Package ‘rredlist’

November 11, 2022

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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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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 crul::verb-GET
```
Value

API citation as character string

Examples

```r
## Not run:
rl_citation()
## End(Not run)
```

---

### rl_common_names

*Get common names for a given taxonomic name*

Description

Get common names for a given taxonomic name

Usage

```r
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

```r
## Not run:
rl_common_names('Loxodonta africana')
rl_common_names_('Loxodonta africana')
## End(Not run)
```
**rl_comp_groups**

**Information about comprehensive groups**

**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 `rl_comp_groups()` 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**

```r
## 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

**Get countries**

#### Description

Get countries

#### Usage

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

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

#### Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>key</td>
<td>A IUCN API token. See <code>rl_use_iucn</code>.</td>
</tr>
<tr>
<td>parse</td>
<td>(logical) Whether to parse to list (FALSE) or data.frame (TRUE). Default: TRUE</td>
</tr>
<tr>
<td>...</td>
<td>Curl options passed to <code>HttpClient</code></td>
</tr>
</tbody>
</table>

#### 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

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

## End(Not run)
```

### rl_growth_forms

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

#### Description

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

```r
rl_growth_forms(
  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

```r
## 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

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

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

```r
## 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

```r
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.
rl_measures

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

Usage

```r
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

```r
## 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

```r
dir
```

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)
rl_occ_country

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

```r
## 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

*Get country occurrence by species name or ID*

**Description**

Get country occurrence by species name or ID

**Usage**

```r
calling_ functions
```

`rl_occ_country`
**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**

```r
## 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**

```r
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

```r
## 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

```r
rl_regions(key = NULL, parse = TRUE, ...)
rl_regions_(key = NULL, ...)
```
**rl_sp**

Get species

**Description**

Get species

**Usage**

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

```r
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

**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**

```r
## Not run:
rl_regions()
rl_regions(parse = FALSE)
rl_regions_()
## End(Not run)
```
quiet  (logical) give progress for download or not. Default: FALSE (that is, give progress). ignored if all = FALSE

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  Get species by category

Description

Get species by category

Usage

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

Arguments

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

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_citation

rl_sp_category_('EX')

## End(Not run)

---

### Description

Get citations by taxon name, IUCN id, and region

---

### Usage

```r
rl_sp_citation(
  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**

```r
## 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**

```r
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**

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

## End(Not run)
```
Description
Get species by country

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

Arguments
country (character) A two-letter country code. See isocode column in result of rl_countries() request for country codes.
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_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**

*Get species synonym information by taxonomic name*

**Description**

Get species synonym information by taxonomic name

**Usage**

```r
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://api3.iucnredlist.org/api/v3/docs

**Examples**

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

## End(Not run)
```
Description

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

Usage

```r
rl_threats(
  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

```r
## 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

*Helper to get and save IUCN API key*

**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

*Get the Red List API version*

**Description**

Get the Red List API version

**Usage**

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

**Arguments**

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

**Value**

API version as character string

**Examples**

```
## Not run:
rl_version()

## End(Not run)
```
## Index

* **package**
  * rredlist-package, 2

* **rredlist-package**
  * rredlist-package, 2

* **crul**:verb-GET
  * 3, 22

* **HttpClient**
  * 4–10, 12–21

* **rl_citation**
  * 3

* **rl_citation()**
  * 3

* **rl_common_names**
  * 4

* **rl_common_names_(rl_common_names)**
  * 4

* **rl_comp_groups**
  * 5

* **rl_comp_groups_(rl_comp_groups)**
  * 5

* **rl_countries**
  * 6

* **rl_countries_**
  * 19

* **rl_countries_(rl_countries)**
  * 6

* **rl_growth_forms**
  * 6

* **rl_growth_forms_(rl_growth_forms)**
  * 6

* **rl_habitats**
  * 8

* **rl_habitats_(rl_habitats)**
  * 8

* **rl_history**
  * 9

* **rl_history_(rl_habitats)**
  * 8

* **rl_measures**
  * 10

* **rl_measures_(rl_measures)**
  * 10

* **rl_narrative**
  * 11

* **rl_narrative_(rl_narrative)**
  * 11

* **rl_occ_country**
  * 12

* **rl_occ_country_**
  * 13

* **rl_regions**
  * 7–11, 13, 14, 17, 21

* **rl_regions_(rl_regions)**
  * 14

* **rl_search**
  * 14

* **rl_search_(rl_occ_country_)**
  * 13

* **rl_search()**
  * 3

* **rl_search_(rl_occ_country_)**
  * 13

* **rl_search_(rl_occ_country_)**
  * 3

* **rl_sp**
  * 15

* **rl_sp_(rl_sp)**
  * 15

* **rl_sp_category**
  * 16

* **rl_sp_category_(rl_sp_category)**
  * 16

* **rl_sp_citation**
  * 17

* **rl_sp_citation_(rl_sp_citation)**
  * 17

* **rl_sp_count**
  * 18

* **rl_sp_count_(rl_sp_count)**
  * 18

* **rl_sp_country**
  * 19

* **rl_sp_country_(rl_sp_country)**
  * 19

* **rl_synonyms**
  * 20

* **rl_synonyms_(rl_synonyms)**
  * 20

* **rl_threats**
  * 21

* **rl_threats_(rl_threats)**
  * 21

* **rl_use_iucn**
  * 4–10, 12–21, 22

* **rl_use_iucn()**
  * 2

* **rl_version**
  * 22

* **rredlist**
  * rredlist-package, 2

* **rredlist-package**
  * 2