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

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

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

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)
```

### Description

List data fields identified in GloBI database

### Usage

```r
get_data_fields(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 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", ...)
```
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 = FALSE, opts = list(), read_csv = read_csv_online)
```
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

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

## Not run:
get_interactions_by_taxa(sourcetaxon = "Rattus")
get_interactions_by_taxa(source_taxon = "Aves", target_taxon = "Rattus")
get_interactions_by_taxa(source_taxon = "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**

```r
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
## 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, ...)

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
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(), 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

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
get_interaction_table

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

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

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(), 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

  ## 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", ...)

get_predators_of
get_prey_of

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_predators_of`

Examples

```r
## Not run:
get_predators_of("Rattus rattus")
gp.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

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

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**

```
## 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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