

## Supplementary file 8, additional information: information on the published datasets

The datasets Supplementary file 9 and Supplementary file 10 include all data used for analysis.

### Supplementary file 9, dataset plant cover

This dataset contains all data of plant cover. All plant species of the herb layer were recorded in summer 2016 and spring 2017, all species of the tree and shrub layer in summer 2017. In summer 2017 additionally the cover of *I. glandulifera* was recorded, but no other herb species. Each row of the dataset is the record of one species, its cover and information on location, date and vegetation layer.

explanation of column names:

plot.id	unique identifier of each plot foreign key to the environment and vegetation characteristics dataset
X_WGS84	X-coordinates of the plots, under the WGS84 system
Y_WGS84	Y-coordinates of the plots, under the WGS84 system
site	field site levels: "Ludwig" (Ludwigschorgast), "Neu" (Neunkirchen), "Weid" (Weidenberg), "Peg" (Pegnitz), "Waisch" (Waischenfeld)
layer	vegetation layer, levels "herb" (herb layer), "shrub" (shrub layer), "tree" (tree layer)
season	season of vegetation survey, "summer" or "spring"
year	year of vegetation survey, "2016" or "2017"
date	date of vegetation survey per plot
species.full	full species name, written-out genus, species and author
species.code	abbreviation of the species name
cover class	cover of each species, estimated according extended Braun-Blanquet scale
cover	cover of each species (cover class), converted into numeric values [%] according extended Braun-Blanquet scale

## Supplementary file 10, dataset environment and vegetation characteristics

For each plot this dataset contains the (micro-)habitat, environmental variables and vegetation characteristics as total resident plant cover, diversity indices, and vegetation height.

Ellenberg indicator values were calculated per plot from the resident herb layer vegetation in summer, based on species presence not weighted by cover. Cover sums and diversity indices were calculated for summer and spring based on the vegetation dataset (Supplementary file 9). Vegetation height was calculated as mean of the height of the five tallest plants in the plot, regardless of the plant species (Supplementary file 2).

The term "resident vegetation" refers to all species except *Impatiens glandulifera*.

explanation of column names:

plot.id	unique identifier of each plot primary key within this dataset and foreign key to the plant cover dataset
X_WGS84	X-coordinates of the plots, under the WGS84 system
Y_WGS84	Y-coordinates of the plots, under the WGS84 system
site	field site levels: "Ludwig" (Ludwigschorgast), "Neu" (Neunkirchen), "Weid" (Weidenberg), "Peg" (Pegnitz), "Waisch" (Waischenfeld)
habitat	main habitat of the study site, see Table 1 in Materials and Methods levels: "forest" (alder / alder-swamp forest in Ludwig and Neu), "meadow" (abandoned meadow in Weid, Peg and Waisch)
micro.habitat	groups representing different micro-habitats regarding light and soil moisture; built by dividing the dataset according to the median of light (23.9 % PAR) and volumetric soil moisture (51.5 %). levels: "drybright", "wetbright", "drydark", "wetdark"
moist	volumetric soil moisture [%], measured with a SM-150 sensor (Delta-T Devices), median of four measurements per plot
par	light situation per plot, as relative photosynthetic active radiation [%], measured with a PAR-Sensor (licor), median of four point records within the plots divided by the particular logged reference matching in time
L	Ellenberg indicator value for light
F	Ellenberg indicator value for soil moisture
constant.wet	index for constantly wet soil, calculated from Ellenberg indicator value F
periodic.wet	index for periodically wet soil, calculated from Ellenberg indicator value F
R	Ellenberg indicator value for soil reaction
N	Ellenberg indicator value for soil nutrients
T	Ellenberg indicator value for temperature
cover.sum.r.summer	total COVER [%] of the RESIDENT vegetation in SUMMER, calculated as SUM of the cover off all species in the plot
cover.sum.r.spring	total COVER [%] of the RESIDENT vegetation in spring, calculated as SUM of the cover off all species in the plot

cover.total.tree	TOTAL COVER [%] of the TREE layer, estimated according extended Braun-Blanquet scale
n.spec.r.summer	NUMBER of SPECIES of the RESIDENT vegetation in SUMMER, derived from the vegetation dataset
n.spec.r.spring	NUMBER of SPECIES of the RESIDENT vegetation in SPRING, derived from the vegetation dataset
n.spec.tree	NUMBER of SPECIES of the TREE layer, derived from the vegetation dataset
H.r.summer	Shannon-index H of the RESIDENT vegetation in SUMMER, calculated from the vegetation dataset with <code>vegan::diversity()</code>
H.r.spring	Shannon-index H of the RESIDENT vegetation in SPRING, calculated from the vegetation dataset with <code>vegan::diversity()</code>
height.summer.i	maximum vegetation HEIGHT of IMPATIENS GLANDULIFERA in SUMMER
height.summer.r	maximum vegetation HEIGHT of the RESIDENT vegetation in SUMMER
height.spring.i	maximum vegetation HEIGHT of IMPATIENS GLANDULIFERA in SPRING
height.spring.r	maximum vegetation HEIGHT of the RESIDENT vegetation in SPRING