Introduction to taxonomic concepts

Treatment: The taxonomic treatment is a well-defined part of a scientific publication documenting the features of a particular taxon, including a diagnosis of the taxon, a reference to previous work, an extended description, notes on the distribution and habitat, citation of material and general comments about the taxon.

Species: There are several different definitions of species. In the taxonomic context, a species is the most basic unit of classification and taxonomic rank of a biological organism, grouped based on their shared characteristics.

Specimen: A gathering, or part of a gathering, of a single species or infraspecific taxon, disregarding admixtures, mounted either as a single preparation or as more than one preparation with the parts clearly labeled as being part of the same specimen or bearing a single, original label in common. A specimen may not be a living organism or an active culture.

Material citation: Is a citation of a testimony material (specimen) that was collected, deposited in a scientific collection, and linked to a given treatment. The material citation is used to testify the presence of that taxon in that location and to enable the verification of the morphological, ecological, and biological features of the same specimen.

Protologue: original description of the taxon, which brings everything associated with a name at its valid publication, e.g. description, diagnosis, illustrations, references, synonymy, geographical data, citation of specimens, discussion, and comments.

Original material: comprises the following elements:

(a) those specimens and illustrations (both unpublished and published prior to the publication of the protologue) that the author associated with the taxon, and that were available to the author prior to, or at the time of, preparation of the description, diagnosis, or illustration with analysis validating the name;

(b) any illustration published as part of the protologue;

(c) the holotype (see Glossary) and those specimens which, even if not seen by the author of the description or diagnosis validating the name, were indicated as types (syntypes or paratypes, see Glossary) of the name at its valid publication;

(d) the isotypes or isosyntypes (see Glossary) 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.

The original material forms the set of specimens and illustrations from which a lectotype may be chosen.

Types: the application of scientific names at the rank of family or below is determined by means of nomenclatural types. A nomenclatural type is that element (usually a collected specimen, but sometimes an illustration) to which the name of a taxon is permanently attached, whether as the valid name or as a synonym. A nomenclatural type is considered an original material because it

represents the author's concepts regarding the scientific name proposed and was most likely cited in the protologue.

The main types are holotype, isotype, syntype, paratype, lectotype, neotype, and epitype:

(a) Holotype: the one specimen or illustration either indicated by the author as nomenclatural type or used by the author when no type was indicate;

(b) Isotype: a duplicate specimen of the holotype, it is always a specimen;

(c) Syntype: any specimen cited in the protologue when there is no holotype defined, or any one of two or more specimens simultaneously designated in the protologue as types;

(d) Paratype: any specimen cited in the protologue that is neither a holotype nor an isotype, nor one of the syntypes if in the protologue two or more specimens were simultaneously designated as types;

(e) Lectotype: the one specimen or illustration designated from the original material as the nomenclatural type, in conformity with the respective Code of Nomenclature, if the name was published without a holotype, or if the holotype is lost or destroyed, or if a type is found to belong to more than one taxon;

(f) Neotype: a specimen or illustration selected to serve as nomenclatural type if no original material exists, or as long as it is missing. A lectotype always takes precedence over a neotype;

(g) Epitype: a specimen or illustration selected to serve as an interpretative type when the holotype, lectotype, or previously designated neotype, or all original material associated with a validly published name, is demonstrably ambiguous and cannot be critically identified for purposes of the precise application of the name to a taxon. Designation of an epitype is not affected unless the holotype, lectotype, or neotype that the epitype supports is explicitly cited. These types may also present duplicates that are deposited in different scientific collections as an attempt to preserve original materials and prevent their loss in case something happens to a given scientific collection. The duplicates are designated by an "iso-" prefix in the name of the types, e.g. isosyntype, isolectotype, isoneotype, and isoepitype.