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Overview: This archive includes field measurements, climate/microclimate data, and soil data needed to reproduce the results presented in Clark-Wolf et al. (2022). The archive contains eight .csv files and two .R scripts. Methods for the collection of these data are described in Clark-Wolf et al. (2022).

**(1) ClarkWolf\_et\_al\_2022\_PlotData.csv** – This includes site data and field measurements for each plot and derived (e.g., plot-averaged) variables used in statistical models.

‘Plot’ – unique plot identifier

‘Fire’ – wildfire identifier: LPK = Lolo Peak Fire; SUR = Sunrise Fire

‘Severity’ – fire severity classification from soil burn severity maps used in site selection

‘LON\_WGS1984’ – longitude of plot location in decimal degrees

‘LAT\_WGS1984’ – latitude of plot location in decimal degrees

‘Date\_1’ – date of first sampling in 2018

‘Date\_2’ – date of sampling in 2019

‘Date\_3’ – date of sampling in 2020

‘TransectSize’ – area of transect used for seedling count at last sampling time (2020), in square meters

‘Regen\_AllSpp\_ct’ – count of post-fire seedlings in transect at last sampling time, all species combined

‘Regen\_*Spp*\_ct’ – count of post-fire seedlings in transect at last sampling time by species

PSME = *Pseudotsuga menziesii*

PIPO = *Pinus ponderosa*

LAOC = *Larix occidentalis*

PICO = *Pinus contorta*

PIEN = *Picea engelmannii*

UNKN = unidentified

Abies= *Abies lasiocarpa* and *Abies grandis* combined

‘Mort\_seedlings\_tot’ – total mortality rate of all seedlings marked in subplots across the 3 study years

‘Elev’– elevation of plot in m

‘slope’ – slope calculated from a digital elevation model in percent

‘aspect’ – aspect calculated from a digital elevation model in degrees

‘HLI’ – heat load index, unitless

‘DEF’ – 35-year average climatic water deficit (mm), 250-m resolution

‘ppt\_ann’ – 35-year average annual precipitation (mm), scale-free

‘ppt\_JJAS’ – 35-year average JJAS precipitation (mm), scale-free

‘ppt\_pf’ – 2-year post-fire average JJAS precipitation (mm), scale-free

‘Tmax\_abs’ – maximum JJAS microclimate temperature, predicted from statistical microclimate models

‘Tmax\_avg’ – average daily maximum JJAS microclimate temperature, predicted from statistical microclimate models

‘dnbr’ – plot-averaged dNBR value derived from MTBS data (30-m resolution)

‘Axis1’ – field-based fire severity metric derived from PCA, reflecting variability in tree mortality and live canopy cover, with positive values associated with higher overstory fire severity

‘Axis2’ – field-based fire severity metric derived from PCA, reflecting variability in understory vegetation and bare ground cover among plots, with positive values associated with less vegetation cover

‘DSS’ – plot averaged distance to the nearest live mature tree (“distance to seed source”) in meters

‘PP’ – average percent cover of live trees within a 200 m radius of plot center identified from aerial imagery (“propagule pressure”)

‘PP\_dWt’ – distance-weighted propagule pressure

‘cover.XX\_Avg’ – variables describing ground cover (%), averaged within plots and across sample years

‘BG’ = bare ground and rock

‘Wood’ = coarse woody debris

‘Litter’ = litter and fine wood

‘Moss’ = moss and lichen

‘Grass’ = graminoid

‘Forb’ = herbaceous

‘Shrub’ = woody shrub

‘SeedlingSapling’ = cover of seedlings and juvenile trees <1.37 m height (not included in canopy cover measurements)

‘Canopy.tot\_Avg’ – total live and dead canopy cover, averaged within plots and across sample years

‘Canopy.green\_Avg’ – green canopy cover, averaged within plots and across sample years

‘Canopy.dead\_Avg’ – dead canopy cover, averaged within plots and across sample years

‘SH’ – plot average char height in meters measured at 6 to 10 trees

‘NH4’ – plot-average ammonium availability in µg-N day-1, measured using resin capsules

‘NH4’ – plot-average nitrate availability in µg-N day-1, measured using resin capsules

‘soilN’ – plot-average total inorganic nitrogen availability in µg-N day-1, measured using resin capsules

‘LiveBA’ – plot-average live basal area in ft-sq per acre

‘DeadBA’ – plot-average dead basal area in ft-sq per acre

‘ba\_PICO’ – plot-average total (live and dead) basal area of *P. contorta*

‘ba\_PICO\_L’ – live basal area of *P. contorta*

‘ba\_PSME\_L’ – live basal area of *P. menziesii*

‘ba\_LAOC\_L’ – live basal area of *L. occidentalis*

‘*Spp*\_present’ – binary, 1 if focal species (PICO, PSME, LAOC) was identified in the overstory or nearby as a seed source, 0 otherwise

‘Mat\_mort’ – mortality rate (%) of mature trees (>1.37 m height)

‘Sap\_mort’ – mortality rate (%) of pre-fire sapling trees (<1.37 m height)

‘mort’ – total mortality rate of pre-fire trees (%)

‘Sapling\_AllSpp’ – reconstructed total density of pre-fire sapling trees

‘Mature\_AllSpp’ – reconstructed total density of pre-fire mature trees

‘n\_live\_V1\_c1’ – total number of live seedlings in the first post-fire cohort (germinated in 2018) identified within subplots at the first sampling time (2018)

‘n\_live\_V2\_c1’ – total number of live seedlings in the first post-fire cohort (germinated in 2018) identified within subplots at the second sampling time (2019)

‘n\_live\_V2\_c2’ – total number of live seedlings in the second post-fire cohort (germinated in 2019) identified within subplots at the second sampling time (June 2019)

‘n\_live\_V3\_c1’ – total number of live seedlings in the first post-fire cohort (germinated in 2018) identified within subplots at the third sampling time (Aug/Sept 2019)

‘n\_live\_V3\_c2’ – total number of live seedlings in the second post-fire cohort (germinated in 2019) identified within subplots at the third sampling time (Aug/Sept 2019)

‘n\_live\_V4\_c1’ – total number of live seedlings in the first post-fire cohort (germinated in 2018) identified within subplots at the fourth sampling time (Aug/Sept 2020)

‘n\_live\_V4\_c1’ – total number of live seedlings in the second post-fire cohort (germinated in 2019) identified within subplots at the fourth sampling time (Aug/Sept 2020)

‘germ\_2019\_tot\_c2’ – total number of seedlings that germinated in the summer of 2019

**(2) ClarkWolf\_et\_al\_2022\_OverstoryData.csv** – This includes raw overstory tree data for each plot.

‘Plot’ – unique plot identifier

‘Species’ – four-letter species code

PSME = *Pseudotsuga menziesii*

PIPO = *Pinus ponderosa*

LAOC = *Larix occidentalis*

PICO = *Pinus contorta*

PIEN = *Picea engelmannii*

ABLA= *Abies lasiocarpa*

ABGR = *Abies grandis*

TSME = *Tsuga mertensiana*

THPL = *Thuja plicata*

PIAL = *Pinus albicaulis*

UNKN = unidentified

‘dens\_Mature\_Live’ = density of live mature trees (>1.37 m height), in # ha-1

‘dens\_Mature\_Dead’ = density of dead mature trees (>1.37 m height), in # ha-1

‘dens\_Sapling\_Live’ = density of live sapling trees (<1.37 m height), in # ha-1

‘dens\_Sapling\_Dead’ = density of dead sapling trees (<1.37 m height), in # ha-1

‘Live.BA’ = live basal area, average of three measurements per plot

‘Dead.BA = dead basal area, average of three measurements per plot

**(3) ClarkWolf\_et\_al\_2022\_SubplotData.csv** – This includes raw ground cover measurements and other field data collected in subplots in all three sample years.

‘Plot’ – unique plot identifier

‘Subplot’ – subplot identifier

‘Postfire\_year’ – sampling year

‘Date’ – sampling date

‘Cover.xx’ – estimated ground cover of different types

‘BG’ = bare ground and rock cover (%)

‘Wood’ = coarse woody debris cover (%)

‘Litter’ = litter and fine wood cover (%)

‘Moss’ = moss and lichen cover (%)

‘Grass’ = graminoid cover (%)

‘Forb’ = herbaceous cover (%)

‘Shrub’ = woody shrub cover (%)

‘Seedling’ = cover of seedlings (<10 cm height, %)

Sapling’ = cover of juvenile trees <1.37 m height (%, not included in canopy cover)

‘Canopy.tot’ – total live and dead canopy cover (%) measured using a spherical densiometer

‘Canopy.Green’ – green canopy cover (%), not measured in year 1

‘Canopy.Dead’– dead canopy cover (%), not measured in year 1

**(4) ClarkWolf\_et\_al\_2022\_RecruitmentData.csv** – This includes annual seedling counts of germination-year seedlings in each plot.

‘Plot’ – unique plot identifier

‘Postfire\_year’ – sampling year

‘Spp’ – seedling species (includes “AllSpp” for all species combined), see above for codes

‘Germ’ – count of germination-gear seedlings within transect

‘TransectSize’ – transect area used for seedling count, in square meters

**(5) ClarkWolf\_et\_al\_2022\_RegenMonitoring.csv** – This includes monitoring data for individual seedlings marked in subplots and tracked across sample years.

‘Seedling\_ID’ – unique identifier for individual marked seedlings

‘Plot’ – unique plot identifier

‘Subplot’ – subplot number

‘Num\_subplots’ – number of subplots used for seedling monitoring in that plot

‘ID.conf’ – binary, 1 if species identification is fully confident, 0 if ambiguous

‘Age.conf’ – binary, 1 if age estimate is confident, 0 if ambiguous

‘Postfire\_year’ – sampling year

‘Spp’ – species, see above for species codes

‘Age’ – seedling age in years, where 1 is the germination year

‘Alive’ – binary, 1 if alive (any green needles present) at sampling time

‘Ht’ – Height in cm at sampling time

‘n\_seedlings’ – number of seedlings of the same age and species found in the same subplot

‘Ht\_y1\_Avg’ – average height (cm) of equivalent seedlings in the same subplot in year 1

‘Ht\_y2\_Avg’ – average height (cm) of equivalent seedlings in the same subplot in year 2

‘Ht\_y3\_Avg’ – average height (cm) of equivalent seedlings in the same subplot in year 3

**(6) ClarkWolf\_et\_al\_2022\_SoilData.csv** – This includes all soil measurements for each plot.

‘Plot’ – unique plot identifier

‘soil\_NH4.N.day’ – plot-average resin-sorbed ammonium in µg-N day-1

‘soil\_NO3.N.day’ – plot-average resin-sorbed nitrate in µg-N day-1

‘soil\_ph’ – soil pH

‘soil\_M\_2018\_NH4’ – mineral soil ammonium concentration in µg-N g soil-1 in 2018 (year 1)

‘soil\_M\_2018\_NO3’ – mineral soil nitrate concentration in µg-N g soil-1 in 2018 (year 1)

‘soil\_M\_2019\_NH4’ – mineral soil ammonium concentration in µg-N g soil-1 in 2019 (year 2)

‘soil\_M\_2019\_NO3’ – mineral soil nitrate concentration in µg-N g soil-1 in 2019 (year 2)

‘soil\_O\_2018\_NH4’ – organic soil ammonium concentration in µg-N g soil-1 in 2018 (year 1)

‘soil\_O\_2018\_NO3’ – organic soil nitrate concentration in µg-N g soil-1 in 2018 (year 1)

‘soil\_O\_2019\_NH4’ – organic soil ammonium concentration in µg-N g soil-1 in 2019 (year 2)

‘soil\_O\_2019\_NO3’ – organic soil nitrate concentration in µg-N g soil-1 in 2019 (year 2)

‘soil\_M\_perc\_C’ – mineral soil carbon content (% by mass)

‘soil\_M\_perc\_N’ – mineral soil total nitrogen content (% by mass)

‘soil\_ug.N.day’ – plot-average resin-sorbed total inorganic nitrogen in µg-N day-1

**(7) ClarkWolf\_et\_al\_2022\_Microclimate.csv** – This includes modeled and raw daily microclimate data.

‘Plot’ – unique plot identifier

‘Date’ – date in M/D/YYYY

‘Year’ – calendar year

‘Month’ – month

‘Day’ – day

‘fitted\_Tmax’ – modeled daily maximum microclimate temperature (°C), predicted based on statistical microclimate models

‘fitted\_Vmax’ – modeled daily maximum microclimate vapor pressure deficit (VPD, kPa), predicted based on statistical microclimate models

‘fitted\_Vmean’ – modeled daily mean microclimate VPD (kPa), predicted based on statistical microclimate models

‘Meas\_Tmin’ – measured daily minimum temperature (°C) in a subset of sites

‘Meas\_Vmin’ – measured daily minimum VPD (kPa) in a subset of sites

‘Meas\_Tavg’ – measured daily mean temperature (°C) in a subset of sites

‘Meas\_Vavg’ – measured daily mean VPD (kPa) in a subset of sites

‘Meas\_Tmax’ – measured daily maximum temperature (°C) in a subset of sites

‘Meas\_Vmax’ – measured daily maximum VPD (kPa) in a subset of sites

**(8) ClarkWolf\_et\_al\_2022\_gridMET.csv** – This includes daily maximum temperature estimates derived from GridMet (Abatzoglou 2013) for all plots.

‘Plot’ – unique plot identifier

‘Date’ – date (m/d/Y)

‘Tmax.gm’ – daily maximum temperature estimate from GridMet

‘vpd.gm’ – daily average VPD estimate from GridMet

**(9) Clark-Wolf\_et\_al\_2022\_code.R** – This R script contains code to recreate the main text figures in the manuscript.

**(10) Clark-Wolf\_et\_al\_2022\_supplemental.R** – This R script contains additional code to recreate supplemental figures.