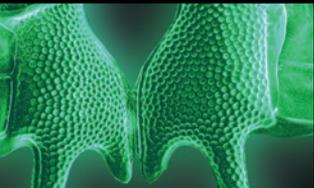




TERMS USED IN BIONOMENCLATURE

The naming of organisms (and plant communities)



Compiled by **David L. Hawksworth**



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TERMS USED IN BIONOMENCLATURE

TERMS USED IN BIONOMENCLATURE:

The naming of organisms (and plant communities)

Including terms used in botanical, cultivated plant, phylogenetic, phytosociological, prokaryote (bacteriological), virus, and zoological nomenclature.

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Published by Global Biodiversity Information Facility, Copenhagen.

May 2010

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ISBN 87-92020-09-7

A PDF version of this book can be downloaded from the GBIF website together with the
Terms of Bionomenclature web application at
[http://www.gbif.org/communications/resources/print-and-online-
resources/bionomenclature/](http://www.gbif.org/communications/resources/print-and-online-resources/bionomenclature/)

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Abstract

This is a glossary of over 2,100 terms used in biological nomenclature - the naming of whole organisms of all kinds. It covers terms in use in the current editions of the different internationally mandated and proposed organismal *Codes*; i.e. those for botany (including mycology), cultivated plants, prokaryotes (archaea and bacteria), virology, and zoology, as well as the *Draft BioCode* and *PhyloCode*. Any abbreviations, latinizations and synonyms are incorporated, as are terms which are either no longer employed, are used outside the formal nomenclatural *Codes*, or are otherwise likely to be encountered. As some of the terms used in the classification of plant communities are identical to those of whole organisms, terms used in phytosociological nomenclature are also included. The glossary has been prepared with inputs from numerous nomenclatural specialists, especially representatives of the different *Codes* serving on the IUBS/IUMS International Committee on Bionomenclature. It is intended for use as a reference work by all biologists, especially those involved with the description or re-classification of organisms, as well as those investigating the status and application of previously proposed names.

Selected key words: algae, animals, archaea, bacteria, BioCode, biological nomenclature, botany, codes of nomenclature, cultivated plants, dictionary, entomology, fungi, glossary, nomenclature, PhyloCode, phytosociology, plants, prokaryotes, protists, viruses, zoology.

Introduction

Terms used in discussions of, and in the procedures regulating, the scientific naming of organisms often appear abstruse or unfamiliar to most biologists. The associated language and jargon has developed exponentially since Linnaeus endeavoured to codify procedures and terminology in the *Philosophia Botanica* (1751). The situation has been exacerbated by biologists working with different groups of organisms developing not only unique terms, but also using identical ones but with different meanings. Today, the accumulated terms present a major obstacle for biologists needing to know how to introduce new scientific names, change positions in a classification, understand why a name has been changed, or determine that which should be used for an organism according to the appropriate sets of rules. In addition, confrontation with unfamiliar and outdated terms can be a barrier to a taxonomist's correct interpretation of the older literature that has to be tackled when undertaking monographic or revisionary work. However, it is my hope that this listing will also facilitate the understanding of nomenclatural discussions and procedures by organismal biologists as a whole.

The primary objective of the present compilation is to provide, in a single reference work, definitions and explanations of terms for biologists of all kinds working with, or on, the names of organisms. A secondary objective is to discourage both the superfluous coining of new terms, and the use of existing terms in different senses. As will be apparent from a perusal of the entries, there is already an embarrassing number of cases of the same term being used in disparate senses (e.g. genotype, morphotype). The equivalence of selected terms employed in the different *Codes* is indicated in Table 1.

I started compiling notes on terms used in botanical nomenclature in the mid-1960s when as a student I found that some definitions were not always easily located. My list grew, and a glossary of those relevant to mycology was included in the *Mycologist's Handbook* (1974). I continued to make notes as more were encountered for a putative second edition. In the mid-1980s, the International Union of Biological Sciences (IUBS) identified a need for increased co-operation between the authorities concerned with the nomenclature of different groups of organisms. Then, at the 24th General Assembly of IUBS in Amsterdam in 1991, the Scientific Programme

Committee reported that it would be advantageous to produce a comprehensive glossary of biological nomenclature. To that end, in November 1993 I circulated a first draft aiming to cover the five principle Codes to several colleagues; the production of that draft was facilitated by the glossary in Charles Jeffrey's *Biological Nomenclature* (1989). A second draft was prepared in March 1994, and critically annotated by nominated representatives of the different *Codes* serving on the then embryo IUBS/IUMS International Committee on Bionomenclature (ICB). Taking note of the painstakingly prepared inputs received, *A Draft Glossary of Terms used in Bionomenclature* was published by IUBS in July 1994; this had 1175 entries. This opened the draft to comment from the wider biological community, and I continued to compile additions and corrections received, as well as to incorporate updates and revisions necessitated by new editions of the *Codes* and the scrutiny of other publications. Yet a further draft was made available to several colleagues for comment on the occasion of the International Botanical Congress in Vienna in July 2005, and at a meeting of the ICB in London in June 2009.

Such a compilation can never be exhaustive, and it is being released now as it has reached a stage where, hopefully, it will be of value to all those concerned with the naming of whole organisms. However, awareness of the possible deficiencies of the 1994 draft, led me to place a “health-warning” on the back cover. The present work must also be used with caution, and while representatives of the various *Codes* have assisted in the venture, it has no formal standing in biological nomenclature.

Users who come across omissions or misinterpretation, or encounter alternative uses of already included terms, are encouraged to submit details to me (d.hawksworth@nhm.ac.uk) so that they can be accommodated in any future edition.

Scope

This compilation covers terms employed in the current editions of the different internationally mandated and proposed organismal *Codes*; i.e. those for botany (including mycology), cultivated plants, prokaryotes (archaea and bacteria), virology, and zoology, as well as the *Draft BioCode* and *PhyloCode*. Also incorporated are abbreviations, latinizations, and synonyms, as well as the numerous terms which are either no longer

employed, used outside the formal nomenclatural *Codes*, or are otherwise likely to be encountered. As some of the terms used in the classification of plant communities are identical to that of whole organisms, terms used in phytosociological nomenclature are also included – but not those of so-called Dynamic-Catenal Phytosociology which includes landscape and other aspects.

Where definitions are given in the principal *Codes*, in general, the precise wording they employ is used. However, where the same term is used in several and in identical senses, composites are provided. In order to minimize the possibility of any misleading or obfuscating definitions being introduced here, drafts have been circulated for comments and corrections to nomenclatural specialists working on the different *Codes* at various stages during its preparation.

A few zoologists have been involved in coining spurious definitions for additional kinds of "types" for amusement (e.g. mythicotype, scoopotype, spiritotype); although many have not been used in serious scientific contributions, they are nevertheless included for completeness as they have appeared in print, and so might be encountered.

Not included are terms relating to genomics, population genetics, genealogy, morphology, species and other systematic concepts, cytology, ecology, geology, biogeography, geobotany, or bioclimatic zones – unless they are also used in biological nomenclature or are potentially confusing.

Etymological derivations and the meanings of the scientific names applied to organisms are not nomenclatural terms *per se*, and so are also excluded. However, as the coining of new scientific names and understanding the meaning and correct orthography of those proposed are important aspects of nomenclatural work, a list of selected etymological reference works is provided.

Acknowledgements

Various colleagues and correspondents generously, and often painstakingly, submitted information on omitted terms, suggestions, and corrections to the various drafts of this glossary prepared since 1993. In particular I wish to acknowledge my gratitude to David A. Brown, William G. Chaloner, Walter Gams, Werner Greuter, Philip D. Cantino, Daphne G. Fautin,

Kenneth E. Kinman, Otto Krauss, John McNeill, Ellinor Michel, Michael A. Mayo, Alessandro Minelli, Dan H. Nicolson, Daniel Sánchez-Mata, Peter H. A. Sneath, Brian J. Tindall, R. Piers Trehane, and Philip K. Tubbs (deceased). Tod Stuessy kindly supplied a copy of the typescript report on infraspecific categories prepared by Peter C. Sylvester-Bradley for the Taxonomic Principles Committee of the Systematics Association in 1952. I am especially grateful to my wife, Patricia E. J. Wiltshire-Hawksworth, for her patience while this work was being finalized over Christmas and New Year, and also for her constructive comments. However, I must stress that any errors or misinterpretations are my personal responsibility.

I also appreciate the access to the libraries of the Linnean Society of London, the Natural History Museum London, and the Royal Botanic Gardens Kew afforded to me during the preparation of this compilation.

I am especially indebted to the Global Biodiversity Information Facility Secretariat (GBIF), and especially David Remsen, for providing the resources necessary to bring this compilation to publication through Project 2009-ECAT-011. Anne Mette Nielsen (GBIF) skilfully prepared the work for publication.

The Codes

All organisms (proposed; viruses excepted)

Greuter W; Hawksworth DL; McNeill J; Mayo MA; Minelli A; Sneath PHA; Tindall BJ; Trehane P; Tubbs P (eds) (1998) Draft BioCode (1997): the prospective international rules for the scientific names of organisms. *Taxon* **47**: 127-150.

Botany (including mycology)

McNeill J; Barrie FR; Burdet HM; Demoulin V; Hawksworth DL; Marhold K; Nicolson DH; Prado J; Silva PC; Skog JE; Wiersema JH; Turland NJ (eds) (2006) *International Code of Botanical Nomenclature (Vienna Code) adopted by the Seventeenth International Botanical Congress Vienna, Austria, July 2005*. [Regnum Vegetabile no. 146.] Ruggell: A.R.G. Ganter Verlag.

Cultivated plants

Brickell CD, Baum BR; Hettterscheid WLA; Leslie AC; McNeill J; Trehane P; Vrugtman F; Wiersema JH (eds) (2004) *International Code of Nomenclature for Cultivated Plants*. 7th edn. [Acta Horticulturae no. 647; Regnum Vegetabile no. 144.] Leuven: International Society for Horticultural Science.

Phylogenetic

Cantino PD; de Queiroz K (2009) *PhyloCode: A Phylogenetic Code of Biological Nomenclature*. Version 4c. <http://www.ohiou.edu/phylocode/index/html>. International Society for Phylogenetic Nomenclature.

Plant communities

Weber HE; Moravec J; Theurillat J-P (2000) International Code of Phytosociological Nomenclature. 3rd edition. *Journal of Vegetation Science* **11**: 739-768.

Prokaryotes (archaea and bacteria)

Lapage SP; Sneath PHA; Lessel EF; Skerman VDB; Seeliger HPR; Clark WA (eds) (1992) *International Code of Nomenclature of Bacteria and Statutes of the International Committee on Systematic Bacteriology and Statutes of the Bacteriology and Applied Microbiology Section of the International Union of Microbiological Societies. Bacteriological Code (1990 Revision)*. Washington, DC.: American Society for Microbiology.

Viruses

International Committee on Taxonomy of Viruses (2005) The International Code of Virus Classification and Nomenclature of ICTV. In: *Virus Taxonomy: eighth report of the International Committee on Taxonomy of Viruses* (Fauquet CM; Mayo MA; Maniloff J; Desselberger U; Ball L; eds): 1209-1214. Amsterdam: Elsevier Academic Press.

Zoology

International Commission on Zoological Nomenclature [Ride WDL; Cogger HG; Dupuis C; Kraus O; Minelli A; Thompson FC; Tubbs PK (eds)] (1999) 4th edn. London: International Trust for Zoological Nomenclature.

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Blackwelder RE (1967) *Taxonomy: a text and reference book*. New York: John Wiley & Sons.

Cowan ST; Hill LR (1978) *A Dictionary of Microbial Taxonomy*. Cambridge: Cambridge University Press.

Davis PH; Heywood VH (1963) *Principles of Angiosperm Taxonomy*. Edinburgh: Oliver & Boyd.

Evenhuis NL (2008) *A Compendium of Zoological Type Nomenclature: a reference source*. [Bishop Museum Technical Report no. 41.] Honolulu: Bishop Museum Press.

Frizzell DL (1933) Terminology of types. *American Midland Naturalist* **14**: 637-668.

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Hawksworth DL (1974) *Mycologist's Handbook: an introduction to the principles of taxonomy and nomenclature in the fungi and lichens*. Kew: Commonwealth Mycological Institute.

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- Brown RW (1956) *Composition of Scientific Words: a manual of methods and a lexicon of materials for the practice of logotechnics*. Revised edn. Washington DC: Smithsonian Institution Press.
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- Nybakken OE (1959) *Greek and Latin in Scientific Terminology*. Ames, IA: Iowa State University Press.
- Stearn WT (1992) *Botanical Latin: history, grammar, syntax, terminology and vocabulary*. 4th edn. Newton Abbot: David & Charles.
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<http://www.vfthomas.com/botanicallatinglossary.htm>. V F Thomas, Southwest Harbor, ME

Table 1: Equivalence of selected nomenclatural terms employed in different Codes.

BioCode ¹	Botanical Code	Cultivated plant Code	PhyloCode	Phytosociological Code	Prokaryote Code	Zoological Code
<i>Publication and precedence of names</i>						
published	effectively published	published	published	effectively published	effectively published	published
precedence	priority	precedence	precedence	Priority	priority	precedence
earlier	earlier	earlier	earlier	Earlier	senior	senior
later	later	later	later	Later	junior	junior
<i>Nomenclatural status</i>						
established	validly published	established	established	validly published	validly published	available
acceptable	legitimate	acceptable	acceptable	Acceptable	legitimate	potentially valid
registration	[none]	registration	registration	[none]	validation	[registration]
<i>Taxonomic status</i>						
accepted	correct	accepted	accepted	Correct	correct	valid
<i>Synonymy and homonymy</i>						
homotypic	nomenclatural	homotypic	homodefinitonal	nomenclatural	objective	objective
heterotypic	taxonomic	heterotypic	heterodefinitonal	syntaxonomic	subjective	subjective
replacement name	avowed substitute	[none]	replacement name	[none]	avowed substitute	new replacement

[none]	superfluous name	[none]	[none]	[none]	name unnecessary substitute name
<i>Conservation and suppression</i>					
conserved	conserved	conserved	Conserved	conserved	conserved
suppressed or rejected	rejected	rejected	Rejected	rejected	suppressed
<i>Types of names</i>					
name-bearing type	name-bearing type	name-bearing type	name-bearing type	nomenclatural type	name-bearing type
nomenclatural type	nomenclatural type	[none]	[none]	name and type	nominal taxon
nominal taxon	name and type	[none]	[none]	name and type	nominal taxon

¹ The IUBS.IUMS International Committee on Bionomenclature (ICB) commended the use of these terms in cross-Code discussions at its Fifth Meeting in June 2009.

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Abbreviations

The following abbreviations and conventions are used in the definitions presented:

bio.	In the BioCode.
bot.	In botanical (in many cases also mycological) nomenclature.
<i>cfr</i>	Compare with.
<i>Code</i>	One of the seven principal international codes of nomenclature (see above); in the definitions where <i>Code(s)</i> is used, that refers to the one(s) in the pertinent subject area(s).
cult. pl.	In cultivated plant nomenclature.
!	Flags a term not considered to have been seriously proposed.
mycol.	In mycological nomenclature alone (which is covered overall by the botanical <i>Code</i>).
n.b.	Note well; used to emphasize a particularly pertinent comment.
obso.	A formerly used term, especially one once authorized in a <i>Code</i> , that is now no longer to be used.
palaeo.	In palaeontological nomenclature (which is ruled on by the pertinent subject <i>Code</i>).
phyl.	In phylogenetic nomenclature.
phyt.	In phytosociological nomenclature.
pl.	Plural.
prok.	In prokaryote (archaeal and bacterial) nomenclature.
prop.	Proposed, but not adopted by, the pertinent subject <i>Code</i> .
q.v.	Which see; used to indicate that the entry for the term so annotated should be consulted.
unoff.	Unofficial; i.e. not used, or formally approved or regulated by, the pertinent subject <i>Code(s)</i> .
vir.	In virus (and viroid) nomenclature.
zool.	In zoological nomenclature.

TERMS USED IN BIONOMENCLATURE

aapm.: *see* amphiapomict.

ab.: *see* aberration.

abbreviation: a shortened form of a word, made by omitting later letters, and followed by a full-stop (period); genus or genus group names are often abbreviated to one or two letters, and (zool.) sometimes also specific names cited as parts of trinomials; *see* acronym, author abbreviation, contraction.

aberration, [ab.]: (1) a group of deformed atypical individuals within a species or population. (2) (zool.) a term which, if used to denote a number of individuals within a species, unequivocally signifies infrasubspecific rank; a morphotype of no taxonomic status below the officially recognized ranks; names based on aberrations are unavailable.

aborted name, [nomen abortivum, nom. abort.]: (1) (zool., obsol.) formerly applied to a name which at the date of publication was contrary to the *Code* in operation at that time; *see* forgotten name.

abruptotype: (zool., unoff.) type of a taxon hastily described to meet a project, grant, or publication deadline (!).

absence: (prok.) of a rule, one where provision in the *Code* covering a particular situation cannot be found, and where established custom should therefore be followed when this can be ascertained.

absolute synonym: a homotypic synonym (*q.v.*); a nomenclatural synonym (bot.); an objective synonym (zool.).

absolute tautonym: (zool.) the identical spelling of a generic or subgeneric name and the specific or subspecific name of one of its originally included nominal species or subspecies; *see also* autonym.

abstracting journals: journals which publish summaries or abstracts of articles published elsewhere and also sometimes of unpublished theses, to the exclusion of original accounts of investigations.

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acceptable name: (1) (bio.) one in accordance with the *Code*. (2) (phyl.) an established name that is not a (non-conserved) later homonym and thus may potentially be an accepted name (*q.v.*).

accepted: of a manuscript, one which an editor or publisher has agreed can be published, usually after peer review and revision, and is to be transmitted to a printer; many journals now indicate the date of final acceptance on the printed versions; *see also* in press.

accepted name: (1) the designation adopted by an author as the correct name for a taxon under consideration. (2) (bio.) the acceptable name (*q.v.*) that must be adopted under the rules of the *Code*. (3) (cult. pl.) the earliest name for a cultivar, group, or intergeneric graft-chimaera that must be adopted except in specified circumstances. (4) (phyl.) the name that must be adopted for a taxon under the *Code*. (5) (vir.) a name recorded as approved by the ICTV (*q.v.*).

-acea: (zool., obsol.) the suffix added to the stem of a generic name in certain groups to form the name of a superfamily; no longer recommended; *see* -oidea.

-aceae: (prok., bot.) the suffix added to a stem of a generic name to form the name of a family; *see* -acea.

accession number: a number given to a specimen or culture, or other material, when it is accepted for preservation by a reference or genetic resources collection; a catalogue number.

acronym: (1) a word formed from the initial letters or first letters of several words, either all in upper case or with a mixture of upper and lower case (e.g. BioNET, from Biosystematics Network). (2) (cult. pl.) a pronounceable abbreviation of a phrase consisting of the initial letters of several words. (3) (vir.) applied to the names of viruses, e.g. ThMoV (thistle mottle virus).

act: *see* nomenclatural act.

ad hoc: for this particular purpose; specially.

ad interim, [ad int.]: in the meantime; provisionally; sometimes used by an author designating a new taxon to indicate that the recognition of the taxon itself is not fully accepted by the author but is being used temporarily pending further information; such names are generally

not validly published (bot.); *see also* provisional name, question mark.

addition sign, [+]: (1) (cult. pl.) the ideograph used to indicate a graft-chimaera, either as a part of a formula (e.g. *Crataegus monogyna* + *Mesplius germanica*), or in front of an abbreviated name (e.g. + *Crataemespilus gillottii*). (2) (bot., unoff.) also used in a proposed citation system for addospecies (*q.v.*).

addospecies, [adsp.]: (bot., unoff.) a proposed system for indicating the parents of a hybrid species, in which their names follow the notation "adsp." and are linked by an addition sign, e.g. *Galeopsis tetrahit* adsp. *pubescens* + *speciosa*.

adelfotype: (zool., unoff.) a topotype (*q.v.*) obtained by the original collector of the taxon; i.e. specimens from the type locality collected by the original collector, but not of the original type-series.

admissible name: (1) of the use of a name or epithet, in accordance with the provisions of the Code. (2) (bot.) of a name, in a form that could permit it to be validly published (e.g. a tautonym is not admissible in bot.); (3) (cult. pl.) an unpublished name that is in a form that it would enable it to be established.

admixture: (1) (bot.) used of components (especially minor ingredients) of a gathering that represent a taxon other than that intended by the collector, and do not preclude the gathering, or part thereof, being a type specimen, the admixture being disregarded; i.e. elements representing a taxon other than those belonging to the type of a name. (2) (bot., unoff.) a gathering or collection an author considered to be a single species or infraspecific taxon, but which was later shown to contain representatives of more than one such taxon; a mixed gathering (*q.v.*).

adopt: (1) to use a particular name, designation or epithet to denote a particular taxon. (2) frequently used when the author takes up an already existing name in preference to one that cannot be adopted as a correct name for the taxon. (3) (bot., zool.) to use a designation that is not a validly published name or an unavailable name in a way which establishes it as a new name with its own authorship and date; *see also* accepted name.

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adopted list: (bio.) a list of names, in which the names and their coordinate names are protected, subject to specified restrictions and exceptions.

adoption: (zool.) of a *Part of the List of Available Names in Zoology*, the acceptance of the Part by the International Commission on Zoological Nomenclature.

aedeotype, [aedoeotypus]: (zool., unoff.) the first specimen of a species to have the genitalia studied, together with the genital preparation; *see* holoaedeotype, paraedeotype.

aequiforma: *see* isoforma.

aequispecies: *see* isospecies.

aequivarietas: *see* isovarietas.

aff.: *see* affinis.

affinis, [aff.]: (unoff.) with affinity to others, akin to; often used for a provisionally recognized but unnamed taxon considered close to that named, or where attribution is uncertain because of lack of necessary characters; *see also* cfr.

aggregate, [aggr.]: an informal group of species within a genus or subgenus (i.e. not a named subdivision of a genus, e.g. subgenus or section), or a similar group of subspecies within a species. Sometimes denoted (zool.) by the use of a species-group name interpolated in parentheses; *see also* complex, microspecies.

agreement: of gender, the agreement in Latin grammatical gender between a generic name and an adjectival or participial epithet (bot.) or species or species-group name (zool.) combined with it.

agriotype: (1) (zool., unoff.) an ancestral type. (2) (zool., unoff.) a wild taxon considered to be the ancestor of a domesticated one.

agriculture: (cult. pl.) the extensive cultivation of, usually non-woody, food, fodder, or industrial crops.

agrotype: (cult. pl.) an agricultural variety or race; *see* conculta.

al., alii, aliorum: others, of others.

AL: (prok.) commonly used to indicate the name of the Approved List (*q.v.*); a nomen approbatum.

-ales: (prok., bot.) suffix added to the stem of a generic name to indicate that it applies to the taxon of a rank of order.

alivotype: (zool., unoff.) a live type that requires special storage and handling; *see also* culto-type, escapotype, ex-type, vivotype.

all. nov., [alliancia nova]: (phyt.) used after an author citation to indicate a newly introduced syntaxon name in the rank of alliance (*q.v.*).

alliance, [alliancia, all.]: (1) (phyt.) one of the four principle ranks in the hierarchical system of syntaxa, between that of association and order; a plant community of definite floristic composition which presents a uniform physiognomy and which grows in uniform habitat conditions; names of alliances are terminated by the suffix "-ion". (2) (bot., obsol.) a rank in a taxonomic hierarchy, treated as equivalent to and being in the rank of order.

alliancia: *see* alliance.

allohomoio type: *see* allohomotype.

allohomoio type: *see* allohomotype.

allohomotype, [allohomoio type, allohomoio type]: (zool., unoff.) a homotype (*q.v.*) of the same sex as the allotype or lectoallotype.

allolectotype: (zool., unoff.) the type specimen of the opposite sex to the lectotype (*q.v.*); a lectoallotype.

alloneotype: (zool., unoff.) the type specimen of the opposite sex to the neotype (*q.v.*); a neallotype.

alloparalectotype: (zool., unoff.) a specimen from the original type-series, of the opposite sex of the holotype, and designated later than the original publication of the species.

alloparatype: (zool., unoff.) a paratype (*q.v.*) of the same sex as the allotype.

alloplesio type: (zool., unoff.) a hypotype (*q.v.*) of the same sex as the allotype.

alloréfèrent: (zool., unoff.) an allotype (*q.v.*) of the opposite sex to that of a specimen designated or described in a publication subsequent to the original description; these specimens have no formal nomenclatural standing as types.

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- allospecies:** (zool., unoff.) one of the species that makes up a superspecies, the name of the superspecies to which it belongs being enclosed in square brackets before the epithet of the allospecies, e.g. *Accipiter [gentilis] meyerianus*.
- allotopotype:** (zool., unoff.) an allotype from the same locality as the holotype.
- allotype:** (1) (zool., unoff.) a designated specimen (formerly amongst the paratypes) of the opposite sex to the holotype; a term not regulated by the *Code*, and with no status as a name-bearer. (2) (zool., obsol.) a specimen of the opposite sex to the holotype selected by a later worker. (3) (palaeo. zool., obsol.) a specimen chosen by the original author of a species to show morphological features not exhibited by the holotype; e.g. a ventral valve of fossil brachiopod when the holotype is of the dorsal valve. (4) (prok., unoff.) any one of a range of serologically distinguishable variant forms of an Ig molecule produced as a consequence of allelic variation.
- alternative epithet:** (1) (obsol., cult. pl.) a cultivar epithet used in place of a disagreeable epithet or one that is a translation of an original epithet.
- alternative family name:** (bot.) a family name, regularly formed in accordance with the *Code*, allowed as an alternative to a particular listed family name of long usage ruled as validly published in the *Code* even though not so-formed; *see* alternative names.
- alternative name, [nom. alt.]:** (1) (bot.) one of two or more different names based on the same type proposed simultaneously for the same taxon by the same author; *see* conditional name. (2) (bot.) a pair of names authorized in the *Code* for use at an author's discretion for a particular taxon, both being correct (e.g. *Umbelliferae* and *Apiaceae*); *see* alternative family name.
- alternative terminology:** (cult. pl.) use of different terms for the same concept.
- ambiguotype:** (1) (zool., unoff.) an inadequately described type; a 'Walker type'. (2) (zool., unoff.) a type specimen, usually a primary type, with inadequate date/locality labels. (3) (zool., unoff.) an unlabelled primary type specimen hidden in a series of paratypes or syntypes,

the series of which proves to belong to a mixture of several (usually closely related) species. (4) (zool., unoff.) an inadequately designated or labelled type specimen that is found to be stored or mounted with other specimens also fitting the exact description.

ambiguous name, [**nomen ambiguum**, **nom. ambig.**]: (obsol.) a name used in different senses which has thus become a source of error and confusion; a name applied by different authors to different taxa.

ambiregnal: of an organism that can be treated as belonging to more than one kingdom according to different taxonomic opinions; used specially for taxa treated under different *Codes* by different authors.

ambisense: (vir.) applied to an RNA molecule which comprises positive sense parts and negative sense parts; both it, and its complement, act as messenger RNAs.

amended: altered; *see* emended.

amendments: (bot., prok.) *see* proposals.

American Code: (bot., obsol.) the Code of Botanical Nomenclature produced by the Botanical Club of the American Association for the Advancement of Science in 1904, but not accepted at the International Botanical Congress in Vienna in 1905; superseded by the International Code of Botanical Nomenclature (*q.v.*),

American Code typification: (bot.) *see* mechanical methods.

American Ornithologists' Union Code: (zool., obsol.) a forerunner of the International Code of Zoological Nomenclature (*q.v.*), prepared in 1885.

ampersand, [**&**]: and; *see* et.

amphiapomict, [**aapm.**]: (bot., unoff.) used as a ternary epithet to distinguish a series of apomicts, e.g. *Festuca vivipara* aapm. *jemtlandica*.

amphidiploid: a plant formed by the sexual union of two unlike parents with subsequent doubling of both chromosome sets, forming in effect a tetraploid. The reduplication of chromosomes forms pairs which may function as such in reproduction, and the process can thus give rise to a new taxon recognized taxonomically as a species and therefore is not treated nomenclaturally as a hybrid.

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-anae: (bot., unoff.) suffix proposed for names in the rank of superorder.

anagram: a name formed by the rearrangement of the letters of a word or words.

analysis: *see* illustration with analysis.

anamorph, [anamorphosis, anam.]: (1) (mycol.) a mitotic asexual morph of a pleomorphic fungus (the holomorph); *see* holomorph, pleomorphic, teleomorph. (2) (not nomenclatural) a deformed figure appearing in proportion when viewed from a particular direction (e.g. elongated lettering on road surfaces which appears normal when viewed from a car).

anastomosis group: (mycol., unoff.) of populations of fungi the hyphae of which are able to fuse together, i. e. which are genetically compatible; often given informal notations by researchers on particular genera, e.g. *Rhizoctonia solani* AG2.

ancestor: (phyl.) an entity from which another entity is descended.

androtype: (zool., unoff.) a male specimen in the original type-series of a taxon.

animal kingdom: (zool.) in the sense of the *Code*, a term covering all the taxa the names of which are treated as being regulated by the ICZN, i.e. inclusive of *Metazoa* and protist names whenever they are or have been treated as animals for nomenclatural purposes.

anirotype: (zool., unoff.) a chirotype (*q.v.*).

annotation: a comment or explanatory note, whether printed or not.

annotation slip: a determination slip (*q.v.*).

announcement: (prok.) of a name, publication in the *International Journal of Systematic and Evolutionary Microbiology* (formerly the *International Journal of Systematic Bacteriology*) of a name not proposed in that journal to effect' its valid publication.

anonymous, [Anon.]: (1) of a work, one in which the name(s) of its author(s) cannot be determined from the contents of the work. (2) of a name or nomenclatural act, one of which the authorship cannot be determined from the work itself. (3) of an author, one whose identity cannot be determined from the work itself or otherwise.

antetype: (zool., unoff.) a prototype (*q.v.*).

anticipation: (bot.) of the proposal of a name or epithet in the expectation of the discovery or future acceptance of the taxon .

antitype: (1) (zool., unoff.) an opposite type; a countertype (*q.v.*). (2) (zool., unoff.) a corresponding specimen of a type species obtained at the same time and location as the nomenclatural type. (3) (zool., unoff.) every specimen other than the holotype in the type-series, or all the specimens on which the author bases the series except any that were referred to as variants, or doubtfully associates with the nominal species, or expressly excluded from it; *see* paratype.

antonym: words of opposite meaning; used in biological nomenclature (unoff.) for each name that is not a synonym

ap.: *see* apud.

apogenotype, [apogenotyp]: (zool., unoff.) the automatically generated type species of a genus-group name when renamed because of homonymy; i.e. type fixation of a genus through substitution.

apomict, [ap.]: (cult. pl.) a plant which is able to produce viable seed or spores without fertilization, and whose progeny is therefore usually genetically uniform.

apomixis: the process by which an apomict is produced.

apomorphy: (phyl.) a derived character state; a new feature that arose during the course of evolution.

apomorphy-based clade: (phyl.) a clade originating from the ancestor in which a particular character state (apomorphy; *q.v.*) originated; a clade whose name is defined using an apomorphy-based definition (*q.v.*).

apomorphy-based definition: (phyl.) a definition that associates a name with a clade originating with the first ancestor of specified organisms and/or species (internal specifier taxa) to evolve a particular apomorphy (internal specifier apomorphy).

apomorphy-modified node-based definition: (phyl.) a node-based definition that incorporates wording from apomorphy-based definitions to include all extant organisms as internal specifiers without explicitly naming them; apomorphy-modified node-based

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definitions can be used to associate names with crown clades when basal relationships within the crown are poorly understood or when the author intends to include in the named taxon subsequently discovered extant organisms that possess a particular apomorphy.

apostrophe, [']: (bio., bot.) an apostrophe in an epithet is to be deleted.

apotype: (1) (zool., unoff.) proposed as a substitute term for hypotype (*q.v.*). (2) (zool., unoff.) type fixation of a genus-group name through substitution.

application: (1) the use of a name to denote a particular taxon; the application of names is determined by the use of types. (2) (zool.) of a submission to the ICZN, one proposing a solution for a nomenclatural problem.

aposition: of a noun in a scientific name, one used as a substantive epithet, not an adjectival one.

appropriate: (cult. pl.) of a name or an epithet, one which the etymology relates to some aspect of the taxon, for example its characters, provenance, or history.

approved : (1) (zool.) of a work, one given approval by the International Commission on Zoological Nomenclature for use in nomenclature. (2) (prok.) of a name, one validly published before 1 January 1980, approved by the International Commission on Systematic Bacteriology for use in nomenclature, and included in the Approved List (*q.v.*); i.e. an approved name.

Approved List, [AL]: (prok.) a list, made up of approved (*q.v.*) names of bacteria published in 1980; additions to the list are not permitted.

approved name, [nomen approbatum, nom.approb.]: *see* approved.

apud, [ap.]: (obsol.) in; according to; sometimes used in bibliographic citations when one author validly publishes a name in the work of another; *see* ex, in.

arbitrary: (1) of a combination of letters in a scientific name, one that was not based by its author on an existing word of a language; *see also* acronym, anagram. (2) of a gender, one assigned to a name without a linguistic gender.

archaeotype: *see* archetype.

archecultype: (unoff.) a strain of a microorganism cultivated by the author of the taxon but lost or suffering irreversible modification before exhaustive study which cannot be recognized with reasonable certainty.

archetype, [archaeotype]: (1) (obsol., not nomenclatural) the ancestral type or any group of organisms. (2) (obsol., not nomenclatural) an ideal type; a theoretical or assumed type truly representative of the taxon. (3) (obsol., not nomenclatural) a hypothetical type arrived at by the elimination of specialized characters of known later forms. (4) (obsol., not nomenclatural) the generalized or idealized pattern shared by all members of a taxon; *see also* morphotype.

architype, [arquetype]: (zool., unoff.) a specimen that formed the basis of a publication of a species prior to a modern type interpretation; unless such a specimen is included in a modern category it cannot be included with the types.

archive: (1) as a noun, a depository for works (*q.v.*). (2) as a verb, to place in an archive with the intent that it be permanently preserved there.

arithmotype: (1) (unoff.) a specimen distributed as an isotype of a taxon (e.g. bearing the same collector's number) but belonging to a taxon which is different from the one to which the holotype belongs. (2) (unoff.) a specimen bearing the same collecting number but not necessarily representing the same taxon.

arquetype: *see* archetype.

Artenkreis: (zool., obsol.) a rank above species, now equivalent to superspecies (*q.v.*).

Article, [articulum, Art.]: (bot., cult. pl., zool.): (1) the mandatory provisions of the *Code*; in bot., the *Notes* are integral parts of the Articles, but *Examples* attached to them are explanatory and cannot be taken as binding, unless specifically voted as such by the Nomenclature Section of an International Botanical Congress. (2) (cult. pl.) a collection of associated rules and recommendations in the *Code*; *see* voted example, Recommendations.

artificial classification: one that is proposed solely for ease of use and which does not purport to demonstrate phylogenetic or taxonomic relationships..

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- artificial genus:** (bot., obsol.) used principally for fossils and for the anamorphs of pleomorphic fungi; *cf.* form genus.
- artotype:** (zool., unoff.) type specimen of a new species with clearly distinctive colour patterns ultimately shown to be spots of paint (!).
- arum:** (zool.) genitive plural suffix used in the formation of species-group designations derived from two or more female persons' names.
- as such:** (zool.) strictly what has been cited, e.g. "a photograph as such" is an illustration on light-sensitive paper, not one printed in a work.
- ascr., [ascriptum]:** ascribed to; attributed to; used of the author a scientific name is attributed to; *see* ascription.
- ascribe:** the act of ascription (*q.v.*)
- ascription:** (bio., bot.) the direct association of the name of a person or persons with a new name or description or diagnosis of a taxon; *see also* attribute.
- asexual propagation:** (cult. pl.) the propagation of organisms without fertilization such as by means of agamospermy, cuttings, division, meristem culture, and micropropagation; vegetative propagation.
- asexual:** of fungi, *see* anamorph.
- ass.:** *see* association.
- assemblage:** (palaeo.) a set of fossils selected from a sample of rock, a group of samples.
- assignee:** (cult. pl.) one who is appointed by a person or organization to act on their behalf; to act for an originator (*q.v.*).
- associate type, [associierte type]:** (zool., obsol.) any of two or more specimens listed in the original description of a taxon in the absence of a designated holotype; i.e. a cotype or syntype.
- associatio nova, [ass. nov.]:** (phyt.) a newly proposed name and syntaxon in the rank of association (*q.v.*).
- associatio provisio, [ass. prov.]:** (phyt.) an introduced name and syntaxon in the rank of association not clearly adopted by the author
- associated organism:** an organism with which the nomenclatural type was associated when originally described, either as its host, substratum,

or with which it was mixed, or which it was living with or by; *see* symbiotype.

association, [**ass.**, **associatis**]: (phyt.) one of the four principle ranks in the hierarchical system of syntaxa, below that of alliance; the basic rank of the phytosociological hierarchy (i.e. in syntaxonomy); names of associations are terminated by the suffix "-etum".

association name: (phyt., obsol.) pre-1936 usages refer to a "sociation" (*q.v.*).

associatis: *see* association.

asterisk, [*]: (1) (obsol.) sometimes formerly used to indicate an infraspecific rank, generally that of subspecies. (2) (bot.) used before an Example in the *Code*, to indicate that it is a voted example (*q.v.*). (3) (cult. pl., unoff.), *see* registered genetic resource. (4) (unoff.) placed before and after a name to indicate that it has been approved for use in the New Biological Nomenclature (*q.v.*), e.g. *Elefanto ordotipa*.

atopotype: (zool., unoff.) a type specimen described from a locality where it is known not to occur.

attribute, [**attribution**]: (1) (bot.) of a name, assigning it to the author or authors considered to have published it, for example, in a publication with different authorship by ascription (*q.v.*) of both the name and the description or diagnosis. (2) (unoff.) of a specimen or taxon, to place it with others; especially used where this extends the circumscription (*q.v.*) beyond the original account.

atypicotype: (1) (zool., unoff.) a type stated by the author not to be characteristic of the taxon. (2) (zool., unoff.) a type specimen of a new species ultimately recognized as merely a colour variant of a well-known species.

auctorum, [**auct.**; pl. **auctt.**]: of author(s); often used to indicate that a name is used in the sense of a number of subsequent authors and not in the sense established by the original author, i.e. in citing misapplied names.

auctorum anglicorum, [**auct. angl.**]: of English authors; *see* auctorum.

auctorum multum, [**auct. mult.**]: of many authors; *see* auctorum.

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- auctorum non**, [**auct. non.**]: of authors, not (of); used to precede the citation of the original author of a name where it has been misapplied by later workers; *see* auctorum.
- autapospecies**: (palaeo. bot., unoff.) a morphologically delimited category of disarticulated organ that within the context of a particular comparative study, is perceived to possess at least one unique character state (and thus is assignable to a single whole-plant species; an unshared organ species).
- authentic**: (1) (unoff.) of a specimen or culture, one considered to be representative of a particular taxon other than any category of type; often used of specimens or cultures subsequently identified or supplied by the author of the name; *see* interpretotype, original material. (2) (cult. pl.) of a specimen, one that has been verified by a raiser or breeder, introducer or author of a name as being representative of the taxonomic unit to which the name is assigned.
- author**: the person to whom a published work, a scientific name, or a nomenclatural act is attributed; *see* author abbreviation, author citation, authority, publishing author.
- author abbreviation**: an abbreviation of the name of an author used in an author citation designed to both to save space and to avoid ambiguity; (bot.) *see* RK Brummitt & CE Powell (1992, *Authors of Plant Names*. Kew: Royal Botanic Gardens; www.kew.org/data/authors.html); (mycol.) *see* PM Kirk & AE Ansell (1992, *Authors of Fungal Names*. Wallingford: CAB International; www.indexfungorum.org/names/).
- author citation**: a statement of the the name(s) of the author(s) responsible for the establishment or introduction of a name; often appended to the name itself, and frequently followed by the year of valid publication; (cult. pl.) sometimes also used to refer to the author of a publication; an authority (*q.v.*).
- authority**: the name(s) of the author(s) (*q.v.*) of a scientific name, cited as such in an author citation (*q.v.*).
- author's extra**: an additional copy removed unchanged from an extra copy of a work, and so with parts of adjoining papers or chapters; *see also* offprint, reprint, separate.

autogenotype: (zool., unoff.) a type of a genus-group name fixed by designation in the original publication introducing the name.

autogenotypic: (zool., unoff.) of a genus, one based on the same type species as another generic name; *see* isogenotypic.

autograph: (1) a text written by hand, i.e. without the intervention of any machine, or a reproduction of such a text. (2) (cult. pl.) also one not reproduced by machine; *see* indelible autograph, manuscript.

automatic: (bot.) of the establishment of the name of a taxon merely as a consequence of the proposal of another taxon, e.g. the publication of a subspecies or variety that does not contain the type of the name of the species (or next higher taxon) automatically establishes the name of a subspecies or variety that does contain that type; *see* autonym.

automatic tautonymy: (prok.) the name of a taxon above the rank of family containing the type of a higher rank name and based on the same generic stem; i.e. a special kind of autonym.

automatic typification: (1) (bot.) typification of a nomenclaturally superfluous and illegitimate name by the type of the name which ought to have been adopted under the *Code*. (2) (bot.) typification of the name of a taxon above the rank of genus by the type of the generic name on which it is based.

autonym: (bot., prok.) a name that is established automatically; i.e. a generic name or specific epithet repeated without an author citation as the final epithet in the name of a subdivision of a genus or of an infraspecific taxon that includes the type of the adopted, legitimate name of the genus or species; an automatically established name; *see also* automatic, -isites, -ites.

autotype: (1) (zool., unoff.) a specimen illustrated by the author of a species after the original publication; *see* hypotype. (2) (zool., unoff.) a specimen identified by the author of a species subsequent to the original description as being identical to the holotype; *see* homotype. (3) (zool., unoff.) an autogenotype (*q.v.*). (4) (zool., unoff.) a type specimen originating from a truck or a car after having travelled some distance (!). (5) (bot., not nomenclatural, obsol.) a self-pollinating microspecies.

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auxiliary type: (zool., unoff.) a specimen or element to serve as type of a subordinate taxon when the type of a major taxon is inadequate to assign subordinate rank names to the type; a sustaining specimen (*q.v.*); *see also* epitype.

availability: (1) of a work, *see* available work. (2) of a name or epithet, *see* available name. (3) of a nomenclatural act, *see* available nomenclatural act.

available: (bot.) applied to an epithet in a legitimate or illegitimate name, the type of which falls within the circumscription of the taxon under consideration and where the use of the epithet would not be contrary to the *Code*; *see* available name.

available name: (1) (zool.) a scientific name applied to an animal taxon that is not excluded from and conforms to the provisions of the *Code*, and so to be taken into consideration in determining the correct name of a taxon; an established name (*q.v.*). (2) (bot., prok.) a name or epithet (“available epithet”) to be taken into consideration for the purposes of deciding the correct name of a given taxon, i.e. a validly published legitimate name or epithet with its type (*q.v.*) falling within the range of variation of the taxon; an established name (*q.v.*). (3) (bot.) a name published under the zoological *Code* with a status equivalent to that of a validly published name under the botanical *Code*.

available nomenclatural act: (zool.) one that is published in an available work (*q.v.*).

available work: (1) (zool.) a published work in which, under the provisions of the *Code*, or by a ruling of the Commission (ICZN), names or nomenclatural acts may be established; i.e. one appearing after 1 January 1758 which meets the requirements of the *Code* and which has not been suppressed (*q.v.*).

avowed substitute: (1) (bot.) a name proposed as a substitute for a previously published name; sometimes recognised as such only by the citation of the older name as a synonym; a replacement name (*q.v.*). (2) (obso.) a new combination, an avowed substitute for its basionym; *see* combination, new name, nomen novum, replacement name.

back-cross: (cult. pl.) the cross (*q.v.*) of a hybrid with one of its own parents.

balloon taxon: (palaeo.): a taxon of fossils which has grown greatly in scope through attribution of many other occurrences of specimens.

bare name: (prok.) a naked name (*q.v.*); a nomen nudum (*q.v.*).

basal rank, [basic rank]: the rank always to be used in an hierarchical system of classification; in organismal systems, the category of species, i.e. that of all the consecutively subordinate categories to which, for purposes of the *Codes*, every organism (except some hybrids) is treated as belonging, species is the lowest obligatory rank so that every organism is assigned by definition to a species, but not necessarily to any infraspecific taxon, as these are not recognized within every species; (phyt.) the category of association (*q.v.*) in the phytosociological hierarchical system.

base-taxon: (unoff.) the first originally recognized taxon for a kind of organism, traditionally a species.

basic rank: *see* basal rank.

basic type: (zool., unoff.) a primary type (*q.v.*); i.e. a cotype, holotype, lectotype, neotype, or paratype.

basinym: (obsol.) the basionym or basonym (*q.v.*).

basionym: (1) (bot., cult. pl.) a previously published legitimate name-bringing or epithet-bringing synonym from which a new name is formed for a taxon of different rank or position; e.g. in a new combination (*q.v.*); *see also* basonym. (2) (phyt.) the epithet-giving synonym in cases where a syntaxon epithet is retained in a new combination with another syntaxon name.

basonym: (prok.) the original epithet of a name retained in a new combination; *see* basionym.

behaviorotype: (zool., unoff.) the type of a taxon distinguishable only by behavioural characteristics (!).

biasotype: (zool., unoff.) the type specimen of a species recognized as distinct by detailed statistical treatment involving a small sample size (!).

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- bibliographic address:** (unoff.) the year of publication followed by a page number after the author citation of a name; *see* Lanham's method.
- bibliographic error:** a mistake in some detail of the citation of the place of valid publication of a name, e.g. the number of the volume, or of the page.
- bibliographic reference:** a published citation detailing the place of publication of a scientific name or nomenclatural act.
- bigeneric hybrid:** (bot., cult. pl.) one resulting from the sexual union of individuals assigned to different genera.
- binary:** of a name, dual or involving pairs; *see* binary combination, binary name.
- binary combination:** (prok., bot.) a generic name combined with a specific epithet to form a specific name; the name of the genus is followed by a single specific epithet in the form of an adjective, a noun in the genitive, or a word in apposition, etc.; either element may consist of more than one word, but only if united or hyphenated; names of subdivisions of genera are also binary combinations, but with a rank designation after the generic name; *see also* binomen, binominal nomenclature.
- binary designation:** (bot.) an apparent binary combination (*q.v.*) that has not been validly published.
- binary name:** (1) a binary combination (*q.v.*). (2) (cult. pl., obsol.) the scientific name of a species consisting of two words.
- binary nomenclature:** (1) a system in which binary names are used for species names; (2) (zool., obsol.) binominal nomenclature (*q.v.*).
- binom:** (prok.) a taxon ill-defined in respect of biosystematic data but which has been given a formal name.
- binomen**, [pl. **binomina**]: (1) (zool.) the combination of two scientific names, the first being a generic name and the second a specific epithet, that together constitute the scientific name of a species (any interpolated names are not counted as components of a binomen); applies to the whole name and not the species epithet alone; a binary combination (*q.v.*) in (bot.) and (prok.). (2) (bio.) the name of a taxon consisting of a genus combined with one epithet. (3) (phyl.) a

name composed of two words, a prenomen (*q.v.*) and a species name.

Bi-nomenclature: binominal nomenclature (*q.v.*).

binomial: (1) (mathematical, not nomenclatural) in probability theory and statistics, the discrete probability distribution of the number of successes in a sequence of independent yes/no experiments. (2) (cult. pl., obsol.) of a name, a binary combination (*q.v.*) or binominal (*q.v.*). (3) (zool.) a binominal (*q.v.*) or (bot.) binary combination (*q.v.*).

binominal: having or characterized by two scientific names; *see* binominal nomenclature.

binominal name: *see* binomen.

binominal nomenclature: (zool.) the system of nomenclature whereby a species, but no other taxon, is denoted by a binary combination of two names, a generic name and a species epithet (i.e. a binomen); *see* Principle of Binominal Nomenclature.

BioCode: a draft proposed new *Code* prepared by the International Committee on Bionomenclature (*q.v.*) in 1996 and designed to be used to govern the nomenclature of all kinds of organisms in the future after certain criteria had been met and subject to the endorsement of the different mandated international bodies.

biocode: (unoff.) a term proposed in 1990 for any system of letters or numbers used with or in place of the name of a taxon.

biological race: *see* isoforma, isovarietas.

biological resource centre, [BRC]: a collection of permanently preserved cultures of algae, fungi, prokaryotes or other microorganisms; a culture collection; a genetic resource centre (the latter term is preferable as “BRC” is also the acronym commonly used for a biological records centre).

bionumeric code: (prok., unoff.) a numerical code in which different groups of digits represent different ranks in a hierarchy.

biorecord: (palaeontol., obsol.) *see* palaeotaxon.

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- bioserotype**, [**bioser.**]: (prok., unoff.) a biochemical variant of a serotype, denoted, for example by an added letter (e.g. *Salmonella paratyphi-B* var. *java*); not regulated by the *Code*.
- biotype**: (1) (not nomenclatural) a given genotype (*q.v.*) expressed in one or more individuals. (2) (prok.) a biovar (*q.v.*).
- biotypus**: (zool., obsol., not nomenclatural) all individuals in a pure line; a clone.
- biovar**: (prok.) a variant of a species, subspecies or serotype, which may be distinguished by the possession of some special or usefully diagnostic physiological feature; a biotype (*q.v.*).
- bitypic**: (zool., unoff.) of a taxon, one including only two immediately subordinate principal taxa, e.g. a family comprising two genera; *cfr* monotypic, polytypic.
- biverbal**: made of two words; used of a name or epithet that consists of two words but is not a binary name, e.g. the descriptive phrase name "*Abutilon album*", the generic designation "*Uva-ursi*", the species epithet "*felix-foemina*"; sometimes erroneously referred to as a binomial (*q.v.*).
- Blanchard Code, The**: (zool., obsol.) a draft *Code* first presented to the first International Congress of Zoology in 1889, and a forerunner of the International Code of Zoological Nomenclature (*q.v.*).
- blastovariation**: (unoff.) used for specimens or groups of specimens of an uncertain infraspecific category.
- Botanical Code**: (bot., cult. pl.) the International Code of Botanical Nomenclature (ICBN) (*q.v.*); *see* *Code*.
- boobootype**: (zool., unoff.) a holotype that should not have been described; e.g. where a specialist fails to recognize his or her own previously described species(!).
- botanical Latin**: the language derived from Renaissance Latin and other ancient languages which is used in the descriptions and diagnoses of scientific names, and in the formation of the names themselves; *see* Stearn, W.T. (1992) *Botanical Latin: history, grammar, syntax, terminology and vocabulary*. 4th edn. London: David and Charles).

bottom line punctuation: (cult. pl.) the use of accents and other diacritical signs below letters of words (e.g. a cedilla); *cf.* top-line punctuation..

BP: years before present (taken conventionally to be 1950).

brackets: parentheses; the typographic characters “(. . .)” (round brackets; parentheses in the USA), “[. . .]” (square brackets; brackets in the USA), or “{ . . }” (curly brackets) used to enclose words or numbers so as to separate them from their context; *see* round brackets, square brackets.

branch: (1) (zool., obsol.) a category between subkingdom and phylum. (2) (phyl.) an edge or internode (connection between two nodes) on a tree (graph theory); on a phylogenetic tree, commonly used to represent a lineage, whether ancestral or terminal; sometimes also used for an internode and all nodes and internodes distal (descended from) it.

branch-based clade: (phyl.) a clade originating from a particular branch (internode) on a phylogenetic tree and all nodes and branches descended from that branch; a clade whose name is defined using a branch-based definition (*q.v.*).

branch-based definition: (phyl.) a definition that associates a name with a clade originating with a branch (on a phylogenetic tree) representing the ancestral lineage of specified organisms and/or species (internal specifiers) after its divergence from the ancestral lineage of other specified organisms and/or species (external specifiers).

branch-modified node-based definition: (phyl.) a node-based definition that incorporates wording from branch-based definitions to include all extant organisms as internal specifiers without explicitly naming them. Branch-modified node-based definitions can be used to associate names with crown clades when basal relationships within the crown are poorly understood or when the author intends to include in the named taxon subsequently discovered extant organisms that share a more recent common ancestor with the currently known members of the named taxon than with other currently known taxa.

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breeder: (cult. pl.) the person or organization developing new or improved groups of plants by selection, hybridization, and similar methods.

brevotype: (zool., unoff.) a type specimen whose name is validated on the most minimal of characters necessary to meet *Code* requirements.

***Bulletin of Zoological Nomenclature*, [BZN]:** the official periodical of the International Commission on Zoological Nomenclature (ICZN), including publication of cases on nomenclatural issues for ruling on by the ICZN, and of the binding Opinions on those cases made by the ICZN.

BZN: *see Bulletin of Zoological Nomenclature.*

ca, [ca., circa]: about, usually with reference to measurements of size or time.

camera-ready copy: material supplied to a printer in a form ready for reproduction (generally photographically or by mechanical copiers).

candidatus, [candidate name]: (1) (prok.) used as a prefix to a name not validly published pending information on additional characters, for example where more than mere sequence data is available but for which characteristics required for description according to the *Code* are lacking; the names following the prefix are not printed in italic type; e.g. *Candidatus magnetobacterium* [new subclass of *Proteobacteria* or new lineage], *Candidatus Liberobacter africanum*. (2) (vir.) a name proposed to, but not yet accepted by, the ICTV; used particularly for viruses known only from gene sequences recovered using RT-PCR or a similar technique, but which have not been further characterized.

case: (zool.) a nomenclatural problem presented to the International Commission on Zoological Nomenclature (ICZN) for a ruling by publication in the *Bulletin of Zoological Nomenclature*; *see also* declaration, direction, opinion.

case ending: an inflectional form of nouns and adjectives in grammar which can differ, in their terminations or otherwise, according to the declension used (*q.v.*); the nominative (substantive) is used in most

scientific names but the genitive (possessive) is also found in some species epithets (bot.) or names (zool.).

caste: (zool.) in social insects, a group of individuals, belonging to a part species or subspecies, differing in form and often in function from other groups of individuals within the same species or subspecies (e.g. workers, drones, queens).

catalogue number: used of a serial number employed in a listing, particularly employed for cultures of microbial groups held in genetic resource collections; *see* accession number.

categorical rank: (phyl.) a formal category denoting position in a hierarchy of nested taxa; the categorical ranks commonly used in taxonomy comprise seven principal categories (kingdom, phylum, class, order, family, genus, and species), which are often treated as mandatory, as well as additional primary categories (e.g. cohort, tribe) and secondary categories (e.g. superorder, subfamily); note that the species category is treated as a rank in rank-based nomenclature but as a level of biological organization in phylogenetic nomenclature; *see* category.

category: (1) a formal taxonomic rank; a division in a hierarchical system of classification; *cfr.* categorical rank. (2) the concept by which we can understand or classify matter, e.g. the concept of “genus”; a set of conventional categories constitutes the taxonomic hierarchy (*q.v.*). (3) sometimes applied in the sense of taxonomic “rank”. (4) occasionally incorrectly used as synonymous with “taxon”.

centrotype: (not nomenclatural) the OTU (*q.v.*) closest to the geometrical centre of its cluster in a numerical taxonomy study.

cetera, [cet.]: the rest; the remainder.

cfr, [cf., confer]: to be compared with; compare with.

challenge: (prok.) of an Opinion, a statement of disagreement with a published Opinion *q.v.* (*q.v.*) submitted to the Judicial Commission (*q.v.*).

change, mandatory: (1) (zool.) a change in the spelling of the suffix of a family group name required by the *Code*. (2) (zool.) a change in ending of a specific or subspecific name required by the *Code*.

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Chapter: (bot., prok., zool.) a primary division of a *Code*.

character: any feature of organisms under consideration, whether morphological, molecular, biochemical, physiological, pathological, or of any other nature, used for recognizing, differentiating or classifying taxa; *see* diagnostic characters.

cheironym: *see* chironym.

cheirotyp: *see* chirotyp.

chemoconvar, [**chconv.**]: (cult. pl., unoff.) a category of cultivated plants distinguished from the type only by physiological characters.

chemocultigrex, [**chg.**]: (cult. pl., unoff.) a category of cultivated plants between chemoconvar (*q.v.*) and chemocultivar (*q.v.*) distinguished from the type only by physiological characters.

chemocultivar, [**chv.**]: (cult. pl., unoff.) a category of cultivated plants distinguished from the type only by physiological characters.

chemoform: (prok., unoff.) an infrasubspecific category for bacteria characterized on the basis of its chemical constitution; *see* diagnostic characters.

chemoforma, [**chf.**]: (cult. pl., unoff.) a category of cultivated plants distinguished from the type only by physiological characters.

chemosubspecies, [**chssp.**]: (cult. pl., unoff.) a category of cultivated plants distinguished from the type only by physiological characters.

chemotyp: (1) (bot., unoff.) a group of chemically differentiated individuals within a species of no, or of not determined, taxonomic significance. (2) (prok., unoff.) a chemoform (*q.v.*). (3) (prok., unoff.) a representative strain for a set of chemical characteristics.

chemovar, [**chvar.**]: (1) (prok.) an infrasubspecific category for bacteria characterized by the production of a particular chemical. (2) (cult. pl., unoff.) a category for designation of a chemical race distinguished from the type only by physiological characters.

chimaera: (1) (cult. pl.) an individual composed of two or more genetically different tissues in intimate association; a graft-chimaera (*q.v.*). (2) (obsol.) formerly applied to morphologically distinct lichens

produced by interactions of the same fungus but different photosynthetic partners; *see also* hybrids, mechanical.

chironym: (zool., unoff.) an unpublished name; a manuscript name.

chirotype: (zool., unoff.) the specimen on which an unpublished name is based; *see also* cheirotyp, quirotyp.

chorotype: (1) (palaeo. zool., unoff.) a fossil specimen from the same stratum as the type, but from a different locality. (2) (zool., unoff.) a local type.

chresonym: (unoff.) proposed for citations of places of publication of a name later than the one in which the name was originally established; i.e. later usages of a name following the correct author citation and place of publication of the name itself (a practice sometimes used to indicate works which have fuller descriptions or a changed circumscriptions).

chromosomotyp: (zool., unoff.) a type specimen of a new species known only from its chromosome smear because the remainder of the specimen was discarded; *see also* crickotyp.

chronospecies: (palaeo., unoff.) a species represented in more than one geological time horizon. (2) (palaeo., unoff.) the successive species replacing each other in a phyletic lineage which are given ancestor and descendent status according to the geological time sequence.

circulus: (palaeo., unoff., obsol.) proposed as a designation for an ill-defined assemblage of approximately isochronous specimens that it is either inconvenient or impossible to distribute among well-defined genera or species.

circumscribe: to make a circumscription (*q.v.*).

circumscription: the diagnostic limits of a taxon, which separate the individuals that belong to it from all other individuals in the opinion of an author; the circumscription adopted by a particular author may be determined by study of the descriptions, accounts of the range of variation, cited synonymy, cited specimens including types, and any other comments made by the author in the protologue (*q.v.*).

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circumscription method: (bot., obsol.) determining application of the name by a study of its protologue, especially its circumscription; replaced by the type method (*q.v.*).

cit., [**citatus**, **-a**, **-um**]: cited; *see* loc. cit., op. cit.

cl.: *see* clone.

clade: (phyl.) an ancestor (an organism, population, or species) and all of its descendants; organisms interpreted as sharing an exclusive common ancestry (i.e. taxa which are monophyletic).

cladotype: (unoff.) a portion of the same clone.

class, [**classis**, **cl.**]: (1) (bot., prok., zool.) the principal category of taxa intermediate in rank between phylum (division) and order. (2) (phyt.) one of the four principle ranks in the hierarchical system of syntaxa, above that of order.

classical: of the languages of ancient Greece and Rome, in contrast with languages of today.

classification: (1) the systematic grouping of items. (2) a system in which items may be grouped. (3) the arrangement of material for ease of discussion or reference, not necessarily in a manner reflecting relationships or ranks; i.e. a system (*q.v.*) (4) a system (*q.v.*) so produced, the fundamental product of taxonomy.

clastotype: (bot., unoff.) a part or fragment of a type specimen; *see* giraultotype, kleptotype.

climatype: (not nomenclatural) a climatic ecotype (*q.v.*).

clon: *see* clone.

clone, [**cl.**]: (1) (cult. pl.) two or more individuals, originally derived from one plant by asexual propagation, which remain genetically identical. (2) (cult. pl., obsol.) a taxon consisting of an indefinite number of ramets derived from an ortet by asexual propagation. (3) (prok.) a series of cultures also obtained by propagation from a single parent cell. *See also* apomict.

clonotype: (1) (bot., unoff.) a living cultivated specimen prepared from a vegetatively propagated part of a plant from which the type specimen was also obtained; *see* pre-type. (2) (zool., unoff.) an

asexually propagated specimen from a part of a nomenclatural type.
 (3) (zool., unoff.) the phenotype or homogenous product of cloning.

Code: an abbreviation for the most recent edition of any one of the international codes of nomenclature, unless otherwise specified; often placed in italic type as a form of short-hand for the full name of the relevant code.

code-name: (1) (cult. pl.) an epithet without evident meaning that is made up of a sequence of connected letters and/or numerals. (2) (cult. pl., obsol.) a legally protected variety denomination (*q.v.*).

Code of Phytosociological Nomenclature: *see* International Code of Phytosociological Nomenclature.

co-extension: (cult. pl.) a situation when all plants represented by one name are also represented by another name; i.e. where two or more named taxa contain the same members and no others.

coenon: (phyt., obsol.) a syntaxon rank, not accepted in the *Code*.

coenospecies: (bot., obsol.) species having a common origin so far as morphological, cytological, or experimental facts indicate such an origin.

coenotype: (1) (phyt., obsol.) a plant community of constant composition, but without faithful or differential species. (2) (bot., not nomenclatural, obsol.) formerly used for morphologically distinct categories of pollen.

cognomen: (unoff.) a nickname or other shorthand method, including numbers or not, used to label material of uncertain identity with which a taxonomist is working, *see also* informal name, interim name, provisional name, taxon label.

cohort, [cohors]: (1) (obsol.) used by some nineteenth century authors as a term for a rank in the taxonomic hierarchy, between class and order. (2) (bot., obsol.) taken as an equivalent to the rank of "order"; *see* order. (3) (not nomenclatural) a group of individuals of the same age recruited into a population at the same time; i.e. an age class.

coll.: *see* collector.

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- collateral type:** (zool.) any specimen used in making a description, other than the primary types; i.e. one excluded from the holotype or paratype citations.
- collection:** an assemblage of specimens compiled and maintained for purposes of study and (or) display.
- collective group:** (zool.) an assemblage of species, or stages of organisms (e.g. eggs or larvae), that cannot be allocated with confidence to nominal genera; names proposed or used for collective groups are treated as genus-group names but special provisions apply to them.
- collective group name:** (zool.) the name of a collective group (*q.v.*).
- collective name:** (cult. pl.) the single designation covering the progeny of a particular hybrid; *see also* collective group.
- collective species, [species collectiva]:** (bot., unoff.) a group of species which are individually recognizable but are very similar; *see also* aggregate.
- collector:** (1) the person(s) or organization that obtained the material directly from nature; often abbreviated [coll.] on specimen labels and in older publications; *see also* leg. (2) a person who stores materials of any kind, whether collected by themselves or by others.
- collectotype:** (zool., unoff.) the type specimen of a new species recognized by an authority in the personal collection of a collector who refuses to give it up for description.
- colloquial name:** (1) a name used locally but not widely enough to be recognized in the general dictionaries of the language concerned. (2) a common name (*q.v.*).
- colon:** (bot.) recommended for use in author citations to indicate that a name is sanctioned (*q.v.*) for use because it was adopted in particular works by Persoon (1801, *Synopsis Methodica Fungorum*) and Fries (1821-31, *Systema Mycologicum* and *Elenchus Fungorum*) specified in the *Code* (e.g. L. : Fr.); usages other than before "Fr." and "Pers." in modern works are errors, most commonly mistranscriptions of "ex" (*q.v.*).
- colony, [pl. colonies]:** (1) (unoff.) used for specimens or groups of specimens of an uncertain infraspecific category. (2) (not

nomenclatural) of cultures of fungi and microorganisms, growths on natural substrata or in artificial culture.

comb. nov.: *combinatio nova*; *see* new combination.

comb. rev.: *see* *combinatio revivisco*.

comb. superfl.: *combinatio superflua*; *see* superfluous combination.

combinatio nova, [comb. nov.] *see* new combination.

combinatio revivisco, [comb. rev.]; a revived combination; i.e. one previously treated as a synonym but re-instated.

combinatio superflua, [comb. superfl.]; *see* superfluous combination.

combination: (1) (zool.) the association of a generic name and a specific name to form the name of a species (i.e. a binomen), or of a generic name with a specific name and a subspecific name to form the name of a subspecies (i.e. a trinomen). (2) (bio., bot.) a name of a taxon below the rank of genus, consisting of a genus combined with one or two epithets; i.e. of a genus and species name, or of a species name with an infraspecific epithet; *see* new combination, ternary combination.

combination of letters: *see* arbitrary.

combined description: (unoff.) a description based on one or a number of specimens that are assigned to the single species of a new genus in which those characters are diagnostic at generic and specific levels; *see also* *descriptio generico-specifica*.

COMCOF: a Committee, Commission, or Federation within IUMS (*q.v.*).

commercial synonym: (cult. pl.) a name that may properly be used for a cultivar in place of the internationally correct one in countries where the latter is commercially unacceptable.

commiscuum: (bot., obsol.) all individuals connected by the possibility of gene-exchange.

Commission on Botanical Nomenclature, of IUBS: *see* General Committee on Botanical Nomenclature.

Commission: an abbreviation of either the (zool.) International Commission on Zoological Nomenclature (ICZN), or (prok.)

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Judicial Commission of the International Committee on Systematics of Prokaryotes (ICSP).

Committee. Special: (bot.) a body appointed by an International Botanical Congress to conduct particular business of botanical nomenclature between Congresses and to report to the next Congress.

Committee on Phylogenetic Nomenclature: a committee of the International Society for Phylogenetic Nomenclature (*q.v.*).

common language: a modern language; any of the currently used languages of the world, in contrast with classical languages no longer in use; a vernacular language.

common name: one widely used in any language in place of a scientific name, especially of one adopted in the literature of that language; *see also* colloquial name, vernacular name.

comparison record: (palaeo.) record of fossil specimens, related by the original author of the record to a base taxon.

compatability group: *see* vegetative compatability group.

competing name: one of a number of legitimate or available names taken into consideration in the determination of a correct name for a taxon.

complex: (1) (unoff.) a group of organisms including more than a single taxon, but within which the circumscription of those taxa is not satisfactorily resolved. (2) (unoff.) a group of closely related species which are not easily distinguished, for example by morphological criteria alone; *cfr* aggregate, microspecies.

components: (mycol.) in lichens, the fungus and alga or cyanobacterium that together make up a single structure.

compound: (1) of a word or a scientific name, one which combines elements derived from two or more Greek or Latin words, a regular compound being one in which a noun or adjective in a non-final position appears as a modified stem; i.e. one formed by the union of two or more basic components (i.e. excluding prefixes and suffixes), written as one word; e.g. words composed of a stem and a connecting vowel or hyphen, such as *striatoradiatus*, *novae-guineae*, and *fritzmulleri*; *see also* pseudocompound. (2) (phyt.)

permits compound names of syntaxa that include a prefix, e.g. *Eu-Vaccinio-Piceenion*, *Xerobromenion*.

compounding form: in a compound word or a scientific name, the form of ending of that in the non-final position; (bot.) to be formed in accordance with the classical usage.

con-: a prefix used before the name of a taxonomic rank to indicate separately named taxa (i.e. ones based on different nomenclatural types) but which are considered to belong to a single taxon of the specified rank; e.g. confamilial, congeneric, conspecific.

concept, hypothetical: *see* hypothetical concept.

concoctotype: (zool., unoff.) a complete holotype made from several incomplete specimens.

conculata, [conc.]: (1) (cult. pl., unoff.) proposed as a rank term between subprovarietas and cultivar. (2) (cult. pl., unoff.) a category of cultivars related by morphological or other characters, and sometimes cultivated together; an agrotypus (*q.v.*) or convarietas (*q.v.*).

concultivar: (cult. pl., unoff.) proposed as a rank term between variety and cultivar.

condensed formula: (bio., bot., cult. pl.) the name of a hybrid genus or graft chimaeral genus (cult. pl. only) constructed from parts of the names of the parent genera involved (e.g. \times *Agropogon* for *Agrostis* \times *Polypogon*); treated nomenclaturally as generic names; *see also* multiplication sign.

conditional: (1) (zool.) of the proposal of a name or a type fixation, one made with stated reservations. (2) (zool.) of the inclusion of a taxon in another taxon at a higher rank, made with stated reservations; *see* provisional name.

conditionally suppressed name: (1) (zool.) the older of two names considered as subjective synonyms which may still be used when either the taxa denoted by the names are regarded as distinct or it is the valid name of a taxon subordinate in Rank to, and included in, the taxon denoted by the later name (e.g. a subgenus within a genus). (2) (phyl.) a name that is suppressed only in phylogenetic

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contexts in which it is a synonym of a particular conserved name; *see* suppressed name.

confamilial: belonging to the same family.

confractum: (bot., unoff., obsol.) proposed as a designation for a clone (*q.v.*).

confused name, [nomen confusum, nom.conf.]: (1) (prok.) a name based on a mixed culture. (2) (bot., obsol.) a name based on a type consisting of discordant elements from which it was considered impossible to select a satisfactory lectotype; *see* also parahomonym.

confusingly similar names: (bot.) orthographically similar names of genera or epithets of names of subdivisions of genera, of species, or of infraspecific taxa likely to be confused; e.g. when the names are applied to closely related taxa.

congeneric: belonging to the same genus.

congregatio: (bot., cult. pl., unoff.) a category used to indicate fundamental groups of both wild and cultivated plants.

Congress: a large international meeting that may serve as a decision-making body approving new editions of a *Code*, i.e. International Botanical Congress (IBC), International Union of Microbiological Societies (IUMS) Bacteriology Division and Virology Division Congresses, International Congress of Zoology (from 1971 with authority delegated to the General Assembly of the International Union of Biological Sciences, IUBS).

congruence sign, [≡]: often used to indicate nomenclatural (bot.) or objective (zool.) synonyms.

connecting vowel: a vowel that joins two words to make a single word, but when the first of two combined words ends with a vowel, no connecting vowel is usually needed; not intrinsically a part of either word, and to be distinguished from stem-endings or combining forms; i.e. “i” (Latin) or “o” (Greek).

conservation: (1) (bio.) a means of suspending the application of the provisions of the *Code* in the interest of stability of nomenclature of names of individual taxa of the family group, genus group, or species group, or, where adopted lists of protected names exist, or of

amending such lists. (2) (bot., zool.) the process by which names that best serve stability can be retained even although they are not otherwise the correct name or even contravene specific provisions of the *Code*; see conserved name.

conserve: (1) to preserve the usage of a name in a taxonomic sense that otherwise would be incorrect by setting aside certain (bot.) or any (zool.) provisions of the *Code*. (2) (zool.) to deem a work to be published or available despite it not satisfying the normal criteria; in each particular case conservation is by a ruling of the appropriately mandated body; *see* conserved name.

conserved name, [nomen conservandum, nom. cons.]: (1) (zool.) a name otherwise unavailable or invalid that the Commission, by the use of its plenary power, has enabled to be used as a valid name by removal of the known obstacles to such use. (2) (bot.) a name of a family, genus, or species ruled as legitimate and with precedence over other specified names even though it may have been illegitimate when published or lack priority. (3) (bot.) a name for which its type, orthography, or gender has been fixed by the conservation process of the *Code*. (4) (phyl.) an established name that the Committee on Phylogenetic Nomenclature has ruled should have precedence over earlier synonyms or homonyms. (4) (phyt.) names established according to special criteria, and are protected, irrespective of their priority, and must be retained.

conserved type, [typus conservandum, typ. cons.]: a name conserved with a particular nomenclatural type.

conserved work: (zool.) a work that the International Commission on Zoological Nomenclature (ICZN) has ruled to be an available work.

conservotype: (zool., unoff.) a type described solely for the purpose of having it listed as an endangered species (!).

consociation, [consociation]: (phyt., obsol.) an hierarchical rank of a syntaxon, equivalent to subassociation but not covered by the *Code*.

consociation: a consociation (*q.v.*).

consortium: (prok.) an aggregate or association of two or more organisms; names given to consortia are not regulated by the *Code*, and have no standing in bacteriological nomenclature.

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conspecies: (1) (unoff.) two or more species belonging to the same genus.
(2) (cult. pl., unoff.) a category for related and interbreeding species of wild origin (species), or originating in cultivation (specioid), or of both types.

conspecific: belonging to the same species.

constituent element: (1) (prok.) the type of a taxon. (2) (bot.) any specimen or illustration included within a taxon, especially those indicated in the protologue.

Constitution: (zool.) an abbreviation of the title *The Constitution of the International Commission on Zoological Nomenclature*.

constructotype: (zool., unoff.) a holotype created during a taxonomic revision as a result of a mix-up of body parts, e.g. male genitalia on a female body.

contabulation: a description based on one of a number of specimens that are assigned to a single species of a new genus in which those characters are diagnostic at specific level.

content: (unoff.) of a taxon, the set of its component organisms.

contortotype: (zool., unoff.) the type specimen of a soft-bodied species that has dried to an unrecognizable state (!); *see* xerotype.

contraction: an abbreviation that shortens a word by removing one or more of its middle letters, but retaining others including both the first and the last; e.g. “Dr” for “Doctor”.

convarietas, [convar.]: (cult. pl., unoff.) a proposed rank for a group of related provarieties, between subspecioid, or cultiplex, and provarietas.

conveniotype: (zool., unoff.) the type of a taxon that still has its distinguishing characters to be established (!).

conversion: (phyl.) the act of establishing a pre-existing name in accordance with the rules of the *PhyloCode*.

converted name: (phyl.) of a clade, a pre-existing name that has been established in accordance with the rules of the *PhyloCode*; denoted by the use of squared brackets ([. . .]) around the citation of the author who published the name under a different *Code*.

Coordination, Principle of: *see* Principle of Coordination.

coordinate name: (bio., zool.) a family group, genus group, or species group name; names within the groups have equal status; *see* Principle of Coordination.

coordinate status: (zool.) of names subject to the Principle of Coordination (*q.v.*).

copulotype: (zool., unoff.) a pair of type specimens locked permanently in a copulatory embrace (!).

copyist's error: an incorrect spelling made in copying.

corr.: *see* correctus, correxit.

correct name: (1) (bot., prok., cult. pl.) the name of a taxon with a particular circumscription, position and rank that must be adopted in accordance with the *Code*. (2) (zool.) the valid name (*q.v.*). (3) (phyt.) the legitimate name (if necessary corrected according to the *Code*) that must be adopted for a syntaxon with a particular circumscription, position and rank under its rules. (4) (bio.) an accepted name (*q.v.*).

correct original spelling: (zool.) the spelling of an available name when it is established, unless it is demonstrably incorrect under the *Code*.

correction: the act of correcting the spelling of a name from the form in which it was originally published; (bot.) permitted only through conservation or when the original spelling was a typographic or orthographic error; *see* correctus, emendation.

correctus, [-a, -um, corr.]: corrected (by). (1) (bot.) used to indicate a corrected orthography, i.e. one replaced by another considered more correct etymologically or more suitable; "corr." following the authority and preceding the name of the author who first effected the correction. (2) (zool.) "justified emendation"; *see* emendation, justified.

correxit, [corr.]: he corrected; *see* correctus.

corrig.: *see* corrigendum.

corrigendum, [corrig.]: (1) a note published by an author, editor, or publisher of a work, expressly to list one or more errors in that work

to be corrected, together with the corrected form that was intended to be published. (2) added after the citation of a name to indicate that the spelling has had to be corrected, sometimes with a reference to the author(s) making the correction.

cosmogenre: (unoff.) a rank above that of kingdom, designating independently evolved systems of Life, e.g. cosmogenre *Geobiota* includes all Earth's biota; only one cosmogenre can therefore be recognized on Earth.

cotype: (1) (obsol.) a syntype (*q.v.*). (2) (zool., obsol.) any specimen of the original type material except the holotype; i.e. an isotype or paratype. (3) (zool., unoff.) any member of a type-series.

countertype: (palaeo. zool., unoff.) of compression fossils, where the rock or other medium is split open to reveal a mirrored impression of the fossil; i.e. the opposite half of the holotype; *see* antitype.

covariant: (cult. pl.) a plant whose characteristics are maintained solely by regular practices of cultivation such as by pruning or training.

CPN: Committee on Phylogenetic Nomenclature (*q.v.*).

crickotype: (zool., unoff.) a holotype and only known specimen of a taxon that has been completely ground up for DNA analysis (!); *see* chromotype.

cross: (cult. pl.) to cause to interbreed; the act of hybridization.

crown clade: (phyl.) a clade originating with the most recent common ancestor of two or more extant species (or organisms); crown clades are a subset of node-based clades.

crown clade definition: (phyl.) any definition that necessarily ties a name to a crown clade, e.g. branch- and apomorphy-modified node-based definitions and standard node-based definitions in which all the specifiers represent extant species or organisms.

crucifix, [†]: (1) if appearing after the name of an author in a work, the symbol traditionally indicates that the author died before the work was published (but is sometimes also used as a footnote marker in modern works. (2) (zool., obsol.) if appearing by a scientific name in synonymy, the symbol indicates a misidentification.

cryptic cultivar: (cult. pl.): *see* cryptic variety.

cryptic species: (1) a hidden species; one of a group of very closely related species which can only be distinguished from one another with extreme difficulty or are morphologically indistinguishable but reproductively isolated or molecularly distinct (and so an evolutionary significant unit); *see* aggregate, complex, microspecies, sibling species. (2) species names hidden in the literature ("ghosts in the literature"), used especially of names not catalogued, cited, or adopted for long periods of time; *see* forgotten name.

cryptic variety: (cult. pl.) a cultivated plant with attributes that cannot be readily be taxonomically separated from an existing cultivar.

cryptogram: (vir., obsol.): a shorthand summary of the properties of a virus or virus taxon placed after a name in the vernacular, consisting of four pairs of symbols, describing, respectively: type of nucleic acid (in millions)/percentage of nucleic acid in infective particles; outline of particle/outline of nucleic acid and most closely surrounding protein (nucleocapsid); kind of host infected/kind of vector; the Virus Adansonian Classification (VAC).

cryptotype: (1) (zool., unoff.) a type published in an inappropriate newsletter or magazine so that it is unlikely to be found. (2) (zool., unoff.) a type specimen amongst thousands of others received from the estate of a taxonomist who failed to label his or her specimens.

cultigen, [**cult.**, **c.**, **cg.**]: (1) (cult. pl.) a species believed not to have originated in the wild; i.e. one only known in cultivation. (2) (cult. pl., prop.) a plant whose origin or selection is primarily due to intentional human activity.

cultigrex, [**cgr.**]: *see* conculca.

cultimorph, [**cultimorpha**]: *see* subspecioid.

cultiplex: (cult. pl., unoff.) proposed as a rank term between subspecioid and subcultiplex; approximately equivalent to that of variety (not cultivar).

cultitaxon: *see* taxoid.

cultitype: *see* cultotype.

cultivar class: *see* denomination class.

cultivar epithet: (cult. pl.): the defining part of a name that denotes a cultivar; *see* cultivar.

cultivar group: *see* group.

cultivar, [**cultivarietas**, **cv.**; pl. **cvs.**]: a cultivated variety; (cult. pl.) an assemblage of plants that has been selected for a particular attribute or combination of attributes and that is clearly distinct, uniform, and stable in these characteristics and that when propagated by appropriate means retains those characteristics; names of cultivars, formerly often prefixed by “cv.”, are designated by fancy (*q.v.*) epithets, appended either to the scientific name or to the common name of the taxon to which they belong, which are not italicised and which must be placed between single quotation marks (e.g. *Solanum tuberosum* ‘Cara’).

cultivariant: *see* topophysic cultivar

Cultivated Plant Code: the International Code of Nomenclature of Cultivated Plants (*q.v.*).

cultivated plant: (1) (cult. pl.) one whose origin or selection is primarily due to the intentional activities of humankind; such a plant may arise either by deliberate, or, in cultivation, accidental hybridization, or by selection from existing cultivated stock, or may be the selection from minor variants within a wild population and maintained as a recognizable entity solely by deliberate and continued propagation. (2) (bio.) a cultivated plant or fungus, whose origin or selection is primarily due to the intentional actions of mankind, not denominated under the *BioCode*.

cultivated race: (cult. pl., unoff.) a biotype of spore plants that has appeared in cultivation.

cultivated taxon: *see* taxoid.

culton, [pl. **culta**]: (cult. pl.) a systematic group of cultivated plants which is based upon one or more user criteria; a word parallel to “taxon” but used solely for a taxonomic unit whose nomenclature is governed by the *Code*.

culto-type, [**cultotype**, **cultype**, **cultitype**]: (obsol.) a living culture derived from a holotype specimen; *see also* ex-type.

culture collection: (bot., prok.) a collection in which cultures of microorganisms are permanently maintained in a living state or in one from which they can be revived; culture collections may supply strains (including type and ex-type cultures) and provide other services, such as serving as International Depository Authorities for strains cited in patents (i.e. service collections); the more explanatory terms biological resource centre (*q.v.*) or genetic resource centre (*q.v.*) are increasing preferred as the name for such collections; commonly referred to by individual acronyms (*see* World Data Center for Microorganisms) in the citation of cultures examined in systematic works.

culture: (prok.) a population of bacterial cells in a given place at a given time, e.g. in this test tube.

cultype: *see* cultotype.

Current use: of names, the preponderant way in which names are applied in recent scientific publications; *see also* Names in Current Use.

cv., [pl. cvs.]: *see* cultivar.

cyclophasic cultivar: (cult. pl.) a clone with the same genotype as the original parent plant but differing in its phenotype due to being originally asexually propagated from specific tissue from a phase in the plant's life-cycle.

cyclus, [cycle]: (cult. pl., unoff.) a taxoid for the designation of a group of closely related plants (mostly of hybrid origin), the features of which combine in a net-like manner and whose relationships are also net-like.

cyrioplesiotype: (zool., unoff.) the principal or typical specimen among several plesiotypes (*q.v.*).

cytological characters: (cult. pl.) the characters within the cellular structure of an organism.

cytotype: (1) (zool., unoff.) a portion of a type prepared to show identical cytological features (e.g. chromosomes) as those originally described for the taxon. (2) (bot., unoff.) proposed as an infraspecific category for plants distinguished by cytological

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features (e.g. chromosome number or structure) but not at all morphologically; *see also* cytovar.

cytovar.: (bot., unoff., obsol.) proposed for use in the nomenclatural citation of a cytotype (*q.v.*).

dagger, [†]: *see* crucifix.

Dall Code: (zool., obsol.) a forerunner of the International Code of Zoological Nomenclature (*q.v.*), a draft of which was prepared for the American Association for the Advancement of Science by W. H. Dall and published in 1878; it was intended to cover (bot.) as well as (zool.) but was never formally adopted internationally.

date: (1) of a name, the date requirements for establishment or valid publication under the pertinent *Code* were fulfilled. (2) (bio.) of a name, that of its registration, i.e. the date of receipt of the relevant matter at the registration office. (3) (bio.) for purposes of precedence of a name, the date attributed to it in an adopted list (*q.v.*) or, for unlisted names, the date on which it was validly published (bot., prok.), became available (zool.) or was established (bio.). (4) of a work, the date on which copies of the work become available by purchase or free distribution, either to the general public or to systematic libraries; this date may or may not be the same as the date printed on the work itself; in practice often accepted as the date of mailing or passing to a carrier.

Declaration: (zool.) a provisional amendment to the *Code*, published by the International Commission on Zoological Nomenclature.

declension: a system of cases and case endings (*q.v.*).

deem: to consider or rule something to be what it may or may not be; a work and its contents are deemed to be published by the author not the publisher; the date of a publication may be deemed to have been be a particular one whether or not that is when it was actually published (e.g. the tenth edition of Linnaeus's *Systema Naturae* is deemed for the purposes of zoological nomenclature to be published

on 1 January 1758, whether or not it was actually published on that date).

definite inclusion: (1) (bot.), of the type of a name, the direct or indirect reference to the type of a previously or simultaneously published name, whether accepted or synonymized by the author, by citation of the nomenclatural type of a name or the name itself. (2) (bot.) of a name, any element directly or indirectly included when the name was introduced and to be taken into account in its typification; *see also* protologue.

definition: (1) (zool.) a statement in words that purports to give those characters which, in combination, uniquely distinguish a taxon from others; a diagnosis (*q.v.*). (2) (phyl.) a statement specifying the meaning of a name (i.e. the taxon to which it refers). (3) (obsol.) a differentia (*q.v.*).

definitional author: (phyl.) the person(s) who published a phylogenetic definition for a name, either the original definition or an emended one; *see* nominal author.

deme, [-deme]: (1) (not nomenclatural, obsol.) a system of special-purpose category terms denoting a group of individuals of a taxon and formed by adding the suffix "-deme" to a stem, e.g. topodeme (a group growing in one place). (2) (not nomenclatural) small units of population that are evolutionarily significant that are in close contact with each other.

denomination class: (cult. pl.) the taxonomic unit in which cultivar and Group epithets may not be duplicated except in special circumstances; *see also* varietal denomination.

depreciated name: (prok.) one included in the Approved List or validly published after 1 January 1980 but currently treated as a synonym of an accepted name.

derived variety: (cult. pl.) a cultivar that is derived from an open-pollinated cultivar and which is not considered to be sufficiently distinct from that cultivar to meet the criteria of a DUS test (*q.v.*).

dermestotype: (zool., unoff.) a specimen of a type-series so badly eaten by dermestids that its identity cannot be confirmed (!); *see also* psocotype.

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derogatotype: (zool., unoff.) a type of a taxon, the name of which is an unflattering reference to another worker (!); *see also* libelotype.

descr.: *see* description.

descriptio generico-specifica: (bot.) a single description simultaneously validating the names of a genus and its single species.

description, [descriptio, descr.]: a statement of the features of a taxon, or its component organism, in words, required for valid publication of its name especially; used especially when not limited to those that distinguish it from other taxa; *see also* definition, diagnosis.

descriptive name: (1) (zool.) a name taken from the distinctive characters of the taxon; frequently a polynomial in old zoological literature. (2) (bot.) a name of a taxon above the rank of family not based on a generic name but formed from a descriptive character, e.g. the class *Discomycetes* for *Ascomycota* with disc-like fruit bodies.

descriptive phrase: a name, usually of several words, which at the same time constitutes a diagnosis (*q.v.*) of the taxon to which it refers; a polynomial (*q.v.*); even when limited to two words, not a binary name.

descriptor: (1) (cult. pl.) a word or phrase appended to the name of a taxonomic unit which is used to separate an element such as flower colour. (2) (not nomenclatural) a key word indicating the content of a publication.

descriptotype: (zool., unoff.) an element or elements on which an original description was based.

designated priority: (zool., unoff.) of several simultaneously published names for the same taxon, the priority established by the first reviser.

designation: (1) (zool.) the nomenclatural act of an author or the Commission in fixing, by an express statement, the name-bearing type of a newly or previously established nominal genus, subgenus, species, or subspecies; *see also* act, fixation, indication. (2) (bot.) a term used for what appears to be a name but has not been validly published; i.e. not a name (*q.v.*) in the sense of the *Code*.

determination: the identification of a taxon, usually of a specimen or culture to a species or infraspecific taxon.

determination slip: a piece of paper or label attached to a specimen on which is written the identification, along with the details of the identifier, the date, and other notes made at the time; an annotation slip.

determinator: the person who made a determination (*q.v.*).

determinavit, [**det.**]: identified by; sometimes used in the citation of specimens before the name of the determinator (*q.v.*).

determine: to make a determination (*q.v.*).

deutero-genotypic: (zool.) isogenotypic (*q.v.*).

deutero-type: (zool., unoff.) a replacement type specimen.

Deutsche Zoologische Gesellschaft Code, The: (zool., obsol.) the *Regeln für die wissenschaftliche Benennung der Thiere*, published in 1894; a forerunner of the International Code of Zoological Nomenclature (*q.v.*).

devalidated name: (prok., vir.) a name which would have been validly published except that it appeared before the starting-point date of the group to which its type belongs, used particularly in groups with later starting points than the principal one and that were implemented retroactively.

diacritic: a diacritical mark (*q.v.*).

diacritical mark: a mark to indicate different pronunciation of a letter or a different letter, e.g. an accent, cedilla, tilde, umlaut); not to be used in scientific names or organisms; but *see also* diaeresis.

diacritic sign: a diacritical mark (*q.v.*).

diaeresis, [ˊ]: a diacritical mark (*q.v.*) of two dots placed over the second of two consecutive vowels to indicate that they are to be pronounced separately (e.g. *Epichloë*, *Pöideae*).

diagnosis, [pl. **diagnoses**]: a statement, in words, of that which in the opinion of its author distinguishes the taxon from other taxa; *see also* definition, description.

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diagnostic characters: features that permit an organism to be assigned to a particular taxon or group of taxa.

diagnostic species [or infraspecific taxa]: (phyt.) species or infraspecific taxa which are characteristic of a particular syntaxon and facilitate the separation of that syntaxon from others.

differentia, [pl. **differentiae**]: (1) (obsol.) the character or characters by which a taxon differs from others. (2) (obsol.) those characters that define a species; a definition; used in this sense by Linnaeus.

differential character: a distinguishing or diagnostic character.

differential hosts: (prok.) the species or cultivars of host plants, the reactions to which determine the physiological race of an organism; *see* pathovar, special form.

differential species: (phyt.) species, or infraspecific taxa, the presence of which distinguishes a particular syntaxon from other syntaxa.

diplomatype: (1) (zool., unoff.) a type specimen of a taxon described solely for political purposes, e.g. to gain access to otherwise unavailable government lands (!). (2) (zool., unoff.) the type of a taxon named after a person with whom the author wishes to have good relations (!).

diplotype: *see* genoholotype.

direct reference: a bibliographic reference in which full publication details are provided including the author, place of publication, volume, page(s) or plate references, and date.

Direction: (zool., obsol.) a term formerly used but now abandoned, which under earlier editions of the *Code* was a statement published by the Commission (ICZN), giving the result of a decision completing or correcting a ruling given in an Opinion; replaced by Official Corrections (*q.v.*).

disagreeable epithet: (cult. pl.) one whose use in a certain culture might cause offence.

disagreeable name: (obsol.) an inappropriate name (*q.v.*); *see also* disagreeable epithet.

disclaimed: of a work, one with a disclaimer (*q.v.*).

- disclaimer:** (zool.) a statement in a work, by an author, editor, or publisher, that either the entire work or all specified names and nomenclatural actions are to be excluded for purposes of zoological nomenclature.
- discordant elements:** elements on which a name was based which are now considered to belong to two or more distinct taxa; in (bot.) such names were ruled as illegitimate until 1975.
- dissectotype:** (zool., unoff.) a completely dissected type; *see also* crickotype.
- diverged variety:** (cult. pl.) a cultivar that is derived from an earlier self-pollinated cultivar and which no longer meets criteria for a DUS test (*q.v.*).
- divide:** (unoff.) to remove as a separate taxon an element from within the circumscription of a previously recognized taxon; to segregate (*q.v.*).
- divinotype:** (1) (zool., unoff.) a new species found and collected alive already bearing a holotype label (!). (2) (zool., unoff.) a type only seen during séances (!).
- division, [divisio]:** (1) a taxon at the rank of division; in (bot.) one of two terms for the same rank, the other being phylum (*q.v.*); the highest rank of the principal categories of taxa below kingdom; a phylum (the term preferred in overall biological classifications). (2) (zool.) a rank that if treated as a division of a genus or subgenus is deemed to be of subgeneric rank for the purposes of nomenclature. (3) (cult. pl., unoff.) a taxoid for the designation of a group of closely related cycles (*q.v.*).
- divisum:** (bot., unoff., obsol.) proposed as a designation for a clone (*q.v.*).
- domain:** a taxonomic rank above that of kingdom; *cf.* empire, superkingdom.
- domesticated animals:** (zool.) animals distinguished from wild progenitors by characters resulting from the selective actions (deliberate or not) of humans.
- dorsotype:** (zool., unoff.) a type specimen mounted in such a way that only its dorsal aspect is visible for study (!).

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dot, [·]:(phyl., prop.) proposed as a method of indicating a converted species name in phylogenetic nomenclature, e.g. *Sturnus.vulgaris*; *see also* hyphen.

double citation: (unoff.) an author citation in which the author of an epithet or name is placed in parentheses, followed by the citation of the author who moved it to its current position and rank, as in a new combination (*q.v.*).

double cross: (cult. pl.) the repeatable crossing of two F1 hybrids.

double name: (phyt.) the name of a syntaxon composed of the names of two subordinate syntaxon names; when each is confined to either of the two syntaxa of the next subordinate principal rank that are named in the original diagnosis of the superior syntaxon, the name cannot be retained when a division of the superior syntaxon separates the subordinate syntaxa.

doubtful name: (prok.) a dubious name (*q.v.*).

dubiotype: *see* incognitotype.

dubious name, [**nomen dubium**, **nom. dub.**]: a name of unknown or doubtful application; e.g. because of a lack of original or type material and sufficient information about it to make a satisfactory typification possible, or because it is impossible to ascertain to which taxon its type should be referred; a doubtful name (prok.)

ducotype: (zool., unoff.) a type with the head of one species glued onto the body of another (!); a gluotype (*q.v.*).

duplicate: (bot.) part of a single gathering of a single species or infraspecific taxon made by the same collector (or collectors) at one time.

duplotype: (1) (zool., unoff.) a second holotype for the same taxon. (2) (zool., unoff.) a single specimen used as holotype for two different taxa; a redundotype (*q.v.*) for the later described; *see also* triplotype.

DUS test: (cult. pl.) the criteria of Distinctness, Uniformity and Stability by which a new cultivar is examined for statutory purposes such as for the granting of Plant Breeders' Rights.

e.g., [**exemplia gratia**]: for example.

e.p.: *see ex parte*.

E-type: (zool., unoff.) a digital image of a holotype.

-*ae*: (bot., prok.) suffix added to the stem of a generic name to form the name of a tribe.

earlier: published prior to the date of another name or names under consideration.

earlier homonym: (bot.) the earlier of two or more validly published homonyms; a senior homonym.

earlier synonym: an older synonym.

ecological niche: (1) (not nomenclatural) the space occupied by a species, including its physical space and function role; the biological space of a species conceptualized as a multidimensional hypervolume; incorrectly equated with microhabitat. (2) (vir.) the cellular environment of particular species or populations of host organisms.

econ, [pl. **eca**]: (phyt., unoff.) a local vegetation unit.

ecophenotype: a phenotype (*q.v.*) showing adaptations associated with the habitat or environment.

ecotype, [**oecotype**]: (not nomenclatural) a group of populations within a species genetically adapted to a particular ecological niche; sometimes used preceded by an hyphen to indicate a particular category of ecotype, e.g. agro-ecotype, geo-ecotype; *see also* ecovar.

ecovar.: (bot., unoff., obsol.) proposed for use in the nomenclatural citation of an ecotype (*q.v.*).

edition: the total number of identical copies of a work printed by the same method from one typesetting; a later edition is one created by the separate printing of the work, with or without any textual change; *see also* impression.

Editorial Committee (prok., bot., cult. pl.): a body mandated to prepare the edition of the *Code* following the Congress at which it is appointed.

effective publication: (bot., phyt.) publication in accordance with the *Code*; the first step in considering the valid publication of a name, and achieved by distribution of printed matter (or before 1 Jan. 1953 in bot. of indelible autographic matter), so as to make the work accessible to botanists generally; a requirement for any nomenclatural act; *see also* date.

effectively published: (bot., phyt., prok.) of a name or epithet, one that has undergone effective publication (*q.v.*) but not necessarily valid publication (*q.v.*); (bio., cult. pl., zool.) published.

egg type: *see* locality type.

electotype: (zool., unoff.) in the case of a poorly preserved holotype, a specimen from a locality other than that of the holotype which agrees closely with the original description; *see also* epitype, neotype.

electronic publication: (zool., prop.) of a work, one issued and distributed by means of electronic signals; to be considered published such a work must be archived with an organization other than the publisher.

element: (1) a constituent part of a taxon of any rank; the elements of a species or infraspecific taxon are the individuals included within its circumscription, or specimens prepared from such individuals, or any figure or description of such individuals. (2) (zool.) of a genus or subdivision of a genus, a species. (3) (phyt.) a vegetation relevé in the case of associations and subassociations, and a syntaxon of the next subordinate principal rank in syntax of higher rank. (4) (prok., obsol.) the type strain to which a name is permanently attached.

elevate: (unoff.) of a taxon, to raise in rank to a higher one in the taxonomic hierarchy; e.g. from that of a subspecies to a species.

elide: (zool.) to deliberately omit one or more letters within a word.

elimination, fixation by: *see* fixation by elimination.

elision: (zool.) a word in which more or more letters have been deliberately omitted.

emend, [emend., emendatio]: *see* emended.

emendavit, [**emendates**]: *see* emended.

emendation: (1) (zool.) any intentional change in the original spelling of an available name. (2) (zool.) an available name formed by intentionally changing the original spelling of an available name; such emendations may be justified (*q.v.*) or unjustified (*q.v.*). (3) an emended (*q.v.*) circumscription of a taxon. (4) (phyl.) a formal change in the phylogenetic definition of a name.

emended, [**emendavit**, **emendatio**, **emendatus**, **-a**, **-um**; **emend.**]: (bot., prok.) sometimes used in author citations to indicate that an author has changed the circumscription or spelling of a taxon; correctly used only where the nomenclatural type has not been excluded and recommended for use only when the change has been considerable; such indications of emendation are not part of the formal author citation of a name except where a type has been excluded (and in which case a homonym may have been published)..

empire [**imperium**]: (unoff., prok.): a taxonomic rank above that of kingdom; a domain (*q.v.*).

-enalia: (phyt.) the suffix terminating the name of a syntaxon in the rank of suborder.

ending: of a word, the termination (*q.v.*).

-enea: (phyt.) the suffix terminating the name of a syntaxon in the rank of subclass.

-enion: (phyt.) the suffix terminating the name of a syntaxon in the rank of suballiance.

entity: a taxonomic unit; *see* taxon.

Entomological Code, The: (zool., obsol.) a code for use in entomology, prepared by N. Banks and A. N. Caudill, published in 1912 (with a facsimile reprint in 2009), with no overriding committee and in which every user was commended to interpret the rules personally; superseded by the International Code of Zoological Nomenclature (*q.v.*).

epharmone: (bot., obsol.) an unstable form due to environmental influences, arising from the usual form when those influences are sufficiently modified.

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- ephemeral:** of publications, ones not intended for future reference, such as newspapers and advertisements which ordinarily become obsolete soon after they are issued.
- ephemerotype:** (zool., unoff.) a type specimen that disintegrates completely after only a day and must be replaced by a neophemerotype (*q.v.*) on a daily basis (!).
- epithet:** (bot., prok.) the final word in a binary combination and a word following the connecting term denoting rank in other combinations; denotes an individual taxonomic unit; equivalent to specific name in (zool.); *see also* collective epithet, cultivar epithet, equivalent epithet, final epithet, specific epithet.
- epitheta hybrida:** (1) (obsol.) of specific epithets, ones made up of parts of words from two different languages; *see also* compound. (2) (cult. pl.) the names of nothotaxa.
- epitheta specifica conservanda:** (prok.) conserved specific epithets.
- epitheta specifica rejicienda:** (prok.) rejected specific epithets.
- epitype:** (1) (bot.) a specimen or illustration selected to serve as an interpretative type when the holotype, lectotype, or a previously designated neotype, or all original material associated with a validly published name cannot be identified for the purpose of precise application of the name of a taxon; *see also* hypotype, interpretotype, pragmatype, prototype, teletype. (2) (bio.) a type designated to fix the application of a name the type of which is demonstrably ambiguous or cannot be critically identified for the purposes of the precise application of the name of a taxon.
- eponym:** a name or epithet based on that of a person (e.g. *smithii* after Sir J.E. Smith).
- equals sign, [=]:** often used to indicate heterotypic synonyms, i.e. subjective synonyms (zool.) or (bot.) taxonomic synonyms; *cfr* congruence sign.
- equivalent epithet:** (cult. pl.) one that is a permitted translation, transliteration, or transcription of an existing epithet or one that is taken to be identical even though there may be minor differences

due to optional use of accents, diacritical signs, and other punctuation.

erect: *see* establish.

ergasial: *see* specioid.

ergatotype: (zool., unoff.) the type of a worker caste in the polymorphic Hymenoptera; *see* also morphotype.

err. typ.: *see* errore typographico.

erratum, [pl. **errata**]: an error (*q.v.*); also used for a printed correction to a published work either printed in the work itself (e.g. in a subsequent issue of a journal) or on a separate slip of paper inserted by hand into the work (i.e. an erratum slip).

erratum slip: *see* erratum.

error: in a name, or other word, an incorrect spelling.

errore, [pl. **errores**]: an error (*q.v.*), especially relating to time or place.

errore typographico, [**err. typ.**]: a typographical error.

escapotype: (zool., unoff.) an alivotype (*q.v.*) that has escaped (!).

establish: (1) (zool.) of a name or nominal taxon: to make available the name of a nominal taxon available by satisfying the requirements of the *Code*. (2) of a taxon, to describe and validly publish (or make available) a name for that taxon; to erect a name.

established custom: (bot., zool.) general usage or practice; advocated to be followed in the absence of a relevant provision in a *Code* for a particular situation.

established name: (1) one that meets the criteria laid out in a *Code* for valid publication; an available name (zool.) or validly published name (bot., cult. pl., prok.). (2) (bio.) one that is published in accordance with the *Code* or that, prior to 1 January 20XX (year not yet specified) was validly published or became available under the relevant Special Code. (3) (phyl.) a name that is published in accordance with the *PhyloCode*, which may or may not be an acceptable or accepted name.

established neotype: (prok.) a neotype (*q.v.*) that was proposed two or more years earlier in the *International Journal of Systematic and Evolutionary Microbiology* (formerly the *International Journal of Systematic Bacteriology*) and which has not been objected to.

establishment: the process requiring certain criteria detailed in a *Code* to be fulfilled on publication before a name can be taken into consideration for nomenclatural purposes; see established name..

et, [&]: and; used, for example, in the author citation of a name which two authors published jointly to link the names of the publishing authors; e.g. Berk. et Broome or Berk. & Broome.

et al., [et aliorum, & al.; pl. et alii]: and others; used in the author citation of a name or of literature with three or more authors; e.g. citing "Brickell, Baum, Hettterscheid, Leslie, McNeill, Trehane, Vrugtman & Wiersema (2004)" as "Brickell *et al.* (2004)".

et seq., [et sequens]: and the following; used, for example, in a bibliographic reference after a page number to indicate that the following pages should also be referred to; *see cfr.* ff. .

-etales: (phyt., obsol.) the suffix once used for terminating the name of a syntaxon in the rank of class; *see -etea.*

-etalia: (phyt.) the suffix terminating the name of a syntaxon in the rank of order.

-etea: (phyt.) the suffix terminating the name of a syntaxon in the rank of class.

-etosum: (phyt.) the suffix terminating the name of a syntaxon in the rank of subassociation.

-etum: (phyt.) the suffix terminating the name of a syntaxon in the rank of association.

etymology, [etym.]: the linguistic derivation of a word.

Eu-, [eu-]: prefix, true. (1) (bot., prok., obsol.) formerly sometimes used for the names of subdivisions of genera which included the type species of the genus by adding the prefix, e.g. *Carex* sect. *Eucarex*, but no longer permitted; *see* autonym. (2) (phyt.) sometimes used and still permitted for the names of subordinate syntaxa with the same characteristic species as the higher syntaxon; *see* compound name.

euphonic, [**euphoni**us]: of the sound of a word when pronounced, one which is pleasant to the ear; *see* stem.

ex: from; (1) (bio., bot., phyt.) used in the author citation of names to link the name of an author who has not validly published a name with that of the author who validated the same name (e.g. *Stenocybe* Nyl. ex Körb. indicates a name coined but not validly published by Nylander which was subsequently validated by Körber who credited the name to Nylander); used in cases where the name itself has been taken from a manuscript, letter, specimen, or the invalid publication of the first author, but the text of the description has been provided by the validating second author (*cf.* revived name, nomen revictum); *see also* in. (3) (bot., unoff.) in citing material examined, to indicate the first came from a collection other than in which it is now housed, (e.g. “BM ex K” for a specimen now at the Natural History Museum London but previously kept at the Royal Botanic Gardens Kew). (4) (bot.) of the nomenclatural type of the name where that is a living culture preserved in a metabolically inactive state (e.g. ex holotypo, ex isotypo, ex typo); *see also* ex-type. (5) (phyl.) used as a prefix for the author of a converted name (*q.v.*) of a clade, one based on a pre-existing name established under a different *Code*; the “-ex” is placed before the name of the author who published the name under the different *Code*.

Ex.: *see* exemplar, Example.

***Ex.**: *see* voted example.

ex affinis, [**ex aff.**]: of affinity to; sometimes used to indicate that a specimen being identified is similar to, but not necessarily identical with, the named taxon.

ex grupo, [**ex gr.**]: of the group of.

ex parte, [**e.p.**]: (obsol.) in part; *see* pro parte.

Example, [**Ex.**]: (bot.) examples are given in a *Code* to elucidate the Articles and Recommendations; examples are not integral parts of the Articles or Recommendations (unless they are a voted ***Example**, [***Ex.**]; *q.v.*), and neither modify nor amplify them; should one be found to be in conflict with an Article, it is not to be followed unless it is a voted example (*q.v.*).

excl.: *see* excluded.

excl. gen.: *see* excluded genus.

excl. sp., [spp.]: *see* excluded species.

excl. spec.: *see* excluded specimens.

excl. var.: *see* excluded variety.

exclamation mark, [!]: often used after a museum or herbarium abbreviation (e.g. FH!) or collection number to indicate that the material has been examined by the author of the work.

exclusion: the act of removing or eliminating some element of taxon, in nomenclature usually of species excluded from genera or types excluded from species; *see* excluded, superfluous name.

excluded, [exclusus, -a, -is, -um; excl.]: (1) (zool.), of a name, one that cannot be an available name, or one that has been disclaimed. (2) (zool.), of a specimen or component, one that has been explicitly omitted or removed from a type-series or a name-bearing type. (3) (bot.) any elements included in a taxon by a previous author or authors, but considered not to belong to it by the writer and excluded from it by the latter; *see also* explicit exclusion.

excluded genus, [exclusis genere, excl. gen.]: with the genus excluded.

excluded name: *see* excluded.

excluded species, [exclusa speciei, excl. sp.; pl. excl. spp.]: with the species excluded.

excluded specimen, [exclusis speciminibus, excl. spec., excl. specim.]: with the specimen(s) excluded.

excluded subspecies, [exclusis subspeciei, excl. subsp.; pl. excl. ssp.]: with the subspecies excluded.

excluded variety, [exclusis varietibus, excl. var.]: with the varieties excluded.

exclusus: *see* excluded.

Executive Committee: (vir.) a body elected by the ICTV (*q.v.*) to consider taxonomic and nomenclatural proposals, to prepare proposals to

ICTV for changes, and to publish regular reports on the current taxonomy of viruses.

exemplar, [**Ex.**]: (unoff.) of a taxon, one selected to represent a taxon of higher rank, e.g. species representative of a genus.

exerge: (zool., obsol.) a proposed term for a rank equivalent to that of subspecies.

exfamiliaris: (zool., unoff.) used in a similar manner to *familiaris* (*q.v.*) to indicate feral forms of domesticated animals; *see* praefamiliaris.

ex-holotype [**ex holotypo**]; *see* ex-type.

ex-isotype: [**ex isotypo**]; *see* ex-type.

exotypus: (zool., obsol.) proposed as an equivalent category to form (*q.v.*).

explicit exclusion: (1) in a *Code*, a statement as to an exception to the application of that *Code*, or of particular provisions of that *Code*. (2) of a specimen, scientific name or type, one stated as excluded from the circumscription of a taxon by an author, e.g. by the use of "excl." (*q.v.*) before the name or specimen.

explicit typification: (unoff.) an act of typification in which an author designates the type; *cf.* implicit typification.

exsiccate: colloquial non-Latin usage for *exsiccata* (*q.v.*).

exsiccata [noun, pl. **exsiccatae**; adjective, **exsiccatus**, **-um**]: a set of dried specimens, usually numbered and with printed labels, distributed by sale, gift, or exchange; e.g. *Fungi exsiccati*: a set of dried fungi); an *exsiccate*.

extant: (1) of a taxon, having one or more living representatives (organisms) at the present time, or at some specified time since humans began keeping written historical records. (2) of a specimen, one still in existence.

external specifier: (phyl.) a species or specimen that is explicitly excluded from the clade whose name is being defined; branch-based and branch-modified node-based definitions have external specifiers, but apomorphy-based, standard node-based, and apomorphy-modified node-based definitions do not; *see* internal specifier.

extinct: of a taxon, one having no living representatives.

ex-type, [**ex typo**]: (1) from the type; used for example for microscopic slide preparations made from type material. (2) (bot.) a living isolate made from the type of a name when this is a culture permanently preserved in a metabolically inactive state; the kind of type can also be indicated (e.g. ex-holotype, ex-lectotype). (2) (zool.) part of the original type specimen separated from that original.

f.: (1) form (*q.v.*); (2) figure (*q.v.*); (3) filius (*q.v.*)

f. sp. [pl. **ff. sp.**]; *see* special form.

F₁ hybrid: (cult. pl.) a plant breeding term for the result of a repeatable cross between two pure-bred lines.

F₂ hybrid: (cult. pl.) a plant breeding term for the result of self-pollination within a population of F₁ hybrids.

facies: (phyt., obsol.) an hierarchical rank of a syntaxon, subordinate to subassociation but not covered by the *Code*.

facsimile: of a work, an exact reproduction, produced by copying and reprinting the original pages photographically or by electronic scanning; the production of a facsimile edition does not affect the date of publication for nomenclatural purposes, which remains that of the original.

facultative synonym: a taxonomic synonym (*q.v.*).

fam.: *see* familiaris, family.

familiaris, [**fam.**]: (zool., unoff.) appended in quotation marks after the name of a wild ancestor of a domesticated animal (e.g. *Canis lupus 'familiaris'*), or placed in rounded brackets before the subspecies epithet in a trinomen of the ancestor (e.g. *Canis lupus (fam.) palustris*), to indicate the taxon from which the domesticate has been derived; *see* exfamiliaris, praefamiliaris.

family, [**familia**, **fam.**; pl. **families**, **familiae**, **fams**]: (1) (bot., zool.) a taxon at the rank of family, the principal rank between order and genus. (2) (zool.) a rank within the family group (*q.v.*).

family group: (1) (bio.) the ranks of superfamily, family, and subfamily. (2) (zool.) taxa at the ranks of superfamily, family, subfamily, tribe, and any other rank below superfamily and above the genus group that may be required, such as subtribe.

family group name: (zool.) a scientific name of any taxon of the family group (*q.v.*), and the highest ranking group of taxa whose names are fully regulated by the *Code*.

family name: *see* name.

fancy epithet: (cult. pl.) an epithet in a language other than Latin; a fancy name.

fancy name: *see* fancy epithet.

fascicle: a separately issued or bound part of a book, exsiccatae, or serial publication; usually called a “number” in the case of journals or other serial publications.

Fauna: a published work describing the animals growing in an area; *cf* fauna, Flora, Funga, Mycobiota, Mycota.

fauna: the animals growing in an area; *cf* Fauna, flora, funga, mycobiota, mycota.

federation, [federion]: (phyt., obsol.) an hierarchical rank of a syntaxon, equivant to alliance, but not covered by the *Code*.

federion: a federation (*q.v.*).

fermentative type: (prok., obsol.) used as a subdivision of a serotype (*q.v.*) in which the fermentation reactions differs.

ff., [folios following]: (1) after a page number reference, to indicate also the following pages (e.g. p. 240 ff.). (2) as an indicator of rank, forms; *see* form.

ff. sp.; *see* special form(s).

fide: according to, used before the name of an author whose written work is being quoted; *see also* teste.

field: (1) in taxonomy, a taxon or set of taxa studied by a taxonomist. (2) of specimens, ones collected from or examined in nature, and not as preserved, cultured or cultivated material. (3) of work, that carried

out to survey, collect specimens, so carry out *in situ* studies. (4) of microbial strains, ones recently isolated from nature.

figure, [**fig.**]: a reference either to a numbered illustration in the text of a work, or to a numbered portion of a plate.

figure-type: (zool., unoff.) the original figure or illustration of a type specimen; an iconotype (*q.v.*). (2) (zool., unoff.) a phototype (*q.v.*).

filius, [**f.**, **fil.**]: son; used in author citations to help distinguish a father and son (e.g. L. f. for Linnaeus' son).

-filomanoj: (unoff.) proposed termination in Esperanto for a name in the rank of phylum in the New Biological Nomenclature (*q.v.*).

final epithet: (bio., bot.) the last epithet in sequence in any particular combination, whether in the rank of a subdivision of a genus, or of a species, or of an infraspecific taxon.

first reviser: *see* Principle of the First Reviser.

first species method: of typification, the automatic selection of the first named species as the type of the name of a genus; not generally acceptable (bot., zool.); (bot.) an "American Code" typification if all other conditions were not met; *see* mechanical methods.

fixation: (zool.) a general term for the determination of a name-bearing type, whether by original designation, or by any other means; *see also* designation, monotypy, tautonomy.

fixation by elimination: (zool.) the supposed fixation of a type species by the subsequent transfer of all but one of the originally included nominal species from a genus; not in itself an available method of type fixation.

floating: of a taxon, one not classified in one or more ranks of the taxonomic hierarchy; *see* *incertae sedis*, unassigned.

Flora: a published work describing the plants growing in an area; *cfr* Fauna, flora, Funga, Mycobiota, Mycota.

flora: the plants growing in an area; *cfr* Flora.

floruit, [**fl.**]: flourished; used before the date of an author of a name to indicate when he was actively publishing, especially when the dates of birth and death are unknown.

foederatio: (phyt., obsol.) an hierarchical rank of a syntaxon, equivalent to alliance (*q.v.*).

folio. [**fo.**]: a leaf of a book or manuscript; sometimes used to indicate separate parts of a work; *see also* ff.

font: *see* fount.

forgotten name, [nomen oblitum, nom. obl.; pl. nomina oblita]: (1) (unoff.) a name that has not been taken up many years after its introduction although it is the correct name for an accepted species. (2) (zool.) applied after 1 January 2000 to a name, unused since 1899, which as a result of an action taken under the *Code* does not take precedence over a younger synonym or homonym in prevailing usage; the younger name that takes precedence over the nomen oblitum may be called a nomen protectum; the term nomen oblitum was also applied to a disused senior synonym rejected between 6 November 1961 and 1 January 1973 under the *Code* editions then in force; nomina oblita remain available names unless a junior synonym has been used more than a specified number of times in the immediately preceding 50 years (i.e. 25 works published by at least 10 authors and encompassing a span of not less than 10 years).

form, [forma, f.; pl. formae, ff.]: (1) (bot.) the lowest principle rank recognized in the taxonomic hierarchy in the *Code*, and subordinate to species (or subspecies, or variety or subvariety). (2) (zool.) a term that if published after 1960 is deemed to denote an infrasubspecific rank, but if published before 1961 is interpreted according to special provisions in the *Code*. (3) those individuals of a species differing, in a stated way, from other individuals within the species (e.g. larval and adult forms, male and female forms, ecological forms, seasonal forms). (4) (zool., unoff.) used as a prefix to the name of a domesticated animal, following that of its wild ancestor. (5) (not nomenclatural) shape or outward appearance; often appearing in taxonomic publications in this sense when it is not to be confused with the rank of form.

form-genus: (palaeo. bot., obsol.) one that is maintained for classifying fossil specimens that lack diagnostic characters indicative of natural affinity but which for practical purposes need to be provided with binary names; form-genera are artificial in varying degrees and are

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not assignable to a family; *see also* morphotaxon, pleomorphic fungi, special form.

form species: (1) (palaeo. bot., unoff.) a morphologically delimited category of a disarticulated organ that, within the context of a particular comparative study, is perceived to lack unique character states (and thus is assignable to multiple whole-plant species); a shared organ species (*q.v.*); *see also* autapospesies. (2) (prok., obsol.) species within a genus characterized by small differences in morphology.

form-taxon: (mycol.) in pleomorphic fungi, a taxon typified by an anamorph.

forma: *see* form.

forma alicuius loci: (zool., unoff., obsol.) proposed for an individual variety, which in the case of polymorphism, is restricted to a portion of the range of the respective variety or species.

forma apomicta, [pl. **formae apomictae**]: (bot., unoff.) an apomict of the named species.

forma biologica: (bot., obsol.) a biological race.

forma specialis, [f. **sp.**; pl. **formae speciales**, f. **spp.**]: *see* special form.

forma tempestatis: (zool., unoff., obsol.) proposed to indicate a "generator variety", seasonal in Lepidoptera.

formation: (1) (phyt., obsol.) an hierarchical rank of a syntaxon, equivalent to class but not covered by the *Code*. (2) *see* formulation.

Formenkreise: (unoff.) used for specimens or groups of specimens of an uncertain infraspecific category.

formula mixture: (cult. pl.) a seed mixture made from known components to a pre-determined formula for any defined market.

formula, [pl. **-ae**]: (1) (zool.) modifications of available names throughout a taxonomic group by the addition of a standard prefix or suffix in order to indicate that the taxa named are members of that group; zoological formulae are excluded from the provisions of the *Code*; suffixes of family-group names denote ranks, not taxonomic groups, and do not form zoological formulae. (2) (bot.) a designation of a

hybrid or hybrid group, formed by connecting the names or epithets of the parents, or parts of these names or epithets, by arbitrary signs (e.g. "X" or a hyphen), or by uniting them into one. (3) (cult. pl.), *see* condensed formula.

formulation: sometimes used for the way in which a name is formed, i.e. the etymology of a name.

fossil: an organism, or a part of an organism, preserved by some natural means; or the impression or petrification left in rock upon the decomposition of such an organism; *see* subfossil.

fossil taxon: (palaeo. bot.) a taxon the name of which is based on a fossil (*q.v.*) type.

fototype: *see* phototype.

fount, [font]: the character set, i.e. letters and figures, used by a printer.

four-way cross: (cult. pl.) the repeatable crossing of four F₁ hybrids (*q.v.*).

fragmotype: (zool., unoff.) a type specimen represented by a single body part; *see also* giraultotype.

frontispiece: an illustration on a page facing the title page of a book; generally unnumbered.

Funga: (mycol.) proposed name for a published work describing the fungi growing in an area (e.g. *Funga Nordica*); *cfr* Flora, funga, Mycobiota, Mycota.

funga: (mycol.) proposed for the fungi growing in an area; *cfr* fauna, flora, Funga, mycobiota, mycota.

fungarium, [pl. fungaria]: proposed for a dried collection of fungal specimens, i.e. a fungal herbarium; *see also* mycarium.

fungi imperfecti: *see* pleomorphic fungi.

gamete: a reproductive cell (or coenobium) capable of development as a new individual, normally only after union with another gamete.

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gathering: (bot.) used for a collection of one or more specimens made at the same place and time, usually thought by the collector to represent a single species or infraspecific taxon; *see also* mixed gathering.

gen.: *see* genus.

gen. rev.: *see* genus revivisco.

gen. sp. nov., [gen. et sp. nov.]: used when introducing a new monotypic genus and its' single species in the same work, for example by publication of a descriptio generico-specifica (*q.v.*).

gender: (1) a grammatical characteristic of nouns in some languages that may determine the way in which they, and adjectives and pronouns applied to them, are inflected; in Latin, Greek and many modern languages there are four genders, masculine, feminine, neuter, and common. (2) (zool.) of a genus group name, a grammatical property (masculine, feminine or neuter) that affects the way in which Latin or latin adjectival or participial species-group names are spelled, since the gender form of such species-group names must agree with the gender of the generic-group name with which it is combined; *see* ending, grammatical agreement.

gene bank: a place where genetic variants are physically stored in a viable state; sometimes also used for genetic resource centres (*q.v.*), microbial resource centres and seed banks; not to be confused with GenBank where molecular sequence data is stored.

gene pool: the range of generic variation found in a population.

geneatype: (not nomenclatural, obsol.) proposed as an alternative to the genetical use of genotype, apparently to avoid possible confusion with the use of genotype in nomenclature.

geneonym: *see* genonym.

General Committee: (bot.) a body appointed by an International Botanical Congress and mandated to oversee the whole field of botanical nomenclature, receive reports from other Committees, and appoint other Committees if necessary, between International Botanical Congresses; the IUBS scientific member for Botanical Nomenclature.

generic designation: a name referring to any multiplicity of objects having one or more properties in common which distinguishes it from other groups of objects; a name itself.

generic name: (prok., bot., cult. pl., vir., zool.) (1) a scientific name of a taxon of the rank of genus. (2) (zool.) the first name of a trinomial; *see* genus-group name.

generic: of taxonomic units, ones pertaining to a genus.

generitype: (1) (unoff.) the type of a generic name, i.e. the type species. (2) (zool.) a genotype (*q.v.*).

genotype: (zool., unoff.) the type species of a genus; *see* genotype.

genet: (1) (bot., mycol.) a genetically different individual or clonal population, distinguished by its genetic make-up; *see* ramet. (2) (zool., not bionomenclatural) a mammal of the mongoose and civet family.

Genetic resource centre, [GRC]: a collection of permanently preserved viable material, such as cultures of cell lines, fungi, other microorganisms, DNA samples, or seeds; a biological resource centre (*q.v.*); *see also* culture collection, seed bank.,

genetically modified organism, [GMO]: an organism with new characters following the implantation of alien genetic material.

genetotype: (bot., not nomenclatural) proposed for sets of individuals showing similar characters with a genetic basis and distributed more or less at random within the geographical range of a species or subspecies; *see also* genetovar.

genetovar.: (bot., unoff., obsol.) proposed for use in the nomenclatural citation of a genetotype (*q.v.*).

genoholotype: (1) (zool., unoff.) a single species specified by the author of a genus name as the generic type. (2) (zool., unoff.) a figure that is regarded as the type of a genus-group name. (3) (zool., unoff.) the species on which a monotypic genus is founded.

genoisotype: (zool., unoff.) a genotype with an isotype

genoelectotype: (zool., unoff.) the type of a genus selected subsequent to the original description from a series of species originally placed in the

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genus, i.e. one chosen from a series of syntypes; a type species by subsequent designation; *see also* lectotype.

genome: (1) (not nomenclatural), the full complement of inheritable genetic material of an organism encoded in the DNA (or in some cases RNA). (2) (vir.) the polynucleotide molecule or molecules which contain(s) the information needed for productive replication on a virus in nature.

genomorph: (1) a polyphyletic taxon at the rank of genus or subgenus which contains superficially similar, but not closely related, taxa. (2) (palaeo.) a species that differs from the type species of the genus as a consequence of evolutionary changes over an extended period of time.

genomospecies: (prok., not nomenclatural), a species defined by DNA relatedness, whether named or not; a genospecies (q.v.)

genomotype: (prok., not nomenclatural), a particular genetic make-up of an individual or taxon; *see also* genotype.

genomovar: (prok., not nomenclatural): genomic groups of a genomospecies (q.v.).

genoneotype: (zool., unoff.) a genotype with a neotype.

genonym, [geneonym] : (zool., unoff.) the name of a genus.

genoparatype: (zool., unoff.) a genotype with a paratype.

genoplesiotype: (zool., unoff.) used to replace plesiotype (q.v.) when employed at generic rank.

genospecies: (1) (zool., unoff.) interbreeding populations of interfertile morphs contributing to a common gene pool. (2) (prok., unoff.) a group of strains amongst which genetic exchange occurs. *See also* genomospecies.

genosynotype: (zool., unoff.) one of a series of species on which a genus was established, where none was designated as the type by the author.

genotype: (1) (not nomenclatural) the total genetic make-up of an individual, organism or taxon, regardless of its outward appearance; *see also* phenotype. (2) (zool., obsol.) the specimen on which a

genus or subgenus is based; *see also* generitype. (3) (zool., obsol.) the type species of a genus; the genoholotype (*q.v.*). (4) (zool., obsol.) the type species of a section. (5) (zool., obsol.) any specimen of the type species of a genus.

gens (palaeont., unoff.) proposed for a collection of palaeospecies (*q.v.*) in a monophyletic succession.

genus, [**gen.**; pl. **genera**]: the principal category of taxa in the nomenclatural hierarchy between family and species; the first part of a binomen (*q.v.*) or binary name (*q.v.*) for a species.

genus group: (1) (bio.) the ranks of genus and subgenus. (2) (zool.) in the hierarchy of classification the group of taxa between the family group and the species group, including taxa at the ranks of genus and subgenus; names of collective groups and ichnotaxa established at the genus group level, are treated as genus group names.

genus group name: (zool.) a scientific name in the genus group (*q.v.*); *see also* generic name, nominal genus.

genusbox: (palaeo., obsol.), *see* timeslot.

geotype: (zool., unoff.): a specimen from the type locality; a topotype (*q.v.*).

giraultotype: (zool., unoff.) a type specimen that is represented by only the distinguishing character of the species.

gluotype: ducotype (*q.v.*).

GMO: *see* genetically modified organism.

Gp: (cult. pl.) group (*q.v.*).

grade: (1) (not nomenclatural) the product and unit of anagenesis (i.e. all types of biological improvement). (2) (not nomenclatural) a level of morphological complexity, by which organisms can be grouped, but generally polyphyletic and a result of convergent evolution; *cf.* clade. (3) (zool., obsol.) a taxonomic rank or category of the taxonomic hierarchy between subkingdom and phylum.

graded comparison: (palaeo.) a formally stated comparison of an observation record with a base taxon.

graft: *see* graft-chimaera.

graft hybrid: (obsol.) *see* graft-chimaera.

graft-chimaera, [**graft**, **graft hybrid**]: (cult. pl.) a plant consisting of tissue from two or more different taxonomic units in intimate association, effected by grafting; named in a parallel manner to hybrids using the sign “+” with either the names of the parents or a condensed formula.

grafting: (cult. pl.) the (usually deliberate) fusion of tissue from two or more different plants.

grammatic agreement: adjectives given the inflexion appropriate to the gender, number and case of the noun to which they apply; pronouns which have an inflexion appropriate to the gender and number of the noun they replace.

graphic process: a method by which a large number of identical copies are prepared from a single original or master copy other than mechanically; (bot.) this excludes carbon copies.

graphoculture: (unoff.) the first description or photograph or drawing of the holoculture (*q.v.*), in the absence of the culture of a particular microorganism.

graphotype: (zool., obsol.) a preoccupied type, i.e. one on which a name has previously been based.

Greek: as used in bionomenclature, generally refers to ancient and not modern Greek.

greges: (cult. pl.) the nominative plural form of grex; grexes.

grex, [**gx**, **gr.**]: (1) (cult. pl.) a type of group used in orchid nomenclature applied to the progeny of an artificial cross from specified parents. (2) (cult. pl., unoff.) a subsidiary unit for the classification of variability within subspecies.

group: (1) (prok.) an informal taxon, based upon antigenic analysis, consisting of an assemblage of serotypes (*q.v.*). (2) (zool.) an assemblage of coordinate taxa (e.g. genus-group). (3) (cult. pl.) a formal category denoting an assemblage of cultivars, individual plants, or assemblages of plants on the basis of defined similarity; Gp. (4) (vir.) a viral taxon of uncertain rank, as yet not designated either as a family or as a genus. (5) (unoff.) a non-committal name

without nomenclatural significance for an assemblage of organisms of uncertain position in the taxonomic hierarchy. (6) (not nomenclatural) a collection of organisms from a single source, e.g. a locality, a host. *See also* collective group, taxonomic group, taxon.

group number: (prok., obsol.) a characterizing code used in early versions of the Society of American Bacteriologists descriptive chart but deleted from later versions.

gx: (cult. pl.) grex (*q.v.*).

gynotype: (zool., unoff.) a female type specimen; *see* androtype..

hallucinotype: (zool., unoff.) the type of a taxon described while the author was under the influence of drugs (!).

hamatype: (zool., unoff.) a specimen from the type-series which was not specified as a holotype or paratype; a syntype: (*q.v.*).

hand-pollination: (cult. pl.) the controlled act of pollination that should exclude the possibility of open-pollination.

handwritten: the immediate product of a person writing; *see* autograph.

hapantotype: (zool.) one or more preparations consisting of directly related individuals representing distinct stages in the life-cycle, which together form the name-bearing type in an extant species of protistan; a hapantotype, while a series of individuals, is a holotype and must not be restricted by lectotype selection; however, if a hapantotype is found to contain individuals or more than one species, components may be excluded until it contains individuals of only one species.

haplotype: (zool., unoff.) the single species included in a genus at the time of the original description; *see also* monotype.

haplotypic: *see* monotypic.

haptotype: (bot., unoff.) an icotype (*q.v.*) collected with the holotype but possibly taken from a different plant.

hb., [herbarium, Hb., herb., Herb.]: *see* herbarium.

- heautotype:** (palaeo. zool., obsol.): a specimen figured by an author in an illustration of a species or subspecies which had previously been described by that author and compared with the type or cotype; a kind of plesiotype; *see also* autotype, hypotype.
- heberotype:** (zool. unoff.) a unique type specimen that has been used for molecular analysis that failed and is only left with a barcode label to identify it (!).
- hctographing:** the making of copies of text and figures from a prepared gelatine surface to which the original has been transferred.
- hemihomonymy:** (zool.) the situation where the names of a high-level uninomen and a low-level uninomen are identical (e.g. the name of an order and a genus), even when the high-level taxon uninomen is not typified by similarly spelt genus-level name (e.g. family-group names and genus-level names ending in "-ina").
- hemitype:** (zool., unoff.) a type represented by only half of its original body.
- herbarium**, [pl. **herbaria**; **hb.**, **Hb.**, **herb.**, **Herb.**]: (1) a collection of dried botanical specimens; *see also* fungarium, mycarium. (2) the building in which such a collection is housed.
- heterodefinitional:** (phyl.) based on different phylogenetic definitions; *see* synonym.
- heterogen:** a variable group of organisms arising as hybrids, sports or other mutations.
- heterogeneous:** a taxon which as circumscribed includes two or more elements which are considered to belong to one or more other taxa.
- heterotype:** (zool., unoff.) a type derived by combining the characters of two or more different species.
- heterotypic:** differing from the type.
- heterotypic synonym:** (bio., bot.) a name based on a different type from that of the accepted name of taxon; a subjective synonym in zool. and prok.; *see also* taxonomic synonym; syntaxonomic synonym.
- heterotypical:** (zool., unoff.) of a genus, one including several generically unrelated species.

hic designatus: designated here; used (especially in bot.) to make clear that a lectotype/ neotype/epitype is being selected by an author.

hierarchy, [hierarchical system]: (1) a system of classification based on a sequence of categories ranked by their increasing levels of inclusiveness. (2) all the categories of taxa arranged in order according to their ranks.

hipotype: *see* hypotype.

historical synonyms: (prok.) synonyms not included in the Approved List, and generally placed in inverted commas (*q.v.*) when mentioned in lists of synonyms.

hoaxotype: (1) (zool., unoff.) a fraudulently planted type intended to confuse others (!). (2) (zool., unoff.) a unique type constructed of parts of several unrelated higher taxa; *see also* ducotype.

heterotype: (zool., unoff.) a type derived by combining the characters of two or more different species.

holaedoeotype, [holaedotype, holaedeotypus]: (zool., unoff.) an aedoeotype (*q.v.*), a preparation made from the holotype of a species.

Holocene: the epoch that covers the last 10 000 years BP; recent.

holoculture: (unoff.) the original strain of a microorganism cultivated by the author of the taxon, fully described and cited as type by the same taxonomist and maintained in culture without evident modification.

holograph: (bot., obsol.) a handwritten document.

holohomotype, [holohomoioitype]: a homoeotype of the same sex as the holotype or lectotype; *see* homotype.

hololectotype: *see* lectotype.

holomorph: (1) (prok., zool., unoff.) all the character states of an organism, i.e. including morphological and physiological ones; the whole organism. (2) (mycol.) a pleomorphic fungal species in all its morphs; i.e. including the teleomorph (*q.v.*) and one or more anamorphs (*q.v.*); *see* pleomorphic fungus.

holoneotype: *see* neotype.

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holoparalectotype: (zool., unoff.) a specimen from a series of paralectotypes (*q.v.*) that is of the same sex as the holotype.

holoparatype: (zool., unoff.) a paratype (*q.v.*) of the same sex as the holotype.

holopathotype: (prok., unoff.) the single strain designated by the original author as the type strain of a newly described pathovar.

holoplastotype: (zool., unoff.) the cast of a holotype; a plastoholotype (*q.v.*).

holoplesiotype: (zool., unoff.) a hypotype (*q.v.*) of the same sex as the holotype.

holosyntyne, [holosyntypus]: (phyt.) erroneously used to replace "holotypus" in the nomenclature of syntaxa.

holotype, [holotypus]: (1) the one specimen (zool.: except in the case of a hapanotype, *q.v.*), or (bot.) illustration, or other single element (e.g. in phyt. a designated relev ) used by the author or designated by the author as the nomenclatural type (name-bearing type, type specimen) of a taxon or (phyt.) syntaxon or (zool.) nominal species or subspecies when the name (zool.: nominal taxon) was established (i.e. at the time of its original publication); *see also* nominifer. (2) (zool., obsol.) a genotype (*q.v.*)

homeotype, [homeotypical]: *see* homotype.

homoculture: a strain of a microorganism as far as possible identified with the archeulture (*q.v.*), but from another source or isolate.

homodefinitional: (phyl.) based on the same phylogenetic definitions; *see* synonym.

homoeotype: *see* homotype.

homoiotype: *see* homotype.

homologous: (1) (phyl.) of characters shared by virtue of inheritance from a common ancestor; a character or character state shared by two organisms (which may represent different species or clades) is said to be homologous if that character or character state was present in all of their ancestors back to and including their most recent common ancestor. (2) (prok., unoff.) in serology, of the antigen used

to stimulate the production of antibody is homologous with that antibody.

homology: (not nomenclatural) having a common origin; *see* homologous..

homonym: (1) (bot., phyt., prok.) a name spelled exactly like another name published for a taxon of the same rank based on a different type; names of subdivisions of genera or infraspecific taxa with the same epithet even if of different rank are treated as homonyms disregarding the connecting term (*q.v.*). (2) (zool.) in the family group, each of two available names, having the same spelling, or differing only in suffix and denoting different nominal taxa; *see also* hemihomonymy. (3) (zool.) in the genus group, each of two or more available names having the same spelling, and denoting different nominal taxa. (4) (zool.) in the species group, each of two or more available specific or subspecific names having the same spelling, or spellings deemed under the *Code* to be the same, and established for different nominal taxa, and either originally (primary homonym) or subsequently (secondary homonym) combined with the same generic name; *see also* junior homonym, senior homonym. (5) (bio.) a family group, genus group, or species group name, or one of its coordinate names, spelled exactly like a name based on a different type that was previously established for a taxon of the same rank. (6) (phyl.) a name that is spelled identically to another name that refers to a different taxon; i.e. identically spelled clade names based on different phylogenetic definitions. (7) (phyt.) validly published names based on different nomenclatural types and spelt identically.

homonymy: (1) the relationship between homonyms (*q.v.*). (2) the state of being homonymous.

homoplastic: (not nomenclatural) of similar characters, ones not due to common ancestry.

homoplasy: (not nomenclatural) the situation where organisms show similarities or resemblances that are not due to common ancestry; *see* homoplastic.

homotopotype: (zool., unoff.) a specimen from the original locality of a species, but not identified by the original author of the species; *see* tophomeotype.

homotype, [**homeotype**, **homoeotype**, **homoiotype**, **homeotypical**]: (1) (zool., unoff.) any specimen that has been directly compared with the holotype by someone other than the original author who is recognized as an authority on the group of organisms concerned and considered to belong to the same species or subspecies; *see also* metatype. (2) (prok., unoff.) a strain of the same species and the nomenclatural type. (3) (not nomenclatural) also used for organs formed or constructed according to the same plan or type.

homotypic synonym: (bio., bot.) a synonym based on the same type as that of another name in the same rank (e.g. different combinations with the same basionym); a nomenclatural synonym; an objective synonym in (prok.) and (zool.).

hortulanorum, [**hort.**]: (bot., cult. pl., unoff.) of gardeners; in citations of scientific names, used to indicate a name used by gardeners.

hortus, [**hort.**, **horti**; pl. **hortorum**]: (bot., cult. pl., unoff.) a garden, or of the garden; in citations of specimens, used to denote material of garden origin.

hortus siccus: (bot., obsol.) a collection of dried plants; *see* exsiccata, herbarium.

host: a living organism that furnishes food and(or) lodging to another (i.e. a commensal, mutualist, parasite, or other symbiont); *see also* symbiotype.

host type: *see* locality type.

HT: holotype (*q.v.*).

hybrid: the progeny of the sexual union of individuals belonging to different taxa; a sexual hybrid; *see also* graft hybrid, mechanical hybrid.

hybrid formula: (bio., bot., cult. pl., phyl.; and zool., unoff.) an expression consisting of the names of the parent taxa of a hybrid with a multiplication sign (*q.v.*), x, placed between them; designating a single organism or set of organisms of hybrid origin.

hybrid name: (prok.) a name formed by combining words derived from different languages.

hyphen, [-] : (1) used typographically to link together two words or parts of a single word when it is split, e.g. when printed. (2) used to join two parts of a compound specific or infraspecific name to show that they should be pronounced independently (e.g. *nidus-avis*); in (bot.) hyphens cannot be introduced if not used by the author when the name was validly published, but can be suppressed by later users of the name (i.e. usage is optional); in (zool.) permitted when the first element of a species-group name is a letter to denote a character (e.g. *c-album*). (3) the first two words of an expression if used to modify a third (e.g. genus-group names). (4) (phyl., prop.) proposed as a method of indicating a converted species name in phylogenetic nomenclature, e.g. *Sturnus-vulgaris*, *see also* dot.

hypodigm: (unoff.) all the specimens personally known to and regarded at a given time by an author as unequivocal members of a taxon, and used collectively as the sample on which the author's inferences as to the taxon are based; i.e. the circumscription given to a taxon in a particular work.

hypomorphy: (unoff.) the name of an infraspecific taxon.

hyponym: (1) (obsol.) a name that cannot be recognized because of the vagueness or inadequacy of the original description. (2) (bot., obsol.) a name of uncertain application; i.e. the taxon to which it applies is undetermined. (3) (zool., unoff.) a name rejected in the absence of a type. (4) (unoff.) a synonym that represents a taxon that encompasses a narrower range of variation than represented by the taxon's currently accepted name; *see* holonym, hypernym. (5) (zool., unoff.) a generic name not based on a type species; a provisional or temporary name.

hypoparatype: (zool., unoff.) a specimen used in preparing the description of a new taxon but not designated as a paratype.

hypoplastotype: (zool., unoff.) an artificial model of a secondary type (*q.v.*).

hypothetical concept: (zool.) a taxonomic concept that when published contained no animal then known to exist in nature, past or present, but only in the mind of the author whether a prediction or not.

hypotype: (zool., obsol.) a described or figured specimen, other than the type, used in a publication extending or correcting the knowledge of a previously defined species; a subsequent or supplementary type; *see also* apotype, epitype, heutotype, plesiotype.

i.e., [id est]: that is.

IAMS: (obsol.) the International Association for Microbiological Societies; since 1979 the International Union of Microbiological Societies (*q.v.*).

IAPT: *see* International Association for Plant Taxonomy.

IBC: *see* International Botanical Congress.

ibid., [ibidem]: in the same place; used as short-hand when referring again to a just-cited publication, or in a list of specimens examined where one is from the same locality as the last cited.

ICB: *see* International Committee on Bionomenclature.

ICBN: *see* International Code of Botanical Nomenclature.

ichnogenus: an ichnotaxon (*q.v.*) in the rank of genus.

ichnospecies: an ichnotaxon (*q.v.*) in the rank of species.

ichnotaxon: (palaeo. bio., palaeo. zool.) a taxon based on a trace fossil or the fossilised work of an animal, including burrows, borings and etchings, tracks and trackways, coprolites, gastroliths, regurgitaliths, nests, woven cocoons, spider webs, leaf mines, some types of galls, bite and gnaw structures; names of ichnotaxa do not compete in priority with a name established for an animal, even the animal that formed or may have formed the trace fossil; *see also* work of an animal.

ICNB: *see* International Code of Nomenclature of Bacteria.

ICNCP: *see* (1) International Code of Nomenclature of Cultivated Plants.
(2) International Commission for the Nomenclature of Cultivated Plants.

ICNP: *see* International Code of Nomenclature of Prokaryotes, formerly the International Code of Nomenclature of Bacteria.

iconotype: (1) (bot., unoff.) an illustration designated as the nomenclatural type in the original account of a taxon when a specimen cannot be preserved. (2) (bot., unoff.) the specimen on which an illustration designated as a nomenclatural type is based. (3) (zool., unoff.) a graphic reproduction (illustration or photograph) of the type.

icoplastotype: (zool., unoff.) a cast of an icotype (*q.v.*).

icotype: (1) (zool., unoff.) a reference specimen used for the identification of a taxon the name of which has not been published. (2) (zool., unoff.) a specimen that is a part of a type-series that has been examined by a specialist and is used for the purposes of identification of the species.

ICRA: *see* International Cultivar Registration Authority.

ICSB: *see* International Committee on Systematic Bacteriology.

ICSP: *see* International Committee on Systematics of Prokaryotes.

ICTF: *see* International Committee on the Taxonomy of Fungi.

ICTV: *see* International Committee on Taxonomy of Viruses.

ICVCN: *see* International Code of Virus Classification and Nomenclature.

ICZN: (1) International Commission on Zoological Nomenclature (*q.v.*).
(2) International Code of Zoological Nomenclature (*q.v.*).

id., [idem.; pl. iidem]: the same, e.g. idem atque (identical with), idem ac (the same as).

-ida: (zool., unoff.) proposed as a possible standardized suffix for names in the rank of order.

-idanae: (bot., unoff.) suffix proposed for names in the rank of superclass; *see also* *-mycia.*

-idea: (1) (zool.) suffix added to the stem of a generic name to form the name of a family. (2) (bot.) suffix indicating that name of plants is in the rank of subclass, except in algae and fungi.

idealotype: (zool., unoff.) an artist's model of the perfect form of a taxon.

identification: a statement of similarity of new specimens to a named taxon by the application of the same name.

identification number: (unoff.) a proposal to replace taxon names by numbers first made by C. Michener in 1963, but retaining hierarchical ranks; *see also* positional number..

ideograph: the distinct character or figure symbolizing the idea of a thing without expressing the name of it (e.g. the Chinese language is written in ideographs)..

ideotype, [idiotype]: (1) (palaeo. zool., obsol.) a specimen from some other locality than the original type (i.e. not a topotype) that has been identified by the original author of the name to which it is referred, generally at a date subsequent to the publication of the original description, but which is not also a topotype. (2) (not nomenclatural) the conceptual ideal or archetype of a taxon. (3) (cult. pl.) the conceptual idea or archetype of a series as used in the seed industry. (4) (not nomenclatural) the total hereditary determinants of an individual, comprising chromosomal and extrachromosomal factors.

idiogenotype: (zool., unoff.) the first type designated after an original publication; *see* lectotype, logotype.

idionym: (obsol.) a homonym due to some error in identification of two or more specimens which were suggested to be members of the same species (e.g. *Parietaria judaica* Willd. 1805 *nec* Strand 1759); a misapplied name.

idiotype: *see* ideotype.

IJSB: *see International Journal of Systematic Bacteriology.*

IJSEM: *see International Journal of Systematic and Evolutionary Microbiology.*

illegitimate name, [nomen illegitimum, nom. illegit.]: (bot., cult. pl., phyt., prok., vir.) a validly published name that is not in accordance with one or more rules in the *Code* (principally those on superfluity and homonymy); such names must be rejected unless conserved; illegitimate names are validly published but are not to be taken into consideration for the purposes of priority when the correct name of a taxon is being decided.

illegitimate: not legitimate (*q.v.*).

illustration: a pictorial representation of an organism or parts of an organism; a figure; *see also* illustration with analysis.

illustration with analysis: (bot.) an illustration with a figure or group of figures, in vascular plants commonly separate from the main illustration, showing details aiding identification; and with or without a separate caption.

immaturetype: (zool., unoff.) a type specimen which represents the immature stage of an organism; *see also* nepionotype.

immutable: (zool., prop.) of the content of a work, one that cannot be changed after publication, even for the correction of typographic errors.

imperfect fungi: (mycol., obsol.) fungi having no known sexual state; *see* pleomorphic fungi.

imperfect stage: (mycol., obsol.) an anamorph (*q.v.*).

imperfect state: (mycol., obsol.) an anamorph (*q.v.*).

imperium: *see* empire.

implicit typification: (unoff.) an act of typification in which an author fails to designate a type, but whose actions indicate that only one of the elements eligible must be the intended type; *cf.* explicit typification.

impression: the total number of copies of a work printed at one time; an edition (*q.v.*) can consist of several impressions separated from each other by a lapse of time.

impriorable: lacking priority (e.g. a junior homonym).

improper Latin termination: (bot.) a termination of a name or epithet not agreeing with the termination mandated by the *Code* (particularly of ones used to indicate a name in a particular rank).

in: (1) (bio., bot., prok.) used to connect the names of two persons, the second of which was the editor, or overall author, of a work to which the first contributed the validating text or made a name available; not part of the author citation (*q.v.*) and to be used only when giving a bibliographic reference. (2) employed in

bibliographic citations to link the name of a person with the bibliographic details of the work being referred to.

in adnot., [**in adnotatione**]: in an annotation; i.e. as written by hand or typed on a specimen label or in a note written or pasted into a book.

in herb., [**in herbarium**]: (bot.) sometimes used to indicate names written on specimen labels but never validly published.

in litt., [**in litteris**]: in correspondence; in a letter or other document; *see also* pers. comm.

in press: of a manuscript, one delivered to a printer or publisher and accepted for publication but which has not yet been printed and distributed (i.e. is not yet effectively published and available) at the time of writing; often used in bibliographic citations where the actual page numbers of the paper or book chapter are not yet known.

in sched., [**in schedula**]: on a printed specimen label, especially ones from an exsiccatum printed and distributed separately from the specimens.

in situ: in the original location.

in syn., [**in synonymis**]: sometimes used of a name that was listed in synonymy when published.

-ina: (bot., unoff.) a suffix to signify a suprageneric taxon purposefully not assigned by their author to any formal rank recognized by the *Code*.

inadmissible: (1) not admissible (*q.v.*). (2) (bot.) a name in a form that precludes its valid publication, or the use of a name or epithet, contrary to the provisions of the *Code*.

inadvertent error: an incorrect spelling, such as a *lapsus calami*, or a copyist's or a printer's error, not intended by the original author.

-inae: (1) (bot., prok.) a suffix added to indicate that a name is in the rank of subtribe. (2) (vir., zool.) suffix added to the stem of a generic name to form a name in the rank of subfamily.

inappropriate name: a name that denotes a character, or a quality, not possessed by the taxon bearing that name (e.g. a species given the epithet "africana" when the holotype was actually collected in the USA).

incertae sedis: of an uncertain seat; i.e. of uncertain taxonomic position; usually applied to family and generic names.

incidental mention: (bot., prok.) a name mentioned in passing in a publication by an author who does not give any indication that he or she accepted it or intended it to be adopted by others.

incl.: *see* inclusus.

inclusion: (1) (bot.) of the type of a name, is effected by citation of (a) the holotype or the original type, or all syntypes, or all elements eligible as types; (b) of the previously designated type; (c) the illustrations of these; or (d) citation of the name itself, unless the type is at the same time excluded either explicitly or by implication. (2) all specific names originally included by an author when proposing a new generic name.

inclusus, [incl.]: included, including; sometimes used to indicate the circumscription of a taxon by the citation of its synonyms.

incognitotype: (zool., unoff.) a type for which the labels have been lost; a dubiotype (*q.v.*).

incorrect original spelling: (zool.) an original spelling that is incorrect under the *Code*.

incorrect subsequent spelling: (zool.) any change in the spelling of an available name other than a mandatory change or an emendation.

incorrect termination: (bot.) of a name, one where the termination of the word is either not the correct one for the intended rank of the name, or where it does not conform to the rules of Latin grammar.

-indae: (bot., unoff.) suffix proposed for names in the rank of superfamily.

indelible: of written or printed matter that cannot be erased; an indelible mark cannot be removed without also removing the substance marked by it.

indelible autograph: (bot., cult. pl.) handwritten material reproduced by some mechanical or graphic process (such as lithography, offset, or metallic etching).

independence: (bot., prok., zool.) of *Codes*, the provision that asserts they are independent from each other except in particular specified cases.

independent: (prok.) of names, ones that do not constitute homonyms because they are subject to different *Codes*.

indeterminate, -a, [indet.]: indeterminate; of specimens or species that cannot be identified; *see* undetermined.

index: an alphabetical listing of the names or subjects in a work, usually with references to the page numbers on which they are treated; *see also* Official Index.

index fossil: (paleo., not nomenclatural) a fossil characteristic of an assemblage zone and which as far as is known is restricted to it.

Index Bergeyana: (prok., obsol.) a catalogue of the thousands of bacterial names proposed, which was published in 1966; *see* Approved List.

Index Fungorum: the *de facto* world mycological nomenclator (*q.v.*), which aims to include all names proposed for fungi since 1753; now maintained by a partnership of CBS—Fungal Diversity Centre, CAB International, and Landcare Research; available free at <http://www.indexfungorum.org/names/indexfungorumpartnership.htm>.

Index Herbariorum: a catalogue of the herbaria (*q.v.*; including fungaria) throughout the world, prepared and published by the International Association for Plant Taxonomy (IAPT), and providing unambiguous abbreviations for the collections included; available free at http://sweetgum.nybg.org/ih/herbarium_list.php.

Index Kewensis: a catalogue of seed plant names at the rank of family and below published since 1753, prepared by the Royal Botanic Gardens, Kew, which started publication in 1893, and also now includes ferns and fern allies; digitized in the International Plant Names Index (*q.v.*).

Index Nominum Genericorum Plantarum, [ING]: (bot.) a catalogue of validly published names of genera in all groups of organisms covered by the *Code*, and prepared by the International Association for Plant Taxonomy in collaboration with the Smithsonian Institution; available online at <http://botany.si.edu/ing/>.

Index Seminum: (bot.) a Seed List (*q.v.*).

indication: (1) (bot., prok.) of a name or rank, making clear which particular name or rank is being used (e.g. distinguishing between two homonyms by providing author citations, and using “subsp.” rather than “*”). (2) (zool.) a reference to previously published information, or a previous act, which in the absence of a definition or description allows names proposed before 1931, and that otherwise satisfy the relevant provisions of the *Code*, to be available. (3) (bot.) published information determining the type-species of a generic name in the absence of an original designation (*q.v.*).

indicative epithets: (bot., obsol.) infraspecific epithets that purport to indicate the taxon including the type of the next higher taxon (e.g. *genuina*, *originalis*, *typica*)

indigen: (cult. pl.) a species believed to originate in a wild habitat.

-idinae: (bot., unoff.) suffix proposed for names in the rank of supertribe.

indirect reference: (bot.) a clear (if cryptic) indication, by an author citation or in some other way, that a previously and effectively published description or diagnosis applies; i.e. a reference other than by a complete or precise bibliographic citation.

individual: (prok.) a term to be avoided as it may refer either to a single cell or to a strain.

-inea: (phyt., obsol.) the suffix once used for terminating the name of a syntaxon in the rank of class; *see -etea*.

-ineae: (prok., bot.): suffix added to the stem of a generic name to form a name at the rank of suborder.

ined., [ineditus]: unpublished; appended to author citations to indicate that the name has not been published as required by the *Code* (e.g. a handwritten name on a specimen label, a name in a manuscript or work in press).

informal: (prok., obsol.) of categories, those of section subsection, series and subseries not now permitted.

informal name: a name not intended as a formal taxon name, such as a working designation while a taxonomic concept is being developed;

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a working or interim name; *see also* cognomen, provisional name, taxon label.

informal usage: (bot.) usage of rank-denoting terms at more than one non-successive position in the taxonomic sequence, not in accordance with positions mandated in the *Code*; e.g. ones used at more than one non-successive position in the same work; names involved in such usage are validly published but unranked.

information, taxonomic: descriptions, illustrations and other matter relating to taxa; in (zool.), such information may be taken, for the purposes of making a name available, from published (and not disclaimed) works which are not available (e.g. because they were published before 1758, did not consistently apply binomial nomenclature, or have been suppressed but not ruled to be treated as unpublished by the Commission..

-informes: (zool., unoff.) proposed as a possible standardized suffix for names in the rank of order.

infra-: prefix, below. (1) used of names and ranks below that indicated by the remainder of the term. (2) (unoff.) a prefix added to a term denoting rank indicating a category below “sub-”, e.g. the rank of infrafamily below that of subfamily; *see also* intra-.

infraclass: a rank between subclass and superorder.

infraclass: of any taxonomic unit below that of family.

infrageneric: of any taxonomic unit below that of genus; intrageneric.

infraorder: (1) (zool., unoff.) a rank between suborder and superfamily, and used principally in mammals). (2) any taxonomic unit below that of order.

infraspecific: (1) of any taxonomic unit, or name, in a rank, below that of species; intraspecific. (2) (zool.) the third name in a subspecific trinomen.

infrasubspecific: (1) of a taxon, one at a lower rank than subspecies. (2) (bot., obsol.) any form of a species other than a subspecies; i.e. including aberrations, seasonal forms, sexual forms.

infrasubspecific entity: (1) (zool.) taxa below the rank of species. (2) (zool.) specimens within a species differing from other specimens as

a consequence of intrapopulational variability (e.g. opposite sexes, gynandromorphs and intersexes, aberrant individuals, age, sex forms, variants of noninterrupted variability or polymorphism, different generations).

ING: *see* Index Nominum Genericorum.

-ini: (zool.) a suffix added to the stem of a generic name to form a name in the rank of tribe.

initialism: an abbreviation or phrase consisting of the initial letter of each word in the phrase; *cf.* acronym.

inops: (1) (not nomenclatural) without resources or weak. (2) (phyt.) used as an alternative to "*typicum*" (*q.v.*) as the epithet of the name of a subassociation which has the same characteristic species as are diagnostic of the association in which it is placed.

inq., [inquilinus]: (zool., unoff.) sometimes used to indicate a taxon that has become naturalized.

inter-: prefix, between.

intergeneric: (bot.) of a hybrid between species belonging to different genera; *see* nothogeneric.

interim name: *see* cognomen, informal name, provisional name, taxon label.

internal specifier: (phyl.) a species, specimen or apomorphy that is explicitly included in the clade whose name is being defined; every phylogenetic definition has at least one internal specifier, and all of the specifiers in standard node-based, apomorphy-modified node-based, and apomorphy-based definitions are internal; *see* external specifier.

International Association for Plant Taxonomy, [IAPT]: founded in 1950 at the International Botanical Congress in Stockholm, and the IUBS scientific member for Plant Taxonomy; responsible for the operation of nomenclatural activities between International Botanical Congresses and publisher of *Taxon*.

International Association for Vegetation Science, [IAVS]: founded as the International Phytosociological Society in 1939, but reformed and re-named at the International Botanical Congress in Paris in

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1954; the International Commission of Phytosociological Nomenclature operates under the auspices of the IAVS..

International Botanical Congress, [IBC]: now held at six-year intervals, the Congress is the only body that by the action of a plenary session can modify the ICBN; this is done on a resolution moved by the Nomenclature Section of the Congress.

International Code of Botanical Nomenclature, [ICBN]: first published in 1906 (as *Règles Internationales de la Nomenclature Botanique*) following the International Botanical Congress held in Vienna in 1905, and revised at Nomenclature Section meetings held at all subsequent International Botanical Congresses; regulates the naming of all organisms traditionally studied by botanists (i.e. including cyanobacteria, fungi, slime moulds, certain protists, etc. as well as seed plants, ferns, and bryophytes); entitled the *International Rules of Botanical Nomenclature* until after the Stockholm Congress of 1950.

International Code of Nomenclature of Bacteria, [ICNB]: the *Code* which regulates the nomenclature of archaea and bacteria, produced under the auspices of what is now the International Committee on Systematics of Prokaryotes (*q.v.*), first published in 1966, but being renamed as the International Code of Nomenclature of Prokaryotes (*q.v.*).

International Code of Nomenclature of Bacteria and Viruses: (obsol.) the nomenclature of bacteria and viruses were governed by this single *Code*, the last edition of which was published in 1958; *see* International Code of Nomenclature for Bacteria, and the International Code of Virus Classification and Nomenclature.

International Code of Nomenclature for Cultivated Plants, [ICNCP]: first published in 1953, the *Code* regulating the nomenclature of cultivated plants, prepared by the International Commission for the Nomenclature of Cultivated Plants.

International Code of Nomenclature of Prokaryotes, [ICNP]: the *Code* which will regulate the nomenclature of archaea and bacteria; formerly the International Code of Nomenclature of Bacteria (*q.v.*), and the International Code of Nomenclature of Bacteria and Viruses

(*q.v.*); modifications are now published in the *International Journal of Systematic and Evolutionary Microbiology* (*q.v.*)

International Code of Phytosociological Nomenclature, [ICPN]: the *Code* regulating the names applied to syntaxonomical units prepared by the Nomenclature Commission of the International Association for Vegetation Science; first published in 1976 as the *Code of Phytosociological Nomenclature*.

International Code of Virus Classification and Nomenclature, [ICTV]: the *Code* regulating the nomenclature of viruses, viroids, and similar entities, prepared by the International Committee on Taxonomy of Viruses.

International Code of Zoological Nomenclature, [ICZN]: the *Code* regulating the nomenclature of animals and organisms traditionally studied by zoologists (e.g. including *Microsporidia*, which are now known to be fungi), prepared by the International Commission on Zoological Nomenclature (*q.v.*); formerly approved by an International Congress of Zoology but now submitted for approval to a General Assembly of IUBS (*q.v.*); first published in 1905 as the *Règles Internationales de la Nomenclature Zoologique*.

International Commission on the Nomenclature of Cultivated Plants, [ICNCP]: the Commission, recognized by IUBS (*q.v.*) and under the auspices of the International Society for Horticultural Science, is responsible for preparing the International Code of Nomenclature for Cultivated Plants.

International Commission of Phytosociological Nomenclature, [ICPN]: a Commission established by the International Association for Vegetation Science (*q.v.*) to act on nomenclatural proposals relating to the names of taxa and to prepare the *Code*.

International Commission on Zoological Nomenclature, [ICZN]: the Commission, established in 1895, and now a scientific member of IUBS (*q.v.*) is responsible for preparing the International Code of Zoological Nomenclature.

International Committee for the Taxonomy of Fungi, [ICTF]: an IUBS/IUMS committee appointed to consider issues related to the taxonomy fungi, but independent from the Permanent Committee

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for Fungi (*see* Permanent Committee) and not concerned with formal proposals for the conservation and rejection of names.

International Committee on Bionomenclature, [ICB]: an IUBS/IUMS committee originally established in 1994, and a scientific member of IUBS from 2009, comprising representatives of the different *Codes* and providing a forum for discussion and action on matters of common concern.

International Committee on Systematic Bacteriology, [ICSB]: the predecessor of the International Committee on Systematics of Prokaryotes (*q.v.*).

International Committee on Systematics of Prokaryotes, [ICSP]: a body appointed by the IUMS Division of Bacteriology at its international congresses.

International Committee on Taxonomy of Viruses, [ICTV]: a committee of the IUMS Virology Division appointed at its international congresses.

International Congress of Zoology: the body responsible for approving the International Code of Zoological Nomenclature (*q.v.*) until 1972 when the original series of such congresses ended, after which the responsibility was transferred to a General Assembly of IUBS (*q.v.*).

International Cultivar Registration Authority, [ICRA]: (cult. pl.) an organization appointed by the International Society for Horticultural Science (*q.v.*) Commission for Nomenclature and Cultivar Registration to be responsible for registering cultivar and Group names within defined taxonomic units.

International Journal of Systematic and Evolutionary Microbiology, [IJSEM]: succeeded the *International Journal of Systematic Bacteriology* in 2000; the only journal in which names of archaea and bacteria are validly published..

International Journal of Systematic Bacteriology, [IJSB]: published from 1966-1999, and succeeded by the *International Journal of Systematic and Evolutionary Microbiology*.

international notification: (zool.) of a name, by the name being listed in the *Zoological Record* (*q.v.*) within five years of the publication.

International Plant Names Index, [IPNI]: a database of the names and associated bibliographic information of all seed plants, ferns, and fern allies (<http://www.ipni.org>) produced through collaboration of the Australian National Herbarium, Harvard University Herbaria, and the Royal Botanic Gardens Kew.

International Registrar: (cult. pl.) the person appointed by an International Cultivar Registration Authority (*q.v.*) to carry out registration activity on its behalf.

International Rules of Botanical Nomenclature: *see* International Code of Botanical Nomenclature.

International Society for Horticultural Science, [ISHS]: the IUBS scientific member for the science of horticulture.

International Trust for Zoological Nomenclature, [ITZN]: founded in 1947, now operating as a not-for-profit company limited by guarantee, which acts on behalf of the International Commission on Zoological Nomenclature (*q.v.*) to raise and administer funds.

International Union of Biological Sciences, [IUBS]: founded in 1939, the international body concerned with biological sciences within the International Council of Scientific Unions (ICSU), comprising ordinary (mainly national academies of science and their equivalents) and scientific (mainly international scientific organizations) members; amongst the scientific members are the various bodies with responsibility for the nomenclature of.

International Union of Microbiological Societies, [IUMS]: the international body concerned with biological sciences within the International Council of Scientific Unions, which separated from the International Union of Biological Sciences in 1979, comprising national microbiological societies; responsible for the bacteriological and viral *Codes*.

interpolated categories: (zool.) categories of names not specified in or legislated by the *Code*, i.e. above superfamily.

interpolated name: (1) (zool.) a name placed within parenthesis, used: (a) after a genericname to denote a subgenus; (b) after a genus-group name to denote an aggregate of species; or (c) after a specific name to denote an aggregate of subspecies; names used in this way are not

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counted as the names in a binomen or trinomen. (2) (bot., unoff.) a name placed in brackets (parentheses) between the name of genus and its specific epithet to indicate the subgenus or section to which the species belongs (e.g. *Ranunculus (Batrachium) aquatilis*); such names are for information and not part of a binary name.

interpretotype: (zool., unoff.) a specimen considered by the author of the name to belong to a taxon he or she described; an authentic specimen (*q.v.*).

interrupted publication: (unoff.) of a publication issued in parts over a period of time.

interspecific: (bot.) of a hybrid between species referred to the same genus: *see* nothospecific.

intertaxon: (bot., unoff.) a hybrid between two taxa, e.g. two genera or two species.

intra-: prefix, between; *see also* infra-.

intrageneric: *see* infrageneric.

intraspecific: *see* infraspecific.

introducer: (cult. pl.) the person or organization who first distributes a cultivar.

intuotype: (zool., unoff.) a specimen considered probably to be a nomenclatural type but not yet proved to be so.

invalid: (1) (bot., prok.) used colloquially of names that are not validly published according the *Code*, and hence, strictly speaking, not names. (2) (zool.) of an available name, one which is either (a) objectively invalid (i.e. either is a junior homonym or a junior objective synonym of a potentially valid name, or must be rejected under the provisions of the *Code*, or has been suppressed by the Commission), or (b) is subjectively invalid (because it is considered subjectively to be a junior synonym or to be inapplicable to a particular taxon). (3) (zool., unoff.) of a nomenclatural act, one that is not in accordance with the *Code*; i.e. equivalent of incorrect (prok., bot.). (4) (zool., unoff.) of a taxon, one not recognized as taxonomically distinct, at least at the rank in question. *See also* quotation marks.

inverted commas, [' . . . ']: (1) (bot., prok., unoff.) placed around names or epithets to indicate that they have not been validly published under the appropriate *Code*; i.e. to indicate designations as opposed to names (bot.) or historical synonyms (prok.). (2) (bot.) placed around names or epithets to indicate an original spelling that was in error and has been corrected. (3) (zool., unoff.) placed around species epithets in binomials of domesticated animals to indicate that they are not separated as true species from wild ancestors, e.g. *Canis 'familiaris'*.

in vitro: (mycol., prok.) of cultures studied, or tests conducted, in artificial conditions in the laboratory.

in vivo: (mycol., prok.) of organisms studied, or tests conducted, in their normal conditions, normally in nature, or at least on their normal hosts.

-ion: (phyt.) the suffix terminating the name of a syntaxon in the rank of alliance.

IPNI: see International Plant Names Index.

ipso facto: in the fact itself.

isotype: see adelfotype.

ISHS: see International Society for Horticultural Science.

-isites: (palaeo. mycol., prop.) proposed as an alternative suffix to "-ites" (q.v.) where necessary to avoid the creation of an homonym of an existing generic name ending in "-ites".

iso-: prefix, a duplicate.

isocotype: (zool., unoff.) most probably used in the sense of topotype (q.v.).

isoform, [**isoforma**, **isof.**]: (cult. pl., unoff.) a category for the designation of a form distinguished only by physiological characters; see biological race.

isogenotype, [**isogenotypic**, **isogenotypy**]: (zool., unoff.) one of two or more generic names based on the same type species.

isolate: (1) a living culture of bacterium, fungus, virus or other microorganism obtained from a single source of infection or site, and usually accorded a unique number; when shown to be

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distinctive, an isolate may be considered as a strain (*q.v.*) or accorded other infraspecific designation. (2) the action of obtaining a growing culture of a microorganism separate from a host or habitat.

isolectotype: a duplicate specimen of a lectotype.

isoneotype: a duplicate specimen of a neotype.

isonym: (1) (bot., unoff.) proposed for one of two homotypic orthographically identical names published by different authors; e.g. two authors making the same combination based on the same type; a homotypic synonym (*q.v.*). (2) (obsol.) one of two or more names (i.e. new names or combinations) based on the same nomenclatural type; a homotypic synonym (*q.v.*).

isoparatype: a duplicate specimen of a paratype.

isospecies, [**isosp.**]: (cult. pl., unoff.) a category for the designation of a species distinguished only by physiological characters.

isosyntype: a duplicate of a syntype, not cited in the protologue (if so cited it would be a syntype in its own right).

isotype, [**isotypus**]: (1) (bot.) a duplicate specimen of the holotype; i.e. a part of the single collection or gathering which included the holotype, but not the holotype itself. (2) (zool., unoff.) one of two or more forms common to different countries.

isotypical: (zool., unoff.) of generic names, ones based on several congeneric but heterotypic species.

isovarietas, [**isovar.**]: (cult. pl., unoff.) a category for the designation of a variety distinguished only by physiological characters.

-itae: (bot., unoff) a suffix suggested to be used as a termination for names of uncertain taxonomic rank.

italic: the printer's slanting type face often used to demarcate formal scientific names in publications, or ones in a different language from the main text (most commonly if Latin); scientific names in the rank of genus and below are generally written in italic script; practice at the rank of family and above other ranks varies under the different *Codes*: (phyl.) requires scientific names at all ranks to be italicised; (bot., prok.) italicise scientific names at all ranks in the *Codes*

themselves, but (bot.) does not make this a formal requirement; (zool.) since the 1999 edition of this *Code*, italics are not to be used for scientific names above genus-group; (vir.) italics are not used below species rank, but are for non-Latinized names (e.g. *Tobacco mosaic virus*) as well as Latinized names, virus names identical to species names but placed in Roman type indicate an infraspecific taxon within the species of the same name. Note that names not being used in a formal taxonomic sense are often not placed in italics and printed all in lower case to ensure their distinction from formal names, e.g. *Ascomycetes* vs. ascomycetes). *See also* Roman type.

-ites: (palaeo. mycol., prop.) a proposed suffix to be added automatically to a generic name for fossil fungi that appeared to be congeneric with a modern genus, without the need for a formal description or diagnosis, i.e. as an autonym (e.g. the validation of the generic name *Pleospora* being viewed as simultaneously creating *Pleosporites*); *see also* -isites.

IUBS Commission on Botanical Nomenclature: *see* General Committee.

IUBS Commission on Zoological Nomenclature: *see* International Commission on Zoological Nomenclature.

IUBS: *see* International Union of Biological Sciences.

IUMS: *see* International Union of Microbiological Societies.

jordanon: (1) (bot., obsol.) proposed as a replacement for species when used in the sense of groups of species that propagate their kind faithfully; cfr linneon. (2) (mycol., obsol.) proposed as a term for a group of isolates constituting a race or strain of a species, i.e. with similar cultural characteristics and behaviour.

journal: a serial (*q.v.*) publication issued at regular intervals.

Judicial Commission: (prok.) a commission of the International Committee on Systematics of Prokaryotes (ICSP) responsible for considering between Congresses any requests for opinions on the interpretation

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of the *Code* or particular cases, and to recommend changes to the *Code*, and lists of conserved and rejected names.

junior homonym: (zool.) of two homonyms, the later established, or in the case of simultaneous establishment the one not given precedence under the *Code*.

junior objective synonym: (zool.) of two synonyms based on different nomenclatural types, the later established; *see* junior synonym.

junior synonym: (zool.) of two synonyms, the later established, or in the case of simultaneous establishment that not given precedence under the *Code*; a later synonym.

junior: younger.

justified emendation: (zool.) the correction of an incorrect original spelling.

kingdom: the highest rank generally employed as a category of the taxonomic hierarchy, above that of phylum (division). *See also* domain, empire, superkingdom.

Kinman System, The: a proposed cladisto-ecletic classification of organisms by K. E. Kinman, published in 1994, with intermediate ranks eliminated, standardized terminations for higher taxa, and a code of letters and numbers indicating the phylogenetic status and strength of support for the taxa.

-klasanoj: (unoff.) proposed termination in Esperanto for a name in the rank of class in the New Biological Nomenclature (*q.v.*).

kleptotype: (1) (unoff.) a stolen type, one stolen from its original depository, or borrowed and not returned, or mistakenly retained in a collection other than that of the rightful owner. (2) (unoff.) a fragment removed from a holotype specimen without authorization and kept in a different institution or collection; *see also* clastotype, giraultotype, merotype, schizotype.

l.c.: *see* loc. cit.

LAD: (palaeo.) Last Appearance Datum.

land race: (cult.pl., unoff.) populations grown in a particular place and adapted to particular environmental and agricultural practices.

Lanham's method: (unoff.) a method for naming species which uses a single uncapitalized word corresponding to the species epithet of a Linnaean binomial followed by the bibliographic address (*q.v.*) and all placed in italics; e.g. *multifida Linnaeus 1753: 572*.

lapsus calami: a slip (or slips) of the pen; i.e. an error (or errors) made by an author in writing a text, such as a misspelling of a name, in contrast to a copyist's or printer's errors.

larval type: *see* neponotype.

Lat.: *see* Latin.

later homonym: a homonym (*q.v.*) published later than another; in (zool.) a junior homonym.

later synonym: a synonym published at a later date than that of another name for the same taxon; a junior synonym.

later: of names of taxa, any published after the first.

Latin, [Lat.]: the abbreviation may be used in explanations of etymology to indicate a word or word element is of Latin origin; *see also* botanical Latin.

latinized: of a word, one given Latin form and characteristics (including a Latin ending or a Latin suffix) which is not Latin; such words are treated according to the grammatical rules employed in Latin.

LB system: (obsol.) a nomenclatural system using Latin binomials.

l.c.: *see* loc. cit.

lectoallotype: (zool., unoff.) a specimen of the opposite sex to a holotype or lectotype selected after the original publication of the name from the original material; an allolectotype.

lectoculture: (unoff.) a strain of a microorganism cultivated by the author of the taxon, and selected as holoculture (*q.v.*) by another.

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lectogenotype: (zool., unoff.) the type species of a genus selected from amongst the originally included species where none was designated as the generic type by the original author; *see* genotype.

lectoholotype: (zool., unoff.) a lectotype (*q.v.*).

lectoparatype: (1) (bot., unoff.) each specimen of a syntype residue remaining after the selection of a lectotype; a term preferred to paralectotype (*q.v.*) as the paratype equivalence is post-lectotypification; strictly under the *Code* lectoparatypes are still to be referred to as syntypes. (2) (zool., unoff.) a paralectotype.

lectopathotype: (prok.) where no holopathotype exists, one of the strains on which the original author based the description may be later designated as the pathotype strain by the original or a subsequent author.

lectosyntype, [lectosyntypus]: (phyt., obsol.) erroneously used to replace "lectotypus" in the nomenclature of syntaxa.

lectotype, [lectotypus, L.T., LT]: (1) (bot.) a specimen or illustration designated from the original material or elements (specimens, names, or in some cases illustrations, or in (phyt.) relevé's) as the nomenclatural type if no holotype was indicated at the time of publication, or if it is missing, or if it is found to belong to more than one taxon (bio., bot.) or syntaxon (phyt.); a lectotype serves as the nomenclatural type of a name for as long as any holotype is missing. (2) (zool.) a syntype designated as the single name-bearing type specimen subsequent to the establishment of a nominal species or subspecies. (3) (zool., obsol.) a type by subsequent designation when no holotype exists, whether or not cited in the original publication of the name (i.e. a lectotype or a neotype).

leg., [legentum]: collected by; by courtesy of; frequently used in the past on specimen labels and in details of collections in publications; *see* coll.

legion: (zool., obsol.) a rank in the taxonomic hierarchy, used at various levels, and so of uncertain modern equivalence.

legitimate: in accordance with the rules; not illegitimate (*q.v.*).

legitimate name, [**nomen legitimum, nom. legit.**]: (1) (bot., cult. pl., phyt., prok., vir.) a validly published name that is in accordance with all rules in the *Code*; i.e. one which must be taken into account in determining the correct name for a taxon; *see also* illegitimate name. (2) (bot., obsol.) one distinguishing a plant species from all those of the same genus; used in this sense by Linnaeus.

level: (unoff.) sometimes used in the sense of rank (*q.v.*).

libelotype: (zool., unoff.) a derogatorotype (*q.v.*).

ligature: the typographic union of two letters (e.g. "æ"); not to be used in bot., prok. or zool. but transcribed (e.g. "ae").

limbotype: (zool., unoff.) a type of which the current place of deposit is unknown (!).

line: (cult. pl.) in plant breeding, a term used to describe plants resulting from repeated self-fertilization or inbreeding.

Linnaean: an adjective based on the surname of Carl Linnæus (latinized as Carolus Linnaeus); *see* Linnean.

Linnaean system: in nomenclature, the system in which, fundamentally, binary combinations (i.e. names) are used for species, consisting of a generic name and a specific epithet.

Linnaean tautonym: (zool.) the identical spelling of a generic or subgeneric name established before 1931 and a pre-1758 name cited as a synonym of only one of the species or subspecies originally included in that genus.

Linnean: an adjective based on the enobled name for Carl Linnæus, i.e. Carl von Linné; *see* Linnaean.

linneon: (obsol.) proposed as a replacement for the term species in the Linnaean sense, i.e. groups of individuals that resemble one another more than they do any other individuals; *cf.* jordanon.

lipotype: (zool., not nomenclatural) a life-form, the absence of which is characteristic of the fauna of a particular place.

lineage: (phyl.) a series of entities (e.g. organisms, populations) that form a single unbroken and unbranched sequence of ancestors and descendants; that a lineage is unbranched does not deny the

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existence of side-branches, which are not parts of the lineage in question, or of branching at lower organizational levels (e.g. organelle lineages within a population lineage); there may even be branching at the organizational level in question as long as it is judged to be temporary.

list: *see* Approved List, List of Names in Current Use, Official List.

Lists of Names in Current Use, [NCUs]: lists of names published by the International Association for Plant Taxonomy (IAPT) and for which a protected status was sought in 1993 but not granted.

lithograph: (1) (obsol.) a printing from stone, parts of the surface of which had been made retentive of ink. (2) a printing from any surface made retentive of ink as distinct from type (almost invariably photographic).

LITUs, [Least Inclusive Taxonomic Units]: proposed as an alternative to the notion of species; named monophyletic groups identified by unique shared similarities (apomorphies) which at present are not further subdivided.

loc. cit., [l.c., loco citato]: in the place cited; used to avoid the repetition of a bibliographic reference already given.

locality type: (zool., unoff.) one of a series of expressions proposed to illustrate type terms reduced to absurdity (!); *cfr* egg type, host type, larval type, mimetic phase type, pupal type, seasonal type, sexual type.

locotype: (zool., unoff.) a topotype (*q.v.*).

logonym: (zool., unoff.) the name of a species which became the type of a genus-group name by subsequent designation.

logotype: (zool., unoff.) the type of a genus-group name designated after the publication of the name; an idiogenotype (*q.v.*).

logotypic: (zool., unoff.), of a generic name, one with a logotype (*q.v.*).

Lois de la Nomenclature Botanique: (bot., obsol.) drafted by A. P. de Candolle, and approved by the Congrès International de Botanique in Paris in 1867, the Lois were the forerunner of the International Code of Botanical Nomenclature (*q.v.*).

LT, [L.T.]: *see* lectotype.

lump, [lumping]: (unoff.) to treat as members of a single taxonomic unit elements which have been previously considered as belonging to more than one such unit; *see* split, unite.

lumper: a taxonomist involved in lumping, i.e. one who has a broad concept of the limits of a taxon; *cf.* splitter.

lysotype: (prok., obsol.) formerly used for infrasubspecific populations of bacteria based on reactions to bacteriophages; a phagovar (*q.v.*).

m.: *see* Mihi.

macron, [̄]: a diacritical sign sometimes placed above vowels (e.g. ā) to indicate that they should be pronounced long; an overscore; not used in scientific names, but sometimes indicated in etymological statements.

maintain: retain; *see* maintenance.

maintaintor: (cult. pl.) the person or organization responsible for the continuing existence of a maintenance (*q.v.*).

maintenance: (1) continued use for the name of a taxon as a result of its conformity with the code; (zool.) equivalent nomenclaturally to retention; *see* retain. (2) (cult. pl.) a seed-raised cryptic variety which, although not treated as a separate cultivar, may require special designation; or the designation of such by a statutory Plant Registration Authority. (3) (prok.) of a culture, preservation in a living or dormant condition.

mandatory change: *see* change, mandatory.

manuscript, [ms., MS, msc., MSc., mscr., MScr.; pl. mss., MSS]: handwritten or typewritten material existing in only one or a few copies; writing in which each letter is placed on paper in sequence by hand, whether manually or mechanically, without any subsequent multiplication.

mark, diacritic: *see* diacritic mark.

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masc., [**masculus**]: (zool., unoff.) masculine; sometimes used to indicate the sex of a specimen or type.

mataeonym: (unoff.) a superfluous name introduced when there was an older valid name based on the same type (a typonym, *q.v.*) or on another member of the same group (a metonym, *q.v.*).

matronymic: of a name, one involving a matronymic suffix (e.g. Icelandic “-dottir”, Russian “-evna”).

mechanical hybrid: a naturally occurring intimate mixture of individuals of two genetically distinct species to form a single functional unit (e.g. a lichen thallus formed from asexual propagules belonging to different species).

mechanical method: of typification, any method of selecting a type which is based on an automatic procedure (e.g. the first species method, *q.v.*); not now acceptable in bot. or zool.

megafossils: (palaeo., unoff.) fossils which are large enough to study without a microscope.

meroculture: (prok., unoff.) a strain of a microorganism derived from a mixed or impure (contaminated) holotype.

merotype: (bot., zool., unoff.) a part of the organism that furnished the type of a species, for example a part which has been removed and conserved separately; *see also* clastotype, giraultotype, kleptotype.

mesofossils: (palaeo., unoff.) fossils of intermediate size, especially used for pieces of plant cuticle, wood, and large spores.

metaculture: (unoff.) a strain of a microorganism modified but derived from the holoculture (*q.v.*).

metallotype: (zool., unoff.) an allotype (*q.v.*) of the opposite sex to that of a specimen designated or described in a publication subsequent to the original description; these specimens have no formal nomenclatural standing as types.

metatopotype: (zool., unoff.) a metatype (*q.v.*).

metatype: (1) (zool., obsol.) a specimen from the type locality (i.e. a topotype, *q.v.*) identified by the original describer of the species or subspecies to which it is referred, but at a date subsequent to the

publication of the original description; a metatopotype. (2) (zool., unoff.) a specimen determined by the original author of a name after comparison with the type subsequent to publication; *see also* authentic specimen, homotype.

metonym: (1) (unoff.) a later name given to a specimen (other than the type) of a taxon that already had a valid name, i.e. an unnecessary name; a taxonomic synonym. (2) a mataeonym (*q.v.*).

metonymous homonyms: (unoff.) homonyms based on different nomenclatural types which are considered to belong to a single taxon.

microcard: a copy of a published work, much reduced in size, on opaque photographic card, and requiring a special reader.

microfiche: a copy of a published work or manuscript, much reduced in size, with often many pages copied onto single photographic film sheets and requiring a special reader; also used to copy historic herbarium material and literature.

microfilm: a copy of a published work or a manuscript, usually much reduced, onto a continuous strip of transparent photographic material.

microform: a term including microfiche and microfilm.

microfossils: (palaeo., unoff.) fossil remains, whether entire organisms or parts of organisms (e.g. spores), so small that they cannot be studied without some form of a microscope.

microspecies, [msp.]: (1) (bot., unoff.) a unit of a species aggregate (*q.v.*), with very little internal variation; microspecies are treated as species for nomenclatural purposes: *see also* cryptic species, sibling species. (2) (bot., unoff.) a small division of apomictic complexes which are characterized by considerable constancy by virtue of their apomictic mode of reproduction, e.g. *Panicum maximum* msp. *robustum*.

microsubspecies: (bot., unoff., obsol.) a small but distinct population limited to a small geographical area; not normally given a scientific name but sometimes recognized as a variety; sometimes indicated by the term “var. (geogr.)”.

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Mihi, [**mihi**, **m.**]: (obsol.) to me (dative singular of ego, I); formerly used by some authors after a name to indicate their responsibility for its proposal but without using their actual names; *see nobis*.

mimeography: a method of producing numerous copies of text (and figures) by means of ink applied through a stencil.

mimetic phase type: (zool., unoff.) *see* locality type.

mimotype: (zool., not nomenclatural) one of two or more similar morphs (analogous forms) of a taxon occurring in different areas.

min. parte, [**pro minore parte**]: for the smaller part; sometimes used to indicate that a name has sometimes been used in a particular sense.

minidefinition: (prok., unoff.) a brief description, especially of a genus, containing only the essential characters for distinguishing it from others; a diagnosis (*q.v.*).

minimal standards: (prok.) a series of tests or other features that are recommended to be included in a description when validly publishing a new taxon; these are drawn up from different groups of bacteria under the auspices of the Judicial Commission and published in the IJSEB.

minimum edition: (zool., prop.) of printed works on paper, the recommended minimum number to be printed before any are distributed; 25 has been proposed.

miragotype: (zool., unoff.) a type in which the distinguishing characters are only visible under particular conditions (!).

misapplication: of a name, *see* misapplied name.

misapplied name: (bot.) a name applied to a taxon in a sense that excludes the type of the name, i.e. a name incorrectly applied.

misapply: to apply, deliberately or otherwise, a name in a sense which is not correct under the provisions of the *Code* (e.g. in a manner not in accord with the name-bearing type); *see* misapplied name.

misidentification, [**†**]: the assignment of a specimen, population or taxon to a taxon to which it is generally (or later) considered it does not belong.

misidentify: (zool.) to mistakenly attribute a specimen to a particular taxon.

- misplaced term:** a rank-denoting term used contrary to the relative order specified in the *Code*; e.g. an order within a family.
- mixed gathering:** a gathering (*q.v.*) which comprises more than a single species or infraspecific taxon.
- mixomorpha**, [**mx.**]: (cult. pl., unoff.) a category for the designation of forms of chimaeras distinguished only by morphological or histological characters.
- mixtospecies**, [**mixsp.**]: (bot., unoff.,) a species resulting from a genetic change leading to the formation of a sterility barrier between it and the parent species; it has been proposed to indicate the origin of such a species from another by using the interpolated abbreviation "mixsp.", e.g. *Pisum arvense* mixsp. *abyssinicum*.
- mixture:** (cult. pl., unoff.) an assemblage of different lines from a series.
- mobilitotype:** (zool., unoff.) a type represented only by a particular banding pattern on a polyacrimide gel(!).
- modern language:** one currently in use; normally restricted to one which is also written; a common language.
- modificatio:** (bot., obsol.) proposed as a category below the rank of form for plants changed in some way.
- mongrel combination:** a hybrid word composed of elements from two languages.
- monobasic:** (zool., unoff.) of a generic name, one with a single included species at the time of publication; *see* monotypic.
- monoculture:** (unoff.) a monosporial (monogenetic or monocytogenetic) strain of a microorganism derived from the holotype.
- monodelphous homonyms:** devalidated names (*q.v.*) taken up by different post-starting point authors independently but validated with different nomenclatural types.
- monogeneric:** of a suprageneric taxon, one including only a single genus.
- monogenotype**, [**monogenotyp**]: (1) (zool., unoff.) the single species included in a monotypical genus at the time of its publication; a haplotype (*q.v.*). (2) (zool., unoff.) a type by original fixation.

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monomorphic: of a taxon or population, one showing no genetically fixed discontinuous variation.

monomial: a uninomial (*q.v.*).

mononym: a uninominal (*q.v.*).

monopathotype: (prok.) the single strain used by an author when introducing the name of a new pathovar, but which was not designated as the holopathotype in the original publication.

monophyletic: (phyl.) a set consisting of an ancestor and all of its descendents; usually used for groups the members of which share a more recent common ancestor with one another than with any non-members, though monophyletic groups of organisms within sexually reproducing species/ populations may not have this property.

monotaxic: of two or more taxa, ones belong to the same taxon.

monotype: (1) (unoff.) a single element on which a taxon was based where the author did not explicitly state that this element was to be regarded as the nomenclatural type of the taxon; an implicit holotype. (2) (zool., unoff.) the holotype of a taxon based on a single known specimen. (3) (zool., unoff.) the type of a monotypic genus. (4) (prok., unoff.) a single strain on which a new taxon was based, but not designated as a holotype in the original publication.

monotypic: (bot., prok.) having only one immediately subordinate taxon; e.g. of a genus with a single validly published species; *see also* monotypic genus, monotype, monotypy.

monotypic genus: (bot., prok.) a genus for which a single binomial is validly published.

monotypical: (zool., unoff.) of a genus, one including only a single species at the time of publication; *see* monotype, monotypical genus.

monotypy: (zool.) the situation arising: (a) when an author establishes a nominal genus or subgenus for what he or she considers to be a single taxonomic species and denotes that species by an available name (the nominal species so named is the type species by monotypy); or (b) when an author bases a nominal species-group taxon on a single specimen but does not explicitly designate it as holotype (holotype by monotypy); *see also* subsequent monotypy.

monstrosity: a specimen showing an abnormal (non-hereditary) structural condition; names based on type specimens that were monstrosities were formerly to be rejected in (bot.), but that provision of the *Code* has now been deleted.

more than less than, [< >]: (phyl.) an ideograph placed around the citation of the name of an author of the original definition of a homonym that has been conserved for the purpose of emending a definition.

morph: shape; used of a specimen or stage in a life-cycle with a particular or unusual, and generally morphological attribute.

morpha, [pl. morphae]: (unoff.) used for specimens or groups of specimens of an uncertain infraspecific category; *cf.* taxon.

morphology: the study of a structure; morphological terms are those that denote structural parts of an organism (e.g. radix = root, caulis = stem).

morphon: (zool., unoff.) a definitely formed individual.

morphonym: (zool., unoff.) the name of a species; the specific name.

morphotaxon: (palaeo. bot.) a fossil taxon which, for nomenclatural purposes, comprises only one part, life-history stage, or preservational state represented by the corresponding nomenclatural type; any fossil taxon that is described as including more than one part, life-history stage, or preservational state is not a morphotaxon.

morphotype, [morphotypus]: (1) a group or population of morphologically differentiated individuals within a species, often used of ones of no, or of undetermined, taxonomic significance. (2) (prok.) a variant of a species distinguished by the presence of some special or unusual morphological feature, for which the term "morphovar." is recommended by that *Code*. (3) (palaeo. zool., obsol.) a specimen that has been figured in print not adding to what was previously known about the morphology of the taxon to which it is referred. (4) (zool., unoff.) the type specimen of a different morph of a dimorphic or polymorphic species. (5) (obsol., not nomenclatural) the generalized or idealized pattern shared by all members of a taxon; an archetype (*q.v.*).

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morphovar: (prok.) an infrasubspecific variant of a species distinguished by the presence of some morphological character(s); a morphotype (*q.v.*).

MS, msc, MScr., Mscr., MSS: *see* manuscript.

multiconvar: (cult. pl., unoff.) proposed as a rank of cultivated plants equivalent to variety (not cultivar).

multigeneric: (bot., cult. pl.) of hybrids resulting from the sexual crossings of individuals assigned to three or more different genera.

multiline: (cult. pl.) in plant breeding, a term used to describe a cultivar that is made up of several closely related lines.

multinomen: a multinomial name; a name composed of several words; a polynomial (*q.v.*).

multinominal: having many names; *see* nominal, polynomial.

multiple authorship: of a name proposed by more than one person; *see et al.*

multiple original spellings: (zool.) two or more different original spellings for the same name.

multiplication sign, [x]: (1) (bio., bot., cult. pl., phyl.) in nomenclature, the ideograph used to indicate the hybrid nature of a taxon in a condensed formula (*q.v.*) or a hybrid formula (*q.v.*); in a condensed formula, now (bio., bot., cult. pl.) placed in front of and directly against the name (with no space between the sign and the scientific name) where the sign is available for printing (e.g. *xAgropogon*, *Melampsora xcolumbiana*) but formerly often used with a separating space; in a hybrid formula (bio., bot., cult. pl.) placed between the names of the taxa (e.g. *Mentha aquatic x M. spicata*); *see* condensed formula. (2) (zool., unoff.) used in a similar way to (1 [above]) to link the names of the parent taxa (e.g. *Capra hircus x Ovis aries*) and sometimes with the sex of each parent also indicated by an ideograph (e.g. *Capra hircus ♂ x Ovis aries ♀*). (3) (prok.) when placed before the citation of the name of an author and in parentheses, indicates that the name was used by that author before 1 January 1980 but the name was not included in the Approved List

but has subsequently been revived; e.g. *Prochloron didemni* (x Lewin 1977) Florenzano *et al.* 1986, sp. nov., nom. rev.

multispecies: (1) (bot., zool., unoff.) a group of two or more species that remain distinct taxa despite hybridizing and producing fertile offspring. (2) (not nomenclatural) a set of broadly sympatric species that exchange genes in nature.

mus., [museum]: sometimes used before an acronym or town name to indicate where a specimen is preserved.

mutatis characteribus, [mut. char.]: with the characters (usually the circumscription) changed but without exclusion of the type; emended (*q.v.*).

mutant: an individual or organism produced as a result of a mutation (*q.v.*).

mutation: a discontinuous heritable variation; a change to the nucleotide sequence of a genome arising spontaneously, by general physical or chemical treatment, or by a particular alteration in a “site-directed” manner.

mycarium, [pl. mycaria]: proposed for a dried collection of fungal specimens, i.e. a fungal herbarium; *see also* fungarium.

-mycetes: (mycol.) suffix used to indicate that the name of a fungus is in the rank of class.

-mycetidae: (mycol.) suffix used to indicate that the name of a fungus is in the rank of a subclass.

-mycia: (mycol., unoff.) suffix proposed for names of fungi in the rank of superclas.

Mycobank: (mycol.) an online depository of nomenclatural information on names of fungi at all ranks, operated under the auspices of the International Mycological Association (*q.v.*); the main mycological journals (and also *Taxon*) now require the Mycobank numbers allocated to new taxa to be cited in the protologue.

mycobiota: (mycol., unoff.) sometimes used as a collective term for all the fungi in a particular habitat or place, or in publications as an equivalent to “Flora” (*q.v.*) for fungi; *see also* funga, mycota.

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mycota: (mycol., unoff.) sometimes used as a collective term for all the fungi in a particular habitat or place, or in publications as an equivalent to “Flora” (*q.v.*) for fungi; as this is a phylum termination, the alternatives of *funga* or *mycobiota* are to be preferred.

-mycota: (mycol.) suffix used to indicate that the name of a fungus is in the rank of division or phylum.

Mycotaxon: (mycol.) a quarterly peer-reviewed journal exclusively devoted to all phases of the taxonomy and nomenclature of fungi (including lichens), founded in 1974; from 2009 including formal nomenclatural proposals relating to fungi that also appear in *Taxon*.

-mycotera: (mycol., unoff.) suffix proposed for names in the rank of superphylum or superdivision in fungi.

-mycotina: (mycol.) suffix used to indicate that the name of a fungus is in the rank of a subdivision or phylum.

mythicotype: (zool., unoff.) the type of a mythological taxon (!).

n., [nob., nobis]: to us, dative plural of ego, I; used after a name to indicate the authors' responsibility for its proposal.

n-: *see* notho-.

naked combination, [nude combination]: (bot., unoff.) a name which circumstantial evidence suggests was intended as a new combination (e.g. by employing a particular specific epithet in a particular context) but where there is no indication whatsoever of the actual basionym (e.g. not even in an author citation).

naked name, [nomen nudum, nom. nud.]: (1) (zool.) a name published before 1931, which fails to conform to the *Code*, or if published before 1930 fails to conform to other provisions of the *Code*; such a naked name is not an available name, and therefore the same name may be made available later for the same or a different concept; in such a case it would take the authors name and date from that act of establishment, not from any publication where it was a *nomen nudum*. (2) (bot., prok.) a name of a new taxon published without a

description or diagnosis or reference to a description or diagnosis, and so not validly published; a bare name (prok.); *see also* nomen subnudum.

name: (1) (not nomenclatural) a word, or ordered sequence of words, conventionally used to denote and identify a particular entity (e.g. a person, place, object, concept). (2) (zool.) equivalent to scientific name (*q.v.*). (3) (zool.) an element of the name of a species-group taxon. (4) (bot., cult. pl.) a name that has been validly published (or established), whether it is legitimate or illegitimate; *see also* available name, designation, epithet, scientific name. (5) (phyl.) a word or words used to designate (refer to) an organism or group of organisms; *see* acceptable name, accepted name, established name, replacement name, scientific name, taxon name.

name-bearer: *see* name-bearing type.

name-bearing type, [name-bearer]: (1) (bio.) the element to which the name of a taxon is permanently attached, whether it is an accepted name or not. (2) (zool.) the type genus, type species, holotype, lectotype, series of syntypes (which together constitute the name-bearing type), or neotype or type slide or hapantotype, that provides the objective standard of reference whereby the application of the name of a nominal taxon can be determined; the nomenclatural type (*q.v.*).

name-group: (zool.) an assemblage of nomenclaturally co-ordinate categories (e.g. family-group, genus-group, species-group; *see* Principle of Coordination).

Names in Current Use, [NCU]: (bot., prop.) ones currently accepted as the correct names for organisms; *see* List of Names in Current Use.

natio: (1) (unoff., obsol.) used for specimens or groups of specimens of an uncertain infraspecific category. (2) (zool., obsol.) a subspecies "of the second order", i.e. a taxon with the same relation to the subspecies as the subspecies does to the species.

natural order: *see* ordo naturalis.

NBN: *see* New Biological Nomenclature.

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neallotype, [**neoallotype**]: (zool., unoff.) an allotype (*q.v.*) of the opposite sex to that of a specimen designated or described in a publication subsequent to the original description; these specimens have no formal nomenclatural standing as types.

neanotype: (zool., unoff.) the type of a pupal stage in entomology.

nebentype, [**nebentypus**]: (phyt., obsol.) a syntaxon rank, used for an edaphic variant of a subassociation, and not accepted in the *Code*.

nec, [**neque**]: and not, nor; used to indicate names which are misapplied homonyms, or misidentifications by the author cited before “nec”; *see non*.

necrotype: (1) (not a nomenclatural term) a taxon extinct in a particular locality. (2) (palaeo., unoff.) an unspecified category of fossils.

negative sense: (vir.) applied to an RNA molecule which is complementary to a positive sense, that is it cannot be translated by ribosomes but its complementary sequence can.

neglected name, [**nomen neglectum**, **nom. negl.**]: (zool.) an overlooked but nevertheless validly published and legitimate name or epithet for a taxon; usually used of names not listed in catalogues of names; *see also* forgotten name.

neglectotype: (zool., unoff.) an uncurated type specimen not found for many years until an office was cleaned out (!).

neoallotype: *see* neallotype.

neocotype: (zool., unoff.) one of two or more syntypes selected to serve as the type for a name when all the original material of the first selected type has been lost or destroyed; a replacement syntype; inadmissible under the current *Code*; *see also* lectotype.

neophemerotype: *see* ephemerotype.

neogenotype: (zool., unoff.) a type species of a genus-group name designated when the original type species was considered unrecognizable.

neoholotype: (zool., unoff.) a neotype (*q.v.*).

neonym: (unoff.) a new name proposed to replace either a junior homonym or a name of a new combination.

neoparatype: (zool., unoff.) a paraneotype (*q.v.*); *see also* hypotype.

neopathotype: (prok.) a strain proposed by valid publication to represent a pathovar where none of the strains upon which the original description was based can be located.

neosynotype, [neosyntypus]: (1) (phyt.) erroneously used to replace "neotypus" in the nomenclature of syntaxa. (2) (zool., unoff.) a neocotype (*q.v.*).

neotype, [N.T., NT]: (1) (bio., bot., prok.) a specimen or illustration selected to serve as nomenclatural type if no original material is extant or as long as it is missing. (2) (prok.) a new type selected to serve as the nomenclatural type of a name the previously designated type of which has become unsuitable for any reason; *see also* epitype. (3) (zool.) the single specimen designated as the name-bearing type of a nominal species or subspecies when there is a need to define the nominal taxon objectively and no name-bearing type is believed to be extant; if stability and universality are threatened, because an existing name-bearing type is either taxonomically inadequate or not in accord with the prevailing usage of a name, the Commission (ICZN) may use its plenary power to set aside that type and designate a neotype. (4) (phyt.) an element that is chosen as the nomenclatural type when neither the holotype nor an element suitable to be chosen as the lectotype occurs.

nepionotype: (1) (zool., unoff.) the type of the larva of a species-group name. (2) (zool., unoff.) a type specimen which is the larval stage of a species.

neutral term: (1) of a term, one which is not equated with any particular rank; e.g. syntaxon, taxon. (2) (zool., unoff.) a category for units whose rank in a taxonomic hierarchy is uncertain, e.g. a species complex.

New Biological Nomenclature, [NBN]: a proposed parallel alternative nomenclatural system with scientific names in Esperanto rather than Latin, first proposed in 1971 and with a detailed guide issued in 1991, and prepared by Wilhelm de Smet on behalf of the Association for the Introduction of New Biological Nomenclature; in this system, names are of two words, the family name is the first

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element and species name the second; names to be used were to be approved by an international committee; *see also* asterisk.

new clade name: (phyl.) a newly proposed name that has been established in accordance with the rules of the *PhyloCode*; *see* converted clade name

new combination, [combinatio nova, comb. nov.]: a combination formed from a previously published legitimate name (basonym, *q.v.*) and employing the same final epithet (or employing the name itself if formed from a generic name); new combinations are made because of a change of position or rank; in (bot.) also used by authors when publishing new combinations for the first time; *see also* combination, naked combination, semi-naked combination.

new name, [nomen novum, nom. nov., n.n.]: (1) (bot.) a newly published name; this may be the name of a new taxon, a new combination, a name at a new rank (i.e. status novus), or an avowed substitute (nomen novum) for an existing name; most commonly used in this last sense. (2) (zool.) a replacement name; *see also* avowed substitute, new clade name, new replacement name, new scientific name.

new replacement name, [nomen novum, nom. nov.]: (zool.) a name established expressly to replace an already established name; a nominal taxon denoted by a new replacement name (nomen novum) has the same name-bearing type as the nominal taxon denoted by the replaced name; *see also* emendation, substitute name.

new scientific name: a scientific name, available or unavailable, newly proposed for a taxon.

new species, [nov. sp., species nova, sp. nov.; pl. nov. spp., spp. nov.]: the latinized version or more commonly the abbreviated form is added by an author after the name of a species that author is describing as new to science.

new transfer: *see* translatio nova.

nidus: *see* conculta.

nixus: (bot., obsol.) a hierarchical rank treated as being equivalent to that of order.

nm.: *see* nothomorph.

no., [numero, no]: number; sometimes used in bibliographic citations to indicate separately published parts of a work.

nobis, [nob.]: (obsol.) by us; formerly sometimes used to indicate that an author was introducing a name which should be attributed to him or her; *see* mihi.

node: (phyl.) a point or vertex on a tree (graph theory); on a phylogenetic tree, a node is commonly used to represent the split of one lineage to form two or more lineages (internal node) or the lineage at the present time (terminal node).

node-based clade: (phyl.) a point or vertex on a tree (graph theory); on a phylogenetic tree, a node is commonly used to represent the split of one lineage to form two or more lineages (internal node) or the lineage at the present time (terminal node).

node-based definition: (phyl.) a definition that associates a name with a clade originating at a node (on a phylogenetic tree) representing the most recent common ancestor of specified descendant organisms and/or species (internal specifiers).

nodum: (phyt., obsol.) a syntaxon rank, not accepted in the *Code*.

nomen, [nom.; pl. nomina]: name; in nomenclatural practice, some usages have become more familiar in the singular (e.g. nomen novum), while others are commonly encountered in the plural (e.g. nomina conservanda).

nomen abortivum, [nom. abort.]: (obsol.) formerly applied to a name which at the date of publication was contrary to the *Code* in operation at that time.

nomen alternativum, [nom. alt.]: an alternative name (*q.v.*).

nomen ambiguum, [nom. ambig.]: an ambiguous name (*q.v.*).

nomen ambiguum rejiciendum, [nom. ambig.; pl. nomina ambigua rejicienda]: (phyt.) a list of ambiguous names of syntaxa ruled as not to be used by the Nomenclature Commission (*q.v.*).

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nomen anamorphosis, [**nomen amamorphosium**, **nom. anam.**]: (mycol.) a name based on an anamorph of a pleomorphic fungus; stat. imperf., stat. conid., stat. pycnid.

nomen approbatum: an approved name (*q.v.*); (prok.) *see* approved.

nomen carentum, [**nom. car.**; pl. **nomina carentia**]: without a name; sometimes used in bibliographic citations to indicate a taxon published without a formal name.

nomen cladi conversum: (phyl.) *see* converted clade name.

nomen cladi novum: (phyl.) *see* new clade name.

nomen confusum, [**nom. conf.**]: a confused name (*q.v.*).

nomen conservandum, [**nom. cons.**, **nom. conserv.**]: a conserved name (*q.v.*).

nomen conservandum propositum, [**nom. cons. prop.**, **nom. conserv. prop.**]: a name proposed for conservation; *see* conserved name.

nomen correctum, [**nomen corrigendum**, **nom. corr.**]: a corrected name; sometimes used to indicate that the orthography of a name has been corrected from the form originally published because of orthographical or typographical errors in the name as first proposed.

nomen corrigendum hoc loco, [**nom. corr. hoc loco.**]: (phyt.) a phrase that must be appended, after 1 January 2002, to the author citation of the name of a syntaxon when the name is being corrected in order for the correction to be validly published under the *Code*.

nomen differentiale: (palaeo. bot., unoff.) the epithet of the name of a fossil pollen or spore, corresponding to the specific name of an extant species.

nomen dubium, [**nom. dub.**]: a dubious name (*q.v.*).

nomen hypertelicum: a mataeonym (*q.v.*).

nomen hybridum, [**nom. hybrid.**]: a hybrid name (*q.v.*).

nomen illegitimum, [**nom. illegit.**]: an illegitimate name (*q.v.*).

nomen imaginatum: a fictitious scientific name coined merely for the purpose of providing an example to illustrate a discussion of a nomenclatural topic.

nomen invalidum, [**nom. inval.**]: an invalid name (*q.v.*); *see also* designation, name, nomen non rite publicatum.

nomen inversum, [pl. **nomina inversa**]: (phyt.) a name of a syntaxon which was not formed according to the *Code* when published with regard to the order of the names, but which has been corrected, and the correction accepted by the International Commission of Phytosociological Nomenclature.

nomen inversum propositum, [**nom. invers. prop.**; pl. **nomina inversa proposita**]: (phyt.) a name of a syntaxon which was not formed according to the *Code* when published with regard to the order of the names, the corrected order of which has been submitted to the International Commission of Phytosociological Nomenclature for acceptance or rejection.

nomen inversum rejiciendum, [**nom. invers. rej.**; pl. **nomina inversa rejicienda**]: (phyt.) a name of a syntaxon which was not formed according to the *Code* when published with regard to the order of the names, which has been submitted to the International Commission of Phytosociological Nomenclature and the proposed change in the order of the names rejected.

nomen monstrositatum, [**nom. monstr.**]: a name based on a monstrosity (*q.v.*).

nomen mutatum, [**nom. mut.**; pl. **nomina mutata**]: (phyt.) a name of a syntaxon formed from a taxon name that is no longer used in the most important taxonomic and floristic literature of the past 20 years, or is only quoted in synonymy, but updated to the contemporary taxonomic nomenclature; names corrected in this way retain the original author citation, and the change must be adopted or rejected by the Nomenclature Commission.

nomen mutatum propositum, [**nom. mut. prop.**; pl. **nomina mutata proposita**]: (phyt.) a change in the name of a syntaxon so that it follows contemporary taxonomic nomenclature which has been proposed to the Nomenclature Commission for a ruling on its adoption or rejection.

nomen neglectum, [**nom. negl.**]: a neglected name (*q.v.*).

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nomen non rite publicatum, [**nom. non rite publ.**]: (unoff.) a name not properly published; sometimes used in citations of synonyms to indicate a name that has been effectively but not validly published.

nomen novum, [**nom. nov.**]: a new name (*q.v.*).

nomen nudum, [**nomen nud.**]: a naked name (*q.v.*).

nomen oblitum, [**nom. oblit.**]: a forgotten name (*q.v.*).

nomen oppressum, [**nom. oppr.**]: (bot., unoff.) a name published in a suppressed work (*q.v.*) and at a rank specified therein and consequently treated as not validly published.

nomen periculosum, [**nom. peric.**]: a perilous name (*q.v.*).

nomen perplexum, [**nom. perplex.**]: a perplexing name (*q.v.*).

nomen protectum, [**nom. prot.**]: a protected name (*q.v.*).

nomen provisorium, [**nom. provis.**]: a provisional name (*q.v.*).

nomen reclitum, [**nom. recl.**]: a revived name (*q.v.*).

nomen rejiciendum, [**nom. rej.**]: a rejected name (*q.v.*).

nomen rejiciendum propositum, [**nom. rej. prop.**]: (bot.) a name proposed for rejection under the *Code* but awaiting ratification either by a Committee or by a subsequent International Botanical Congress; *see* conservation, rejected name.

nomen revictum, [**nom. rev.**]: a revived name (*q.v.*).

nomen sed non planta: (bot., obsol.) the name but not the plant; formerly used in citations of synonyms to indicate cases where an author introducing a new combination or new name applied the name to a taxon other than that to which the type of the basionym belongs, i.e. a method of indicating a misapplied name.

nomen seminudum: a semi-naked name; *see* nomen subnudum.

nomen subnudum: (bot., unoff.) a name with limited or unusual descriptive information provided in the protologue which is not sufficiently diagnostic to permit its recognition apart from others (e.g. a tall plant with white flowers) and so raises doubts as to its valid publication..

nomen substitutum: (phyl.) a replacement name (*q.v.*).

nomen superfluum, [**nom. superfl.**]: a superfluous name (*q.v.*).

nomen tantum, [**nom. tant.**]: name only, used of names not applied in the sense of their type; a misapplied name.

nomen translatum, [**nom. trans.**]: (zool.) a name that has been changed in hierarchical rank with a changed suffix.

nomen triviale, [**nom. triv.**; pl. **nomina trivialia**]: a trivial name (*q.v.*).

nomen typicum abstractum: (palaeo. bot., unoff.) the first name of the binomial of the name of a fossil pollen or spore, corresponding to the genus name of an extant taxon; *see also* sporomorph..

nomen typicum concretum: (palaeo. bot., unoff.) a name inserted in brackets after the nomen typicum abstractum (*q.v.*) in the name of a fossil pollen or spore, e.g. *Hexorites (Nothofagidites) oblata*; i.e. in use corresponding to that of a subgeneric name of an extant species.

nomen utique rejiciendum: (bot.) a name ruled as rejected by an International Botanical Congress; it and all combinations based on it are not to be used, and these names are listed in the *Code*; *see* rejected name.

nomenclator: (1) a taxonomic catalogue or other listing of names distinguishing between accepted names and their synonyms; e.g. *Index Animalium* (CD Sherborn, 1920-33), *Nomenclator Botanicus* (EG Steudel, 1824). (2) (obsol.) one who creates scientific names. (3) a person who compiles a nomenclator.

nomenclatorial: relating to nomenclators (*q.v.*); formerly used in the sense of nomenclatural (*q.v.*).

nomenclatural: relating to nomenclature.

nomenclatural act: (zool.) a published act which affects the nomenclatural status of a scientific name or the typification of a nominal taxon; such acts may be available, invalid, unavailable, or valid (*q.v.*).

nomenclatural combination: (phyt.) the name of a subassociation, consisting of an association name followed by a subassociation epithet.

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nomenclatural filter: (unoff.) a flow diagram indicating the sequential steps necessary to arrive at the correct name of taxon under a *Code*.

nomenclatural hierarchy: the consecutively subordinate ranks of taxa defined by a *Code*.

nomenclatural novelties: new names and descriptions or diagnoses of new taxa or syntax.

nomenclatural standard: (cult. pl.) a specimen or other device to which the name of a cultivar or Group is permanently attached.

nomenclatural status: *see* status.

nomenclatural synonym: a homotypic synonym (*q.v.*); an obligate synonym; (zool.) an objective synonym; *see also* heterotypic synonym, objective synonym, taxonomic synonym.

nomenclatural type: (1) (bot., prok., zool.) the element to which the name of a taxon is permanently attached; this applies whether it is a correct name or a synonym; the nomenclatural type is not necessarily the most typical or representative element of a taxon; a name-bearing type (*q.v.*); *see also* cotype, epitype, holotype, isotype, lectotype, neotype, nominifer, onomatophore, paratype, syntype. (2) (phyt.) of a syntaxon, the element of the syntaxon to which the name of the syntaxon remains permanently attached; the nomenclatural type need not be the most typical (characteristic) or one that is outstanding owing to its particular frequency.

nomenclature: (1) a system of names, and provisions for their formation and use; *see also* binominal nomenclature. (2) the system of names so produced, or any part thereof; the result of (1).

Nomenclature Commission: (phyt.) *see* International Commission of Phytosociological Nomenclature.

Nomenclature Section: (bot.) a body convened in accordance with the *Code* immediately prior to an International Botanical Congress; proposals to modify the *Code* are debated and voted, and decisions of Permanent Committees are ratified.

Nomenclature Session: (mycol., prop.) proposed for a meeting convened on the occasion of an International Mycological Congress (IMC), the first to be held in 2010, to debate and vote on proposals relating

to the nomenclature of fungi; the results from the Session will then be forwarded to the Nomenclature Section of the subsequent International Botanical Congress.

nomenifer: *see* nominifer.

nomenspecies: (1) (unoff.) the naming species; the nomenclatural type of a generic name. (2) (unoff.) a taxon treated as a species for purposes of nomenclature whatever status it otherwise merits. (3) (prok., unoff.) strains identical to the nomenclatural type of a species name. (4) (prok., unoff.) a category designated more by name than by the characters of the included strains; *cf* phenospecies.

-nomial: (not nomenclatural) a suffix referring to mathematical (algebraic) terms, and best avoided in biological nomenclature; *see* binomial.

nominal: of or in names; *see* binominal, multinominal, polynominal, nominal taxon, uninominal.

nominal author: (phyl.) the person(s) who first published a name, regardless whether it was phylogenetically defined; *see* definitional author.

nominal family-group: *see* family group.

nominal genus-group: *see* genus group.

nominal species-group: *see* species group.

nominal taxon [pl. **nominal taxa**]: (1) (bio.) the unit formed by a name and its type (e.g. a generic name and its type species). (2) (zool.) a concept of a taxon which is denoted by an available name (e.g. Mollusca, Diptera, Bovidae, Papilio, *Homo sapiens*); each taxon in the family, genus or species groups is based on a name-bearing type (although in the latter two groups such a type may not have been actually fixed); *see also* taxon.

nominant: (cult. pl.) the person who invents or coins a name.

nominate: (zool., obsol.) a term used in previous editions of the *Code* for nominotypical (*q.v.*).

nominifer, [**nomenifer**]: (prok., zool., obsol.) a nomenclatural type.

nominotypical: (zool.) the nominal taxon at a subordinate rank within the family group, the genus group, or the species group that contains the

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name-bearing type of the nominal taxon to which it is subordinate and having the same name as the superior taxon; *see also* autonym (bot.).

non: not; either used alone in the citation of homonyms to indicate that they refer to taxa other than those described by the authors of the earliest homonyms, or to indicate misidentifications; *see nec.*

non fossil taxon: (bot.) a taxon the name of which is based on a non-fossil type.

non-statutory registration: (cult. pl.) registration by any organization, agency, or individual entrusted with registration by agreement of interested parties.

non vide, [non vidus, non visus, non viso, n.v.]: (unoff.) not seen, added to citations of specimens or bibliographic references to indicate that the original materials (especially types) have not been examined by the author but are included on the authority of others; *see also* cfr, fide, teste.

norm: (palaeo., zool., unoff., obsol.) of a specimen, one chosen to illustrate the variation of a species.

notation: (1) (zool.) *see* qualifying phrase. (2) (not nomenclatural) the representation of numbers, quantities, and measurements, etc., by signs and symbols.

not published name: (phyt.) a not effectively or not validly published name.

Note: (prok., bot.) in the *Code*, an explanatory text comprising an integral part of the Article to which it is appended, and inserted to amplify or clarify the more generalized wording that makes up the body of this article; in (bot.) the provisions in Notes are mandatory, but this is not stated explicitly in (prok.).

notho-, [n-]: (bot.) a prefix added to the term denoting the rank of a taxon to indicate that it is of known hybrid origin (e.g. nothogenus, nothogenus); equivalent to a multiplication sign (x).

nothogenus: (bot.) a hybrid genus; i.e. a nothotaxon between two or more genera.

nothomorph, [**nothomorpha**, **nm.**]: (1) (bot., obsol.) any hybrid variant, whether F_1 , segregate or backcross derived from the same parent species forming a taxon of this category. (2) (bot., obsol.) a rank-denoting term formerly used for a subordinate taxon within a nothospecies; names published at the rank of nothomorph are treated as if names of varieties.

nothospecies: (bot.) a hybrid species; i.e. a nothotaxon between two or more species.

nothotaxon: (bot.) a hybrid taxon; the result of hybridization between two or more different taxa.

Notification List: (prok.) a compilation into a single list of names first introduced in the *International Journal of Systematic and Evolutionary Microbiology* which is published in issues of that journal; *see also* Validation List.

noun phrase: a compound word consisting of a noun combined with another noun or modifying adjective, the compound being treated as a noun in apposition (e.g. "*capillus-veneris*" meaning "hair of Venus"); if the adjective is the final element in a species-group name, its ending is determined by the gender of the noun it modifies (and not by that of the generic name with which the species-group name is combined).

nova, [**n.**, **nov.**, **novus**, **novum**]: new, used when publishing a new designation for a taxon, whether as new to science or as a new combination or new name.

nude combination: *see* naked combination.

numericulture: the use of numbers instead of names to indicate taxa, which may be arbitrary (e.g. accession numbers) or coded descriptions; several such systems have been proposed, but none are currently accepted or in general use.

numerotype: (1) (zool., unoff.) a type specimen only with a collection number, other data being lost or destroyed; *see also* ambiguitytype. (2) (unoff.) a type represented by numbers in a character matrix compared with others by computer analysis.

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-obionta: (bot., unoff.) suffix proposed for names in the rank of subkingdom.

-obiota: (bot., unoff.) suffix proposed for names in the rank of kingdom.

objective: demonstrably true, not a matter of individual opinion, in contrast to subjective.

objective synonym: (zool.) each of two or more synonyms that denote nominal taxa with the same name-bearing type, or (in the case of family- and genus-group taxa) that denote nominal taxa with name-bearing types whose own names are themselves objectively synonymous; *see* homotypic synonym, nomenclatural synonym.

obligate synonym: a homotypic synonym (*q.v.*); a nomenclatural or objective synonym.

oecotype: *see* ecotype.

off-type: (cult. pl.) a plant showing a non-typical phenotype or one that differs from a ideotype; a rogue.

Official Correction: (zool.) a correction, issued by the Commission (ICZN), of an error or omission in a previously published Opinion; *see also* Direction.

Official Index: (zool.) an abbreviated title for any of the four indexes, maintained and published by the Commission (ICZN), citing works or names that have been rejected by rulings of the Commission. The indexes are: *Official Index of Rejected and Invalid Works in Zoological Nomenclature*, *Official Index of Rejected and Invalid Family-Group Names in Zoology*, *Official Index of Rejected and Invalid Generic Names in Zoology*, *Official Index of Rejected and Invalid Specific Names in Zoology*. The *Official Lists and Indexes of Names and Works in Zoology* (Melville RV; Smith JDD, eds; 1987) catalogues 9900 names and works on which the Commission had ruled over the years 1895-1985; a supplement covering 1986-90 is also available.

Official List: (zool.) an abbreviated title for any of the four lists maintained and published by the Commission (ICZN), citing available works or names that have been ruled upon in the Opinions of the

Commission; *see* Official Index, Official Register of Zoological Nomenclature.

Official Opinion: *see* Opinion.

Official Register: (zool., prop.) the Official Register of Zoological Nomenclature (*q.v.*).

Official Register of Zoological Nomenclature: (zool., prop.) a record of information about names and nomenclatural acts, maintained by the ICZN in electronic or paper form; *see also* ZooBank.

official text: (zool.) of the *Code*, a text, in any language, which has been authorized by the Commission (ICZN); all equivalent in force, meaning, and authority.

offprint: *see* author's extras, reprint, separate.

-oidea: (zool.) suffix added to a stem generic name to form a name in rank of super family.

-oideae: (prok., bot.) suffix added to a stem generic name to form a name in the rank of subfamily.

-oj: (unoff.) proposed termination in Esperanto for a name in the rank of family in the New Biological Nomenclature (*q.v.*).

older synonym: (1) (bot.) the earlier of two names in the same rank which apply to the same taxon; a senior synonym (zool.). (2) (bot., unoff.) an older name that although published earlier cannot be used as the correct name of the taxon under the *Code* for some nomenclatural reason.

oldest name: (1) (prok., bot.) the first validly published name for a taxon. (2) (zool.) the first available name for a taxon; the senior name.

oligotype: (bot., unoff.) proposed as a category of types, comprising scanty ones that are in danger of being used up when examined; when material so tagged is examined, any drawings, photographs, chemical data, microscopic slides, notes on microscopical details and measurements made should be kept with the type material.

olim: formerly.

onomatophore: (unoff.) the name-bearer; a strain or specimen that acts as the nomenclatural type of a name (prok.) or nominal taxon (zool.).

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onomatotype: *see* onomatype.

onomatype, [**onomatotype**]: (obsol.) a specimen which has been cited in print but which does not add anything not previously known about the morphology of the species or subspecies to which it is referred; an unessential type (*q.v.*).

ootype: (1) (zool., unoff.) the type of an egg; an ovotype (*q.v.*). (2) (not nomenclatural) a genital organ in certain tapeworms.

op. cit.: *opere citato* (*q.v.*).

opera utique oppressa: *see* suppressed works.

operational taxonomic unit, [**OTU**]: the lowest taxon being studied in a particular investigation; i.e. an assemblage of individual collections, isolates or taxa of any rank used in scoring data for subsequent analysis, usually by phenetics methods.

opere citato, [**op. cit.**]: in the work cited (but not the page); used to avoid the need to repeat a bibliographic reference cited earlier in the same publication; *see also* *loco citato*.

-ophytanae: (bot., unoff.) suffix proposed for names in the rank of superdivision or superphylum; *see also* *-mycotera*.

Opinion: (1) (zool.) a formal publication by the Commission (ICZN) containing a ruling that applies, interprets, or suspends provisions of the *Code* in a case affecting one or more stated names, nomenclatural acts or works; an Opinion states how the *Code* is to be applied or interpreted, or the course to be followed in a particular case. (2) (prok.) a decision of the Judicial Commission of the International Committee on Prokaryote Systematics (ICPS).

-opsida: (bot.) suffix used to denote a name in the rank of class, except in algae and fungi.

-ordanoj: (unoff.) proposed termination in Esperanto for a name in the rank of order in the New Biological Nomenclature (*q.v.*).

order, [**ordo**]: (1) (bot., prok., zool.) the principal category of taxa intermediate in rank between class and family; indicated by the suffix *-ales* (prok., bot.); *see also* *ordo naturalis*. (2) (phyt.) one of the four principle ranks in the hierarchical system of syntaxa, between that of alliance and class.

- ordinal adjective:** a numerical adjective indicating the place in a consecutively numbered series.
- ordo naturalis**, [**ord. nat.**, **ordo**]: (obsol.) a natural order, formerly used as the principal category of taxa immediately above genus in rank; most frequently used in the sense of family; *see also* cohorts.
- organ genus:** (palaeo. bot., obsol.) a genus of fossils whose diagnostic characters are derived from single organs of the same morphological category or from restricted groups of organs connected together; an organ genus is assignable to a family; *see* form-genus, morphotaxon.
- organ species:** (palaeo. bot., unoff.) any morphologically delimited category of disarticulated organ; *see also* autaposppecies, form species.
- organ taxon:** (palaeo. bot.) a fossil taxon of any rank based on characters derived from a single organ.
- organism:** an individual living thing.
- original author:** the first author who used and published a name or epithet.
- original designation:** the designation of the name-bearing type of a new taxon when it is established (validly published).
- original form of name:** (phyt.) the form of the name used in its first valid publication.
- original material:** (bot.) specimens and illustrations indicated in the protologue of a name; the elements used by the author of a name of a taxon in the preparation of the protologue, comprising (a) those specimens and illustrations (both unpublished and published either prior to or together with the protologue) upon which it can be shown that the description or diagnosis validating the name was based, (b) the holotype and those specimens which, even if unseen by the author of the description or diagnosis validating the name, were indicated as types (syntypes or paratypes) of the name at its valid publication, or (c) the isotypes or isosyntypes of the name irrespective of whether such specimens were seen by either the author of the validating description or diagnosis, or the author of the name.

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original name: (phyt.) the form of the name used in its first valid publication.

original publication: (1) the work in which a name or nomenclatural act was first published. (2) of a name or nomenclatural act, publication for the first time.

original spelling: (1) (bot.) the spelling employed when a name was validly published. (2) (zool.) the spelling or one of the spellings of a name employed when it was established. (3) (bio.) the spelling employed when a name was submitted for registration.

originally included nominal species: (zool.) of a nominal genus-group taxon, the nominal species deemed to be originally included.

originalis, [orig.]: (unoff.) original; sometimes used to indicate that a specimen is the original material, or a part of that material.

originator: (1) (cult. pl.) the initial producer or discoverer of a cultivar. (2) (unoff.) the person describing an observation record or taxon for the first time.

ornatype: (zool., unoff.) a topotype (*q.v.*).

ortet: (cult. pl.) the one original plant from which a clone ultimately derives.

orthographia, [orth.]: *see* orthographic.

orthographia mutata, [orth. mut.]: with an altered spelling; *see also* correctus.

orthographic: relating to spelling; *see also* orthographia, orthography.

orthographic error: an unintentional spelling error; specified orthographic errors in names can be corrected by later authors without a change in the author citation.

orthographic variant: (bio., bot., prok.) one of various spellings, compounding, and inflectional forms of a name or its epithet, only one nomenclatural type being involved; an alternative and usually incorrect spelling of the same name; note that if these alternative spellings are based on different nomenclatural types they are treated as homonyms; in (bio.) also used to include typographical errors; *see also* equivalent name.

orthography: spelling; the conventional or correct spelling of a word or name.

orthography conservation proposed, [orth. cons. prop.]: a name proposed for conservation with a particular spelling; *see* orthography conserved.

orthography conserved, [orth. cons.]: a name conserved to preserve a particular spelling, usually one different from that in the original place of publication of the name.

orthotype: (zool., unoff.) the type species of a genus that was originally designated as the type in the original place of publication; *see also* genotype.

orthotypic: (zool., unoff.) of a genus-group name, one with an orthotype (*q.v.*).

-ota: (bot., unoff.) suffix proposed for names in the rank of superkingdom.

OTU: *see* operational taxonomic unit.

out-cross: (cult. pl.) hybridization of an existing population of cultivated plants which extends its gene pool and may therefore alter the overall characteristics of that population.

overscore: *see* macron.

ovoholotype: *see* ootype.

ovoparatype: *see* ootype.

ovotype: *see* ootype.

p. [pl. pp.]: page.

P, ([P], ^P): (phyl.) when placed in squared brackets or a superscript after a scientific name, used to designate a name governed by the *PhyloCode* and not one of the pre-existing rank-based *Codes*, e.g. *Teucrioideae* [P] or *Teucrioideae*^P; *see* R.

p.p.: pro parte (*q.v.*).

p.v.: pathovar (*q.v.*).

page reference: (bot.) citation of the page or pages on which a basionym or replaced name was validly published; not the pagination of the whole publication, unless coextensive with the protologue.

palaeobiogroup: (palaeo., unoff.) a major morphological and non-hierarchical grouping of types of fossils.

Palaeontological Data-Handling Code [PDHC]: (palaeo., unoff.) a proposed alternative method of handling information on fossils, incorporating information from observational and stratigraphic records.

palaeospecies: a chronospecies (*q.v.*).

Palaeotaxon Record: *see* PTR.

palaeotaxon, [pl. palaeotaxa]: (palaeo., unoff.) a form of immutable base taxon of fossils, previously referred to as a biorecord.

paleobiogroup: *see* palaeobiogroup.

paleotaxon, [pl. paleotaxa]: *see* palaeotaxon.

Paleotaxon Record: *see* PTR.

Pan-: *see* panclade name.

panclade name: (phyl.) a name that is derived from the name of a crown clade by the addition of the prefix *Pan-* and is used to designate the total clade of that crown clade.

par., [parenca]: (unoff.) a term in Esperanto proposed to be used in rounded brackets to indicate that species are related in the New Biological Nomenclature (*q.v.*); e.g. *Delfeno (par.) ordotipa*.

para-: a prefix, by the side of; used to indicate categories of subsidiary elements (e.g. paratype).

paraallotype: *see* parallotype.

paracolon: (prok., unoff.) a word to be avoided because its meanings are almost as numerous as its users (!).

paracultype: (unoff.) a strain of a microorganism cultivated by the author of the taxon and quoted in the original description, but not the selected holotype.

paraedeotype, [**paraedotype**]: (zool., unoff.) an aedeotype (*q.v.*) where the preparation is from a paratype.

paraedotype: *see* paraedeotype.

paragenotype: (zool., unoff.) a genotype (*q.v.*) designated later than one by the first reviser.

parahomonym: (1) (cult. pl.) one of two or more words orthographically or phonetically so similar to each other that they are likely to be confused; *see* homonym, orthographic variant, paronym. (2) (bot.) one of two or more names based on different types and spelled similarly but which are likely to be confused because they apply to related taxa or any other reason, and therefore treated as homonyms (*q.v.*).

paralectotype: each specimen of a former syntype-series (zool.) or a syntype residue (bot., *q.v.*) remaining after the designation of a lectotype; a lectoparatype (*q.v.*).

parallotype: (zool., unoff.) paratypes of the same series and sex as the allotype (*q.v.*) described by an author other than the original author of the taxon name.

paramorph: (1) (unoff.) any variant of a species, especially one that, for lack of information, cannot be more accurately defined; *see* morphotype. (2) (bot., obsol.) any taxonomic category below that of species.

paraneotype: (zool., unoff.) an illustrated specimen used in addition to a neotype when a neotype is being designated; a neoparatype (*q.v.*).

paranym: (unoff.) a shortened version of a parahomonym (*q.v.*).

paraphyletic: (phyl.) a set including an ancestor but excluding some or all of its descendants.

parasort: (cult. pl., unoff.) an inheritably constant morphological-biological state originating naturally, and existing as a collection of generations as cultivated plant populations, or in a pure state as a collective pattern; used, e.g. of variegated populations.

parataxon, [pl. **parataxa**]: (1) (palaeo. bio.) fossil non-algal botanical taxa, which for nomenclatural purposes comprise only those parts, life-history stages, or preservation states of organisms that are

represented by the corresponding name-bearing types, and whose names for purposes of priority compete only with names based on a name-bearing type representing the same part, life-history stage or preservation state. (2) (zool., unoff.) a taxon, usually of fossils, based on some part less than the whole organism, e.g. form genera (*q.v.*) of fossil plants based on dispersed spores, detached leaves, names applied to individual fossil teeth, and any ichnotaxon (*q.v.*). (3) (zool., unoff.) a taxon that corresponds only to definite stages in the life-history of an organism; *see also* anamorph, teleomorph. (4) (zool., unoff.) a domesticated taxon, kept apart from its wild ancestor only by human vigilance.

paratopotype: (zool., unoff.) a paratype from the same locality as the holotype.

paratype: (1) (zool.) all specimens other than the holotype on which a species-group name is based and so designated in the original publication of the name. (2) (bot.) a specimen cited in the protologue that is neither the holotype nor an isotype, nor one of the syntypes if two or more specimens were simultaneously designated as types; *see also* paralectotype. (3) (prok., obsol.) a form of a bacterium possessing the sum of the characters of the normal form but differing in one or more respects.

paratype allotype: (zool., unoff.) a paratype from a different locality from the holotype; a paratype (*q.v.*).

paratype omotype: (zool., unoff.) a paratype from the same locality as the holotype; a paratype (*q.v.*).

parenthesis, [pl. **parentheses**]: *see* brackets.

paronym: (1) (unoff.) a name related etymologically to another but spelt differently (e.g. *Bougainvillea* and *Buginvillaea*) (2) (cult. pl.) a name so similar orthographically or phonetically to another name that they are likely to be confused. *See also* paronym.

parte: *see* pro parte.

partially suppressed name: (zool.) the older of two objective synonyms which is suppressed for the Principle of Priority alone, without also being suppressed for the Principle of Homonymy.

partim, [part.]: partly, in part; (unoff.) sometimes used in citations to indicate names used partly in one sense; *cf* pro parte.

parvi-: (bot.) prefix used to signify a category of a rank between those denoted by the prefixes “infra-” and “super-”, e.g. parviclass, parviorder, parvisubkingdom.

passim: here and there.

pathotype: (1) (prok., obsol.) a pathovar (*q.v.*). (2) (vir.) in use in the sense of pathovar.

pathovar, [pv.]: (prok.) a strain or set of strains with the same or similar characteristics, differentiated at infrasubspecific level from other strains of the same species or subspecies on the basis of distinctive pathogenicity to one or more plant hosts; a pathotype. The naming of pathovars of plants is subject to the International Standards for Naming Pathovars of Phytopathogenic Bacteria prepared by the Committee on the Taxonomy of Plant Pathogenic Bacteria of the International Society for Plant Pathology.

patent name: (prok.) a name cited only in patent application; such names are treated as if not effectively published; *see also* plant patent.

patronym: (not nomenclatural) the name of a person; *see* patronymic.

patronymic: (1) of a name, one involving a patronymic prefix (e.g. Belgian “Van”, Dutch “van”, Irish “O”, Scottish “Mac”, “mc” and “M”) or suffix (e.g. Russian “-vich”, Danish “-sen”, English Scandinavian “-son”); *see also* matronymic. (2) (unoff.) sometimes also used in the sense of an eponym (*q.v.*).

patronymotype: (zool., unoff.) the type specimen of a new species in the personal collection of a collector who will donate it to an institution if the new species is named after him or her (!).

PDHC: Palaeontological Data-Handling Code (*q.v.*).

per: (bot., obsol.) used in place of “ex” in author citations by some mycological authors when a pre-starting point name was being validated; *see* revalidated name, sanctioned name.

perfect state: a teleomorph (*q.v.*).

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perilous name, [**nomen periculosum**]: (prok.) a name for a taxon where confusion in the application of the name may lead to accidents endangering health or life or both, or have serious economic consequences.

period classification: (palaeo., unoff.) a classification of fossils confined to records from a named geologic period (e.g. the Cretaceous Albian Period classification is a 100-classification): *see also* subtroop.

periodical: a publication issued at intervals; a serial (*q.v.*) publication.

Permanent Committee (bot.): one of five committees appointed by an International Botanical Congress mandated to consider nomenclatural proposals, especially for the conservation or rejection of names, related to particular groups, *viz.* Algae, Bryophyta, Fossil Plants, Fungi, and Vascular Plants.

perplexing name, [**nomen perplexum**, **nom. perpl.**]: (prok.) a name the application of which is known, but which causes uncertainty if used because the spelling is uncertain or causes difficulty.

personal communication, [**pers. comm.**]: information received from a named person verbally or in personal correspondence.

phaenotype: *see* phenotype.

phagotype, [**phage type**]: (prok., obsol.) a phagovar (*q.v.*).

phagovar: (prok.) an infrasubspecific strain of a species distinguished by its reaction either to a particular bacteriophage (a typing phage), or by a distinctive pattern of sensitivity to a set of specific bacteriophages; formerly referred to as a phagotype or phage type; *see also* lysotype.

phalanx: (zool., unoff) a rank used at various levels between kingdom and superfamily, and so of uncertain modern equivalence.

phase: (1) (cult. pl.) a distinct stage in the growth cycle of a plant. (2) (prok.) in *Enterobacteriaceae*, a well-defined stage of naturally occurring alternating variation.

phase type: (zool., unoff.) a type exhibiting a phase different from that of the holotype (e.g. sex, dimorphic form).

phenome: the phenotype as a whole, not as manifested by a specific genotype; *see* phenotype.

phenon, [pl. **phena**]: (1) (prok., unoff.) a taxonomic group in which the degree of similarity has been established by numerical methods. (2) (zool., unoff.) a sample or group of phenotypically similar organisms.

phenospecies: (prok., unoff.) a group of bacteria whose phenotypic description is known and which is judged to have a rank corresponding to species; *cfr.* *nomenspecies*.

phenotype: the sum total of the observable characters of individual organisms; the physical expression of the genome or genotype; *see also* phenome.

phenotypic: pertaining to the phenotype.

phonogram: a character of symbol representing a spoken sound.

photographotype: (zool., unoff.) a phototype (*q.v.*).

photosyntype: (zool., unoff.) one of a series of photographs representing a species.

phototype: (1) (zool., unoff.) a photograph of a type specimen; a fototype. (2) (zool., unoff.) the type specimen of a taxon known only from a single photograph. (3) (mycol.) suggested as an alternative to phycotype (*q.v.*). (4) (not nomenclatural) a method of printing and used in that sense since 1859.

phrase name: (1) a polynomial (*q.v.*). (2) (unoff.) an element in a taxon label (*q.v.*).

phycotype: (mycol., not nomenclatural) one of two or more morphologically distinct lichenized structures involving the same fungal partner but different algae or cyanobacteria.

PhyloCode: (phyl.) a phylogenetic *Code* of biological nomenclature; an integrated set of principles and rules governing the naming of taxa and the application of taxon names that is based on the principle of common descent; *see* International Committee on Phylogenetic Nomenclature.

phylogenetic: (phyl.) of or pertaining to the history of ancestry and descent.

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- phylogenetic definition:** (phyl.) a statement explicitly linking a taxon name with a particular clade.
- phylogenetic hypothesis:** (phyl.) a proposition about the relationships among biological entities (e.g. species) in terms of common ancestry.
- phylogenetic system:** (phyl.) of nomenclature, an integrated set of principles and rules governing the naming of taxa and the application of taxon names that is based on the principle of common descent; *see* PhyloCode.
- phylogenetic tree:** (phyl.) the diagrammatic representation of phylogeny as a tree in the sense of a minimally connected graph (number of branches = number of nodes minus one).
- phylogeny:** (phyl.) evolutionary history; the history of descent with modification, whether in general or a particular part thereof; the term is also sometimes used for a hypothesis of phylogenetic relationships, e.g. reference phylogeny (*q.v.*); *cf.* tokogeny.
- phylotype:** (prok., unoff.) a phylogenetically identifiable taxon, i.e. one with a molecular signature indicating its placement in a phylogenetic tree.
- physiological race, [physiologic race]:** (mycol., prok., unoff.) an infraspecific category for strains distinguished by physiological traits, especially the ability to grow on particular hosts; *see* pathovar, special form.
- physiological variety:** *see* chemical race.
- phytocoenosis** [pl. **phytocoenoses**]: (phyt.) the plant community in a particular locality, ecosystem, or biome; such units are not themselves considered as syntaxa under the *Code*.
- phytotaxoid, [phytotaxd.; pl. phytotaxoides.]:** (cult. pl., unoff.) a collective designation proposed for individual taxonomic categories for the systematic classification of cultivated plants; suggested as an equivalent term to taxon (*q.v.*) but restricted to cultivated plants; *see* taxoid, zootaxoid.
- phytotaxon, [phytotax.; pl. phytotaxa]:** (bot., unoff.) a taxon of plants.

piesmotype: (zool., unoff.) an illustration prepared from a plate with an imprint made mechanically from a merotype (*q.v.*).

Pl., [pl., plate]: a full-page illustration; elements within a plate are generally referred to as figures and indicated by separate numbers or letters.

plant: (bot.) in the *Code*, any organism traditionally studied by botanists; i.e. regardless of the current classification of the organism which may be outside the plant kingdom.

Plant Breeders' Rights: (cult. pl.) a breeder's legal protection over the propagation of a cultivar.

Plant Variety Rights: *see* Plant Breeder's Rights.

plastocotype: *see* plastoholotype.

plastoholotype: (zool., unoff.) an artificial specimen moulded directly from a holotype.

plastolectotype: (zool., unoff.) an artificial specimen moulded directly from a lectotype.

plastoneotype: (zool., unoff.) an artificial specimen moulded directly from a neotype.

plastoparatype: (zool., unoff.) an artificial specimen moulded directly from a paratype.

plastosyntype: (zool., unoff.) an artificial specimen moulded directly from a syntype.

plastotype: (zool., unoff.) an artificial specimen moulded or otherwise reproduced directly from a type; particularly used for fossils.

plenary power: (zool.) the power of the International Commission on Zoological Nomenclature (ICZN) to suspend or modify the application of the *Code* in the way which it considers necessary to serve the interests of stability and universality of nomenclature in a particular case.

pleoanamorphic: (mycol.) of a fungus in which the holomorph has more than one morphologically distinct anamorph; *see* synanamorph.

pleomorphic: (1) having many forms. (2) (mycol.) of a fungus having two or more distinct phases or states in its life-cycle; *see* anamorph, holomorph, synanamorph, teleomorph.

pleonasm: the use of generic names and specific epithets with an identical or similar meaning, either by similar word-forms (e.g. as in *Bidens bidentoides*), or different words identical or almost identical in meaning (e.g. *Andropogon barbatus*).

plesio genotype: (zool., unoff.) a specimen provisionally included in a genus at the time of description of the genus, but which was subsequently designated as the type of that genus.

plesiomorph: (unoff.) a primitive character; i.e. one that has not changed in form from that seen in its ancestors.

plesio type: (1) (palaeo. zool., obsol.) a specimen which was not used in the original description of a species or subspecies, but which is used for a later redescription supplementing the description or illustration published subsequent to the original description; a hypotype; *see also* epitype. (2) (zool., unoff.) a specimen related to the type species of a genus-group name but from another biological province or geological formation. (3) (zool., unoff.) a figured or described specimen which has been compared with the type specimen or original figure. (4) (zool., unoff.) a specimen identified by a later author as the same as a type.

plio genotype, [plio genotyp]: (zool., unoff.) the type of a generic name which is a synonym of an earlier generic name.

pluviotype: (zool., unoff.) a type specimen damaged in a flood and encrusted in silt (!).

poecilomorph: (palaeo., unoff., obsol.) proposed as a designation for a "form-variety".

pollutotype: (zool., unoff.) a type so encrusted or damaged by pollutants that it is no longer recognizable (!).

polybasic: (zool., unoff.) of a genus-group name, one which had several species included within it when first published; cfr monobasic.

polybrid: (cult. pl.) a group name for a number of hybrids with the same parental genera, species, or varieties.

polymorph: a taxonomic unit with many variants.

polymorphic: of a species, one with many “forms”; often used of species with many infraspecific taxa or morphotypes.

polynomial: (1) a name in the rank of species, consisting of three or more separate words not hyphenated or separated by terms denoting rank, employed by most pre-Linnaean authors (e.g. *Lichenoides pulmoneum reticulatum vulgare, marginibus peltiseris* Dill., Hist. Musc.: 212, 1742) and in essence descriptive phrases; not “names” in the sense of the *Codes* as not in the binomial (binary) Linnaean system; *see* binominal, multinominal, polynominal. (2) (zool.) a name constructed from an immutable original binomen prefixed or interleaved with the name of the genus (and when relevant subgenus and subspecies) in which the organism is now classed, e.g. *Benyllus Togeia formosana* indicating that *Togeia formosana* is now placed in the genus *Benyllus*.

polynominal: *see* polynomial.

polyonym: (unoff.) a name of quite different and permanently confused meanings; a nomen ambiguum (*q.v.*) or nomen confusum (*q.v.*).

polyphasic: of taxonomy, the use of a range of radically different techniques on the same set or organisms in order to produce a classification.

polyphyletic: (phyl.) a group that has multiple phylogenetic origins and thus excludes the most recent common ancestor of its members.

polythetic: of a classification, one where the taxa are defined by a combination of characters any of which might be possessed by other taxa and any of which may not be possessed a particular member of that taxon; one in which the organisms with the most shared characters are grouped together.

polytypic: (zool., unoff.) of a taxon, one containing two or more taxa in the immediately subordinate category; *cfr* monotypic.

population: all individuals of one taxon growing in a particular region or place (usually considered as a single biological unit).

pornotype: (zool., unoff.) a type based primarily or totally on characters of the genitalia (!).

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position: the place of a taxon relative to other taxa in a classification, regardless of rank.

position precedence: (zool.) the position of a name or a nomenclatural act before another in the same work, i.e. on an earlier page; all other things being equal, position in a work (page or line) may be used either by a first reviser in giving precedence to a name, nomenclatural act, or spelling, or by an author in designating a type species; but its use is not mandatory.

positional number: (unoff.) a proposed system in which the position of a taxon in a classification is indicated by a number preceding a scientific name, e.g. "2.2.2.2.4.6 Mecopteroidea".

positive sense: (vir.) applied to an RNA molecule which can be translated by ribosomes to form proteins.

Post-Linnaean System: (unoff.) an alternative system of classification, proposed by M. Ereshefsky in 2001, based on 11 recommendations, and claiming to represent the needs of cladists but not being itself strictly cladistic; the recommendations include eliminating the "Linnaean" ranks and binomials no longer indicating the rank or placement of a taxon.

post-type: (zool., obsol.) rejected in favour of neotype (*q.v.*).

potentially valid name: (zool.) an available name which is not objectively invalid.

p.p.: *see pro parte.*

pp.: of a work, used to indicate the total number of pages or a particular page range.

praefamiliaris, [praefam.]: (zool., unoff.) (zool., unoff.) used in a similar manner to *familiaris* (*q.v.*) to indicate wild animals in the process of domestication, usually in an archaeological context; *see* *exfamiliaris*.

pragmatotype: a pragmatype (*q.v.*).

pragmatype: (zool., unoff.) specimen selected to serve as an interpretative type for a species name when the primary characters diagnostic for that species are not observable in the existing type, a contracted version of "pragmatotype"; *see also* epitype, hypotype, prototype.

Preamble: (bio., bot., phyl., zool.) used of introductory statements in a *Code* which explain its purpose and scope.

precedence: (1) (zool.) the order of seniority of available names or nomenclatural acts determined (a) by application of the Principle of Priority, or (b) in the case of simultaneously published names, or (c) by a ruling of the Commission using its plenary power; *see also* position preference, priority. (2) (phyl.) the order of preference among established names, used to select the accepted name from among them; in general, precedence is based on the date of establishment, with earlier-established names having precedence over later ones, but later-established names may be conserved over earlier ones.

pre-empted name: (prok., unoff.) a name previously applied to a taxon and therefore not therefore useable for a different taxon in the same rank or group; a preoccupied name.

pre-existing Codes: (phyl.) the rank-based *Codes* that were in operation before the *PhyloCode* was drafted (1997-2000), specifically those concerned with bacteria, botany, viruses, and zoology.

pre-existing name: (phyl.) a scientific name that, prior to its establishment under the *PhyloCode*, was either (a) legitimate (bot., prok.), potentially valid (zool.), or valid (zool.), or (b) in use but not governed by any *Code* (e.g. zoological names ranked above the family-group).

prefix, [pl. **prefixes**]: a letter or group of letters attached before the main part of a word and usually used only in forming derived words and not as a separate word (e.g. *Eu-* and *Para-* in *Eutettix* and *Paratettix* respectively); *see also* compound, suffix.

pre-holotype, [**pre holotypum**]: (bot., unoff.) proposed for application to a living cultivated plant from which the holotype of a name was prepared.

pre-Linnaean: names or works published prior to 1 May 1753 (bot.) or 1 January 1758 (zool.), the accepted dates of publication of Linnaeus's *Species Plantarum* and *Systema Naturae* (edn 10), which are the starting points for nomenclature in the groups concerned;

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works published by Linnaeus prior to these dates are regarded as pre-Linnaean for nomenclatural purposes.

prenomen [pl. **prenomina**]: (phyl.) the first part of a species binomen in phylogenetic nomenclature; the prenomen of a species binomen in phylogenetic nomenclature is spelled the same as a genus name of rank-based nomenclature, but is not necessarily associated with the rank of genus.

preoccupied name: (zool.) one already in use for another taxon with a different type.

pre-paratype, [**pre paratypum**]: (bot., unoff.) proposed for application to a living cultivated plant from which paratype material was prepared.

preparation: (bot.) in the sense of the *Code*, a specimen or specimens permanently preserved by some other means than drying and mounting on a sheet of paper, e.g. a microscope slide.

preprint: a work published, with its own specified date of publication (imprint date), and sometimes independent pagination, in advance of its later reissue as part of a collated cumulative work; preprints may be effectively published (bot.) or published (zool.) for the purposes of nomenclature; *see also* reprint, separate.

preserved : (1) of specimens, so treated as not to decay. (2) of fossils, ones whose remains or casts have survived; *see* fossil.

pre-starting point: (bot.) names or works published prior to the starting point date for the nomenclature of the group to which the name or work belongs.

pre-type, [**pre typum**]: (bot., unoff.) proposed for application to a living cultivated plant from which the nomenclatural type was prepared; *see also* clonotype.

prevailing usage: of a name, that usage of a name which is adopted at least by a substantial majority of the most recent authors concerned with the relevant taxon, irrespective of how long ago their work was published.

prevalid: (bot., unoff.) of a designation, one proposed before the starting point date of the group concerned; not therefore validly published.

primary homonym, [I]: (zool.) each of two or more identical specific or subspecific names established for different nominal taxa and originally combined with the same generic name.

primary type: (zool., obsol.) the specimen on which the description of a new species-group name is based; a basic type (*q.v.*) or proterotype (*q.v.*); *see also* holotype.

primogyne: (zool., unoff.) the primary type female of a species.

principal: (bot.) of a rank, one of the categories to which every individual plant (certain hybrids accepted) belongs; *see* supplementary rank.

Principle: in a *Code*, a fundamental precept or general law which the articles of a *Code* are designed to satisfy; *see also* Preamble.

Principle of Binominal Nomenclature: (zool.) the principle that the name of a species, and not of a taxon at any other rank, is a combination of two names (a binomen, *q.v.*); the use of a trinomen (*q.v.*) for the rank of subspecies and of uninominal names for taxa above the species group is in accord with the Principle.

Principle of Coordination: (zool.) the principle that within the family group, genus group, or species group, a name established for a taxon at any rank in the group is deemed to be simultaneously established with the same author and date for taxa based on the same name-bearing type at other ranks within the group.

Principle of the First Reviser: (zool.) the principle that the relative precedence of two or more names or nomenclatural acts published on the same organism or different original spellings of the same name, is determined by the first reviser.

Principle of Homonymy: (zool.) the principle that the name of each taxon is unique; consequently a name that is a junior homonym of another must not be used as a valid name.

Principle of Priority: (zool.) the principle that the valid name of a taxon is the oldest available name applied to it (taking into consideration provisions of the *Code*), provided that the name is not invalidated by any provision of the *Code* or by any ruling of the Commission.

Principle of Typification: (zool.) the principle that each nominal taxon in the family group, genus group, or species group has, actually or

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potentially, a name-bearing type fixed to provide the objective standard of reference by which the application of the name is determined; *see* typification.

printed matter: text or illustrations mechanically reproduced by printing in considerable quantities and in intentionally permanent form, and in which each letter of text, or each illustration, is formed from a fabricated master.

printer's error: an incorrect spelling or other error made in type-setting; a typographical error.

printing on paper: the production of numerous identical copies of text or illustrations on paper, by transferring an image of text or illustrations in wet ink from a prepared surface (e.g. type, lithographic stone, lithographic plate, engraved plate, wood block, gelatin) onto paper (compare xerography); in zool. photography (i.e. the production of images on light-sensitive paper) does not constitute printing.

prion: (vir.) a small proteinaceous infectious particle that resists inactivation by procedures which modify nucleic acids; prions cause transmissible neurodegenerative diseases of animals.

priorable name: (1) a name that is established and is to be taken in account for purposes of determining the accepted name of a taxon. (2) (bot., obsol.) sometimes used in a restricted sense for a legitimate name which cannot be adopted in a new position because of resultant problems of homonymy.

priority: (1) (zool.) seniority fixed by the date of availability; *see* Principle of Priority. (2) (bot.) a right to precedence established by the date of valid publication of a legitimate name or of an illegitimate earlier homonym, or by the date of designation of a type. (3) (vir.) not observed in the naming of taxa and viruses.

pro hybrida: as a hybrid; (bot.) used in citations to indicate that a binary name regarded as that of a species was originally published as that of a hybrid.

pro parte, [p.p.]: in part; used in citations to indicate that a taxon as circumscribed by an author covered more than a single taxon only one of which belongs to that being referred to.

pro specie, [**pro sp.**]: as a species; used in citations to indicate either that a binary name regarded as that of a hybrid was originally published as that of a species, or as a synonym of another.

pro synonymum, [**pro syn.**]: (bot., unoff.) as a synonym; used in citations to indicate that the name, when first published, was merely cited as a synonym of another name accepted by the author.

profanotype: (zool., unoff.) the type of a taxon the name of which is offensive, for example because of its sexual nature(!).

progeny: (cult. pl.) the result of propagation.

progressotype: (zool., unoff.) the type specimen of a species the original habitat of which became an urban development, and so is probably now extinct(!).

proles, [**prol.**]: (1) (bot., cult. pl., unoff.) a rank between subspecies and variety, used for the designation of a group of varieties conformable from the ecological-morphological and often also geographical points of view. (2) (bot., obsol.) a race.

proposal, [**propositus**, **prop.**]: (1) (bot.) a suggested addition or amendment to the *Code* or a proposal for the conservation or rejection of a name to be considered by the appropriate Permanent Committee or by a subsequent International Botanical Congress. (2) (zool.) an action, whether successful or unsuccessful, to establish a nominal taxon or name or to carry out a nomenclature act. (3) (zool.) an application to the Commission (ICZN) for the adoption of a part of the *List of Available Names in Zoology*; see conditional proposal.

proposed conserved name, [**nomen conservandum propositum**, **nom. cons. prop.**]: (bot.) a name formally proposed for conservation but on which a decision from the relevant Permanent Committee is pending.

propositum, [**prop.**]: proposed.

prostitutotype: (zool., unoff.) a type specimen sold by the describer to the highest bidder(!).

prostype, [**prostypus**]: (obsol.) a pattern or model in representation.

-prota: (zool., unoff.) proposed as a suffix to be used to indicate protistan groups in the rank of phylum.

protected name, [**nomen protectum**, **nom. prot.**]: (1) (bio.) a listed name and its coordinate names treated as if conserved against earlier homonyms and unlisted competing synonyms. (2) (bot., unoff.) suggested to indicate the status of names on a List of names in Current use (NCU) approved by an International Botanical Congress; i.e. names protected against earlier homonyms and competing names with the orthography, authority, place and date of publication, and typification as listed. (3) (zool.) a name which has been given precedence over its unused senior synonym or senior homonym relegated to the status of *nomen oblitum*.

proterotype: (1) (zool., unoff., obsol.) a primary type (*q.v.*). (2) (zool., unoff.) all the original specimens collected at one time from which the type(s) were selected.

protograph: (1) (zool., unoff.) the original illustrations illustrating a holotype, i.e. those appearing in the protologue. (2) (zool. unoff.) the single illustration of a primary type made by the author of the name at the time of its original description.

protologue, [**prolotog**]: everything associated with a name when it was first established (phyl.), validly published (bot., prok.), or made available (zool.), or in the publication in which it is eligible for establishment (bio.); e.g. description, diagnosis, phylogenetic definition, registration number, designation of type, illustrations, references, synonymy, geographical data, specimen citations, and comments.

protonym: an effectively but not validly published name, especially of one taken up and validly published at a later date; not generally used of devaluated names.

protoplastotype: (zool., unoff.) the cast of a proterotype (*q.v.*).

prototype, [**prototypus**]: (1) (zool., unoff.) a primary type or proterotype (*q.v.*). (2) (not nomenclatural, obsol.) the most primitive representative of a group; most often used for a hypothetical ancestor; *see* archaetype. (3) (bot., obsol.) used by Linnaeus for groups he considered to have been originally made by God, the principal ones being roughly equivalent to natural orders.

prototype, [**prototypus**]: (1) (zool., unoff.) a specimen which because of its completeness supplants a fragmentary holotype; a proxy type or epitype (*q.v.*). (2) (bot., obsol.) an epitype (*q.v.*); *see also* pragmatype. (3) (obsol.) a prostype (*q.v.*). (4) (prok., obsol.) a neotype (*q.v.*). (5) (obsol.) used by Linnaeus in connection with several genera of "fevers".

provaretas, [**provar.**]: (cult. pl., unoff.) a proposed rank between subconvarietas and subprovaretas; a taxoid equivalent in rank to that of variety in wild plants.

provenance: (cult. pl.) the known geographic origin of plants or seed, used mainly by foresters to describe worthwhile selections from indigenous populations.

province: (obsol.) a rarely used rank inserted between subkingdom and class.

provision: in a *Code*, a term equivalent to an Article or a Rule.

provisional name, [**nomen provisiorum**, **nom. provis.**, **nom prov.**]: (bot.) a name proposed in anticipation of the future acceptance of the taxon concerned, or of a particular circumscription, position, or rank of the taxon, and so not established; i.e. a name not accepted (and so not established) by an author when originally published; *see also* ad interim, cognomen, informal name, interim name, question mark, taxon label.

proxy type: (zool., unoff.) a prototype (*q.v.*).

pseudocompound: a name or epithet which combines elements derived from two or more Greek or Latin words and in which a noun or adjective in a non-final position appears as a word with a case ending, not as a modified stem; e.g. *Myosotis* formed by "myos" and "otis" (ear of mouse).

pseudogenotype, [**pseudotyp**]: (zool., unoff.) any species absent from an originally described genus which was later designated as the type species of that genus.

pseudogenus: (prok., zool., unoff.) a generic name which when first introduced did not include any named species.

pseudoisonym, [**pseudo-isonym**]: (1) (prok., unoff.) a false isonym (*q.v.*); i.e. a name which at first appears to be based on the same type as another but is actually not. (2) (bot., unoff.) one of two or more names where different authors make the same combination based on the same subordinate element, but the inclusive higher-rank elements have different types.

pseudonym: (1) a false or assumed name of a person; a nom-de-plume (e.g. the mycologist C. G. Lloyd writing under the name of N. J. McGinty); in (zool.) such works were formerly ruled as unacceptable. (2) (phyt.) a name of a syntaxon used with the original author citation or reference to it but misinterpreted by later authors.

pseudorecombinant: (vir.) an isolate of a multipartite genome virus which was formed by mixing genome parts from distinct parental isolates; *see also* reassortment.

pseudotaxon, [pl. **pseudotaxa**]: (unoff.) segregates of a taxon which appear to be subordinate taxa, but in reality cannot be segregated and so cannot be classified.

pseudotype: (1) (zool., unoff.) the type of a genus-group name which has been erroneously designated; a false type. (2) (zool., unoff.) a duplicate of a type specimen which was not studied by the author describing the taxon (e.g. one with the same collection details but deposited in a different institution).

pseudotypic: (zool., unoff.) of a genus-group name, one with an invalid type.

psocotype: (zool., unoff.) a type specimen damaged by psocids.

PTR [**PalaeoTaxon Record**]: (palaeo.) a form of presentation of data for a base taxon only.

publication: (1) (not nomenclatural) any published work. (2) of names, the act or process of making names available in the public domain; *see* effective publication, valid publication. (3) of books, pamphlets, periodicals, and other printed materials, the act or process of distributing printed matter through sale, exchange or gift into the public domain; *see* date of publication, effective publication, electronic publication. (4) (bio.) the distribution of text or images (but not sound) in multiple identical, durable, and unalterable

copies, in a way that makes it generally accessible as a permanent public record to the scientific community, be it through sale or exchange or gift, and subject to restrictions in the *Code*.

publication date: *see* date.

Publication, electronic: *see* electronic publication.

publication year: (phyl., zool., and increasingly bot.) commonly cited immediately after an author citation following a scientific name, with an intervening ", " in (zool.), and in round brackets (sometimes in bot.) or not (sometimes in bot., commonly in mycol.); in (zool.) also used in parenthetical citations to authors of basionyms, e.g. *Cubiceps gracilis* (Lowe, 1843).

publish: (1) to issue any publication. (2) to issue a work that conforms to the appropriate *Code*. (3) to make public in a work conforming to the requirements of the appropriate *Code*, any names or nomenclatural acts or information affecting nomenclature.

published: of a name, (bio., cult. pl., zool.) one that fulfils the requirements of publication in a *Code*; (bot., prok.) effectively published.

published work: (1) (bot.) a work effectively published within the meaning of the *Code*. (2) (zool.), *see* publish.

publishing author(s): (1) an author or authors who publish a scientific name coined by but not established (validly published) by another worker. (2) an author who mentions such a name coined by another worker incidentally. (3) the person who prepares written material, usually for publication.

publishotype: (zool., unoff.) a holotype described after rumours of staff cuts (!).

pupal type: (zool., unoff.) *see* locality type.

putative synonym: (prok., unoff.) a name produced in good faith for a taxon, but which included the type of a name that should have been taken up; a subjective or taxonomic synonym.

q.e., [**quod est**]: which is.

q.v., [**quod vide**]: which see; used to direct the reader to a comment on the indicated word.

quadrinomial: (zool., obsol.) a scientific name in four parts, for example that of a variety within a subspecies (e.g. *Myrmecocystus melliger semirfus testaceus*).

qualifying clause: (phyl.) a part of a phylogenetic definition that specifies conditions under which the defined name cannot be applied.

qualifying phrase: (prok.) a tag appended to a scientific name, usually after an author citation, to indicate the nomenclatural or taxonomic status of the name; e.g. nom. rej., mut. char., emend.

quasi-species, [**quasispecies**]: (vir.) a group of virus species related by a similar mutation or mutations, and competing in a highly mutagenic environment; quasi-species have no taxonomic meaning under the *Code*.

question mark, [**?**]: sometimes used as an indication of taxonomic doubt, for example as to the genus in which a new species is being described; such names can be validly published in (bot.) and (zool.), but not in (prok.); *see ad interim*, provisional name.

quinquenomial: (zool., obsol.) a scientific name of five words, for example that of a variety within a subgenus and a subspecies (e.g. *Camponotus (Myrmentoma) caryae discolour cnemidatus*).

quirotpe: *see* chirotype.

quoad: (obsol.) as to (the), as regards (the), to this extent; occasionally formerly used in citations to indicate what part of a taxon as circumscribed by a previous author is being referred to by the author.

quod vide, [**q.v.**]: which see; *cf.*

quotation marks, [**“ . . . ”**, **‘ . . . ’**]: (1) (bot., prok., unoff.) used in the citation of names to indicate original spellings when these have been corrected in accordance with the *Code*. (2) (prok.) also used for designations that are not validly published or not yet validated by announcement in the *International Journal of Systematic and Evolutionary Microbiology*. (3) (cult. pl.) single quotation marks are

placed around the name of a cultivar (*q.v.*). (4) (zool., unoff.) single quotation marks placed around species epithets in binomials of domesticated animals to indicate that they are not separated as true species from wild ancestors; *see* inverted commas.

r.: *see* recto.

R, ([R], ^R): (phyl.) when placed in squared brackets or a superscript after a scientific name, used to designate a name governed by one of the pre-existing rank-based *Codes*, e.g. *Ajugoideae* [R] or *Ajugoideae*^R; *see* P.

race: (1) (mycol., prok., unoff.) an infraspecific rank, used in a plethora of ways, to denote a group of individuals possessing common features which distinguish them from other groups of the same kind within formally recognized species or infraspecific taxa; *see* pathotype, pathovar, physiological race, special form. (3) (cult. pl., unoff.) proposed as a rank term equivalent to variety (not cultivar); *see also* proles. (3) (zool.) a subspecies. (4) (not nomenclatural) genetically, and as a rule geographically distinct, mating groups within a species.

ramet: (bot., mycol.) an individual member of a clone; i.e. a part of a genetically identically asexually reproducing clone; *see* genet.

rank: (1) the position in an hierarchy. (2) the relative position of a taxon in a hierarchy of nested taxa. (3) the relative position of a category in the taxonomic hierarchy.

rank-based codes: the *Codes* that employ a rank-based system of nomenclature (i.e. bio., bot., cult. pl., phyt., prok., vir., zool.)

rank-based system: of nomenclature, an integrated set of principles and rules governing the naming of taxa and the application of taxon names that is based on taxonomic ranks (e.g. kingdom, phylum); i.e. the traditional hierarchical system of biological nomenclature

Rassenkreise: (1) (zool., unoff.) used for specimens or groups of specimens of an uncertain infraspecific category. (2) (zool., unoff.) a polytypic (*q.v.*) taxon.

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reassortment: (vir.) formation of a novel multipartite genome by making new combinations of genome parts from two “parental” isolates.

Rec.: *see* Recommendation.

Recent: of geological time, sometimes used in contradistinction to fossil; non-fossil (*q.v.*).

recombination: (1) sometimes applied to the placing of a name in an unaltered rank within the same genus or species but under a different taxon of higher rank (e.g. moving a “form” from under one “variety” of a species and placing it under another variety of the same species), or transfer of a species from one genus to another; best avoided due to possible confusion with genetic recombination; *see* combination, new. (2) (vir.) formation *in vivo* of a new nucleic acid sequence by ligation of pieces of nucleic acid.

Recommendation, [Rec.]: an advisory statement in a *Code* which is not mandatory, but considered good practice to be followed.

record: (palaeo.) statement of occurrence of any fossil (or other geological phenomenon).

recordotype: (1) (zool., unoff.) the type of a taxon distinguished only by a sound recording. (2) (zool., unoff.) the type of a taxon only known from sound recording.

recto, [r.]: sometimes used to indicate the right-hand page of an open book; *see* verso.

redemption: the transference of a taxon to a new position with or without a change in the name or epithet.

reestablishment: (unoff.) of a name, one in which a name or epithet which was previously unavailable for use under the particular *Code* has to be taken up when the taxon is changed in position or rank.

reference, bibliographic: *see* bibliographic reference, direct reference, indirect reference, page reference.

reference phylogeny: (phyl.) a phylogenetic hypothesis that provides a context for applying a clade name by means of its phylogenetic definition.

reference strain: (prok.) one which is neither a holotype nor a neotype strain, but a strain used in comparative studies.

Reformed Code of Botanical Nomenclature, A: a code "edited and improved" from the official *Code*, prepared by P.G. Parkinson in 1990; it has no international status as a *Code*.

Règles Internationales de la Nomenclature Botanique: *see* International Code of Botanical Nomenclature.

Règles Internationales de la Nomenclature Zoologique: (zool., obsol.) issued in 1905, and the first International Code of Zoological Nomenclature (*q.v.*) to be adopted at an International Zoological Congress.

register: (1) (zool., prop.) to enter onto the Official Register (*q.v.*) information about a name, author, nomenclatural act, work, or other item tracked for purposes of zoological nomenclature. (2) (bot., cult. pl.) *see* registration.

registerable: (bio.) of a name, one that meets the requirements for registration (*q.v.*).

registered genetic resource, [rgr.]: (cult. pl., unoff.) a taxonomic and genetic category for the denomination of a genetic resource sample with specific, desirable and defined character states, but not developed to the status of cultivar and denoted by the use of an asterisk (*) before the rgr. name (e.g. *Trifolium pannonicum* rgr. '*Giant').

registered name: (cult. pl.) a name accepted by the relevant international Registration Authority (IRA; *q.v.*).

registered trademark: (cult. pl.) a trademark that has been formally accepted by a statutory trademark authority, distinguished by the international ideograph ®.

registering office: (bot., obsol.) an office designated by the IAPT for the purposes of registration (*q.v.*).

registrant: (cult. pl.) the person filling in and submitting a registration form for a cultivar to an International Registration Authority.

registration: (1) (cult. pl.) the act of recording a new name or epithet with an International Registration Authority (*q.v.*). (2) (bio.) of names,

effected by (a) submitting the published matter that includes the protologue(s) or nomenclatural acts to a registering office designated by the relevant international body, or (b) where an official medium for establishment of names has been designated, by publication in that medium. (3) (bot., obsol.) the sending of printed matter that includes the protologue(s), with the name(s) to be registered clearly identified, to any registering office designated by the IAPT; this provision, included in the 1994 *Toyko Code* was deleted from the *St Louis Code* of 2000; *cfr* Validation List. (4) (phyl.) submission of the name and other required information to the PhyloCode registration database. (5) (zool., prop.) of names and nomenclatural acts, inclusion in the Official Register of Zoological Nomenclature (*q.v.*), and required for a new scientific name to be published in an electronic work; *see* electronic publication.

registration number: (zool., prop.) a unique identifying number or alphanumeric code assigned in the Official Register (*q.v.*) to a particular item.

-regnanoj: (unoff.) proposed termination in Esperanto for a name in the rank of kingdom in the New Biological Nomenclature (*q.v.*).

Reihe: (bot., obsol.) a name of a rank taken as being in that of order.

reinstate: of a name, to restore one previously rejected as being a secondary homonym or for some other reason once rejected, when certain conditions are fulfilled.

reject: (1) (zool.) to set aside, in accord with the provisions of the *Code*; in the case of a name, because of taxonomic judgement; in the case of a work, for the purposes of zoological nomenclature. (2) to set aside a name of a taxon in favour of another name; *see* rejected name, rejected work, suppression.

rejected name, [nomen rejciendum, nomen rejectum, nom. rej.]: (1) (bot., prok.) a name the use of which is prohibited, either by formal action overriding other provisions of the *Code*; i.e. a name that would otherwise cause a disadvantageous nomenclatural change; names so ruled are placed on a list of such names which, and all combinations based on them, are not to be used; the placement of names on such a list must be ratified by an International Bacteriological or Botanical Congress; *see* conserved name. (2)

(bot.) a name that was nomenclaturally superfluous when published or a later homonym. (3) (zool.) any name which, under the provisions of the *Code* cannot be used as a valid name and which is set aside in favour of another. (4) (zool.) a name, which, as a matter of taxonomic judgement, is rejected as a junior subjective synonym (*q.v.*) of a name used but which is believed not to be applicable to the taxon under consideration. (5) (cult. pl.) one not be used as a result of failure to comply with particular provisions of the *Code*.

rejected synonym: (prok.) a name, other than the correct one, of a particular taxon.

rejected work: (zool.) any work included by the Commission (ICZN) in the *Official Index of Rejected and Invalid Works in Zoological Nomenclature*; *see also* suppressed name, suppressed work.

relative order: the sequences of categories in the taxonomic hierarchy specified in the *Codes*.

relevé: (phyt.) a compiled list of scientific names of plant species or infraspecific taxa from a sample plot with quantitative indication of their occurrence following the standard scales; the relevé must include the environmental features of the studied habitat to be validly published; the basic element of phytosociological science.

remodel: (unoff.) of a taxon, to divide or unite with others in a way which involves the alteration of its circumscription and diagnostic characters.

remorsotype: (zool., unoff.) the type of a taxon the original author of which regrets having described (!).

replaced synonym: (bot.) a name replaced by an avowed substitute (*q.v.*); *see* nomen novum, replacement name.

replacement name: (1) (zool.) a nomen novum (*q.v.*); a name established to replace an already established name. (2) (zool., unoff.) an available synonym or new name adopted to replace an earlier preoccupied name (*q.v.*). (3) (phyl.) a new name explicitly substituted for a previously established name that is not acceptable because it is a later homonym; a replacement name is equivalent to a nomen substitutum in this *Code*; *see also* superfluous name, unnecessary substitute name. (4) (bot.) an avowed substitute (*q.v.*).

- replacemotype:** (zool., unoff.) a better specimen used to replace a primary type in a poor condition or which has been destroyed; this practice also occurred in (bot.), especially in the seventeenth and early eighteenth century.
- replicate**, [pl. **replicates**]: (mycol., prok., unoff.) of subcultures, ones made at the same time from the same inoculums; particularly used for lyophilized ampoules prepared from one suspension under identical conditions
- representative:** of a specimen or cultured strain, one characteristic of the taxon which is not necessarily the nomenclatural type of the name.
- reprint:** (1) a reissue of a work without any change in typography; especially used for books. (2) a part of a periodical or other work, often the contribution of a single author, printed separately from the regular issue of the main work, and usually intended for private distribution by that author; author's extra, offprint, separate.
- republished name:** (prok.) a re-used name (*q.v.*). (2) an available synonym adopted to replace an earlier unavailable name (*q.v.*) (3) (zool.) a name introduced as a replacement for a name that is not available (i.e. preoccupied.)
- request:** (prok.) a request for an opinion (*q.v.*).
- reserved name:** (cult. pl.) one that has not been established but that may have been recorded by an International Cultivar Registration Authority as likely to be duly registered; such names have no status under the *Code*.
- residue method:** (obsol.) of typification, the practice of taking the single species left in a genus, after the transfer of all other original members to one or more different genera, as the type of the name; no longer permitted in (bot.).
- restricted emendation:** (phyl.) a formal change in a phylogenetic definition that requires approval by the Committee on Phylogenetic Nomenclature; a restricted emendation is intended to change the application of a name through a change in the conceptualization of the clade to which it refers; *see* unrestricted emendation.

resubmission: (bot., obsol.) of a name submitted for registration (*q.v.*) which did not meet one or more of the other conditions for valid publication when originally submitted and sent in again to the registering office after these conditions have been met.

resurrected name: a name that has been re-introduced; e.g. one not used for many decades because its publication was overlooked, the type material could not be located, or it had been incorrectly treated as a synonym of another taxon.

resurrectotype: (zool., unoff.) an original type specimen rediscovered after a neotype had been designated because the original material was thought to be lost or destroyed.

retain: to continue to use a name as the correct name or as the epithet of a correct name, especially used in case where a taxon has been divided.

retroactive: active back in time; nomenclaturally, unless expressly stated, a provision in a *Code* is operational regardless of the date when it became a part of that *Code*, and applies equally to any and all names proposed after the accepted date at which establishment (valid publication) for a particular group began (i.e. the starting point date for that group).

reused name: (prok.) a name validly published prior to 1 January 1980 not on the Approved List and adopted after that date, but not validly republished; *see* revived name.

revalidated name: a devalidated name taken up and validly published in a post-starting point work; *see also* per.

reviser, first: *see* Principle of the First Reviser.

revision: in taxonomy, the result of a critical re-appraisal of the classification of a particular group of organisms.

revived name, [nomen revivum, nom. rev.]: (prok.) a name validly published before 1 January 1980, but not included in the Approved List and taken up after that date by a later author for a taxon with the same circumscription, position and rank as given by the original author; such names date from their inclusion in a Notification List or a Validation List (*q.v.*); *see also* multiplication sign.

rgr.: *see* registered genetic resource.

rite: according to the rules.

Rochester Code: (bot., obsol.) an enunciation of principles of botanical nomenclature produced in 1892 which served as a basis for the American Code (*q.v.*).

rogue: *see* off-type.

roguing: (cult. pl.) the removal of living off-types (*q.v.*) from a crop.

Roman script: a writing system using the Roman alphabet.

Roman type: the printer's normal vertical type-face (as in these words). (1) (zool.) proscribed for scientific names above the rank of genus from the last *Code*; not regulated by the previous *Codes*. (2) (bot., prok.) used for ranks either above family or above genus in some editorial traditions, but not in the *Code* itself where italics are consistently employed. (3) (cult. pl.) used for the names of cultivar and Group designations; (4) (vir.) infraspecific names; *see also* italic type.

romanization: the placing of ideographs, signs or letters of a non-Roman alphabet writing system into Roman script; *cf* transcription.

round brackets, ((. . . .)): (1) (bot., phyl., phyt., prok., zool.) around the name or abbreviation of an author in an author citation of a name, indicating that that author employed the epithet or name in a different position or rank from that in which it is being used. (2) around a date following an author citation, the date of establishment (availability, valid publication) of the name. (3) (bot., unoff.) around a subgeneric name inserted after a generic name, indicating the subgenus to which a species belongs (e.g. *Ranunculus (Batrachium) aquatilis*). (4) (bot., zool., unoff.) around one generic name inserted after another generic name to indicate that the species is sometimes (or was formerly) placed in the bracketed genus (e.g. *Pilosella (Hieracium) flagellaris*). (5) (mycol., unoff.) around one generic name inserted after another generic name to indicate the generic placement of the teleomorph of an anamorph (e.g. *Aspergillus (Emericella) nidulans*). (6) (zool.) around a specific name placed between a genus-group name and another specific name to indicate that the species belongs to a particular species aggregate (e.g. *Ornithoptera (priamus) croesus*); *see also* interpolated name.

rules: the regulations in a *Code* which are mandatory; the provisions of a *Code*, set out as Articles or Rules.

ruling: (zool.) a decision by the Commission (ICZN) published as an Opinion, Declaration, or Direction.

s.s.: sensu stricto (*q.v.*).

S₁ hybrid: *see* synthetic hybrid.

saltation: (1) (not nomenclatural) the sudden appearance of an unexpected character, for example by mutation; a sport. (2) (mycol., obsol.) a permanent variation or mutation arising from a growing mycelium, usually in artificial culture.

saltem: at least.

sanctioned name: (1) (mycol.) the name of a fungus treated as if conserved against earlier homonyms and competing synonyms, through acceptance in one of two sanctioning works (*q.v.*); *see* colon. (2) (cult. pl.) one in which an otherwise illegitimate cultivar epithet is made permissible under certain conditions.

sanctioning work: (mycol.) a work in which names are sanctioned; i.e. C. H. Persoon's *Synopsis Methodica Fungorum* (1801) for names in *Uredinales*, *Ustilaginales* and *Gasteromycetes* s.l., and E. M. Fries's *Systema Mycologicum* (1821-32, with additional *Index* and *Elenchus Fungorum*) for other fungi (excluding slime moulds).

sanctotype: (mycol., unoff.) proposed for a specimen or illustration selected to serve as the nomenclatural type of a sanctioned name (*q.v.*) from among any element associated with the name in the sanctioning work (*q.v.*).

satellite: (vir.) a subviral agent which compromises nucleic acid molecules, with or without capsid proteins, that depend for their productive multiplication on co-infection of host cell with a "helper" virus; satellite nucleic acids contain substantial nucleotide sequences distinct from that in the genome of either helper virus or host.

scheda, [sched., pl. **schedae**]: a label (of a specimen).

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schizotaxon: (unoff.) the one of two or more taxa formerly included under one name and subsequently split into two or more taxa of the same rank.

schizoholotype: (zool., unoff.) a significant fragment or part of a holotype.

schizolectotype: (zool., unoff.) a significant fragment or part of a lectotype.

schizoparalectotype: (zool., unoff.) a significant fragment or part of a paralectotype.

schizotype: (1) (bot., unoff.) a syntype which a later author implies he regards as the nomenclatural type of a taxon, e.g. by excluding all other syntypes from the taxon, but does not specifically state he or she has selected a type for the taxon; i.e. an implicit lectotype. (2) (zool., unoff.) a single specimen which is the type of two valid taxa. (3) (zool., unoff.) a piece of a type (that may also be a kleptotype); commonly used in this sense amongst workers on colonial animals.

scientific name: (1) a name that is formed according to and governed by one of the *Codes*, or is of a similar latinized form (e.g. zoological names ranked above family-group); *see* available name, name. (2) (zool.) of a taxon, a name that conforms to the *Code*, as opposed to a vernacular name; the scientific name of a taxon at any rank above the species group consists of one name, that of a species of two names (binomen), and that of a subspecies three names (a trinomen); a scientific name is not necessarily available.

scilicet, [sc.]: namely.

scoopotype: (zool., unoff.) the type of a taxon that was described more rapidly by one author than another also planning to describe the same taxon (!).

seasonal type: (zool., unoff.) *see* locality type.

sec., [secundum]: according to.

secondary homonym,[#]: (zool.) each of two or more identical specific or subspecific names established for different nominal taxa and originally combined with different generic names but subsequently combined with the same generic name.

secondary type: (zool., unoff.) a specimen used to supplement or correct knowledge of a previously described species; a heautotype, neotype or plesiotype; *see also* epitype.

section, [sect.]: (1) (bot.) a category of taxa intermediate in rank between subgenus and series. (2) (zool.) a rank that if treated as a division of a genus or subgenus deemed to be of subgeneric rank for the purposes of nomenclature. (3) a taxon at the rank of section.

Section, Nomenclature: *see* Nomenclature Section.

secundum, [sec.]: (1) (unoff.) according to; *see fide, teste*. (2) (unoff.) proposed for use in author citations to indicate either the author whose circumscription (taxonomic concept) is adopted, or the work used in identification (e.g. *Dicranum fuscescens* Sm. 1804 sec. Ludwig et al. 1996); when used to indicate different circumscriptions, use with a range of ideographs has been suggested to indicate more inclusive (>), less inclusive (<), identical (=) usages, etc.

sedis mutabilis, [sed. mut.]: (unoff.) used to indicate a changed taxonomic placement.

Seed List: (bot.) a printed list of the names of plants that a botanic garden has seeds of which are available as a gift or for exchange with other botanical gardens; an index seminum (*q.v.*).

segregate: (1) (cult. pl.) a hybrid individual in which characters of one or another parental stock (as contrasted to characters intermediate between those of the parental stocks), are apparent. (2) a part of a taxon that is split into two or more parts.

selection: *see* maintenance.

selling name: *see* trade designation.

semaphoront: (zool., not nomenclatural) each morphological phase of an organism in different times in which it is examined during its lifetime (e.g. egg, larval and pupal stages, and adult).

semi-naked combination: (bot., unoff.) a new combination (*q.v.*) in which all the bibliographic information required by the *Code* for valid publication is not supplied (e.g. the page number in the work where the basionym was validly published; *see also* naked name).

semi-naked name: *see* nomen seminudum, nomen subnudum, semi-naked combination.

semispecies: (1) (zool., not nomenclatural) used to indicate the intermediate nature of geographically isolated populations for which the exact ranking is difficult to determine on the evidence available. (2) (zool., unoff.) the component species of a superspecies; *see also* allospecies. (3) (bot., unoff.) an incipient species, not a rank term; a group of actually or potentially interbreeding populations, which are chromosomally somewhat different, but not effectively reproductively isolated from other such groups.

senior homonym: (zool.) of two homonyms, the first established, or in the case of simultaneous establishment the one given precedence under the *Code*.

senior synonym: (zool.) of two synonyms, the earlier established, or in the case of simultaneous establishment that given precedence under the *Code*; earlier synonym, older synonym.

sensu, [**sens.**, **s.**]: in the sense of; often used to refer to the use of a name by a cited author in a sense different from that of the original or some other previous author; *see* misapplied name.

sensu amplo, [**sens. ampl.**, **s. ampl.**]: in a broad sense.

sensu lato, [**sens. lat.**, **s. lat.**]: in a broad sense.

sensu novo: (prok., unoff.) in a new sense; used after author citations to indicate that a name is being used with either a wider or a narrower circumscription.

sensu stricto, [**sens. str.**, **s. str.**, **s. s.**]: in a strict sense. (1) of a taxon, in the sense of the type of its name, or in the sense of its circumscription by its original describer. (2) (zool.), of a taxon, used in conjunction with a name when referring to the nominal taxon in the narrow sense of its subordinate nominotypical taxon.

separate: a copy (reprint or offprint) of a work contained in a part of a book or other larger work (e.g. a journal), intended for distribution (usually privately by the author(s)) detached from the larger work which contains it but with its own specified date of publication (imprint date); in (zool.) the distribution of separates after 1999 does

not constitute publication for purposes of zoological nomenclature; *see also* author's extra, offprint, preprint.

sequotype: (zool., unoff.) the specimen immediately following a holotype in the author's collection sequence.

ser.: series (*q.v.*).

serial: a publication issued at regular or irregular intervals; *see* journal.

series: (1) (bot.) a category of taxa intermediate in rank between section and species. (2) (bot., obsol.) an infrageneric category formally used by some workers using names based on the included species. (3) (cult. pl.) in seed marketing, a number of cultivars based upon a certain ideotype and differing from each other usually only in one character, normally flower colour. (4) (cult. pl., unoff.) a category for the designation of a group of closely related proles (*q.v.*), or of a group of related species forming a conspecies (*q.v.*). (5) (zool., unoff.) a rank between subkingdom and phylum.

series mixture: (cult. pl.) in seed marketing, a mixture of cultivars from a series.

serological type: a serotype (*q.v.*).

serotype: (1) (prok.) a variant of a species or subspecies distinguished from other such variants of the same species or subspecies on the basis of its antigenic structure; a serological type. (2) (vir.) a strain or group of strains, particles of which react well with one or more antibody preparations and which are distinguishable from other strains or groups of strains by this reactivity.

serovar: (prok.) an infrasubspecific strain of a species distinguished from other such variants by antigeneric characteristics; a serotype.

Session, Nomenclature: *see* Nomenclature Session.

seu: either, or.

sexual hybrid: *see* hybrid, mechanical hybrid.

sexual type: (zool., unoff.) *see* locality type.

s-g., [s-gg.]: *see* subgenus.

shared organ species: *see* form species.

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sibling species: one of two or more closely related species which are very difficult to separate: *cfr* cryptic species, microspecies.

sic: thus; in this manner; used in citations in parentheses after a name or number to show an exact transcription, usually of an orthographic or other error.

siccatus: dried; sometimes used of dried specimens, especially of plants.

sig.: *see* signature.

siglum, [pl. **sigla**]: (vir.) a name made up from a few, generally initial, letters (e.g. Reovirus from respiratory enteric orphan viruses); such names may be employed as the names of viruses or viral taxa, provided that they are meaningful to workers in the fields and are recommended by international virus study groups.

sigmataxon, [pl. **sigmataxa**]: (phyt.) the syntaxon which represents the mature state in a particular sigmetum.

sigmetum, [pl. **sigmeta**]: (phyt.) all the plant communities, or collection of stages, that can be found in similar ecologically homogeneous territories or geographic areas as a result of succession processes; names of sigmeta are not considered as syntaxa and are not covered by the *Code*.

signature, [**sig.**]: (1) (not nomenclatural) letters or figures placed at the foot of a page of printed matter, recommended in (zool.) for use when pages are unnumbered to facilitate their identification. (2) (not nomenclatural) of a book, sections of the work printed and folded separately, the first page of each having a mark to indicate the sequence these are to be bound in; in some large works, signatures are distributed separately as prepared and have different dates of effective publication.

silviculture: (cult. pl.) the extensive cultivation of woody plants.

simultaneous publication: (bot., zool.) the publication of two or more names for a single taxon in the same work, other than alternative names when simultaneously published names compete; *see* first reviser.

sine: without.

sine descriptio: without a description.

sine numero, [s.n.]: sometimes used in citing lists of specimens after a collector's name to indicate the absence of a collector's number

sine typo: without a type.

single cross: see F1 hybrid.

sister clade: (phyl.) one member of a pair of clades originating when a single lineage splits into two; sister clades thus share an exclusive common ancestry and are mutually most closely related to one another in terms of common ancestry.

sociation: (phyt., obsol.) an hierarchical rank of a syntaxon, equivalent to facies but not covered by the *Code*.

socion: (phyt., obsol.) an hierarchical rank of a syntaxon, equivalent to synusia but not covered by the *Code*.

solutotype: (zool., unoff.) a type kept in a liquid of extremely high or low pH so that it has dissolved into the solution (!).

sortotype, [sortotypus]: see *conculata*.

sp.: species (*q.v.*); often used after a generic name where the identity of the species is unknown.

sp. indet., [sp. ind., species indeterminate]: used to indicate that the species to which a specimen belonged could not be identified.

sp. nov.: species nova (*q.v.*).

sp. rev., [species revivisco]: a species revived or reinstated, e.g. from synonymy.

spec.: see specimen.

special classification: (prok., unoff.) a classification derived for a special purpose, i.e. ones which are based on a selection of characters pertinent to a selected purpose.

Special Committee: (bot.) a body appointed by an International Botanical Congress to address a particular question, usually an issue not resolved by a Congress.

Special Code: (bio.) one of the *Codes* dealing with particular groups of organisms; a *Code* other than the *BioCode*.

- special form**, [**forma specialis**, **f. sp.**; pl. **formae speciales**, **ff. spp.**]: a taxon of parasites, especially fungi, characterized from a physiological standpoint (e.g. by their ability to cause disease in particular hosts) but scarcely or not at all from a morphological standpoint, the nomenclature of which is not governed by the *Code*; in (prok.) permissible, but pathovar (*q.v.*) is now used in preference.
- species**: (1) a taxon at the rank of species. (2) (bot.) the category of taxa of the lowest principal nomenclatural rank. (3) (zool.) the rank below the genus group; the basic rank of zoological classification; *see* basic. (4) (phyl.) a segment of a population-level lineage that is evolving separately from other such lineage segments as indicated by one or more lines of evidence (e.g. distinguishability, reproductive isolation, monophyly).
- species aggregate**: *see* aggregate.
- species collectiva**: *see* collective species.
- species epithet**: the second part of the binominal of a species name (the first being the name of the genus in which the species is placed).
- species group**: (1) (bio.) taxa at the ranks of species and subspecies. (2) (zool.) the lowest-ranking group of taxa the names of which are regulated by the *Code*; the species group includes all taxa at the ranks of species and subspecies.
- species incertae sedis**, [**sp. incert. sed.**]: *see* incertae sedis.
- species indeterminata**: (unoff.) a species that cannot be identified from the original description.
- species inquirenda**, [pl. **species inquirendae**]: species of doubtful identity, and needing further investigation; in monographic works, such names are often treated in a separate section.
- species name**: (1) a scientific name of a taxon at the rank of species. (2) (zool.) a binomen, the combination of a generic name and a specific name; an interpolated name, such as a subgeneric name or an interpolated species-group or species aggregate name, when used, is not counted as one of the names in a binomen; *see* name, scientific name.

species nova, [**sp. nov.**; pl. **spp. nov.**]: used after a name by an author describing a previously undescribed, or previously invalidly described, species for the first time.

specific name: (zool.) the second name in a binomen and in a trinomen; *see* epithet, scientific name.

specifier: (phyl.) a species, specimen, or apomorphy cited in a phylogenetic definition of a name as a reference point that serves to specify the clade to which the name applies.

specimen, [**spec.**]: (1) an organism or part of an organism, or a fossil, or a number of small individuals, or (zool.) the work of an animal, preserved as a unit for scientific studies. (2) (bot.) a gathering, or part of a gathering, of a single species or infraspecific taxon made at one time, disregarding admixtures. (3) (bio.) normally a single individual or parts thereof, but may sometimes consist of (parts of) more than one individual of the named taxon, on the condition that they were all collected or isolated at the same time and place, and are conserved permanently as a single curatorial unit (e.g. museum jar, herbarium sheet, slide preparation, or mounted set of freeze-dried ampoules).

specioid, [**spd.**]: (cult.pl., unoff.) a taxoid of cultivated plants equivalent to the rank of species in wild plants.

spelling: the choice and arrangement of the letters that form a word; *see* correct original spelling, incorrect original spelling, multiple original spellings, original spelling, orthographic variant, subsequent spelling, unjustified original spelling, variant spelling.

spermotype: (bot., unoff.) a specimen taken from a representative plant grown from the seed of a type.

sphalm., [**sphalmate**]: by mistake; sometimes used to indicate a mistake or error.

spiritotype: (1) (zool., unoff.) a type specimen stored in spirit for so long that it is virtually invisible in the container. (2) (palaeo. zool., unoff.) a much hoped-for type (!).

spiritus asper: a rough breathing in the Greek language, indicated by the sign “ ‘ ” over an initial vowel, transcribed as “h” when Greek words

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are transliterated into Latin for use in botanical nomenclature; i.e. “á” to “ha”.

spitotype: (zool., unoff.) the type of a taxon described expressly to vex a colleague (!).

split: of a taxon, to divide into two or more units.

splitter: of a taxonomist, one who employs a narrow circumscriptive concept and divides taxa into several at the same rank; *cf.* lumpner.

sporomorph, [sporomorpha, spm.; pl. sproromorphae]: (palaeo. bot., unoff.) proposed as a neutral term for “pollen and spore species” given independent scientific names.:

sport: (1) (cult. pl.) an apparent mutation which has occurred on part of a plant. (2) (zool., unoff., obsol.) an unexpected morph arising randomly within a species or infraspecific taxon.

SPRA: Statutory Plant Registration Authority (*q.v.*).

square brackets, ([. . .]) (1) (not nomenclatural) placed around words or phrases inserted to clarify a quotation taken out of context. (2) in bibliographic citations, placed around the name of an author to indicate actual authorship where the work was published anonymously, or around a date of publication when this is either not printed on the work or differs from that on the work itself. (3) (bot.) when followed immediately by an “ex” used to indicate a pre-starting point date author in groups with later starting point dates than 1753. (4) (phyl.) used to indicate the author of a pre-existing name that has been converted, e.g. *Hypotheticus* [Meekins] Larson. (5) (obsol., bot.) formerly used to indicate pre-starting point date authors in groups with later starting point dates than 1753. (6) (unoff.) when used around a term for rank to indicate the rank an author is assumed to have intended to use even though a term denoting rank was not used (e.g. *Parmelia conspersa* [var.] *stenophylla*, an epithet originally published as *Parmelia conspersa* β . *stenophylla*); *see also* taxon vagum. (7) (zool., unoff.) placed around the epithet of a superspecies in the citation of an allospecies (*q.v.*). (8) (prok., unoff.) in *Salmonella* formulae, used to enclose antigenic factors not present in every strain of the serotype.

stabilate: (prok., unoff.) a population of an organism preserved in a viable condition on a unique occasion; i.e. living material in which the biological characters have been preserved, for example by lyophilisation.

stage: (prok., bot.) *see* state.

standard list: (obsol.) a list of names recommended for adoption for general use, either nationally or internationally, until a subsequent revision of the list; such lists were generally prepared by committees of specialists appointed by scientific bodies to undertake the task; *see also* Names in Current Use.

standard portfolio: a device in which a nomenclatural standard and allied information is kept together.

standard species: (obsol.) formerly used before the term “lectotype” became established in referring to the types of generic names; a genotype (*q.v.*) by subsequent designation.

standards, minimal: *see* minimal standards.

Standing Committee: (bot.) a Permanent Committee (*q.v.*).

standing: (obsol.) status; in nomenclature, the nomenclatural status of a name.

starting point: the date on which establishment of names in a particular taxonomic group begins.

stat., [status]: status or rank.

stat. conid., [status conidialis]: (mycol., obsol.) an anamorph (*q.v.*).

stat. imperf., [status imperfectus]: (mycol., obsol.) an anamorph (*q.v.*)

stat. nov., [status novus, stat. n.]: (1) (bot.) assignment of a taxon to a different rank within the taxonomic hierarchy, e.g. when an infraspecific taxon is raised to the rank of species or the inverse change occurs, usually employed where the name or epithet from the name in the old rank is being retained. (2) (cult. pl.) used in an author citation to indicate that a taxon has been changed in status, from specific to hybrid or *vice versa*.

stat. pycnid., [status pycnidialis]: (obsol.) a pycnidial anamorph (*q.v.*).

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state: (1) (prok.) one of certain variants which arise in cultures of many bacteria and which bring about a change in the gross appearance of a culture. (2) (bot., mycol.) a phase in a life-cycle; *see also* anamorph, teleomorph.

status: (1) (zool.) of a name, nomenclatural act or work: its standing in nomenclature (i.e. its availability or otherwise, and in the case of a name its spelling, the typification of the nominal taxon it denotes, and its precedence relative to other names: the nomenclatural standing of a name. (2) (bot.) nomenclatural standing with regard to effective publication, valid publication, legitimacy, and correctness. (3) the rank of a taxon within the taxonomic hierarchy. (4) the property of a name that corresponds to rank as a property of a taxon. (3) (bot.) the condition of a taxon as of hybrid or non-hybrid nature.

status conidialis: *see* stat.conid.

status imperfectus: *see* stat. imperf.

status novus: *see* stat. nov.

status pycnidialis: *see* stat. pycnid.

Statute of Limitation: (zool., obsol.) the former provision in the *Code* preventing the use of names that had not been taken up as senior synonyms for 50 years, now revised extensively; *see* forgotten name.

Statutory Authority: *see* Statutory Plant Registration Authority.

statutory epithet: (cult. pl.) an epithet denominated by a Statutory Plant Registration Authority (*q.v.*).

Statutory Plant Registration Authority, [SPRA]: (cult. pl.) an organization established by legal enactment of a particular country, or by legal treaty between countries.

statutory registration: (cult. pl.) registration of the name of a cultivar by a Statutory Plant Registration Authority.

statutory: (cult. pl.) established by a legal enactment or process of a country, or by legal treaty between countries.

stem: (1) the portion of a Greek or Latin word which is retained unchanged in the grammatical process of inflection, except for euphonic

variations usually formed from the genitive singular; the nominative singular, the form most frequently encountered in botanical nomenclature, is often such a variant (e.g. *styrax* (nominative singular) and *styrac-*(other cases) based on *styracis*). (2) (zool.) that part (or the whole) of the name of the type genus to which is added a family-group suffix, or that part of a name to which is added a genitive ending when forming a species-group name which is a noun in the genitive case.

stem augmentation: the addition of a letter to the stem of a Latin word before adding a suffix beginning with a consonant; e.g. the extra “i” added to personal names in latinization.

stem-based clade: (phyl.) a clade conceptualized in terms of branch or stem (i.e. a clade consisting of one entire branch stemming from a particular node on a phylogenetic tree); a clade whose name is defined using a stem-based definition (*q.v.*).

stem-based definition: (phyl.) *see* branch-based definition.

stem-modified node-based definition: (phyl.) *see* branch-modified node-based definition.

still-born synonym: (zool., unoff.) a name first published as a synonym of another name which was accepted as the correct one by the author of the work.

strain: (1) (prok., mycol., unoff.) the descendants of a single isolation in pure culture, sometimes showing marked differences from other strains or isolations; analogous to clone (*q.v.*). (2) (cult. pl.) often referring to a seed-raised cryptic variety. The naming of strains is generally outside the system of *Codes*, workers on particular organisms developing independent notation systems suited to their particular needs.

stratotype: (1) (zool., unoff.) the type of the soldier class in ants. (2) (palaeo. zool., unoff.) the original or subsequently designated type of a named stratigraphic unit or boundary, used as the standard for identification and definition.

Strickland Code, [Stricklandian Code]: (zool., obsol.) a forerunner of the International Code of Zoological Nomenclature (*q.v.*), which was prepared by a committee of the British Association for the

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Advancement of Science in 1843; various amendments and versions were issued up to 1865 (reprinted in 1869).

sub-: below; used as a prefix to a term denoting a category) and indicating a subordinate division of a category of taxa or syntax of higher rank, e.g. subassociation, subclassis, subdivisio, subordo, subfamilia, subforma, subgenus, subspecies.

subassociation, [**subassociatio**]: (phyt.) the syntaxon rank below that of association (*q.v.*) the names of which end with the suffix to"-*etosum*".

subclass, [**subclassis**, **subcl.**]: (bot., zool.) a hierarchical rank between class and order.

subconculta, [**subconc.**]: (cult. pl., unoff.) proposed as a rank term between conculta (*q.v.*) and cultivar.

subconvarietas, [**subconvar.**, **subconv.**]: (cult. pl., unoff.) proposed as a rank between convarietas and provarietas.

subcultigen, [**scg.**]: *see* cultivar, subcultivar.

subcultiplex, [**subcpl.**]: (cult. pl., unoff.) proposed as a rank term between that of cultiplex and convarietas.

subcultivar, [**subcv.**]: (cult. pl., unoff.) proposed as a rank term below that of cultivar.

subcyclus: (cult. pl., unoff.) proposed as a category below cyclus (*q.v.*).

subdivision, [**subdivisio**]: (1) (bot.) an hierarchical rank between division and order; a subphylum. (2) (cult. pl., unoff.) a subdivision of a taxoid used for the designation of a group of closely related taxoids in the rank of cyclus (*q.v.*).

subdivision of a family: (1) (bio.) taxa of a rank between family group and genus group. (2) (bot.) any taxon of a rank between family and genus.

subdivision of a genus: (1) (bio.) taxa of a rank between genus group and species group. (2) (bot.) any taxon of a rank between genus and species.

- subfamily:** (1) (zool.) a family-group rank below family; subfamily names end in “-inae”. (2) (bot., zool.) a taxon at the rank of subfamily; subfamily names end in “-idae”.
- subfederatio:** (phyt., obsol.) an hierarchical rank of a syntaxon, equivalent to suballiance (*q.v.*).
- subformation:** (phyt., obsol.) an hierarchical rank of a syntaxon, equivalent to order but not covered by the *Code*.
- subfossil:** (1) a specimen of post-Pleistocene age, usually belonging to an extant taxon, found under fossil (*q.v.*) conditions. (2) (palaeo. bot.) that is geologically young, generally soft in texture, organic in composition (but including e.g. shells), and usually found in a soft deposit, such as peat; the equivalent of fossil for nomenclatural purposes.
- subgenomic:** (vir.) applied to an RNA molecule which is part of a genome segment of a virus and which functions as a messenger RNA.
- subgenotype:** (zool., obsol.) the type species of a subgenus; *see* genotype.
- subgenus** [**subgen.**, **s-g.**; pl. **subgenera**, **s-gg.**] (1) (zool.) the genus-group rank below genus; a taxon at the rank of subgenus. (2) (bot.) an hierarchical rank between genus and section.
- subgrex**, [**subgr.**]: (cult. pl., unoff.) proposed as a subcategory of grex (*q.v.*).
- subjective:** depending on judgement, a matter of individual opinion; in contrast to objective (*q.v.*).
- subjective synonym:** (1) (zool.) each of two or more names whose synonymy is only a matter of individual opinion, i.e. it is not objective. (2) (bot.) a heterotypic synonym; *see also* taxonomic synonym.
- subjectively invalid:** (zool.) of a name which, in the opinion of an author, is not to be applied to a particular taxon because it is a junior subjective synonym, nomen dubium, junior secondary homonym, or conditionally suppressed.
- subnatio:** (zool., obsol.) a proposed category below natio (*q.v.*).

- suborder**, [**subordo**]: (1) a rank between order and family. (2) (bot., obsol.) once sometimes used as a equivalent to the rank of family when “order” was used as a family term; *see* order natural.
- subordinate taxon**: a taxon at a lower rank than the taxon or the coordinate group (zool.) or rank (bot.) with which it is compared; subordinate taxa are considered to form a part or whole of a taxon of higher rank.
- subphylum**: a rank in the taxonomic hierarchy immediately below that of phylum; a subdivision (*q.v.*).
- subprovarietas**, [**subprovar.**]: (cult. pl., unoff.) proposed as a rank term between provarietas and conculata.
- subrace**: (cult. pl., unoff.) proposed as a rank term approximately equivalent to form or group, and above that of cultivar.
- subsequent designation**: the designation of a name-bearing type of a taxon published after the taxon was established (validly published).
- subsequent monotypy**: (zool.) the situation arising when a nominal genus or subgenus was established before 1931 without any included nominal species, and when only a single taxonomic species denoted by an available name was first subsequently referred to it.
- subsequent spelling**: (zool.) any spelling of an available name other than an original spelling.
- subspecies**, [**subsp.**, **ssp.**; pl. **subspp.**, **sspp.**]: (1) (zool.) the species-group rank below species and the lowest rank at which names are regulated by the *Code*; a trinomen (*q.v.*). (2) (bot.) a rank between species and variety. (3) (prok.) the only formally recognized rank below that of species.
- subspecific epithet**: (bot., prok.) the word following the indication of subspecies rank; the equivalent of a subspecific name (zool.).
- subspecific name**: (zool.) the third name in a trinomen; the equivalent of a subspecific epithet (bot., prok.).
- subspecioid**, [**subspd.**, **sspd.**]: (cult. pl., unoff.) a subcategory of specioid between specioid and convar (or cultiplex), and equivalent to subspecies in wild plants.

substitute culture: (prok., unoff.) a culture selected to replace a strain which has become contaminated or is no longer viable; *see* neotype

substitute name: (zool.) any available name, whether new or not, used to replace an older available name; *see* emendation, nomen novum, replacement name, synonym.

substitute type: (bot., obsol.) species arbitrarily taken as types of genera in the case of any "exceptions to rules for generic types".

substitution: (zool.) the act of introducing a substitute name (*q.v.*).

substrate: (mycol., prok., not nomenclatural) of the growth of microorganisms, the nutritional substances forming the growth medium.

substratum: (mycol., not nomenclatural) the material or host on which a fungus grows in nature, whether obtaining nutrients from it or not.

subtribe: (1) (zool.) a family group rank below tribe; such names have the suffix "-ina". (2) a taxon at the rank of subtribe.

subtroop: (palaeo., unoff.) the term for a unit in a Period classification (*q.v.*) incorporating about 100 palaeotaxa or species; *see* troop.

subturma: (palaeo. bot., unoff.) a rank between genus and turma (*q.v.*), e.g. *Subturma Triporines*.

sub-type: (zool., obsol.) a rank in the category of subphylum (*q.v.*).

suffix, [pl. **suffixes**]: a letter or group of letters added to the stem of a word, as in terminations denoting rank (e.g. (zool.) "-idea" and (bot.) "-aceae" in family names) or in forming generic names or specific epithets; *see* compound, prefix, termination.

sup. cit., [**supra citato**]: cited above.

super-: above; (zool.) used as a prefix added to the term denoting a rank to indicate a position above that rank but below the next principal rank in the hierarchy; *see also* supra-

superfamily, [pl. **superfamilies**]: (1) (zool.) a family-group rank above family; such names have the suffix "-oidea"; the highest rank at which names are fully regulated by the *Code*. (2) a taxon at the rank of superfamily. (3) (zool., obsol.) a category included in the same group as family and subfamily.

superfluous combination, [**combinatio superflua**, **comb. superfl.**]: (bot.) a new combination (*q.v.*) made in the belief that it had not been made before, but actually unnecessary as that combination had already been validly published.

superfluous name, [**nomen superfluum**, **nom. superf.**]: (1) (bot.) a name applied to a taxon circumscribed by the author to definitely include the type of a name which ought to have been adopted, or of which the epithet ought to have been adopted, under the *Code*. (2) (phyl.) a name that was substituted for another name that was acceptable and should therefore have been used. (3) (phyt.) a new name for a syntaxon whose original diagnosis contains the original diagnosis of a syntaxon published earlier or at least the nomenclatural type of its legitimate name (which may be given merely in synonymy) that is therefore illegitimate.

superior rank: (unoff.) the next higher category in the nomenclatural hierarchy to which a taxon or syntaxon is assigned.

superior taxon: (unoff.) a taxon in the next higher category in the nomenclatural hierarchy to which a particular taxon is assigned.

superordinal: (zool., unoff.) a rank above that of order.

superspecies: (1) (prok., zool., unoff.) a monophyletic group of very closely related and largely or entirely allopatric species, too different to be included in a particular species; a rank above species and below genus. (2) (bot., unoff., obsol.) one with additional chromosomes, e.g. an aneuploid or tetraploid.

supplementary rank: of a rank one of the categories to which every individual organism can be referred but which is not mandatory to use (e.g. it is not mandatory to use a subgeneric name in a genus not divided into subgenera); *see* principal ranks.

supplementary type: (zool., unoff.) a described or figured specimen used in a publication in extending or correcting the knowledge of a previously defined species; a hypotype (*q.v.*) or secondary type (*q.v.*).

suppressed name: (1) (zool.) an otherwise available name ruled by the Commission (ICZN) as not be used as valid in all or particular circumstances; *see* suppression, conditionally suppressed name,

partially suppressed name, and totally suppressed name. (2) (bio.) one placed on a list of suppressed names. (2) (phyl.) a name that would normally have precedence but does not, due to a decision by the Committee on Phylogenetic Nomenclature to give precedence to a later synonym or homonym; *see also* suppression.

suppressed work, [**opera utique oppressa**]: (1) (bot.) works, ruled as suppressed, in which in which names in specified ranks are not validly published; suppression is subject to the decision of an International Botanical Congress. (2) (zool.) a work that the Commission (ICZN) has ruled to be unpublished or unavailable; *see* suppression.

suppression, [**suppress**]: (1) (zool.) a ruling by the Commission (ICZN), using its plenary power, (a) that a work is to be deemed, for nomenclatural purposes as unpublished, or that names and acts in it are not available, or (b) that an available name is never to be used as valid because (i) it is only available for the purpose of homonymy (i.e. partial suppression) or (ii) it is not available for the purposes of priority and homonymy (i.e. total suppression, but a totally suppressed species-group name may still denote the type species of a nominal genus or subgenus, or (c) the available name is only to be used as valid under stated conditions (e.g. when not considered a synonym of a particular later name (i.e. conditional suppression). (2) (bot.) of a work, *see* suppressed work; of a name, *see* rejected name, suppressed name. (3) (bio.) of a name, its placing on a list of suppressed names on the authority of the ICB because it would cause a disadvantageous nomenclatural change

supra, [**sup.**]: on the upper side; above.

supra-: a prefix used when referring to all ranks above a particular one.

supra citatato, [**supra cit.**]: of a work, one cited above.

suprafamilial: of a taxon, one at a rank higher than that of family or family group.

suprageneric: of a taxon, one at a rank higher than that of genus or genus group.

supraspecific: of a taxon, one at a rank higher than that of species or species group.

sustaining specimen: (zool., unoff.) an auxiliary type (*q.v.*).

symbiotype: (zool., unoff.) the host specimen from which a new parasitic or mutualistic taxon was described.

symbol: (1) (not nomenclatural) a character or mark used to represent something; an ideograph (*q.v.*). (2) (cult. pl.) a device which is appended to a name, which is in itself no part of that name, yet which provides extra information about the taxon concerned.

symphytocoenological unit: (phyt.) a vegetation complex of some kind; such units are not considered as syntaxa.

syn., [synonymum]: a synonym (*q.v.*); often used in the abbreviated form before a name to indicate it is a synonym of the name properly to be used for the taxon concerned.

synanamorph: (mycol.) one of two or more different anamorphs (*q.v.*) that are part of the same holomorph (*q.v.*).

synapomorphy: (phyl.) a shared, derived character state; a shared, derived character state inherited from a common ancestor that possessed that state; a shared, independently derived character state is not considered to be a synapomorphy in the sense the term is used in the *PhyloCode*.

syncultype: (obsol.) any strain of a microorganism cultivated by the author of the taxon and quoted in the original description when a holotype has not been selected.

syndiagnostic: (obsol.) of groups formed by Linnaean diagnoses, as opposed to ones characterized by breeding freely (syngamic), in a privative fashion (asyngamic), or breeding from a common parent (epigony).

synonym: one of two or more names having the same basionym; *see* nomenclatural synonym.

synonym, [synonymum, syn.]: (1) (zool.) each of two or more names of the same rank used to denote the same taxonomic taxon. (2) (bot., cult. pl.) a name considered to apply to the same taxon as the accepted name. (3) (phyl.) a name that is spelled differently than another name that refers to the same taxon; in the case of clade names, synonyms may be homodefinitive or heterodefinitive (*q.v.*). (4)

any designation applied to a given taxon other than the one by which it should properly be known; *see also* homotypic synonym, heterotypic synonym, junior synonym, nomenclatural synonym, objective synonym, senior synonym, subjective synonym, taxonomic synonym. (5) (phyt.) names in the same rank that denominate the same syntaxon or syntaxa considered as the same syntaxon without regard to their position. (6) (unoff.) a later usage of a name cited following the correct author citation and place of publication of the name itself (a practice sometimes used to indicate works which have fuller descriptions or a changed circumscriptions); a chresonym (*q.v.*).

synonymotype: (zool., unoff.) that constituent element of a taxon quoted by an author as identical with his or her newly described taxon.

synonymy: (1) the existence of two or more names applied to the same taxon; (2) the relationship between synonyms. (3) the names considered to apply to a given taxon other than the name by which it should properly be known; (4) a list of synonyms.

synoptic collection: a group of taxa that have been authoritatively identified and which serves as the basis of comparison for the identification of other specimens.

synoptic key: an artificial key in which diagnostic characters are listed and the taxa showing that character are indicated below it, usually by references to numbers allocated to the taxa in the publication.

synoptic table: (1) one which indicates the characters of one or more organisms in a tabular form, especially characters which are used for the separation of the taxa. (2) (phyt.) one comprising a number of relevé's on a statistical form; a synthetic table.

syntaxon, [pl. **syntaxa**]: (phyt.) an abstract unit of phytocoenoses of any rank, defined by floristic-sociological criteria, which may (in principle) be incorporated into a hierarchical system.

syntaxonomic synonym: (phyt.) a synonym based on a different nomenclatural type, but considered to belong to the same syntaxon; with a changed circumscription of the syntaxon, such a name can become nonsynonymous.

synthetic hybrid, [**S1 hybrid**]: (cult. pl.) a plant breeding term for the result of open pollination within a number of defined, controlled lines.

synthetic table: *see* synoptic table.

synthetograph: (zool., unoff.) an illustration made from two or more individuals of a type-series.

syntype, [**syntypus**]: (1) (bot.) any specimen cited in the protologue (*q.v.*) when no holotype was designated, or any of two or more specimens simultaneously designated as types; *see also* lectoparatype. (2) one of two or more specimens simultaneously designated as type. (3) (zool.) each specimen (and prior to 1911 those referred to by bibliographic reference) of a type-series from which neither a holotype nor a lectotype has been designated, including (prior to 1931) those referred to by a bibliographic reference; the syntypes collectively constitute the name-bearing type. (4) (phyt.) erroneously used to replace "typus" in the nomenclature of syntaxa. (5) (obsol.) a specimen, other than the holotype, upon which an original description was based.

syntype residue: (bot., unoff.) former syntypes remaining after the selection of a lectotype.

synusia, [pl. **synusiae**]: (phyt., obsol.) a vegetation unit composed of similar life-forms with a particular ecological requirement; names of synusia are not considered as syntaxa under the *Code*.

system: (1) of classification, the arrangement of groups relative to each other. (2) the result of a given classification of a number of living organisms, usually one dealing with a taxon of high rank (e.g. kingdom, phylum, division).

T, T., [**type, typus**]; usually used as short-hand to denote the nomenclatural type (*q.v.*); (prok., bot.) commonly added after the type strain designation where the type is a permanently preserved culture (e.g. DSM 1234T or DSM 1234 T).

t., tab.: tabula (*q.v.*).

tabula, [t., tab.]: (obsol.) a (usually numbered) plate (*q.v.*).

tagotype: (zool., unoff.) a type specimen that has been completely destroyed except for the label; *see also* crickotype, herberotype,

take up: of a name, the valid publication of a name previously used invalidly or devalidated.

tantum: (obsol.) only, merely; *see* nomen tantum.

tautogenotype: (zool., unoff.) *see* monogenotype.

tautonym: a binary combination in which the specific epithet exactly repeats the generic name without the addition of a transcribed symbol, or where the specific or infraspecific name repeats exactly the generic name; permissible in zool. but not bot.

tautonymy: (zool.) the use of the same word for the name of a genus-group taxon and for the species-group name of one of its included species and/or subspecies; *see* absolute tautonymy, Linnean tautonymy, virtual tautonymy

tautotype: (1) (zool., unoff.) the type of a genus whose species-group name is identical in spelling to the genus-group name. (2) (zool., unoff.) the type species of a genus selected because of absolute tautonymy.

Taxacom: an e-mail biological systematics discussion list, which started operations in 1987, and posts comments relating to the nomenclature and systematics of all kinds of organisms; <http://mailman.nhm.ku.edu/mailman/listinfo/taxacom>.

taxocene: (phyt., unoff.) a taxonomically defined fraction of a plant community.

taxoid, [taxd.; pl. taxoides.]: (cult. pl., unoff.) a collective designation for individual taxonomic categories for the systematic classification of cultivated plants; used as an equivalent term to taxon (*q.v.*) but restricted to cultivated plants; *see* phytotaxoid, zootaxoid.

taxon [pl. taxa]: a taxonomic unit or group at any rank, which may be named or not; i.e. a population or group of a populations of organisms which are usually inferred to be phylogenetically related and which have characters in common which differentiate the unit (e.g. a geographical population, a genus, a family, an order) from other such units; a taxon encompasses all included taxa of lower

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rank (i.e. subordinate taxa) and individual organisms; in (phyl.), taxa may be clades or species; *see* taxoid, taxon name.

Taxon: official journal of the International association for Plant Taxonomy (IAPT) in which proposals to modify the *Code*, or to propose the conservation or rejection of names or works, and reports of Committees are required to be published; from 2009, proposals relating solely to fungi are also published in *Mycotaxon*.

taxon label: (unoff.) a unique, stable, text-phrase applied to an unpublished taxon concept; the label should link the concept to reference specimens or a locality and be in a form that is unusable as a taxon name, e.g. *Ocyptamus* sp. MZH S142_2004; such informal designations are commonly used in submissions to GenBank. The Council of the Heads of Australian Herbaria (CHAH) proposed to standardize these in the form “*Genus name* sp. *Phrasename (Voucher specimen identifier) Source*” where the phrasename was based on the locality and the source was the concept’s proposer; *see also* cognomen, informal name, interim name.

taxon name: (phyl.) the word (or in pre-existing *Codes*, words) used to designate a taxon.

taxon novum, [tax. n., tax. nov.]: a new taxon; sometimes used in (zool.) when a name in a particular rank is derived from a pre-existing generic name for the first time.

taxon vagum, [tax. vag.]: (unoff.) a name used in an uncertain rank (e.g. *Usnea* [tax. vag.] *implexa*).

taxonomic category: a subdivision of a hierarchical system; *see* category.

taxonomic doubt: (prok.) of a name, one published with a question mark or other suggestion that the author is uncertain or doubtful about it, even if the name is accepted by the author.

taxonomic group: (1) the group in which a number of similar individuals may be classified; a taxonomic unit. (2) a taxon or assemblage of taxa, e.g. the taxonomic group *Insecta* which consists of all insects and the taxa in which they are classified.

taxonomic hierarchy: *see* hierarchy, taxonomic.

taxonomic position: *see* position.

taxonomic purpose: (zool.) in lectotypification, a statement of the taxonomic purpose of the designation of the lectotype; required by the *Code* for lectotypifications made after 1999 to be valid.

taxonomic rank: *see* rank.

taxonomic synonym: a heterotypic synonym (*q.v.*).

taxonomic taxon: (zool.) a taxon (e.g. family, genus, species) including whatever nominal taxa and individuals a zoologist at any time considers it to contain, in his or her endeavours to define the boundaries of a zoological taxon (*q.v.*); a taxonomic taxon is denoted by the valid name determined from the available names of its included nominal taxa..

taxonomic unit: the group into which a number of similar individuals may be classified; a taxon.

taxonomy: the theory and practice of classification of organisms; *see* taxonomic taxon.

taxospecies: (prok., unoff.) a group of organisms or isolates that have a high coefficient of similarity.

tectoparatype: (zool., unoff.) a paratype used for microscopic examination to demonstrate generic or specific characters.

tectopleisiotype: (zool., unoff.) a specimen used for microscopic examination to demonstrate generic or specific characters, subsequent to the original description.

tectotype: (zool.) any type comprising a microscopic slide preparation or section.

teleomorph: (mycol.) the meiotic sexual morph in pleomorphic fungi, i.e. the morph characterized by the production of asci/ascospores, basidia/basidiospores, teliospores, or other basidium-bearing organs; the name accorded to the holomorph (*q.v.*); *see also* anamorph.

teleotype: (mycol., unoff.) proposed for a specimen or illustration representing the teleomorph (*q.v.*) of a fungus and designated to serve as both an interpretive and a nomenclatural type for a name previously applied solely to an anamorph (*q.v.*) and typified by an anamorphic type; *cf.* epitype.

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- teletype:** (zool., unoff.) a type specimen whose description reads like a report in the New York Stock Exchange and has about as much usefulness (!).
- template:** (palaeo. bot., unoff.) all of the categories of organ species that are necessary to complete the conceptual re-assembly of a whole-plant species.
- tentative species:** (vir.) a virus species of which an ICTV Subcommittee is uncertain with regard to the genus or family assignment.
- ter.:** *see* teratological specimen.
- terata:** (obsol.) divergences from the type of a genus; monsters.
- teratological specimen, [ter., terat.]:** an abnormal specimen or a monstrosity.
- teratology:** the study of abnormalities or monstrosities.
- teratotype:** (zool., unoff.) a type based on an abnormality or monstrosity.
- term:** (bot., prok.) of a word used to designate a morphological or anatomical structure in contra-distinction to “name” as used in the *Code*.
- termination:** of a word, the ending; an inflection; the part of a word added to a Greek or Latin stem when the word is inflected.
- ternary:** composed of three items.
- ternary combination:** (1) (bot., prok.) any combination (*q.v.*), consisting of the binary name of a species followed by a term denoting rank and by an infraspecific epithet. (2) (obsol., bot.) cases where a term denoting rank was either often omitted or represented by some typographic device.
- ternary hybrid:** (cult. pl.) a hybrid resulting from crosses among three taxa.
- ternary name:** a trinomen (*q.v.*).
- teste:** according to, especially of verbal testimony received; *see also* fide.
- text, official:** *see* official text.

thanatoculture: (unoff.) a dried or preserved, not living, specimen or a microscopic slide prepared from the holoculture (*q.v.*).

three-way cross: (cult. pl.) the repeated crossing of three F₁ hybrids.

timeslot: (palaeo., unoff.) a substitute for the genus taxon consisting only of the name of a stratigraphic timescale division.

-tipa: (unoff.) the proposed suffix added to the end of one species name in a family, usually the best known, in New Biological Nomenclature (*q.v.*).

token words: (bot.) words used to indicate a taxon to which the author wishes to refer, but to which he does not give a name.

tokogeny: (not nomenclatural) the study of, for example, relationships between individuals in a sexually reproducing species, including parents and offspring; i.e. of relationships within and between groups, in contrast to phylogeny (*q.v.*) concerned with the evolutionary history

tomo citato, [tom. cit.]: in the volume cited.

top-cross: (cult. pl.): a plant breeding technique in which cultivars are compared by crossing them all with the same pollen parent (line) and then assessing the progeny.

tophomeotype: (zool., unoff.) a specimen from the original locality identified by an authority; *see* homatopotype, metatopotype.

top-line punctuation: (cult. pl.) the use of apostrophes and accents and other diacritical signs above letters of words; *cfr* bottom-line punctuation..

topophysic cultivar: (cult. pl.) a clone with the same genotype as its original parent plant but differing in its phenotype due to it being originally asexually propagated from specific tissue on the parent.

topotype: (1) (unoff.) any specimen originating from the type locality of the nomenclatural type of the species or infraspecific taxon to which it is thought to belong. (2) (zool., unoff.) whether or not the specimen is part of the type-series. (3) (palaeo. zool.) fossils from the same horizon at or within a “few miles” of the locality of the name-bearing type.

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topovariant: (cult. pl.) a distinguishable group of plants grown from seed from a given provenance.

total clade: (phyl.) a clade composed of a crown clade and all organisms (and species) that share a more recent common ancestor with that crown clade than with any extant organisms or species that are not members of that clade; total clades are a subset of branch-based clades.

totally suppressed name: (zool.) the older of two homonyms which is suppressed for the purposes of both the Principle of Priority and the Principle of Homonymy.

trade designation: (cult. pl.) a device that is used to market a plant when the original name is considered unsatisfactory for marketing purposes.

trademark: any sign, made from words, letters, numbers, often employing a recognizable typography, and(or) an icon applied to goods to distinguish the goods of a particular enterprise from those of its competitors: *see also* registered trademark.

transcription: (1) to copy exactly from one written work to another. (2) the rendering in written form of human speech, especially of languages employing ideographic or phonetic characters.

transfer: a change (with or without a change in name) in the position of a taxon, by implication also, transfer of the epithets involved.

transformed: *see* generically modified organism.

translatio nova, [trans. nov.]: (zool., obsol.) a new transfer; occasionally formerly used in citations to indicate that a taxon has been altered in position (either horizontally or vertically) but retains in its name the epithet from its name in the former position.

translation: the rendering of words from one language to another, as opposed to transcription (*q.v.*) or transliteration (*q.v.*).

transliteration: a literal transcription, the replacement of letters of one alphabet by equivalent letters of another.

tribe, [tribus]: (1) (zool.) a family-group name below subfamily. (2) a taxon at the rank of tribe, between subfamily and genus; in such names have the suffix “-*ini*” (zool.) or “-*inae*” (bot.); in (mycol.)

taxa termed tribes (tribus) in Fries's *Systema Mycologicum* (1821-32) are treated as validly published names of subdivisions of genera, although the term tribus was misplaced by Fries.

trinomen, [pl. **trinomina**]: (1) a name consisting of three elements. (2) (zool.) the combination of a generic name, a specific name, and a subspecific name, that together constitute a scientific name of a subspecies; no rank-denoting term is used; the equivalent of subspecific name in (bot.) and (prok.) where a rank-denoting term is required. (3) (cult. pl.) a binominal name followed by an epithet in some infraspecific rank. (4) (bio.) the name of a species combined with an infraspecific epithet; *see also* combination.

trinomial name: (1) (zool.) a trinomen (*q.v.*). (2) (palaeo., unoff.) a formal three-element name set for a fossil in PDHC (*q.v.*), i.e. palaeogroup-timeslot-palaeotaxon. (3) a trinomial combination (*q.v.*).

trinomial combination: a combination of a genus and species name with that of a subspecies (zool., prok.) or any infraspecific taxon (bot.) with (bot., prok.) or without (zool.) the citation of a rank-denoting term; *see* trinomial name, trinomen.

triplotype: (zool., unoff.) a single specimen used as the holotype for three separate new species.

trivial name, [**nomen trivial**, **nom. triv.**; pl. **nomina trivialia**]: (bot., prok., zool.) a specific epithet; used in this sense by Linnaeus.

troop: (palaeo., unoff.) a term for a large unit in a Period classification (*q.v.*) incorporating notionally about 1000 palaeotaxa or species; *see also* subtroop.

turma: (palaeo. bot., unoff.) a morphologically-based suprageneric rank used in the artificial classification of fossil pollen and spores unassigned to families, e.g. Turma *Poroses*.

typ. cons., [**typus conservandus**]: a type which has been conserved.

type, [**typ.**, **typus**, **T.**]: (1) a term used alone, or forming part of a compound term, to denote a particular kind of specimen or taxon. (2) (bot., prok., zool.) an element on which the descriptive matter fulfilling the conditions of availability (zool.) or valid publication (bot., prok.) for a name is based, or is considered to have been

based, and which by its taxonomic position decides the application of the name; *see* name-bearing type, nomenclatural type. (3) (zool.) often used as short-hand for a holotype of a species-group name. (4) (zool., unoff.) any of the original type materials. (5) (prok., unoff.) a variant within a species, showing certain distinct features, but of lower than subspecific rank; the use of the term in this sense is not recommended by the *Code*, even in compounds such as morphotype and serotype (*q.v.*), in which it has long been used; the use of the suffix "-var" is recommended instead (e.g. morphovar, serovar). (6) (phyl.) in pre-existing *Codes*, the specimen, specimens, or subordinate taxon to which a taxon name is permanently attached. (7) (obsol.) any of the original type material. (8) an unspecified kind of type. (9) (not nomenclatural) in printing, the style (i.e. typeface), size, shape and boldness of the letters and other characters. (10) (obsol.) a rank in the taxonomic hierarchy equivalent to phylum (*q.v.*). (11) (bot., not nomenclatural) used as a category for palynomorphs (i.e. pollen and spores) which cannot be separated microscopically, e.g. the "*Alisma* type" which includes pollen from species of *Alisma*, *Baldellia* and *Luronium*.

type concept: (prok., zool.) an extension of the meaning from type of a name to type of a taxon (i.e. a circumscription); the type method (*q.v.*).

type culture: (1) (bot., mycol.) a living culture derived from a holotype specimen; sometimes, incorrectly, a living culture on which a new taxon has been based; *see* ex-type. (2) (prok.) a strain designated as the nomenclatural type of a bacterial species or infraspecific taxon.

type fixation: *see* fixation, fixation by elimination.

type fossil: (palaeo., not nomenclatural) an index fossil (*q.v.*).

type genus: (1) (zool.) the nominal genus that is the name-bearing type of a nominal family-group taxon. (2) (bot., prok.) the generic name which is the nomenclatural type of a name in a rank between genus and family.

type horizon: (palaeo. zool.) of fossils, the geological stratum from which the name-bearing type of a nominal species or subspecies was collected.

- type host:** the host species with which the name-bearing type of (zool.) a nominal species or subspecies or (bot.) species or infraspecific taxon was associated; *see* associated organism, symbiotype.
- type locality:** the geographical (and, where relevant stratigraphical) place of capture, collection or observation of the name-bearing type of (zool.) a nominal species or subspecies or (bot.) species or infraspecific taxon; in zool., if the name-bearing type was captured or collected after being transported by boat, vehicle, aircraft, or other human or mechanical means, the type locality is the place from which it, or its wild progenitor, began its unnatural journey.
- type material:** all specimens and other elements used by an author in the original description of a new species-group name (zool.), or of a new species or infraspecific taxon (bot.).
- type method:** (bot., mycol.) the permanent association of a name (i.e. a nomenclatural type) and a taxon (i.e. a circumscription); the type concept (*q.v.*).
- type relevé:** (phyt.) the name-bearing relevé (*q.v.*) of the name of an association or subordinate syntaxon.
- type-series:** (zool.) the series of specimens, as defined in the *Code*, on which the original author bases a new nominal species-group taxon in the absence of a holotype designation, any such specimen is eligible for subsequent designation as the name-bearing type (lectotype); prior to lectotype designation, all the specimens of the type-series are syntypes and collectively they constitute the name-bearing type; excluded from the type-series are any specimens that the original author expressly excludes or refers to as distinct variants, or doubtfully includes in the taxon.
- type species:** the species (bot., prok.) or nominal species (zool.) that is the name-bearing type of a genus (bot., prok.) or nominal genus (zool.), or a taxon between the ranks of species and genus (bot., prok.) and which fixes the application of the name.
- type specimen:** (1) a general term for the name-bearing specimen of a species or infraspecific taxon, or (zool.) for a specimen of the type-series (*q.v.*); these are generally permanently preserved in a reference collection (e.g. a genetic resource collection, herbarium, or

museum) but in (zool.) can be live animals in zoos or described from nature (including DNA sequences obtained from living birds captured and then released back into the wild). (2) (zool., obsol.) formerly used in the *Code* for a holotype, lectotype or neotype, or for any syntype.

type strain: (prok.) the living or permanently preserved culture which is the nomenclatural type of a species or infraspecific taxon.

typesetting: *see* printing, conventional.

typical: of a specimen or culture, one with characters corresponding to those of the type material.

typicum, [-us]: (1) typical. (2) (phyt.): used as the epithet of the name of a subassociation to indicate that it is typical of the association in which it is placed (i.e. the same species are diagnostic), e.g. *Galio-Carpinetum typicum*; *see also inops*.

typification: (1) the act of designating or selecting a nomenclatural type for a name; *see* nomenclatural type. (2) (zool.) the fixation of a name-bearing type of a nominal taxon to provide an objective standard of reference for the application of the name of a taxon; *see* Principle of Typification.

typified name: a name whose application is determined by a nomenclatural type under a rank-based *Code*.

typographic error: an error introduced by a printer.

typography: the visual presentation of printed words and numbers; the design and style of printed matters including the form of the letters chosen.

typology: (1) the use of types to fix the application of names. (2) (not nomenclatural) an invariant, generalized or idealized pattern shared by all members of group.

typonym: (1) (unoff.) the type of a name. (2) one of two names based on the same nomenclatural type but which is neither the basionym nor a synonym; e.g. a later name given to the same type specimen, a generic name based upon a species which has already been used as the type of a different generic name. (3) (obsol.) a name based on an indication of a type species or type specimen. (4) (bot., obsol.) a

name rejected when there is an older validly published name based on the same type. (5) (zool., unoff.) a trivial name (e.g. *typus*, *typicus*) used in designation of the type species of a generic name.

typonymus homonyms: (unoff.) typonyms that are the same time homonyms.

typotype: (unoff.) the type of a type; the material from which an illustration was prepared where the type of a name is an illustration.

typus conservandus, [typ. cons.]: *see* conserved type.

typus: *see* type.

tyrranotype: (zool., unoff.) a type designated by the International Commission on Zoological Nomenclature (!).

unambiguous reference: (phyt.) one with the place of publication correctly provided (e.g. journal or book name, volume and page number) either following the author citation or in the bibliography.

unassigned: (1) of a taxon, one not classified in a particular or several higher taxonomic categories; e.g. a family not classified in an accepted order; *see* *incertae sedis*. (2) (vir.) the status of a genus when it is not classified into a family because of uncertainty as to which, or if any, family is appropriate; a floating genus.

unavailable name: (zool.) one that does not conform to the requirements of the *Code* or is otherwise excluded and so may not be used.

unavailable nomenclatural act: (zool.) one published in an unavailable work (*q.v.*).

unavailable work: (zool.) a published work (*q.v.*) in which, under the provisions of the *Code*, or by a ruling of the Commission (ICZN), names or nomenclatural acts cannot be established; such works include those which (a) were issued before 1758, or (b) do not consistently apply the Principle of Binominal Nomenclature (*q.v.*), or (c) are published anonymously after 1950, or (d) carry a disclaimer (*q.v.*), or (e) the Commission (ICZN) has ruled to be unavailable.

unconditionally suppressed name: (phyl.) a name that has been suppressed by the Committee on Phylogenetic Nomenclature in all phylogenetic contexts (*see* suppressed name); there are no conditions under which it would have precedence over any other name.

undetermined: of species or specimens not identified; *see* indeterminate.

unessential type: (obsol.) of a specimen, one figured or cited to which reference is made in a published work, but which adds nothing to the knowledge of the characters of the species; an onomatype (*q.v.*); also in this category are homeotypes, ideotypes, metatypes, and topotypes.

uninomen: *see* uninominal.

uninomial: (1) (not nomenclatural) a mathematical term, but frequently used in the past in the sense on uninominal (*q.v.*). (2) (bot., obsol.) a unitary designation (*q.v.*).

uninominal, [**uninomen**; pl. **uninomina**]: (1) (zool.) consisting of a single name; the one word used for the name of a taxon of higher rank than the species group; *see also* unitary name. (2) (palaeo., unoff.) the name of a base taxon consists of one word until a genus or genus equivalent is added to aid filing as a binomial. (3) (phyl.) the second part of a species binomen that is being treated as the name of a species (though the names of clades are also uninomina); *see also* Lanham's method.

union: (1) of taxa, *see* unite. (2) (phyt., obsol.) a syntaxon not accepted in the *Code* but equivalent to association (*q.v.*). (phyt., obsol.) a layered community of one or more species of similar physiogamy or life-form.

unit, taxonomic: *see* taxonomic unit.

unitary designation: (obsol.) a single word applied as a name of a species by some eighteenth century authors using non-binominal nomenclature; sometimes mistakenly considered to be generic names.

unite: to combine or treat as elements of a single taxon elements that were previously considered to belong to a different taxa.

unjustified emendation: (zool.) any emendation (*q.v.*) other than a justified emendation (*q.v.*).

unjustified original spelling: (zool.) the spelling of a family-group name based upon an unjustified emendation of a generic name

unnecessary substitute name: (zool.) a replacement name (*q.v.*) introduced when no such name was required.

unpublished name, [unpubl.]: a designation that has not been effectively published, i.e. not “names” in the sense of (bot.), used mainly with reference to designations in manuscripts or on specimen labels; *cfr* ined.

unpublished work, [unpubl.]: a work that is not (zool.) published or (bot.) effectively published, or in (zool.) one that the Commission (ICZN) has ruled to be treated as unpublished.

unrestricted emendation: (phyl.) a formal change in a phylogenetic definition that does not require approval by the Committee on Phylogenetic Nomenclature; an unrestricted emendation is intended to prevent undesirable changes in the application of a particular name (in terms of clade conceptualization) when the original definition is applied in the context of a revised phylogeny; *see* restricted emendation.

unshared organ species: *see* autapospecies.

unused name: *see* forgotten name, nomen oblitum.

UPOV: (cult. pl.) Union Internationale Pour la Protection des Obtentions Végétales (International Union for the Protection of New Varieties of Plants), the international body mandated with overseeing the administration of Plant Breeder’s Rights.

urkingdom: (unoff.) proposed as a term for a hierarchial rank above that of kingdom, to include one or more kingdoms.

usage: the sense in which a name has been applied, whether correctly or incorrectly according to a *Code*; *see* existing usage, prevailing usage.

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v.: *see* vel, verso, versus, vice, vide.

VAC: *see* cryptogram.

valid name: (1) (zool.) of an available name, one acceptable under the provisions of the *Code* and which is the correct name for a taxon in an author's taxonomic judgement. (2) (bot.) a validly published name, i.e. one published according to criteria for valid publication according to the *Code*; an effectively published name fulfilling certain requirements, and before considerations of legitimacy are entertained; only designations that are validly published are names in the sense of the *Code*; *see also* publication. (3) (vir.) a name conforming to the *Code* and pertaining to established taxa; *see also* accepted name.

valid nomenclatural act: (zool.) one that is to be accepted under the provisions of the *Code*, i.e. the earliest available nomenclatural act relevant to a particular name or nominal taxon which does not contravene any provisions of the *Code*.

valid publication: *see* valid name.

validate: (bot.) to make valid, used in the context of valid publication of a name, either with reference to an existing designation (*q.v.*), or in describing the method by which this is effected.

validated: (zool., obsol.) of a name, formerly used in the sense of conserved, i.e. a name that was considered and accorded potentially valid status by the Commission (ICZN).

Validation Lists: (prok.) lists of names effectively published elsewhere which are compiled and published in issues of the *International Journal of Systematic and Evolutionary Microbiology* to achieve valid publication.

validly published name: (bot.) a name effectively published and in accordance with the requirements of the *Code* for valid publication; *see* valid name.

vampirotype: (zool., unoff.) a type specimen, usually an insect, mounted with an oversized pin for the size of the specimen so that it appears impaled (!).

var.: *see* variety.

-var.: (prok.) suffix used to indicate infrasubspecific rank, not regulated by the *Code*, e.g. pathovar, serovar; recommended for use instead of the suffix “-type”.

var. (geogr.): *see* microsubspecies.

variable spelling: *see* variant spelling.

variant: (1) (cult. pl.) a plant or group of plants which shows some measure of difference from characteristics associated with a particular taxon. (2) (prok., unoff.) a culture not identical with the parent in all its characters, and also used for unnamed variation within a species.

variant spelling: (zool.) different spellings of specific or subspecific names that are deemed to be identical for the purposes of the Principle of Homonymy (*q.v.*).

varietal denomination: (cult. pl.) the name for a cultivar designated under the terminology of statutory plant registration authority; *see also* statutory epithet.

varietas: a variety (*q.v.*).

variety, [varietas, var.]: (1) (bot.), a category in the taxonomic hierarchy between that of subspecies and form. (2) (cult. pl.) used in some national and international legislation to denominate one clearly distinguishable taxonomic unit below the rank of species from others; generally, in such legislative texts, a term exactly equivalent to cultivar (*q.v.*). (3) (zool., obsol.) a term that if published after 1960 is deemed to be of infrasubspecific rank, but that if published before 1961 is to be interpreted according to the *Code* as subspecific if the author used the rank of variety or form and did not expressly give it infrasubspecific rank. (4) (prok.), *see* -var.

VCG: *see* vegetative compatibility group.

vegetative compatibility group, [VCG]: a group of fungal strains which vegetatively anastomose or fuse to form stable heterokaryons.

vegetative reproduction: (cult. pl.) *see* asexual propagation.

vel, [v.]: or.

vernacular name: (1) a name for an organism or organisms in a language used for general purposes as opposed to a name proposed only for

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nomenclatural purposes; a colloquial name; a local name; *see* common name. (2) (vir.) a name in common usage which does not conform to the Rules of virus nomenclature and which has not been formally approved by the ICTV.

verso, [v.]: sometimes used to indicate the left-hand page of an open book; *see* recto.

verosimiliter, [verosim.]: probably.

versus, [v., vs.]: against; as opposed to.

vice, [v.]: in the place of; in succession to.

vide, [v.]: consult.

vide etiam, [v. et.]: *see* also.

vidi!: indicating that the author has seen the material or work; *see* exclamation mark.

-virales: (vir.) a suffix which denotes a taxon of the rank of order.

-viridae: (vir.) a suffix which denotes a taxon of the rank of family.

-virinae: (vir.) a suffix which denotes a taxon at the rank of subfamily.

viroid: (vir.) unencapsidated, low molecular weight, circular, single-stranded RNA molecules which replicate autonomously when inoculated into host plants; some are pathogenic while others replicate without eliciting symptoms; used as the last part of species names of viroids in the rank of species (e.g. *Potato spindle tuber viroid*).

-viroid: (vir.) a suffix which denotes a taxon of viroids at the rank of genus.

-viroidae: (vir.) a suffix which denotes a taxon of viroids at the rank of family.

-viroidae (vir.) a suffix which denotes a taxon of viroids at the rank of subfamily.

virtual tautonym: (zool.) the nearly identical spelling, or the same origin or meaning, of a generic or subgeneric name and the specific or subspecific name in a binomen or trinomen; also used where original species of a genus have a specific or subspecific name either as the valid name or as a synonym which is almost the same

as the genus name; not a term regulated by the *Code*; *see also* autonym.

-virus: (vir.) a suffix added to a word or name, however, formed to make a generic name for a virus.

Virus Adansonian Classification, [VAC]: *see* cryptogram.

vivotype: (zool., unoff.) a living type specimen requiring special handling and storage; *see also* alivotype, ex.

von Maehrenthal Code, The: (zool., obsol.) published in 1904, and a forerunner of the International Code of Zoological Nomenclature (*q.v.*).

voted example, [*Ex.]: (bot.) an Example (*q.v.*) mandated by an International Botanical Congress to be inserted in the *Code* in order to legislate nomenclatural practice when the corresponding Article is open to divergent interpretation or does not adequately cover the matter (as contrasted with other Examples provided by the Editorial Committee); such examples are prefixed by an asterisk (*) in the *Code* and are to be followed.

voucher specimen: a nominated specimen representing the taxonomic unit mentioned in a work, which may or may not be any category of type, for example, a specimen used in a physiological study or retained as evidence that it was found in a particular location.

vowel, connecting: *see* connecting vowel.

vs.: *see* versus.

vulgar: (obsol.) of designations, one in the vernacular (*q.v.*); a common name.

Walker type: *see* ambiguotype.

WFCC: World Federation for Culture Collections (*q.v.*).

whole-plant species: (palaeo. bot., unoff.) a morphologically delimited conceptual aggregate of all of the organ species (*q.v.*) required to

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complete the relevant template (*q.v.*), including at least one autapospesies (*q.v.*).

wild: (cult. pl.) of plants that originated in the wild; *see* indigen.

wild-type: (mycol., prok., unoff.) used of microorganisms as they exist in nature, e.g. a pathogen occurring in the tissues of a host.

word compound: *see* compound.

word element: (1) a component part of a word. (2) the parts of a word separated by one or more hyphens.

work: in nomenclature, any pertinent written information whether published (e.g. books, journals, separates) or unpublished (e.g. manuscripts, proofs, microfilms).

work of an animal: (zool.) the result of the activity of an animal (e.g. burrows, borings, galls, nests, worm tubes, cocoons, tracks), but not part of the animal; the term applies to trace fossils (*see* ichnotaxon) but does not apply to such fossil evidence as internal moulds, external impressions, and replacements.

working strain: (prok.) a reference strain (*q.v.*).

World Data Centre for Microorganisms, [WDCM]: an international database on the centres holding living cultures of microbial groups and cultured cells, operating under the auspices of the World Federation for Culture Collections (*q.v.*) and allocating unique acronyms to the included centres; available at <http://wdcn.nig.ac.jp/>.

World Federation for Culture Collections, [WFCC]: a scientific member of IUBS and IUMS, concerned with the collection, authentication, maintenance and distribution of cultures of microorganisms and cultured cells; also responsible for the maintenance of the World Data Centre for Microorganisms (*q.v.*) and promoting good practice in the maintenance of microbial genetic resource collections.

x: *see* multiplication sign.

xerography: any method of producing numerous identical copies based upon an electrostatic process; copies produced in this way are commonly known as “Xerox copies” or “photocopies”; not conventional printing; *see* printing, conventional.

xerotype, [**xerotypus**]: (1) (unoff.) a deliberately dried type; e.g. a dried culture of a fungus, a dried-down originally fleshy mushroom, a dried skin of a fish. (2) (zool., unoff.) a type that has been stored in fluid but the fluid has dried up.

younger synonym: (zool.) an available name in the same rank as the correct name of the taxon to which it belongs, but which is not itself the correct name for it for reasons of priority; a junior synonym, or later synonym.

zoological name: the scientific name of an animal taxon in binominal nomenclature.

zoological nomenclature: the system of scientific names for zoological taxa and the provisions for the formation, treatment, and use of those names.

ZooBank: (zool., prop.) intended as the online version of the Official Register of Zoological Nomenclature (*q.v.*); launched on 1 January 2008; *see* <http://zoobank.org>.

Zoological Commission: *see* International Commission on Zoological Nomenclature.

Zoological Record: (zool.) a print and electronic index of zoological literature that also serves as the unofficial register of scientific names in zoology; it started publication in 1864 by the Zoological Society of London as the *Record of Zoological Literature*, and changed to the present name in 1870; since 2004 it has been published by Thomson Reuters; available online as a part of the ISI Web of Knowledge.

zoological taxon: (zool.) a natural taxon of animals (which may, or may not, have had a name applied to it); *see* taxon, zootaxon.

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zoologist: anyone, regardless of profession, who studies animals.

Zootaxa: an international journal of animal taxonomy, founded in 2001, specializing in the publication of new taxa of animals; available in hard copy, and also electronically at <http://mapress.com/zootaxa/>.

zootaxoid, [**zootaxd.**; pl. **zootaxoides.**]: (zool., unoff.) a collective designation proposed for individual taxonomic categories for the systematic classification of domesticated animals (breeds, races, etc.) to parallel the system used for cultivated plants; suggested as an equivalent term to taxon (*q.v.*) but restricted to domesticated animals; *see* phytotaxoid, taxoid.

zootaxon, [**zootax.**; pl. **zootaxa**]: (zool., unoff.) a taxon of animals.

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