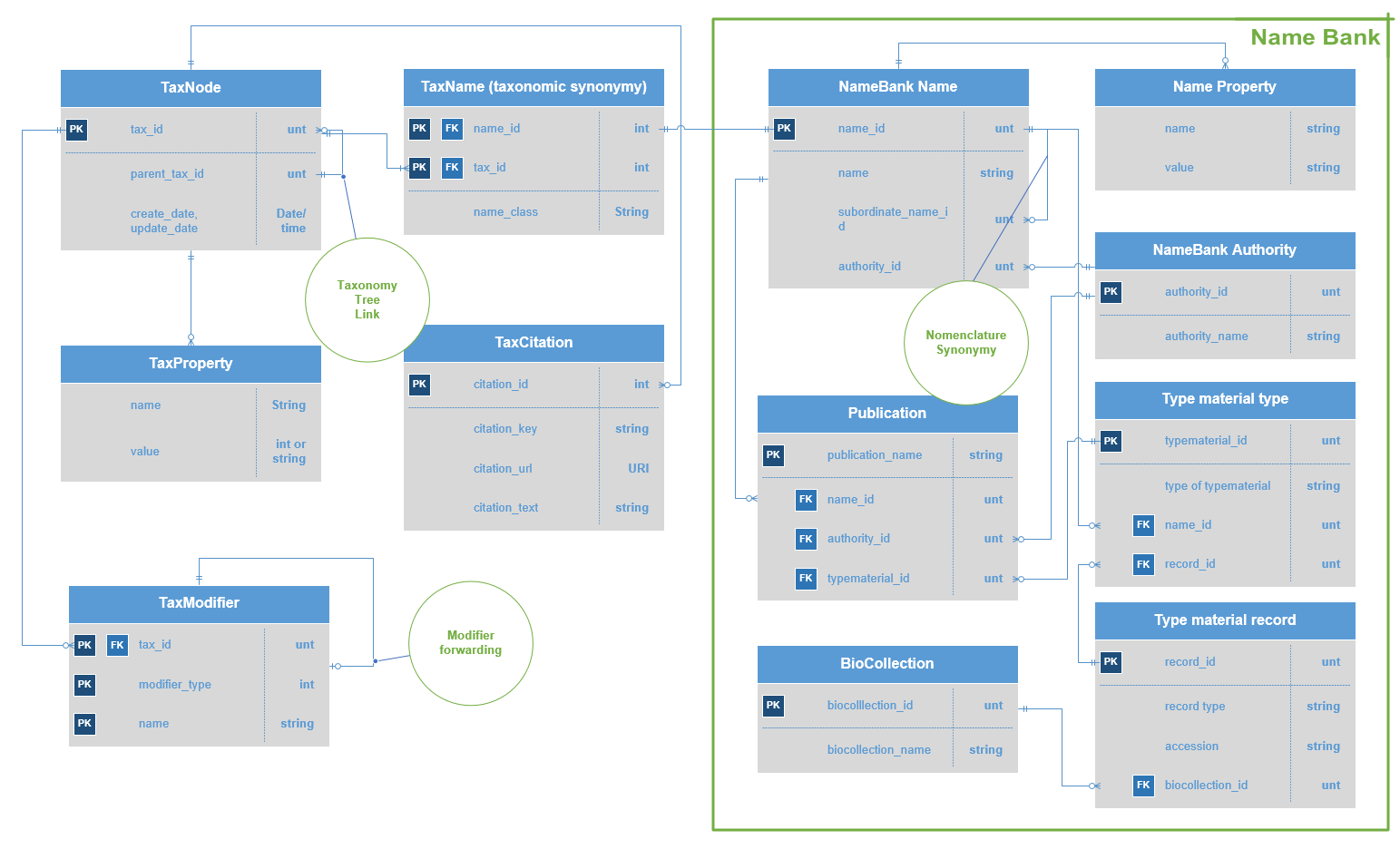
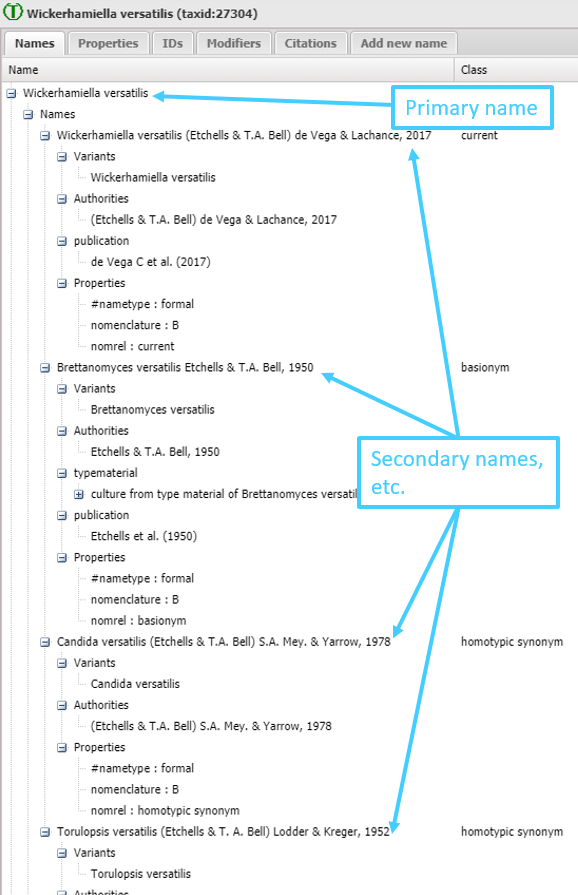
**Supplemental files**

* Supplemental Figure S1. Streamlined schema indicating the relational data structure for names, type material (and the biorepositories for it), publications and taxonomic authorities, amongst others
* Supplemental Figure S2. Partial display of a data entry for a TaxNode, with various unique entries, seen in TaxEdit. Some drop down lists are not fully shown.
* Supplemental Table S1. Additional sources recently used by NCBI Curators (this list is dynamic and will change over time).
* Supplemental Table S2. Commonly curated nomenclatural status and related terms used in NCBI Taxonomy.
* Supplemental Table S3 Currently used rank and other group names in NCBI Taxonomy. (Not all names listed are governed by a code of nomenclature.)

Supplemental Figure S1. Streamlined schema indicating the relational data structure for names, type material (and the biorepositories for it), publications and taxonomic authorities, amongst others.

Supplemental Figure S2. Partial display of a data entry for a TaxNode, with various unique entries, seen in TaxEdit. Some drop down lists are not fully shown.



Supplemental Table S1. Additional sources recently used by NCBI Curators (this list is dynamic and will change over time).

|  |  |  |
| --- | --- | --- |
| **Additional informative sites (used occasionally)** | | |
| 3i Interactive Key and Taxonomic Database | <http://dmitriev.speciesfile.org/3i.asp> | Taxonomic databases for Auchenorrhyncha and part of Curculionidae |
| Apoidea at Discover Life | <https://www.discoverlife.org/mp/20q?search=apoidea> | Taxonomic database for bees and apoid wasps |
| Afromoths | <http://www.afromoths.net> | Online database of Afrotropical moth species |
| Amanitaceae.org | <http://www.amanitaceae.org/> | Comprehensive resource on taxonomy of Amanitaceae |
| AntWeb | <https://www.antweb.org> | Database of images, specimen records, and natural history information on ants |
| AntWiki | <https://www.antwiki.org/wiki/> | A wealth of information on the world's ants |
| APNI | <https://biodiversity.org.au/nsl/services/APNI> | Focused on vascular plants of Australia |
| BioLib | <https://www.biolib.cz/en/main/> | An international encyclopedia of plants, fungi and animals. |
| Cercopoidea Organised On Line (COOL) | <https://www.hemiptera-databases.org/cool/> | Systematic based database on the Cercopoidea |
| Checklist of the Collembola | <https://www.collembola.org/index.html> | Taxonomic checklist of Collembola |
| ChiloBase | <http://chilobase.biologia.unipd.it> | Taxonomic database of all known extant centipedes (Chilopoda) of the world including a modern taxonomic system |
| Coleoptera Neotropical | <http://coleoptera-neotropical.org/paginaprincipalhome.html> | Database of beetles of Neotropical regions, with special emphasis on South American countries |
| eFloras | <http://www.efloras.org/index.aspx> | Includes Flora of North America and Flora of China |
| Ephemeroptera of the World | <http://www.insecta.bio.spbu.ru/index.htm#Ephemeroptera> | Phylogeny, taxonomy and fauna of Ephemeroptera |
| FigWeb | <http://www.figweb.org/Figs_and_fig_wasps/index.htm> | Figs and fig wasps of the world |
| FishBase | <https://www.fishbase.us/home.htm> | Supplemental source for fish names |
| Fulgoromorpha Lists On the WEB (FLOW) | <https://www.hemiptera-databases.org/flow/> | Database for available published primary data on planthoppers |
| Hymenoptera Online | <https://hol.osu.edu/index.html> | Hymenopteran data of species and specimens |
| IUCN Red List of Threatened Species | <https://www.iucnredlist.org/> | Inventory of conservation status of species & subspecies with vetted taxonomic information. |
| Lepidoptera and some other life forms | <http://www.nic.funet.fi/pub/sci/bio/life/insecta/lepidoptera/index.html> | Finnish lepidopteran database |
| MilliBase | <http://www.millibase.org/index.php> | A global species catalog of the myriapod class Diplopoda |
| Nomina Insecta Nearctica | <http://nearctica.com/nomina/main.htm> | Checklist of insects of North America north of Mexico |
| PBI Plant Bug | <http://research.amnh.org/pbi/index.html> | On-line Systematic Catalog of Plant Bugs (Insecta: Heteroptera: Miridae) |
| Plant and Insect Parasitic Nematodes | <https://nematode.unl.edu/index.html> | Species list of plant and insect parasitic nematodes |
| Pan-European Species directories Infrastructure (PESI) | <http://www.eu-nomen.eu/portal/index.php> | All-taxa inventory for European species |
| The Pyraloidea database | <http://www.pyraloidea.org/index.php> | Available names and nomenclatural acts of Pyraloidea |
| ScaleNet | <http://scalenet.info/catalogue/> | A literature-based model of scale insect biology and systematics |
| The Scorpion Files | <https://www.ntnu.no/ub/scorpion-files/> | Updated list of all extant scorpion species |
| Species Files | <http://software.speciesfile.org/HomePage/Software/Files/Files.aspx> | Covers most Polyneoptera orders and several Paraneoptera taxa, notably  Aphidomorpha and Psocodea. |
| Species2000 | <https://www.sp2000.org> | Aggregator of all names of cellular organisms, producing the Catalogue of Life in collaboration with ITIS and others |
| Systema Dipterorum | <https://web.archive.org/web/20180615024537/>  <http://www.diptera.org/> | Authoritative source for all names proposed for extant and extinct Diptera |
| Systematic Catalog of Culicidae | <http://www.mosquitocatalog.org/default.aspx> | A systematic catalog of mosquitoes |
| ThripsWiki | <https://thrips.info/wiki/Main_Page> | Information on the World's thrips |
| Trichoptera World Checklist | <http://entweb.sites.clemson.edu/database/trichopt/index.php> | World Checklist of caddisflies |
| Universal Chalcidoidea Database | <https://www.nhm.ac.uk/our-science/data/chalcidoids/database/> | Comprehensive list of taxonomic names within Chalcidoidea. |
| USDA GRIN Taxonomy | <https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomyquery.aspx> | Especially good for economic plants |
| WaspWeb | <https://www.waspweb.org/Afrotropical_wasps/index.htm> | Wasps, bees and ants of Africa and Madagascar |
| World Catalogue of the Tortricidae | <http://www.tortricidae.com/catalogue.asp> | Online World species list of the Tortricidae |
| World Odonata List | <https://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/dragonflies/world-odonata-list2/> | Odonata checklist of the world |
| World Spider Catalog | <https://wsc.nmbe.ch> | Searchable online database covering spider taxonomy |

Supplemental Table S2. Commonly curated nomenclatural status and related terms used in NCBI Taxonomy.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Term** | **Abbreviation** | **Similar terms** | **Code of nomenclature** | **Explanation** |
| candidatus name |  | candidatus | *ICNP* | a provisional name for well characterized but as-yet uncultured organisms |
| effectively published name |  | effective name | *ICNP* | a name made available in printed and/or electronic matter made generally available to the scientific community but not published in the journal of record, under the ICNP |
| *nomen dubium* | nom. dub. | dubious name | *ICNafp, ICZN* | a name of unclear application |
| *nomen illegitimum* | nom. illeg. | illegitimate name | *ICNafp, ICNP* | not in accordance with the rules of its relevant code of nomenclature |
| *nomen ineditum* | nom. ined. | unpublished name | *ICNafp, ICNP, ICZN* | used in literature, i.e. a name proposed without adherence to any code of nomenclature. Indicated with single quotes in NCBI Taxonomy |
| *nomen invalidum* | nom. inval. | invalid name | *ICNafp* | not published in accordance with rules enumerated in the ICN |
| *nomen novum* | nom. nov. | replacement name, avowed substitute | *ICNafp, ICNP, ICZN* | a name regulated by ICNafp that is based on a legitimate or illegitimate, previously published name, which is its replaced synonym and which, when legitimate, does not provide the final species epithet, name, or stem of the replacement name, or a name regulated by ICZN that is established expressly to replace an already established name |
| *nomen nudum* | nom. nud. |  | *ICNafp, ICZN* | a name regulated by ICNafp that is published without a diagnosis, or one by ICZN that fails to conform to any related Article in the Criteria of availability |
| orthographic variant | orth. var. |  | *ICNafp* | not following standard rules of orthography, such as gender disagreement between genus and species, either when originally published or mistakenly corrected in later publications; includes names which are "incorrect original spellings" and "incorrect subsequent spellings" in zoological parlance |
| replaced synonym |  |  | *ICNafp* | a synonym replaced by a *nomen novum* |

Supplemental Table S3 Currently used rank and other group names in NCBI Taxonomy. (Not all names listed are governed by a code of nomenclature, and some equivalent hierarchical placements were forced.)

|  |  |  |  |
| --- | --- | --- | --- |
| **Place in hierarchy** | **Name** | **Equivalent terms** | **Note** |
| **Phylogenetic ranks (monophyletic, non-hierarchical)** | | | |
| - | clade |  | **newly introduced**, can appear anywhere in the lineage w/o breaking the order |
| **Non-hierachical group names** | | | |
| - | environmental samples |  | no order below this rank is required |
| - | incertae sedis |  | can appear anywhere in the lineage w/o breaking the order, implies taxa with uncertain placements |
| - | unclassified <name> |  | no order below this rank is required, includes undefined or unspecified names |
| - | no rank |  | applied to nodes not categorized here yet, additional rank and groups names will be released |
| **Classification rank and group names (from higher to lower)** | | | |
| 1 | superkingdom |  | Archaea, Bacteria, Eukaryota, Viruses |
| 2 | kingdom |  |  |
| 3 | subkingdom |  |  |
| 4 | superphylum | superdivision (*ICNafp*) |  |
| 5 | phylum | division (*ICNafp*) |  |
| 6 | subphylum | subdivision (*ICNafp*) |  |
| 7 | infraphylum | infradivision (*ICNafp*) |  |
| 8 | superclass |  |  |
| 9 | class |  |  |
| 10 | subclass |  |  |
| 11 | infraclass |  |  |
| 12 | cohort |  |  |
| 13 | subcohort |  |  |
| 14 | superorder |  |  |
| 15 | order |  |  |
| 16 | suborder |  |  |
| 17 | infraorder |  |  |
| 18 | parvorder |  |  |
| 19 | superfamily |  |  |
| 20 | family |  |  |
| 21 | subfamily |  |  |
| 22 | tribe |  |  |
| 23 | subtribe |  |  |
| 24 | genus |  |  |
| 25 | subgenus |  |  |
| 26 | section | used under *ICNafp* | different from section used for some *ICZN* regulated organisms |
| 27 | subsection | used under *ICNafp* | see note on section |
| 28 | series | used under *ICNafp* | different from section used for some ICZN regulated organisms |
| 29 | subseries | used under *ICNafp* | see note on series |
| 30 | species group |  | could be multiple nested species groups |
| 31 | species subgroup |  |  |
| 32 | species |  |  |
| 33 | forma specialis | special form | **newly introduced**, below species level |
| 34 | subspecies |  | below species level |
| 35 | varietas | morph (*ICZN*), form (*ICZN*) | below species level |
| 36 | subvariety |  | **newly introduced**, below species level |
| 37 | forma |  |  |
| 38 | serogroup | pathogroup | **newly introduced**, below species level |
| 39 | serotype | biotype, genotype | **newly introduced**, below species level |
| 40 | strain |  | **newly introduced**, below species level |
| 41 | isolate |  | **newly introduced**, below species level |