

BOOK REVIEW

SARTORI M. & LANDOLT P.: ATLAS OF DISTRIBUTION OF MAYFLIES OF SWITZERLAND. Fauna Helvetica 3, Centre Suisse de Cartographie de la Faune and Schweizerische Entomologische Gesellschaft, Neuchâtel, 1999, 214 pp., ISBN 2-88414-014-X/ISSN 1422-6367, price CHF 35.

Generally, it is important to have a document that gives an objective assessment of the current knowledge of a group and will serve as a starting point for future analyses of its evolution and distribution. This volume contains the first detailed distributional atlas of the order Ephemeroptera in Europe. Such atlases indicating the spatio-temporal spread of populations within a certain area depend on sound taxonomy. This is provided by the taxonomic treatment of the Swiss mayfly fauna by Studemann, Landolt, Sartori, Hefli & Tomka (1992). However, this is the only comprehensive mayfly distributional atlas in the whole of Europe, although sound taxonomic treatments of the respective fauna are available in at least in 20 European countries.

The introduction deals with the geography and hydrology of Switzerland from aquatic insects' point of view. The area lies in the centre of Europe (sometimes called the Water Tower of Europe) and all the major climatic regions of the continent - Atlantic, Mediterranean, Continental and Boreal, influence its fauna. Its relief was shaped by alpine orogenesis and glaciation. Glaciers cover about 4% of the total area of Switzerland. There are five catchment areas, two of which, namely those of the great European rivers Rhine (50% of the total area) and Rhône (about 20%) are very important. Naturally, all Swiss species of mayfly are found in the Rhine catchment area. Although a relatively small country (total area of 41,293 km²) these features resulted in an extraordinarily diverse fauna. This species diversity is not surprising as the Rhine catchment area is the largest in Switzerland and covers all hydrobiological, geomorphologic and altitudinal zones.

Eighty-two species of the order Ephemeroptera found in Switzerland are included in this atlas, including 3 species apparently extinct at present, namely *Heptagenia coeruleans*, *Paraleptophlebia cincta*, and *Ephoron virgo*. For each species, the following data are presented: vertical distribution (range of elevations found), flight period, habitat typology (percentage of crenal, rhithral, potamal and lake and lentic localities found), life cycle and its type according to the classification suggested by Clifford (1982), ecology (biotopes and substrate preference, ecological range), general distribution within Switzerland and other countries and areas, and status (abundance, number of

localities and importance from the biodiversity protection point of view).

Data based on 1,814 localities evenly distributed throughout Switzerland and covering all the altitudinal zones and types of aquatic biotope. Altogether 10,610 individual species were recorded at the 1,814 locations, and 87,015 specimens of larvae, adults and subimagines were collected and determined. The distributional maps depict the occurrence of individual species in 5 × 5 quadrates of the uniform grid system that is used for mapping Switzerland's biota. In order to emphasize long-term changes in distribution, the localities with no records after 1970 and those with records before and after 1970 are differentiated on the respective maps.

In general, one aspect should be emphasized, as it is very important. The atlas is definitively not a mere collection of distributional maps but deals with other, very important ecological aspects of mayflies such as altitudinal distribution, distribution within the catchments areas, phenology, developmental cycles with special reference to voltinism and embryonic development, typology of various habitats, status of the species, and the future of Swiss mayfly fauna including the physical and chemical changes of aquatic biotopes that threaten the mayfly species spectrum.

The general conclusion of this book is rather optimistic. According to the authors, "the present state of Ephemeroptera populations in Switzerland is still far from optimal. The regeneration of several waterways, above all in German Switzerland, and the use of new technologies in water management point to a change of mentality and an increased sensitivity to the problem linked to the preservation of habitats".

The book is concise and selective, and the carefully reviewed papers present a bibliography of the Swiss Ephemeropteran fauna. The reproduction of highly professional figures and graphs is technically perfect. Quick orientation is facilitated not only by a lexicon of ecological and bionomical terms but a concise index, which includes the names of taxa.

There is little need to emphasize how useful such an "atlas" is for aquatic entomologists and hydrobiologists. It is a very good example how to treat a group of aquatic insects in terms of biodiversity conservation and the general aquatic biotope/specific species protection point of view.

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