Package 'forested'

July 31, 2024

Title Forest Attributes in Washington State

Version 0.1.0

Description A small subset of plots in Washington State are sampled and
assessed ``on-the-ground'' as forested or non-forested by the U.S.
Department of Agriculture, Forest Service, Forest Inventory and Analysis
(FIA) Program, but the FIA also has access to remotely sensed data for
all land in the state. The 'forested' package contains a data frame by the
same name intended for use in predictive modeling applications
where the more easily-accessible remotely sensed data can be used to
predict whether a plot is forested or non-forested.

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Suggests knitr

Config/testthat/edition 3

Encoding UTF-8

RoxygenNote 7.3.2

Depends R (>= 2.10)

LazyData true

URL <https://github.com/simonpcouch/forested>,
<https://simonpcouch.github.io/forested/>

BugReports <https://github.com/simonpcouch/forested/issues>

Config/Needs/website tidyverse/tidytemplate

NeedsCompilation no

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forested   *Forest Attributes in Washington State*

Description

The U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis (FIA) Program provides all sorts of estimates of forest attributes for uses in research, legislation, and land management. The FIA uses a set of criteria to classify a plot of land as "forested" or "non-forested," and that classification is a central data point in many decision-making contexts. A small subset of plots in Washington State are sampled and assessed "on-the-ground" as forested or non-forested, but the FIA has access to remotely sensed data for all land in the state. Practitioners can develop a model on the more easily-accessible remotely sensed data to predict whether a plot is forested or non-forested.

Usage

```
forested
```

Format

A data frame with 7,107 rows and 19 columns:

forested Whether the plot is classified as "forested" or not, as a factor with levels ″Yes″ and ″No″.

year Year when the plot was classified "on-the-ground" as forested or not. The remaining, remotely-sensed variables are measured at different times or averaged over multiple years.

elevation Elevation, in meters.

eastness Transformed aspect degrees to eastness (-100 to 100).

northness Transformed aspect degrees to northness (-100 to 100).

roughness Degree of irregularity of the plot.

tree_no_tree LANDFIRE tree/non-tree lifeform mask, as a factor with levels ″Tree″ and ″No tree″.

dew_temp Mean annual dewpoint temperature (1991-2020), in degrees Celcius.

precip_annual Mean annual precipitation (1991-2020), in mm × 100.

temp_annual_mean Mean annual temperature (1991-2020), in degrees Celcius.

temp_annual_min Mean annual minimum temperature (1991-2020), in degrees Celcius.

temp_annual_max Mean annual maximum temperature (1991-2020), in degrees Celcius.

temp_january_min Mean minimum temperature in January (1991-2020), in degrees Celcius.

vapor_min, vapor_max Minimum and maximum annual vapor pressure deficit (1991-2020), in Pa x 100.

canopy_cover Analytical Tree Canopy Cover, as a percent.

lon, lat The longitude and latitude of the center of the plot with a slight perturbation.

land_type Land cover type from European Space Agency (ESA) 2020 WorldCover global land cover product, as a factor with levels "Tree", "Non-tree vegetation", and "Barren".

Source

For more information on the source data, see Table 1 in:

White, Grayson W.; Yamamoto, Josh K.; Elsyad, Dinan H.; Schmitt, Julian F.; Korsgaard, Niels H.; Hu, Jie Kate; Gaines III, George C.; Frescino Tracey S.; McConville, Kelly S. (2024). Small area estimation of forest biomass via a two-stage model for continuous zero-inflated data. Forthcoming: arXiv 2402.03263 (ver. 2.0).

For more on data definitions:

Wieczorek, Jerzy A.; White, Grayson W.; Cody, Zachariah W.; Tan, Emily X.; Chistolini, Jacqueline O.; McConville, Kelly S.; Frescino, Tracey S.; Moisen, Gretchen G. (2024). Assessing small area estimates via artificial populations from KBAABB: a kNN-based approximation to ABB. Forthcoming: arXiv 2306.15607 (ver. 2.0.

Source data pre-preprocessed using the FIESTA R Package (GPL-3):

Frescino, Tracey S.; Moisen, Gretchen G.; Patterson, Paul L.; Toney, Chris; White, Grayson W. (2023). FIESTA: A forest inventory estimation and analysis R package. Ecography 2023: e06428 (ver. 1.0).

Examples

```
str(forested)

head(forested)
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