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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Author Jorrit Poelen [aut, cre],
Stephen Gosnell [aut],
Sergey Slyusarev [aut]

Maintainer Jorrit Poelen <jhpoelen@xs4all.nl>

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get_child_taxa

**Description**

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

Examples

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

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_data_fields()
## 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

```r
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

## 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**

\[ \text{get\_interactions\_by\_type(interactiontype = c("interactsWith"), ...)} \]

**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**

```r
## 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 database in area specified in arguments

**Usage**

\[ \text{get\_interactions\_in\_area(bbox, ...)} \]
get_interaction_areas

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))
```

Description

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

Usage

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

```r
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

```r
## 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

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

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

## 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)
...  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_predators_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

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 for examples)

opts  list of named options to configure GloBI API

Value

result of cypher query string
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