Feedbacks of a couple of eco-informatic tools for soil inverterbrate functional traits: an example of interoperability by semantic data integration

Johanne Nahmani*[1], Benjamin Pey , Baptiste Laporte , Marie-Angélique Laporte , Apolline Auclerc , Yvan Capowiez , Jérome Cortet , Florence Dubs , Sophie Joimel , Sandrine Salmon , and Mickael Hedde

[1]Centre d'Ecologie Fonctionnelle et Evolutive (CEFE) – Campus CNRS, UMR 5175 – 1919 route de Mende;34293;Montpellier Cedex 5, France

Abstract

Soil invertebrates are assumed to play a major role in ecosystem dynamics, since they contribute to ecosystem services. Despite their acknowledged importance, relationships between soil invertebrate diversity, soil processes and environmental changes deserve more attention and still cannot be satisfactorily predicted. Taxonomic or a priori functional groups approaches were usually used. Consequently, a new theoretical framework is proposed relying on the concept of functional traits. Functional trait is defined as any morphological, physiological, phenological or behavioural feature measurable at the individual level.

Functional trait approaches have been intensively developed in several domains (e.g. plant ecology). However, soil ecology stayed the poor relation of this drive. Benefiting from experience in other domains, we have identified determinant obstacles to the development of functional trait-based approaches for soil fauna.

Consequently, we built two interoperable tools: a database (http://betsi.cesab.org/) and a thesaurus of trait names (http://t-sita.cesab.org/BETSI_vizIndex.jsp). Advantages of this semantic data integration will be presented in terms of scientific and methodological aspects. Future challenges will be addressed. Among them, the collective effort that is pivotal to move forward in such a framework. We can also cite the need for the construction of data warehouse to bring together several trait databases or the interfacing of trait and barcode databases.

Keywords: Soil invertebrates, Functional trait, BETSI database, Thesaurus, Soil Ecology

---

*Speaker