Package ‘fasterize’

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Title  Fast Polygon to Raster Conversion

Version  1.0.2

Description  Provides a drop-in replacement for rasterize() from the ‘raster’
        package that takes ‘sf’-type objects, and is much faster. There is support
        for the main options provided by the rasterize() function, including
        setting the field used and background value, and options for
        aggregating multi-layer rasters. Uses the scan line algorithm attributed to

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LazyData  true

URL  https://github.com/ecohealthalliance/fasterize

BugReports  https://github.com/ecohealthalliance/fasterize/issues

RoxygenNote  7.0.2

SystemRequirements  C++11

Suggests  testthat, microbenchmark, knitr, rmarkdown, sf

Depends  R (>= 3.3.0)

Imports  methods, Rcpp, raster, sp

LinkingTo  Rcpp, RcppArmadillo

VignetteBuilder  knitr

NeedsCompilation  yes

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fasterize  Rasterize an sf object of polygons

Description
Rasterize set of polygons
Fast sf-to-raster conversion

Usage

fasterize(
  sf,
  raster,
  field = NULL,
  fun = "last",
  background = NA_real_,
  by = NULL
)

Arguments

sf an sf::sf() object with a geometry column of POLYGON and/or MULTIPOLYGON objects.
raster A raster object. Used as a template for the raster output. Can be created with raster::raster(). The fasterize package provides a method to create a raster object from an sf object.
field character. The name of a column in sf, providing a value for each of the polygons rasterized. If NULL (default), all polygons will be given a value of 1.
fun character. The name of a function by which to combine overlapping polygons. Currently takes "sum", "first", "last", "min", "max", "count", or "any". Future versions may include more functions or the ability to pass custom R/C++ functions. If you need to summarize by a different function, use by = to get a RasterBrick and then raster::stackApply() or raster::calc() to summarize.
background numeric. Value to put in the cells that are not covered by any of the features of x. Default is NA.
by character. The name of a column in sf by which to aggregate layers. If set, fasterize will return a RasterBrick with as many layers as unique values of the by column.
Details

This is a high-performance replacement for `raster::rasterize()`. The algorithm is based on the method described in course materials provided by Wayne O. Cochran. The algorithm is originally attributed to Wylie et al. (1967).

Value

A raster of the same size, extent, resolution and projection as the provided raster template.

References


Examples

```r
library(sf)
library(fasterize)
p1 <- rbind(c(-180,-20), c(-140,55), c(10, 0), c(-140,-60), c(-180,-20))
hole <- rbind(c(-150,-20), c(-100,-10), c(-110,20), c(-150,-20))
p1 <- list(p1, hole)
p2 <- list(rbind(c(-10,0), c(140,60), c(160,0), c(140,-55), c(-10,0)))
p3 <- list(rbind(c(-125,0), c(0,60), c(40,5), c(15,-45), c(-125,0)))
pols <- st_sf(value = rep(1,3),
               geometry = st_sfc(lapply(list(p1, p2, p3), st_polygon)))
r <- raster(pols, res = 1)
r <- fasterize(pols, r, field = "value", fun="sum")
plot(r)
```

raster,sf-method

Create a raster from an sf object

Description

See `raster::raster()` for more details.

Usage

```r
## S4 method for signature 'sf'
raster(x, origin, ...)
```

Arguments

- `x` an sf object
- `origin` the origin point of the output raster
- `...` Additional arguments, see `raster::raster()` for more details.
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