Talitraits workshop report.

On September 5 and 6, 2025, the group of Talitraits editors (https://www.marinespecies.org/amphipoda/talitraits.php) met to include new thematic experts, refresh the workflow for the inclusion of trait information aligned with the WoRMS taxonomic backbone, and define new goals for the mid- and long-term.

The meeting was held in hybrid mode, back-to-back with the XX International Colloquium on Amphipods in Lodz, Poland, so that some of the editors had already gathered for the days 1-5 September, while other editors joined remotely.

The group included previous Talitraits editors: Lucia Fanini (University of Salento, Italy), Omar Defeo (Universidad de la Republica, Uruguay), Lauren Hughes (Natural History Museum, London, UK), Filipa Bessa (MARE, Portugal) and new editors: Luke Ireland (EAWAG and University of Zurich, Switzerland), Christophe Piscart (CNRS, France), Emanuele Mancini (University of Salento, Italy), Koraon Wongkamaheng (Kasetsart University, Thailand), Kyle Emery (University of California, Santa Barbara, USA), Matheus Augusto (UNIRIO, Brazil), Linda R. Harris (Nelson Mandela University), and Giovanna Reis (UFRGS, Brazil). The group was assisted by the WoRMS Data Management Team: Leen Vandepitte, Stefanie Dekeyzer (VLIZ, Belgium) and by the chief taxonomic editor for Amphipoda: Tammy Horton (National Oceanography Centre, UK). For a total of 11 different nationalities represented, by Institutional affiliations: in alphabetical order Belgium, Brazil, France, Italy, Portugal, South Africa, Switzerland, UK, Uruguay, USA, and Thailand.

Figure 1. Group picture of 2025 Talitraits workshop. It was challenging to include all members at one time due to time zone differences amongst remote attendees.

1. Background.

Trait-based resources and repositories are increasing, following a growing demand for them as a background for studies with multi-scale relevance. Trait analysis is a valuable approach to ecosystem functioning and functional trade-offs (Titocci and Pata, 2025) and a promising insight into organism distributions across a range of environmental conditions.

The superfamily Talitroidea is of particular relevance as it is found across a range of environments, from marine sandy beaches to leaf litter inland, and even to oases (Sfenthourakis et al., 2020). Editors therefore agreed on an important conceptual extension of the activities: by considering the superfamily as a whole (Lowry and Myers, 2013), Talitraits is now going beyond the marine coastal-only focus which characterized the original working goals (set in 2018) and subsequent activity of the group. This expansion will provide further challenges but will ensure Talitraits is more relevant to a range of disciplines. WoRMS will provide the taxonomic backbone for all the trait information, resulting in a meaningful contribution to evolutionary and biogeographic knowledge, while also highlighting gaps in research on traits. Specifically, trait data on organisms living across both terrestrial and marine environments are lacking, even though such information would enable a better understanding of both land-sea connectivity baselines as well as the effects of global changes such as coastal erosion and temperature increases.

The work of the group of Talitraits editors is therefore planned to integrate these broad open questions and highlight further research gaps, resulting in a framework capable of providing quantitative support to theoretical exploration and advances.

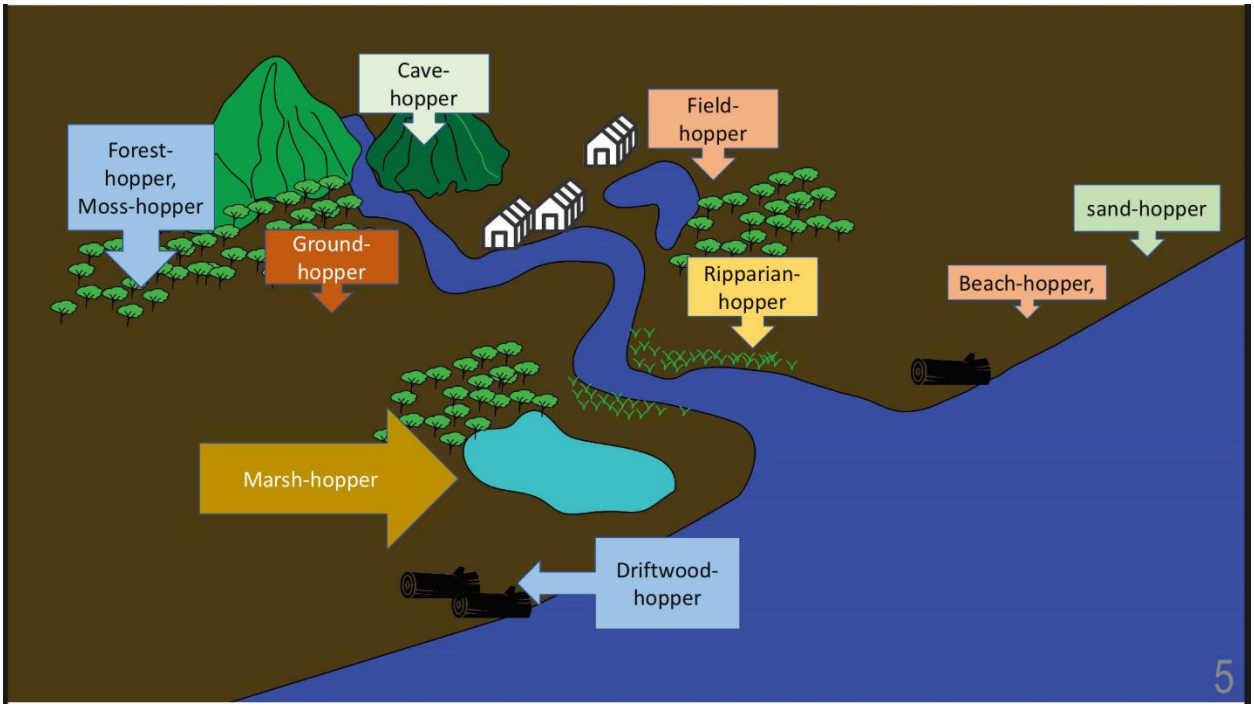

Figure 2. Where to find Talitroidea? Figure based on Lowry and Myers (2019).

2. The second Talitraits workshop.

The workshop included discussions by experts alternated with hands-on practice. It began with a training/refresher on the WoRMS platform use, where the Editors were assisted by the DMT to clarify important aspects, especially two main points related to editorial work: 1) all information added as trait needs to be supported by published literature. This means papers and monographs are uploaded and then linked to the trait information, remaining visible alongside the information. Given the interdisciplinary composition of the group of editors, a boost in talitroid-related literature spanning from ecology, evolution, biogeography, impacts and impact management can be expected to become available in WoRMS, with information becoming readily usable by users and outlets such as e.g. IUCN expert groups 2) the traits selected as curation priority, namely "qualitative body size" and "diet", are included among the 10 traits prioritized by EMODNETbiology following criteria of: applicability across most taxa, availability for most species, and potential usage (for more info https://www.marinespecies.org/traits/about.php). Such selection of traits aligns with the list already available at https://www.marinespecies.org/traits/aphia.php?p=attrdefinitions and aims at a better interoperability among those traits already defined and used by a broad range of users, placing contributions related to the specific group of Talitroidea in an inter-operable, broader context.

The Editors were assisted by the DMT to clarify important aspects related to the use of WoRMS platform as a tool to bring quantitative inputs to species and taxa, utilizing current research from different disciplines, and applying it to a range of different situations, with some species only known through their description, and others used as model species (hence with entire datasets and research hypotheses backing the information).

3. Next steps

As a best practice, one trait (which can be visualized as "attribute" in the platform, see Figure 3) at a time will be tackled, starting with quantitative body size, and only proceeding to the next upon completion of the first. Organisms' traits are not independent from each other, yet the trait "body size" was prioritized as it is intertwined with several ecological functions, both as a response to and as a driver of them (e.g. feeding, growth, survival). Being a morphological trait, size is more likely to have been measured and published in literature, whether in the species' description or in population ecology studies, where qualitative data are usually obtained and used for the assessments of traits on a statistical basis. In this respect, adding information can support taxonomy whereas size was found to be a confounding factor. Such a key trait (*sensu* Litchman et al., 2013) provides relevant information in itself, but also represents a starting point for further queries on relevant interactions with other traits' categories: how does size matter for physiology, life-history, and behaviour? In our vision, this work will support the depiction of available information about the functionality of an organism at a glance. And in parallel, it will highlight data-deficient taxa.

By planning the next steps, we intended to address the "clean ups" announced by WoRMS about feeding modalities of organisms, highlighting their diet but also position in the food web (prey of/predator of). In the case of talitroids, such a refined attribute is likely to shed light on their role in land-sea connectivity.

The discussions among experts further targeted key elucidations on other attributes of the platform: for instance, in case of semiterrestrial environments, the definition of "Environment" needed to be discussed and agreed upon. This resulted in the decision that information about environment for talitroids should

include “terrestrial” along with marine, brackish or freshwater environments. This is the best option to adequately represent the fact that talitroids do breathe through a water film on their gills, but also spend their life cycle on emersed littorals, banks, and even inside woods, in a distribution that also includes spots away from water bodies. These features will need to be checked species by species, so it might take some time and, for a while, will be a work in progress.

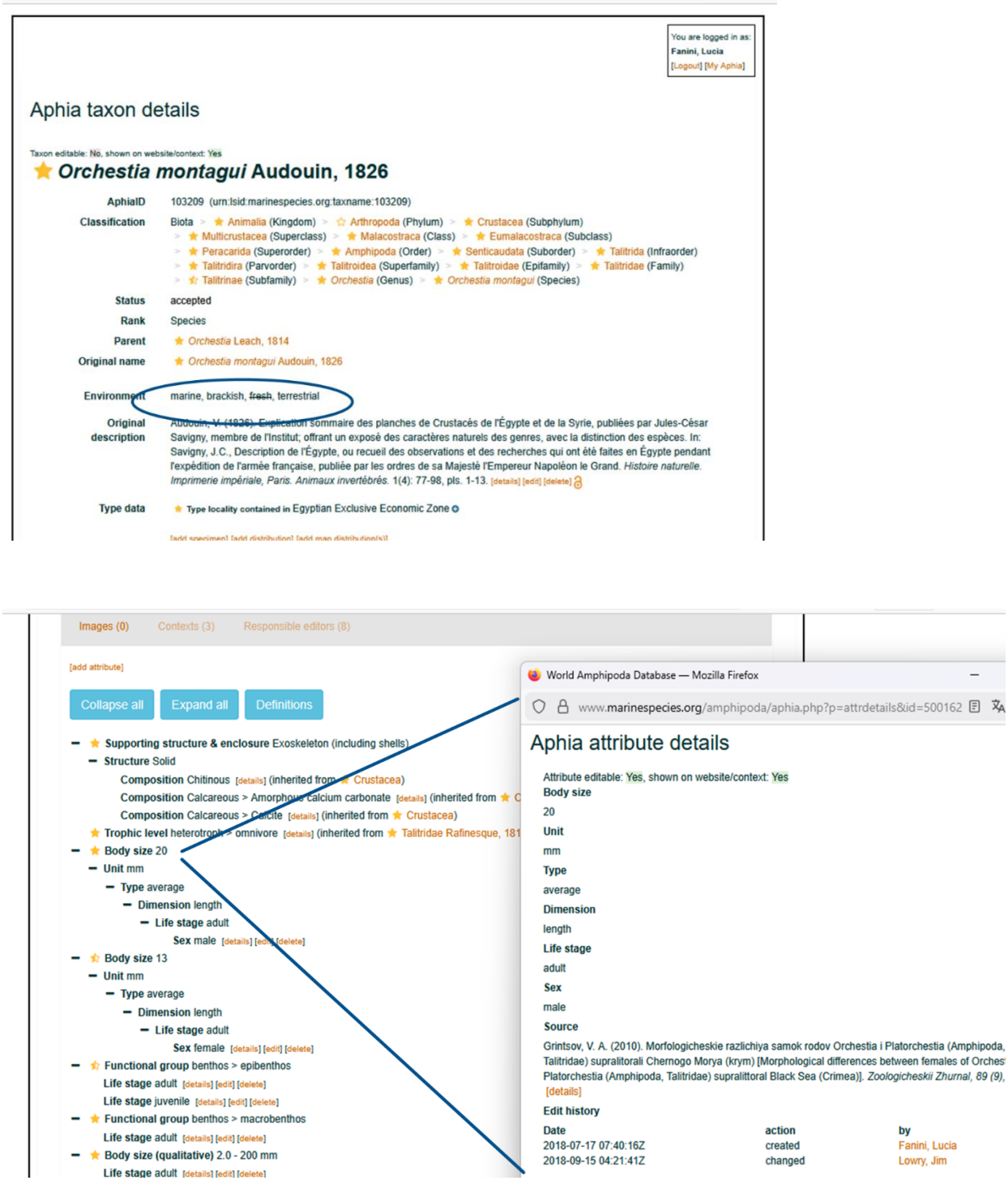

Figure 3. Top: Environment. Bottom: quantitative body size as an attribute of talitroids (screenshots).

Also, about work in progress: want to get involved? Contact lucia.fanini@unisalento.it Time- and size-limited projects can be discussed, as long as they relate to talitroids and their traits.

References

Litchman, E., Ohman, M. D., & Kiørboe, T. (2013). Trait-based approaches to zooplankton communities. *Journal of plankton research*, *35*(3), 473-484.

Lowry, J. K., & Myers, A. A. (2013). A phylogeny and classification of the Senticaudata subord. nov. Crustacea: Amphipoda. *Zootaxa*, *3610*(1), 1-80.

Sfenthourakis, S., Myers, A. A., Taiti, S., Lowry, J. K., Poore, G. C. B., & Thiel, M. (2020). Terrestrial environments. *Thiel, M, Poore (Eds) Evolution and Biogeography*, *8*, 359-388.

Titocci, J., Pata, P. R., Durazzano, T., Ayata, S. D., Clerc, C., Cornils, A., ... & Hunt, B. P. (2025). Pathways for converting zooplankton traits to ecological insights are paved with findable, accessible, interoperable, and reusable (FAIR) data practices. *ICES Journal of Marine Science*, *82*(2), fsaf017.