

An updated classification for freshwater crayfishes

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A new paper published in the *Journal of Crustacean Biology* provides an updated classification system that includes all the known crayfishes worldwide. This makes available a single, comprehensive taxonomic summary of all the recognized species of crayfish of the world.

Freshwater crayfishes are a group of decapod crustaceans that have played a critical role in a diversity of biological studies, from physiology, to ecology, neurobiology, conservation, and evolution. Central to many of these fields of study is the dependence on a robust taxonomic framework for accurate communication relating to species diversity and associated attributes. Despite a huge body of taxonomic work, there has never been a single, comprehensive taxonomic summary of all the species of [crayfish](#) of the world. There has also been an abundance of recent taxonomic work in terms of new species descriptions and taxonomic insights gained from a variety of phylogenetic studies. Here scientists gathered diverse taxonomic and phylogenetic information into a single resource.

There have been many important crayfish discoveries over the last few decades. First was the discovery of much hidden diversity in Tasmania resulting in the description of two new genera. Second was the revision of East European and Asian taxa in 1996, which was not well received and has been variously integrated (more often not) into regional taxonomies. Third was the discovery of a new fossil family from China in 1999 and new fossil genera from British Columbia (2011), Argentina (1992), and Australia (2008). The remaining higher-level crayfish

taxonomy has been reasonably stable over the last 50 years. Here researchers attempted to integrate, update, and revise crayfish taxonomy with insights gained through systematic and taxonomic studies.

The classification of the [freshwater crayfish](#) presented herein consists of five families and 38 genera. Researchers outline their classification, including the two superfamilies (Northern and Southern hemispheres divisions). They also summarized the genera and numbers of extant species, additional subspecies, and fossil species within each genus.

For each of the herein recognized crayfish families (both extant and fossil), scientists list the currently recognized genera, species, and subspecies. For each genus, they provide a reference to the original description, their type species and method of designation, as well as their gender to facilitate future work. All known synonyms are also listed. For species and subspecies, researchers list their current bi/trinomen, original name combination (if different), as well as currently accepted synonyms.

The cut-off date for inclusion of names was set in June 2017, although the description of several species are in press and the present compilation will be outdated as soon as it appears in print. The data will be migrated to the World Register of Marine Species (WoRMS) platform on publication, where researchers involved in this project will work to keep the list current.

This classification results in two superfamilies (Astacoidea and Parastacoidea), five families, 38 genera, and 669 species (692 including distinct subspecies). Researchers provide a checklist of all species and include validated taxonomic authorities, type localities, figure references, and synonyms. Researchers also provide arguments for this revised classification. The updated and complete classification aims to provide a robust framework for future studies of the freshwater crayfishes of the world.

"It is really exciting to finally have a single source for the world's freshwater crayfish taxonomy," said Keith A. Crandall, director of the Computational Biology Institute at the George Washington University's Milken Institute School of Public Health. "Such a resource will impact a wide variety of fields that rely on crayfishes as study organisms. We hope it will also advance conservation efforts of these keystone [species](#) of highly endangered freshwater ecosystems."

More information: Keith A Crandall et al, An updated classification of the freshwater crayfishes (Decapoda: Astacidea) of the world, with a complete species list, *Journal of Crustacean Biology* (2017). [DOI: 10.1093/jcbiol/rux070](#)

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