

Package ‘rredlist’

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Type Package

Title 'IUCN' Red List Client

Description 'IUCN' Red List (<<http://apiv3.iucnredlist.org/api/v3/docs>>) client.
The 'IUCN' Red List is a global list of threatened and endangered species.
Functions cover all of the Red List 'API' routes. An 'API' key is required.

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URL <https://github.com/ropensci/rredlist> (devel)
<https://docs.ropensci.org/rredlist/> (docs)

BugReports <https://github.com/ropensci/rredlist/issues>

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rredlist-package	<i>rredlist</i>
------------------	-----------------

Description

IUCN Red List R Client

Taxonomic Names vs. IUCN IDs

From the documentation (quoting): "It is advisable wherever possible to use the taxon name (species name) to make your API calls, rather than using IDs. IDs are not immovable are expected to be used mainly by organizations that work closely with the IUCN Red List."

Authentication

IUCN requires you to get your own API key, an alphanumeric string that you need to send in every request. See key A IUCN API token. See `rl_use_iucn()` for help getting and storing it. Get it at <https://apiv3.iucnredlist.org/api/v3/token> Keep this key private. You can pass the key in to each function via the key parameter, but it's better to store the key either as an environment variable (IUCN_REDLIST_KEY) or an R option (iucn_redlist_key) - we recommend using the former option.

High vs. Low level package APIs

High level API High level functions do the HTTP request and parse data to a data.frame for ease of downstream use. The high level functions have no underscore on the end of the function name, e.g., `rl_search()`

Low level API The parsing to data.frame in the high level API does take extra time. The low level API only does the HTTP request, and gives back JSON without doing any more parsing. The low level functions DO have an underscore on the end of the function name, e.g., `rl_search_()`

No Spatial

This package does not include support for the spatial API, described at <https://apiv3.iucnredlist.org/spatial>

Citing the Red List API

Get the proper citation for the version of the Red List you are using by programatically running `rl_citation()`

Red List API Terms of Use

See <https://www.iucnredlist.org/terms/terms-of-use>

Rate limiting

From the IUCN folks: Too many frequent calls, or too many calls per day might get your access blocked temporarily. If you're a heavy API user, the Red List Unit asked that you contact them, as there might be better options. They suggest a 2-second delay between your calls if you plan to make a lot of calls.

Citing the IUCN Red List API

See <https://apiv3.iucnredlist.org/about>

rl_citation

Get the citation Red List API version

Description

Get the citation Red List API version

Usage

```
rl_citation(...)
```

Arguments

... Curl options passed to `curl::verb-GET`

Value

API citation as character string

Examples

```
## Not run:
rl_citation()

## End(Not run)
```

rl_common_names	<i>Get common names for a given taxonomic name</i>
-----------------	--

Description

Get common names for a given taxonomic name

Usage

```
rl_common_names(name = NULL, key = NULL, parse = TRUE, ...)

rl_common_names_(name = NULL, key = NULL, ...)
```

Arguments

name	(character) Binomial taxonomic name
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_common_names('Loxodonta africana')
rl_common_names_('Loxodonta africana')

## End(Not run)
```

rl_comp_groups	<i>Information about comprehensive groups</i>
----------------	---

Description

Information about comprehensive groups

Usage

```
rl_comp_groups(group = NULL, key = NULL, parse = TRUE, ...)
```

```
rl_comp_groups_(group = NULL, key = NULL, ...)
```

Arguments

group	(character) A comprehensive group name. Call <code>rl_comp_groups()</code> without passing this parameter to get the list of comprehensive groups
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the `result` slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:  
rl_comp_groups()  
rl_comp_groups('mammals')  
rl_comp_groups('groupers')  
  
rl_comp_groups_()  
rl_comp_groups_('groupers')  
  
## End(Not run)
```

rl_countries	<i>Get countries</i>
--------------	----------------------

Description

Get countries

Usage

```
rl_countries(key = NULL, parse = TRUE, ...)
```

```
rl_countries_(key = NULL, ...)
```

Arguments

key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the `result` slot, unless using a function with a trailing underscore, in which case `json` as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_countries()
rl_countries_()

## End(Not run)
```

rl_growth_forms	<i>Get plant species growth forms by taxon name, IUCN id, and region</i>
-----------------	--

Description

Get plant species growth forms by taxon name, IUCN id, and region

Usage

```
rl_growth_forms(
  name = NULL,
  id = NULL,
  region = NULL,
  key = NULL,
  parse = TRUE,
  ...
)

rl_growth_forms_(name = NULL, id = NULL, region = NULL, key = NULL, ...)
```

Arguments

name	(character) A taxonomic name
id	(character) An IUCN identifier
region	(character) A region name, see rl_regions for acceptable region identifiers (use the entries in the identifier column)
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_growth_forms('Quercus robur')
rl_growth_forms('Quercus robur', region = 'europe')
rl_growth_forms(id = 63532)
rl_growth_forms(id = 63532, region = 'europe')

rl_growth_forms('Mucuna bracteata')
rl_growth_forms('Abarema villifera')
rl_growth_forms('Adansonia perrieri')
rl_growth_forms('Adenostemma harlingii')

rl_growth_forms_('Quercus robur')
rl_growth_forms_(id = 63532, region = 'europe')

## End(Not run)
```

rl_habitats	<i>Get species habitats by taxon name, IUCN id, and region</i>
-------------	--

Description

Get species habitats by taxon name, IUCN id, and region

Usage

```
rl_habitats(
  name = NULL,
  id = NULL,
  region = NULL,
  key = NULL,
  parse = TRUE,
  ...
)
```

```
rl_habitats_(name = NULL, id = NULL, region = NULL, key = NULL, ...)
```

```
rl_history_(name = NULL, id = NULL, region = NULL, key = NULL, ...)
```

Arguments

name	(character) A taxonomic name
id	(character) An IUCN identifier
region	(character) A region name, see rl_regions for acceptable region identifiers (use the entries in the identifier column)
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_habitats('Fratercula arctica')
rl_habitats('Fratercula arctica', region = 'europe')
rl_habitats(id = 12392)
rl_habitats(id = 22694927, region = 'europe')

rl_habitats_('Fratercula arctica')
rl_habitats_(id = 12392)

## End(Not run)
```

rl_history

Get historical assessments by taxon name, IUCN id, and region

Description

Get historical assessments by taxon name, IUCN id, and region

Usage

```
rl_history(
  name = NULL,
  id = NULL,
  region = NULL,
  key = NULL,
  parse = TRUE,
  ...
)
```

Arguments

name	(character) A taxonomic name
id	(character) An IUCN identifier
region	(character) A region name, see rl_regions for acceptable region identifiers (use the entries in the identifier column)
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_history('Loxodonta africana')
rl_history('Ursus maritimus', region = 'europe')
rl_history(id = 12392)
rl_history(id = 22823, region = 'europe')

rl_history_('Loxodonta africana')
rl_history_(id = 12392)

## End(Not run)
```

rl_measures	<i>Get species conservation measures by taxon name, IUCN id, and region</i>
-------------	---

Description

Get species conservation measures by taxon name, IUCN id, and region

Usage

```
rl_measures(
  name = NULL,
  id = NULL,
  region = NULL,
  key = NULL,
  parse = TRUE,
  ...
)

rl_measures_(name = NULL, id = NULL, region = NULL, key = NULL, ...)
```

Arguments

name	(character) A taxonomic name
id	(character) An IUCN identifier
region	(character) A region name, see rl_regions for acceptable region identifiers (use the entries in the identifier column)
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_measures('Fratercula arctica')
rl_measures('Fratercula arctica', region = 'europe')
rl_measures(id = 12392)
rl_measures(id = 22694927, region = 'europe')

rl_measures_('Fratercula arctica')
rl_measures_(id = 22694927, region = 'europe')

## End(Not run)
```

rl_narrative

Get species narrative information by taxon name, IUCN id, and region

Description

Get species narrative information by taxon name, IUCN id, and region

Usage

```
rl_narrative(
  name = NULL,
  id = NULL,
  region = NULL,
  key = NULL,
  parse = TRUE,
  ...
)

rl_narrative_(name = NULL, id = NULL, region = NULL, key = NULL, ...)
```

Arguments

name	(character) A taxonomic name
id	(character) An IUCN identifier
region	(character) A region name, see rl_regions for acceptable region identifiers (use the entries in the identifier column)

key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_narrative('Fratercula arctica')
rl_narrative('Fratercula arctica', region = 'europe')
rl_narrative(id = 12392)
rl_narrative(id = 22694927, region = 'europe')

rl_narrative_('Fratercula arctica')
rl_narrative_('Fratercula arctica', region = 'europe')

## End(Not run)
```

rl_occ_country	<i>Get country occurrence by species name or ID</i>
----------------	---

Description

Get country occurrence by species name or ID

Usage

```
rl_occ_country(
  name = NULL,
  id = NULL,
  region = NULL,
  key = NULL,
  parse = TRUE,
  ...
)
```

Arguments

name	(character) A taxonomic name
id	(character) An IUCN identifier
region	(character) A region name, see rl_regions for acceptable region identifiers (use the entries in the identifier column)
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_occ_country('Loxodonta africana')
rl_occ_country('Fratercula arctica', region = 'europe')
rl_occ_country(id = 12392)
rl_occ_country(id = 22694927, region = 'europe')

rl_occ_country('Fratercula arctica', parse = FALSE)
rl_occ_country_('Fratercula arctica')
rl_occ_country_('Fratercula arctica', region = 'europe')

## End(Not run)
```

rl_occ_country_ *Search by taxon name, IUCN id, and region*

Description

Search by taxon name, IUCN id, and region

Usage

```
rl_occ_country_(name = NULL, id = NULL, region = NULL, key = NULL, ...)

rl_search(name = NULL, id = NULL, region = NULL, key = NULL, parse = TRUE, ...)

rl_search_(name = NULL, id = NULL, region = NULL, key = NULL, ...)
```

Arguments

name	(character) A taxonomic name
id	(character) An IUCN identifier
region	(character) A region name, see rl_regions for acceptable region identifiers (use the entries in the identifier column)
key	A IUCN API token. See rl_use_iucn .
...	Curl options passed to HttpClient
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE

Value

A list, with the data in the `result` slot, unless using a function with a trailing underscore, in which case `json` as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_search('Fratercula arctica')
rl_search('Fratercula arctica', region = 'europe')
rl_search(id = 12392)
rl_search(id = 22694927, region = 'europe')

rl_search('Fratercula arctica', parse = FALSE)
rl_search_('Fratercula arctica')
rl_search_('Fratercula arctica', region = 'europe')

## End(Not run)
```

rl_regions

Get regions

Description

Get regions

Usage

```
rl_regions(key = NULL, parse = TRUE, ...)
```

```
rl_regions_(key = NULL, ...)
```

Arguments

key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_regions()
rl_regions(parse = FALSE)
rl_regions_()

## End(Not run)
```

rl_sp	<i>Get species</i>
-------	--------------------

Description

Get species

Usage

```
rl_sp(page = 0, key = NULL, parse = TRUE, all = FALSE, quiet = FALSE, ...)
rl_sp_(page, key = NULL, all = FALSE, quiet = FALSE, ...)
```

Arguments

page	(integer/numeric) Page to get. Default: 0. you can get up to 10,000 records per page. Paging is required because it's too much burden on a server to just "get all the data" in one request
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
all	(logical) to get all results or not. Default: FALSE. this means we do the paging internally for you. result is a list of results, so you have to bind them together yourself into a data.frame, see example

quiet (logical) give progress for download or not. Default: FALSE (that is, give progress).
 ignored if all = FALSE

... Curl options passed to [HttpClient](#)

Examples

```
## Not run:
rl_sp(page = 3)

# get all results
out <- rl_sp(all = TRUE)
length(out)
vapply(out, "[", 1, "count")
all_df <- do.call(rbind, lapply(out, "[", "result"))
head(all_df)
NROW(all_df)

## End(Not run)
```

rl_sp_category	<i>Get species by category</i>
----------------	--------------------------------

Description

Get species by category

Usage

```
rl_sp_category(category, key = NULL, parse = TRUE, ...)

rl_sp_category_(category, key = NULL, parse = TRUE, ...)
```

Arguments

category (character) A two-letter category code. One of "DD", "LC", "NT", "VU", "EN", "CR", "EW", "EX", "LRlc", "LRnt", "LRcd"

key A IUCN API token. See [rl_use_iucn](#).

parse (logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE

... Curl options passed to [HttpClient](#)

Examples

```
## Not run:
rl_sp_category('VU')
rl_sp_category('LRlc')
rl_sp_category('EN')
rl_sp_category('EX')
rl_sp_category('EX', parse = FALSE)
```



```

rl_sp_category_('EX')

## End(Not run)

```

rl_sp_citation	<i>Get citations by taxon name, IUCN id, and region</i>
----------------	---

Description

Get citations by taxon name, IUCN id, and region

Usage

```

rl_sp_citation(
  name = NULL,
  id = NULL,
  region = NULL,
  key = NULL,
  parse = TRUE,
  ...
)

rl_sp_citation_(name = NULL, id = NULL, region = NULL, key = NULL, ...)

```

Arguments

name	(character) A taxonomic name
id	(character) An IUCN identifier
region	(character) A region name, see rl_regions for acceptable region identifiers (use the entries in the identifier column)
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_sp_citation('Balaena mysticetus')
rl_sp_citation('Balaena mysticetus', region = 'europe')
rl_sp_citation(id = 12392)

rl_sp_citation(id = 2467, region = 'europe')
rl_sp_citation(id = 2467, region = 'europe', parse = FALSE)
rl_sp_citation_(id = 2467, region = 'europe')

## End(Not run)
```

rl_sp_count

Get total species count of taxa in the Red List

Description

Get total species count of taxa in the Red List

Usage

```
rl_sp_count(key = NULL, parse = TRUE, ...)
```

```
rl_sp_count_(key = NULL, ...)
```

Arguments

key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_sp_count()
rl_sp_count_()

## End(Not run)
```

rl_sp_country	<i>Get species by country</i>
---------------	-------------------------------

Description

Get species by country

Usage

```
rl_sp_country(country, key = NULL, parse = TRUE, ...)
```

```
rl_sp_country_(country, key = NULL, ...)
```

Arguments

country	(character) A two-letter country code. See <code>iso</code> column in result of <code>rl_countries()</code> request for country codes.
key	A IUCN API token. See <code>rl_use_iucn</code> .
parse	(logical) Whether to parse to list (FALSE) or <code>data.frame</code> (TRUE). Default: TRUE
...	Curl options passed to <code>HttpClient</code>

Value

A list, with the data in the `result` slot, unless using a function with a trailing underscore, in which case `json` as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:
rl_sp_country('AZ')
rl_sp_country('NZ')

# don't parse to data.frame, gives list
rl_sp_country('NZ', parse = FALSE)
# don't parse at all, get json back
rl_sp_country_('NZ')

# curl options
res <- rl_sp_country('NZ', verbose = TRUE)

## End(Not run)
```

rl_synonyms	<i>Get species synonym information by taxonomic name</i>
-------------	--

Description

Get species synonym information by taxonomic name

Usage

```
rl_synonyms(name = NULL, key = NULL, parse = TRUE, ...)
```

```
rl_synonyms_(name = NULL, key = NULL, ...)
```

Arguments

name	(character) Binomial taxonomic name
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the `result` slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:  
rl_synonyms('Loxodonta africana')  
rl_synonyms('Loxodonta africana', parse = FALSE)  
rl_synonyms_('Loxodonta africana')  
  
## End(Not run)
```

rl_threats	<i>Get species threats by taxon name, IUCN id, and region</i>
------------	---

Description

Get species threats by taxon name, IUCN id, and region

Usage

```
rl_threats(  
  name = NULL,  
  id = NULL,  
  region = NULL,  
  key = NULL,  
  parse = TRUE,  
  ...  
)
```

```
rl_threats_(name = NULL, id = NULL, region = NULL, key = NULL, ...)
```

Arguments

name	(character) A taxonomic name
id	(character) An IUCN identifier
region	(character) A region name, see rl_regions for acceptable region identifiers (use the entries in the identifier column)
key	A IUCN API token. See rl_use_iucn .
parse	(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE
...	Curl options passed to HttpClient

Value

A list, with the data in the result slot, unless using a function with a trailing underscore, in which case json as character string is returned.

References

API docs at <https://apiv3.iucnredlist.org/api/v3/docs>

Examples

```
## Not run:  
rl_threats('Fratercula arctica')  
rl_threats('Fratercula arctica', region = 'europe')  
rl_threats(id = 12392)  
rl_threats(id = 22694927, region = 'europe')
```

```

rl_threats(name = 'Abies numidica')
rl_threats_('Fratercula arctica')

rl_threats(id = 62290750)

## End(Not run)

```

rl_use_iucn	<i>Helper to get and save IUCN API key</i>
-------------	--

Description

Browse IUCN Red List API key request URL and provides instruction on how to store the key.

Usage

```
rl_use_iucn()
```

Details

Note that after filling the online form, you should receive an API key shortly but not immediately.

rl_version	<i>Get the Red List API version</i>
------------	-------------------------------------

Description

Get the Red List API version

Usage

```
rl_version(...)
```

Arguments

... Curl options passed to [curl::verb-GET](#)

Value

API version as character string

Examples

```

## Not run:
rl_version()

## End(Not run)

```

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