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Public online databases as a tool of collaborative taxonomy: a case study on subterranean amphipods

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Abstract

Public databases are a promising tool for collaborative taxonomy. A collaborative revision requires a number of decisions, which – unlike in individual work – need to be clarified in advance. The success of such initiatives depends on acceptable guidelines for possible-yet-unknown participants. The nature of morphological variation constrains the scope of this kind of taxonomy to a level of single genera or families. The database should contain information also on sub and infra-subspecific taxa in order to preserve their identity and retain full knowledge of morphological diversity. All information on morphological variation to be included in the open-access database needs to be subject to peer-review, e.g. in the form of species descriptions. We expect the Web-accessed morphological databases to centralize and unify scattered taxonomical efforts, to foster taxonomy of difficult taxa, to provide free identification aids, and to condense the publication-citation cycle in the notoriously undercited field of alpha taxonomy. Specific issues are illustrated by the case of the amphipod family Niphargidae *(*http://niphargus.info/).

Keywords: morphological variation; *Niphargus*; species hypothesis; web-databases; web-taxonomy

Introduction

Godfray's (2002) commentary provoked vivid debate over whether (World-Wide-) Web-revisions may largely support if not completely replace present taxonomic practice and, to a lesser extent, whether such a transformation of taxonomy – a basic discipline of essential importance for the rest of biology – can attract large-scale funds. The idea of better, freely accessible and centralized taxonomic information has been generally welcomed and the taxonomic community has begun exploring the new promising tool (Agosti & Johnson 2002; Bisby *et al.* 2002; Scoble 2004; Wheeler 2004, 2007; Godfray *et al.* 2007; Pyle *et al.* 2008; Zhang 2008). The most severe impediment to Godfray's proposal is that "a taxon […] is a hypothesis, not an observation" leading to "duality and tension in taxonomic names", which are both, "convenient shorthand representations of scientific hypotheses, and as such should be as volatile as hypotheses in any other field", and as "keys to biological information, unique codes that unlock the library of knowledge […], and for this purpose they must be non-volatile or the links will be lost" (Thiele & Yeates 2002). An attempt to fulfill the requirements of all biological disciplines related to taxonomy is the CATE project (http://www.cate-project.org/index.html), while Mayo *et al*. (2008) pointed out that the Web can function as a tool in alpha-taxonomy (as a science) regardless of the mentioned problems.

The problems encountered during the past years of our own taxonomic research on the subterranean amphipod family Niphargidae invoked our exploration of web-taxonomy as a promising solution for this problem taxon. In contrast to Godfray's (2002) proposal that Web taxonomy starts with deposition of a revision on the Web, we find no argument why the collaboration cannot begin in an earlier phase – the construction of a morphological database. Our point of view is surely influenced by the specifics of the

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