Dune Meadow Data (Netherlands)

Source of data

The data originates from the research of Batterink & Wijffels (1983), published as a report in Dutch. Data were used as training example in Jongman et al. (1995) and are part of the *vegan* package.

Description of the dataset



Table 0.1. Dune Meadow Data. Unordered table that contains 20 relevées (columns) and 30 species (rows). The right-hand column gives the abbreviation of the species names listed in the left-hand column; these abbreviations will be used throughout the book in other tables and figures. The species scores are according to the scale of van der Maarel (1979b).

1	Achillea millefolium	Ach mil
2	Agrostis stolonifera	Agr sto
3	Aira praecox	Air pra
4	Alopecurus geniculatus	Alo gen
5	Anthoxanthum odoratum	Ant odo
6	Bellis perennis	Bel per
7	Bromus hordaceus	Bro hor
8	Chenopodium album	Che alb
9	Cirsium arvense	Cir arv
10	Eleocharis palustris	Ele pal
11	Elymus repens	Ely rep
12	Empetrum nigrum	Emp nig
13	Hypochaeris radicata	Hyp rad
14	Juncus articulatus	Jun art
15	Juncus bufonius	Jun buf
16	Leontodon autumnalis	Leo aut
17	Lolium perenne	Lol per
18	Plantago lanceolata	Pla lan
19	Poa pratensis	Poa pra
20	Poa trivialis	Poa tri
21	Potentilla palustris	Pot pal
22	Ranunculus flammula	Ran fla
23	Rumex acetosa	Rum ace
24	Sagina procumbens	Sag pro
25	Salix repens	Sal rep
26	Trifolium pratense	Tri pra
27	Trifolium repens	Tri rep
28	Vicia lathyroides	Vic lat
29	Brachythecium rutabulum	Bra rut
30	Calliergonella cuspidata	Cal cus

Scan of the original dataset table (with full species names) from Jongman et al. (1995). Note that the species composition data presented on this website (dune2) does not contain the last two bryophyte species, *Brachythecium* and *Calliergonella*.

This dataset was collected as a part of the project focused on the effect of management on dune meadows. It contains 20 plots of 2×2 m^2, sampled in 1982 following Braun-Blanquet method estimating plant cover in each plot (using 9-grade ordinal cover scale). Total of 30 species (28 vascular and 2 bryophytes) were recorded.

The data provided here are slightly modified: two bryophyte species were removed from the original species composition dataset (namely *Brachythecium rutabulum* and *Calliergonella cuspidata*). Additionally, species attributes, namely traits (5 variables, Jamil et al. 2013) and Ellenberg indicator values (6 variables, Ellenberg et al. 1992) have been added. Plant traits from Jamil et al. (2013) were compiled from LEDA database (Kleyer et al. 2008) and from Lienin & Kleyer (2011).

To avoid confusion with the original (complete) dune dataset in vegan, I call the dataset dune2 here.

The following is the description of the dataset from Jongman et al. (1995): *This set of data stems from a research project on the Dutch island of Terschelling (Batterink & Wijffels 1983). The objective of this project was to detect a possible relation between vegetation and management in dune meadows. Sampling was done in 1982. Data collection was done by the Braun-Blanquet method; the data are recorded according to the ordinal scale of van der Maarel (1979). In each parcel usually one site was selected; only in cases of great variability within the parcel were more sites used to describe the parcel. The sites were selected by throwing and object into a parcel. The point where the object landed was fixed as one corner of the site. The sites measure 2x2m^2. The sites were considered to be representative of the whole parcel. From the total of 80 sites, 20 have been selected to be used in this book. This selection expresses the variation in the complete set of data. The names of the species conform with the nomenclature in van der Meijden et al. (1983) and Tutin et al. (1964-1980).*

Locality

Terschelling, Dutch Island.

Environmental variables

Variable name	Description
A1	Thickness of the A1 horizon [cm][1)]
Moisture	Moisture content of the soil (ordinal variable 1-5)
Management	Grassland management type (SF - standard farming, BF - biological farming, HF - hobby-farming, NM - nature conservation management)
Use	Agricultural grassland use (hayfields, pastures or combination of both; ranked nominal variable)
Manure	Quantity of manure applied (ordinal variable 0-4)

Species attributes

Traits (from Jamil et al. 2013)

Variable name	Description
SLA	Specific leaf area [mm^2 mg^{-1}]
Height	Plant height [cm]
LDMC	Leaf dry matter content [mg g^{-1}]
Seedmass	Seed mass [g]
Lifespan	Lifespan [annual, perennial]

Ellenberg values (from Ellenberg et al. 1992)

Variable name	Description
Light	Ellenberg indicator values for light
Temp	Ellenberg indicator values for temperature
Cont	Ellenberg indicator values for continentality
Moist	Ellenberg indicator values for moisture
React	Ellenberg indicator values for soil reaction
Nutr	Ellenberg indicator values for nutrients

Script for direct import of data into R

```
# Species and environmental data
dune2.spe <- read.delim
('https://raw.githubusercontent.com/zdealveindy/anadat-r/master/data/dune2.spe.txt'
, row.names = 1)
dune2.env <- read.delim
('https://raw.githubusercontent.com/zdealveindy/anadat-r/master/data/dune2.env.txt'
, row.names = 1)

# Species attributes
dune2.traits <- read.delim
('https://raw.githubusercontent.com/zdealveindy/anadat-r/master/data/dune2.traits.t
xt', row.names = 1)
```

```
dune2.ell <- read.delim
('https://raw.githubusercontent.com/zdealveindy/anadat-r/master/data/dune2.ell.txt'
, row.names = 1)

# Original dune dataset from vegan:
# If you need to install vegan package, use the following:
# install.packages ('vegan')
library (vegan)
data (dune) # matrix with species data (20 samples in rows and 30 species in
columns)
data (dune.env)# matix of environmental variables (20 samples in rows and 5
environmental variables in columns)
```

References

- Batterink M. & Wijffels G. (1983): *Een vergelijkend vegetatiekundig onderzoek naar de typologie en invloeden van het beheer van 1973 tot 1982 in de duinweilanden op Terschelling.* Report Agricultural University, Department of Vegetation Science, Plant Ecology and Weed Science, Wageningen.
- Ellenberg, H., Weber, H.E., Düll, R., Wirth, V., Werner, W. & Paulissen, D. 1992. Zeigerwerte von Pflanzen in Mitteleuropa. Second Edition. *Scripta Geobotanica* 18: 1–248.
- Jamil, T., Ozinga, W.A., Kleyer, M. & ter Braak, C.J.F. 2013. Selecting traits that explain species–environment relationships: a generalized linear mixed model approach. *Journal of Vegetation Science* 24: 988-1000.
- Jongman R.H., Ter Braak C.J.F. & van Tongeren O.F.R. (eds) (1995): *Data analysis in community and landscape ecology.* Cambridge University Press.
- Kleyer, M., Bekker, R.M., Knevel, I.C., Bakker, J.P., Thompson, K., Sonnenschein, M., Poschlod, P., van Groenendael, J.M., Klimes, L., Klimesova, J., Klotz, S., Rusch, G.M., Hermy, M., Adriaens, D., Boedeltje, G., Bossuyt, B., Dannemann, A., Endels, P., Gotzenberger, L., Hodgson, J.G., Jackel, A.K., Kuhn, I., Kunzmann, D., Ozinga, W.A., Romermann, C., Stadler, M., Schlegelmilch, J., Steendam, H.J., Tackenberg, O., Wilmann, B., Cornelissen, J.H.C., Eriksson, O., Garnier, E. & Peco, B. 2008. The LEDA Traitbase: a database of life-history traits of the Northwest European flora. *Journal of Ecology* 96: 1266–1274.
- Lienin, P. & Kleyer, M. 2011. Plant leaf economics and reproductive investment are responsive to gradients of land use intensity. *Agriculture, Ecosystems and Environment* 145: 67–76.
- Tutin T.G. et al. (ed.)(1964-1980): *Flora Europaea*. Cambridge University Press, Cambridge.
- van der Maarel E. (1979): Transformation of cover-abundance values in phytosociology and its effects on community similarity. *Vegetatio*, 39: 97-114.
- van der Meijden, R., Weeda E.J., Adema, F.A.C.B. & de Joncheere G.J. (1983). Flora van Nederland. 20th Edition. Wolters-Noordhoff, Groningen.

[1)]

Jongman et al. (1995) added: *In the dunes, shifting sand is a normal phenomenon. Frequently, young developed soils are dusted over by sand, so that soil development restarts. This may result in soils with several A1 horizons on top of each other. Where this had occurred only the A1 horizon of the top soil layer was measured.*

From:
https://anadat-r.davidzeleny.net/ - **Analysis of community ecology data in R**

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