



FOCOL

Digital type
documentation for
modern taxonomy

FOCOL

The problem

Progress in insect taxonomy is still hampered for lack of easy access via internet to well documented and searchable museum collections including their type specimens. Often even the depository of the type specimens is unknown. Examination of types is time consuming and expensive, if collections have to be visited by scientists, and precarious for the types, if they have to be shipped.

The goal

In this context, the FoCol-project as part of the German "Global Biodiversity Information Facility"-programme (GBIF-D) aims to register all institutional ant collections in Germany and their primary type specimens. German natural history museums hold a number of medium-sized ant

collections of international importance (e.g. coll. ROGER, SEIFERT, STITZ, VIEHMEYER, part of FOREL). However information about ant collections in Germany is incomplete (BRANDÃO, 2000; www.zalf.de) and only few type catalogues of ants in German museums have been published. The FoCol-project closes this gap and characterises the taxonomic and geographical focus of the collections and names the most important collectors.

The digitalisation process

Preliminary information about ant collections and types was gathered by screening the scientific literature and searching the internet. Additionally, all relevant scientific institutions in Germany and some private persons were contacted and, if types were present, their collections visited. All primary type material (holotypes and type series) and important paratypes (for example of castes that differ from the holotype) are registered and characterised in a database with the following entries: original name,

Microscope Leica Z6 with 0.63x video adapter and apochromatic lenses plus JVC KY70 3-chip camera producing a live image on the computer screen.



State Museum of Natural History Karlsruhe – SMNK

Department of Entomology
Erbprinzenstr. 13
76133 Karlsruhe, Germany
www.smnk.de
contact: manfred.verhaagh@smnk.de

Homepage FoCol www.anttypes.org

Global Biodiversity Information Facility www.gbif.org

Systax – Database System for Systematics and Taxonomy www.biologie.uni-ulm.de/systax/



author and year of description, citation, currently recognised taxonomical status, number of type specimens, type locality, collection date and collector. Information in the literature is compared with the data on the labels. Whenever possible we also give modern geographical interpretation of the type locality.

Photos with extended focus

Digital images of the pin in original state with the specimen and labels attached are taken and, separately, of all the labels outspread. All types (or some of them in the case of large type series) are photographed under a motor-driven microscope in frontal, lateral and dorsal view. For these digital macro-photos a 3-chip camera and the software package



Type of *Cryptocerus denticulatus* var. *variegata* FOREL, 1911

AutoMontage® (www.synoptics.co.uk) are used to calculate images with extended focus on which most of the relevant details are visible.



Types found off the main collection

The database

One result of the FoCol-project is that German collections house many more ant types than previously known and some were discovered at unexpected places. We also detected discrepancies between statements in the literature and the data given on the labels resulting in critical comments about the true status of some alleged types. By the end of 2007 the database will be completed and will include about 3.000 entries of some 1.500 type taxa and more than 17.000 photos. All data including the photos will then be available via the GBIF portal using the internet database SysTax as data provider and via links at www.anttypes.org.

The gains

The images of the labels and the specimens allow a rapid examination of types that makes travelling to museums or mailing of types in many cases unnecessary, thus reducing budgets and time requirements for taxonomic studies. The

photos also “freeze” the current physical condition of the types which is often very poor, especially if they are very old. By minimising physical handling the database will thus help to conserve the types for the future and saves the images of the types in case they get lost physically.



Type of *Atta columbica* GUÉRIN-MÉNEVILLE, 1844

Further information

BRANDÃO, C.R.F. (2000): Major regional and type collections of ants (Formicidae) of the world and sources for the identification of ant species. In: AGOSTI, D. et al. (eds.) *Ants – Standard methods for measuring and monitoring biodiversity*, Washington, pp. 172 – 185.

RIEDEL, A. (2005): Digital imaging of beetles (Coleoptera) and other three-dimensional insects. In: HÄUSER, C. et al. (eds.): *Digital imaging of biological type specimens – A manual of best practice*. Results from a study of the European Network for Biodiversity Information, Stuttgart, pp. 222 – 250. (pdf available at: www.anttypes.org)

www.zalf.de/home_zalf/institute/dei/dei/digientinfo/index.htm

www.synoptics.co.uk/syncroscopy/automontageshort.asp

SPONSORED BY

SUPPORTED BY