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JARDIN BOTANIQUE À PALERME

ORTO BOTANICO DI PALERMO

# New frontiers in Monitoring European Biodiversity

THE ROLE AND IMPORTANCE  
OF AMPHIPOD CRUSTACEANS

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ABSTRACT  
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# BOOK OF ABSTRACTS

MEB Conference - 27-29 Sept. 2011

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## LINNAEAN AND WALLACEAN SHORTFALLS IN ASSESSING AMPHIPOD DIVERSITY

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Assessment and conservation of biodiversity is hindered by our poor taxonomical and biogeographical knowledge. The two key elements used to define this problem are termed the 'Linnaean' and 'Wallacean' shortfalls. The Linnaean shortfall refers to our lack of knowledge of how many species exist. The Wallacean shortfall refers to our inadequate knowledge of species distribution. The aim of this contribution is to demonstrate that even



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in Europe, which has traditionally been very well investigated, our knowledge of amphipod crustacean diversity is far from being exhaustive.

Crustaceans are predominantly represented by the Copepoda, the Amphipoda and, to less extent, by the Ostracoda, collectively outnumbering all remaining taxonomic groups. Amphipoda contribute to about 20% of overall species richness of aquatic crustaceans in Europe (with nearly 470 species in fresh waters, and over 1,200 marine species). About 70% of amphipod species are marine, while 23% live in continental ground waters, and only 7% live in surface fresh waters. Plotting species discovery curves, it can be observed that most stygobiotic amphipods were described after 1920, when one third of the surface freshwater species and about two thirds of the marine species were already known. Cumulative species counts demonstrate that the description rate after 1920 is steeper for freshwater, especially stygobiotic, species than for marine species, and that there is no evidence of any asymptote. This fact suggests that we are far from having described the whole European amphipod fauna and its distribution, and that the number of stygobiotic species will increase dramatically in a near future.

This bias in species richness assessment, caused by the Linnaean and Wallacean shortfalls, is the product of the alarming decline of taxonomy in the last decades and could have profound implications in ecological research and monitoring programs.

