Package 'LandscapeMetrics'

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Type Package

Title Landscape Ecology Metrics

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Depends R (>= 3.3.0), raster (>= 2.5-8), rgdal (>= 1.2-4), igraph (>= 1.0.1), rgeos (>= 0.3.2)

Description The package is intended to calculate certain landscape ecology metrics of spatial data in raster format.

License GPL (>=2)

Encoding UTF-8

LazyData true

RoxygenNote 5.0.1

R topics documented:

AWMPFD	*Area-Weighted Mean Patch Fractal Dimension*

Description

Calculates the area-weighted mean patch fractal dimension.

Usage

```
AWMPFD(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Details

The AWMPFD value varies between 1 and 2.

Value

The value of the area-weighted mean patch fractal dimension.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
fract_weight <- AWMPFD(class)
```

AWMSI   *Area-Weighted Mean Shape Index*

Description

Calculates the area-weighted mean shape index.

Usage

```
AWMSI(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Details

The value must be greater than or equal to 1.

Value

The value of the area-weighted mean shape index.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
shape_weight <- AWMSI(class)
```

CA *Class Area*

Description

Get the area in hectares (ha) of raster classes.

Usage

```
CA(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value in hectares(ha) of the class.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
area <- CA(class)
```

CACV_100 *Core Area Coefficient of Variation with edge of 100 meters*

Description

Calculates the patch core area coefficient of variation in pecentage, when excluded the edge from 100 meters.

Usage

```
CACV_100(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area coefficient of variation in percentage, with subtracted edge of 100 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_variation_100 <- CACV_100(class)
```

CACV_140   *Core Area Coefficient of Variation with edge of 140 meters*

Description

Calculates the patch core area coefficient of variation in pecentage, when excluded the edge from 140 meters.

Usage

```
CACV_140(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area coefficient of variation in percentage, with subtracted edge of 140 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_variation_140 <- CACV_140(class)
```

CACV_20 *Core Area Coefficient of Variation with edge of 20 meters*

Description

Calculates the patch core area coefficient of variation in pecentage, when excluded the edge from 20 meters.

Usage

```
CACV_20(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area coefficient of variation in percentage, with subtracted edge of 20 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_variation_20 <- CACV_20(class)
```

CACV_200 *Core Area Coefficient of Variation with edge of 200 meters*

Description

Calculates the patch core area coefficient of variation in pecentage, when excluded the edge from 200 meters.

Usage

```
CACV_200(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area coefficient of variation in percentage, with subtracted edge of 200 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_variation_200 <- CACV_200(class)
```

CACV_40   *Core Area Coefficient of Variation with edge of 40 meters*

Description

Calculates the patch core area coefficient of variation in pecentage, when excluded the edge from 40 meters.

Usage

```
CACV_40(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area coefficient of variation in percentage, with subtracted edge of 40 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_variation_40 <- CACV_40(class)
```

CACV_60   *Core Area Coefficient of Variation with edge of 60 meters*

Description

Calculates the patch core area coefficient of variation in pecentage, when excluded the edge from 60 meters.

Usage

```
CACV_60(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area coefficient of variation in percentage, with subtracted edge of 60 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_variation_60 <- CACV_60(class)
```

CACV_80   *Core Area Coefficient of Variation with edge of 80 meters*

Description

Calculates the patch core area coefficient of variation in pecentage, when excluded the edge from 80 meters.

Usage

```
CACV_80(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area coefficient of variation in percentage, with subtracted edge of 80 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_variation_80 <- CACV_80(class)
```

CASD_100   *Core Area Standard Deviation with edge of 100 meters*

Description

Calculates the patch core area standard deviation in hectare (ha), when excluded the edge from 100 meters.

Usage

```
CASD_100(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area standard deviation in hectare (ha), with subtracted edge of 100 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_deviation_100 <- CASD_100(class)
```

CASD_140   *Core Area Standard Deviation with edge of 140 meters*

Description

Calculates the patch core area standard deviation in hectare (ha), when excluded the edge from 140 meters.

Usage

```
CASD_140(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area standard deviation in hectare (ha), with subtracted edge of 140 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_deviation_140 <- CASD_140(class)
```

CASD_20   *Core Area Standard Deviation with edge of 20 meters*

Description

Calculates the patch core area standard deviation in hectare (ha), when excluded the edge from 20 meters.

Usage

```
CASD_20(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area standard deviation in hectare (ha), with subtracted edge of 20 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_deviation_20 <- CASD_20(class)
```

CASD_200   *Core Area Standard Deviation with edge of 200 meters*

Description

Calculates the patch core area standard deviation in hectare (ha), when excluded the edge from 200 meters.

Usage

```
CASD_200(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area standard deviation in hectare (ha), with subtracted edge of 200 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_deviation_200 <- CASD_200(class)
```

CASD_40 *Core Area Standard Deviation with edge of 40 meters*

Description

Calculates the patch core area standard deviation in hectare (ha), when excluded the edge from 40 meters.

Usage

```
CASD_40(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area standard deviation in hectare (ha), with subtracted edge of 40 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_deviation_40 <- CASD_40(class)
```

CASD_60 *Core Area Standard Deviation with edge of 60 meters*

Description

Calculates the patch core area standard deviation in hectare (ha), when excluded the edge from 60 meters.

Usage

```
CASD_60(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area standard deviation in hectare (ha), with subtracted edge of 60 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_deviation_60 <- CASD_60(class)
```

CASD_80   *Core Area Standard Deviation with edge of 80 meters*

Description

Calculates the patch core area standard deviation in hectare (ha), when excluded the edge from 80 meters.

Usage

```
CASD_80(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the core area standard deviation in hectare (ha), with subtracted edge of 80 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
core_deviation_80 <- CASD_80(class)
```

ED *Edge Density*

Description

Calculates the total weighted class edges by the landscape area in meters per hectare (m/ha).

Usage

```
ED(x, a)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

a   Total area of the landscape.

Value

The edge density in meteres per hectare (m/ha).

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
edge_dens <- ED(class, 10000)
```

LSI *Landscape Shape Index*

Description

Calculates the landscape shape index.

Usage

```
LSI(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Details

The value must be greater than or equal to 1.

Value

The value of the landscape shape index.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
shape_ind <- LSI(class)
```

MCA_100   *Mean Core Area with edge of 100 meters*

Description

Calculates the mean core area, in hectare (ha), when excluded the edge from 100 meters.

Usage

```
MCA_100(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean core are in hectare (ha), with subtracted edge of 100 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
mean_100 <- MCA_100(class)
```

MCA_140   *Mean Core Area with edge of 140 meters*

Description

Calculates the mean core area, in hectare (ha), when excluded the edge from 140 meters.

Usage

```
MCA_140(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean core are in hectare (ha), with subtracted edge of 140 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
mean_140 <- MCA_140(class)
```

MCA_20   *Mean Core Area with edge of 20 meters*

Description

Calculates the mean core area, in hectare (ha), when excluded the edge from 20 meters.

Usage

```
MCA_20(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean core are in hectare (ha), with subtracted edge of 20 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
mean_20 <- MCA_20(class)
```

MCA_200   *Mean Core Area with edge of 200 meters*

Description

Calculates the mean core area, in hectare (ha), when excluded the edge from 200 meters.

Usage

```
MCA_200(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean core are in hectare (ha), with subtracted edge of 200 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
mean_200 <- MCA_200(class)
```

MCA_40 *Mean Core Area with edge of 40 meters*

Description

Calculates the mean core area, in hectare (ha), when excluded the edge from 40 meters.

Usage

```
MCA_40(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean core are in hectare (ha), with subtracted edge of 40 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
mean_40 <- MCA_40(class)
```

MCA_60 *Mean Core Area with edge of 60 meters*

Description

Calculates the mean core area, in hectare (ha), when excluded the edge from 60 meters.

Usage

```
MCA_60(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean core are in hectare (ha), with subtracted edge of 60 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
mean_60 <- MCA_60(class)
```

MCA_80   *Mean Core Area with edge of 80 meters*

Description

Calculates the mean core area, in hectare (ha), when excluded the edge from 80 meters.

Usage

```
MCA_80(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean core are in hectare (ha), with subtracted edge of 80 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
mean_80 <- MCA_80(class)
```

MedPS   *Median Patch Size*

Description

Get the fragment size found in the median in hectares (ha).

Usage

```
MedPS(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the patch size in the median in hectares (ha).

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
median <- MedPS(class)
```

MNN   *Mean Nearest-Neighbor Distance*

Description

Calculates the mean nearest neighbor distance in meters (m) between patchs.

Usage

```
MNN(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean nearest neighbor distance in meters (m) between patchs.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
neighbor <- MNN(class)
```

MPAR   *Mean Perimeter-Area Ratio*

Description

Calculates de mean perimeter area ratio in hectares (ha).

Usage

```
MPAR(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean perimeter area ratio in hectares (ha).

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
per_area <- MPAR(class)
```

MPFD *Mean Patch Fractal Dimension*

Description

Calculates the mean patch fractal dimension.

Usage

```
MPFD(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Details

The MPFD value varies between 1 and 2.

Value

The value of the mean patch fractal dimension.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
fract <- MPFD(class)
```

MPS *Mean Patch Size*

Description

Get the mean patch size in hectares (ha).

Usage

```
MPS(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the mean patch size in hectares (ha).

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
mean <- MPS(class)
```

MSI   *Mean Shape Index*

Description

Calculates the mean shape index.

Usage

```
MSI(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Details

The value must be greater than or equal to 1.

Value

The value of the mean shape index.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
mean_shape <- MSI(class)
```

NCA_100 *Number of Core Area with edge of 100 meters*

Description

Calculates the total number of core area when excluded the edge from 100 meters.

Usage

```
NCA_100(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total number of core area, with subtracted edge of 100 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
num_100 <- NCA_100(class)
```

NCA_140 *Number of Core Area with edge of 140 meters*

Description

Calculates the total number of core area when excluded the edge from 140 meters.

Usage

```
NCA_140(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total number of core area, with subtracted edge of 140 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
num_140 <- NCA_140(class)
```

NCA_20   *Number of Core Area with edge of 20 meters*

Description

Calculates the total number of core area when excluded the edge from 20 meters.

Usage

```
NCA_20(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total number of core area, with subtracted edge of 20 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
num_20 <- NCA_20(class)
```

NCA_200   *Number of Core Area with edge of 200 meters*

Description

Calculates the total number of core area when excluded the edge from 200 meters.

Usage

```
NCA_200(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total number of core area, with subtracted edge of 200 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
num_200 <- NCA_200(class)
```

NCA_40   *Number of Core Area with edge of 40 meters*

Description

Calculates the total number of core area when excluded the edge from 40 meters.

Usage

```
NCA_40(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total number of core area, with subtracted edge of 40 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
num_40 <- NCA_40(class)
```

NCA_60   *Number of Core Area with edge of 60 meters*

Description

Calculates the total number of core area when excluded the edge from 60 meters.

Usage

```
NCA_60(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total number of core area, with subtracted edge of 60 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
num_60 <- NCA_60(class)
```

NCA_80   *Number of Core Area with edge of 80 meters*

Description

Calculates the total number of core area when excluded the edge from 80 meters.

Usage

```
NCA_80(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total number of core area, with subtracted edge of 80 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
num_80 <- NCA_80(class)
```

NP   *Number of Patches*

Description

Get the number of patches of the corresponding patch type (class).

Usage

```
NP(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the number of patches of the respective class.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
num <- NP(class)
```

PSCoV   *Patch Size Coefficient of Variation*

Description

Calculates of the patch size coefficient of variation in percentage.

Usage

```
PSCoV(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the patch size coefficient of variation in percentage.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
coef_var <- PSCoV(class)
```

PSSD *Patch Size Standard Deviation*

Description

Calculates the standard deviation of the patch size in hectares (ha).

Usage

```
PSSD(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the patch size standard deviation in hectares (ha).

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
stan_dev <- PSSD(class)
```

TCAI_100 *Total Core Area Index with edge of 100 meters*

Description

Measurement of relative quantity of core area in the landscape, in percentage, when excluded the edge from 100 meters.

Usage

```
TCAI_100(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core area index in percentage, with subtracted edge of 100 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
index_100 <- TCAI_100(class)
```

TCAI_140   *Total Core Area Index with edge of 140 meters*

Description

Measurement of relative quantity of core area in the landscape, in percentage, when excluded the edge from 140 meters.

Usage

```
TCAI_140(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core area index in percentage, with subtracted edge of 140 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
index_140 <- TCAI_140(class)
```

TCAI_20 *Total Core Area Index with edge of 20 meters*

Description

Measurement of relative quantity of core area in the landscape, in percentage, when excluded the edge from 20 meters.

Usage

```
TCAI_20(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core area index in percentage, with subtracted edge of 20 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
index_20 <- TCAI_20(class)
```

TCAI_200 *Total Core Area Index with edge of 200 meters*

Description

Measurement of relative quantity of core area in the landscape, in percentage, when excluded the edge from 200 meters.

Usage

```
TCAI_200(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core area index in percentage, with subtracted edge of 200 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
index_200 <- TCAI_200(class)
```

TCAI_40   *Total Core Area Index with edge of 40 meters*

Description

Measurement of relative quantity of core area in the landscape, in percentage, when excluded the edge from 40 meters.

Usage

```
TCAI_40(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core area index in percentage, with subtracted edge of 40 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
index_40 <- TCAI_40(class)
```

TCAI_60 *Total Core Area Index with edge of 60 meters*

Description

Measurement of relative quantity of core area in the landscape, in percentage, when excluded the edge from 60 meters.

Usage

```
TCAI_60(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core area index in percentage, with subtracted edge of 60 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
index_60 <- TCAI_60(class)
```

TCAI_80 *Total Core Area Index with edge of 80 meters*

Description

Measurement of relative quantity of core area in the landscape, in percentage, when excluded the edge from 80 meters.

Usage

```
TCAI_80(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core area index in percentage, with subtracted edge of 80 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
index_80 <- TCAI_80(class)
```

TCA_100   *Total Core Area with edge of 100 meters*

Description

Calculates the total core area, in hectare (ha), when excluded the edge from 100 meters.

Usage

```
TCA_100(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core are in hectare (ha), with subtracted edge of 100 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
area_100 <- TCA_100(class)
```

TCA_140 *Total Core Area with edge of 140 meters*

Description

Calculates the total core area, in hectare (ha), when excluded the edge from 140 meters.

Usage

```
TCA_140(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core are in hectare (ha), with subtracted edge of 140 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
area_140 <- TCA_140(class)
```

TCA_20 *Total Core Area with edge of 20 meters*

Description

Calculates the total core area, in hectare (ha), when excluded the edge from 20 meters.

Usage

```
TCA_20(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core are in hectare (ha), with subtracted edge of 20 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
area_20 <- TCA_20(class)
```

TCA_200   *Total Core Area with edge of 200 meters*

Description

Calculates the total core area, in hectare (ha), when excluded the edge from 200 meters.

Usage

```
TCA_200(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core are in hectare (ha), with subtracted edge of 200 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
area_200 <- TCA_200(class)
```

TCA_40 *Total Core Area with edge of 40 meters*

Description

Calculates the total core area, in hectare (ha), when excluded the edge from 40 meters.

Usage

```
TCA_40(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core are in hectare (ha), with subtracted edge of 40 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
area_40 <- TCA_40(class)
```

TCA_60 *Total Core Area with edge of 60 meters*

Description

Calculates the total core area, in hectare (ha), when excluded the edge from 60 meters.

Usage

```
TCA_60(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core are in hectare (ha), with subtracted edge of 60 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
area_60 <- TCA_60(class)
```

TCA_80   *Total Core Area with edge of 80 meters*

Description

Calculates the total core area, in hectare (ha), when excluded the edge from 80 meters.

Usage

```
TCA_80(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The value of the total core are in hectare (ha), with subtracted edge of 80 meters.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying land-scape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
area_80 <- TCA_80(class)
```

TE   *Total Edge*

Description

Calculates the lengths, in meters (m), of all edge segm ents involving the corresponding patch type.

Usage

```
TE(x)
```

Arguments

x   Raster of data with patches identified as classes in RasterLayer format.

Value

The sum of the lengths, in meters (m), of all edge segments involving the corresponding patch type.

References

MCGARIGAL. K.; MARKS, B. J. Fragstats: Spatial pattern analysis program for quantifying landscape structure. Reference manual. Forest Science Department Oregon State University. Corvallis Oregon 1994. 60 p.

Examples

```
data(class)
edge <- TE(class)
```