Package: effect.lndscp (via r-universe)

September 15, 2024

Title Effectiveness landscapes

Version 0.2.8

Description A function for plotting the effectiveness landscape of mutualisms adding isolines of equal effectiveness values. Effectiveness landscapes are the two-dimensional representation of the possible combinations of the quantity and the quality of mutualistic services (seed dispersal, pollination) and with elevational contours representing isoclines of effectiveness. These representations can be 2D bivariate plots of multiplicative effects of any of the seed dispersal (SDE) or pollination (PE) effectiveness components.

Depends R (>= 3.1.0)

Imports classInt, ggplot2, ggrepel

URL http://pedroj.github.com/effectiveness/,http://ebd10.ebd.csic.es/resources/

License GPL-3

LazyData true

RoxygenNote 6.1.0

Repository https://pakillo.r-universe.dev

RemoteUrl https://github.com/pedroj/effectiveness_pckg

RemoteRef HEAD

RemoteSha b1339ee2fc4a674182ae0bad9c661ebdc85e3b4a

Contents

`cecropia` *Quantitative component of effectiveness for Cecropia glaziovii-frugivorous birds interactions. Focal observations at Parque Estadual Intervales, Sao Paulo. Pedro Jordano. 25 Mar 2012.*

Description

Data from a field project during the Frugivory and Seed dispersal field course, 2012.

Usage

```
data(cecropia)
```

Format

A dataset (dataframe).

Details

Visitation data come from 140 h direct watches. A data.frame with 42 obs. of 37 variables.

First 6 variables are codes for Class, Order, Family, Genus, Species, and species label.

Variables include:

totvis- Number of visits recorded, pooled all trees.

totbic- Mean number of peckings to Cecropia catkins during a single visit. Birds do several peckings and ingest the seeds from these small pieces of the catkins. This may be used to estimate ingestion rate per visit.

sde- Effectiveness estimate for the quantitative component, totvis * totbic.

Columns 10-37 are the number of visits recorded to each individual Cecropia tree.

Source

Data txt archive

`effect.lndscp` *A package to plot effectiveness landscapes.*

Description

Effectiveness landscapes

Details

Effectiveness landscapes are the two-dimensional representation of the possible combinations of the quantity and the quality of mutualistic services (seed dispersal, pollination) and with elevational contours representing isoclines of effectiveness. These representations can be 2D bivariate plots of multiplicative effects of any of the seed dispersal (SDE) or pollination (PE) effectiveness components. This is a repository of code used to produce these plots.

Installation.

devtools::install_github("pedroj/effectiveness_pckg")

library(effect.lndscp) Effectiveness landscapes are the two-dimensional representation of the possible combinations of the quantity and the quality of mutualistic services (seed dispersal, pollination) and with elevational contours representing isoclines of effectiveness. These representations can be 2D bivariate plots of multiplicative effects of any of the seed dispersal (SDE) or pollination (PE) effectiveness components. This is a repository of code used to produce these plots.

Author(s)

Pedro Jordano

`effectiveness_plot` *Function to plot effectiveness landscapes, with repel labels option.*

Description

Function to plot effectiveness landscapes, with repel labels option.

Usage

```
effectiveness_plot(q1, q2, q1.error = NULL, q2.error = NULL,
  pts.shape = NULL, pts.color = NULL, pts.size = 2, label = NA,
  label.size = 3, italic = FALSE, show.lines = TRUE, nlines = 6,
  lines.breaks = "quantile", lines.color = "grey50",
  myxlab = "QtComp", myylab = "QltComp", ...)
```

Arguments

`q1`	Numeric vector representing the "quantitative component", to plot on the X axis.
`q2`	Numeric vector representing the "qualitative component", to plot on the Y axis.
`q1.error`	Optional. Numeric vector to be used as error bars for `q1`.
`q2.error`	Optional. Numeric vector to be used as error bars for `q2`.
`pts.shape`	Optional. A grouping variable (< 7 groups) to set point shapes (e.g., family).
`pts.color`	Optional. A grouping variable to set point colours (e.g., family).
`pts.size`	Optional. Size of points.

label	Optional. A character vector of the same length as q1 and q2 providing a label for the individual points (e.g., species acronym). Note that label may be NA for some points (useful to avoid overplotting of labels).
label.size	Size of point labels.
italic	Logical. Use italic font for labels?
show.lines	Logical. Show effectiveness isolines? (default is TRUE).
nlines	Specify the number of isolines.
lines.breaks	Either a numeric vector giving break points for the contour lines, or a "style" (e.g. "quantile", "equal", or "pretty") to choose optimal breaks using classIntervals. Note that using "pretty" will override nlines, as the number of lines will be determined algorithmically. See classIntervals for more details.
lines.color	Color of the isolines.
myxlab	optional label for axis X.
myylab	optional label for axis Y.
...	Further arguments to be passed to geom_text_repel (apart from segment_size, segment_alpha, and fontface, which are already defined in this function).

Details

The script plots effectiveness landscapes as described in Schupp, E. W., Jordano, P. and G<c3><b3>mez, J.M. 2010. Seed dispersal effectiveness revisited: a conceptual review. New Phytologist 188: 333-353.

Value

A ggplot2 object, which can be later modified (see examples).

Examples

```
#-----------------------------------------------------------------------
# Based on a dataset of Cecropia glaziovii frugivores.
# In this example we build the effectiveness landscape just for the
# quantitative component, plotting its two subcomponents, visitation
# rate and per-visit effectiveness.
#-----------------------------------------------------------------------
data(cecropia)
effectiveness_plot(q1 = cecropia$totvis, q2 = cecropia$totbic,
    myxlab= "No. visits/10h",
    myylab="Effectiveness/vis (No. fruits handled)")
#-----------------------------------------------------------------------

## Avoiding label overplotting ##
## e.g. showing only names of species with high effectiveness
labels = cecropia$code
labels[4:length(cecropia$code)] <- NA
effectiveness_plot(q1 = cecropia$totvis, q2 = cecropia$totbic,
    label = labels,
```

```
    myxlab= "No. visits/10h",
    myylab="Effectiveness/vis (No. fruits handled)")


################################################

## Modify plot ##
myplot <- effectiveness_plot(q1 = cecropia$totvis, q2 = cecropia$totbic,
    label = labels, nlines = 10,
    myxlab= "No. visits/10h",
    myylab="Effectiveness/vis (No. fruits handled)")
myplot + ggplot2::theme_minimal()
```

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prunus *Quantitative component of effectiveness for Prunus mahaleb-frugivorous birds interactions.*

Description

Data from a study on Prunus mahaleb (Rosaceae) seed dispersal by frugivorous animals in SE Spain. Visitation data come from 107.3 h direct watches.

Usage

```
data(prunus)
```

Format

A dataset (dataframe).

Details

Variables include:

Visitation data come from 107.3 h direct watches. abundance- Mean no. birds censused/km, averaged for two study years.

visits- Mean no. visitis recorded to fruiting trees (/10 h).

prop_visits- Proportion of total visits recorded (feeding records) contributed by species. Relative to the total no. records in two study years.

eff_per_vis- Mean no. fruits swallowed per visit (successfully dispersed seeds).

eff_total- Visit rate * eff_per_vis*prop fruits swallowed.

prop_disp_service- Proportion of total dispersal service contributed by species.

Source

Data txt archive

References

Schupp, E. W., Jordano, P. and Gomez, J.M. 2010. Seed dispersal effectiveness revisited: a conceptual review. New Phytologist 188: 333-353.

Jordano, P. and Schupp, E.W. 2000. Seed disperser effectiveness: The quantity component and patterns of seed rain for Prunus mahaleb. Ecological Monographs 70: 591<e2><80><93>615.

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