



GISHym: Global Information System Hymenoptera. Part: Primary Types of the G. H. Heinrich Ichneumonid Collection



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Project aims

- Creating a web-served database providing detailed information on deposited in the ZSM primary types of Ichneumonidae described by G.H. Heinrich.
- Producing digital images of all primary type labels.
- Establishing a database of corresponding literature references.
- Making the taxonomic data universally available by linking to GBIF International via the SysTax database system at the University of Ulm.



Project terms

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Introduction

The Ichneumonidae is one of the most species rich families of all organisms with an estimated 60,000 species in the world [3]. Members of this family have long and thin body, with narrow waist, the antennae apparently with 16 or more segments, two recurrent veins in wings are present, hind trochanters are 2-segmented. Ichneumonids are, in general, confined to the shade of forests

and to areas with comparatively high humidity [3]. Adults are active in day time and feed on flowers. Their larvae are either parasitic or predators. The Ichneumonidae play an essential role in the functioning of most ecosystems. In recent years they have been used successfully as biocontrol agents and given the largely undocumented fauna there is surely a huge potential for their utilisation in managed biocontrol programmes [1].



Gerd Heinrich (1896-1984)

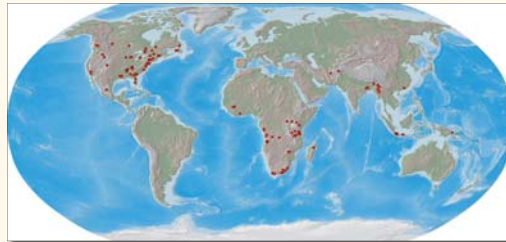
Gerd Herrmann Heinrich is recognized as one of the world's leading authorities on the subfamily Ichneumoninae, family Ichneumonidae (Insecta: Hymenoptera). He is the author of six major publications on this family, four popular travelogs, almost 100 smaller but significant publications on Ichneumoninae and a number of studies on vertebrate animals [4]. Altogether, Heinrich described about 1,500 species and subspecies of ichneumonids.

Heinrich lived and continued his studies in Germany, Poland, and finally in the United States of America. He made a series of expeditions to collect mammals, birds and especially the ichneumonid wasps. These field trips included the following: Northern Iran, Indonesia (Sulawesi and Molucca Islands), south-eastern Europe (Balkan and Rhodope Mountains), Myanmar, Mexico, Canada, West-, East- and South Africa. A large part of Heinrich collection is now deposited in the Bavarian State Collection of Zoology (ZSM, Munich). This is one of the world most important ichneumonid collections, which includes about 23,000 thoroughly mounted and accurately labelled specimens.



Results

The ichneumonid section of the Hymenoptera collection of the ZSM was searched for Heinrich primary types. Altogether 572 type specimens from 137 genera were found and databased. The type material was collected in following countries: Afghanistan, Angola, Canada, China, Congo, Guinea, India, Indonesia (Java), Ivory coast, Kenya, Madagascar, Mexico, Myanmar, Papua New Guinea, South Africa, United Republic of Tanzania, United States of America, Uganda, Zambia, and Zimbabwe.

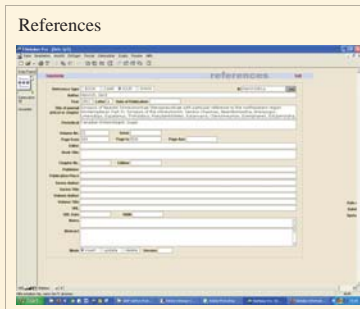
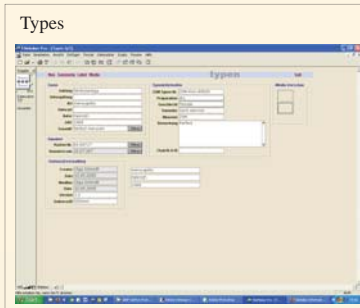
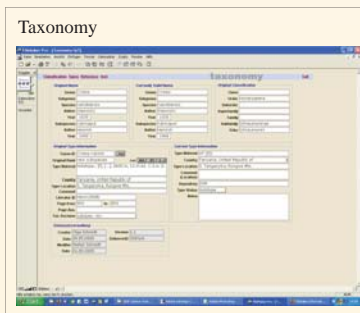


The database

The database of primary types of Heinrich ichneumonid collection was created using Filemaker® with the field structure according to the field definition standard of the SysTax system [2]. Each primary type specimen was assigned a unique ID and the type information was entered into the database. The taxonomic database includes the following information:

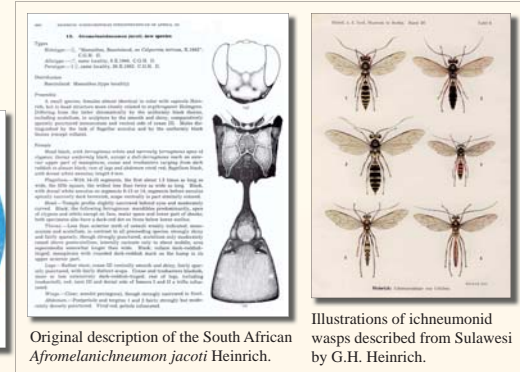
- Type number, sex, type status, and condition of type
- Original and currently valid name
- Notes on original and current classification
- Original type information based on the original description
- Current type information
- Photographic documentation of all specimen labels
- Literature reference

Screenshots of selected parts of the Ichneumonidae database:



Original descriptions

All the original descriptions of G.H. Heinrich species deposited in the ZSM Hymenoptera collection are put together and held in the library of ZSM. Examples are shown on the figures below.

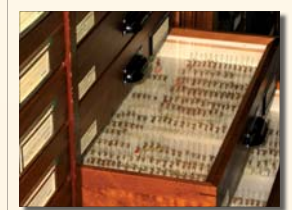


Type material

The type material of the G.H. Heinrich collection is stored as separate section as part of the ZSM Hymenoptera collection. The majority of specimens of the Heinrich collection have type status. Each primary type specimen is assigned a unique GBIF-identifier to allow its individual recognition.



Above: Illustration of the original and the ZSM identification labels prepared for the database.



Right above: The G.H. Heinrich ichneumonid wasp collection as part of the ZSM Hymenoptera collection.



Right below: Type material of ichneumonid wasps described by G.H. Heinrich in ZSM.

SysTax

SysTax is an integrated concept-based database system for storing biodiversity data [2].

The SysTax database system comprises:

- Concept-based botanical and zoological systematics
- Literature
- Botanic Gardens, Herbaria, and Zoological Collections
- Addresses
- Multimedia data

In the present project the SysTax database system was used for linking the taxonomic data on Ichneumonidae to GBIF International.



References

- [1] Gupta V.K. (1991). The parasitic Hymenoptera and biological control and our knowledge of the African Ichneumonidae. *Insect Science and its Application*. 12, 9-18.
- [2] SysTax - a Database System for Systematics and Taxonomy. <http://www.biologie.uni-ulm.de/systax/>
- [3] Townes, H.K. (1969) *The genera of Ichneumonidae*. Part I. *Mem. American Ent. Inst.* 11:i-ii, 1-300.
- [4] Weems H.V. (1977). In: Heinrich, G.H. *Ichneumonidae of Florida and Neighboring States (Hymenoptera: Ichneumonidae, subfamily Ichneumoninae)*. Florida Dept. of Agriculture and Consumer Services: Dryden, Maine, U.S.A.

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