# Taxonomic Data
## with taxize
Cheat Sheet

rOpenSci

## Use Cases

**Get taxonomic IDs**

taxize::**get_ids/get_colid/etc.**

*Puma concolor* → 2435099
*Ursus americanus* → 2433407
*Quercus robur* → 2878688

**Get correct spellings.**

taxize::**tnrs**/taxize::**gnr_resolve**

*Pumma concolor* → *Puma concolor*

**Retrieve higher taxonomic classification.**

taxize::**classification**

Classification for Chironomus riparius

| | name | rank | id |
|---|---|---|---|
| 1 | Animalia | Kingdom | 22254411 |
| 2 | Arthropoda | Phylum | 22254412 |
| 3 | Insecta | Class | 22254618 |
| 4 | Diptera | Order | 22254663 |
| 5 | Chironomidae | Family | 22254676 |
| 6 | Chironomus | Genus | 22350527 |
| 7 | Chironomus riparius | Species | 8663146 |

**Fetch all taxonomic names downstream from a target taxnomic group.**

taxize::**downstream**

Species downstream from the genus Apis

| | childtaxa_id | childtaxa_name | childtaxa_rank |
|---|---|---|---|
| 1 | 6971712 | Apis andreniformis | Species |
| 2 | 6971713 | Apis cerana | Species |
| 3 | 6971714 | Apis dorsata | Species |
| 4 | 6971715 | Apis florea | Species |
| 5 | 6971716 | Apis koschevnikovi | Species |
| 6 | 6845885 | Apis mellifera | Species |
| 7 | 6971717 | Apis nigrocincta | Species |

## Data Sources

Encyclopedia of Life
Taxonomic Name Resolution Service
Integrated Taxonomic Information Service
Phylomatic
uBio
Global Names Resolver
Global Names Index
IUCN Red List
Tropicos
Plantminer
Theplantlist
Catalogue of Life
Global Invasive Species Database
National Center for Biotechnology Information
CANADENSYS Vascan name search API
International Plant Names Index (IPNI)
Barcode of Life Data Systems (BOLD)
National Biodiversity Network (UK)

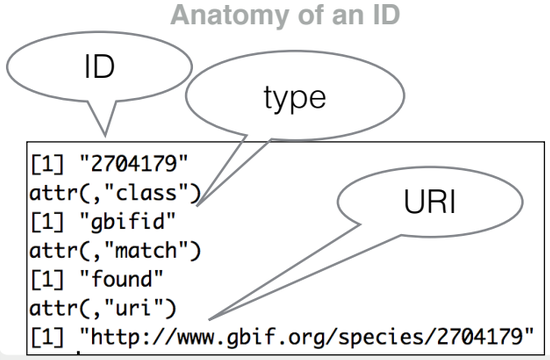
## Get taxonomic IDs

### Options

- Interactively select names .
- Or, get back all names to process later.
- Or, get back certain records.

taxize::**get_colid(<id>)**
If > 1 result, interactively select by row
taxize::**get_colid(<id>, rows = 1:4)**
Get rows 1 through 4
taxize::**get_colid_(<id>)**
Get all data

### Anatomy of an ID




## Correct Names

### Out of the box frameworks

#### Global Names Resolver

taxize::gnr_resolve(c("Poa anua", "Quercus rober"), data_source_ids = 11)

| | submitted_name | matched_name |
|---|---|---|
| 1 | Poa anua | Poa annua L. |
| 2 | Quercus rober | Quercus robur L. |

Notice that both submitted names are spelled incorrectly, and are matched to their correct spellings.

#### Others

taxize::tnrs(<names>)
Queries NCBI, Mammals dataset, and iPlant, only fuzzy matching on plants

taxize::iplant_resolve(<names>)
iPlant has a nice name resolver - of course, it only works for plants

**Bonus:** taxize::resolve(<names>) is an interface to all three of the resolution functions

### DIY correction

There are a lot of functions to search various taxonomic databases - they don't do name resolution per se. But after getting an id, you can do many other tasks . Some exmples:

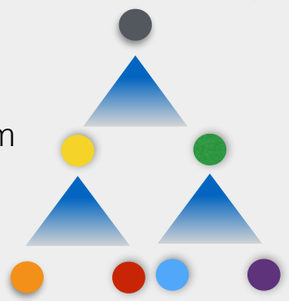
taxize::**synonyms(<id>)**
Get name synonyms
taxize::**ncbi_search(<id>)**
Search NCBI
taxize::**tp_search(<id>)**
Search Tropicos

## Down-/up-stream, children, and more

Target Taxon

taxize::downstream(<name>, "species")

Downstream to desired rank



taxize::children(<name>)

Immediate children only

taxize::upstream(<name>)

Upstream to desired rank

taxize::classification(<name>)

All upstream names for given taxon