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Proceedings of the fifth FORUM HERBULOT 2008 **Global strategies for plotting geometrid biodiversity** **in web-based databases** **(Munich, ZSM, 24-28 June 2008)**

Axel Hausmann (ed.)

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The fifth Forum Herbulot 2008 in Munich focused on modern tools and techniques to make global biodiversity of Geometridae accessible in web-based databases such as on innovative strategies and worldwide campaigns to introduce molecular data into geometrid taxonomy, phylogenetics and biogeography. In twenty-six lectures and one poster new studies and results from geometrid moth research were presented based on a wide range of different techniques. Extensive discussions helped to put these studies into a common context, and to plan integrative approaches and cooperations in the future.

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Short Report and Results

Axel Hausmann, Jeremy D. Holloway, Malcolm Scoble, Manfred Sommerer & Cathy J. Young

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1. The fifth FORUM HERBULOT (see www.herbulot.de) started with a celebration of the centenary of Claude Herbulot's birthday. A short video sequence, taken from Herbulot's speech at the ZSM in 2000, was presented. The chairman pointed out briefly CH's merits in geometrid research which, surprisingly at that time, already comprised even elements of "global strategies for plotting geometrid biodiversity in web-based databases". Philippe Darge then highlighted the personality, life, and scientific achievements of his late friend CH in a touching personal manner, and welcomed the presence of Mme. Colette Herbulot.

The participants expressed their high esteem of scientific achievements of the late eponymous patron of the Forum. The research initiative FORUM HERBULOT was, once again, generally welcomed and the need for, and the advantages of, close scientific cooperation among geometrid experts were stressed.

2. The seminar session dealt with promising possibilities and new strategies for modern systematic research. The four sections were chaired by Malcolm Scoble, Paul Hebert, Cathy Young, and Axel Hausmann.



Participants, guests and meeting assistants of the FORUM HERBULOT 2008: From left to right: Evgeny Beljaev (Vladivostok, Russia), Hossein Rajaei (Tehran, Iran), Pasi Sihvonen (behind; Helsinki, Finland), Ernst-G. Burmeister (Munich, Germany), Anthony Galsworthy (London, U.K.), Paul Hebert (Guelph, Canada), Stefano Scalerio (Cosenza, Italy), Gergely Petrányi (behind; Budapest, Hungary), Andreas Segerer (last row; Munich, Germany), Dayong Xue (Beijing, China), Marco Infusino (Messina, Italy), Satoshi Yamamoto (Kyoto, Japan), Rodolphe Rougerie (Guelph, Canada), Feza Can (Hatay, Turkey), Jeremy deWaard (Vancouver, Canada), Ian Kitching (London, U.K.), Heinz Fischer (Rottach, Germany), Andreas Kopp (Sirnach, Switzerland), Hermann Staude (behind; Magaliesburg, South Africa), Hongxiang Han (Beijing, China), Timm Karisch (covered; Dessau, Germany), Jürgen Lenz (Harare, Zimbabwe), Patrick Strutzenberger (Vienna, Austria), Chunguang Wu (Beijing, China), Patrick Legrand (behind; Nantes, France), Anthony Galsworthy (covered; London, U.K.), Antoine Lévêque (Paris, France), Axel Hausmann (Munich, Germany), Colette Herbulot (behind; Nantes, France), Dieter Stüning (Bonn, Germany), Philippe Darge (Clenay, France), Erki Öunap (behind; Tartu, Estonia), Alfred Moser (Morro Reuter, Brazil), Marie-Thérèse Darge (Clenay, France), Delano Lewis (behind; Gainesville, U.S.A.), Luis Parra (Concepción, Chile), Vladimir Mironov (front; St. Petersburg, Russia), Olga Schmidt (behind; Munich, Germany), Manfred Sommerer (Munich, Germany), Cathy Young (Hobart, Tasmania), Rolf Bläsius (Eppelheim, Germany), Malcolm Scoble (London, U.K.), Chuangli Wang (Beijing, China), Janusz Wojtusiak (Krakow, Poland), Jeremy Holloway (London, U.K.), Gerhard Haszprunar (Munich, Germany), Dieter Fritsch (Lörrach, Germany), Andres Exposito (Madrid, Spain), Hans Löbel (Sondershausen, Germany).

a) The first session highlighted the new horizons opening up by web-based databases for an improved access to collection data. After an introductory talk on funding strategies (Sihvonen) three large-scale projects for imaging geometrid biodiversity (Holloway & Miller/NG, Staude/Africa, Löbel/Australia etc.) were presented. The session culminated in a wide ranging discussion of the CATE project on e-science and its meaning for geometrid taxonomy and systematics (Scoble, Kitching). Further mechanisms were agreed upon to develop interfaces between projects, and to collect and exchange digital images of, and information on, type specimens.

b) FORUM HERBULOT 5 stressed the crucial role and the enormous impact of DNA barcoding for research on geometrids. The audience welcomed the concrete strategies and opportunities for barcoding geometrid diversity on a global scale as presented by Paul Hebert (Canadian Centre for DNA Barcoding, Canada), such as the ongoing international iBOL initiative with the challenging plan to barcode 80 000 Lepidoptera species, of which 15 000–20 000 would be geometrids. Experiences from the sphingid and saturniid campaigns, from old-type-sequencing (Rougerie), and from applications in forestry, biodiversity assessment, and nature conservation (deWaard) are encouraging.

c) Deep phylogeny was a topic addressed by several stimulating talks involving molecular and/or morphological approaches (Ounap, Yamamoto, Young, Beljaev, Lévêque). The data sets (nDNA; mtDNA genes; skeleton-muscular system) from those studies confirm, once again, the position of the Larentiinae/Sterrhinae lineage as sister group to all other geometrids. As postulated and forecasted by the previous FORUM HERBULOT congresses, the use of molecular methods has meanwhile much expanded and became a valuable tool for complementing the available morphological and ecological data sets. FORUM HERBULOT 5 offered a platform for defining and refining the work plans in order to focus future common research on deepening the insight into the basic phylogeny of Geometridae. First results from a project on Gondwanaland relicts in Chile and Tasmania (Hausmann) encourage further development of a common integrated taxonomic approach for the study of the relationships of 'southern clades' (Tasmania: Young, McQuillan – Chile: Parra, Hausmann – South Africa: Krüger, Staude).

d) Finally, the presentations of an array of projects on geometrid systematics, biodiversity patterns, and books in preparation (Lewis, Parra, Wojtusiak, Strutzenberger, Can, Mironov, Galsworthy, Wu, Han, Xue) were much appreciated.

Conclusions: For the forthcoming two-years-interval until the next FORUM HERBULOT, it is planned to establish tools for e-science in Geometridae, to extend the DNA barcoding campaign Geometridae to a global scale, and to refine and improve the "the FORUM HERBULOT world list of family group names in Geometridae", e.g. by considering new

insights from molecular analyses and by extending the list from tribe to genus level.

3. FORUM HERBULOT 5 offered a pleasant post-conference tour (June 26-28) to the SEL (Societas Europaea Lepidopterologica) study area Sesvenna in Southern Tyrol (northern Italy) which was later featured on the local TV after an extensive 'shoot' and interviews on the lower steppe slopes. The collecting activities in the surrounding alpine and dry habitats yielded good results which will be communicated to the common database of TLMF Innsbruck and Nature Museum Bolzano. The 35 participants also enjoyed the opportunity to go on with discussions and work out plans for collaboration. The FORUM HERBULOT 5 came to an end with a guided visit to "Ötzi", the famous "man in the ice", at the Museum in Bolzano.

4. The chairman informed the participants of the sad news that Prof. Hiroshi Inoue, honorary member of the FORUM HERBULOT, had passed away a few days ago. The participants honoured this outstanding and great old colleague and friend by signing a book of condolence at the ZSM.

5. A proposal to have the next FORUM HERBULOT 6 in Gainesville, Florida, in 2010 (June 22-23), was generally welcomed. Chairman reported that future venues have been suggested by the museums in Pretoria (South Africa) and Concepción (Chile).

6. Participants expressed their thanks to the organizers and sponsors of the FORUM HERBULOT 5 (2008).

Memories of Claude Herbulot

Philippe Darge

Darge, P. (2009): Memories of Claude Herbulot. Pp. 119-121 in: Hausmann, A. (ed.): Proceedings of the fifth Forum Herbulot 2008. Global strategies for plotting geometrid biodiversity in web-based databases (Munich, ZSM, 24-28 June 2008). – *Spixiana* 32/1: 119-121

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I met Claude Herbulot for the first time in spring 1964. Returning from Gabon, I wanted to show him the geometrids that I had collected in that African country over the course of more than a year.

Soon a deep friendship grew between us, and it was only ended by his death on 19 January 2006. From that very first contact, I was struck by his

eyes, sparkling with intelligence and mischievous charm, scrutinizing delightfully all and everything with which man and the world could furnish his curiosity.

On many an occasion in Africa I admired his capacity for plunging into local life in a way where his natural curiosity came across as an interroga-