



The Aquatic Invertebrates of Australia (AIA) DNA Database

Research Background

Aquatic macroinvertebrates are regularly used for assessing the health of Australian river systems. These assessments rely on accurate identifications of the macroinvertebrate fauna present within monitoring sites. Often, accurately identifying a macroinvertebrate specimen is not possible, because the specimen is damaged, too small, of an undescribed life stage, or is a new species to science.

DNA barcoding is a method of obtaining genetic data from specimens that can be used to accurately identify those specimens to species, regardless of their size or condition. The DNA barcode is a small standard gene fragment that exhibits little variation within a species but large variation between species. This variation can be used to determine the identity of an unknown specimen by comparing its DNA barcode to those of identified species. This makes DNA barcoding a particularly useful tool for science programs that rely on species identifications. However, in order to use DNA barcoding as a routine species identification tool, it is important to develop a database of identified specimens and their DNA barcodes.



In 2014 a group of researchers met to discuss the need for a national database of aquatic invertebrate DNA barcodes. From this meeting the AIA was formed. To date the database contains over 2000 specimens representing some 300 species.

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Goals

The overall aim of our DNA barcoding work is to make our database comprehensive, covering all species of aquatic invertebrates found in the Murray-Darling catchment. In order to achieve this many more species will need to be collected, identified, barcoded, and databased. Monitoring programs and other research projects that involve the identification of aquatic macroinvertebrates will greatly assist in this objective through providing accurately identified specimens for inclusion in the database. For this reason, we encourage the wider scientific community to add to the database by contributing DNA barcode information generated through their projects. Ensuring quality genetic data are obtained for every species within our region of interest will take time and commitment. However, as the database develops, its use as a tool for identifying specimens will become indispensable.

Assessing and contributing to the database

The DNA barcode database is publically accessible through the [Barcode Of Life Database](http://www.barcodinglife.com) website.

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The international Barcode of Life is a global collaborative effort in creating a DNA barcode reference library for all multi-cellular life. Registration with Barcode Of Life Database is free and once registered you can access all public content available from the database, including specimen collection details, pictures, and genetic information. The website also contains educational resources.

The AIA data can be found through the Barcode Of Life Data by searching for the project title:

Aquatic Invertebrates of Australia or its acronym **AIA**.

Collaborate

We are always seeking to collaborate with people who have an interest in the aquatic fauna of Australia. If you would like to be involved in developing the Aquatic Macroinvertebrate database, please contact us on the details provided on the front page of this fact sheet.

