

## Programme of the 16th European Congress of Lepidopterology at a glance

### 1. Congress Programme

#### Monday 25.05.2009

09.00 – 20.00 - Arrival, Registration at Bethlen Kata Guest House, Ponorului Street, no. 1

#### Tuesday 26.05.2009

08.00 – 09.30 – Arrival, Registration at Babes-Bolyai University, M. Kogalniceanu Street, no.1

09.30 – 12.50 – Opening Ceremony and plenary lectures in Aula Magna

13.00 – 14.30 – Lunch break – Piramida Restaurant

15.00 – 19.30 – Plenary lectures at Bethlen Kata Guest House

19.30 – Dinner at Bethlen Kata Restaurant

#### Wednesday 27.05.2009

09.00 – 12.30 – Session 1: Plenary lectures: Phylogeny, General themes

13.00 – 14.30 – Lunch break – Bethlen Kata Restaurant

15.00 – 19.30 – Session 2: Parallel workshops: Noctuidae & Tortricidae

19.30 – Dinner at Casa Ardeleana Restaurant

#### Thursday 28.05.2009

09.00 – 13.00 – Parallel workshops: Microlepidoptera, Molecular studies, Butterflies, Database

13.00 - 15.00 – Lunch break – Bethlen Kata Restaurant

15.00 - 17.00 – SEL General Meeting

17.00 – 19.00 – Poster session

19.30 – Cocktail Dinner at Bethlen Kata Restaurant

#### Friday 29.05.2009

09.00 – 11.00 – Closing Session

11.00 – 12.00 – SEL President's closing address

12.00 – 13.00 – Lunch at Bethlen Kata Restaurant

### 2. Post-Congress Programme

#### Friday 29.05.2009

13.30 – Trip to Rimetea, about 40 km from Cluj-Napoca

18.30 – Dinner

Collection of Moths

#### Saturday 30.05.2009

09.00 – 12.00 – Trip to Rimetea village with collection possibilities

12.30 – Lunch

15.00 – 18.00 – free time with collection possibilities in the surroundings of Rimetea

18.30 – Dinner with Transylvanian culinary specialities

Collection of Moths

#### Sunday 31.05.2009

09.00 – 17.00 – Sightseeing of Turda Gorges Natural Reserve

19.30 – Dinner in Rimetea

#### Monday 01.06.2009

9.00 – departure from Rimetea to Cluj-Napoca

## Programme



**Monday, 25 May 2009**

09.00–20.00 Arrival, Registration at Bethlen Kata Guest House, Ponorului Street, no. 1



**Tuesday, 26 May 2009**

08.00–09.30 Arrival, Registration at Babes-Bolyai University, M.Kogalniceanu Street, no.1

09.30–10.00 Opening Ceremony  
UBB Rector Magnificus, Prof. Dr. Andrei Marga  
SEL President, Prof. Dr. Gerhard Tarmann  
Organising committee: Prof. Dr. László Rákosy

10.00–12.50 Plenary lectures - Aula Magna  
**Chair: Gerhard Tarmann**  
Each key speaker will have 30 minutes available for presentation, followed by 5  
Minutes of questions and answers

Josef Settele, Otakar Kudrna, Alexander Harpke, Ingolf Kühn, Chris Van Swaay,  
Rudi Verovnik, Martin Warren, **Martin Wiemers**, Thomas Hickler, Elisabeth  
Kühn, Inge Van Halder, Jan Hanspach, Kars Veling, Albert Vliegthart, Irma  
Wynhoff, Oliver Schweiger  
– Climatic Risk Atlas of European Butterflies

*11.00–11.20 - Coffee and tea break*

**Konrad Fiedler**  
– Mega-diverse moth assemblages in tropical habitats - how do they reflect  
environmental gradients?  
**Niels P. Kristensen**  
– Evolution of Lepidoptera antennae: progress and still-open questions

12.50 Congress photo

*13.00–14.30 - Lunch break at "Piramida" restaurant*

15.00–19.30 Plenary lectures at Bethlen Kata Guest House, Str. Ponorului, nr.1  
**Chair: Kauri Mikkola**  
Each speaker will have 15 minutes available for presentation, followed by 5  
minutes of questions and answers

**Nils Ryrholm**  
– Climatic impacts on a cold hardy subarctic moth fauna, early lessons in a  
changing climate  
**David Agassiz**  
– The Lepidoptera of Acacia in the Kenyan Rift Valley

**Gabriel Nève**

– Thermal biology of butterflies: variations in warming-up rates and flight thorax temperature

**Peter Huemer**

– Biodiversity research on Lepidoptera in the National Park Hohe Tauern (Austria)

*16.30–17.00 - Coffee and tea break*

17.20–19.30 Plenary lectures

**Chair: David Agassiz**

**Victor Sarto i Monteys & J. O. Moreno Vidal**

– Sexual communication in Castniidae and their mimicking of butterflies

**Wolfgang A. Nässig**

– Saturniidae and Brahmaeidae of the Palaearctic Region: How many species are there?

**Zoltán Varga**

– Lock-and-key structures: geometry and physical constraints in Noctuidae and Hadeninae (Lepidoptera: Noctuidae)

**Kauri Mikkola & Markus J. Rantala**

– Several selective factors acting in the industrial melanism of moths?

**Zdravko Kolev**

– In the Shadow of the Peppered Moth: Industrial Melanism of Moths in Finland

*19.30– Dinner at "Bethlen Kata" restaurant*



**Wednesday, 27 May 2009 (Bethlen Kata)**

09.00–12.30 Session 1: Plenary lectures: Phylogeny, General themes

15.00–19.00 Session 2: Parallel workshops: Noctuidae & Tortricidae

09.00–12.30 **Session 1: Phylogeny, General themes**

**Chair: Konrad Fiedler**

Each speaker will have 15 minutes available for presentation, followed by 5 minutes of questions and answers

**Matthias Nuss**

– Phylogeny of Pyraloidea, analysed from morphology and molecules

**Martin Wiemers**

– DNA Barcoding in European Butterflies – applications and limitations

**Richard Mally**

– Phylogeny of the European species of Udea Guenée (Pyraloidea: Crambidae)

**Erik J. van Nieuwerkerken & Camiel Doorenweerd**

– Molecular phylogeny of the leaf-mining moth subgenus *Ectoedemia* (Nepticulidae)

*10.30–11.00 - Coffee and tea break*

**Konstantin A. Efetov & Gerhard M. Tarmann**

– A checklist of the Procridinae (Zygaenidae) of the world: contemporary status of the problems

Niklas Wahlberg, Niina Snäll, Jaan Viidalepp, Kai Ruohomäki & **Toomas**

**Tammaru**

– Evolution of female flightlessness in Geometridae: a phylogenetic study

**Sergey Yu. Sinev**

– Paleontological data and the archetype of gelechioid moths (Lepidoptera: Gelechioidea)

12.00–13.00 - *Book and entomological equipment exhibition*

13.00–14.30 - *Lunch break at "Bethlen Kata" restaurant*

**15.00–19.30 Session 2: Workshop: Noctuidae**

**Chair: Michael Fibiger & Laszlo Ronkay**

**Michael Fibiger**

– New contributions about the Micronoctuidae

– News about identification, classification and systematics of the Nolinae

**Herbert Beck**

– The problem of determination of the three *Noctua* Linnaeus s. auct.-Taxa *Euschesis janthina* ([Denis & Schiffermüller], 1775), *Euschesis janthie* (Borkhausen, 1792), and *Euschesis tertia* (von Mentzer, Moberg & Fibiger, 1991) by external and genitalic characters of the adults and by the pattern of the larvae

– Comparison of the imaginal and larval taxonomy of some taxa of the subfamily Hadeninae s. l. in: "Noctuidae Europaeae" and "Die Larven der europäischen Noctuidae"

**Asgar Shirvani**

– Noctuidae (Lepidoptera) materials collected from Kerman, Iran

16.30–17.00 - *Coffee and tea break*

**Zoja F. Kljuchko**, Elena M. Klyuchko, Alina G. Lizunova

– Electronic Noctuidae Database: Some Problems and Solutions

Laszlo Rakosy, Gunter Stangelmaier, **Ciprian Mihali**

– Morphology of *Polia cherrug*

**Günter Stangelmaier**

– New Records of Noctuidae in the Province Ipiros, Greece

**Zoltán Varga**

– Revision of the genus *Xenophysa* Boursin, 1969 (Lepidoptera, Noctuidae)

Gábor Ronkay and **Laszlo Ronkay**

– New results in the taxonomy of the genus *Cucullia* sensu lato (Noctuidae)

Kauri Mikkola, Gábor Ronkay, **László Ronkay**, Zoltán Varga and Alberto Zilli

– The revision of the *Apamea* generic complex (Noctuidae). I. The ancient groups of the Himalayan-Sino-Pacific *Apamea* s.l.

**15.00–19.30 Workshop Tortricidae**

**Chair: Todd M. Gilligan**

**Boyan Zlatkov**

– A preliminary study of everted vesica of several leafrollers (Tortricidae)

**Daniel Rubinoff & Jerry Powell**

– Asymmetrical Speciation and relictual host plant use in the Holarctic genus *Syndemis* (Tortricidae)

**Jason J. Dombroskie & F. A. H. Sperling**

– A preliminary phylogeny of the Archipini

**Todd M. Gilligan**, J. Baixeras & J. W. Brown

- Online World Catalogue of the Tortricidae (T@RTS)  
**Richard Brown**
- Evolution of Coniferous and Asteraceae Feeding in Tortricidae

16.30–17.00 - *Coffee and tea break*

19.30 – *Dinner at "Casa Ardeleana" restaurant*



### Thursday, 28 May 2009 (Bethlen Kata)

Parallel workshops: Microlepidoptera, Molecular studies, Butterflies, Database

#### 09.00–10.40 **Workshop Microlepidoptera**

**Chair: Erik J. van Nieukerken and Jurate De Prins**

**Elisenda Olivella**

– Biology of *Phyllonorycter millierella* (Staudinger, 1871) in Spain

**Jurate De Prins & Akito Kawahara**

– Lithocolletinae (Lepidoptera: Gracillariidae) species in the Afrotropical region

**Wolfram Mey**

– *Ulmukula* gen. nov. – a new genus of Pyralinae (Insecta: Lepidoptera, Pyraloidea) from southern Africa

**Jarosław Buszko & Helen Alipanah**

– Ecology of Gracillariidae from northern Iran

Laszlo Rakosy, **Ciprian Mihali & Raluca Voda**

– New morphological data concerning the endemic species *Dhalica rakosyi* Weidlich 2005 (Psychidae)

10.40–11.10 - *Coffee and tea break*

#### 11.10–13.00 **Workshop Molecular studies**

**Chair: Roger Vila & Ugo Dall'Asta**

**John J. Wilson**

– Increased taxon sampling with short molecular sequences – does it support recovery or collapse of monophyly?

**Kwaku Aduse-Poku, Eric Vingerhoedt, Jeanine L. Olsen & Niklas Wahlberg**

– When and where did the Pasha and Radjah butterflies evolve? a phylogenetic hypothesis of the genus *Charaxes* (Lepidoptera: Nymphalidae) based on 5 gene regions

**Ugo Dall'Asta, Z. T. Nagy & F. C. Breman**

– DNA barcoding of lymantriid museum specimens of the Royal Museum for Central Africa

**Vazrick Nazari, Wolfgang ten Hagen & Gian Christophoro Bozano**

– Molecular systematics and phylogeny of *Melanargia* (Lepidoptera: Nymphalidae, Satyrinae)

**Vlad Dincă, Evgeny V. Zakharov, Paul D. N. Hebert & Roger Vila**

– DNA barcoding of Romanian Rhopalocera

09.00–10.40 **Workshop: Database**  
**Chair: Robert Trusch**

**Adorian Ardelean**

– Management of taxonomic and distributional data for Lepidoptera with myBiOSis biodiversity online desktop

**Gerhard Tarmann**

– Databasing of Lepidoptera – results, problems, chances "Experiences" (23 years databasing of Lepidoptera in the Tiroler Landesmuseum Ferdinandeum in Innsbruck, Austria)

**Robert Trusch**

– How do we keep track of changes in the Lepidoptera fauna of Baden Württemberg (south-western Germany)? Modern faunistics with the central database in the Natural History Museum of Karlsruhe

**Sergiu Mihuş**

– Relevance of Natura2000 Network in Romania for the Lepidoptera criteria species

*10.40–11.10- Coffee and tea break*

11.10–13.00 **Workshop: Butterflies**  
**Chair: Zoltan Varga**

**Artur Baranowski**

– Habitat diversity and biodiversity of Lepidoptera in Bug Valley

**Enrique Garcia-Barros**, Helena Romo Benito & Irene Echavarren

– Range size and life history traits in Iberian butterflies

**Vladimir Olschwang**

– Rare butterflies and moths in the Urals

László Rákosy, András Tartally, Marin Goia, Ciprian Mihali & **Zoltán Varga**

– The Dusky Large Blue – *Maculinea nausithous* (Bergsträsser, [1779]) (Lepidoptera, Lycaenidae) in the Transylvanian basin: New data on taxonomy and ecology

**Raluca Voda**, Natalia Timus, Ciprian Mihali, Răzvan Popa, Zoltan Varga & Laszlo Rakosy

– Data concerning *Maculinea* genus in Romania (Lepidoptera, Lycaenidae)

*13.00–15.00 - Lunch break at "Bethlen Kata" restaurant*

**15.00–17.00 SEL General Meeting**

17.00–19.00 Poster session

*19.30– Cocktail dinner at "Bethlen Kata" restaurant*



**Friday, 29 May 2009 (Bethlen Kata)**

09.00–11.00 **Closing session**  
**Chair: Niels P. Kristensen**

**Ingo Nikusch**

– *Glyphodes perspectalis* (Walker, 1895) (Lepidoptera: Crambidae), new for Europe, getting a serious pest for boxtrees in public and private green spaces

**Marion E. Kurz** & Michael A. Kurz  
– TaxOn: The prototype of a journal for online taxonomic publications  
**Milan Hluchý**, Zdeněk Laštůvka, Vladimír Hula, Oldřich Jakeš, Jaroslav Marek, Hana Šefrová & Milan Švestka  
– Butterfly diversity in vineyards under different management  
László Rákosy, Katalin Pecsénye, Ciprian Mihali, Andrea Tóth & **Zoltán Varga**  
– Taxonomic review of *Euphydryas* (*Hypodryas*) *maturna* (Linnaeus, 1758) with description of a new subspecies from Dobrogea (Romania) and notes on conservation biology

11.00 **Gerhard Tarmann** - closing address  
**Marc Meyer** - Invitation to the 17th European Congress of Lepidopterology in 2011, Luxembourg

12.00–13.00 - *Lunch at "Bethlen Kata" restaurant*

13.30 Congress Excursion

## Posters

- Anna Abramova:** Observation of the different types of *Acronicta alni* L. pupation (Lepidoptera, Noctuidae) in Moscow region
- Adorian Ardelean:** Management of taxonomic and distributional data for Lepidoptera with myBiOSis biodiversity online desktop
- Jiri Beneš,** Pavel Kepka, Martin Konvicka: Czech butterfly and moths recording scheme
- Roman Bidychak:** Noctuidae fauna (lepidoptera, noctuidae) of Ukrainian Carpathian mountains: current studies
- SangMi Lee & **Richard L. Brown:** Diversity of Male Sex Scales on wings of Gelechiidae
- Jose Martín Cano,** J. M. Jambrina & M. P. Gurrea: Atlas of the *Zygaena* species of the Iberian Peninsula (Lepidoptera: Zygaenidae)
- Cătălin Balan, **Constantin Corduneanu,** Gabriela Corduneanu, Ovidiu Popovici, Ioan Surugiu: New Data on the Lepidoptera in the North-East of Romania
- Mihaela Cristescu:** Preliminary aspects regarding the installation of the nocturnal lepidopterofauna (Insecta Lepidoptera Heterocera) in The Botanical Garden Galați
- Mehdi Esfandiari:** The Noctuidae s.l. (Lepidoptera) in sugarcane fields of Iran
- Michal Zapletal, Jiri Benes & **Zdenek Fric:** Expansion of *Ostrinia palustralis* in the Czech Republic
- M. P. Gurrea,** J. Martín Cano, B. Montalbán & L. Ureña: Recovery of the Phytophagous Insects Fauna after use of Limestone Quarries in Spain: Butterflies and Weevils (Lepidoptera: Papilionoidea et Hesperioidea et Coleoptera: Curculionioidea)
- Povilas Ivinskis** & Jolanta Rimšaitė: Alien Lepidoptera species in Lithuania: status, distribution and prognosis
- Zoja F. Kljuchko,** Elena M. Klyuchko & Alina G. Lizunova: Noctuidae Fauna of Ukrainian Karpathy: Results of Monitoring (1956-2003)
- Adam Malkiewicz1** & Maciej Matraj: Larval morphology of Ennominae (Geometridae) – the case of Central European "winter moths"
- Marc Meyer** & Jan Christian Habel: Population genetics reveal postglacial range modifications and recent fragmentation of the endangered relict butterfly *Lycaena belle*
- Sergio Montagud Alario** & Alberto Sendra Mocholí: Herbarium data, an alternative tool to know the butterflies distribution. The case of *Maculinea rebeli*
- Vazrick Nazari** & Jean-Francois Landry : Molecular Insights into Taxonomy of North American Coleophoridae (Insecta: Lepidoptera, Gelechioidea)
- Martijn Booister, Marcel Eurlings, Barbara Gravendeel, Eddy van der Meijden, **Erik van Nieukerken,** Nicolien Pul, Albert Vliegthart and Michiel Wallis de Vries: Microsatellite analysis of *Maculinea alcon* (Lepidoptera, Lycaenidae) eggs and legs using a new method for DNA extraction from tiny amounts of tissue



- Jean-Marie Ramel:** French's situation of *Tuta absoluta* (Meyrick, 1917) (Lepidoptera: Gelechiidae)
- Helena Romo** & Enrique García-Barros: Testing for a peninsular effect on the Iberian butterflies
- Levente Szekely:** New and rare Macrolepidoptera (Heterocera) from Romania
- Lukas Spitzer,** O. Konvička, Jiří Beneš, Matrin Konvicka & M. Popelářová: Do agrienvironmental and afforestation subsidies help or destroy the biodiversity of Czech Carpathian grasslands?
- Andreas Tränkner:** *Anania* Hübner, 1823, (Lepidoptera: Crambidae, Pyraustinae): characters of the terminalia
- Pavel Vrba,** Martin Konvicka & Oldrich Nedved: Thermal ecology of hibernating larvae of *Colias palaeno*

## Abstracts of presentations and posters

### **Observation of the different types of *Acrionicta alni* L. pupation (*Lepidoptera*, *Noctuidae*) in Moscow region (Poster)**

ANNA ABRAMOVA

During two years (2007-2008) the pupation of *Acrionicta alni* L. (*Noctuidae*) was researched. Four larvae were found in 17 km to the north of Moscow-city and were kept in the same conditions (5-litre aquariums, T 22-24°C, sufficient humidity, natural materials, including foodplants). The process of pupation was observed at the end of August.

Two larvae have pupated in a typical place – dry wood (birch); the third one, larger and more active, was able to penetrate into the fresh hard oak branch; the fourth larva, a smaller one, has pupated in the birch and elm leaves. Some samples were examined under the microscope: pupae, parts of cocoons, elements of the larvae' integument, crushed wood and leaves mixed with the secretion of the larvae' glands.

Thus, there are different variations of *Acrionicta alni* L. pupation which can possibly depend on the peculiarity of each individual.

### **The Lepidoptera of Acacia in the Kenyan Rift Valley**

DAVID AGASSIZ

Acacia trees form an important part of the semi-arid regions of tropical Africa, especially as food for herbivorous mammals, but their Lepidoptera are poorly known. There are 43 species of Acacia in Kenya but only about ten in the areas surveyed.

With funding from Earthwatch seven expeditions were undertaken between 2003 and 2007. These were held near the main lakes from Lake Naivasha at 1900m in the south to Lake Baringo at 1000 in the north, the equator being crossed between them. Volunteers assisted in collecting larvae by searching for spinings etc., and beating for larvae; flowers, seeds and swollen thorns (pseudogalls) were also collected. These were taken back to the lab and sorted each day. Between 500 and 1500 larvae were collected on each expedition.

A total of about 180 spp. of Lepidoptera were bred belonging to 20 different families, which shows that Acacia are hosts to a very large fauna. Six macrolepidoptera have been described new to science, many of the micros remain to be described. The life history of species in the region are so little known that it is not clear which species also feed on other legumes or hosts of different families.

Of particular interest are species whose larvae occupy the swollen thorns, normally thought to be solely used by ants. Three species of Tortricidae have been bred which may be obligate "gall" feeders, others are facultative feeders or inquilines.

With such a rich fauna so poorly known it is important that there should be taxonomists trained to work within the region. Attempts to obtain funding for this purpose have so far not been successful.

### **Management of taxonomic and distributional data for Lepidoptera with myBiOSis biodiversity online desktop**

ADORIAN ARDELEAN

In spite of its relatively short existence, the Internet environment already includes a wide spectrum of biodiversity or taxonomic information projects and tools that range from simple online checklists to more elaborate data providers or aggregators. Among these, myBiOSis is an information system originally designed for serving myNature, a species information project that aims for development of detailed digital maps of species that occur within Romanian geographical area.

This system embeds a range of tools specific for accumulation and dissemination of biodiversity and taxonomic data within a Web desktop environment, a unique combination within the range of existing Internet nature information systems. With inclusion of AJAX, separation of function from design, and a rigorous organization, myBiOSis has its borders of applicability expanded beyond regular use of an Internet portal with enriched possibilities of collaboration among users, reuse of informational resources, and management of public or personal data. myBiOSis currently includes modules for searching information (images, observations, classifications, scientific and common names, special and endemic status, ID keys etc.), presenting digital object details (taxon, classifications, and distribution maps etc.), repackaging information by subject (image thematic, slides, blogosphere), or for communication among users (chat, forums, event calendars etc.).

Applicability of this system is exemplified with information specific for Order Lepidoptera, a taxonomic group for which myNature project actively accumulates data from literature or registered users.

## **Habitat diversity and biodiversity of Lepidoptera in Bug Valley**

ARTUR BARANOWSKI & MAREK WIERZBA

The researches were carried out in Bug Valley in East Poland and granted by MNiSW nr N304 113 32/4128. Our researches were concerned with different groups of Arthropods Arthropoda (Araneae, Carabidae, Diplopoda, Macrolepidoptera, Tortriciidae, Pyralidae) and vascular plants. But this first investigation is concerned only with Lepidoptera and flora.

The researches have taken place in 2007 and there were chosen 2 sites: Płatkownica and Morzyczyn in Lower Bug Valley and the next 2 sites Starzewice and Trojan in the Middle Bug Valley. 49 samples of Lepidoptera in every site were taken averagely twice a decade from beginning of March until the middle of November. This group was collected by standard light trap with 250MIX bulb. The flora data were collected in three different areas 1ha, 1 km<sup>2</sup>, 4 km<sup>2</sup> three times in the season and there were prepared lists of observed species classified into three abundance classes 1-rare; 2-quite frequent; 3-very frequent.

During researches we noticed 707 species and 50841 specimen of Lepidoptera and 693 species of flora. In the researches we analyse macroecological indices: the Jaccard Similarity index among every site and group, diversity indices as well as total estimated species numbers. We examined also the correlation between flora and local biodiversity of Lepidoptera between 4 study sites and between Lower and Middle Bug Valley.

## **Range size and life history traits in Iberian butterflies**

E. GARCÍA-BARROS & H. ROMO BENITO

This study was aimed at determining the relationships between the sizes of species' distribution ranges and relevant life history traits at an intermediate geographic scale, using data from the butterflies (Papilionoidea, Hesperioidea) of the Iberian Peninsula (Spain and Portugal mainland areas). Further, the relative weights of life-history and geographic-history were contrasted. Geographic range size was measured as occupation form available atlas data. A set of variables was coded to represent the broadest life history features, i.e. voltinism patterns and adult phenology, the overwintering stage, larval polyphagy and type of foodplant, size, potential fecundity, dispersal ability, and association with ants. Multiple regression techniques were applied to both the raw data and to a set of phylogenetically independent contrasts.

The results suggest that adult phenology stands as the most relevant correlate of range size; larval host specificity is of secondary relevance. Biogeographic history (represented by distributional attributes of the species ranges) accounted for an important part of the variation in the data, suggesting that life histories and biogeography or broad-scale ecology are interrelated to a large extent.

**The problem of splitting the genus *Noctua* s.l. in further genera and the characterization of three *Noctua* LINNAEUS s. auct. – Taxa - *Euschesis janthina* ([DENIS & SCHIFFERMÜLLER], 1775), *Euschesis janthe* (BORKHAUSEN, 1792) and *Euschesis tertia* (von MENTZER, MOBERG & FIBIGER, 1991) - by external characters of the adults and by the pattern of the larvae**

HERBERT BECK

Again the necessary and still unaccepted generic differentiation (BECK & al. 1993) of *Noctua* LINNAEUS s. FIBIGER & HACKER 1991, FIBIGER 1993 is demanded and it is put the question of the presence of common principles for taxing on the genus level in the Noctuidae Europaeae as compared with the latest taxing of the genus *Cosmia* (with five species) into five subgenera.- The causes for some misidentifications and misinterpretations of the adults of the *Euschesis*-spp. on the basis of their appearance since the description of *Noctua janthe* BORKHAUSEN, 1792 are discussed.

A sure determination of the three taxa by the appearance of the prepared adults is often impossible. The development of the larval pattern in the three taxa has been documented from the L3- to the last (L6)-instar. The differences in the pattern of the larvae between *E. janthina* and *E. tertia* are slight, but the cause of the difference is perhaps essential. The pattern of the larva of *E. janthe* is well characterizable; together with the characters of the adult *E. janthe* may be considered as a bona spec. The final taxing of the three taxa awaits the results of the genitalic investigations of the now authentic material and of molecular-genetical investigations of this.

**Comparison of the imaginal and larval taxonomy of some taxa of the subfamily Hadeninae s.l. in: 'Noctuidae Europaeae', Hadeninae I, Hacker 2002 and in: 'Die Larven der europäischen Noctuidae', Beck 1999/2000**

HERBERT BECK

The rather different taxonomy of some selected taxa of the European Noctuidae, Hadeninae s.l. will be discussed. The taxa are: *Conisania (Luteohadena)/Hadena (Luteohadena)*; *Tholera cespitis* ([Denis & Schiffermüller], 1775), *decimalis* (Poda, 1761), *hilaris* (Staudinger, 1901)/*Tholera cespitis*, *Neuronia decimalis*, *hilaris*; *Perigrapha (Rororthosia)/ Orthosia (Rororthosia)*, the comb.: *Eupsilia transversa* in Xylenina/Ronkay) or in Eupsiliina srib.n. The combination of the three species and three genera of the Prodeniini *Prodenia littoralis* Boisduval, *Laphygma exigua* (Hübner) and *Spodoptera cilium* Guenee in one genus (present imaginal taxonomy) or three genera (classical and larval taxonomy).

By the imaginal characters and by the larval (and pupal) characters there are different combinations possible. Which of these is realistic?

### **Czech butterfly and moths recording scheme (Poster)**

BENEŠ JIRI, KEPKA PAVEL & KONVICKA MARTIN

After the publication of the Czech Republic butterfly atlas in 2002 (Benes et al., 2002) by the [Czech] Butterfly Conservation Society, much effort has been invested to continue and expand the recording scheme. The scheme, is now operated by the Institute of Entomology, Czech Academy of Sciences, now covers both butterflies and selected moth families (classical Macrolepidoptera less Geometridae and Noctuidae). By December 31, 2008, it has collected 399 800 records: 332 843 records of butterflies (compared do 151 451 records in 2002) and 66 957 moths. The number of registered recorders grew up from 176 in 2002 to 424 in 2008. Besides of recording in field, important and almost finished activities include complete excerption of museum collection and faunistic literature, and close cooperation with monitoring of habitats and species protected by the EU Habitat Directive

Compared to 2002 Atlas (which mainly reflects situation in the 1990s), the Czech Republic lost five butterfly species: *Colias myrmidone*, *Hipparchia statilinus*, *Lasiommata petropolitana*, *Leptidea morsei*, *Melitaea phoebe*. In contrast, two species returned from localities abroad: *Lycaena thersamon*, *Nymphalis xanthomelas*; we consider them fluctuating migrants in present. *Spialia orbifer*, previously not known from Czech territory, was discovered from S Moravia by both revision of collection material and field surveys. The preliminary inspection of moth records indicate disturbing losses among species of seminatural grasslands and sparse woodlands, and a good of species of closed woodlands.

The publication of preliminary atlas of macromoths is planned for late 2009, updated butterfly atlas is due for 2012.

Czech Butterfly and Moths recording is supported by the Institute of Entomology, Czech Academy of Sciences, by the Czech Conservation Authority, and by the Czech Ministry of Education (LC06073).

### **Noctuids Fauna (*Lepidoptera*, *Noctuidae*) Of Ukrainian Carpathian Mountains: Current Studies (Poster)**

ROMAN BIDYCHAK

Ukrainian Carpathians belong to the Eastern Carpathians mountain chain. They are relatively low mountains, with highest point in 2061 m. a. s. l. The Carpathian vegetation has

been formed mainly under high altitude circumstances, like in the most of mountains systems. As result, the following high-altitude zones can be recognized: Foothill zone, Deciduous forests zone, Coniferous boreal forest zone, Subalpine zone, Alpine zone.

The most interesting noctuids in Foothill zone is: *Catephia alchymista*, *Diachrysia zosimi*, *Lamprotes c-aureum*, *Cryphia fraudatricula*, *Atethmia ambusta*, *Polyphaenis viridis*, *Anarta dianthi*.

In Deciduous forests zone: *Schrankia taenialis*, *Euchalcia variabilis*, *Deltote deceptoris*, *Eucarta amethystina*, *Cryphia ereptricula*, *Agrochola humilis*, *Dichonia convergens*, *Mormo maura*, *Polymixis polymita*, *Phlogophora scita*, *Noctua interjecta*.

Coniferous boreal forest zone: *Pechipogo plumigeralis*, *Hypena obesalis*, *Lygephila lusoria*, *Cucullia chamomillae*, *Cucullia prenanthis*, *Oligia dubia*, *Euxoa birivia*, *Xestia speciosa*, *Xestia ochreago*.

Diversity of noctuid fauna of alpine zone is almost identical to the subalpine, but poorer – mainly because in Ukrainian Carpathians area of alpine zone very small. In the recent state of research in all alpine areas we haven't been able to find any typical alpine species of noctuids like e.g. *Apamea zeta*, *Epipsilia latens*, *E. grisescens*, *Standfussiana lucernea*. The main interesting species in both zones is: *Cucullia fraternal*, *Callierges ramosa*, *Chloantha hyperici*, *Apamea rubrivena*, *Apamea illyria*, *Orthosia opima*, *Lasionycta proxima*, *Rhyacia lucipeta*, *Chersotis rectangular*, *Xestia collina*.

Today altogether 323 species of noctuids are known in the Ukrainian Carpathians. This is really a low number if compared with the Eastern Carpathians in Romania, West and South Carpathians. Ukrainian Carpathians mountain has great diversity of biotopes, so in future here will be find many other interesting species of noctuids.

## **Diversity of Male Sex Scales on wings of Gelechiidae (Poster)**

SANGMI LEE & RICHARD L. BROWN

The purpose of this study was to document the diversity and fine structure of male sex scales on wings of Gelechiidae occurring in America north of Mexico. Males of 341 species in 63 genera were examined, and sex scales were found in species of nine genera. Sex scales are present on the ventral side of the forewing in *Filatima*, *Exoteleia* and *Stegasta*. Sex scales on the dorsal side of the hindwing in *Tildenia*, *Coleotechnites*, *Chionodes*, *Glauce*, and *Hypatima*. *Aroga* has a costal scale pencil on the ventral side of the hindwing.

Descriptions and SEM images of the fine structure of these sex scales are provided.

## **Ecology of Gracillariidae from northern Iran**

JAROSŁAW BUSZKO & HELEN ALIPANAH

## **Atlas of the *Zygaena* species of the Iberian Peninsula (Lepidoptera: Zygaenidae) (Poster)**

Here is presented the atlas of burnets in the Iberian Peninsula based on the 10 x 10 km UTM grid. This atlas consists of 22 maps with all 22 *Zygaena* species present in the Iberian Peninsula. One of these species, *Zygaena ignifera*, is endemic, while all the others can be found in other regions of Europe.

The atlas has been built up from a database specifically created to this end. The database consists of almost 5000 records from two main sources of information, the MNCN (Museo Nacional de Ciencias Naturales de Madrid) collection and the references in SHILAP Revista de lepidopterología. The MNCN which collection has 3969 Iberian specimens of *Zygaena*, is the most important zoological and entomological museum of Spain and one of the most in Europe. Both of these sources contribute with about 3200 records. In addition to this, other periodical journals and books related to Lepidoptera in the Iberian Peninsula have been checked as well.

The results show that all the Iberian species except *Z. ignifera* live in the Pyrenees. There are 2 groups rather differentiated attending to their geographic distribution. On one side we have a group of 9 species that have a very restricted distribution, taking up just a few number of 10 x 10 km squares, 4 of these species are completely included in the Pyrenees. The rest of them have a wider distribution, they also live in the Pyrenees but also in other regions of the Iberian Peninsula.

### **New Data on the Lepidoptera in the North-East of Romania (Poster)**

CĂTĂLIN BALAN, CONSTANTIN CORDUNEANU, GABRIELA CORDUNEANU, OVIDIU POPOVICI, IOAN SURUGIU

The next species is recorded for the first time in the Moldova (North-East of Romania): *Nascia ciliaris* (HÜBNER, 1796), *Kentrochrysalis elegans steffensi* POPESCU-GORJ, 1971, *Aedia leucomelas* (LINNAEUS, 1758), *Archanara neurica* (HÜBNER, 1808).

New faunistic data are also provided for several species with few records in Romania, such as: *Euthrix potatoria* (Linnaeus, 1758), *Maculinea teleius* (Bergsträsser, 1779), *Maculinea nausithous* (Bergsträsser, 1779), *Aricia eumedon* (Esper, 1780), *Argynnis pandora* (Denis & Schiffermüller, 1775), *Eulithis testata* (LINNAEUS, 1761), *Arytrura musculus* (Ménétriés, 1859), *Calocucculia celsiae* (HERRICH-SCHÄFFER, 1850), *Oligia fasciuncula* (HAWORTH, 1809), *Hydraecia ultima* HOLST, 1965, *Hyssia cavernosa* (EVERSMANN, 1842), *Ulochlaena hirta* (HÜBNER, 1813), *Pericallia matronula* LINNAEUS, 1758.

### **Preliminary aspects regarding the installation of the nocturnal lepidoptero-fauna (Insecta Lepidoptera Heterocera) in The Botanical Garden Galați (Poster)**

MIHAELA CRISTESCU

The purpose of this paper is to bring new data regarding the nocturnal macrolepidoptera of the eastern part of Romania. In this part of the country, the lepidoptera fauna had been scarcely studied.

My study began in 2004. The nocturnal lepidopterans were collected with three light traps installed in the Botanical Garden Galați. A total of 1815 individuals were identified at the

species level. There were recorded 160 species which belong to 9 families. Six species are reported for the first time from Moldavia, and other species were previously collected from this region before 1980.

## **DNA barcoding of lymantriid museum specimens of the Royal Museum for Central Africa**

U. DALL'ASTA, Z.T. NAGY & F. C. BREMAN

In 2007, the Joint Experimental Molecular Unit (JEMU) was founded as a collaborative project between the Royal Belgian Institute of Natural Sciences (RBINS) in Brussels and the Royal Museum for Central Africa (RMCA) in Tervuren. In the framework of a short-term project, a molecular genetic analysis was carried out on selected representatives of the lepidopteran family Lymantriidae. First, museum specimens of the moth genus *Eudasychyra* Möschler, 1887, collected between 1979-1999, were tested but yielded bad DNA quality in general. Nonetheless, "mini-barcodes" of ca. 300bp could have been obtained allowing satisfactory species distinction and identification by molecular tools. Another set of lymantriid samples gave similar results probably due to the relaxing techniques that are widely used for setting specimens of lepidopterans.

Finally, unrelaxed specimens from more recent expeditions were used. In this way, we were able to obtain multiple DNA barcodes of over 50 lymantriid species.

## **DNA barcoding of Romanian Rhopalocera**

VLAD DINCĂ, EVGENY V. ZAKHAROV, PAUL D. N. HEBERT, ROGER VILA

DNA barcoding employs a short, standardized gene region (5' segment of mitochondrial Cytochrome Oxidase subunit I for animals) as an internal tag to enable species identification. Several studies have reported high efficiency of this method in identifying various animal groups. However, it has been argued that insufficient sampling could have often biased the results by inflating the capacity of the barcoding region to discriminate between closely related taxa. Here we barcoded for the first time the Rhopalocera fauna of an entire country. Based on comprehensive sampling, we tested the capacity of DNA barcoding to identify the Romanian Rhopalocera. We obtained barcodes from 1300 specimens belonging to all 180 butterfly species with recently confirmed presence in Romania, including two new species for the Romanian fauna. This counts for about one third of the entire Rhopalocera fauna of Europe. In order to have a good representation of the intraspecific variability of the taxa analyzed, our sampling covered all the country's main regions and resulted in an average of ca. 7 barcoded specimens per species, which were collected, whenever possible, from different and distant localities. Preliminary results indicate that most of the species analyzed (93%) form distinct barcode clusters. In the remaining 7%, barcode clusters correspond to closely related species pairs, some of which are known to hybridize regularly.

These results demonstrate the effectiveness of DNA barcoding for identifying the vast majority of the Romanian Rhopalocera. Similar initiatives aiming at barcoding the entire butterfly fauna of other European countries should allow the building of an extensive DNA barcode database at continental level.



## **A preliminary phylogeny of the Archipini**

JASON J. DOMBROSKIE & F. A. H. SPERLING

Preliminary results are presented for phylogeny of the Archipini. So far COI sequence has been analyzed using parsimony, likelihood and bayesian methods. The most Nearctic genera were part of the analysis as well as several Palearctic taxa as well. Further work will utilize nuclear genes as well as morphology of adults and larvae.

## **A checklist of the Procridinae (Zygaenidae) of the world: contemporary status of the problems**

KONSTANTIN A. EFETOV & GERHARD M. TARMANN

Since the publications of F. Bryk (1936) and B. Alberti (1954), no comprehensive list of the Procridinae of the world has been published. During the last 55 years, major revisions have been done that have changed our views on the phylogeny of the group. A number of new significant characters have been discovered, e.g. the absence of lagena in the receptaculum seminis in the female genitalia, which is an autapomorphy of the Procridinae, constant differences in the number and position of setae in the first instar larvae, presence or absence and the structure of the macro- and microtubercles on the integument of the adult larvae, the absence of cuticular cavities in all larvae of Procridinae, the structure of the anal combs, pupal characters, shape and position of the chaetosemata, presence or absence of a single medial spur on the hind tibia, lateral abdominal glands, the karyotypes (large variability of chromosome numbers within the subfamily), leaf-mining larvae in some groups, relationships with different larval host-plant families (most species are oligophagous) etc. Based on this information, the systematics of the Procridinae have changed significantly. Callizygaenini, included by Alberti (1954) as a tribe in the subfamily, has been excluded from the Procridinae and its status raised to subfamily rank (Tarmann, 1994). The remaining monophyletic Procridinae were divided into two tribes: Artonini Tarmann, 1994, and Procridini Boisduval, 1828. Moreover, some groups were revised, 12 genera and 84 valid species were described since Alberti's work (1954), and the status of some groups has been raised to generic rank, e.g. *Jordanita* Verity, 1946, *Chrysartona* Swinhoe, 1892 (Efetov & Tarmann, 1995), *Goe* Hampson, 1893 (Efetov, 1998), *Zygaenoprocris* Hampson, 1900 (Efetov, 2001) etc.

The checklist of the Palaeartic Procridinae (Efetov & Tarmann, 1995) is already out of date, but unfortunately still in use by many authors because a revised one is still not published. Therefore, it is necessary to provide a new checklist of the world Procridinae, which reflects our present level of knowledge.

## **The Noctuidae s.l. (Lepidoptera) in sugarcane fields of Iran (Poster)**

MEHDI ESFANDIARI, M.S MOSSADEGH, P. SHISHEHBOR & S.H. HODJAT

Faunistic studies were carried out in four sugarcane agro-industries located in the Khuzestan province, southwestern Iran, during 2007 and 2008. Provisionally, a total of 50 noctuid species belonging to 10 subfamilies were recorded. Among them, five species are new to Iran and several species new to the province. The role of these species in the sugarcane fields is discussed.

### **Micronoctuidae, more new concerning classification, systematics, diversity, distrution of characters, and geographical occurrence**

MICHAEL FIBIGER

### **Identification and classification of the subfamily Nolinae**

MICHAEL FIBIGER

### **Mega-diverse moth assemblages in tropical habitats - how do they reflect environmental gradients?**

KONRAD FIEDLER

Tropical macro-moth communities are typically very rich in species, many of which are undescribed. These assemblages cannot be exhaustively sampled with tenable effort. Moreover, bionomic traits remain unknown for most species. I use examples from different tropical regions (Borneo, Ecuador, Tanzania) to show that, despite these constraints, tropical moth communities provide excellent paradigms for biodiversity studies along environmental gradients. Some prerequisites need to be fulfilled, such as standardized sampling methodology, spatial and temporal replication of sampling, and the use of appropriate multivariate statistical tools. Three major patterns emerge: (1) Alpha-diversity (i.e. local species richness) often reveal idiosyncratic, highly taxon-specific responses to environmental change, which can be linked to physiological and ecological traits of the respective insect groups. (2) Beta-diversity (i.e. turnover in species composition) reveals far more concordant patterns, which point to similar effects on the community level of environmental change. (3) Tropical macro-moth communities vary along environmental gradients with surprisingly high spatial resolution, in the range of dozens to hundreds of meters. The observed concordance in species turnover allows for predictions across taxa, whereas promises for the use of selected groups as "biodiversity indicators" remain debatable.

### **Expansion of *Ostrinia palustralis* in the Czech Republic (Poster)**

MICHAL ZAPLETAL, JIRI BENES, ZDENEK FRIC

*Ostrinia palustralis* is a remarkable pyralid moth inhabiting nutrient-rich wetlands with broad-leaved species of *Rumex* sp. div., on which its larvae develop. Originally described from the Pannonian region, it underwent a remarkable northward expansion during last few decades. In the Czech Republic, it known only from well-preserved eutrophic wetlands of southernmost Moravia (E part of the country) until ca 1960s. As indicated by growing numbers of records during last two decades, the species gradually colonised wetlands of western and northern Bohemia (W part of the state), where it became quite common on all types of humid grassland biotopes, including wet ruderals in arable landscapes. As indicated by after-2006 recording, *Ostrinia palustralis* is becoming widespread in W, N and S Bohemia, as well as most of Moravia. It is also regularly recorded in a light trapping program run for farm pests monitoring, which demonstrates an ability to disperse across intensively farmed landscapes. Directions of speed of the expansion is remarkably similar to expansion of the butterfly *Lycaena dispar*, which preceded the *O. palustralis* expansion by about a decade. The story of *Ostrinia palustralis* illustrates that even members of microlepidoptera families may rapidly respond to changing climate.

The authors are supported by the Czech Republic Ministry of Environment (SP/2d3/6208) and Education (LC-6073, MSM 6007665801).

### **Online World Catalogue of the Tortricidae (T@RTS)**

T. M. GILLIGAN, J. BAIXERAS & J. W. BROWN

As systematics becomes increasingly globalized, immediate access to accurate and up-to-date information is critical to the success of modern taxonomy. Digital catalogues, such as the Global Lepidoptera Name Index (Lepindex) and the Catalogue of Life, provide a repository of current nomenclature to assist taxonomists throughout the world. The recent digitization of the Online World Catalogue of the Tortricidae (T@RTS) has produced one of the largest complete taxonomic catalogues for a family of Lepidoptera on the Internet. T@RTS contains more than 14,000 records, including approximately 10,000 senior species and generic names, over 4,000 synonyms, and more than 1,500 photos of primary types. The database is updated regularly, a process that is crucial to the success of any digital catalogue. It is hoped that T@RTS will become a valuable resource for those involved in what has been recently termed “cybertaxonomy.” T@RTS can be accessed at the following address: <http://www.tortricidae.com/catalogue.asp>

### **Consortive linkage of lycaenid butterflies (*Lepidoptera: Lycaenidae*) of upland grass biogeocoenosis of the steppe Pridneprov'ye (Ukraine)**

KIRILL GOLOBOROD'KO

The consortive linkage of lycaenid butterflies (*Lepidoptera: Lycaenidae*) of upland grass biogeocoenosis of the steppe Pridneprov'ye was analyzed in the given work. It was determined that fauna of the region can be divided into 10 groups according to the biotope classification of *Lycaenidae*. The position of imago purple molinia in the structure of

anthophilous system of individual consortiums of *Salvia nutans* was studied. Phenological examines led allow to mark 5 phenological groups of lycaenid butterflies of the steppe Pridneprov'ye. Morphologic characteristic of mouthparts and indicator of imago dry weight was reviewed. It was determined that the time budget wasted for act of feeding depends on these characteristics but appears species-specific and sex-differentiated. The trophic linkage of the larva with 13 families of autotrophy in the region was appointed. The topical type of imago consortive linkage and preimaginal phases with autotrophy was studied. The peculiarities of *Lycaenidae* consortive linkage at anthropogenically affected biogeocoenosis of steppe Pridneprov'ye was reviewed.

### **Recovery of the Phytophagous Insects Fauna after use of Limestone Quarries in Spain: Butterflies and Weevils (Lepidoptera: Papilionoidea et Hesperioidea et Coleoptera: Curculionoidea) (Poster)**

M.P. GURREA, J. MARTÍN CANO, B. MONTALBÁN & L. UREÑA

The limestone quarries are hostile environments to be colonized by flora and fauna. Moreover, it involves an important loss of biodiversity. To evaluate the effects caused by the quarry in the biodiversity of the insect fauna and to characterize the species associated to the stages of the quarry recuperation, in 2007-2008, two groups of phytophagous insects, butterflies and weevils, had been studied. The quarry is located in the province of Toledo in Central Spain. It has a total of 1009 hectares. It's being exploited since 1928. The recovery of the fauna and flora had been natural and there is only a small pine plantation.

For the study the area was divided into 41 sites and five representative zones were considered. The butterflies were studied by the method of transect. Forty one routes were established, one for each of the sites. The transects were made every 10 days from April to October. Sweep samples were made at each site to quantify changes in the adult curculionoidea populations. Sweep samples consisted of 100 uniform sweeps of the vegetation.

We recorded 1235 specimens and 35 species of butterflies across all the sites and 1092 specimens and 86 species of weevils were collected.

Both butterflies and weevils recover very slowly. In weevils predominate the species associated to herbaceous plants representatives of early colonization.

### **Biodiversity research on Lepidoptera in the National Park Hohe Tauern (Austria)**

PETER HUEMER

The National Park Hohe Tauern in the eastern Alps of Austria is the largest protected area in Central Europe, covering altogether about 1.800 sq. km and ranging from about 1000 to 3798 m s.l. The conservation of autochthonous species diversity is one of the major tasks in this nature reserves. However, exactly this diversity is or was grossly unknown or at most insufficiently known for many organisms including Lepidoptera. As recently as 2008 the first book covering the fauna of butterflies and moths of the Hohe Tauern was published. The lecture gives a short survey about history of research in the area and most relevant results.

First attempts of faunistic studies already date back into the late 18<sup>th</sup> century. Sigismund von Hohenwarth, the later third Bishop of Linz, collected insects and plants in the Hohe Tauern and described striking new species which are still valid today, e.g. *Zygaena exulans* and *Caloptusia hohenwarthi*. Later on famous scientist such as Josef Mann, Otto Staudinger and Josef Klimesch visited the area, particularly the surroundings of Großglockner, the highest peak of Austrian Alps. Beside of a large number of interesting records several new taxa have been described by these and other scientists. More recently, in the course of a projected power station in the late eighties, staff of the Tiroler Landesmuseum Ferdinandeum under the auspices of G. Tarmann started an inventory program of Lepidoptera and Coleoptera which lasted for 10 years. This survey was based on classical methods such as various light sources in the night and dip net during the day but also quite unusual techniques such as a bee-smoker.

Despite of remarkable results, a comprehensive publication never appeared. Hence in 2004 the management of the National Park decided to initiate a further research programme with the major goal of publication of a popular book on the Lepidoptera of the area. This study was conducted by the Museums of Innsbruck, Klagenfurt and Salzburg. It covered additional and representative field research in major ecosystems of the National Park, including wetland habitats, mountain pastures and alpine grassland, forests, dwarf-shrub zones and rocky habitats as well as alpine scree.

Based on these efforts the species diversity of the National Park Hohe Tauern is nowadays rather well known. It includes about 1.300 species of Lepidoptera. The actual fauna is almost completely based on postglacial reconolisation, maybe with the exception of a few taxa with potential of survival on nunataks. Arctic and Alpine, Continental and Mediterranean species may be separated. Of particular interest are a number of local or regional endemics including the recently described *Aspilapterix spectabilis*, *Ancylis habeleri*, *Sphaleroptera dentana* or very latest *Sciadia tenebraria taurusica*. The last taxa proof that in consideration of molecular data further fascinating taxonomical results may still be expected in future.

## **Alien Lepidoptera species in Lithuania: status, distribution and prognosis (Poster)**

POVILAS IVINSKIS & JOLANTA RIMŠAITĖ

Due to global climate change as well as intensive trade relations and transportation between different countries, a number of alien Lepidoptera species can be found in Lithuania. Some of them are widely distributed and found in large numbers. Others are represented by one or several specimens. *Cameraria ohridella* Deschka & Dimic 1986 (Gracillariidae). The moth was firstly recorded in Lithuania in 2002 (in the Curonian Spit). Now it is found in more than 30 towns and settlements. In some sites it forms massive foci. A summer generation was registered in 2006, until that time only one – autumn generation - was known in Lithuania. *Phyllonorycter issikii* (Kumata 1963) (Gracillariidae). The species was first described from Japan. Larvae are developing in lime leaf mines. Firstly recorded in Lithuania in 1998, now the species is found all over the country. In some places it forms massive foci. Two generations are known in Lithuania. *Phyllonorycter robiniella* (Clemens, 1859) (Gracillariidae). The first mines of *Ph. robiniella* on *Robinia pseudoacacia* were found in Vilnius city in the second and in the beginning of the third decade of September 2007. Adults were reared from the mines collected. *Ph. robiniella* was also detected in Kaunas city and the Curonian Spit. The foci of infestation spread in Vilnius and Kaunas, but we did not find the species in the Curonian Spit in 2008. The surveys for this species

in a large number of other locations of the country brought no results. *Parectopa robiniella* Clemens, 1863 (Lepidoptera, Gracillariidae). The mines of *P. robiniella* were found in the Curonian Spit and East Lithuania from the third decade of September to the first decade of October 2007. The survey for this species in 2008 brought no results. *Cacoecimorpha pronubana* (Hübner, 1799), *Cydia molesta* (Busck, 1916) (Tortricidae), *Hyphantria cunea* (Drury, 1773) (Arctiidae) and *Cadra cautella* (Walker, 1863) (Pyralidae) were detected 1-2 times some years ago. *Plodia interpunctella* (Hübner, 1813) and *Ephestia kuehniella* Zeller, 1879 (Pyralidae) are widely distributed and make great damage.

## Noctuidae Fauna of Ukrainian Karpathy: Results of Monitoring (1956-2008) (Poster)

ZOYA KLYUCHKO, ELENA KLYUCHKO & ALINA LIZUNOVA

Our exploring of Noctuidae fauna in Ukrainian part of Karpathian Mountains started on 1956-1958. Mainly the Northern and North-Eastern regions were studied carefully but some collections were done also in the Central and South-Eastern regions of Karpathy. More than 150 Noctuidae species were registered during these years. Results of these studying in details were summarized in the book “The Moth of the Western Regions of Ukraine” by Z. Klyuchko (1963).

On 2002-2003 another project of fauna investigations of Karpathy regions were carried out. Investigations were done by Finnish and Ukrainian scientists: J. Kullberg, Z. Klyuchko, A. Bidzilya as well as by some students of biological faculty of Ivano-Frankivsk University. 279 Noctuidae species were registered during these studying. Besides of these two important projects the episodic collections in these regions were carried out together with continuous studies of Noctuidae biodiversity in these regions.

Our results demonstrate that during the last 50 years fauna of Lepidoptera in Ukrainian Karpathy was changed predominantly due to the anthropogenic pressure – forest cutting, spreading of meadows etc. Probably due to these reasons there are registered enough numerous populations of such moth as *Hoplodrina ambigua* Den.&Schiff., *Heliothis virescens* Hufn., *H. maritima* Grasl. Less numerous are *Mythimna vitellina* Hbn., *Hyssia cavernosa* Ev., *Sideridis reticulata* Goese, *Helicoverpa armigera* Hbn. and some other meadow and meadow-steppe species that were absent here on 1956-1958.

At the “polonyna” (high-mountain meadows) of Chivchin mountain (altitude – 1650-1700 m a.s.l.) were registered migrants *Heliothis nubigera* H.-S., *H. peltigera* Den.&Schiff., *Amphipyra berbera* Rungs etc. (detailed data are given in report). 106 moth species were found at sub-alpine zone of Chivchin mountain. Only at polonyna were found *Apamea maillardi* Geyer, *Lasionycta proxima* Hbn. Other moth – totally 120 species - were collected at glades and fringes of fir and beech forests near the villages Shibene, Burkut, and Zelene, some others – at the secondary meadows (appeared after forest cutting, altitude – 900-1000 m a.s.l.)

It is possible to conclude that at Ukrainian Karpathian Mountains during the last 50 years 1) the total number of Noctuidae species increased; 2) some mesophiles and even some steppe species inhabit now (constantly or as migrants) at the secondary meadows.

## Electronic Noctuidae Database: Some Problems and Solutions

ZOYA KLYUCHKO, ELENA KLYUCHKO & ALINA LIZUNOVA

Making the database (DB) for insects necessary to overcome some problems and difficulties linked with such specificity of medical and biological objects as their complex nature, their numerous links with other objects and inside elements in objects, influence of numerous factors on objects (all these belong to objective factors). Among subjective factor there are following. There is no one general view concerning taxonomy of some species. If insect was collected at any plant sometimes is not clear whether this plant is only a substrate or feed it. There are also a lot of potential mistake linked with the registration of the place of collection because the names of whole regions were change during the history (for example region Vygurivschyna appeared and than disappeared from city Kyiv (Ukraine) map during the last 25 years, Volyn' Gybernia (region of Ukraine) changed its boundaries dramatically after the I World War etc.). These and others difficulties (objective and subjective) that will be discussed in report lead to the appearance of potential mistakes during insect DBs construction.

From the technical point of view such mistakes are not possible during electronic DB construction. During the development of DB hierarchical model all its elements have to be defined properly because it will be followed by errors in definition of parent and derivative elements. Some difficulties may be overcome by the use of such traditional mathematic methods as cluster analysis (for better species definition), object-oriented programming (taking into account some objective factors) etc. So, some problems may be solved by the use of traditional mathematic methods (sometimes with their modification.) From other side, only newly developed approaches may help to resolve successfully this situation.

## In the Shadow of the Peppered Moth: Industrial Melanism of Moths in Finland

ZDRAVKO KOLEV

Industrial melanism is the phenomenon of increasing frequencies of dark specimens in populations of species in environments polluted by human activity. By far the most intensively studied organism exhibiting industrial melanism is the Peppered Moth (*Biston betularius* L., Geometridae), and most of this research has been conducted in the United Kingdom. Internationally, it is much less well-known that Finland is also a country with extensive research on industrial melanism for over 40 years. Remarkably, *B. betularius* is not among the tens of species with industrial melanism here. The Finnish icons of industrial melanism have to be the Marbled Minor (*Oligia strigilis* L.) and the Tawny Marbled Minor (*Oligia latruncula* Den. & Schiff., Noctuidae). Nowhere else has the industrial melanism of these species has been studied in such detail as in Finland.

In my presentation I will first outline the history of research on industrial melanism in Finland, and then focus on the dynamics of this phenomenon in the populations of the two *Oligia* species in the metropolitan area of Helsinki and its rural surroundings. A link was established early on between anthropogenic atmospheric pollution and the frequency of melanism in *O. strigilis* and *O. latruncula* in Finland. However, a straightforward correlation between the variation of pollution levels and *Oligia* melanism in the greater Helsinki area is problematic. Moreover, the incidence and dynamics of melanism differ markedly between syntopic populations of *O. strigilis* and *O. latruncula*.

These circumstances raise interesting questions about the precise mechanisms at work, which may differ from the classical case of melanism through differential bird predation, as has been established for *B. betularius*. It is expected that research on the industrial melanism in *Oligia* in Finland, made possible by unrivalled systematic surveys for over 40 years, stands to significantly increase our understanding of the nature of industrial melanism — a topic that has recently attracted considerable attention, as well as a great deal of controversy, worldwide.

## **Evolution of Lepidoptera antennae: progress and still-open questions**

NIELS P. KRISTENSEN

Natural History Museum of Denmark, University of Copenhagen

In the groundplan of the Lepidoptera, as in that of their closest endopterygote relatives, the antennae were simple, with a filiform flagellum; their length was presumably close to, but did not exceed, that of their forewings. One lepidopteran groundplan autapomorphy is the presence of at least a partial scale vestiture. Another is considered to be the presence of an intercalary sclerite in the membrane between the scale and pedicel, but here a targeted search for counterparts in a broader outgroup sample is still needed, and so is an inquiry into the sclerite diversity within the order - within the Exoporia that diversity is perplexing.

Taxonomically informative diversity has long been known to exist in the structure and vestiture of the both the basal segments (scape+pedicel) and the flagellum. Pectinate antennae permitting a manifold increase in the number of antennal sensilla first evolved within the Exoporia and then subsequently independently on very numerous occasions within the Eulepidoptera, predominantly in medium-sized to large taxa. Also clubshaped/clavate antennal types are homoplasious, and their apparent correlation with diurnal activity is intriguing..

While much information has been acquired on the gross morphology and scale/sensillum complements of lepidopteran antennae, there remains a need for syntheses of this information as well as for additional observations on several points: How diverse are between-flagellomere articulations? How diverse are basal muscle and blood-pumping devices, and to which degree is diversity in such traits correlated with antennal structure? Is the *internal* structure of apical clubs specialized in particular ways? Which phylogenetic patterns will emerge from compilations of such data?

## **TaxOn: The prototype of a journal for online taxonomical publications**

MARION E. KURZ & MICHAEL A. KURZ

In December 2008, the International Commission on Zoological Nomenclature (ICZN) proposed an amendment to the International Code of Zoological Nomenclature. According to this, electronic taxonomical publications should be valid under certain circumstances from 2010 on.

We have developed an online platform, Taxonomy Online (TaxOn), that fulfills the requirements of EN ISO 9001 for Quality Management for the processes of online-authoring, online-reviewing, online-release and automated change management. TaxOn is a registered serial (ISSN 2071-873X) and takes into account the demands of the ICZN for electronic publication of



new scientific names, i.e., archivation in a system compliant with the ISO standards for an Open Archive Information System, and, registration of a new scientific name in the Official Register of Zoological Nomenclature (ZooBank). Although TaxOn is designed to be WIKI-like, a major requirement of the ICZN, namely the preservation of the original contents of the publications, is guaranteed by our automatic change management / version control mechanism.

Therefore, we present TaxOn as a prototype for electronic taxonomical publications.

## **Butterfly diversity in vineyards under different management**

MILAN HLUCHÝ, ZDENĚK LAŠTŮVKA, VLADIMÍR HULA, OLDŘICH JAKEŠ, JAROSLAV MAREK, HANA ŠEFROVÁ & MILAN ŠVESTKA

The complex biodiversity research was started in southern Moravian vineyards (Czech Republic) in 2008 with the aim to state differences between conventional, integrated and biological management. Rhopalocera and Zygaenidae were investigated together with higher plants, birds, and carabid beetles. Three groups of four study plots were delimited in various parts of the southern Moravian vineyard area, always 3 vineyards by different management and one plot with natural or seminatural steppe, forest steppe or rocky habitats in their close vicinity. The occurrence of butterfly and burnet species were evaluated by the method of transects (1 km and 2 h per transect) with at least 6 visits for each plot. The abundance of the present species were assessed by a semiquantitative scale, mean values of this scale were used for the calculation of the synecological indices. The following indicators were ascertained: species and individuals number, Shannon species diversity index, dominance concentration, Jaccard similarity index, and representation of indicative species.

Altogether, 73 species were registered in all study plots during the first research year (46% of the Czech fauna), the least number in the conventional vineyard of Dyjákovice (1 species), the most in the forest steppe of the Kopeček Hill near Mikulov (51 species). The following numbers of species and individuals were registered in the individual study plots: conventional vineyards 1–14 spp. ( $\bar{\emptyset}$  8), and 1–29 ex. ( $\bar{\emptyset}$  13); integrated vineyards 10–38 spp. ( $\bar{\emptyset}$  24), and 40–757 ex.; biological vineyards 12–33 spp. ( $\bar{\emptyset}$  19), and 41–197 ex. ( $\bar{\emptyset}$  131); comparative forest steppes 29–51 spp. ( $\bar{\emptyset}$  41), and 990–2373 ex. ( $\bar{\emptyset}$  1560). The mean values of the Shannon index were in the same order 1.4, 2.07, 2.31 and 2.79. The distinct dominance concentration of the limited number of species was found in all three conventional and in one integrated vineyard. The higher values of the Jaccard index were observed between the forest steppe plots, partly between these plots and the neighbouring integrated or biological vineyards, but the results are distinctly influenced by the short-term research only. As expected, the highest proportion of the important indicative species was found in the forest steppe plots, they were represented in higher numbers also in two integrated (Mikulov and Popice) and in one biological vineyard (Popice). On the other hand, none important species was observed in two conventional vineyards, and 3 species in the last one. The conventional vineyards resulted as the worst in all indicators. The integrated vineyards had on the average more species and individuals than the biovineyards, the results of the Shannon index and dominance concentration were opposite. The numbers of important indicative species were similar in both types. The numbers of species and especially of specimens in individual plots are distinctly influenced by the character of the neighbouring habitats. It is evident after the first year investigations that the butterfly diversity is influenced by the agricultural management in principle and that butterflies are for the biodiversity indication very suitable group.

## **Larval morphology of Ennominae (Geometridae) – the case of Central European “winter moths” (Poster)**

ADAM MALKIEWICZ & MACIEJ MATRAJ

The aim of the poster is to present preliminary results of comparative studies of larval morphology and taxonomical significance of such characters on the generic and species level by example of ecological group of “winter moths” from Ennominae (Geometridae).

Morphology of the first and the last larval instars of selected genera, which can be found in Poland, are provided. Mouthparts and all parts of the head capsule, thorax and abdomen with prolegs are illustrated and described with their numeration and nomenclature of every detected setae and other sensillae. Moreover, thoracic legs are pictured in details. The setae of anal plates are also described separately. Structures of pinacula and tips of setae are compared both among genera and during postembryonal development of each species.

The original method of preparation, mounting and documentation is introduced.

## **Phylogeny of the European species of *Udea* Guenée (Pyraloidea: Crambidae)**

RICHARD MALLY

The first phylogenetic analysis for the genus *Udea* is presented. 32 of the 36 species recognized in Europe were investigated by studying characters of the wings and the genitalia of both sexes. 23 of these species were also analyzed using sequences of the mitochondrial *CoxI* and the nuclear *wingless* gene. Five *Udea* species from outside Europe and three *Udea*-related taxa were included in the analysis. The phylogenies were calculated using Maximum Parsimony and Bayesian inference. The molecular phylogenies show two major groups in European *Udea*: an *U. alpinalis* s.l. group and an *U. ferrugalis* group. The *U. ferrugalis* group is characterized by a high portion of endemic species on islands of the Atlantic and Pacific Ocean. The *U. alpinalis* s.l. group includes the majority of the European *Udea* species and can be divided into two monophyletic groups: the *U. alpinalis* s.str. group and the *U. elutalis* group. The morphological phylogeny confirms these monophyla, although it shows no Bootstrap support at nearly all nodes.

## ***Utumkula* gen. nov. - a new genus of Pyralinae (Insecta: Lepidoptera, Pyraloidea) from southern Africa**

WOLFRAM MEY

Within Pyralidae the subfamily Pyralinae is regarded to contain the more ancestral taxa of the family. According to numbers of described species and genera the African continent is its centre of taxonomic diversity. The Pyralinae are thus a promising candidate for deciphering aspects of the faunal history in Africa. Unfortunately, most of the nominal taxa are insufficiently

described. In consequence, the ranges of the African species are largely unknown. In an attempt to identify species of southern Africa a number of undescribed species were found which cannot be placed confidently in any of the available genera. The new genus *Ulumkula* gen. nov. is established here for one of those species. It has a wide distribution in southern Africa and is named *U. kalahariensis* sp. nov. The detailed description of species and genus is based on male and female adults and include external and genital features. The new genus is characterised by two presumed apomorphies: 1.- discal spot in forewings with semi-erect scales, 2 – male genitalia with juxta and separate annellus forming a forked appendage.

Closely related genera are *Pyralis* and *Pyralosis* by sharing the same wing form, venation and head morphology.

## **Population genetics reveal postglacial range modifications and recent fragmentation of the endangered relict butterfly *Lycaena helle* (Poster)**

MARC MEYER & JAN CHRISTIAN HABEL

At the end of the last glacial and during the early postglacial period, hygrophile boreo-montane species were distributed over major parts of Central Europe. In the wake of postglacial warming, these species shifted their distribution to higher latitudes and altitudes following the cold mesoclimatic conditions and became widely extinct over the European lowlands. The Violet Copper butterfly (*Lycaena helle*) shows this feature of postglacial altitudinal and latitudinal range shift. The species is currently distributed over parts of Scandinavia and many mountain ranges of Europe, where the species exists in highly isolated habitats. We have analysed five polymorphic microsatellite loci to describe (i) historical range shifts, (ii) its recent distribution situation and (iii) the status of local populations. We detected strong genetic differentiation among populations of *L. helle* over its western European distribution ( $R_{ST}$ : 0.264,  $F_{ST}$ : 0.187). Deflecting levels of genetic diversity for each single mountain area the presence of private alleles, endemic for one mountain area underline the pattern of genetic differentiation. The obtained genetic clusters coincide with the orographic structures of the landscape representing eight distinct mountain regions ( $R_{CT}$ : 0.203,  $F_{CT}$ : 0.146). Among populations within each extant mountain area, genetic differentiations sometimes correlating with geographic distances reveal reduced population-interconnectivity, even within these mountain areas.

## **Morphology of *Polia cherrug***

LASZLO RAKOSY, GUNTER STANGELMAIER, CIPRIAN MIHALI

The description of a new species that has such a great size and is so obviously different from the known European species of the *Polia* and *Pachetra* genus, has been received with great interest but also with surprise by the specialists in *Noctuidae*. It was thought to be a hybrid but their regular presence and the great number of this species in the woods of Northern Dobrogea, cannot stand for this idea. There were no records of other species of the *Polia* genus, in this habitat, with the exception of The Danube Delta.

In addition to the description, the authors of this paper have studied the preimago stages and acquired images using the optical and SEM microscopy.

Thus, the images of the egg, larval stages and pupae are presented for the first time. For the phylogenetic relations study of different European species of the *Polia* and *Pachetra* genus, comparative images of segments of the antennae will be presented. The comparative study shows a phylogenetic closeness of *Poila cherrug* to *Pachetra sagittigera*.

### **New morphological data concerning the endemic species *Dhalica rakosyi***

LASZLO RAKOSY, CIPRIAN MIHALI & RALUCA VODA

The *Dhalica* genus is outspread in the entire Northern hemisphere. Approximately 40 species are known in the Palearctic region but their number is supposed to be greater.

In 2005, M. Weidlich described a new species, *Dhalica rakosyi* from Transylvania, namely in Muntii Apuseni. Although the description is an accurate one due to the great number of females and males that were used for it, the data and images referring to the morphology of the adult and the pre imago stages is insufficient or missing.

The authors of this paper offer additional data concerning the morphology of the adult, egg and pupae of both males and females. The morphology of the head, eyes, antennae, legs, thorax and abdomen of both males and females are also illustrated in this paper.

Images and descriptions of the pupae, egg and wing scale types, using the optical microscopy and scanning electronic microscopy (SEM) are presented for the first time.

### **Relevance Of Natura 2000 Network In Romania For Lepidoptera Species**

SERGIU MIHUȚ

Designation of Natura2000 sites based upon criteria species (including Lepidoptera) is responding to complex requirements for common nature conservation policy.

The designation process is based upon quantifiable objective criteria and it is including a data selection in order to pinpoint the most relevant area in need of conservation.

A brief analyze of the designation process for Natura2000 sites in Romania is made as well as an evaluation of the relevance of this network of protected area for each criteria species of Lepidoptera.

### **Several selective factors acting in the industrial melanism of moths?**

KAURI MIKKOLA & MARKUS J. RANTALA

The classical example of industrial melanism, mentioned as the most striking evolutionary change ever witnessed, is the Peppered moth *Biston betularius* (Geometridae) in England. The highly conspicuous blackening of the populations in the second half of the 19<sup>th</sup> century was followed by a static phase through most of the 20<sup>th</sup> century, but then, during the last decades of that century, a dramatic change back to the whitish coloration took place. Moreover, a similar change happened in North America. This most well-known school and text book example of evolution has fallen, because of some weaknesses in the original design of the selective experiments, under heavy criticism and attacks from the side of creationists and supporters of the intelligent design. In the present paper it is emphasized that the evolution is proceeding unhurt, but the selective factors still require closer examination. In addition to the protective coloration

the melanin pigment is providing in the polluted areas, it may show so-called pleiotropic effects. Our experimental species was *Lymantria monacha* (Lymantriidae), polymorphic for melanic forms, too.

### **Herbarium data, an alternative tool to know the butterflies distribution. The case of *Maculinea rebeli* (Poster)**

SERGIO MONTAGUD ALARIO & ALBERTO SENDRA MOCHOLÍ

### **Sexual communication in Castniidae and their mimicing of butterflies**

V. SARTO I MONTEYS & J.O. MORENO VIDAL

Castniids are popularly known as “butterfly-moths” and in old classifications they were placed together with the butterfly groups. This reflects the fact that they remarkably mimic the butterflies living in the same area in form, colours and habits.

Mimicry abounds in the insect world, so what’s special about that of castniids mimicing butterflies ? In fact, the other two families in the superfamily Sesiioidea, Brachodidae and Sesiidae, are also mimics of bees and wasps respectively, and most of them only fly during daytime, as Castniidae do. The reason why castniids used butterflies as their pattern to be copied is not answered yet.

However, unlike sesiids and brachodids, the degree of this mimicry by castniids towards their butterfly pattern has reached surprising limits. Indeed, castniid males are territorial, they perch and watch over for females or males or other subjects close to their size, and chase after them. Territoriality in non-butterfly lepidopterans seems to be undescribed. Moreover, this mimicry has affected further their intimate morphology, so much that structures related to important functions such as those of olfaction and sexual communication have been modified to the point of losing their ‘moth-like’ capabilities in favour of new ‘butterfly-like’ ones.

A comparative study of the antennal sensilla of members of the Sesiioidea and the butterflies has been carried out concluding that the structure of the castniid antenna is closer to that of the butterflies than to that of the other Sesiioidea. This fact has remarkable ethological consequences which will be developed in this lecture.

### **Saturniidae and Brahmaeidae of the Palaearctic Region: How many species are there?**

WOLFGANG A. NÄSSIG & STEFAN NAUMANN

The species numbers of Bombycoidea known from the Palaearctic Region have increased significantly in the last 2–3 decades based on recent collecting, especially in China, but also elsewhere. This was mainly due to just the description of new species, but in part also based on revisions. Regrettably not all genera have already been revised. The number of species to be

counted is of course also depending on the definition of the border between the Palaearctic and the Indo-Australian Region.

We follow the borderline as defined in A. SCHINTLMEISTER's recent (2008) book on the "Palaearctic Macrolepidoptera 1: Notodontidae", that is: northern Africa, the Arabian Peninsula, Iran, and most of Pakistan are included; the borderline is then running along the southern Himalaya range and in the East includes all of China and Taiwan. The estimated species numbers presented here are tentative; we are still collating and refining distributional and systematic data, and the numbers presented in Cluj during the lecture thus may deviate from the numbers listed below.

The Saturniidae are represented with three subfamilies in the Palaearctic: Agliinae, Salassinae and Saturniinae. Agliinae (the only subfamily restricted to the Palaearctic region with single genus *Aglia*) presently comprise 4 species. Salassinae (single genus *Salassa*) have not yet been revised, but are estimated to comprise ca. 5–10 palaearctic species. Saturniinae are the largest group, comprising the following 4 tribes with 14 genera: Micragonini: *Goodia* (1 species); Urotini: *Usta* (1 species), *Sinobirma* (1 species); Attacini: *Samia* (6 species), *Archaeoattacus* (1 species), *Attacus* (1 species); Saturniini: *Rhodinia* (ca. 5 species), *Actias* (ca. 12 species), *Saturnia* (ca. 40 species), *Cricula* (ca. 6 species), *Loepa* (ca. 17–20 species), *Lemaireia* (ca. 2 species), *Solus* (ca. 2 species), *Antheraea* (ca. 16 species). The total species number is thus estimated to be close to or above of 130.

Brahmaeidae comprise only 2 genera: *Calliprogonos* with 1 species and *Brahmaea* s. l. with ca. 7–10 species, summing up to just around 10 species.

### **Molecular systematics and phylogeny of *Melanargia* (Lepidoptera: Nymphalidae, Satyrinae)**

VAZRICK NAZARI, WOLFGANG TEN HAGEN & GIAN CHRISTOPHORO BOZANO

We investigated the genetic divergence and phylogenetic relationships within and between all known species of Palaearctic butterflies of the genus *Melanargia* using sequence information from three genes (mitochondrial *cox1* barcode region [657 bp], ribosomal 16S *rRNA* [~518 bp], and nuclear *wg* [404 bp]). Results show a lack of DNA divergence among several poorly characterized taxa as well as deep divergences within and between several others.

We corroborated the molecular information with morphological and genitalic characters as well as geographic data to revise the taxonomy of *Melanargia*, and propose a new systematic scheme for the group. We revive some previous synonymies (*M. lucasi meadwaldoi* stat. rev., *M. ines fathme* stat. rev., *M. meridionalis tapaishanensis* stat. rev.), revise the status of some subspecies into species (*M. transcaspica* stat. nov., *M. lucida* stat. nov.) and several species into subspecies of other taxa (*M. evartianae sadjadii* stat. nov., *M. larissa hylata* stat. nov., *M. larissa grumi* stat. nov., *M. larissa syriaca* stat. nov., *M. lugens montana* stat. nov., *M. epimede ganymedes* stat. nov.), revise the status of subspecies and transfer them to other species (*M. larissa lorestanensis* stat. nov., *M. larissa iranica* stat. nov., *M. larissa karabagi* stat. rev., *M. larissa kocaki* stat. nov., *M. transcaspica eberti* stat. nov.), and propose new synonymy (*M. titea titea* = *M. titea standfussi* syn. nov. = *M. titea titania* syn. nov., *M. leda leda* = *M. leda yunnana* syn. nov., *M. lugens lugens* = *M. lugens ahyoui* syn. nov., *M. lugens hengshanensis* = *M. lugens hoenei* syn. nov., *M. halimede halimede* = *M. halimede gratiani* syn. nov., *M. asiatica asiatica* = *M. asiatica dejeani* syn. nov., = *M. asiatica elisa* syn. nov., = *M. asiatica sigberti* syn. nov.).

## **Molecular Insights into Taxonomy of North American Coleophoridae (Insecta: Lepidoptera, Gelechioidea) (Poster)**

VAZRICK NAZARI & JEAN-FRANCOIS LANDRY

Coleophoridae are a very diverse group of microlepidoptera but our understanding of patterns of genetic divergence among species in this family is very limited. This study begins to address this gap by assembling a library of mitochondrial COI sequences, or DNA barcodes, for North American Coleophoridae and comparing patterns of genetic diversity within the family to those of other families in Lepidoptera. We obtained DNA barcodes for nearly all North American and many palaeartic species.

Our results indicate that a) there is a very large proportion of undescribed species (N%) in north America, b) despite some instances of young species radiation, most species (N%) in the family show deep sequence divergence from their nearest neighbour, indicating ancient radiation, and c) DNA barcodes can be tremendously helpful in identification and sorting material in collections and associating males and females.

## **Thermal biology of butterflies : variations in warming-up rates and flight thorax temperature**

GABRIEL NÈVE

As ectotherms, butterflies need to warm up either by shivering, using their own energy reserves, or by using the sun energy while basking. Experiments have been conducted to measure the warming-up rate of the thorax and the take-off temperature of individual butterflies under standard laboratory conditions. First, interspecific comparisons were performed. Forest species like *Kanetisia circe* need a lower thorax temperature to take off than open landscape species like *Pieris rapae* or *P. brassicae*. Warming-up rates are remarkably constant between species at ca. 0.2°C/sec, and do not depend on body size. Secondly, *Melanargia galathea* was chosen for intraspecific comparisons, as imagines of this species vary from mostly white in the lowlands of Southern France to very dark at 1800 m altitude in the French or Italian Alps. This was assumed to be an adaptation to cold environment.

Individuals of the different phenotypes were tested in the laboratory for their warming up rate. Contrary to expectation, the warming-up rate did not vary between low altitude (light phenotype) and high altitude (dark phenotype), neither in France (2 populations from Provence) nor in Italy (2 dark and 2 light coloured populations).

Frequencies of PGI alleles, however, did vary between low and high altitude suggesting, in accordance with Watt's classical studies (e.g. Mol Ecol 12 : 1265-1275, 2003), a temperature-linked selection on this locus in *M. galathea*. The likely impact of global warming on these adaptations will be discussed.

## **Molecular phylogeny of the leaf-mining moth subgenus *Ectoedemia* (Nepticulidae)**

ERIK J. VAN NIEUKERKEN & CAMIEL DOORENWEERD

The molecular phylogeny of 47 out of 48 known species of Western-Palearctic *Ectoedemia* s. str. is presented, also including several American and Asian species. The barcoding mtDNA marker CO1 as well as the nuclear EF1-alpha were sequenced for a total of 240 samples, resulting in a robust dataset with highly similar maximum parsimony and Bayesian results. For a subset, representing most species, also the nuclear ribosomal marker 28S was analysed. The resulting gene phylogenies are for a large part in concordance with an earlier phylogeny, based on morphology. Several of the previously recognized groups, with a specific host plant family, were recovered. The group feeding on Rosaceae, however, does not appear as a monophyletic group. Other groups show strong monophyletic origin with interesting relations with Asian and American relatives. Rosaceae feeding seems to be the oldest habit, feeding on Betulaceae or Fagaceae originated at least twice. Three species complexes with unclear species composition were sampled with greater intensity from different hostplants and a wide geographic range. They show aberrant patterns particularly in CO1, which fails to distinguish three closely related species in the *angulifasciella* complex but on the other hand we found two widely diverging haplotypes in an otherwise uniform *Ectoedemia albifasciella*.

### **Microsatellite analysis of *Maculinea alcon* (Lepidoptera, Lycaenidae) eggs and legs using a new method for DNA extraction from tiny amounts of tissue (Poster)**

MARTIJN BOOISTER, MARCEL EURLINGS, BARBARA GRAVENDEEL, EDDY VAN DER MEIJDEN, ERIK VAN NIEUKERKEN, NICOLIEN PUL, ALBERT VLIAGENTHART & MICHIEL WALLIS DE VRIES

Genetic variation was investigated in different forms (once considered subspecies) of *Maculinea alcon*. A new protocol was developed for DNA extraction from single fresh eggs and legs of museum preserved butterflies for amplification of microsatellites. Allelic diversity of *M. alcon* could be monitored for a period of 70 years. No consistent genetic differences between the forms were found. It is concluded that *M. alcon* is still a single widespread species in which geographical isolation of the forms in at least the West Palearctic has not yet resulted in genetic differentiation.

### ***Glyphodes perspectalis* (WALKER, 1895) Lepidoptera/Crambidae, new for Europe, getting a serious pest for boxtrees in public and private green spaces**

INGO W. NIKUSCH

In April 2007 some photos of unknown larvae, feeding in great number on boxtree in South-West Germany, were published on a scientific internet site, with the request for determination. As nobody in Germany did know these larvae, Eckard O. KRÜGER did ask Dr. Klaus SATTLER, London, for help. He determined them as the larvae of the East-Asian boxtreepest *Glyphodes perspectalis*. The result and first Breeding-experiences were published by Krüger in *Entomologische Zeitschrift-Stuttgart*, 2, 2008. That was the first record of this pyralid for Europe.



In the meantime there are many records from different parts of Germany, and also from Switzerland, France, the Netherlands and Great Britain. There are reasons to assume, that the introduction to Europe happened with imports of boxtree from East-Asia.

The species is spreading very fast and the damage on boxtree in parks, cemeteries and private gardens is immense. The control of the new pest develops very difficult. Concerning the biology of this quite nice moth in Europe, there are still many questions, especially regarding the hibernating stages. It has at least three, merging into one another generations. In the middle of November 2008, after a first frost period, full grown living larvae could be observed, which surely had no chance to develop for adults still. At the same time it was possible to find L1 larvae, which had been spinning between two leaves for hibernating. In March 2009, after a long, strong winter, still inactive L1, L2 and L3 larvae could be found in severely attacked boxtree-hedges. Completely confusing are records of first adults in March 2008 and 2009.

## **Phylogeny of Pyraloidea, analysed from morphology and molecules**

MATTHIAS NUSS

## **Biology of *Phyllonorycter millierella* (Staudinger, 1871) in Spain**

ELISENDA OLIVELLA PEDREGAL

Lepidopteran leaf miners presented a very specialized life cycle. Most of their larvae feed on leaves of trees and shrubs of Rosaceae, Fagaceae, Salicaceae, Betulaceae and Papilionaceae. Amongst them, Gracillariidae are well known as having species that are pests of the Holarctic area, and others species that have colonized Europe during last centuries. One of them is *Phyllonorycter millierella*, a small moth that feeds on the leaves of nettle tree (*Celtis australis*) during the whole larval development. Eggs are laid on the underside of leaves and larvae develop inside galleries excavated by the larvae themselves, eating the parenchyma located between the two epidermal layers of leaves. The food plant seems to be native of the oriental Mediterranean region, but it is often planted as an ornamental as it is resistant to air pollution and long-living. The fruit of this tree is sweet and edible, and can be eaten raw or cooked.

*P. millierella* is a common species in Catalonia, although never has been reported as a pest of this area (NE Spain). Little is known about the distribution and biology of this lepidoptera in this area. For this reason, intensive studies were carried out from 1999 until 2007 in Montseny (Barcelona, Catalonia). In this communication new data on the life-history and behaviour of *P. millierella* are given. The phenology of eggs, larvae and pupae were used to determine the number of generations of *P. millierella* in Catalonia. The survival rate and potential methods of control will be also evaluated. Populations of this species are usually kept under control by predators and parasitoids, but the intraspecific competition plays also an important role. Moreover, information and images on the biology of the species are presented.

## Rare butterflies and moths in the Urals

VLADIMIR N. OLSCHWANG

## Lithocolletinae (Lepidoptera: Gracillariidae) species in the Afrotropical region

JURATE DE PRINS & AKITO KAWAHARA

Moths of the subfamily Lithocolletinae are one of the smallest in size among Lepidoptera. Their complete development usually takes place within a blotch mine. Lithocolletinae currently includes 498 species worldwide in eight genera. Species diversity is very unequal, and is greatly biased towards the temperate region. Many species of Lithocolletinae occurring in the Afrotropical region remain to be described. We comment on species diversity, discuss the historical classification of the group, and present the first phylogenetic hypothesis of Lithocolletinae genera using a combination of morphological and molecular data.

## When and where did the Pasha and Radjah butterflies evolve? a phylogenetic hypothesis of the genus *Charaxes* (Lepidoptera: Nymphalidae) based on 5 gene regions

KWAKU ADUSE-POKU, ERIC VINGERHOEDT & NIKLAS WAHLBERG

Despite the long popularity of *Charaxes* among collectors and researchers, their evolutionary history is largely unknown. The current and accepted species groupings and relationships within the genus are based exclusively on adult morphology and life histories. Here, we examine the monophyly and evolutionary affinities of the species-groups within the genus *Charaxes* and explore how they relate to members of their closest genera (*Euxanthe*, *Polyura* and *Palla*) using 4167 bp of sequence data from five (1 mitochondrial and 4 nuclear) gene regions. Within the proposed phylogenetic framework, we estimate ages of divergence within the genus and also reconstruct their historical biogeography. Our full 144 exemplar samples included representatives of all known species-groups in Africa and Asia, all known species of *Euxanthe* and *Palla* and two exemplar species of *Polyura*. We found the genus *Charaxes* to be a paraphyletic group with regard to the genera *Polyura* and *Euxanthe*, contrary to the earlier assumption of monophyly. We found that 13 out of 16 morphologically defined species-groups with more than one species were strongly supported monophyletic clades. *Charaxes nichetes* is the sister group to all the other *Charaxes*. *Polyura* grouped with the *Zoolina* and *Pleione* species-groups as a well supported clade, and *Euxanthe* grouped with the *Lycurgus* species-group. Our results indicated that the common ancestor of *Charaxes* diverged from the common ancestor of *Palla* in the mid Eocene (45Mya) in (Central) Africa and began diversifying to its extant members 15 Mya latter. Most of the major diversifications within the genus occurred between the late Oligocene and Miocene when the global climates were putatively undergoing drastic fluctuations. A considerable number of extant species diverged from sister species during the Pliocene (5MYA). A dispersal-vicariance analysis suggests that many dispersal rather than vicariance events resulted in the distribution of the extant species. The genus *Polyura* and the Indo-Australian *Charaxes* are most likely the results of at least 3 independent colonizations of Asia by African *Charaxes* in the Miocene. We synonymize the genera *Polyura* and *Euxanthe*

with *Charaxes*, with the currently circumscribed *Charaxes* subdivided into five subgenera to reflect its phylogeny.

### **French's situation of *Tuta absoluta* (Meyrick, 1917) [Lepidoptera: Gelechiidae] (Poster)**

JEAN-MARIE RAMEL

This poster shows the situation in France of *Tuta absoluta* (Meyrick, 1917), a climatic prediction of invasion and elements of identification. Native from South America, this species was observed in Europe for the first time in 2006 in the province of Castellón (Spain). In 2007 and especially 2008, several outbreaks were recorded in the Mediterranean area: 2007; Spain, Province of Valencia, Balearic Islands (Ibiza), 2008; Algeria, Morocco, Corsica, Tunisia and recently, in autumn 2008, on the French mainland (Var, Bouches-du-Rhône) and last in 2009 Drôme and Gard. This evolution confirms its potential spreading. A climatic simulation using the software ©CLIMEX predicted a significant probabilities of establishment in Europe. The imago measures around 7 mm, wingspan 10 to 11 mm. Its forewing are mainly of a silvery grey color with black spots. The antennae are thread-like almost as long as the body and have a ringed aspect.

- *Tuta absoluta* can be confused with similar species, also important economically, like the ones belonging to the Gelechiidae family which have as the host plant the Solanaceae;
  - *Phthorimaea operculella* (Zeller, 1873). *Solanum tuberosum* as preferential host (present in France and Europe).
  - *Scrobipalopsis solanivora* Povolny, 1973 is restricted to *Solanum tuberosum* (present in Europe only in the Canary Island).
  - *Symmetrischema tangolias* (Gyen, 1913) *Solanum tuberosum* as preferential host (not present in France).
  - *Keiferia lycopersicella* (Walsingham, 1897) is present in Europe, only in Italy, since 2008.
- Genitalia of these species are illustrated, they are essential to confirm the diagnosis among the adult population.

### **Testing for a peninsular effect on the Iberian butterflies (Poster)**

HELENA ROMO & ENRIQUE GARCÍA-BARROS

The Iberian Peninsula has provided, as former authors state, a proof for the pattern termed 'peninsular effect' (a decreasing gradient in species richness from the isthmus to the tip of the peninsula); this is in part due to the geometry of the Iberian land mass, and to the north-eastern location of the isthmus. Positive evidence for this pattern were formerly provided using distribution data from Iberian butterflies, although such studies relied on gathered data from 'expert-drawn' distributions and a wider resolution scale. Spatial effects different from the distance to the isthmus, were not thoroughly assessed in those studies. The main data for this survey come from a presence/absence Iberian butterfly database (Lepidoptera, superfamilies Papilionoidea and Hesperioidea), covering ca. 230 species at a grid size of 50 x 50 km in the UTM system. Further, we incorporate information for estimated sampling effort, some relevant physiographic variables, and nonlinear spatial effects. A stepwise forward regression model with

backward removal at each step (GRM) was carried out. The results suggested that a peninsular effect cannot be completely ruled out although being difficult to distinguish from other spatial effects, but some physiographic variables, namely altitude, are primarily correlated to species richness. Besides, controlling for sampling effort may importantly modify the results.

### **New results in the taxonomy of the genus *Cucullia* sensu lato (Noctuidae)**

GÁBOR RONKAY & LÁSZLÓ RONKAY

The Palaearctic and Oriental species of the genus *Cucullia* Schrank, 1802 s. str. have been revised, the results are published in the second volume of the Taxonomic Atlas. The modern interpretation of the taxonomic content of *Cucullia* is based on the species-group system proposed by the authors in 1994, extending the frames of this monophylum, and resulting in the establishment of a number of newly species-groups and two new synonymies (*Dasyternum* Staudinger, 1895 and *Metlaouia* Dumont, 1929). The genera *Cucullia* and *Calocucullia* Ronkay & Ronkay, 1987 comprise now altogether 150 taxa of 126 species, 6 new species and 7 new subspecies are recognised and described.

### **The revision of the *Apamea* generic complex (Noctuidae). I. The ancient groups of the Himalayan-Sino-Pacific *Apamea* s.l**

KAURI MIKKOLA, GÁBOR RONKAY, LÁSZLÓ RONKAY, ZOLTÁN VARGA & ALBERTO ZILLI

The taxonomic revision of the Eurasian *Apamea* sensu lato generic complex has been finished, resulting in certain changes in the genus-level taxa of the European Apameas, too. This lecture is the exposition of the topic and the introduction of the ancient non-*Apamea* and *Apamea* lineages having the tubular structure of the vesica and the evaluation of the specially modified "apameoid structures" of the genitalia of both sexes.

### **Asymmetrical Speciation and relictual host plant use in the Holarctic genus *Syndemis* (Tortricidae)**

DANIEL RUBINOFF & JERRY POWELL

The Holarctic tortricid moth genus *Syndemis* contains two described species: *Syndemis musculana* and *S. afflictana*, the former from the Palearctic and the latter from North America.

There are many superficial similarities between them and some workers suspect that these were in fact just a single species in a monotypic genus. Both *Syndemis* feed on a wide range of hosts including Gymnosperms (e.g. *Abies*) and Angiosperms (e.g. *Pyrus*). *S. afflictana*, the Grey Leaf Roller, is known as a pest of tree fruits in eastern North America. Although the species is found all the way to the west coast of the continent, it is not considered a significant forest or crop pest outside of eastern North America. Recently, isolated populations of *Syndemis* were discovered in central California, feeding on Monterey Pine (*P. radiata*) and Redwood (*S. sempervirens*) two trees with declining, relictual distributions. We sampled *Syndemis* populations across North America and, using the European *S. musculana* as an outgroup, sequenced parts of the Mitochondrial gene COI, and the nuclear genes Eflalpha and 28S. These molecular characters suggest a surprising phylogenetic diversity in the genus including at least 5 species and host-specific speciation onto declining relictual hostplants. This pattern is in contrast with the dominant paradigm of cospeciation in plants and insect herbivores.

## **Climatic impacts on a cold hardy subarctic moth fauna, early lessons in a changing climate**

NILS RYRHOLM & PAVEL BÍNA

Since 1986 we have studied the moth fauna of the mountains of Härjedalen in Central Sweden. During this period there has been clear changes in the climate making it warmer on average. But during the years there has also been short term fluctuations both up and down. By the aid of this data we have been able to analyse the impact of various climatic factors and their variation on the cold adapted boreal fauna of the region. Somewhat surprisingly all species appear to react positively and instantly to a warmer summer climate, including arctic and boreal species on their southern range limit. Thus this is a strong indication that southern range limits of boreal moths in Scandinavia are not climate geared. However, the indirect effects of a warmer climate can already be seen on some of these species.

Our data shows that it takes several years of good or at least suitable weather to build up populations if they have been on low or very low levels. The factor having the largest positive impact is above average temperatures during the summer but also during the entire vegetation period. Besides low temperature, higher amounts precipitation has the most negative influence on population sizes for most of the investigated species. A warmer climate also allows “southern” species to expand into these cooler areas previously not within their survival range. Consequently a set of warm seasons increases both the number of surviving individuals within the species but also the number of species that can be found in the region. However the cold summers within the general upward climatic trend occasionally wipes out the newcomers during harsh years so the pay off in being a pioneer is not the most encouraging in a cold and unpredictable climate. So whereas it takes at least 2-3 years to build up population numbers for most species, it only takes one season or an even shorter period with detrimental weather to ruin the major part of individuals of most species. If there are two consecutive years with cold summer weather the impact is dramatic for most species, including common and widespread ones and the long and hard struggle to build up population starts again when and if the climate allows such a frivolous enterprise.

## **Paleontological data and the archetype of gelechioid moths (Lepidoptera: Gelechioidea)**

SERGEY YU. SINEV

The representatives of the superfamily Gelechioidea are known mainly from the Baltic and Dominican amber. At present ca. 30 fossils are described and assigned by the authors to the extant families Oecophoridae, Gelechiidae, Symmocidae, Ethmiidae, Elachistidae, and Cosmopterigidae. However the fossils, due to the peculiarities of the external morphology of gelechioid moths (dense scale coverage, roof-shaped wing folding, etc.), very rarely display the autapomorphies that are diagnostic of individual families. A considerable proportion of the family assignments of fossil Gelechioidea proposed previously are based on general superficial similarity (size, habitus, forewing venation) and some of these interpretations can be characterized as misleading which creates the erroneous notion concerning the composition of the Eocene fauna of Gelechioidea.

Our re-examination of the Eocene fossils of gelechioid moth revealed that most of them can be really referred to the Oecophoridae s.l. But since this family appeared to be paraphyletic, some of these fossils presumably belong not only to Oecophoridae s.str. but to other gelechioid families like Autostichidae (Symmocidae) and Xyloryctidae. There are no clear evidences that the families Elachistidae, Ethmiidae, Gelechiidae, and Cosmopterigidae were represented already in Eocene. Their representatives can be safely determined only using the hindwing venation and the genitalia structures which are mostly invisible in the fossils.

In that way, the known fossils can contribute very little to the understanding of both ancient family composition and phylogenetic relationships within the superfamily, but they provide the only direct means for establishing the minimum ages of individual evolutionary lineages and give ideas about the ground plan of the oldest Gelechioidea. More precise definition of the systematic position of the Eocene Gelechioidea combining with the analysis of life-style of the recent ones closely related to the archetype according to the morphological characters allow us to propose an evolutionary scenario for gelechioid moths. It seems important that most of the known inclusions belong to moths whose larvae were evidently detritivorous. Thus we hypothesize that the larvae of ancestral gelechioids were free living saprophages and transfer to phytophagy, especially in its specialized forms, took place independently in different families.

## **Noctuidae (Lepidoptera) materials collected from Kerman, Iran**

ASGHAR SHIRVANI SAADATABADI

Geographically, Kerman province is located in southeast of Iran. Lut desert covers broad area of south and southeast whereas high mountains constitute some regions in north, west and centre of the province. Annual precipitation do not exceed of 180 millimetres. As a consequence of these climatic and geographical conditions, the region is considered as arid and semi-arid zone having xeromontane and eremic zoniomes. In a faunistic survey during years 2006-2008, fauna of Noctuidae family of Kerman was investigated. Different locations of various geographical coordinates and altitudes were chosen and samplings were done using light traps in different intervals. The relationships between geographical coordinate, altitude, season, and vegetation with species were evaluated. In total 104 species of 51 genera belonging to 14 subfamilies from

500 to 3000 metres altitudes were collected and identified. Of these, 53 species are firstly recorded for the fauna of Kerman. Noctuidae subfamily having 42 species had the highest number of species while Psaphidinae, Acronictinae and Amphipyridae each with one species had the minimum number of species. Most species of Xyleninae showed either late or early flying pattern of flight. Those of other subfamilies evenly differ thorough the seasons. The dominant vegetation of the locations was *Artemisia* species except for saline habitats which *Salsola* species cover the lands.

### **Do agrienvironmental and afforestation subsidies help or destroy the biodiversity of Czech Carpathian grasslands? (Poster)**

L. SPITZER, O. KONVIČKA, JIŘÍ BENEŠ, MATRIN KONVIČKA & M. POPELÁŘOVÁ

Owing to their remoteness, westernmost slopes of Czech Carpathians (Vsetínské and Javorníky Mts.) represent a stronghold for endangered biota associated with traditional land use. The regional metapopulation of the HD-directive butterfly *Phengaris arion* is the largest in the country. The butterfly offers umbrella for extremely rich entomofauna, including the critically endangered butterfly *Argynnis niobe* and the grasshopper *Psophus stridulus*. Survival of the entire system depends on a continuation of small-scaled, diverse and temporally variable sheep-based farming. As a result of agricultural intensification, the landscape management favourable for all these species has receded the most rugged terrains of the mountains. With decreasing profitability of the mountain farming, the local rural communities increasingly depend on various forms of subsidies.

Unfortunately, existing conservation-oriented payments, including the EU Agrienvironmental schemes, fail to provide for the temporal and spatial heterogeneity of land use, which appears as the crucial factor for maintaining the areas's biodiversity. Afforestation subsidies are probably even worse, because forests, once planted, cannot be converted back to non-forest land due to legal obstacles. An urgent revision of both the philosophy and practical implementation of conservation subsidies is needed.

Studies of West Carpathians butterflies was funded by UNDP-GEF, the Czech Conservation Authority, the Czech Ministry of Education (LC06073, 6007665801).

### **New records of Noctuidae in the Province Ipiros, Greece**

GÜNTER STANGELMAIER

The Noctuid fauna in the region of Ipiros, Greece is only little known. The research work in the last years brought some new results: In the surroundings of Igoumenitsa the new *Catocala brandti* was discovered and *Eublemma himmighoffeni* was reported here for the first time in Greece. The most interesting area are the Pindos mountains north of Joanina with deep unapproachable gorges. From here *Chorizagrotis penelope* and *Dichagyris melanura dufayi* were described and newly *Autophila banghaasi* was found for the first time in Europe. Still more discoveries are expected.”

### **New and Rare Macrolepidoptera (Heterocera) from Romania (Poster)**

LEVENTE SZÉKELY

This study represents a synthesis of the Romanian faunistic results on Lepidoptera obtained by the author during his recent research (2005-2008). The material includes:

- species that are new for the Romanian fauna, eg; *Cilix asiatica* O Bang-Haas,1907, *Cucullia argentina* (Fabricius, 1787), *Saragossa porosa porosa*(Eversmann,1854)
- species that are new for various regions of Romania eg: *Lasiocampa eversmanni* (Eversmann,1843), *Peribatodes umbraria*(Hübner,1809), *Mormo maura* (Linnaeus,1758), *Eucarta amethystina* (Hübner,1803), *Cleoceris scoriacea* (Esper,[1793]) - new for Dobrogea etc.
- species that have been known in the Romania fauna based exclusively on records older than 50 years (species reconfirmation), eg: *Eupithecia cretacea fenestrata* Milliere, 1874, *Thaumatopoea pityocampa* ([Denis &Schifferrmüller],1775)
- very rare species with few records in the Romanian fauna, eg; *Digrammia rippertaria* (Duponchel,1830), *Chrysodeixis chalcites* (Esper,1789), *Cucullia biornata* Fischer v. Waldheim,1840, *Saragossa siccanorum* (Staudinger,1870), *Leucania zae* (Duponchel,1827), *Grammia quenseli* (Paykull,1793).

### **Evolution of female flightlessness in Geometridae: a phylogenetic study**

NIKLAS WAHLBERG, NIINA SNÄLL, JAAN VIIDALEPP, KAI RUOHOMÄKI & TOOMAS TAMMARU

To investigate the patterns of evolution of female flightlessness among the subfamily Ennominae (Lepidoptera, Geometridae), we performed a phylogenetic analysis based on a morphological data matrix, and DNA sequences from seven nuclear gene fragments. Sampling included 39 species of Ennominae covering all tribes comprising species with flightless females in the Holarctic boreal zone. The resulting phylogeny indicated that there are seven independent origins of female flightlessness among forest moths of that subfamily. The tribe Boarmiini s. lat. clearly represents a clade in which female flightlessness has evolved more frequently than in any other tribe. This confirms our hypothesis that certain groups have been predisposed for female flightlessness to evolve. The results will be discussed from the perspectives of both taxonomy and evolutionary ecology of Geometridae.

### **‘Experiences’ (23 years databasing of Lepidoptera in the Tiroler Landesmuseum Ferdinandeum in Innsbruck, Austria)**

GERHARD M. TARMANN

Since 1986 information on Lepidoptera is databased in the Tiroler Landesmuseum Ferdinandeum in Innsbruck following the loss of the historical card index in a flood disaster in 1985. After some early years of ‘experimenting’ a consequent workflow could be implemented, a powerful software developed and installed and a continuity could be established. 1.5 million biological data are hosted in the museum’s databases, ca. 500.000 of them about Lepidoptera. This development is shortly summarized. Examples where these data were successfully used for collection management, taxonomic and biogeographic works, nature conservation and international cooperations are presented.



## **Anania (Hübner, 1823) [Lepidoptera: Crambidae: Pyraustinae] characters of the terminalia (Poster)**

ANDREAS TRÄNKNER

## **Lepidoptera of the German federal state of Baden-Wuerttemberg online**

ROBERT TRUSCH

The State Museum of Natural History in Karlsruhe collects data on the moths and butterflies of Baden-Wuerttemberg in a central Lepidoptera database which is not publicly accessible. The database is supervised by the Lepidoptera section of the entomological department of the museum. The observation and collection data incorporated in the database are recorded predominantly by honorary co-workers of the project. In mid 2008 we have published updated distribution maps of all 1.167 species of butterflies and moths (mainly macro-moths) of Baden-Wuerttemberg online under [www.schmetterlinge-bw.de](http://www.schmetterlinge-bw.de).

Making updated grid distribution maps available to the general public is intended to counteract the effect that the maps published between 1991 and 2005 in the book series „Die Schmetterlinge Baden-Württembergs“ (The Macro-Lepidoptera of Baden-Wuerttemberg, edited by G. Ebert) are becoming outdated slowly but inevitably. The online maps allow users to click on a grid to see the year of the record and the recorder's name which is a novel functionality compared to the printed maps. Observers can compare their own records with the complete set of database records and may spot potential inaccuracies or errors.

Baden-Wuerttemberg is not the only place where the number of active lepidopterists is decreasing. This trend means that in the future fewer people with specialist knowledge will be available for faunistical projects. Reaching a wider range of potentially interested people via the internet may help to develop new circles of co-workers.

Quality control is enhanced by the exclusive admission of dependable or checked records into the database. New recorders need to understand that a scientifically reliable record often requires documentation, beginning with photography and ending, if necessary, with the collecting of a specimen. Recorders have to be encouraged to acquire a profound knowledge of the species and to take up collecting. To this end the museum is ready to provide them assistance in applying for the necessary collecting permits.

The task of the central Lepidoptera database in Baden-Wuerttemberg is to keep up-to-date our knowledge concerning the occurrence, seasonal appearance, habitats, and threats of the local species, and to make this information available to researchers, to conservationists and to the interested general public. The database contributes to the preservation of threatened Lepidoptera by providing important data to the „endangered species protection programme“ (Artenschutzprogramm) of the state of Baden-Wuerttemberg which is carried out by the „Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg“ (LUBW), the federal authority for environment, measurements and nature conservation.

The database is equally indispensable in supplying data on the species protected under the Natura 2000 network of the European Community (FFH), and for the production of red data books of threatened species.

**The Dusky Large Blue – *Maculinea nausithous* (Bergsträsser, [1779]) (Lepidoptera, Lycaenidae) in the Transylvanian basin: New data on taxonomy and ecology**

LÁSZLÓ RÁKOSY, ANDRÁS TARTALLY, MARIN GOIA & ZOLTÁN VARGA

*Maculinea nausithous* (Bergsträsser, [1779]) was recently discovered in two parts of the Transylvanian basin. External characters of this populations completely agree with the original description of *Maculinea nausithous kijevensis* (Sheljuzhko, 1928) and show some small but constant differences against the Central European nominotypic populations. Since the habitats and host ant selection of these populations are also different from the Central European populations, we consider *M. nausithous kijevensis* (stat. revid.) as a valid subspecific taxon.

**Taxonomic review of *Euphydryas (Hypodryas) matura* (Linnaeus, 1758) (Lepidoptera, Nymphalidae) with description of a new subspecies from Dobrogea (Romania) and notes on conservation biology**

LÁSZLÓ RÁKOSY, KATALIN PECSENYE, CIPRIAN MIHALI, ANDREA TÓTH & ZOLTÁN VARGA

Taxonomy, geographical range and subspecific subdivision of *Euphydryas matura* is considered. The isolated population of this polytypic species from Dobrogea is described as a new subspecies *E. matura opulenta* based on external and genital characters. The separation is also supported by the significant genetic differentiation based on 17 allozyme loci. Problems of genetic differentiation, phylogeography and conservation biology of *E. matura* are discussed.

**Revision of the genus *Xenophysa* Boursin, 1969 (Lepidoptera, Noctuidae)**

ZOLTÁN VARGA

The genus *Xenophysa* Boursin, 1969 is revised with the description of a new subgenus *Paraxenophysa*, with the description of a new species, with re-description of 2 species and revised status of 4 species. The distribution and phylogeny of the genus is re-considered. Key of identification based on male and female genitalia and map of distribution of all known taxa are given.

**Lock-and-key structures: geometry and physical constraints in Noctuinae and Hadeninae (Lepidoptera: Noctuidae)**

ZOLTÁN VARGA

Monophyletic species groups will be defined based on homologous structures of clavus, carina and vesica in Rhyacia and Chersotis and their phylogenetic connections outlined. Hypotheses on allopatric speciation are discussed. Some major types of “lock-and-key” structures

in Noctuidae are outlined, the principle of parsimony in differentiation processes will be discussed. Cases of parallel transformation of tubular vesica into a T-shaped vesica presented with discussion of the “three-point-fixation” of the lock-and-key structures. Case study on co-evolved structures of male and female genitalia in the Polia-related generic groups.

### **Data concerning *Maculinea* genus in Romania (Lepidoptera, Lycaenidae)**

RALUCA VODA, NATALIA TIMUS, CIPRIAN MIHALI, RĂZVAN POPA, ZOLTAN VARGA & LASZLO RAKOSY

Romania is one of the European countries with the highest and best preserved biodiversity. Romania is also privileged in what concerns the species of the *Maculinea* genus because all the four (five) species live here. Unfortunately, their distribution, together with the biology and aspects of their conservation and protection are little studied and known. With the exception of the studies on population of *Maculinea nausithous* from Cluj surroundings (Tartaly & all. 2007, Rakosy & all in press) the distribution, biology and ecology of the *Maculinea* genus in Romania are not known.

The authors of this paper integrated the faunistic data to find out about the distribution and the biology of the genus, with reference to the situation of the populations and suggestions for the management of the areas in which these species are present.

We distinguished the population of *Maculinea nausithous*, which belong to another subspecies than those in Central Europe.

### **Thermal ecology of hibernating larvae of *Colias palaeno* (Poster)**

PAVEL VRBA, MARTIN KONVICKA & OLDRICH NEDVED

*Colias palaeno* (Linnaeus, 1761) is boreal butterfly with the core of its European distribution in the northern parts of the continent. In Central Europe, at its southern range border, its distribution is restricted to islets of suitable habitats, typically peat bogs. This makes it more vulnerable here and *C. palaeno* belongs often to threatened species in many countries. A potentially critical factor for survival of the southern populations may be recent climatic warming, which may have negative impacts on both habitat structure and individual survival. As in most of mountain and northern species, the ecophysiological limits of *C. palaeno* are practically unknown. Here we present first findings from our study of thermal ecology of this species – supercooling point and lethal temperatures of hibernating larvae.

To obtain hibernating larvae, we collected inseminated females from the largest metapopulation system of this species in Czech republic and allowed to oviposit them in captivity. Obtained larvae were reared on their host plant (*Vaccinium uliginosum*) until hibernation.

Using gradual cooling of experimental animals, we identified the supercooling point. Mean/median values were -25.3/-27°C. Animals did not survive freezing their body tissues, which points to freeze-avoiding strategy of this species. By exposing groups of experimental animals to a range of temperatures slightly above the supercooling point, we identified lethal temperature. The highest temperature, which induced mortality of experimental animals was -26°C.

These pilot experiments indicate that *C. palaeno* is freeze-avoiding species, exhibiting lethal temperature slightly above the supercooling point. According to detected lethal temperatures, this species may be negatively affected by recent climatic changes – lacks of snow cover during winter may cause prolonged exposures to severe frosts, situation which occurred only rarely in the past. Further eco-physiological experiments (including analyses of survival of next developmental stages of cold-exposed larvae) are necessary for elucidating the eco-physiological limits of *C. palaeno* in more detail.

## **Climatic Risk Atlas of European Butterflies**

JOSEF SETTELE, OTAKAR KUDRNA, ALEXANDER HARPKE, INGOLF KÜHN, CHRIS VAN SWAAY, RUDI VEROVNIK, MARTIN WARREN, MARTIN WIEMERS, THOMAS HICKLER, ELISABETH KÜHN, INGE VAN HALDER, JAN HANSPACH, KARS VELING, ALBERT Vliegenthart, IRMA WYNHOFF & OLIVER SCHWEIGER

Climate change is a new and potent risk to biodiversity. The presentation summarizes the results of the Atlas, which is an early attempt to investigate the possible effects of climate change on the majority of European butterflies by modelling the impact of various future climate scenarios. The results are important because butterflies are one of the few groups of insects for which such comprehensive data are available at a European level.

The study shows clearly that climate change poses a considerable additional risk to European butterflies. However, the risk varies considerably under different scenarios:

Under the extreme, no dispersal, GRAS scenario (4.1°C mean temperature increase by 2080), 24% of the modelled species lose more than 95% of their present climatic niche by 2080 and 78% lose more than 50%.

Under the moderate, no dispersal, SEDG scenario (2.4°C increase), only 3% lose more than 95% of their climatic niche and 48% lose more than 50%.

The results also show that there is a considerable time lag in the effects of climate change. Until 2050, there are periods of intermediate better conditions for many warmth-loving species, but these subsequently get worse.

Due to lack of data on the dispersal ability of most butterfly species the climate niche availability was only modelled under the extremes of full or no dispersal. The results confirm that dispersal is one of the major factors affecting the survival ability of a species under future climatic conditions and further research is needed in this area.

The Atlas has 710pp. and was published by Pensoft Publishers (Sofia & Moscow) as a special issue of BioRisk, a new open-access journal of biodiversity and environmental sciences. An online version can be viewed at [www.pensoftonline.net/biorisk](http://www.pensoftonline.net/biorisk)

## **DNA barcoding in European butterflies – applications and limitations**

MARTIN WIEMERS

DNA barcoding, the analysis of a 650bp section of the mitochondrial gene cytochrome c oxidase I, has recently been promoted for the fast and reliable identification of organisms as well as for the discovery of new taxa, but it has also been criticized especially from the taxonomists' community. Despite criticism, the Barcode of Life Database (BOLD) has successfully amassed more than 500,000 barcode sequences since its launch in 2004, half of which belong to the

Lepidoptera. BOLD currently holds five times more Lepidoptera sequences than GenBank, if sequences of *Bombyx mori* are excluded.

This presentation will focus on applications and limitations of the barcoding technique and provide examples from ongoing molecular research projects in Palearctic butterflies of the genera *Agrodiaetus*, *Lysandra*, *Coenonympha*, *Pontia*, *Colias* and *Iphiclides*. Applications include the identification of early stages, their parasites and foodplants, matching male and female specimens, discovery of cryptic species and the analysis of migration. Limitations and errors however can be caused by contamination, hybridization and gene flow as well as incomplete lineage sorting.

### **Increased taxon sampling with short molecular sequences - does it support recovery or collapse of monophyly?**

JOHN J. WILSON

Recent availability of large species rich datasets of homologous molecular sequences opens the possibility of simultaneously analyzing phylogenetic relationships in widely different groups across widely different levels of the taxonomic hierarchy. While many have concluded this dataset is limited due to the small number of characters available per taxon, another school of thought suggests that the increase in taxon sampling may significantly improve any phylogenetic estimates obtained. Using a DNA barcode dataset of Macrolepidoptera, I investigate the hypothesis that an economical and efficient way to improve phylogenetic estimates is to exploit valuable molecular data collected for diverse purposes.

### **A preliminary study of everted vesica of several leafrollers (Tortricidae)**

BOYAN ZLATKOV

In this study everted vesicae of 23 tortricid species belonging to all European tribes with the exception of Euliini [Tortricini, Cochylini, Cnephasiini, Archipini, Sparganothini, Polyorthini, Bactrini, Olethreutini, Enarmoniini, Eucosmini, and Grapholitini, according to the systematic of Razowski (2002, 2003)] are described. Differences and similarities between the structures of vesica are commented on. In all investigated specimens, the vesica is tubular with the primary gonopore located terminally or subterminally, with the exception of Cochylini. Apparently, the vesica is non-eversible in many Eucosmini. Three main types of cornuti are observed: 1) special sclerotized areas of the vesica typical for examined Cochylini; 2) sclerotized extensions of the aedeagus' wall on the vesica, as in *Orthotaenia undulana*; and 3) modified deciduous or non-deciduous (fixed) setae in most species. Several modifications improving the injection eversion technique of Dang (1993) are described.

<b>List of Participants</b>	
* the names of the accompany people are written in italics	
<b>Name</b>	<b>Country</b>
Gerhard Tarmann	Austria
Oliver Janzek	Austria
Peter Huemer	Austria
Günter Stangelmaier	Austria
Christian Wieser	Austria
Konrad Fiedler	Austria
Marion Kurz	Austria
<i>Andreea Janzek</i>	<i>Austria</i>
<i>Ilse Stangelmaier</i>	<i>Austria</i>
<i>Claudia Wieser</i>	<i>Austria</i>
Martin Wiemers	Austria
Andre Verboven	Belgium
Theo Garrevoet	Belgium
Ugo Dall'Asta	Belgium
Jurate De Prins	Belgium
Willy De Prins	Belgium
Boyan Zlatkov	Bulgaria
Stoyan Beshkov	Bulgaria
Lyubomir Penev	Bulgaria
Vazrick Nazari	Canada
John J. Wilson	Canada
Jason J. Dombroskie	Canada
<i>Dave Lawrie</i>	<i>Canada</i>
Zdeněk Laštůvka	Czech Republic
Milan Hluchý	Czech Republic
Lukas Spitzer	Czech Republic
Pavel Vrba	Czech Republic
Zdenek Fric	Czech Republic
Jiri Benes	Czech Republic
Michael Fibiger	Denmark
Niels P. Kristensen	Denmark
Ole Karsholt	Denmark
Toomas Tammaru	Estonia
Kauri Mikkola	Finland
Jari Junnilainen	Finland
Zdravko Kolev	Finland
Antti Aalto	Finland
Jean-Marie Desse	France

Eric Drouet	France
Jean-Marie Ramel	France
Gabriel Nève	France
Andreas Tränkner	Germany
Wolfgang A. Nässig	Germany
Petra Zub	Germany
Matthias Nuss	Germany
Ingo Nikusch	Germany
Jörg Gelbrecht	Germany
Ulrich Dierkschnieder	Germany
Richard Mally	Germany
Franziska Bauer	Germany
Robert Trusch	Germany
Michael Falkenberg	Germany
Axel Steiner	Germany
Dieter Fritsch	Germany
Herbert Beck	Germany
Manfred Sommerer	Germany
Wolfram Mey	Germany
Bernd Müller	Germany
Franz Theimer	Germany
Daniel Bartsch	Germany
Harald Schreiber	Germany
Manfred Gerstberger	Germany
Reinhard Gaedike	Germany
Gunter Ebert	Germany
<i>Eberhard Schwabe</i>	<i>Germany</i>
<i>Thomas Drechsel</i>	<i>Germany</i>
<i>Cornel Kraus</i>	<i>Germany</i>
<i>Gertraud Bretzfeld-Sommerer</i>	<i>Germany</i>
<i>Margit Müller</i>	<i>Germany</i>
<i>Markus Salmen</i>	<i>Germany</i>
<i>Maria Schreiber</i>	<i>Germany</i>
<i>Hannelore Gaedike</i>	<i>Germany</i>
Laszlo Ronkay	Hungary
Zoltan Varga	Hungary
Mehdi Esfandiari	Iran
Asghar Shirvani	Iran
<i>Maryam Rashkighaleno</i>	<i>Iran</i>
Povilas Ivinskis	Lithuania
Marc Meyer	Luxembourg

Andreas Werno	Luxembourg
Jaroslav Buszko	Poland
Adam Malkiewicz	Poland
Wojtek Kubasik	Poland
Izabela Szelag	Poland
Artur Baranowski	Poland
<i>Malgorzata Skwysz</i>	<i>Poland</i>
Maciej Matraj	Poland
Lukas Przybylowicz	Poland
Dariusz Skibinski	Poland
Sergiu Mihut	Romania
Szekely Levente	Romania
Constantin Corduneanu	Romania
Gabriela Corduneanu	Romania
Ovidiu Popovici	Romania
Catalin Balan	Romania
Ioan Surugiu	Romania
Adorian Ardelean	Romania
Mihaela Cristescu	Romania
Silvia Burnaz	Romania
Zoltan Kovacs	Romania
Sandor Kovacs	Romania
Laszlo Rakosy	Romania
Raluca Voda	Romania
Silvia Griger	Romania
Ciprian Mihali	Romania
Natalia Timus	Romania
Razvan Popa	Romania
Cristian Sitar	Romania
Andrei Crisan	Romania
<i>Corina Ardelean</i>	<i>Romania</i>
Vladimir Olschwang	Russia
Sergey Sinev	Russia
Anna Abramova	Russia
<i>Valentina Olschwang</i>	<i>Russia</i>
<i>Anna Timofeeva</i>	<i>Russia</i>
Jose Martin Cano	Spain
Roger Vila	Spain
Vlad Dincă	Spain

Helena Romo	Spain
Enrique Garcia-Barros	Spain
<i>Esperanza Garcia</i>	<i>Spain</i>
Joaquin Baixeras	Spain
Elisenda Olivella	Spain
Sergio Montagud Alario	Spain
Alberto S. Mocholi	Spain
Pilar Gurrea	Spain
Victor Sarto i Monteys	Spain
Nils Ryrholm	Sweden
Bengt A. Bengtsson	Sweden
Ingvar Svenson	Sweden
Erik van Nieukerken	The Netherlands
Kwaku Aduse-Poku	The Netherlands
Frans Post	The Netherlands
Marja van der Straten	The Netherlands
<i>A.H.M. van Langen</i>	<i>The Netherlands</i>
Feza Can	Turkey
<i>Onur Can DOĞANLAR</i>	<i>Turkey</i>
Zoja F. Kljuchko	Ukraine
Elena M. Kljuchko	Ukraine
Lizunova G. Alina	Ukraine
Konstantin Efetov	Ukraine
Roman Bidychak	Ukraine
Paul Waring	United Kingdom
<i>Rachel Thomas</i>	<i>United Kingdom</i>
<i>Kristy Waring</i>	<i>United Kingdom</i>
David Agassiz	United Kingdom
<i>Dorothy Agassiz</i>	<i>United Kingdom</i>
Nick Greatorex-Davies	United Kingdom
John Brown	USA
<i>Poody Brown</i>	<i>USA</i>
Todd Gilligan	USA
George Balogh	USA
<i>Terri A. Balogh</i>	<i>USA</i>
Richard Brown	USA
Dan Rubinoff	USA

### Number of SEL Congress participants since 1996

Country	year						
	1996 Miraflores	1998 Malle	2000 Bialowieza	2002 Korsør	2005 Rome	2007 Erkner	2009 Cluj - Napoca
A	1	4		5	4	8	11
B	3	21	3	5	3	5	5
BG	1	1	2	1		1	4
Canada				2	2	6	4
CH	4		2	2	2	3	
CZ	2	2		2	4	10	6
D	20	31	22	28	16	40	32
DK	2	4	6	13	4	6	3
E	28	2	2	9	8	4	12
EE			1	2	3	2	1
FIN	1	2	3	8	6	3	4
F	4	6	5	2	7		4
GR	1	1					
H			1	2	3	2	2
IR			1				3
I	7	7	5	3	18	2	
LT	1	2		1		2	1
LV	1		1				
LU							2
LX	2		2			1	
N		1		1	1	1	
NL	9	14	4	8	9	10	5
PL	5	7	13	5	6	9	11
P			1	1	1		
RO	2					1	21
RUS	3	4	2	3	3	9	5
S	1	2	3	8	4	3	3
SLO				1			
TK			1		1	2	2
UK	10	18	5	13	11	10	6
UA	3	4	2	3	2	5	5
USA	1	1	1	4	5	13	7
S- America	3						
Asia	3	4	4	3	4	6	
Africa		1					
Australia				1			
<b>Total</b>	<b>116</b>	<b>142</b>	<b>93</b>	<b>134</b>	<b>127</b>	<b>161</b>	<b>159</b>