Package 'prioritizrdata'

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Type Package

Version 0.3.2

Title Conservation Planning Datasets

Description Conservation planning datasets for learning how to use the 'prioritizr' package <https://CRAN.R-project.org/package=prioritizr>.

Imports utils, terra (>= 1.6-53), sf (>= 1.0-12), tibble (>= 2.0.0)

Suggests testthat, roxygen2, knitr

Depends R (>= 4.1.0)

License GPL-3

Encoding UTF-8

Language en-US

URL <https://prioritizr.github.io/prioritizrdata/>,
<https://github.com/prioritizr/prioritizrdata>

BugReports <https://github.com/prioritizr/prioritizrdata/issues>

RoxygenNote 7.2.3

Collate 'package.R' 'salt_data.R' 'tas_data.R' 'wa_data.R'

NeedsCompilation no

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R topics documented:

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prioritizrdata *prioritizrdata: Conservation Planning Datasets*

Description

The **prioritizrdata** package is a supplemental package that contains example datasets for conservation planning. It is intended to be used alongside the **prioritizr** package.

Details

This package contains the following datasets:

tas_data Conservation planning dataset for Tasmania, Australia.

salt_data Conservation planning dataset for Salt Spring Island, Canada.

wa_data Conservation planning dataset for Washington, The United States of America.

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salt_data *Salt Spring Island data*

Description

Conservation planning dataset for Salt Spring Island, Canada. It was obtained as part of an online *Marxan*-based planning tool created for the Coastal Douglas-fir Conservation Partnership (CDFCP; Schuster *et al.* 2017).

Usage

```
get_salt_pu()

get_salt_features()

get_salt_con()
```

Format

salt_pu terra::rast() object.

salt_features terra::rast() object.

salt_con terra::rast() object.

Details

The following functions are provided to import data:

get_salt_pu() Import planning unit data. The planning units are a single layer terra::rast() object. Cell values denote the monetary cost of acquiring different areas (e.g., a value of 1 = $100,000 CAD; BC Land Assessment 2015).

get_salt_features() Import biodiversity feature data. The feature data are a multi-layer terra::rast() object object. It contains the spatial distribution of four key ecological communities. Each layer represents a different community type. These classes are (i) old forest, (ii) savanna, (iii) wetland, and (iv) shrub. For each layer, values indicate the composite probability of encountering the suite of bird species most commonly associated with that community type.

get_salt_con() Import connectivity data. The connectivity data are a single-layer terra::rast() object. It contains the inverse probability of occurrence of human commensal species. Based on the assumption that human modified areas impede connectivity for native fauna, cells with higher values have higher connectivity.

References

BC Assessment (2015) Property Information Services. Available at https://www.bcassessment.ca/ (Date Accessed 2016/06/13).

Morrell N, Schuster R, Crombie M, and Arcese P (2017) *A Prioritization Tool for the Conservation of Coastal Douglas-fir Forest and Savannah Habitats of the Georgia Basin.* The Nature Trust of British Colombia, Coastal Douglas Fir Conservation Partnership, and the Department of Forest and Conservation Sciences, University of British Colombia. Available at https://peter-arcese-lab.sites.olt.ubc.ca/files/2016/09/CDFCP_tutorial_2017_05.pdf (Date Accessed 2017/10/09).

Examples

```
# load packages
library(terra)
library(sf)

# import data
salt_pu <- get_salt_pu()
salt_features <- get_salt_features()

# preview planning units
print(salt_pu)
plot(salt_pu)

# preview features
print(salt_features)
plot(salt_features)

# preview connectivity data
salt_con <- get_salt_con()
print(salt_con)
plot(salt_con)
```

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tas_data   *Tasmania data*

Description

Conservation planning dataset for Tasmania, Australia.

Usage

```
get_tas_pu()

get_tas_features()
```

Format

tas_pu `sf::st_sf()` object.

tas_features `terra::rast()` object

Details

The following functions are provided to import data:

get_tas_pu Import planning unit data. The planing units are a `sf::st_sf()` simple features object. Each row corresponds to a different planning unit, and columns contain information about the planning units. It has columns that contain: (`"id"`) unique identifiers and (`"cost"`) unimproved land values for the planning units. It also contains columns (`"locked_in"` and `"locked_out"`) with `logical` values (i.e. `TRUE` or `FALSE` values) for locking in and locking out planning units. These data obtained from the "Introduction to *Marxan*" course and were originally generated as part of a larger spatial prioritization Resources (Klein *et al.* 2007).

get_tas_features Import biodiversity feature data. The feature data are a multi-layer `terra::rast()` object. classes. Each layer corresponds to a different vegetation class and contains binary cell values that indicate the presence or absence of the vegetation class. These data were obtained from the Australian Government's National Vegetation Information System (Australian Government Department of Climate Change, Energy, the Environment and Water 2020).

References

Klein C, Carwardine J, Wilson K, Watts M, and Possingham H (2007) *Spatial Prioritization Approaches for the Conservation of Biodiversity in Australia: Considering Conservation Costs, Ecological & Evolutionary Processes, and Large-Intact Areas.* Report to the Department of Environment; Water Resources.

Australian Government Department of Climate Change, Energy, the Environment and Water (2020). National Vegetation Information System. Version 6.0. Available at http://environment.gov.au/fed/catalog/search/resource/details.page?uuid=%7B3F8AD12F-8300-45EC-A41A-469519A94039%7D.

Examples

```
# load packages
library(terra)
library(sf)

# load data
tas_pu <- get_tas_pu()
tas_features <- get_tas_features()

# preview planning units
print(tas_pu)
plot(tas_pu)

# plot features
print(tas_features)
plot(tas_features)
```

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wa_data   *Washington data*

Description

Conservation planning dataset for Washington, The United States of America.

Usage

```
get_wa_pu()

get_wa_locked_in()

get_wa_locked_out()

get_wa_features()
```

Format

get_wa_pu terra::rast() object.

get_wa_locked_in terra::rast() object.

get_wa_locked_out terra::rast() object.

get_wa_features terra::rast() object.

Details

The following functions are provided to import data:

get_wa_pu() Import planning unit data. The planning units are a single layer terra::rast() object. Cell values denote land acquisition costs. These data were originally obtained from Nolte (2020 a,b).

get_wa_locked_in() Import locked in data. The locked in data are a single layer terra::rast() object. Cell values denote binary values indicating if each cell is predominantly covered by protected areas (excluding those with no mandate for biodiversity protection). These data were originally obtained from USGS (2022)

get_wa_locked_in() Import locked out data. The locked out are a single layer terra::rast() object. Cell values denote binary values indicating if each cell is predominantly covered by urban areas. These data were originally obtained from the Commission for Environmental Cooperation (2020)

get_wa_features() Import biodiversity feature data. The feature data are a multi-layer terra::rast() object object. It contains the spatial distribution of 258 bird species. To account for migratory patterns, data are provided for the breeding and non-breeding distributions of species (indicated by "breeding" and "non-breedig" in the layer names). If a species is lacking such information, then the species is denoted with its full distribution (as indicated "full" in the layer names). These data were originally obtained from the eBird Status and Trends dataset (Fink *et al.* 2020).

References

Commission for Environmental Cooperation. (2020). *2015 Land Cover of North America at 30 Meters*. North American Land Change Monitoring System, 2nd Edition, http://www.cec.org/north-american-environmental-atlas/land-cover-30m-2015-landsat-and-rapideye/.

Fink D, Auer T, Johnston A, Ruiz-Gutierrez V, Hochachka WM and Kelling S (2020) Modeling avian full annual cycle distribution and population trends with citizen science data. *Ecological Applications*, 30: e02056.

Nolte C (2020a) *Data for: High-resolution land value maps reveal underestimation of conservation costs in the United States*. Dryad, Dataset, doi:10.5061/dryad.np5hqbzq9.

Nolte C (2020b) High-resolution land value maps reveal underestimation of conservation costs in the United States. *Proceedings of the National Academy of Sciences*, 117: 29577–29583.

U.S. Geological Survey (USGS) Gap Analysis Project (GAP) (2022) Protected Areas Database of the United States (PAD-US) 3.0: U.S. Geological Survey data release, doi:10.5066/P9Q9LQ4B.

Examples

```
# load packages
library(terra)

# import data
wa_pu <- get_wa_pu()
wa_features <- get_wa_features()
wa_locked_in <- get_wa_locked_in()
wa_locked_out <- get_wa_locked_out()

# preview planning units
print(wa_pu)
plot(wa_pu)
```

```
# preview locked in
print(wa_locked_in)
plot(wa_locked_in)

# preview locked out
print(wa_locked_out)
plot(wa_locked_out)

# preview features
print(wa_features)
plot(wa_features)
```

Index