

results suggest that geographic variation in barcode sequences will not be an important complication in species recognition.

We expect to obtain barcode coverage for all common species of Australian Lepidoptera through intensive collecting at a few well-chosen sites. How-

ever, we also hope to broaden our network of collaborators so that more extensive sampling coverage is possible. As well, we expect that advances in sequencing technology will soon permit the analysis of museum collections, allowing rapid growth in sequence coverage for uncommon taxa.

### Successful extraction of eggs from dry geometrid moth collection specimens

Axel Hausmann, Sławomir Kuczkowski & Marius Junker

Hausmann, A., S. Kuczkowski & M. Junker (2006): Successful extraction of eggs from dry geometrid moth collection specimens. – *Spixiana* **29/3**: 212

Corresponding author: Dr. Axel Hausmann, Zoologische Staatssammlung München, Münchhausenstr. 21, D-81247 München, Germany;  
e-mail: Axel.Hausmann@zsm.mwn.de

Though modern techniques (scanning electron microscopy, SEM) offer very promising perspectives for the study of egg morphology, this kind of research has not achieved much attention in geometrid moth systematics, apart from a few publications (cf. Salkeld 1983; Young 2006).

SEM studies of egg morphology are generally thought to require fresh material. Very often, however, living females are unavailable due to rareness or restricted distribution areas in tropical countries, they may be hardly stimulated to egg deposition or their life cycles may not coincide with the study period.

In this contribution we present a way to get access to suitable egg material from dry female collection specimens. The method is based on enzymatic digestion of the abdomens and it is the same, which was recently proposed (Knölke et al. 2005) as a combined procedure for obtaining both DNA for sequence analysis and mazerated tissues for the preparation of the genitalia. Hence, this the new method can provide, simultaneously, three completely different data sets for taxonomic and phylogenetic research.

We analysed the influence of various parameters on the quality of the results, e.g. protease concentration, duration of digestion, humidity, and age of voucher (collection date).

In most cases the results are highly satisfying and provide clear SEM photographs of the chorionic sculpturing, which are very similar to those from fresh egg material of the same species. We got good results also from old collection specimens (up to >100 years). A number of examples was shown in the presentation, detailed results are published in Junker et al. (2006). The method is applied in a research program on Sterrhinae phylogeny, which was shortly presented, too.

### References

- Junker, M., S. Kuczkowski, K. Schönitzer, C. Young & A. Hausmann (in press). Enzymatic digestion – a new method for egg extraction from dry female collection specimens (Lepidoptera: Geometridae). – *Insect Syst. Evol.* **37**
- Knölke, S., S. Erlacher, A. Hausmann, M. A. Miller & A. H. Seegerer 2005. A procedure for combined genitalia dissection and DNA extraction in Lepidoptera. – *Insect Syst. Evol.* **35**(4): 401-409
- Salkeld, E. H. 1983. A catalogue of the eggs of some Canadian Geometridae (Lepidoptera), with comments. – *Mem. Ent. Soc. Canada*, Nr. **126**, Ottawa, 271 pp.
- Young, C. J. 2006. Descriptions of eggs of some southern Australian Geometridae (Lepidoptera). – *Zootaxa* **1287**