Package ‘rglobi’

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Type Package

Title R Interface to Global Biotic Interactions

Description A programmatic interface to the web service methods provided by Global Biotic Interactions (GloBI). GloBI provides access to spatial-temporal species interaction records from sources all over the world. rglobi provides methods to search species interactions by location, interaction type, and taxonomic name. In addition, it supports Cypher, a graph query language, to allow for executing custom queries on the GloBI aggregate species interaction data set.

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BugReports https://github.com/ropensci/rglobi/issues

VignetteBuilder knitr

Depends R (>= 3.0.1)

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Suggests testthat(>= 0.7), knitr

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get_child_taxa

Returns all known child taxa with known interaction of specified taxa and rank.

Usage

```r
get_child_taxa(taxon.names, rank = "Species", skip = 0, limit = 25,
              opts = list())
```

Arguments

- `taxon.names`: list of taxa of which child taxa should be included.
- `rank`: selected taxonomic rank of child taxa.
- `skip`: number of child taxon names to skip before returning result. May be used for pagination.
- `limit`: maximum number of child taxon names returned.
- `opts`: list of options including web service configuration like "port" and "host".

Value

- list of child taxon names

See Also

Other interactions: `get_interaction_matrix`, `get_interaction_table`, `get_interaction_types`, `get_interactions_by_taxa`, `get_interactions_by_type`, `get_interactions`, `get_predators_of`, `get_prey_of`
## get_data_fields

List data fields identified in GloBI database

### Description

Returns data frame with supported data fields

### Usage

```r
get_data_fields(opts = list())
```

### Arguments

- **opts**
  - list of named options to configure GloBI API

### Value

Returns data frame of supported data fields

### Examples

```r
## Not run:
get_child_taxa(list("Aves"))
## End(Not run)
```

## get_interactions

Get Species Interaction from GloBI

### Description

Get Species Interaction from GloBI

### Usage

```r
get_interactions(taxon = "Homo sapiens", interaction.type = "preysOn", ...)
```
get_interactions_by_taxa

Arguments

taxon canonical scientific name of source taxon (e.g. Homo sapiens)
interaction.type the preferred interaction type (e.g. preysOn)
... list of options to configure GloBI API

Value

species interactions between source and target taxa

See Also

Other interactions: get_child_taxa, get_interaction_matrix, get_interaction_table, get_interaction_types, get_interactions_by_taxa, get_interactions_by_type, get_predators_of, get_prey_of

Examples

```r
## not run:
get_interactions("Homo sapiens", "preysOn")
get_interactions("Insecta", "parasiteOf")
## end not run
```

get_interactions_by_taxa

Return interactions involving specific taxa

Description

Returns interactions involving specific taxa. Secondary (target) taxa and spatial boundaries may also be set

Usage

get_interactions_by_taxa(sourcetaxon, targettaxon = NULL,
interactiontype = NULL, accordingto = NULL,
showfield = c("source_taxon_external_id", "source_taxon_name",
"source_taxon_path", "source_specimen_life_stage", "interaction_type",
"target_taxon_external_id", "target_taxon_name", "target_taxon_path",
"target_specimen_life_stage", "latitude", "longitude", "study_citation",
"study_external_id", "study_source_citation"), otherkeys = NULL,
bbox = NULL, returnobservations = F, opts = list())
**get_interactions_by_taxa**

**Arguments**

- `sourcetaxon`  
  Taxa of interest (consumer, predator, parasite); may be specified as "Genus species" or higher level (e.g., Genus, Family, Class).

- `targettaxon`  
  Taxa of interest (prey, host); may be specified as "Genus species" or higher level (e.g., Genus, Family, Class).

- `interactiontype`  
  Interaction types of interest (prey, host); may be specified as listed by `get_interaction_types()`.

- `accordingto`  
  Data source of interest.

- `showfield`  
  Data fields of interest (e.g. `source_taxon_external_id`, `source_taxon_name`); may be specified as listed by `get_data_fields()`.

- `otherkeys`  
  List of key-value pairs to query any field not covered by other parameters; keys may be specified as listed by `get_data_fields()`.

- `bbox`  
  Coordinates in EPSG:4326 decimal degrees defining "left, bottom, right, top" of bounding box.

- `returnobservations`  
  If true, all individual observations are returned, else only distinct relationships.

- `opts`  
  List of named options to configure GloBI API.

**Value**

Returns data frame of interactions.

**Note**

For data sources in which type of interactions were not specified, the interaction is labeled "interacts_with".

**See Also**

Other interactions: `get_child_taxa`, `get_interaction_matrix`, `get_interaction_table`, `get_interaction_types`, `get_interactions_by_type`, `get_interactions`, `get_predators_of`, `get_prey_of`.

**Examples**

```r
## Not run:
get_interactions_by_taxa(sourcetaxon = "Rattus")
get_interactions_by_taxa(sourcetaxon = "Aves", targettaxon = "Rattus")
get_interactions_by_taxa(sourcetaxon = "Rattus rattus",
bbox = c(-67.87,12.79,-57.08,23.32))

## End(Not run)
```
get_interactions_by_type

Get Species Interactions by Interaction Type from GloBI

Description
Get Species Interactions by Interaction Type from GloBI

Usage
get_interactions_by_type(interactiontype = c("interactsWith"), ...)

Arguments
interactiontype
  the requested interaction type (e.g. preysOn)
...
  list of options to configure GloBI API

Value
species interactions given provided interaction type(s)

See Also
Other interactions: get_child_taxa, get_interaction_matrix, get_interaction_table, get_interaction_types, get_interactions_by_taxa, get_interactions, get_predators_of, get_prey_of

Examples
## Not run:
get_interactions_by_type(interactiontype = c("eats", "eatenBy"))
get_interactions_by_type(interactiontype = "parasiteOf")

## End(Not run)

get_interactions_in_area

Return all interactions in specified area

Description
Returns all interactions in data base in area specified in arguments

Usage
get_interactions_in_area(bbox, ...)

Arguments

bbox Coordinates in EPSG:4326 decimal degrees defining "left, bottom, right, top" of bounding box
...
list of named options to configure GloBI API

Value

Returns data frame of interactions

See Also

Other areas: `get_interaction_areas`

Examples

```r
## not run:
get_interactions_in_area(bbox = c(-67.87, 12.79, -57.08, 23.32))

## End(Not run)
```

---

`get_interaction_areas` Find locations at which interactions were observed

Description

Returns all locations (latitude, longitude) of interactions in database or area specified in arguments

Usage

```r
get_interaction_areas(bbox = NULL, ...)
```

Arguments

bbox Coordinates in EPSG:4326 decimal degrees defining "left, bottom, right, top" of bounding box
...
list of named options to configure GloBI API

Value

Returns data frame of coordinates

See Also

Other areas: `get_interactions_in_area`
get_interaction_matrix

Get Interaction Matrix. Constructs an interaction matrix indicating whether source taxa (rows) or target taxa (columns) are known to interact with given type.

Description

Get Interaction Matrix. Constructs an interaction matrix indicating whether source taxa (rows) or target taxa (columns) are known to interact with given type.

Usage

get_interaction_matrix(source.taxon.names = list('Homo sapiens'),
                      target.taxon.names = list('Mammalia'), interaction.type = "eats",
                      opts = list())

Arguments

source.taxon.names
  list of source taxon names (e.g. list('Mammalia', 'Aves', 'Ariopsis felis'))

target.taxon.names
  list of target taxon names

interaction.type
  the preferred interaction type (e.g. preysOn)

opts
  list of options to configure GloBI API

Value

matrix representing species interactions between source and target taxa

See Also

Other interactions: get_child_taxa, get_interaction_table, get_interaction_types, get_interactions_by_taxa, get_interactions_by_type, get_interactions, get_predators_of, get_prey_of

Examples

## Not run:
get_interaction_matrix("Homo sapiens", "Mammalia", "interactsWith")

## End(Not run)
get_interaction_table

Returns all known child taxa with known interaction of specified source and target taxa on any rank.

Description

Returns all known child taxa with known interaction of specified source and target taxa on any rank.

Usage

```r
get_interaction_table(source.taxon.names = list(),
                      target.taxon.names = list(),
                      interaction.type = "preyOn",
                      skip = 0,
                      limit = 100,
                      opts = list())
```

Arguments

- `source.taxon.names`: list of taxon names for source
- `target.taxon.names`: list of taxon names for target
- `interaction.type`: kind of interaction
- `skip`: number of records skipped before including record in result table, used in pagination
- `limit`: maximum number of interaction to include
- `opts`: connection parameters and other options

Value

A table of matching source, target and interaction types

See Also

Other interactions: `get_child_taxa`, `get_interaction_matrix`, `get_interaction_types`, `get_interactions_by_taxa`, `get_interactions_by_type`, `get_interactions`, `get_predators_of`, `get_prey_of`

Examples

```r
## not run:
get_interaction_table(source.taxon.names = list("Aves"),
                      target.taxon.names = list("Insecta"))

## End(Not run)
```
get_interaction_types  List interactions identified in GloBI database

Description
Returns data frame with supported interaction types

Usage
get_interaction_types(opts = list())

Arguments
opts               list of named options to configure GloBI API

Value
Returns data frame of supported interaction types

See Also
Other interactions: get_child_taxa, get_interaction_matrix, get_interaction_table, get_interactions_by_taxa, get_interactions_by_type, get_interactions, get_predators_of, get_prey_of

Examples
## not run:
get_interaction_types()

## End(Not run)

get_predators_of  Get a List of Predators of a Given Prey Taxon

Description
Get a List of Predators of a Given Prey Taxon

Usage
get_predators_of(taxon = "Rattus rattus", ...)

Arguments
taxon               scientific name of prey taxon. Can be any taxonomic rank (e.g. Rattus rattus, Decapoda)
dots
list of named options to configure the GloBI API
get_prey_of

Value

list of recorded prey-predator interactions that involve the desired prey taxon.

See Also

Other interactions: get_child_taxa, get_interaction_matrix, get_interaction_table, get_interaction_types, get_interactions_by_taxa, get_interactions_by_type, get_interactions, get_prey_of

Examples

## not run:
get_prey_of("Homo sapiens")
get_prey_of("Primates")

# End(Not run)
**Query**

Executes a Cypher Query Against GloBI’s Neo4j Instance

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**Description**

Executes a Cypher Query Against GloBI’s Neo4j Instance

**Usage**

```
query(cypherQuery, opts = list())
```

**Arguments**

- **cypherQuery**  
  Cypher query (see [http://github.com/jhpoelen/eol-globi-data/wiki/cypher](http://github.com/jhpoelen/eol-globi-data/wiki/cypher) for examples)
- **opts**  
  list of named options to configure GloBI API

**Value**

result of cypher query string
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