

BioData Taxonomic System

The BioData taxonomic system is organized as a hierarchically nested set of three naming systems.

[Published Taxon Names](#)

[BioData Taxon Names](#)

[Bench Concepts](#)

*This system is used to report taxonomic data in a **standard** taxonomic system that resolves nomenclatural synonyms.

**Each [version](#) is numbered and archived using standard conventions. The current [version](#) of the taxonomic system is applied to all data, whether collected in 2014 or 1993.

Quick Links

[Download BioData Taxonomy](#)

Compare **your** list of taxonomic names with the downloaded USGS BioData Taxonomy using a contributed R script available at https://github.com/bishopia/biodata_check

[Request a NEW Taxon](#)

[Naming Conventions for Conditional and Provisional Taxa](#)

[Saving files in a Unicode file format for international character support](#)

[Versioning of the BioData Taxonomic System](#)

Published Taxon Names:

The highest level of organization is called the Published Taxon Name. Every [BioData Taxon Name](#) must be linked to a Published Taxon Name. This also ensures that every [Bench Concept](#) is also linked to a Published Taxon Name. Published Taxon Names have been validly published and should conform to the standards of the [International Commission on Zoological Nomenclature](#) (ICZN) and [International Association for Plant Taxonomy](#) (IAPT), so they allow us to report data according to internationally accepted standards.

Published Taxon Names can be edited and even deleted, but not without creating a [new version](#) of the taxonomic system and only if associated BioData Taxon Names and Bench Concepts will not be orphaned (unlinked from a published name)...

- Published Taxon Names must be assigned a hierarchical rank (e.g. genus or species)...
- Published Taxon Names can be linked to [ITIS](#); these matches to [ITIS](#) do not need to be exact. This allows us to include validly published names that are not in [ITIS](#) and still link to an existing parent taxon that is in [ITIS](#).
- Published Taxon Names - except at the highest levels (i.e. Phylum) - also need to have a Hierarchical Parent. The sort order of the parents can be controlled by the system, so we can output data phylogenetically and alphabetically...

This is a screen shot of a portion of the taxonomic management system showing the editable and fixed elements of an invertebrate BioData Taxon Name

Biological Community:	Invertebrates
(*) required field	
Hierarchy Parent	
Parent Published Taxon Name:	Ceratopsyche
Parent Taxonomic Rank:	Genus
Parent ITIS TSN:	115570
Parent ITIS TSN Match Code:	Automated Exact Match
View Parent in ITIS	
Published Taxon Name	
Published Taxon Name:	* Ceratopsyche bronta
Published Taxon Name Authority:	(Ross)
Taxonomic Rank:	* Species
ITIS TSN:	115577
ITIS TSN Match Code:	Automated Exact Match
View in ITIS	

BioData Taxon Names:

The next level is called the BioData Taxon Name. Every [Bench Concept](#) must be linked to a BioData Taxon Name. Since Bench Concepts cannot be edited or deleted, BioData Taxon Names allow us to provide data using a standard nomenclatural system, correct errors, and deal with synonyms.

BioData Taxon Names can be edited and even deleted, but not without creating a new version of the taxonomic system..

- Every Bench Concept is linked to one and only one BioData Taxon Name
- BioData Taxon Names must be linked to a Published Taxon Name...
- BioData Taxon Names can be associated with a common name. This is useful for ichthyologists...
- BioData Taxon Names can be associated with unique short names that are useful when doing statistical analysis...
- BioData Taxon Names can - like Bench Concepts - be defined as hybrids or as conditional /provisional names...

A portion of the taxonomic management system showing the editable and fixed elements of an invertebrate BioData Taxon Name

Biological Community:	Invertebrates
(*) required field	
Published Taxon Name	
Published Taxon Name:	<input type="text" value="Ceratopsyche bronta"/>
Published Taxon Authority:	(Ross)
Published Taxonomic Rank:	Species
Published Taxon ITIS TSN:	115577
Published Taxon ITIS TSN Match Code:	Automated Exact Match
<input type="button" value="View in ITIS"/>	
BioData Taxon Name	
BioData Taxon Name:	* <input type="text" value="Ceratopsyche bronta"/>
Biodata Taxon Common Name:	<input type="text"/>
BioData Taxon Short Name:	<input type="text" value="Ce_bron512"/>
Is Provisional/Conditional?:	* <input type="radio"/> Yes <input checked="" type="radio"/> No
Is Hybrid?:	* <input type="radio"/> Yes <input checked="" type="radio"/> No

Bench Concepts:

The foundation of the BioData taxonomic system is called a Bench Concept. Every Bench Concept is linked to a BioData Taxon Name. A Bench Concept always contains a Bench Taxon Name, but in addition to that it can be more completely defined by optionally adding one or more of the following data elements: 1) Bench Taxon Authority or 2) Bench Taxon Name Reference Code. Bench Taxon Name Reference Codes are linked to a complete citation.

The four potential fields that may be used to select a **Bench Concept**:

- **Bench Taxon Name** (*required for all taxa*)
- **Bench Taxon Authority** (*optional*)
- **Bench Taxon Name Reference Code** (*optional*)
- **BioData Taxon Common Name** (fish ONLY)

Although theoretically all four fields could be used to define a **Bench Concept**:

- For **algal data** it is currently customary to use **Bench Taxon Name** with an optional **Bench Taxon Authority** appended to the end of the string
- For **fish data** it is currently customary to use **BioData Taxon Common Name**
- For **invertebrate data** it is customary to use **Bench Taxon Name** with an optional **Bench Taxon Name Reference Code** in a separate column

*when taxonomic ambiguity exist among Bench Concepts, we may require otherwise optional fields to more thoroughly define the Bench Concept

Once a Bench Concept has been created and published in an active (i.e. not a draft) [version](#) of the taxonomic system, it cannot be deleted and the 3 key fields that define the concept cannot be edited; we preserve the true original record as it was entered or uploaded with data.

The concept itself cannot be edited, but...

- A Bench Concept can be associated with different [BioData Concepts](#)...
- A Bench Concept can have multiple [states](#)
- ...
- A Bench Concept can be a hybrid...
- A Bench Concept can be conditional or provisional...
- A Bench Concept can have specific comments associated with it...
- A Bench Concept can be linked to unique identifiers used by other taxonomic systems...
- A Bench Concept without a Reference Code is referred to a "nominal"...

*if any of these changes are made, the original values are archived in the previous [versions](#)

A portion of the taxonomic management system showing the editable and fixed elements of an invertebrate Bench Concept

Biological Community:	Invertebrates
(*) required field	
BioData Taxon Name	
BioData Taxon Name:	* Ceratopsyche bronta
BioData Taxon Common Name:	
Bench Taxon Concept	
Bench Taxon Name:	* Ceratopsyche bronta
Bench Taxon Name Reference Code:	Nimmo, 1987
Status	
Bench Taxon Concept State:	* Current
Is Provisional/Conditional?:	* <input type="radio"/> Yes <input checked="" type="radio"/> No
Is Hybrid?:	* <input type="radio"/> Yes <input checked="" type="radio"/> No
Comments:	<input type="text"/>
External Mappings	
BU ID:	* Ceratopsyche bronta (Ross) sensu Nim

States of Bench Taxon Concepts

[Bench Taxon Concepts](#) can have one of three states (**TaxonConceptState**)

1. **Current** - the concept is considered up-to-date and will be accepted in data
2. **Deprecated** - the concept will be accepted in data but may be rejected in the near future
3. **Retired** - the concept has been retired from use and will be rejected if used in incoming data