



Mendel
University
in Brno



5th International Tenebrionoidea Symposium

Prague, Czech Republic

March 5–6th 2018



Faculty
of Forestry
and Wood
Technology



NÁRODNÍ
MUZEUM



Symposium Schedule

Monday 5th March 2018

9:00 / Registration opens

9:30 / Welcome addresses, Institutional Greetings and Announcements

10:00 – 11:00 / **Talks**

11:00 – 11:30 / Coffee Break

11:30 – 12:30 / **Talks**

12:30 – 14:00 / Lunch

14:00 – 15:00 / **Talks**

15:00 – 15:30 / Coffee Break

15:30 – 16:10 / **Talks**

16:10 – ??? ☺ / **Discussion**

19:00 DINNER – place (restaurant) to be specified at the symposium

Tuesday 6th March 2018

10:00 – 11:00 / **Talks**

11:00 – 12:00 / **Poster Session**

12:00 – 13:00 / Lunch

13:00 – 14:00 / **Talks**

Symposium closing session

Visit Tenebrionidae collection of Natural History Museum Prague.

Note: Part of the participants can shortly visit (approx. 3 and perhaps 4-5 hours) the Tenebrionidae collection on Tuesday already. This option is suitable for those who leave on Wednesday morning or before midday.

The others will visit the collection on Wednesday or/and Thursday, where they can spend whole day. Please note, that there is limited space and according to the information given more than approx. 10 persons will not enjoy the collection much as there will be overcrowded. But I believe we can shift somehow.

In the museum you will be hosted by Jiří Hájek, Lukáš Sekerka or Martin Fikáček.

Symposium Programme

Monday 5th March 2018

9:00 / Registration opens

9:30 / Welcome addresses, Institutional Greetings and Announcements

Talks

10:00 – 10:20 / **Maxwell V. L. Barclay**

The Tenebrionidae Collection of the Natural History Museum.

Maxwell V. L. Barclay

10:20 – 10:40 / **Harold Labrique**

The tenebrionid beetles in the Musée des confluences collections

Harold Labrique

10:40 – 11:00 / **Sergio Aloquio**

Brazilian Tenebrionidae: what is known and what are the future perspectives

Sergio Aloquio

11:00 – 11:30 / Coffee Break

11:30 – 11:50 / **Patrice Bouchard**

Contribution to the knowledge of the darkling beetle subfamily Phrenapatinae (Coleoptera: Tenebrionidae): checklist of the world fauna and description of pupae.

Patrice Bouchard

11:50 – 12:10 / **Kojun Kanda**

Taxonomic Studies of New World Laenini (Tenebrionidae: Lagriinae).

Kojun Kanda, M. Andrew Johnston

12:10 – 12:30 / **Wolfgang Schawaller**

"Ultra"-psammophilous Tenebrionidae in the deserts of the Old World.

Wolfgang Schawaller

12:30 – 14:00 / Lunch

14:00 – 14:20 / **Warren E. Steiner, Jr.**

Descriptions of the larva, pupa, habitats and life history of the North American darkling beetle *Idiobates castaneus* (Knoch) (Coleoptera: Tenebrionidae; Tenebrionini).

Warren E. Steiner, Jr.

14:20 – 14:40 / **Smith, A.D.**

Biodiversity and Phylogeny of Pimeliinae: preliminary findings and next steps.

Smith, A.D., K. Kanda, M. Kaminski, P. Bouchard, G. Flores, G. Kergoat, F.

Condamine, R. Aalbu, A. Lamb, L. Purchart

14:40 – 15:00 / **Rolf L. Aalbu**

Assessing the current status of the Edrotini.

Rolf L. Aalbu, Christopher C. Wirth

15:00 – 15:30 / Coffee Break

VARIOUS

PIMELIINAE

15:30 – 15:50 / **Gustavo E. Flores**

Revision of the Edrotini (Tenebrionidae: Pimeliinae) of Peru.

Alfredo E. Giraldo Mendoza, Gustavo E. Flores

15:50 – 16:10 / **Christopher C. Wirth**

Towards a Revision of the genus *Edrotes*.

Christopher C. Wirth

Discussion

Potential localities and dates for the 6th International Tenebrionoidea Symposium.

(Presenters can give talk about the most suitable options for the host country).

Decide a journal, dates, etc. for publishing the symposium Proceedings.

Tuesday 6th March 2018

Talks

10:00 – 10:20 / **Gustavo E. Flores**

Revision of the Neotropical subgenus *Mesopraocis* Flores & Pizarro-Araya of the genus *Praocis* Eschscholtz (Pimeliinae: Praociini).

Gustavo E. Flores, Jaime Pizarro-Araya

10:20 – 10:40 / **Fabien L. Condamine**

Evolution of endemism and drivers of island diversification for multiple colonizations and replicated radiations of beetles on an ancient oceanic island.

Fabien L. Condamine, Laurent Soldati, Anne-Laure Clamens, Roula Jabbour-Zahab, Hervé Jourdan, Gael J. Kergoat

10:40 – 11:00 / **Marcin Jan Kamiński**

Ex Africa semper aliquid novi: biogeography of the tribe Dendarini (Tenebrionidae).

Marcin Jan Kamiński, Dariusz Iwan, Kojun Kanda, Aaron D. Smith

11:00 – 12:00 / **Poster Session**

12:00 – 13:00 / Lunch

Talks

13:00 – 13:20 / **Alvaro Zúñiga-Reinoso**

Preliminary studies about the genetics and phylogenetics patterns of the darkling beetles (Coleoptera, Tenebrionidae) from Atacama Desert.

A. Zúñiga-Reinoso, L. Regioneri, M. Bläser, J. Oly, G. Flores, R. Predel

13:20 – 13:40 / **Dirim Sendogan**

Is *Turkonalassus* Keskin, Nabozhenko et Keskin, 2017 (Tenebrionidae, Helopini) a new genus? A molecular insight!

Bekir Keskin, Dirim Sendogan, Maxim Nabozhenko, Nursen Alpagut Keskin

13:40 – 14:00 / **Nursen Alpagut Keskin**

Karyological Variations in Tenebrionidae.

Nursen Alpagut Keskin, Dirim Sendoğan, Utku Calisan, Cosku Ögren, Bekir Keskin, Maxim V. Nabozhenko

Symposium closing session

Visit Tenebrionidae collection of Natural History Museum Prague.

PIMELIINAE

BIOGEOGRAPHY, PHYLOGENY, EVOLUTION

Tenebrionid beetles are among the most abundant and diverse insects of arid environments. They are considered mostly detritivores and given their multiple physiological and behavioral adaptations, they might play an important role on biogeochemical cycles in these environments. However, in South America, there are few or no studies that has directly quantified or demonstrated this role. South America endemic species of the Nycteliini tribe (subfamily Pimelinae) are specially adapted to arid and semi-arid environments. Within this tribe, the genus *Nyctelia* dominates the fauna of Tenebrionidae in Patagonian steppes, being *Nyctelia dorsata* (Fairmaire) one of the main components of the epigeal insect community of northeast of Patagonia. Due to their apterous condition *N. dorsata* distribution is restricted and it is frequently observed feeding on litter. The objective of this work was to evaluate the detritivore role of *N. dorsata* and its effect on soil N cycle throughout microcosms experiment. Collected Tenebrionids were fasted for 7 days before the experiment starts. Microcosms were subjected for 26 days to the following treatments: Soil with no litter (S); Soil + litter of one of the most important plant species on its diet (*Lycium chilense*) (SL) and Soil + litter (*Lycium chilense*) + *N. dorsata* (SLN). At the end of the experiment, litter mass loss and total soil N concentration were analyzed by GLM. Litter mass loss was significantly higher at SLN than at SL. Total soil N was higher at SLN than at SL and S while we found no differences between S and SL. We concluded that in Patagonian arid environments *N. dorsata* plays a key role in biological fragmentation processes of plant residues and soil biogeochemical cycles. Moreover, this role is particularly important in dry season, when soil microbial activity is reduced due to the harsh environmental conditions.

**Spatial distribution of tenebrionid beetles in relation to environmental variability in
Península Valdés, Patagonia**

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FLORES GUSTAVO ERNESTO²

¹ Instituto Patagónico para el Estudio de los Ecosistemas Continentales (IPEEC), Centro Científico Tecnológico CENPAT-CONICET, Puerto Madryn, Chubut, Argentina;

² Laboratorio de Entomología, Instituto Argentino de Investigaciones de las Zonas Áridas (IADIZA), Centro Científico Tecnológico CONICET Mendoza, Mendoza, Argentina.

Deserts provide atmospheric-climatic regulation and other several important ecosystem services that many human activities, through habitat degradation and species loss, could severely impact. A sustainable management of arid ecosystems is needed to prevent these undesirable consequences, and knowledge of biodiversity spatial patterns as well as understanding of their spatial distribution in relation to environmental and climatic factors are essential for this. The Natural Protected Area Península Valdés (PV) exhibits an important environmental variation which allows it to host a considerable biodiversity. Recently the knowledge of the terrestrial arthropods in PV have greatly increased, showing that tenebrionid beetles (Coleoptera: Tenebrionidae) are among the most abundant groups and species diverse insect. At the same time, it is known that these beetles are important for the functioning of desert ecosystems (eg. litter fragmentation processes and soil biogeochemical cycles). In this

work we study for the first time the spatial distribution of darkling beetles in relation to environmental variability in PV, identifying the most important species assemblages and the main environmental variables that determine them. Tenebrionid species records were compiled from own entomological collection trips, bibliography and from revision of national entomological collections. Habitat information was collected from bibliography and satellite images. Multivariate statistics evidenced that environmental variability within PV determines different assemblages of tenebrionid species into the region. Most important species that differentiate these assemblages were *Nyctelia picipes*, *Epipedonota cristallisata*, *Blaptinus punctulatus*, *Mitragenius araneiformis* and *Emmallodera hirtipes*. Main environmental determinants of their distributions were temperature, rainfall, slope, soil type, geomorphology and percentage of vegetation cover. Our findings contribute to the sustainable use of arid Patagonia and improve both future environmental classifications and predictions of biodiversity changes into the region.

Taxonomic significance of the ovipositor and female genital tubes in the genus *Blaps* Fabricius, 1775 (Coleoptera: Tenebrionidae) from the Caucasus.

IVAN CHIGRAY¹, MAXIM NABOZHENKO^{2,3}, GAYIRBEG ABDURAKHMANOV³

¹ *Southern Federal University, Rostov-on-Don, Russia;*

² *Caspian Institute of Biological Resources of Dagestan Scientific Centre of Russian Academy of Sciences, Makhachkala, Russia;*

³ *Dagestan State University, Makhachkala, Russia.*

The taxonomy of the genus *Blaps* Fabricius, 1775 is difficult and complicated, the status of some species needs to be clarified. All modern keys to species consist of external morphological characters, so we use more stable taxonomic characters of internal morphology.

The structure of the male aedeagus is not reliable taxonomic character. The structure and the chaetome of ovipositors and the structure of female genital tubes are often more taxonomically important. We allocated four types of ovipositors, each closely related with a structure of substratum, into which the female places eggs. The structure of the ovipositor has an adaptive character and poorly suited for phylogeny but can be widely used in taxonomic diagnostics of *Blaps*. The structure and the chaetome of the ovipositor are different even on subspecies level (for example in *Blaps lethifera lethifera* and *Blaps lethifera pterotapha*). Diagnostics of species using the structure of female genital tubes is also effective for taxonomy and partly for phylogeny. There are many differences in the length of basal duct and accessory gland of spermatheca, and in the structure of reservoirs between species. We allocated five types of spermathecae using the length of the basal duct and the structure of reservoirs.

Therefore, ovipositors and female genital tubes of *Blaps* have a prospective importance in taxonomy and can be used to improve the system of the genus.