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Neotenorchestia Wildish, 2014 is a junior synonym of *Orchestia* Leach, 1814

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Abstract

Neotenorchestia Wildish, 2014 and *N. kenwildishi* Wildish, 2014 (Crustacea, Amphipoda, Talitridae) are junior synonyms of *Orchestia* Leach, 1814 and *Orchestia mediterranea* A. Costa, 1853 respectively, based on revised genetic evidence.

Key Words

Neotenorchestia kenwildishi Wildish, 2014
junior synonym

Introduction

In 2011 a talitrid amphipod living in floating driftwood was discovered in the Swale, U.K., (Wildish et al. 2012). Considerable difficulty was experienced in determining the taxonomic and genetic identity of the specimens in driftwood ("unknown" taxon), although they were genetically closely related to *Orchestia mediterranea* A. Costa, 1853 (Wildish et al. 2012; Pavesi et al. 2014).

Detailed genetic data are routinely submitted to GenBank, including ours (Wildish et al. 2012, Pavesi et al. 2014), to be freely available to other researchers. After one such enquiry it was clear that a calculation error had been made in the CO1 divergence estimate between *O. mediterranea* and the "unknown" taxon, based on Kimura two-parameter distance (Table 6 in Pavesi et al. 2014). The incorrect value given in the latter of K2P = 2% was due to a calculation error and should have been K2P = 0.2%. For the same pairwise comparison both nuclear genes studied (18S and 28S) showed no difference (Pavesi et al. 2014).

Considering the recognized error in Pavesi et al. (2014) I have re-evaluated the status of the "unknown" taxon from the Swale. U.K.

Review of literature related to *Neotenorchestia*

The "unknown" taxon was described as a new monotypic genus and species: *Neotenorchestia kenwildishi* Wildish, 2014, based on:

1. Detailed relative growth data, inclusive of slower growth, fewer moult stages per life history and sexualization beginning at an earlier moult stage (Wildish et al. 2012; Pavesi et al. 2014)
2. Genetic differences, based on the mitochondrial gene CO1 with a K2P divergence difference between *Orchestia mediterranea* A. Costa, 1853 and the "unknown taxon" from the Swale, U.K., of 2% (Pavesi et al. 2014).

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The corrected interpretation of the genetic data establishes that there is no significant genetic difference between *O. mediterranea* and the "unknown taxon". Thus, only the growth differences listed under 1 remain.

A possible explanation for the growth differences is that *O. mediterranea* can acclimate to living on, and in, driftwood. Acclimation to driftwood in *O. mediterranea* may involve all the relative growth changes listed under 1.

A precedent for driftwood acclimation among Talitridae has been established in another wrack generalist: *Platorchestia platensis* (Krøyer, 1845). This species can live indefinitely in driftwood, but it involves slower growth and reduced resting metabolic rate (Wildish and Robinson 2016; Wildish et al. 2018). Acclimation to driftwood in a secondary ecotope, involving reduced metabolic rate and dwarfism, may be a general phenomenon among wrack generalist talitrids, such as *O. mediterranea*.

Conclusions

Given the corrected interpretation of the genetic data in Pavesi et al. (2014), as outlined above, *Neotenorchestia kenwildishi* Wildish, 2014, becomes a junior synonym of *O. mediterranea* A. Costa, 1853.

For the same reason the the monotypic genus *Neotenorchestia* Wildish, 2014 becomes a junior synonym of *Orchestia* leach, 1853.

The immature male (NHMUK 2014.397) and the 9 juvenile specimens (NHMUK 2014 398-406) submitted as type specimens of *Neotenorchestia kenwildishi* Wildish, 2014, to the Natural History Museum, London, U.K., in support of *Neotenorchestia* Wildish, 2014, are re-labelled as *O. mediterranea* A. Costa 1853, driftwood morphological variant.

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