public allowed is for the annual trophy

hunting (two outfitters) and the school groups, approximately 2,150 kids per annum, which commenced in 1997. A total of 286 plant species have been identified that have medicinal and spiritual value on the farm. Mogale's Gate has managed to maintain its biodiversity by invasive alien plant control, block burning, problem animal control and game management, through culling/hunting or live capturing. Mogale's Gate is covered by three Veld types namely: Moot plains Bushveld, Andesite Mountain Bushveld and Gold Reef Mountain Bushveld of the Savannah Biome. These three veld types are divided into 15 habitat types. Compared to the Bontebok National Park (BNP) (3 435ha) near Swellendam of which the vegetation is classified as the Swellendam Silcrete Fynbos (FFc1) exhibiting floristic features of both fynbos and renosterveld. Although the BNP IS 375ha bigger than Mogale's Gate, compared at vertebrate level and vascular plant family level MG compares favourably with the National Park: 363 animals against 321 for the former and 625 (98 families) plants against 660 (85 families) for the latter. Hominids had a huge impact on Mogale's Gate, changed the fire frequency of the area. The wars fought in the area had a devastating effect and the search for gold had a lasting effect to the present day. All helped to create an area of high biodiversity.

GEOMETRID MOTH *AFROPHYLA VETHI* (SNELLEN, 1886) TRANSFERRED FROM THE SUBFAMILY OENOCHROMINAE TO THE SUBFAMILY STERRHINAE

PASI SIHVONEN
Helsinki, Finland
email: pasi.sihvonen@helsinki.fi

HERMANN S. STAUDE

The geometrid moth *Afrophyla vethi* (Snellen, 1886), which is found in the sub-Saharan Africa and Madagascar, has always been classified to the subfamily Oenochrominae. The association was questioned in a recent molecular study, where it was placed in the subfamily Sterrhinae. We provide morphological evidence, particularly from the male genitalia and tympanal organs that are congruent with the molecular data, and classify *A. vethi* in the subfamily Sterrhinae.

THE AFRICAN GEOMETRID GENUS *DIPTYCHIS* FELDER REVISED - MOTHS WITH PECULIAR LIFE HISTORIES AND MATING BEHAVIOURS

HERMANN S. STAUDE
Magaliesburg, South Africa
email: hermann@busmark.co.za

PASI SIHVONEN

The African geometrid genus *Diptychis* Felder, currently placed in the putative subfamily Diptychinae, is revised. The caterpillars of the species, for which the life histories are known, are restricted to cycads. LEK behaviour is described for *P. tenuis* and for an undescribed species, a mating strategy that is very rare among the Geometridae.

SOME INTERESTING AFRICAN GEOMETRIDAE BIOLOGY AND ECOLOGY

HERMANN S. STAUDE
Magaliesburg, South Africa
email: hermann@busmark.co.za

A selection of African geometrids were presented to demonstrate the diversity of interesting behaviour, ecology and biology found in African Geometridae. These included African true Winter Moths of the genus *Drepanogynis*; the large, colourful, diurnal *Scopula* of the 'Cartaletis group' with larvae showing defensive posture typical of *Scopula*; the polyphagous but aposematic semi-diurnal *Coenina poecilaria*; various cryptic geometrine larvae as well as the life history of the diurnal aposematic geometrine moth *Petovia marginata*; nocturnal males and diurnal females of the aposematic ennomine *Acanthovalva focularia*; seasonal dimorphism in adult Sterrhinae and in the larvae of the ennomine moth *Argyrophora variabilis*; a selection of African geometrid ova including the 'geometrine like' ova of the larentiine genus *Conchylia*; the larvae of the genus *Callioratis*, which possess three pairs of functional pro-legs and which spin temporary loose cocoons during early instars to survive cold weather; sample plates from the 'in progress' Moths of South Africa field guide.

DNA BARCODE SEQUENCING FROM (OLD) TYPE SPECIMENS AS A TOOL IN TAXONOMY AND BIODIVERSITY RESEARCH: A CASE STUDY IN THE DIVERSE GENUS *EOIS* (GEOMETRIDAE).

PATRICK STRUTZENBERGER

Department of Tropical Ecology and
Animal Biodiversity, University of Vienna
Vienna, Austria
email: patrick.strutzenberger@univie.ac.at

KONRAD FIEDLER

The identity of valid species names is central to the taxonomic process, yet in many cases researchers still have to rely on vague descriptions or low quality illustration of old type specimens. With type specimens of even a single genus potentially being spread in collections all over the world it is often not feasible to examine all type specimens in person. Taxonomy can be seriously impaired by this lack of data, both in speed and quality. Apart from alpha taxonomy proper and consistent use of species names is equally vital for biodiversity science. Interfacing and integration of data between researchers working on the same group of organisms can be severely limited by the lack of properly applied species names. The acquisition of DNA barcodes from type specimens does therefore provide an excellent source of data to alleviate these issues. DNA sequences can easily be shared among scientists and amateurs around the world to allow for proper species diagnosis.

Eois is part of megadiverse moth communities in Andean montane forests. DNA barcode assisted biodiversity exploration recently lead to enabled the recognition of 52 new species. A total of 154 species are now known from a small area (~40km²) of montane forest in southern Ecuador. We sequenced 96 type specimens of the geometrid genus *Eois* housed at the Natural History Museum London. Type specimen ranged in age from 79 to 157 years. DNA was extracted from the abdomen in a non-destructive way with genitalic dissection being performed immediately after tissue lysis. Sequencing of the barcode region was performed with six overlapping primer combinations. Special precautions were taken to avoid cross-contamination and facilitate its recognition if contamination was to occur. We were able to obtain a sequence for 91 of 96 specimens. No contamination or pseudogene amplification could be detected. The average sequence length was 496 bp, 57% of specimens yielded a sequence longer than 500 bp. Sequence length ranged from 121 bp to full-length barcodes (658bp). As expected we found a clear but only moderately strong negative correlation of sequence length and specimen age. All specimens for which a sequence could be obtained yielded a sequence long enough to make a robust assignment if a closely matching sequence is present.

Matching of recently collected *Eois* samples from southern Ecuador to the type sequences revealed that out of 154 known species up to 145 are undescribed. These species do now await description. A step-wise taxonomic revision and description of new species assisted by the obtained type sequences is currently in progress. We encourage that DNA barcodes obtained from type specimens should be part of taxonomic revisions and description of new species whenever feasible.

ON THE TAXONOMIC STRUCTURE OF THE TRIBUS RHEUMAPTERINI (GEOMETRIDAE, LARENTIINAE)

JAAN VIIDALEPP

Tartu, Estonia
email: vjaan@emu.ee

The tribus Rheumapterini consists of tree genera sensu Scoble (1999), including 61 species. These three genera are: *Hospitalia* Agenjo, 1959, *Coryphista* Hulst, 1896, and *Rheumaptera* Hübner, 1822. Synapomorphic characters supporting the clade are as follows: the presence of abdominal coremata in male, associated with membranization of the last (eighth) abdominal segment; broad, flat, sclerotized uncus; bipartite juxta with its distal part rooted in the ventral part; very long, headed labides rising from base of valve costa. A cladistic analysis of these genera reveals that *Coryphista* is nested within *Rheumaptera* Hübner, 1822 s.lat., and that there are some monophyletic, well supported lineages. These clades are diagnosed as genera and subgenera and diagnosed as follows. (1) Monobasic Iberian *Hospitalia* Agenjo taking the most basal position. (2) *Rheumaptera* Hübner, 1822 s.str. (type species: *Geometra hastata* Linnaeus, 1758) (junior objective synonyms: *Eulype* Hübner, [1825], *Melanippe* Duponchel, 1829, *Rheumatoptera* Gumpffenberg, 1887), three Holarctic species, characterized by contrasting black wings striped white, daytime activity, genitalia heavily sclerotized in both

sexes, valva provided with singular, stout, long, tapering saccular process, coremata weakly developed. (3) *Hydria* Hübner, 1822 (restored from synonymy) (type species *Geometra undulata* Linnaeus, 1758), (junior objective synonyms: *Calocalpe* Hübner, [1825], *Eucosmia* Stephens, 1831). Male hindwing with androconial scale patch (which is lacking in *Hospitalia* and *Rheumaptera*, hindtibial spurs tending reduced, coremata at male abdominal segment A8 strong and accompanied by mass of specialized, deciduous scales, male genitalia with the saccular process bifid with its long branch flat, rounded at tip or thin and tapering to tip. (3a) Subgenus *Hydria* s.str. contains two species in the Holarctic area, characterised by dense zigzaggy lining on pale wings, by absence of cornuti in slender aedeagus and smoothly sclerotized cuticula of female bursa copulatrix. (3b) Subgenus *Hydria* (*Xenospora*) Warren, 1903 (restored from synonymy) (type species: *Calocalpe? latifasciaria* Leech, 1891). Some species in East Asia. Wing pattern of moths resembling that in *Abraxas* Leach, basal arms of labides fused, two saccular processes often short; two patches of sclerotization in bursa copulatrix. (3c) Subgenus *Hydria* (*Eutriphosa*) Gumpenberg, 1887 (restored from synonymy) (type species *Scotosia? veternata* Christoph, 1881). Wings dark brown-grey, dense striated. Male with hindtibia hairy, sacculus process singular, short and curved ventrad, multiple long cornuti on vesica. The subgenus is speciose in East Asia, *H. gudarica* in Spain. (3d) Subgenus *Hydria* (*Coryphista*) Hulst, 1896 (comb. nov.) (type species *Coryphista meadi* Hulst, 1896). Facies as in *Eutriphosa*, but male hindtibia hairy, basal tarsomere short, tufted and swollen, sacculus process long and in parallel to ventral margin of valva. Speciose in Palearctis, some species in New World. *Scotosia instabilis* Alphéraky, 1883, placed in *Philereme* Hübner, [1825] in Scoble (1999) is transferred here in *Hydria* (*Eutriphosa*) (comb. nov.) according to its genitalic characters.

REMARKS ON THE NEOTROPICAL GENUS *ANISOMELIA* (LEPIDOPTERA, GEOMETRIDAE, LARENTIINAE) WITH DESCRIPTION OF THREE NEW SPECIES

JANUSZ WOJTUSIAK †

(in absentia)

Zoological Museum of the Jagellonian University
Krakow, Poland

Characteristics of the genus will be given as based on analysis of external morphological characters and cuticular genitalic structures. Photographic documentation of adults of all known species as well as their genitalic structures will illustrate the presentation. Evolutionary relationship of the *Anisomelia* with the genus *Erateina* (Geometridae, Larentinae) will also be discussed.

PRE-AVISO FORUM HERBULOT 2014

One of the basic principles of the Forum Herbulot initiative is to embrace, as far as possible, the complete global community. Therefore we try to organize our meetings in a balanced mixture of European and non-European venues. 'Oversea' meetings always offered exciting collecting opportunities whilst the European meetings facilitated participation of the majority of our members, as actually, 78 of the 120 Forum Herbulot members (65%) are from Europe. To yield the largest possible acceptance, the 8th Forum Herbulot is planned in one of the centralmost European regions (eastern Germany), from 30.6.-5.7.2014, again with an interwoven program of presentations, collecting (as a contribution to the GBOL program) and culture.

FORUM HERBULOT FUND

During FH7 in South Africa we discussed the problem that many of our members wish to participate in our meetings but are unable to get grants for this. It was decided to create a 'Forum Herbulot Fund' as a solidarity trust for raising and administrating financial support for our meetings. The following letter was written to implement the fund at the association 'Friends of the ZSM, Munich':

"12 years ago, with considerable support by the 'Friends of the Bavarian State Collection of Zoology (ZSM) e.V.' we have been able to buy the important collection of geometrid moths of Claude Herbulot from Paris. This outstanding collection includes 11,000 out of 23,000 described species, approx. 850 holotypes and 7,000 paratypes and represents the basis for the

286 publications of Claude Herbulot. The collection Herbulot has considerably increased the research potential and the international importance of the Lepidoptera section of the ZSM. In order to co-ordinate the global interest in this collection and the research activities of all geometridologists worldwide we have created the global research initiative Forum Herbulot. Since 2001 we have organized biennial meetings (7 so far), three at the ZSM in Munich, one each in Paris (2005), Hobart/Tasmania (2006), Gainesville/Florida (2010) and Hekpoort (Gauteng)/South Africa (2012). The initiative was much appreciated and welcomed by international specialists over the whole period. We expect at least 60 participants for the next meeting which shall take place in 2014, again in Germany. The University of Concepción in Chile intends to organize the meeting in

2016. Unfortunately economical cuts in many institutions worldwide offer serious obstacles for competent colleagues whose participation in our meetings would be important. For the congress in Munich 2008 we have been successful in convincing the German Research Association (DFG) to support travel costs of important oversea guests, but in 2012 some colleagues, e.g. from China and Australia had to cancel their participation because of lacking travel funds. Therefore, the participants of the last Forum Herbulot in South Africa suggested to create a 'Forum Herbulot Fund' to be able to subsidize travel costs in such extraordinary cases after recognition and

decision by the scientific board of the Forum Herbulot. For this purpose the 'Friends of the Bavarian State Collection of Zoology (ZSM) e.V.' are asked to provide an account where donations can be collected and distributed in a trouble-free way, when needed."

In April 2012 the friends of the ZSM e.V. (registered association) decided to take over the administration of this fund according to the outlines decided at the FH7. We strongly encourage all members of the Forum Herbulot initiative to consider to contribute to this solidarity trust, in order to bring as many friends and colleagues as possible to our next

meeting. First donations to the fund were as yet received.

Bank Transfer Details (Important: please transfer funds under the key word: „Forum Herbulot Fund“):

Germany:

Freunde der Zoologischen Staatssammlung e.V.
HypoVereinsbank München
BLZ 70020270
Account No. 5803470431

International:

Freunde der Zoologischen Staatssammlung e.V.
HypoVereinsbank München
IBAN: DE29700202705803470431
BIC: HYVEDEMMXXX

JANUSZ WOJTUSIAK *1942 †2ND APRIL 2012

On April 2nd, one of the Forum Herbulot members, from its inception, our dear friend Janusz Wojtusiak has left us forever. He had already booked his flight to South Africa and he had sent us the abstract of a very interesting talk (we have included it in the abstracts, cf. above) when – a few days before the Forum Herbulot 2012 – he cancelled his participation and gave us the terrible news about his serious illness. He was a professor and the director of the Zoologi-



Janusz Wojtusiak during his talk at the 5th Forum Herbulot 2008 in Munich

cal Museum of the Jagiellonian-University from 1980-2012. In more than 100 scientific articles he described 300 new species. He was a great entomologist with broad knowledge of behavior and ecology of Lepidoptera with his research focus in South America. His great project on the tribe Erateinini remained incomplete but will be brought to conclusion in the course of a PhD project (Tomasz Pyrcz, pers. comm.). Requiescat in pace.



Janusz Wojtusiak, 6th from left, aside Mrs. and Mr. Herbulot during the first Forum Herbulot 2001 in Munich.

UPDATES OF THE 'CATALOGUE' AND THE LIST OF FAMILY NAMES - CALL FOR COOPERATION

In 2007, an updated species list of the geometrid moths of the world (genus name, species name, author, year; all valid taxa at species and subspecies rank) was published (Scoble, M.J. & A. Hausmann [update 2007]: Online list of valid and nomenclaturally available names of the Geometridae of the World [http://www.lepbarcoding.org/geometridae/species_checklists.php]). This included about 1000 new taxa and about 2000 further taxonomic changes with respect to the famous and groundbreaking 'Catalogue' of Scoble (1999). After 6 years it seems necessary to do a second update to include new taxa and to reflect other changes in taxonomy.

Similarly the 'Forum Herbulot world list

of family group names in Geometridae' (<http://www.herbulot.de/famgroup.htm>) which has seen multiple citation in literature needs an update, for better reflecting the achievements of the last years' phylogenetic research.

If you want to contribute to these huge efforts, you are welcome to submit lists with errors, changes, new names etc. to me until May 2013.

Axel Hausmann (axel.hausmann@zsm.mwn.de)

NEW LITERATURE

Beshkov, S., & M. Langourov (2011): Nocturnal and Day-flying Moths (Macrolepidoptera, excluding Hesperioidea & Papilionoidea) of the Bulgarian part of Western Rhodopes. – In: Beron P. (ed.). Biodiversity of Bulgaria. 4. Biodiversity of Western Rhodopes (Bulgaria and Greece) II. Pensoft & Nat. Mus. Natur. Hist., Sofia, 299-484.

Cao, O.V., Fiumi G. & G. Govi (2012): Nota su alcuni interessanti Heterocera di Sardegna (Insecta Lepidoptera Geometroidea, Noctuoidea). – Quad. Studi Nat. Romagna, 35: 139-150.

Covell, Charles V. Jr. (2012): *Idaea asceta* (Prout) (Geometridae: Sterrhinae) from Texas, new to the North American fauna. News of the Lepidopterists Society 53 (3): 79. 2 figs.

Han, H. & D. Xue (2010): Fauna Sinica 54: Lepidoptera, Geometridae, Geometrinae. – Science Press, Beijing, China, 787 pp.

- Han, H., Galsworthy, A.C. & D. Xue (2012): The Comibaenini of China (Geometridae: Geometrinae), with a review of the tribe. – Zoological Journal of the Linnean Society 165 (4): 723–772. [DOI:10.1111/j.1096-3642.2012.00826.x](https://doi.org/10.1111/j.1096-3642.2012.00826.x)
- Handfield, L. (2012): Les Papillons du Quebec, with 2433 color photos (166 plates) , 672 text pages. Plates 26 to 51 cover Geometridae in excellent quality. Soft cover edition: ISBN 978-2-89654-245-1.
- Hausmann, A. & J. Viidalepp (2012): Larentiinae I. – In A. Hausmann (ed.): The Geometrid Moths of Europe 3. – Apollo Books, Stenstrup, 743 pp., 25 pl., 147 text-figs, 268 maps.
- Kerschbaum, W. & N. Pöll (2010): Die Schmetterlinge Oberösterreichs, Teil 5: Geometridae. – Beitr. Naturk. Oberösterreichs 20: 469 pp.
- King, G.E. & Viejo Montesinos, J.L. (2012). Las larvas del género *Idaea* Treitschke, 1825 (Insecta, Lepidoptera, Geometridae): Nuevos datos sobre su morfología y biología. Graellsia [online], [doi:10.3989/graellsia.2012.v68.054](https://doi.org/10.3989/graellsia.2012.v68.054)
- Mutanen, M., Hausmann, A., Hebert, P.D.N., Landry, J.-F., de Waard J.R. & P. Huemer (2012): Allopatry as a Gordian Knot for Taxonomists: Patterns of DNA Barcode Divergence in Arctic-Alpine Lepidoptera. PLoS ONE 7(10): e47214. [doi:10.1371/journal.pone.0047214](https://doi.org/10.1371/journal.pone.0047214).
- Rajaei H.S. & D. Stüning (2012): *Scotopteryx kuznetzovi* (Wardikian, 1957) (Lepidoptera, Geometridae, Larentiinae), a new species for the fauna of Iran and Turkey. – Bonn zoological Bulletin 61 (1): 135–139.
- Rajaei H.Sh. & D. Xue (2012): A new species of the genus *Lithostege* (Geometridae: Larentiinae) from China. – Zootaxa 3478: 399–402.
- Rajaei H.Sh., Stüning, D. & J. Viidalepp (2011): A review of the species of *Lithostege* Hübner, [1825] 1816 (Lepidoptera: Geometridae, Larentiinae), occurring in Iran and adjacent countries, with description of two new species from Iran and Pakistan. – Zootaxa 3105: 1–46.
- Redondo, V. & J. Gastón (2011): *Selidosema pyrenaearia* (Boisduval, 1840) bona species de la Península Ibérica y actualización de las especies ibéricas de *Selidosema* Hübner, [1823] del grupo *plumaria-brunnearia* (Lepidoptera: Geometridae, Ennominae). – Shilap Revta. lepid., 39 (156).
- Sato, R. (2012): Descriptions of five new species of the genus *Cleora* Curtis (Geometridae, Ennominae) from the Philippines and Indonesia. – Tinea 22 (1): 53–60.
- Sato, R. (2012): Eight new species of the genera *Hypomecis* Hübner, *Abaciscus* Butler and *Lophobates* Warren (Geometridae: Ennominae) from Southeast Asia. – Tinea 22 (2): 135–146.
- Schönborn, C. (2011): Schmetterlingsfauna Sachsen-Anhalts, Band 1 – Spanner (Geometridae). – Weissdorn-Verlag Jena, 352 pp.
- Sihvonen, P. & H. S. Staude (2011): The geometrid moth *Afrophyla vethi* (Snellen, 1886) transferred from Oenochrominae to Sterrhinae (Lepidoptera:Geometridae). – Metamorphosis Vol22, No.3&4, 102–113.
- Strutzenberger P, Brehm G & K. Fiedler (2012): DNA Barcode Sequencing from Old Type Specimens as a Tool in Taxonomy: A Case Study in the Diverse Genus *Eois* (Lepidoptera: Geometridae). PLoS ONE 7(11): e49710. [doi:10.1371/journal.pone.0049710](https://doi.org/10.1371/journal.pone.0049710)