

Read me file for data from the manuscript:

**Reed, P.B., Pfeifer-Meister, L. E., Roy, B. A., Johnson, B. R., Bailes, G. T., Nelson, A. A., and Bridgham, S. D. Introduced annuals mediate climate-driven community change in Mediterranean prairies of the Pacific Northwest, USA. 2021. *Diversity and Distributions*.**

This document describes each data file and provides descriptions of column headers for the processed files. See methods section in manuscript for complete details regarding the data.

Climate, nitrogen, and soil data:

**“raw\_daily\_CanopyTemp.csv”**

**“raw\_daily\_SoilTemp.csv”**

**“raw\_daily\_SoilVWC.csv”**

These three files contain the daily plot-level measurements for canopy temperature, soil temperature, and soil volumetric water content, respectively. Linkages between plot number and site/climate treatment can be found in the processed data files. These three files contain some missing values due to equipment error while recording data. These missing values appear as ‘NA’. For the analyses in the manuscript, we interpolated missing climate data using regressions described in the section “Interpolating missing climate data” in the Supporting Information.

**“raw\_daily\_PRISM.csv”**

This file contain the daily site-level PRISM estimates for air temperature and total precipitation, which was used to interpolate missing values of the daily plot-level temperatures and volumetric water contents (see Supplemental Methods: *Interpolating missing climate data*).

**“raw\_SoilTexture.csv”**

This file contain the site-level measurements of soil percent clay and sand (expressed as proportions), and percent carbon (expressed as a percent). See Supplemental Methods: *Data collection for soil matrix potential*.

**“processed\_ClimateNitrogen.csv”**

This file contains the plot-level climate and nitrogen data aggregated to annual, growing season, and seasonal values.

**Column header descriptions for “processed\_ClimateNitrogen.csv”:**

<b>Column</b>	<b>Description</b>
year	The growing season year based on the spring season (e.g., March-June 2017 = “2017”).
site	Experimental site.
clm.trt	Climate treatment.
plot	Plot.
ctemp_ann	Mean annual canopy temperature (16-Jul → 15-Jul).
ctemp_gs	Mean growing season canopy temperature (1-Oct → 30-Jun).
ctemp_win	Mean winter canopy temperature (1-Dec → 28-Feb).
ctemp_spr	Mean spring canopy temperature (1-Mar → 31-May).
stemp_ann	Mean annual soil temperature (16-Jul → 15-Jul).
stemp_gs	Mean growing season soil temperature (1-Oct → 30-Jun).
stemp_win	Mean winter soil temperature (1-Dec → 28-Feb).
stemp_spr	Mean spring soil temperature (1-Mar → 31-May).
vwc_ann	Mean annual volumetric water content (16-Jul → 15-Jul).
vwc_gs	Mean growing season volumetric water content (1-Oct → 30-Jun).
vwc_win	Mean winter volumetric water content (1-Dec → 28-Feb).
vwc_spr	Mean spring volumetric water content (1-Mar → 31-May).
smp_ann	Mean annual soil matric potential (16-Jul → 15-Jul).
smp_gs	Mean growing soil matric potential (1-Oct → 30-Jun).
smp_win	Mean winter soil matric potential (1-Dec → 28-Feb).
smp_spr	Mean spring soil matric potential (1-Mar → 31-May).
N_fall	Total nitrogen availability during the fall burial period (Aug → Nov)
N_win	Total nitrogen availability during the winter burial period (Dec → Mar)
N_spr	Total nitrogen availability during the spring burial period (Apr → Jul)
N_gs	Total nitrogen availability averaged across the three burial periods (Aug → Jul)

Cover, richness, diversity, and evenness data:

**“raw\_cover\_Species.csv”**

This file contains the raw plot-level pin hit counts for each species. These data were used to determine plot-level richness, Simpson’s diversity, and evenness.

**“raw\_FunctionalGroups.csv”**

This file links nativity, duration, growth habitat, and functional groups to each species identified in the experiment.

**“processed\_CoverDiversity\_funcgroups.csv”**

This file contains plot-level cover data aggregated to the functional group level, as well as columns for richness, Simpson’s diversity, and evenness.

**Column header descriptions for “processed\_CoverDiversity\_funcgroups.csv”:**

<b>Column</b>	<b>Description</b>
year	The growing season year based on the spring season (e.g., March-June 2017 = “2017”).
site	Experimental site.
clm.trt	Climate treatment.
plot	Plot.
covTotal	Total cover for the entire plot (sum of all species’ hits multiplied by 4).
covNative	Native cover for the entire plot (sum of all native species’ hits multiplied by 4).
covIntro	Introduced cover for the entire plot (sum of all introduced species’ hits multiplied by 4).
covAnnual	Annual cover for the entire plot (sum of all annual species’ hits multiplied by 4).
covPeren	Perennial cover for the entire plot (sum of all perennial species’ hits multiplied by 4).
covGrass	Grass cover for the entire plot (sum of all grass species’ hits multiplied by 4).
covForb	Forb cover for the entire plot (sum of all forb species’ hits multiplied by 4).
covLegume	Legume cover for the entire plot (sum of all legume species’ hits multiplied by 4).
covNatAnn	Native annual cover for the entire plot (sum of all native annual species’ hits multiplied by 4).
covNatPer	Native perennial cover for the entire plot (sum of all native perennial species’ hits multiplied by 4).
covIntAnn	Introduced annual cover for the entire plot (sum of all introduced annual species’ hits multiplied by 4).
covIntPer	Introduced perennial cover for the entire plot (sum of all introduced perennial species’ hits multiplied by 4).
covNAG	Native annual grass cover for the entire plot (sum of all native annual grass species’ hits multiplied by 4).
covNAF	Native annual forb cover for the entire plot (sum of all native annual forb species’ hits multiplied by 4).
covNPG	Native perennial grass cover for the entire plot (sum of all native perennial grass species’ hits multiplied by 4).
covNPF	Native perennial forb cover for the entire plot (sum of all native perennial forb species’ hits multiplied by 4).
covIAG	Introduced annual grass cover for the entire plot (sum of all Introduced annual grass species’ hits multiplied by 4).
covIAF	Introduced annual forb cover for the entire plot (sum of all Introduced annual forb species’ hits multiplied by 4).
covIPG	Introduced perennial grass cover for the entire plot (sum of all Introduced perennial grass species’ hits multiplied by 4).

covIPF	Introduced perennial forb cover for the entire plot (sum of all Introduced perennial forb species' hits multiplied by 4).
covWoody	Woody cover for the entire plot (sum of all woody species' hits multiplied by 4).
covUnk	Unknown cover for the entire plot (sum of all unknown species' hits multiplied by 4).
relNative	Native relative cover for the entire plot (native species' cover divided by total cover).
relIntro	Introduced relative cover for the entire plot (introduced species' cover divided by total cover).
relAnnual	Annual relative cover for the entire plot (annual species' cover divided by total cover).
relPeren	Perennial relative cover for the entire plot (perennial species' cover divided by total cover).
relGrass	Grass relative cover for the entire plot (grass species' cover divided by total cover).
relForb	Forb relative cover for the entire plot (forb species' cover divided by total cover).
relLegume	Legume relative cover for the entire plot (legume species' cover divided by total cover).
relNatAnn	Native annual relative cover for the entire plot (native annual species' cover divided by total cover).
relNatPer	Native perennial relative cover for the entire plot (native perennial species' cover divided by total cover).
relIntAnn	Introduced annual relative cover for the entire plot (introduced annual species' cover divided by total cover).
relIntPer	Introduced perennial relative cover for the entire plot (introduced perennial species' cover divided by total cover).
relNAG	Native annual grass relative cover for the entire plot (native annual grass species' cover divided by total cover).
relNAF	Native annual forb relative cover for the entire plot (native annual forb species' cover divided by total cover).
relNPG	Native perennial grass relative cover for the entire plot (native perennial grass species' cover divided by total cover).
relNPF	Native perennial forb relative cover for the entire plot (native perennial forb species' cover divided by total cover).
relIAG	Introduced annual grass relative cover for the entire plot (Introduced annual grass species' cover divided by total cover).
relIAF	Introduced annual forb relative cover for the entire plot (Introduced annual forb species' cover divided by total cover).
relIPG	Introduced perennial grass relative cover for the entire plot (Introduced perennial grass species' cover divided by total cover).
relIPF	Introduced perennial forb relative cover for the entire plot (Introduced perennial forb species' cover divided by total cover).
relWoody	Woody relative cover for the entire plot (woody species' cover divided by total cover).

relUnk	Unknown relative cover for the entire plot (unknown species' cover divided by total cover).
rich.tot	Total richness.
rich.nat	Native species' richness.
rich.int	Introduced species' richness.
simp.tot	Simpson's index of diversity across all species.
simp.nat	Simpson's index of diversity for native species.
simp.int	Simpson's index of diversity for introduced species.
evenness.tot	Total evenness across all species.