



What is an Integrated Taxonomic Information System "TSN?"

A Taxonomic Serial Number (TSN) is a unique, persistent, non-intelligent identifier for a scientific name in the context of the Integrated Taxonomic Information System (ITIS). Key terms are briefly noted here:

- 🌐 **Scientific name** - used here and generally in ITIS in the sense of "combination" rather than epithet or taxon *per se*, though homonyms would have separate TSNs despite having identical name strings.
- 🌐 **Unique** - no two names can have the same TSN (as it is the primary key for ITIS' scientific names table), and (homonymy and artifacts aside) a given name will never point to more than one TSN.
- 🌐 **Persistent** - once a name and TSN are established in ITIS this pair will not go away.
- 🌐 **Non-intelligent** - the number contains no meaning of any kind (it doesn't convey information about status, taxonomic position, rank, etc.).

In the context of ITIS, the TSN is the primary key for the scientific names in ITIS. It is not recommended that external databases use the ITIS TSN as a primary key, though it can be helpful to store it for cross-referencing purposes, and since homonymy can render scientific name strings alone as ambiguous.

TSNs are system-generated and serially assigned to scientific names as they are loaded into the ITIS database; they cannot be pre-allocated at this time. They are assigned to all scientific names at all ranks (up to kingdom). They are not assigned to vernaculars (common names). Some further details and implications of the items above follow here.

The TSN is not a concept identifier, so regardless of how a scientific name may change with respect to circumscription or diagnostic characters the TSN remains with it.

The relationship between the TSN and the name is stable, so the same TSN will always refer to the same name, regardless of whether it falls into or out of use or synonymy, and regardless of what the currently accepted name is. In the past, on occasion, certain minor typographical entry errors (not based on the literature) that have previously been found in ITIS were simply corrected in the process of reviewing the legacy data ITIS inherited from the NODC Taxonomic Code (the predecessor to ITIS), but beyond those rare occasions, the relationship between TSN and name string should remain stable. ITIS no longer allows such name changes, so the name-TSN relationship is now truly fixed in ITIS.

This "fixed" nature of the TSN and associated name data is a fundamental requirement of ITIS' partners and the user base who already have data associated with many names and TSNs found in ITIS.

How does an ITIS TSN "work" within the system as new scientific names are added and the status and position of existing names change?

Every TSN in ITIS is to be linked directly to another TSN for a valid/accepted name. This establishes a full hierarchy into which every name must connect. Different and mutually exclusive mechanisms are utilized to link a valid/accepted name to another ('parent tsn' link) and to link an invalid/not accepted name to a valid/accepted name ('accepted tsn' link). On rare occasions, there is no single valid/accepted name to which a 'synonym' can link, whether due to type-based problems (a type series corresponding to >1 species, with no holotype, etc.), or due to other complexities at ranks not regulated by the relevant nomenclatural Code. In those rare circumstances, it is permissible to have links to more than one valid/accepted name.

If a taxon is moved from one genus to another, and ITIS is found to have an entry for the non-current combination, the data would be handled like so: the new combination is added (which will get its own new TSN once it is in ITIS), complete with the required taxon authorship and one or more reference citation, and linked to the desired parent taxon, then the existing name record is synonymized under it, assigned an "unacceptability reason" from a kingdom-specific fixed list (e.g., "original name/combination" is an option in Animalia), "filled out" if it is missing the required taxon authorship or other requirement, and a citation is added for a justifying reference.

Similarly, if a scientific name in ITIS is found to be a literature-based misspelling, the correctly-spelled name is added with all required information (and it will get its own new TSN), and the erroneous name is synonymized under it with an appropriate "unacceptability reason" (in Animalia, "unavailable, literature misspelling"; in Plantae, "orthographic variant (misspelling)", etc.) and literature citation.

If, however, an existing ITIS name is found to have no basis in the literature (a novel typo, etc.) then it is not "corrected," but rather is explicitly labeled as a "database artifact" (which hides it from most users) and dropped into synonymy under the appropriate accepted name.

If a 'new' name is to be added to ITIS but is already matched within the system, an explicit decision is taken whether to update the existing record (in cases where the name was simply placed in the wrong group in ITIS) or assign a new TSN (in cases of homonymy, etc.). In the latter case, a comment is added to the name noting the difference between the names & TSNs to help users differentiate between them.

For general information about ITIS and interpreting what you might find in it, please see the following pages:

http://www.itis.gov/itis_primer.html

<http://www.itis.gov/glossary.html>

Integrated Taxonomic Information System
Smithsonian Institution
P.O. Box 37012
NMNH,MRC-0180
Washington, DC 20013-7012