Package ‘rglobi’

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Title R Interface to Global Biotic Interactions
Description A programmatic interface to the web service methods provided by Global Biotic Interactions (GloBI)
(https://www.globalbioticinteractions.org/). 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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get_child_taxa

Description

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

Usage

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
get_data_fields

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

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

```
get_data_fields(opts = list(), read_csv = read_csv_online)
```

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>opts</td>
<td>list of named options to configure GloBI API</td>
</tr>
<tr>
<td>read_csv</td>
<td>function used to find csv associated to query url, defaulting to online query method</td>
</tr>
</tbody>
</table>

Value

Returns data frame of supported data fields

Examples

```r
## Not run:
get_data_fields()
## End(Not run)
```
get_interactionsכמו
come get_interactions

Get Species Interaction from GloBI

Description
Get Species Interaction from GloBI

Usage
get_interactions(taxon = "Homo sapiens", interaction.type = "preysOn",
...

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
## 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(), read_csv = read_csv_online)

**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
- **read_csv**: function used to find csv associated to query url, defaulting to online query method

**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**

```r
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 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

## 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 data base or area specified in arguments

Usage

get_interaction_areas(bbox = NULL, read_csv = read_csv_online, ...)

Examples

## Not run:
get_interaction_areas(bbox = c(-67.87, 12.79, -57.08, 23.32))

## End(Not run)
**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(), read_csv = read_csv_online)
```

### Arguments

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

- **target.taxon.names**
  - list of target taxon names

---

**Arguments**

- **bbox** Coordinates in EPSG:4326 decimal degrees defining "left, bottom, right, top" of bounding box
- **read_csv** function used to find csv associated to query url, defaulting to online query method
- **...** list of named options to configure GloBI API

**Value**

 Returns data frame of coordinates

**See Also**

Other areas: `get_interactions_in_area`

**Examples**

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

## End(Not run)
```
get_interaction_table

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

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

**read_csv**
function used to find csv associated to query url, defaulting to online query method

**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**

```r
get_interaction_table(source.taxon.names = list(),
                    target.taxon.names = list(),
                    interaction.type = "preysOn",
                    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
get_interaction_types

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

```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(), read_csv = read_csv_online)

Arguments

 opts  list of named options to configure GloBI API
 read_csv  function used to find csv associated to query url, defaulting to online query method

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

```r
## 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

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_predators_of("Rattus rattus")
get_predators_of("Primates")

## End(Not run)

get_prey_of

Get a List of Prey for given Predator Taxon

Description

Get a List of Prey for given Predator Taxon

Usage

get_prey_of(taxon = "Homo sapiens", ...)

query

Arguments

taxon scientific name of predator taxon. Can be any taxonomic rank (e.g. Homo sapiens, Animalia)

... list of named options to configure GloBI API

Value

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

```r
## 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/globalbioticinteractions/globalbioticinteractions/wiki/cypher for examples)

opts list of named options to configure GloBI API

Value

result of cypher query string
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