

## Besprechung / Review

NEU, P.; MALICKY, H.; GRAF, W. & SCHMIDT-KLOIBER, A. 2018: **Distribution Atlas of the European Trichoptera**. - Die Tierwelt Deutschlands, 84. Teil. - ConchBooks, Harxheim: 891 pp. - ISBN: 978-3-939767-93-0.

Short time ago, I got this distribution atlas of the European caddisflies in my hands; and could not stop studying the maps for hours. This book is simply a fantastic piece of work! The four authors compiled all information available on the distribution of western Palaearctic caddisflies, a challenge that took them almost all their time available for many years, but it was worth this effort: This book is a really epochal one and will be an indispensable compendium for decades and a source of knowledge for generations of entomologists. It is based on 450,000 records of adult caddisfly individuals (with one data set being considered as the record of one species at one day at one locality; i.e. mass collections at one day and place just count as one single records; Figure 1). Based on these data, point distribution maps were elaborated for 1,708 taxa of 1,582 species belonging to 25 different families. Furthermore, the title of the book promises much less than the book delivers in reality: The distribution maps also include data about North Africa and south-western Asia (most importantly Anatolia, the Caucasus region and Iran). Additionally, the maps include data from European Russia as far east as the Urals, a scarcely investigated region which often is omitted in distribution books on Europa but was included in this case.

The book starts with a short introduction and gives an overview of the methods used including the more than 80 persons providing their personal data. A short chapter points out doubtful species and all species in need of further investigations, followed by a list of references and some pictures of representative caddisfly individuals. The strong core of this book is the distribution maps, starting with the 25 families and followed with individual maps for all species dealt with. In many cases, the distribution maps are accompanied by specific remarks. Here, information is given if parts of the distribution of the species are known outside of the illustrated maps. Additionally, information is given in cases of taxonomic uncertainties, synonyms, doubtful data from some part of the distribution our necessities for further research. The book is completed with a systematic list of all taxa and a species index sorted by genera.

This spectacular book is an absolute must-have for everyone with at least some interest for trichopterans. As caddisflies are of tremendous importance for the assessment of the environmental health of aquatic ecosystems, the applied importance of this work will also be enormous allowing a much more comprehensive understanding of trichoptera assemblages. Furthermore, this book is also an incredible source of information for every naturalist interested in distribution patterns of species and their interpretation. This already applies to the distribu-

tion patterns of entire families. While most of them are distributed over major parts of the western Palaearctic (e.g. the Leptoceridae; Figure 2), other families include mostly more northern distributions with most of them having extra-Mediterranean core area (e.g. the subfamily Dicosmoecinae; Figure 3) or mostly represent Mediterranean elements still refined to their refugia (e.g. the Uenoidae; Figure 4).

Going into the distribution maps of the single species gives examples for almost all so-far known biogeographic patterns and elements of the western Palaearctic, such as Mediterranean expansive (e.g. *Micrasema moestum*, *Ecnomus deceptor*, *Agapetus laniger*, *Hydropsyche exocellata*) and stationary elements (e.g. *Agapetus incertulus*, *Athripsodes inaequalis*) as well as elements representing the different sub-centres of the Mediterranean core area (e.g. Atlantic-Mediterranean: *Hydropsyche ibero-marroccana*, *Hydropsyche lobata*, *Hydroptila autonoe*; Adriatic-Mediterranean: *Helicopsyche sperata*, *Hydroptila martini*; Balkanic: *Hydropsyche peristerica*; Anatolian: *Hydropsyche cetibeli*, *Hydropsyche kebab*; Levantean: *Ceraclea litanica*, *Oecetis terraesanctae*, *Tinodes tohmei*; Canarean: *Oecetis canariensis*, *Wormaldia tagananana*, *Polycentropus tenerifensis*; Thyrrenian: *Agapetus cyrnensis*, *Silo rufescens*, *Tinodes cortensis*; Cretian: *Beraeamyia aphyrt*, *Hydropsyche rhadamanthys*, *Tinodes reisseri*, Cyprian: *Rhyacophila aphrodite*). Additionally, the group of species with wide continental distributions and hence diverse extra-Mediterranean core areas is well represented in caddisflies, which due to their semi-aquatic life cycle are a rather prominent group for this biogeographic pattern; quite good examples are e.g. *Hydroptila pulchricornis*, *Orthotrichia tragetti*, *Oxyethira flavicornis*, *Athripsodes aterrimus*, *Ceraclea nigronervosa*, *Anabolia brevipennis*. Finally, the group of mountain and northern species is well represented in caddisflies, representing all possibilities of distribution patterns of cold-adapted species as montane species (e.g. *Glossosoma intermedium*), alpine species (some with alpine disjunctions (e.g. *Hydroptila ivisa*, *Drusus monticola*) and others restricted to single high mountains systems or parts of them; with examples for the Pyrenees: *Micrasema salardum*, *M. vestitum*; Alps: *Hydropsyche guttata*, *Cryptothrix nebucicola*, *Drusus melanchaetes*, *Metanoea rhaetica*; Carpathians: *Drusus brunneus*, *D. carpathicus*, *D. romanicus*; Apennines: *Hydropsyche morettii*, *Hydroptila ruffoi*, *Drusus aprutiensis*; Balkan high mountain systems: *Micrasema sericeum*, *Hydropsyche mostarensis*, *Annitella apfelbecki*, *A. triloba*; Caucasus: *Badukiella prohibita*, *Glyphotaelius selysi*, *Kelgena kelgensis*), boreal species (e.g. *Apantia stigmatella*, *Micrasema gelidum*, *Hydropsyche newae*), arctic species (e.g. *Asynarchus impar*, *A. iterates*, *Agrypnia sahlbergi*) as well as boreo-montane (e.g. *Micrasema setiferum*, *Limnephilus coenosus*) and arctic-alpine species (e.g. *Asynarchus lapponicus*, *Limnephilus*

*algius*). Furthermore, the number of local endemics is amazing, but is pointing out important and well-known centres of species diversity (e.g. *Drusus alpinus*, *Hydropsyche arethusa*, *Wormaldia vargai*), but also only recently identified core areas for extra-Mediterranean survival (e.g. *Apatania scherfi*, *Melampophylax cantalicus*, *Plectrocnemia cevennensis*).

All in all, this is a fantastic book with an incredible amount of information that should be highly valuable for many people with interest in nature. I therefore hope that this book will gain a very wide distribution far beyond the relatively few people working with caddisflies. It should become an indispensable element on the book shelf of many biologists and naturalists.

TH. SCHMITT

#### DAET adult data

#### All valid species

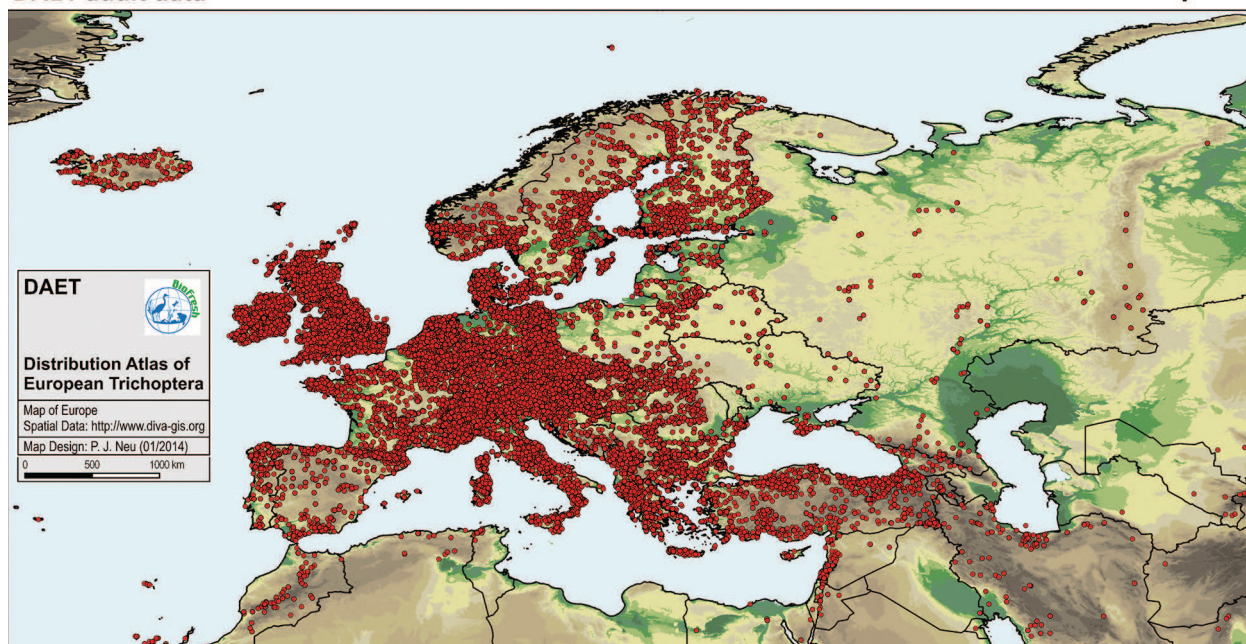


Fig. 1: Overview of all data points used for the distribution maps.

#### Distribution of Trichoptera families in Europe

#### LEPTOCERIDAE

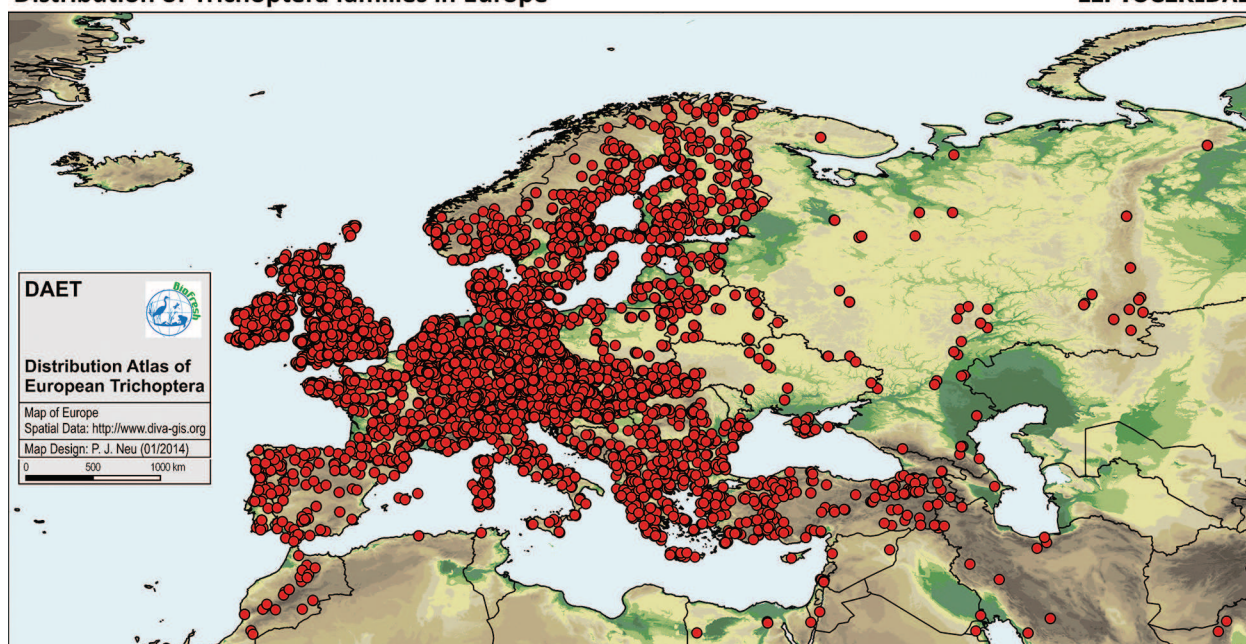


Fig. 2: Distribution records of the members of the family Leptoceridae.



Distribution of Trichoptera families in Europe

Limnephilidae - Dicosmoecinae

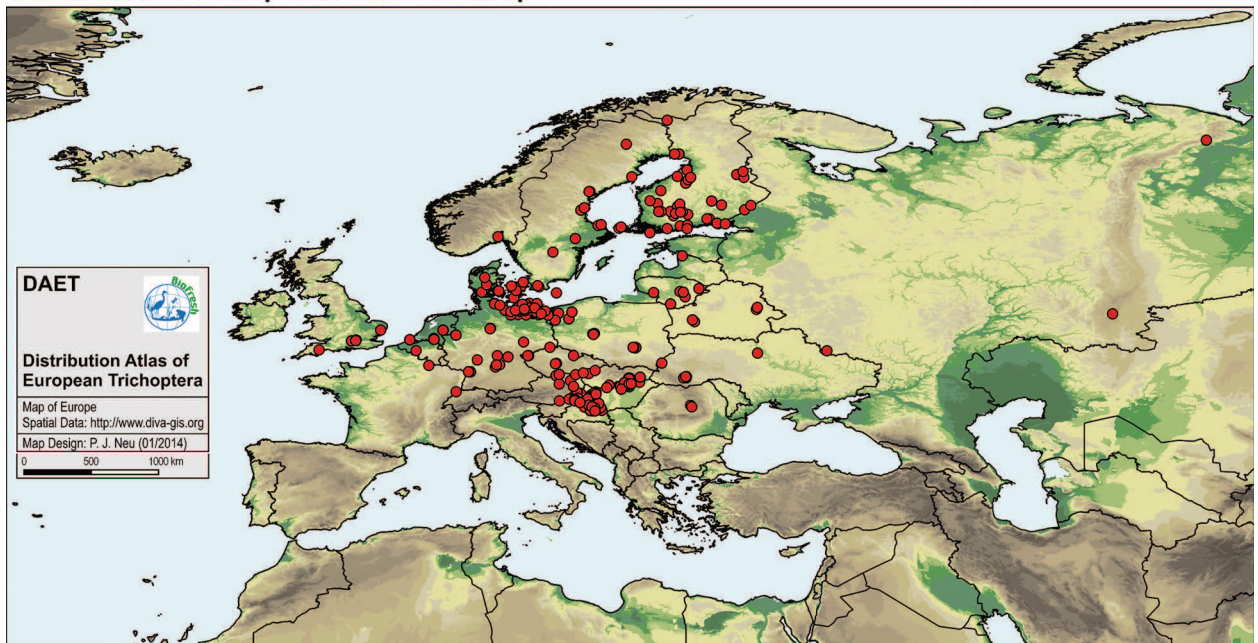


Fig. 3: Distribution records of the members of the subfamily Dicosmoecinae.

Distribution of Trichoptera families in Europe

UENOIDAE

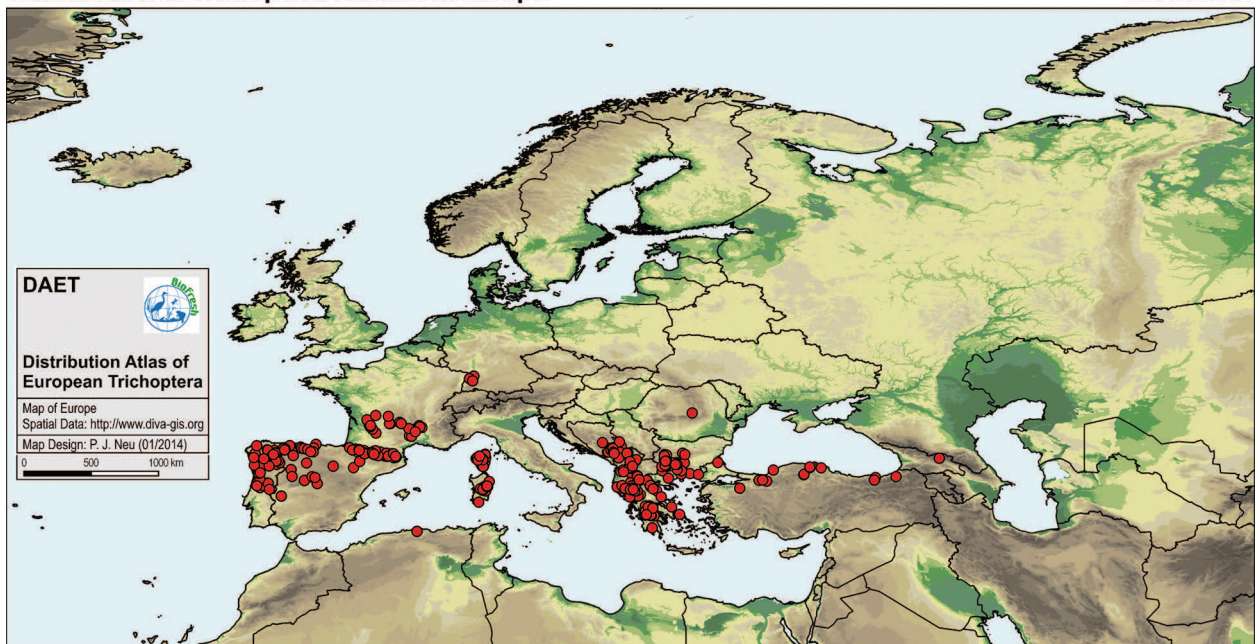


Fig. 4: Distribution records of the members of the family Uenoidae.

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