Package ‘rglobi’

September 20, 2019

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.

Version 0.2.20

Date 2019-09-19

URL https://github.com/ropensci/rglobi

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

VignetteBuilder knitr

Depends R (>= 3.0.1)

License MIT + file LICENSE

Imports rjson (>= 0.2.13), readr (>= 1.3.1), RCurl (>= 0.3.4), curl
(>= 0.3.3)

Suggests testthat(>= 0.7), knitr

RoxygenNote 6.1.1

NeedsCompilation no

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

Maintainer Jorrit Poelen <jhpoejen@xs4all.nl>

Repository CRAN

Date/Publication 2019-09-20 04:50:08 UTC
**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**

```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

## 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())

Arguments

opts list of named options to configure GloBI API

Value

Returns data frame of supported data fields

Examples

## Not run:
get_data_fields()

## End(Not run)

---

get_interactions Get Species Interaction from GloBI

Description

Get Species Interaction from GloBI

Usage

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

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, ...)
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))
## 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, ...)

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

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())

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_prey_of`

**Examples**
```r
## Not run:
get_prey_of("Rattus rattus")
get_prey_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_prey_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

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

### Arguments

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

### Value

result of cypher query string
Index

*Topic database
  get_data_fields, 3
  get_interaction_areas, 7
  get_interaction_types, 10
  get_interactions_by_taxa, 4
  get_interactions_in_area, 6

get_child_taxa, 2, 4–6, 8–11
get_data_fields, 3
get_interaction_areas, 7, 7
get_interaction_matrix, 2, 4–6, 8, 9–11
get_interaction_table, 2, 4–6, 8, 9, 10, 11
get_interaction_types, 2, 4–6, 8, 9, 10, 11
get_interactions, 2, 3, 5, 6, 8–11
get_interactions_by_taxa, 2, 4, 4, 6, 8–11
get_interactions_by_type, 2, 4, 5, 6, 8–11
get_interactions_in_area, 6, 7
get_predators_of, 2, 4–6, 8–10, 10, 11
get_prey_of, 2, 4–6, 8–11, 11

query, 12