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Description Data sets used in Cayuela and De la Cruz (2022, ISBN:978-84-8476-833-3).

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Contents

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ailanto   *Germination Test of Ailanthus Seeds*

Description

Germination frequency of *Ailanthus altissima* seeds in a factorial experiment with varying levels of light and water.

Usage

```
data("ailanto")
```

Format

A data frame with 48 observations on the following 4 variables.

Semillas Number of seeds in each tray.

Luz Percentage of incident light.

Agua Percentage of soil water.

Germinacion Number of seeds germinating.

Details

An experiment with forty-eight trays, with 40 pots each, and one seed per pot, was set up in a factorized design, with four levels of incident light and three levels of humidity. Numbers of germinating seeds by tray were recorded.

Source

González-Muñoz, N., Castro-Díez, P., and Fierro-Brunnenmeister, N. 2011. Establishment success of coexisting native and exotic trees under an experimental gradient of irradiance and soil moisture. *Environmental Management* 48: 764-773.

Examples

```
data(ailanto)
str(ailanto)
```

---

algas   *Size and Reproduction in Codium Seaweeds*

Description

Data about size and reproductive status in randomly collected individuals of three species of *Codium* seaweeds in the Cantabrian coast.

Usage

```
data("algas")
```

Format

A data frame with 359 observations on the following 3 variables.

Sp Species of *Codium*. A factor with levels Fra (*C. fragile*), Tom (*C. tomentosum*) and Ver(*C. vermilara*).

Long Length of each individual.

Estado Presence (1) or absence (0) of reproductive structures.

Source

Rojo, I., Olabarria, C., Santamaria, M., Provan, J., Gallardo, T. and Viejo, R.M. 2014. Coexistence of congeneric native and invasive species: The case of the green algae *Codium* spp. in northwestern Spain. Marine *Environmental Research* 101: 135-144.

Examples

```
data(algas)
str(algas)
```

---

ara   *Araucaria Seedlings*

Description

Counts of *Araucaria araucana* (Molina) K. Koch seedlings in 26 plots (0.2 ha each) to investigate the effect of management (small stakeholders vs. forestry companies) and cattle pressure (measured indirectly by the number of dungs in each plot).

Usage

```
data("ara")
```

Format

A data frame with 26 observations on the following 3 variables.

seedlings Number of seedlings in each plot.

dungs Number of cattle dungs in each plot.

property Owner of the terrain where each plot was set up. A factor with 2 levels, Campesino (small stakeholder) and Empresa Forestal (forestry company).

Source

Zamorano-Elgueta, C., Cayuela, L., González-Espinosa, C., Lara, A. and Parra-Vázquez, M.R. 2012. Impacts of cattle on the South American temperate forests: Challenges for the conservation of the endangered monkey puzzle tree (*Araucaria araucana*) in Chile. *Biological Conservation* 152: 110-118.

Examples

```
data(ara)
str(ara)
```

---

arrecifes *Californian Reefs*

Description

Data about competition between seaweeds and sessile benthic invertebrates in three Californian reefs. Data were collected in sixteen 40 m x 2 m transects during 8 years. This dataset includes the "non-urchin barren" (transects where the density of sea urchins was low, which includes 4 transects x 7 yr + 6 transects x 6 yr +1 transect x 5 yr).

Usage

```
data("arrecifes")
```

Format

A data frame with 69 observations on the following 3 variables.

sitio Location of the transect. A factor with three levels: Carpinteria, Mohawk and Naples.

algas Percentage cover of seaweds.

invertebrados Percentage cover of sessile invertebrates.

Details

These data have been digitized from Figure 3a of Arkema *et al.* 2009.

Source

Arkema, K,K., Reed, D.C., and Schroether, S.C. 2009. Direct and indirect effects of giant kelp determine benthic community structure and dynamics. *Ecology* 90: 3126-3137.

Examples

```
data(arrecifes)
str(arrecifes)
```

---

chalco *Allometric Data of Giant Rhinoceros Beetles*

Description

Some measurements of body length and genitalia size of 156 individuals of *Chalcosoma atlas* (Linnaeus, 1758) in four localities in SW Asia.

Usage

```
data("chalco")
```

Format

A data frame with 156 observations on the following 3 variables.

`Localidad` Locality. A factor with levels `C. Malasia`, `E. Tailandia`, `Nias`, and `S. Sumatra`.

`Long_cuerpo` Body size (length) in mm.

`Long_genitalia` Genitalia size (length) in mm.

Source

Kawano, K. 2002. Character displacement in giant rhinoceros beetles. *The American Naturalist* 159(3): 255-271.

Examples

```
data(chalco)
str(chalco)
```

---

cladonia   *Cladonia Cover in Finland*

Description

Average cover of the lichen *Cladonia rangiferina* (L.) Weber ex F.H.Wigg. in the understory of pine
forests in 24 locations in Finland, plus some measurements of soil properties in the same localities.

Usage

```
data("cladonia")
```

Format

A data frame with 24 observations on the average cover of *Cladonia rangiferina* (`cladrang`), the
estimated cover of bare soil (`Baresoil`), the thickness of the humus layer (`Humdepth`) and measure-
ments of chemical soil characteristics (obvious names).

Source

Väre, H., Ohtonen, R. and Oksanen, J. (1995) Effects of reindeer grazing on understorey vegetation
in dry Pinus sylvestris forests. *Journal of Vegetation Science* 6: 523-530.

References

These data are compiled form the varespec and varechem datasets in package vegan.

Examples

```
data(cladonia)
str(cladonia)
```

---

defo   *Defoliation in Almeria Pine Forests*

Description

Data about defoliation in 76 stands of *Pinus* spp. forests in Sierra de los Filabres, Almeria, Spain.

Usage

```
data("defo")
```

Format

A data frame with 76 observations on the following 12 variables.

x UTM x-coordinate of the stand.

y UTM y-coordinate of the stand.

Especie Dominant species of *Pinus*. A factor with two levels: *Pinus nigra* and *Pinus sylvestris*.

Defoliacion Percentage of the stand affected by defoliation.

Area_basimetrica Basal area of the stand.

Altura_media Average height of pines in the stand.

Densidad_pinos Density of pine trees in the stand.

Elevacion Elevation.

Pendiente Average slope.

Orientacion Slope orientation.

Insolacion Amount of solar insolation.

Potencial_hidrico Water potential.

Examples

```
data(defo)
str(defo)
```

---

dry *Productivity in Chiapas Dry Forests*

Description

Richness of forest trees and average productivity for the 2001-2007 period estimated from MODIS images (NDVI, Normalized Difference Vegetation Index for 250 x 250 m pixels) in 96 plots of 0.1 ha in the dry forests of Chiapas (Mexico).

Usage

```
data("dry")
```

Format

A data frame with 96 observations on the following 2 variables.

richness Number of tree species per plot.

ndvi Average productivity.

Details

NDVI values range between 0 an 1, with higher values indicating higher productiviy.

Examples

```
data(dry)
str(dry)
```

---

firefly   *Mating in Fireflies*

Description

Number of eggs laid by female fireflies (*Photinus ignitus* (Fall, 1927)) after mating either with just one male or sequentially with three males.

Usage

```
data("firefly")
```

Format

A data frame with 40 observations on the following 3 variables.

weight Weight of each female firefly.

eggs Number of eggs produced after mating.

mating Type of experimental mating: either `single` male or `triple` mating with tree different males.

Source

Rooney, J. and Lewis, S. M. 2002 Fitness advantage from nuptial gifts in female fireflies. *Ecological Entomology* 27: 373-377.

Examples

```
data(firefly)
str(firefly)
```

---

insecto   *Insects and Plant Disease*

Description

Observations of the presence of a plant disease and of a certain species of insect in 14 plants.

Usage

```
data("insecto")
```

Format

A data frame with 14 observations on the following 2 variables.

enfermedad Presence of the plant disease. A factor with levels ausente (absent) and presente (present).

insecto Presence of the insect species. A factor with levels ausente (absent) and presente (present).

Source

Zar, J. H. 2010. *Biostatistical Analysis*. 5th ed. Prentice Hall.

Examples

```
data(insecto)
str(insecto)
```

---

liquenes   *Epiphytic Lichens Data*

Description

Percentage cover of foliose and fruticulose epiphytic lichen species in 20 cm x 20 cm quadrats placed on the trunk of several trees along three transects in a pine forest in Sierra de Guadarrama (Madrid, Spain).

Usage

```
data("liquenes")
```

Format

A data frame with 608 observations on the following 33 variables.

- Grupo. Transect identifier.
- Arbol. Tree identifier within each transect.
- DAP. DBH, i.e., diameter (cm) at breast height of the phorophyte tree.
- Especie. Species of the phorophyte tree. A factor with levels P (*Pinus sylvestris*) and R (*Quercus pyrenaica*).
- Distancia. Distance (m) from the tree to a road on the border of the forest.
- Sitio. Location on the trunk. A factor with levels B (base of the tree) or P (at breast height).
- Orientacion. Orientation of the quadrat over the tree trunk. A factor with levels N (facing North) or S (facing South).
- Musgos. Percentage cover of mosses.
- Crustaceos. Percentage cover of crustaceous lichens.
- Agrietacion. A measure (percentage) of bark rugosity.
- Cetraria.chlorophylla to Sp.1. Percentage cover of each recorded species of foliose or fruticulose lichen.
- Riqueza. Richness of fruticulose and foliose lichen species per quadrat.

Details

Data collected by students of Ecology of Rey Juan Carlos University in September 2016.

Examples

```
data(liquenes)
str(liquenes)
```

Lucanus	*Allometry Data of Stag Beetles*

Description

Measurements of head width and elytra length of several individuals of *Lucanus cervus* (Linnaeus, 1758) recorded in several localities in Northern Spain.

Usage

```
data("Lucanus")
```

Format

A data frame with 265 observations on the following 4 variables.

KB Head size (mm).

EL Elytra length (mm).

SEXO Sex, a factor with levels `hembra` (female) or `macho` (male).

PROVINCIA Spanish province where each individual was collected. Either `Asturias`, `Cantabria` or `Otras` (other).

Examples

```
data(Lucanus)
str(Lucanus)
```

---

plantulas0   *Monitoring of Helianthemum Seedlings*

Description

Monitoring of several cohorts of seedlings of *Helianthemum squamatum* (L.) Dum. Cours., from emergence to the end of sumer drought.

Usage

```
data("plantulas0")
```

Format

A data frame with 691 observations on the following 6 variables.

Censo Cohort, i.e., when the seedling was first censused. A factor with levels `abril` (April), `junio` (June), `marzo` (March), `mayo` (May).

MSET Fate of each seedling at September census. A factor with levels `herbivoria` (died by herbivory), `sequia` (died by drought), `sobrevive` (survived).

Hjun Number of leaves in the June census.

Tjun Height of the seedling (cm) in the June census.

NN05 Number of neighbour seedlings within a circle with a radius of 5 cm around each seedling.

NN10 Number of neighbour seedlings within a circle with a radius of 10 cm around each seedling.

References

De la Cruz, M., Romao, R.L., Escudero, A. and Maestre, F.T. 2008. Where do seedlings go? A spatio-temporal analysis of seedling mortality in a semi-arid gypsophyte. *Ecography* 31: 720-730 .

Examples

```
data(plantulas0)
str(plantulas0)
```

RIKZ   *RIKZ Data*

Description

Richness of benthic species in 45 sampling stations along the coastline of The Netherlands, measured by two researches of the the RIKZ (Rijksinstituut voor Kust en Zee), i.e., the Dutch Institute for Coastal and Marine Management.

Usage

```
data("RIKZ")
```

Format

A data frame with the abundance (number of individuals) of 75 benthic macrofauna species (columns 2 -C1- to 76 -I5-) and several environmental meassurements recorded in each sampling station (Sample), i.e., the five sampling stations within each of the nine beaches considered (Beach). The most important is NAP, i.e., Normal Amsterdams Peil (NAP), which measures the height of the sampling station (in m) in relation to the average sea level. Other variables are related to the nature of the sandy sediment, i.e., average grain size (grainsize), grain sorting (sorting1), penetrability (penetrability), carbonate content (chalk), or to each beach, i.e., slope (angle2), salinity (salinity) and average temperature (temperature).

Source

Janssen, G. and Mulder, S.. 2005. Zonation of macrofauna across sandy beaches and surf zones along the Dutch coast. *Oceanologia* 47(2): 265-282.

Examples

```
data(RIKZ)
str(RIKZ)
```

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