

Package ‘natserv’

January 3, 2017

Title 'NatureServe' Interface

Description Interface to 'NatureServe' (<<http://www.natureserve.org>>).
Includes methods to get data, image metadata, search taxonomic names,
and make maps.

Version 0.1.4

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URL <https://github.com/ropensci/natserv>

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

Encoding UTF-8

LazyData true

Depends R(>= 3.2.1)

Imports crul (>= 0.2.0), xml2 (>= 1.0.0), tibble (>= 1.2), data.table
(>= 1.10.0)

Suggests roxygen2 (>= 5.0.1), testthat, covr, ggplot2, maps, mapproj

RoxygenNote 5.0.1

NeedsCompilation no

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natserv-package	<i>natserv</i>
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Description

natserv

Author(s)

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nat_states	<i>A data.frame with 49 rows and 2 columns</i>
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Description

- state (character) state 2 letter abbreviation
- state_name (character) state full name

ns_data	<i>NatureServe data</i>
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Description

NatureServe data

Usage

```
ns_data(uid, key = NULL, ...)
```

Arguments

uid	(character) a species UID, e.g., ELEMENT_GLOBAL.2.100925
key	(character) API key. Required. See Authentication below for more.
...	Curl options passed on to GET

Value

a named list, with possible slots:

- natureserve_uri
- classification
- economicAttributes
- license
- references
- conservationStatus
- managementSummary
- distribution

Authentication

Get an API key from NatureServe at <https://services.natureserve.org/developer/index.jsp>. You can pass your token in as an argument or store it one of two places:

- your .Rprofile file with an entry like `options(NatureServeKey = "your-natureserve-key")`
- your .Renviron file with an entry like `NATURE_SERVE_KEY=your-natureserve-key`

See [Startup](#) for information on how to create/find your .Rprofile and .Renviron files

National (N) and Subnational (S) Conservation Status Ranks

- NX,SX - Presumed Extirpated - Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
- NH,SH - Possibly Extirpated (Historical) - Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
- N1,S1 - Critically Imperiled - Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
- N2,S2 - Imperiled - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- N3,S3 - Vulnerable - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- N4,S4 - Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.

- N5,S5 - Secure - Common, widespread, and abundant in the nation or state/province.
- NNR,SNR - Unranked - Nation or state/province conservation status not yet assessed.
- NU,SU - Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- NNA,SNA - Not Applicable - A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

Breeding Status Qualifiers

- B - Breeding - Conservation status refers to the breeding population of the species in the nation or state/province.
- N - Nonbreeding - Conservation status refers to the non-breeding population of the species in the nation or state/province.
- M - Migrant - Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the nation or state/province.

References

<https://services.natureserve.org/index.jsp>

Examples

```
## Not run:
## single id
(res <- ns_data(uid = 'ELEMENT_GLOBAL.2.100925'))
## many ids at once
res <- ns_data(uid = c('ELEMENT_GLOBAL.2.100925', 'ELEMENT_GLOBAL.2.104470'))
res$ELEMENT_GLOBAL.2.100925
res$ELEMENT_GLOBAL.2.104470

## End(Not run)
```

ns_images

NatureServe image metadata

Description

NatureServe image metadata

Usage

```
ns_images(uid = NULL, scientificName = NULL, commonName = NULL,
  includeSynonyms = NULL, resolution = NULL, ITISNames = NULL,
  key = NULL, ...)
```

Arguments

uid	(character) a species UID, e.g., ELEMENT_GLOBAL.2.100925
scientificName	(character) An asterisk (*) wildcarded species scientific name, e.g., 'Aquila chry*'. Name matching is case-insensitive.
commonName	(character) An asterisk (*) wildcarded species common name, e.g., 'g*EAGLE'. Name matching is case-insensitive.
includeSynonyms	(character) An optional parameter, relevant to scientific or common name queries, that indicates whether to include synonymous names in the query, as follows: <ul style="list-style-type: none"> • Y (or y) - search the Primary and all synonymous Scientific and Common Names • Any other value, or omitted - search only the Primary Scientific and Common Name fields
resolution	(character) An optional parameter that restricts output to images at a certain resolution. The value can be of one of the following. <ul style="list-style-type: none"> • lowest - return only the lowest resolution version of images • highest - return only the highest resolution version of images • thumbnail - return only the version NatureServe deems the 'thumbnail image' • web - return only the version NatureServe deems the 'web image' <p>The omission of this parameter leads to the return of metadata for images at all available resolutions.</p>
ITISNames	(character) An optional parameter, relevant to scientific or common name queries, that will indicate whether to restrict queries to ITIS names, as follows. <ul style="list-style-type: none"> • Y (or y) - query using ITIS names • Any other value, or omitted - query using NatureServe names <p>NOTE: This parameter is a placeholder only and will not affect processing. At present, searching by ITIS names is not possible.</p>
key	(character) API key. Required. See Authentication below for more.
...	Curl options passed on to GET

Details

Note that the NatureServer servers apparently want Windows HTML encoding (Windows-1252), instead of UTF-8, so some accents and such may not work

Value

a list with terms and images

Authentication

Get an API key from NatureServe at <https://services.natureserve.org/developer/index.jsp>. You can pass your token in as an argument or store it one of two places:

- your .Rprofile file with an entry like `options(NatureServeKey = "your-natureserve-key")`
- your .Renviron file with an entry like `NATURE_SERVE_KEY=your-natureserve-key`

See [Startup](#) for information on how to create/find your .Rprofile and .Renviron files

References

<https://services.natureserve.org/index.jsp>

Examples

```
## Not run:
# search by uid
ns_images(uid = 'ELEMENT_GLOBAL.2.100925')

# search by common name and resolution thumbnail
(res <- ns_images(commonName = "*eagle", resolution = 'thumbnail'))

# search "Ruby*", all common names [in any language], and highest
# resolution only:
(res <- ns_images(commonName = "Ruby*", includeSynonyms = 'y',
  resolution = 'highest'))

## End(Not run)
```

ns_map

Map NatureServe data

Description

Map NatureServe data

Usage

```
ns_map_county(x, ...)
```

```
ns_map_cons(x, ...)
```

```
ns_map_stpr(x, ...)
```

Arguments

x the result of a call to [ns_data](#)
 ... ignored

Examples

```
## Not run:
# Aquila chrysaetos
x <- ns_data(uid = 'ELEMENT_GLOBAL.2.100925')
ns_map_county(x)
ns_map_cons(x)
ns_map_stpr(x)

# Ursus americanus
x <- ns_data('ELEMENT_GLOBAL.2.100661')
ns_map_county(x)
ns_map_cons(x)
ns_map_stpr(x)

## End(Not run)
```

ns_search

NatureServe taxonomic name search

Description

NatureServe taxonomic name search

Usage

```
ns_search(x, key = NULL, ...)
```

Arguments

x	(character) A name to search for. An asterisk (*) wildcarded species name, e.g., 'Aquila chry*'. Name matching is case-insensitive and all of the primary and synonymous scientific names, along with all common names, are matched. Required.
key	(character) API key. Required. See Authentication below for more.
...	Curl options passed on to GET

Value

A tibble (data.frame), with columns:

- jurisdictionScientificName - Scientific name
- commonName - Common name
- globalSpeciesUid - UID - the taxonomic identifier NatureServe uses
- natureServeExplorerURI - URL to get to info online for the taxon
- taxonomicComments - comments about the taxon, if any

Authentication

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- your .Renviro file with an entry like `NATURE_SERVE_KEY=your-natureserve-key`

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References

<https://services.natureserve.org/index.jsp>

Examples

```
## Not run:  
ns_search(x = "Ruby*")  
ns_search(x = "Helianthus annuus")  
ns_search(x = "Ursus americanus")  
  
## End(Not run)
```


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