Package

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Type Package

Title Patch Delineation Package

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Author Andrew Sánchez Meador, School of Foresty, Northern Arizona University

Maintainer Andrew Sánchez Meador <andrew.sanchezmeador@nau.edu>

Description This package implements a multiple patch delineation algorithms (at present it only implements 'PatchMorph' (Girvetz & Greco 2007), which can delineate patches across a range of spatial scales based on three organism-specific thresholds - (1) land cover density threshold, (2) habitat gap maximum thickness (gap threshold), and (3) habitat patch minimum thickness (spur threshold).

URL https://github.com/bi0m3trics/patchwoRk

BugReports https://github.com/bi0m3trics/patchwoRk/issues

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Depends raster (>= 2.8-19), RANN (>= 2.6.1), doParallel (>= 1.0.14), foreach (>= 1.4.4)

Suggests iterators,
parallel,
knitr,
rmarkdown

Encoding UTF-8

LazyData true

RoxygenNote 6.1.1

VignetteBuilder knitr

R topics documented:

patchMorph *patchMorph*

Description

patchMorph

Usage

```
patchMorph(data_in, res = -1, suitThresh = -1, gapThresh = -1,
  spurThresh = -1, suitVals = -1, gapVals = -1, spurVals = -1,
  proj4 = -1, ...)
```

Arguments

data_in	A RasterLayer or a SpatialPolygonsDataFrame. Map of suitable/non-suitable habitat
suitThresh	A interger. A threshold value over which some organism may perceive the area as suitable habitat (resulting in a binary map of suitable and non-suitable pixels)
gapThresh	A interger. The gap diameter of non-suitable land cover within a habitat patch that should be considered part of the patch if small enough
spurThresh	A interger. The width of a section of narrow, unsuitable edge habitat extending out from a larger, wider patch that is too thin to be considered part of suitable habitat
suitVals	Integer vector. A vector of size = 3 specifying the lower suitability threshold, the upper suitability threshold, and the total number of values to be evaluated.
gapVals	Integer vector. A vector of size = 3 specifying the lower gap threshold, the upper gap threshold, and the total number of values to be evaluated.
spurVals	Integer vector. A vector of size = 3 specifying the lower spur threshold, the upper spur threshold, and the total number of values to be evaluated.

Value

A RasterLayer or a list of RasterLayers of the same dimensions as data_in where 1's are suitbale habitat and 0's are unsutiable habitat. In the case of PM_Hierarchy, patchMorph returns a list of RasterLayers (one per suitability-gap-spur combination) outcomes, otherwise it returns a single RasterLayer of the single resulting suitability-gap-spur outcome.

References

Girvetz EH, and Greco SE. 2007. How to define a patch: a spatial model for hierarchically delineating organism-specific habitat patches. Landscape Ecology 22: 1131-1142.

Examples

```
myFile <- system.file("extdata", "mixedconifer.tif", package="patchwoRk")
myRas <- raster(myFile)

pm.result.single <- patchMorph(data_in = myRas, suitThresh = 1, gapThresh = 2, spurThresh = 2)
plot(pm.result.single, main="PatchMorph Results (Gap-2 & Spur-2)")
```

```
pm.layered.result.map <- patchMorph(data_in = myRas, suitVals = c(0, 1, 2), gapVals = c(2, 6, 3), spurVals = c(2
names(pm.layered.result)
plot(pm.layered.result.[1], main=names(pm.layered.result.[1]))
```

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patchMorphSummary *patchMorphSummary*

Description

patchMorphSummary

Usage

```
patchMorphSummary(pm_list, suit = -1, gap = -1, spur = -1)
```

Arguments

pm_list	A list of patchMorph RasterLayers (pm_list).
suit	A integer. The values of suitability over which to provide summaries. If left blank, all values in the pm_laist object will be used.
gap	A integer. The gap values over which to provide summaries. If left blank, all values in the pm_laist object will be used.
spur	A integer. The spur valuesover which to provide summaries. If left blank, all values in the pm_laist object will be used.

Value

A rasterLayer. Sums the members of a patchMorph list (pm_list) from pm_hierarchy

References

Girvetz EH, and Greco SE. 2007. How to define a patch: a spatial model for hierarchically delineating organism-specific habitat patches. Landscape Ecology 22: 1131-1142.

Examples

```
myFile <- system.file("extdata", "mixedconifer.tif", package="patchwoRk")
myRas <- raster(myFile)

pm.layered.result.map <- patchMorph(data_in = myRas, suitVals = c(0, 1, 2), gapVals = c(2, 6, 3), spurVals = c(2
pm.layered.sum. <- patchMorphSummary(pm.layered.result)

plot(myRas, main="Original Raster")
plot(pm.layered.sum, main="PatchMorph Multi Results (Gap-2:10 & Spur-2:10)")
```

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