**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.)

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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 |