Package ‘rphylopic’

June 4, 2020

Title  Get 'Silhouettes' of 'Organisms' from 'Phylopic'

Description  Work with 'Phylopic' web service (<http://phylopic.org/api/>)
              to get 'silhouette' images of 'organisms', search names, and more.
              Includes functions for adding 'silhouettes' to both base plots and
              ggplot2 plots.

Version  0.3.0

License  MIT + file LICENSE

URL  https://github.com/sckott/rphylopic

BugReports  https://github.com/sckott/rphylopic/issues

Encoding  UTF-8

Language  en-US

VignetteBuilder  knitr, R.rsp

Imports  ggplot2, crul (>= 0.5.2), jsonlite, grid, gridBase, graphics,
          png

Suggests  testthat, vcr (>= 0.2.0), knitr, rmarkdown, R.rsp

RoxygenNote  7.1.0

NeedsCompilation  no

Author  Scott Chamberlain [aut, cre] (<https://orcid.org/0000-0003-1444-9135>),
        David Miller [ctb]

Maintainer  Scott Chamberlain <myrmecocystus@gmail.com>

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add_phylopic

Description
Input an image and create a ggplot2 layer to add to an existing plot

Usage
add_phylopic(img, alpha = 0.2, x = NULL, y = NULL, ysize = NULL, color = NULL)

Arguments
- **img**: A png object, e.g, from using `image_data()`
- **alpha**: A value between 0 and 1, specifying the opacity of the silhouette.
- **x**: x value of the silhouette center. Ignored if `y` and `ysize` are not specified.
- **y**: y value of the silhouette center. Ignored if `x` and `ysize` are not specified.
- **ysize**: Height of the silhouette. The width is determined by the aspect ratio of the original image. Ignored if `x` and `y` are not specified.
- **color**: Color to plot the silhouette in.

Details
Use parameters `x`, `y`, and `ysize` to place the silhouette at a specified position on the plot. If all three of these parameters are unspecified, then the silhouette will be plotted to the full height and width of the plot.

Examples
```r
## Not run:
# Put a silhouette behind a plot
library(ggplot2)
img <- image_data("27356f15-3cf8-47e8-ab41-71c6260b2724", size = "512")[[1]]
qplot(x=Sepal.Length, y=Sepal.Width, data=iris, geom="point") +
  add_phylopic(img)

# Put a silhouette anywhere
```
library(ggplot2)
posx <- runif(50, 0, 10)
posy <- runif(50, 0, 10)
sizey <- runif(50, 0.4, 2)
cols <- sample(c("black", "darkorange", "grey42", "white"), 50,
               replace = TRUE)
cat <- image_data("23cd6aa4-9587-4a2e-8e26-de42885004c9", size = 128)[[1]]
(p <- ggplot(data.frame(cat.x = posx, cat.y = posy), aes(cat.x, cat.y)) +
  geom_point(color = rgb(0,0,0,0)))
for (i in 1:50) {
  p <- p + add_phylopic(cat, 1, posx[i], posy[i], sizey[i], cols[i])
}
p + ggtitle("R Cat Herd!!")

## End(Not run)

---

**add_phylopic_base**  

*Input an image and add to an existing plot made with base graphics*

**Description**

Input an image and add to an existing plot made with base graphics

**Usage**

```
add_phylopic_base(
  img,
  x = NULL,
  y = NULL,
  ysize = NULL,
  alpha = 0.2,
  color = NULL
)
```

**Arguments**

- **img**
  A png object, e.g. from using `image_data()`
- **x**
  x value of the silhouette center. Ignored if y and ysize are not specified.
- **y**
  y value of the silhouette center. Ignored if x and ysize are not specified.
- **ysize**
  Height of the silhouette. The width is determined by the aspect ratio of the original image. Ignored if x and y are not specified.
- **alpha**
  A value between 0 and 1, specifying the opacity of the silhouette.
- **color**
  Color to plot the silhouette in.
get_names

Description

Get names for uuids.

Details

Use parameters \(x\), \(y\), and \(y\) to place the silhouette at a specified position on the plot. If all three
of these parameters are unspecified, then the silhouette will be plotted to the full height and width
of the plot.

Examples

```r
## Not run:

# get a silhouette
cat <- image_data("23cd6aa4-9587-4a2e-8e26-de42885004c9", size = 128)[[1]]

# single image
plot(1, 1, type="n", main="A cat")
add_phylopic_base(cat, 1, 1, 0.2)

# lots of images
posx <- runif(50, 0, 1)
posy <- runif(50, 0, 1)
size <- runif(50, 0.01, 0.2)
plot(posx, posy, type="n", main="A cat herd")
for (i in 1:50) {
  add_phylopic_base(cat, posx[i], posy[i], size[i])
}

# Example using a cat background
# setup plot area
plot(posx, posy, type="n", main="A cat herd, on top of a cat",
     xlim=c(0, 1), ylim=c(0, 1))
# get a higher-resolution cat
cat_hires <- image_data("23cd6aa4-9587-4a2e-8e26-de42885004c9", size = 512)[[1]]
# plot background cat
add_phylopic_base(cat_hires, 0.5, 0.5, 1, alpha=0.2)
# overlay smaller cats
for (i in 1:50) {
  add_phylopic_base(cat, posx[i], posy[i], size[i], alpha=.8)
}

## End(Not run)
```
get_names

Usage

get_names(
  uuid,
  supertaxa = NULL,
  subtaxa = NULL,
  options = NULL,
  stripauthority = TRUE,
  ...
)

Arguments

uuid       UUID to get names for
supertaxa  If immediate, returns data for immediate supertaxa ("parents"). If all, returns
data for all supertaxa ("ancestors"). Otherwise, does not include supertaxa.
subtaxa    If immediate, returns data for immediate subtaxa ("children"). Otherwise, does
            not include subtaxa.
options    See details for the options for options, get it, ha.
stripauthority  If TRUE (default) the authority is stripped off of the scientific name.
...                   curl options passed on to crul::HttpClient

Details

Here are the options for the options argument:

• citationStart: (optional) Integer Indicates where in the string the citation starts. May be null.
• html: (optional) StringHTML version of the name.
• namebankID: (optional) StringuBio Namebank identifier. May be null.
• root: (optional) Boolean If true, this name has no hyperonyms (names of supertaxa). (Should only be true for Panbiota/Vitae.)
• string: (optional) String The text of the name, including the citation, if any.
• type: (optional) String Either "scientific or "vernacular.
• uid: (always) String Universally unique identifier.
• uri: (optional) String The unique URI associated with the name.
• votes: (optional) Integer The number of votes this name has received. (Currently unused.)

Examples

## Not run:
get_names(uuid = "f3254fbd-284f-46c1-ae0f-685549a6a373", options = "string")
get_names(uuid = "f3254fbd-284f-46c1-ae0f-685549a6a373", supertaxa="immediate",
          options=c("string namebankID"))
get_names(uuid = "f3254fbd-284f-46c1-ae0f-685549a6a373", supertaxa="all",
          options="string")

## End(Not run)
Perform actions with images.

Description

Perform actions with images.

Usage

image_get(uuid, options = NULL, ...)

image_list(start = 1, length = 10, options = NULL, ...)

image_timerange(
  timestamp = "modified",
  from = NULL,
  to = NULL,
  options = NULL,
  ...
)

image_count(...)

image_data(input, size, ...)

Arguments

uuid
One or more name UUIDs.

options
(character) One or more of citationStart, html, namebankID, root, string, type, uid, uri, and/or votes

... curl options passed on to crul::HttpClient

start
The index to start with. Using 0 starts with the most recently-submitted image.

length
Number of images to list.

timestamp
Either modified (to go by the last time the image file was modified) or submitted (to go by the time the image was first submitted).

from
timestamp string, in "YYYY-MM-DD-HH-MM-SS" format, telling the earliest time to retrieve images for. All numbers past the year are optional. For example, these are acceptable: "2011-10-29-20-30", "2011-10-29-20", "2011-10-29", "2011-10", and "2011". Omitted numbers indicate the lowest possible value for that number, for example, "2011" indicates "2011-01-01-00-00-00" (2011 January 1, midnight). Numbers in the string do not need to be padded. For example, this is acceptable: "2011-1-1-0-0-0-0". The image list will include any images dated at the indicated time.
to A date-time string, in "YYYY-MM-DD-HH-MM-SS" format, telling the earliest
time to retrieve images for. See the from parameter for more details on the
format. The image list will include any images dated up to, but not including,
the indicated time.

input Either a vector of uuids or the output from the function search_images

size Height of the image, one of 64, 128, 256, 512, 1024, "thumb", or "icon"

Details

I’m not adding methods for modifying images, including add, edit, updated, delete, and transfer,
because I can’t imagine doing those things from R. Am I wrong?

Note: uid is always returned

Examples

## Not run:
# Get info on an image
uuid <- "9fae30cd-fb59-4a81-a39c-e1826a35f612"
image_get(uuid = uuid)
image_get(uuid = uuid, options=c('credit', 'pngFiles', 'taxa', 'canonicalName', 'string', 'uri', 'type'))
image_get(uuid = uuid, options=c('credit', 'licenseURL', 'pngFiles', 'submitted', 'submitter', 'svgFile', 'taxa', 'canonicalName', 'string', 'uri', 'type', 'citationStart'))

# Count images in Phylopic database
image_count()
image_count(verbose = TRUE)

# Lists images in chronological order, from most to least recently modified
image_list(start=1, length=10)
image_list(start=1, length=10, options="taxa")

# Lists images within a given time range, from most to least recent
image_timerange(from="2013-05-11")
image_timerange(from="2013-05-11", to="2013-05-12")
image_timerange(from="2013-05-11", to="2013-05-12", options="credit")

# Get data for an image
## input uuids
toget <- c("c089caae-43ef-4e4e-bf26-973dd4cb65c5", "41b127f6-0824-4594-a941-5ff571f32378",
"9c6af553-390c-4b50-a65d-69927235f612")
image_data(toget, size = "64")

## input the output from search_images
x <- search_text(text = "Homo sapiens", options = "names")
output <- search_images(x[1:10], options=c("pngFiles", "credit", "canonicalName"))
image_data(output, size = "64")

## Put a silhouette behind a plot
library('ggplot2')
img <- image_data("27356f15-3cf8-4e98-ab41-71c6266b724", size = "512")[[1]]
### Use as points in a ggplot plot

```r
library('ggplot2')

uuid <- "c089caae-43ef-4e4e-bf26-973dd4c65c5"
img <- image_data(uuid, size = "64")[[1]]
(p <- ggplot(mtcars, aes(drat, wt)) + geom_blank())
for(i in 1:nrow(mtcars)) p <- p + add_phylopic(img, i, mtcars$drat[i], mtcars$wt[i], ysize = 0.3)
```

```r
p
```

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

---

### Description

Perform actions with names.

### Usage

- `name_get(uuid, options = NULL, ...)`
- `name_images(
  uuid,
  subtaxa = NULL,
  supertaxa = NULL,
  other = FALSE,
  options = NULL,
  ...
)
- `name_minsuptaxa(uuid, options = NULL, ...)`
- `name_search(text, options = NULL, as = "table", ...)`
- `name_taxonomy(
  uuid,
  subtaxa = NULL,
  supertaxa = NULL,
  useUBio = FALSE,
  options = NULL,
  as = "table",
  ...
)
- `name_taxonomy_many(uuid, options = NULL, as = "table", ...)`
- `name_taxon...
Arguments

uuid One or more name UUIDs.

options (character) One or more of citationStart, html, namebankID, root, string, type, uid, uri, and/or votes

curl options passed on to curl::HttpClient

subtaxa If immediate, returns data for immediate subtaxa ("children"). Otherwise, does not include subtaxa.

supertaxa If immediate, returns data for immediate supertaxa ("parents"). If all, returns data for all supertaxa ("ancestors"). Otherwise, does not include supertaxa.

other If set to TRUE, includes related taxa in the search.

text (character) The text string to search on.

as (character) What to return. One of table (default, a data.frame), list, or json.

useUBio (logical) If TRUE, and there is pending data from uBio that needs to be cached, a list of commands will be passed back instead of the normal result.

Details

I’m not adding methods for modifying names, including add, edit, or toggle, because I can’t imagine doing those things from R. Am I wrong?

Options for the options parameter:

- citationStart: (optional) Integer Indicates where in the string the citation starts. May be null.
- html: (optional) String HTML version of the name.
- namebankID: (optional) String uBio Namebank identifier. May be null.
- root: (optional) Boolean If true, this name has no hyperonyms (names of supertaxa). (Should only be true for Panbiota/Vitae.)
- string: (optional) String The text of the name, including the citation, if any.
- type: (optional) String Either "scientific or "vernacular.
- uid: (always) String Universally unique identifier.
- uri: (optional) String The unique URI associated with the name.
- votes: (optional) Integer The number of votes this name has received. (Currently unused.)

Examples

```r
## Not run:
# parse as different outputs
name_taxonomy(uuid = "f3254fbd-284f-46c1-ae0f-685549a6a373", options = "string", as="table")
name_taxonomy(uuid = "f3254fbd-284f-46c1-ae0f-685549a6a373", options = "string", as="list")
name_taxonomy(uuid = "f3254fbd-284f-46c1-ae0f-685549a6a373", options = "string", as="json")

# Get info on a name
```
nameset

Perform actions with name sets

Description

Perform actions with name sets
nameset

Usage

nameset_get(uuid, options = NULL, ...)

nameset_taxonomy(uuid, options = NULL, ...)

Arguments

uuid       the UUID of a set of taxonomic names
options    (character) One or more of citationStart, html, namebankID, root, string, type,
            uid, uri, and/or votes
...        curl options passed on to crul::HttpClient

Details

nameset_get() retrieves information on a set of taxonomic names. nameset_taxonomy() collects
taxonomic data for a set of taxonomic names.

Value

a named list

options parameter

Same as those for name_*() functions

Examples

## Not run:
# Retrieves information on a set of taxonomic names.
id <- "8d9a9ea3-95cc-414d-1000-4b683ce04be2"
nameset_get(uuid = id)
nameset_get(uuid = id, options=c('names','string'))

# Collects taxonomic data for a name.
nameset_taxonomy(uuid = "8d9a9ea3-95cc-414d-1000-4b683ce04be2",
                 options = "string")
nameset_taxonomy(uuid = "8d9a9ea3-95cc-414d-1000-4b683ce04be2",
                 supertaxa="immediate", options=c("string","namebankID"))

## End(Not run)
**recolor_phylopic**  
*Recolor a phylopic image*

**Description**

Internal function to recolour and change alpha levels of a phylopic image.

**Usage**

```r
recolor_phylopic(img, alpha = 0.2, color = NULL)
```

**Arguments**

- `img`: A png object, e.g. from using `image_data()`.
- `alpha`: A value between 0 and 1, specifying the opacity of the silhouette.
- `color`: Color to plot the silhouette in.

---

**rphylopic**  
*rphylopic*

**Description**

Get Silhouettes of Organisms from Phylopic

**Author(s)**

Scott Chamberlain <myrmecocystus@gmail.com>  
David Miller <dave@ninepointeightone.net>

---

**save_png**  
*Save an image to disk as a .png file*

**Description**

Save an image to disk as a .png file

**Usage**

```r
save_png(img, target = tempfile(fileext = ".png"), ...)
```
Arguments

**img**  
A png object, e.g, from using `image_data()`

**target**  
the file or other connection to write to, passed on to `png::writePNG`, see its docs for details. By default we use `tempfile(fileext = ".png"), a temporary .png file which is cleaned up (deleted) at the end of the R session

...  
additional parameters passed on to `png::writePNG`

Value

path to the .png file on disk

Examples

```r
## Not run:
# get a silhouette
cat <- image_data("23cd6aa4-9587-4a2e-8e26-de42885004c9", size = 128)[[1]]

# save image
out <- save_png(cat)
identical(png::readPNG(out), cat)

save_png(cat, dpi = 1000)

## End(Not run)
```

search_images

**Search for images for a taxon (via its uuid)**

Description

Search for images for a taxon (via its uuid)

Usage

```r
search_images(
  uuid,
  subtaxa = NULL,
  supertaxa = NULL,
  other = NULL,
  options = NULL,
  cleanoutput = TRUE,
  ...
)
```
Arguments

uuid (character) one or more UUIDs of taxonomic names
subtaxa If set to TRUE, includes subtaxa in the search.
supertaxa If not set to FALSE, includes supertaxa in the search.
other If set to TRUE, includes related taxa in the search.
options Space-separated list of options for the result value.
cleanoutput If TRUE, remove elements with no data.
... curl options passed on to `cru::HttpClient`

Examples

```r
## Not run:
search_images("lee65cf3-53db-4a52-9960-a9f7093d845d", 
subtaxa = "true", options = c("pngFiles", "credit", "licenseURL", 
"svgFile", "canonicalName", "html"))

# all of them
search_images(c("lee65cf3-53db-4a52-9960-a9f7093d845d", 
"0814cfc-ef1f-4d0e-a061-b1347f5297a0"),
options=c("pngFiles", "credit", "canonicalName"))

## End(Not run)
```

search_text Text search for uuids

Description

Text search for uuids

Usage

```r
search_text(text, options = "string", simplify = TRUE, ...)
```

Arguments

text (character) Search string, see examples
options (character) See here for options
simplify (logical) Simplify result
... curl options passed on to `cru::HttpClient`

Details

These aren't necessarily ones with images though. See examples
**theme_phylo_blank2**

**Value**

A list. You always get back the UUID, and any other fields requested.

**Examples**

```r
## Not run:
search_text(text = "Homo sapiens")
search_text(text = "Homo sapiens", options = "names")
search_text(text = "Homo sapiens", options = "type")
search_text(text = "Homo sapiens", options = "namebankID")
search_text(text = "Homo sapiens", options = "root")
search_text(text = "Homo sapiens", options = "uri")
search_text(text = "Homo sapiens", options = c("string", "type", "uri"))
search_text(text = "Homo sapiens", options = c("string", "type", "uri"),
            simplify=FALSE)

# pass in curl options
search_text(text = "Homo sapiens", options = "names", verbose = TRUE)

## End(Not run)
```

**theme_phylo_blank2**  
*Fixed phylogeny blank theme for ggphylo*

**Description**

Fixed phylogeny blank theme for ggphylo

**Usage**

```r
theme_phylo_blank2()
```

---

**ubiob**  
*Perform actions with uBio data.*

**Description**

Perform actions with uBio data.

**Usage**

```r
ubiob_get(namebankID, options = NULL, ...)
```
Arguments

- namebankID: The identifier for a name in uBio Namebank.
- options: (character) One or more of citationStart, html, namebankID, root, string, type, uid, uri, and/or votes
- ... curl options passed on to `crl::HttpClient`

Details

There is only one function for working with uBio data right now, `ubio_get()`
Options for the `options` parameter: Same as those for `name_*()` functions.

Examples

```r
## Not run:
# Retrieves information on a set of taxonomic names.
ubio_get(109086)
ubio_get(109086, options=c('names','string'))

## End(Not run)
```
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