

# warmXtrophic Project: Phenology Plots

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COLLABORATORS: Phoebe Zarnetske, Mark Hammond, Pat Bills, Kara Dobson

DATA INPUT: Cleaned phenology data csv from the shared Google drive

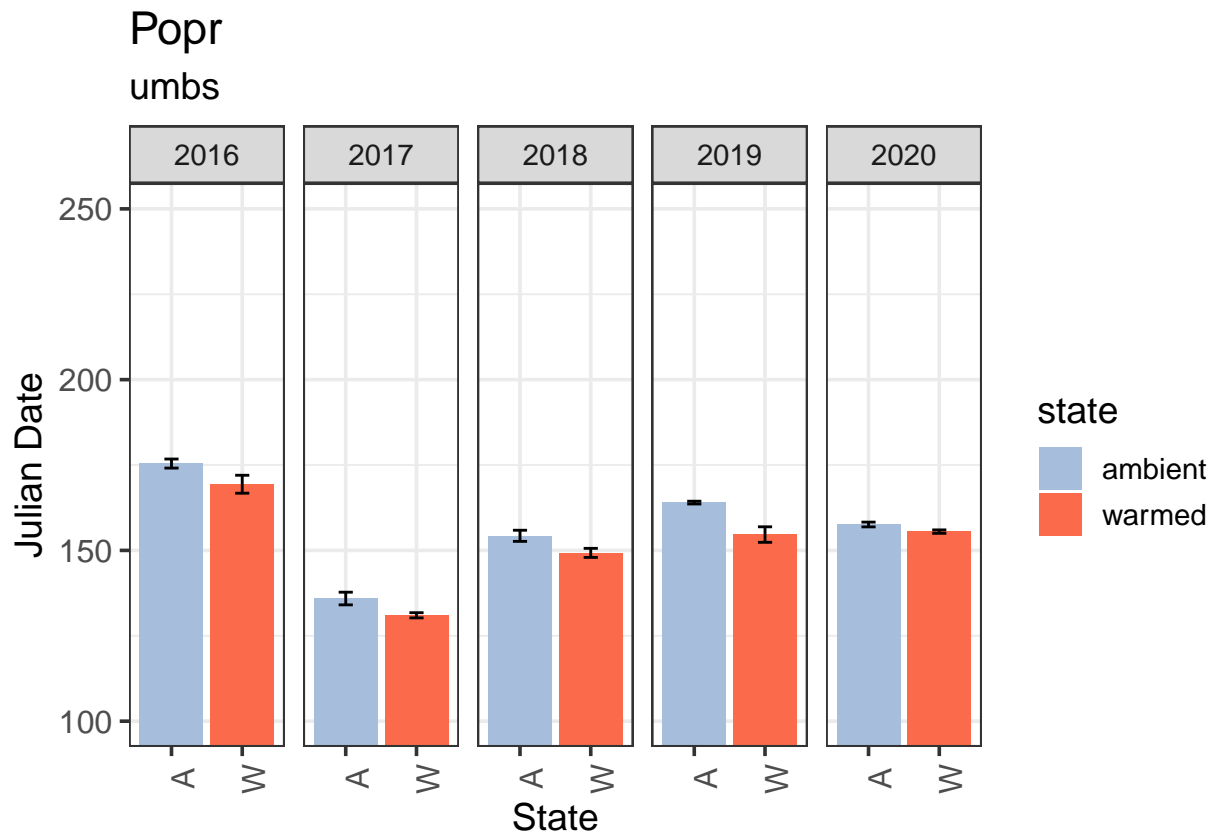
DATA OUTPUT: Code and Rmd are in the scripts folder in Github

PROJECT: warmXtrophic

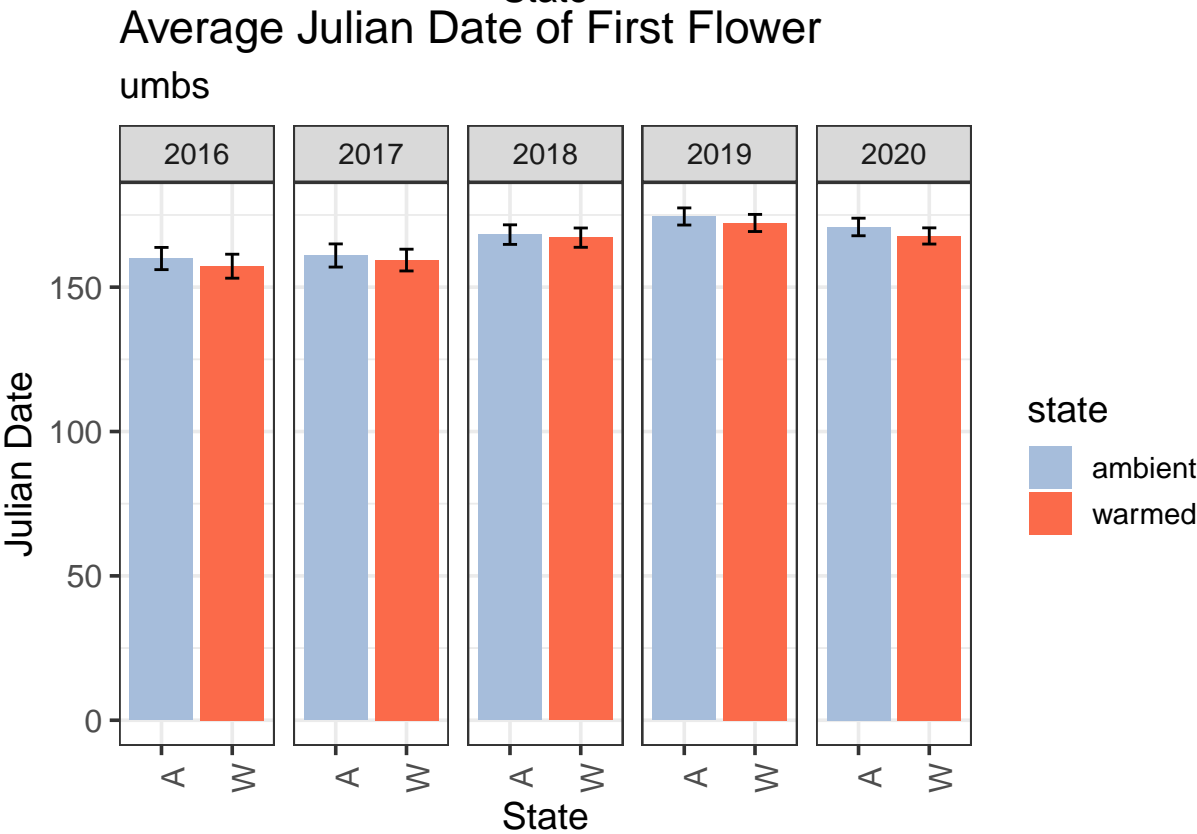
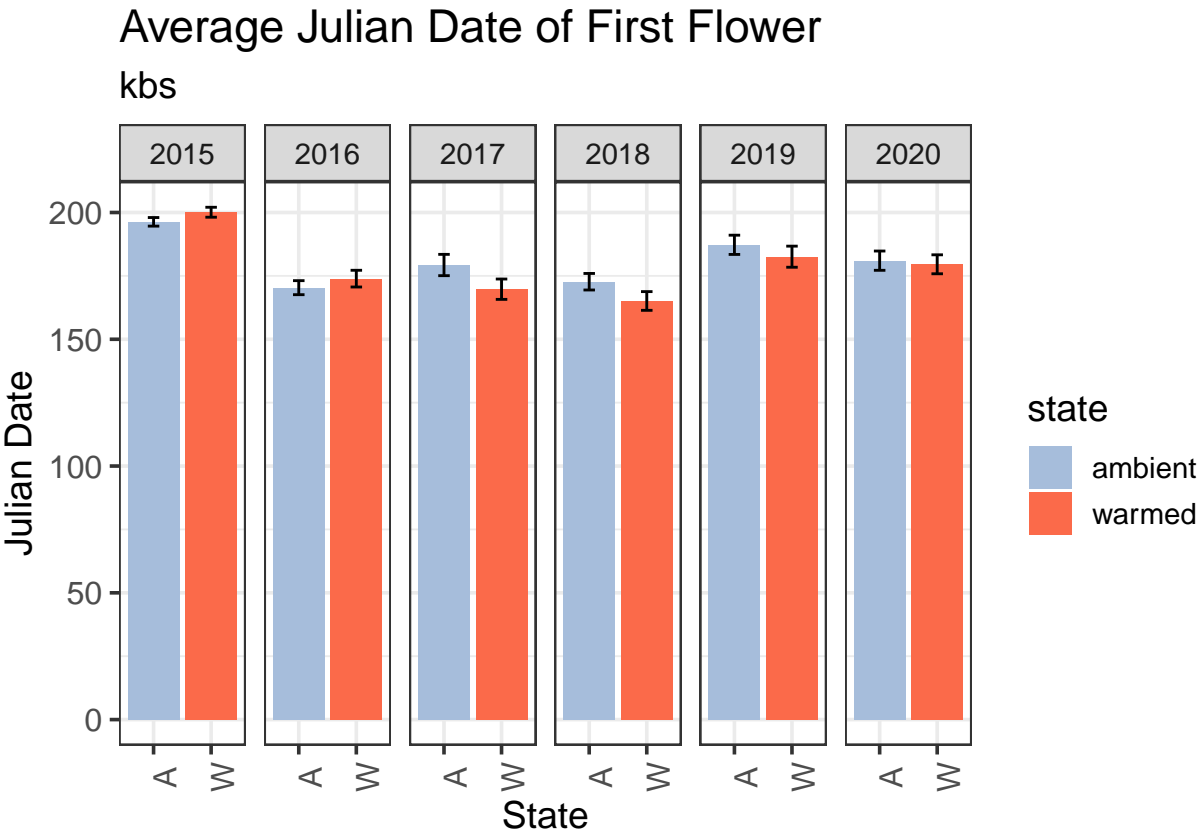
```
## [1] "/Volumes/GoogleDrive/Shared drives/SpaCE_Lab_warmXtrophic/data/L1"
```

## Plots to Visualize Flowering

Given species and site and for every year plot

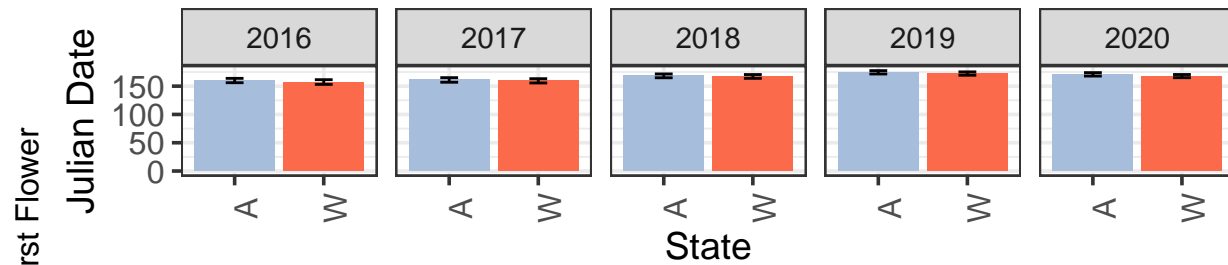


Bar plot for a given site and year for average first date of flower comparing ambient vs warmed plots



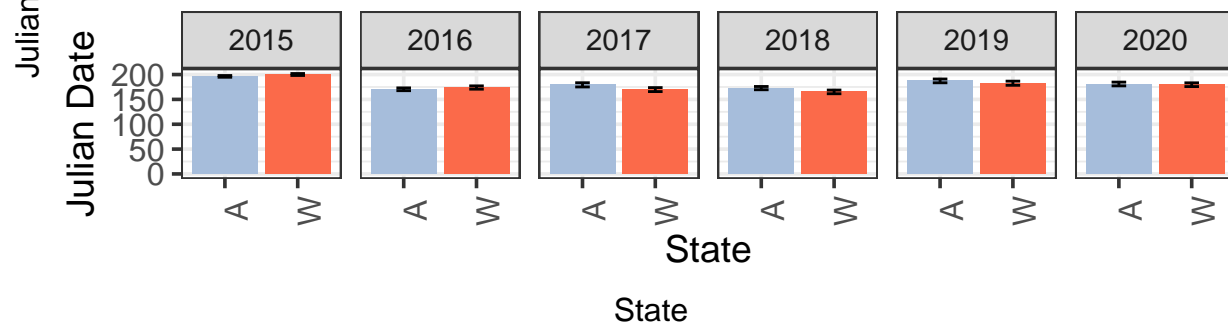
## Average Julian Date of First Flower

umbs



## Average Julian Date of First Flower

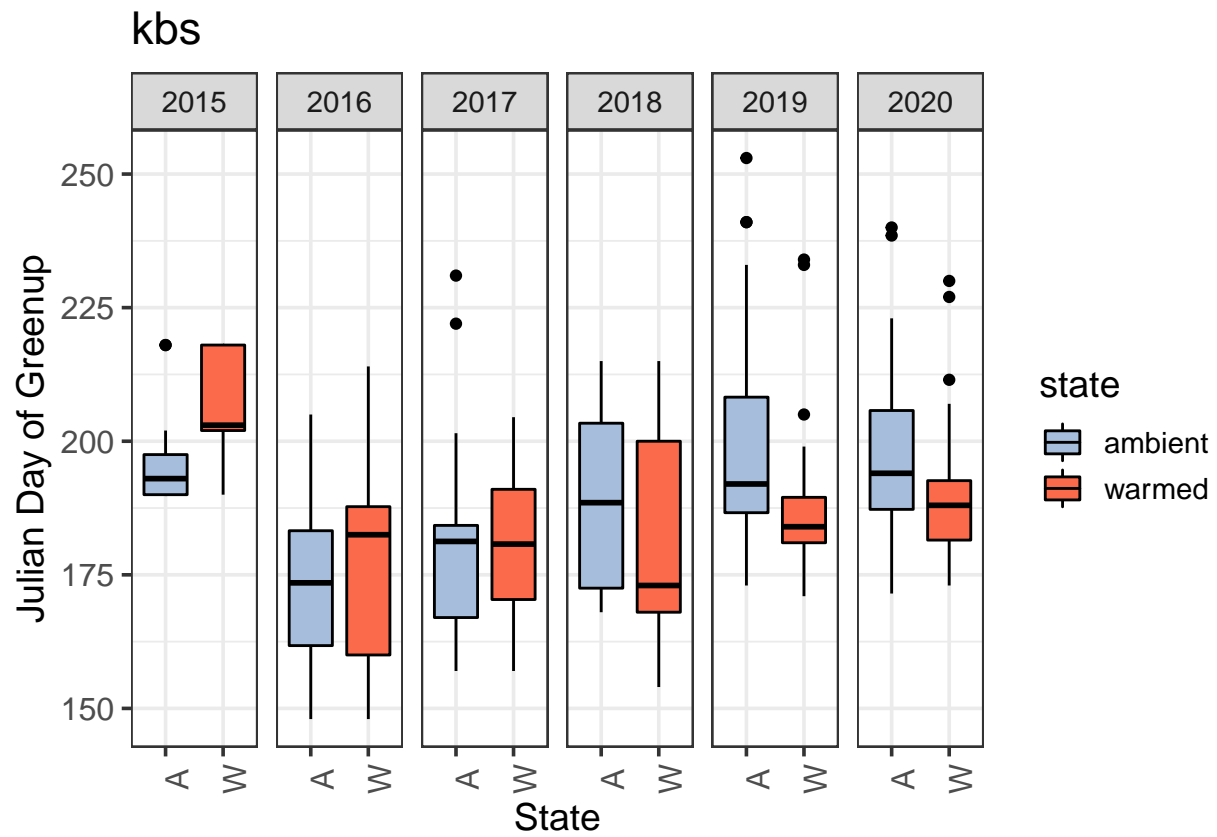
kbs



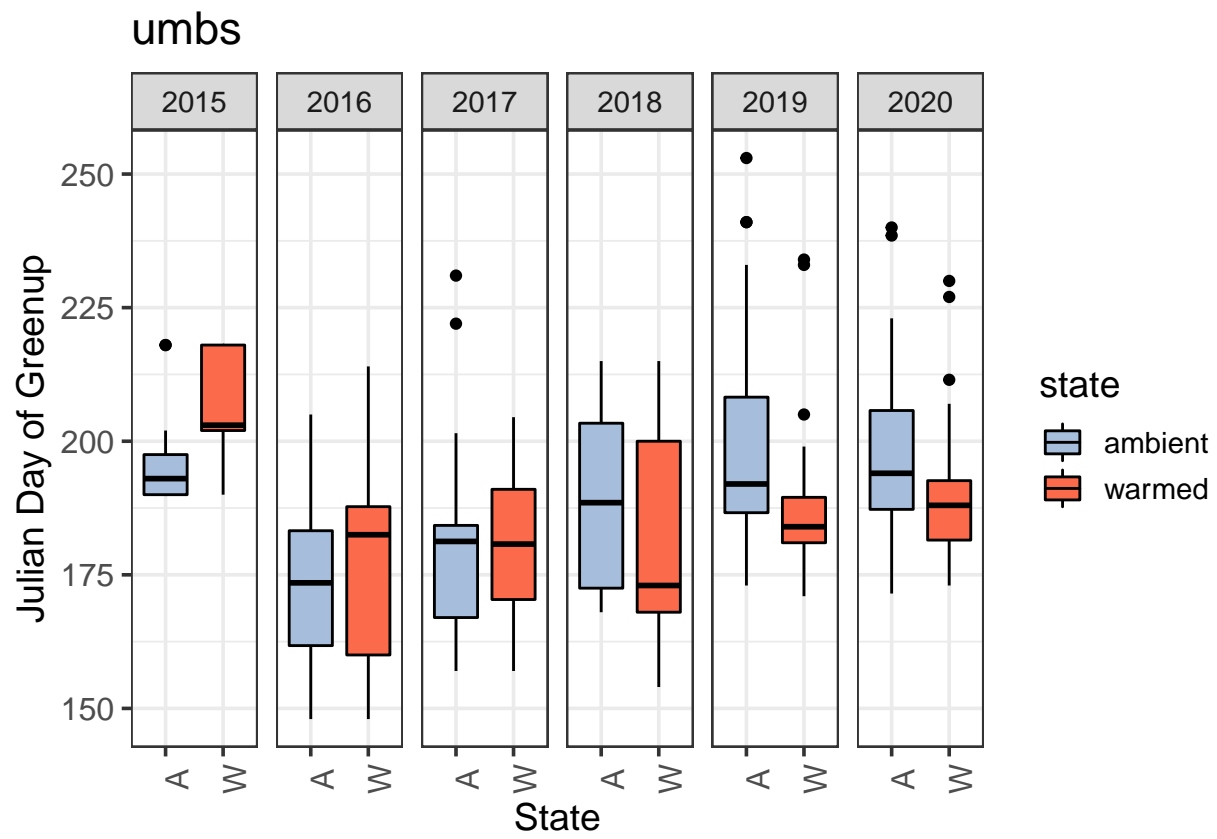
Boxplot

```
sum_FirstFlwr_boxp <- function(loc) {
  FirstFlwr_sub <- subset(flwr_plot, site == loc)
  return(ggplot(flwr_plot, aes(x = state, y = julian_median, fill = state)) + facet_grid(. ~
    year) + geom_boxplot(color = "black") + labs(x = "State", y = "Julian Day of Greenup",
    title = loc) + scale_fill_manual(values = c("#a6bddb", "#fb6a4a")) + scale_x_discrete(labels = c(
    warmed = "W")))
}

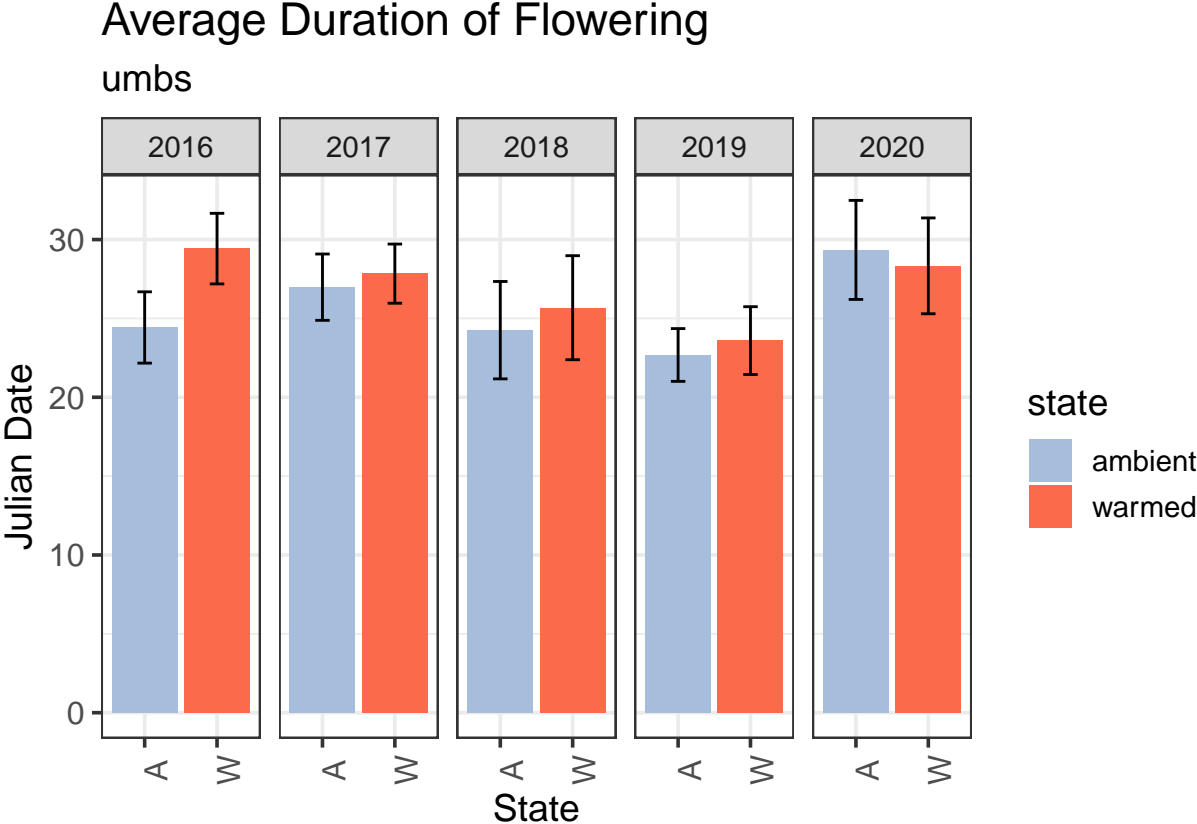
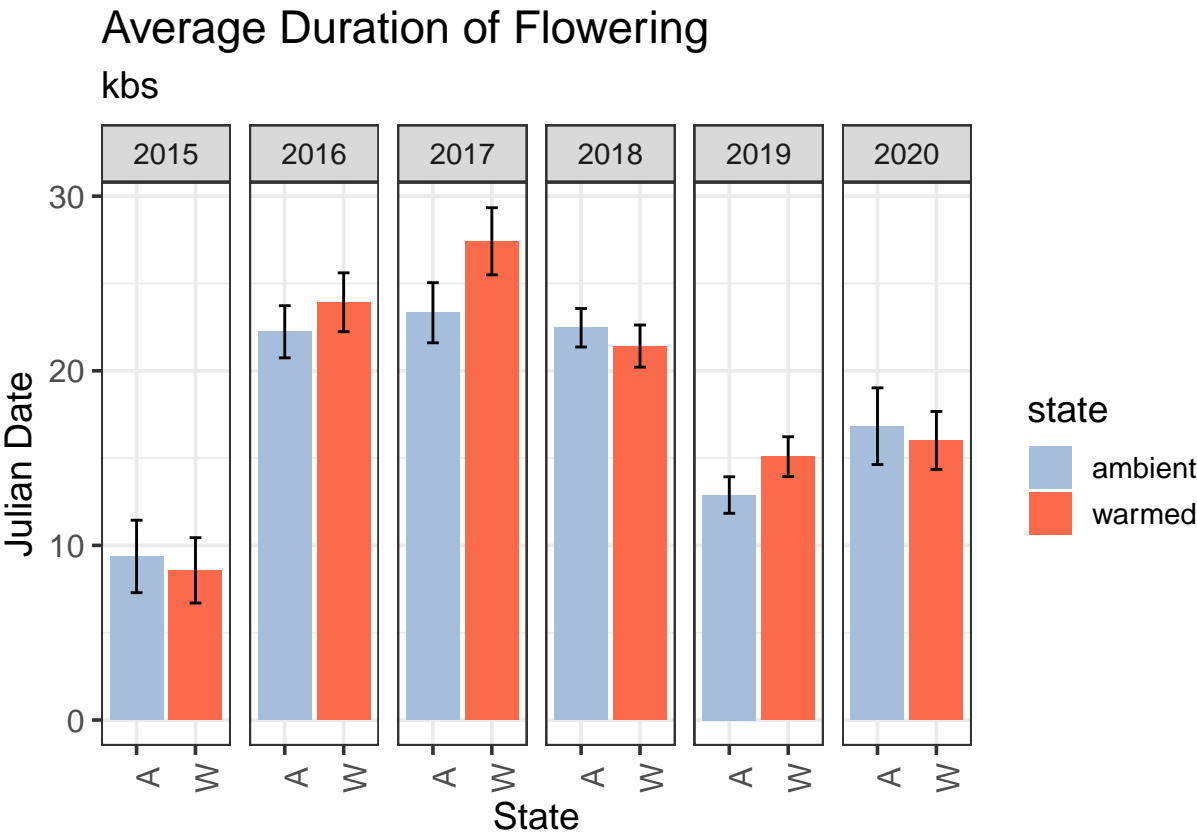
sum_FirstFlwr_boxp("kbs")
```



```
sum_FirstFlwr_boxp("umbs")
```



Flowering Duration

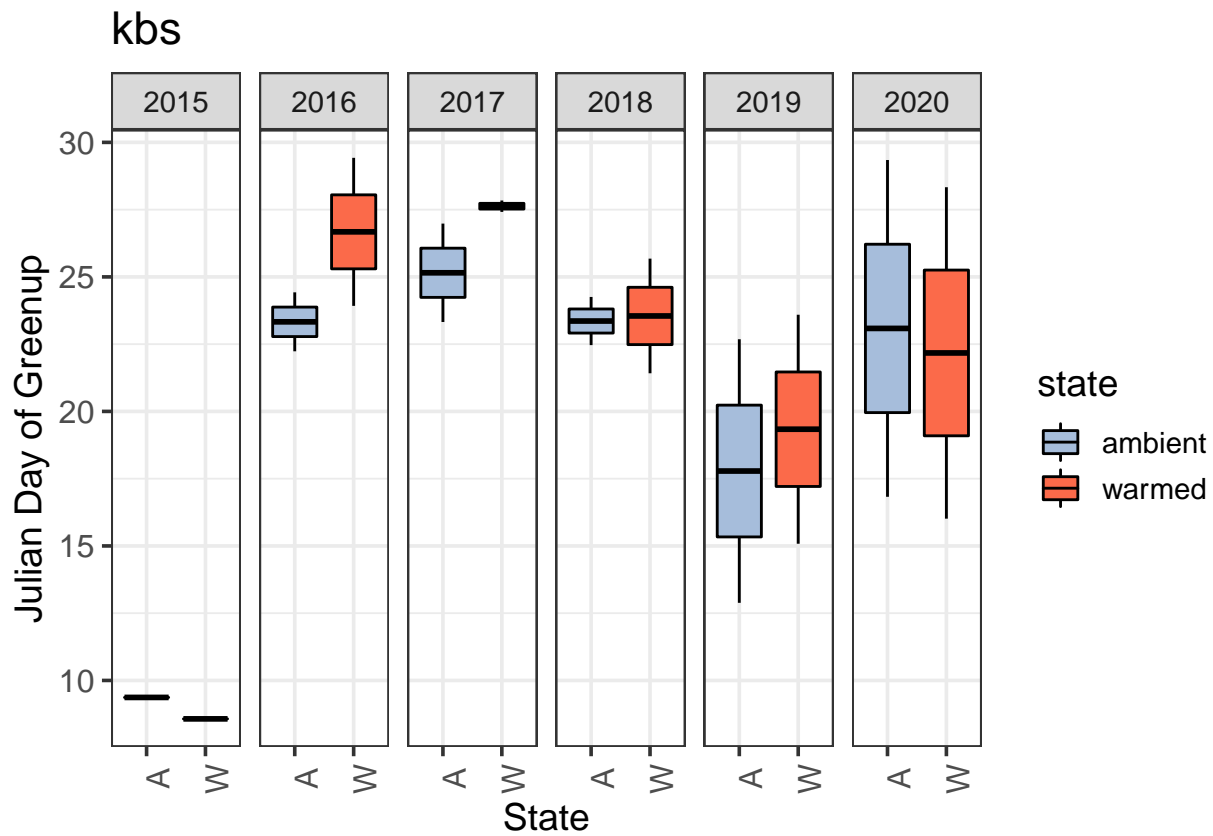


#

## Duration Boxplot

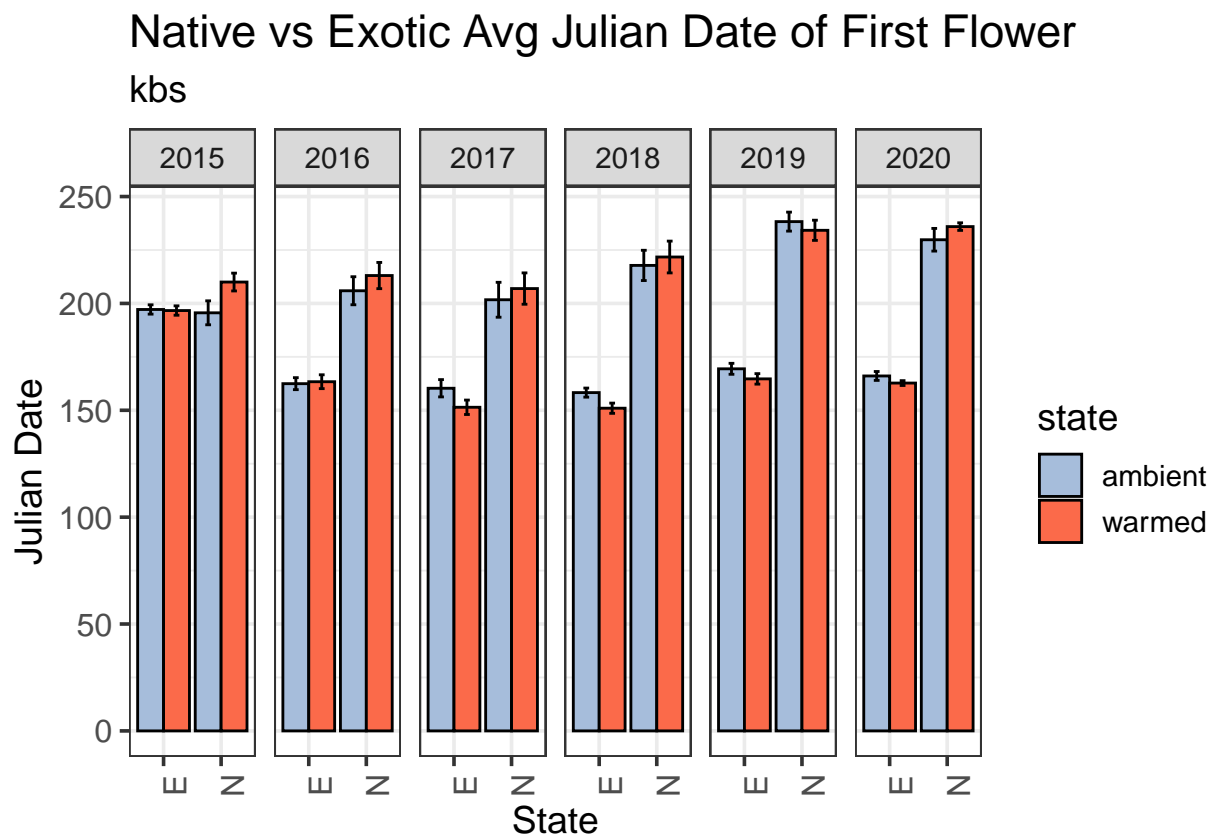
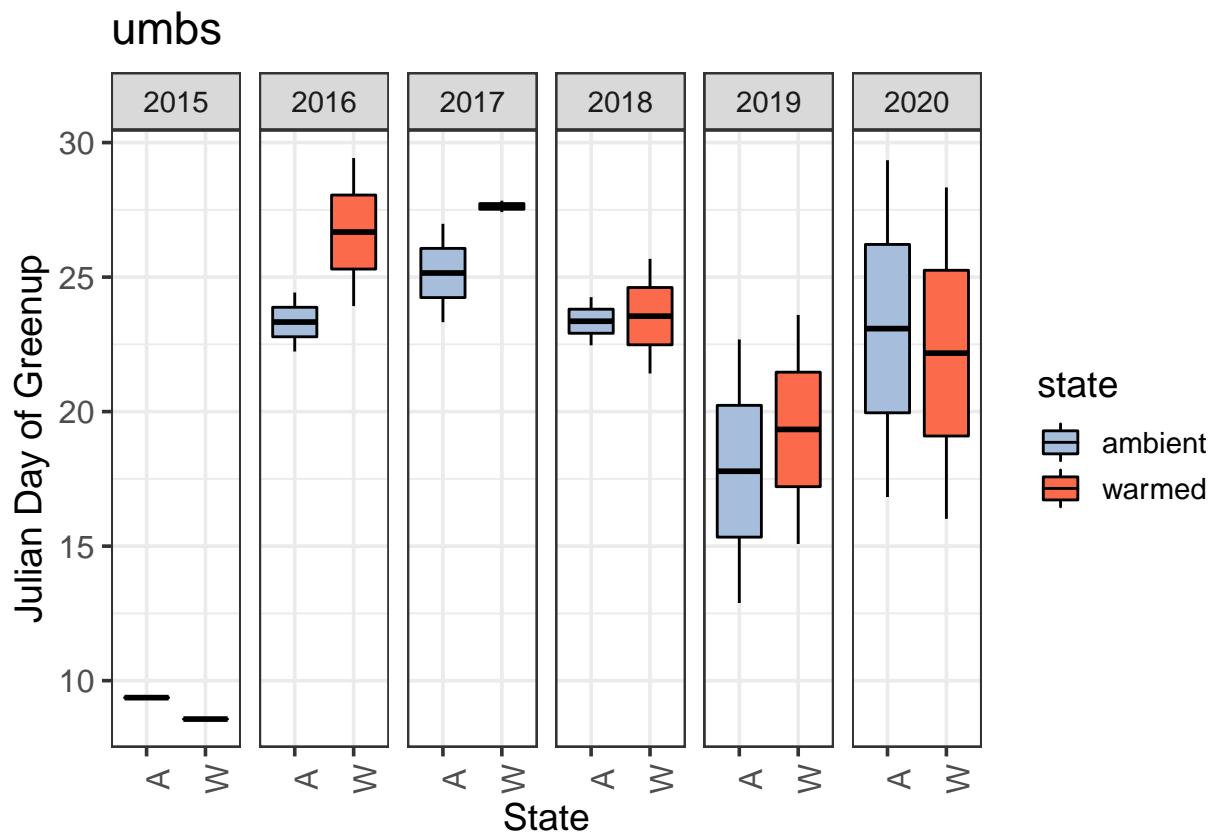
```
sum_duration_boxp <- function(loc) {
  duration <- subset(sum_flwrduration_state, site == loc)
  return(ggplot(sum_flwrduration_state, aes(x = state, y = mean_duration, fill = state)) +
    facet_grid(. ~ year) + geom_boxplot(color = "black") + labs(x = "State",
    y = "Julian Day of Greenup", title = loc) + scale_fill_manual(values = c("#a6bddb",
    "#fb6a4a")) + scale_x_discrete(labels = c(ambient = "A", warmed = "W")))
}

sum_duration_boxp("kbs")
```



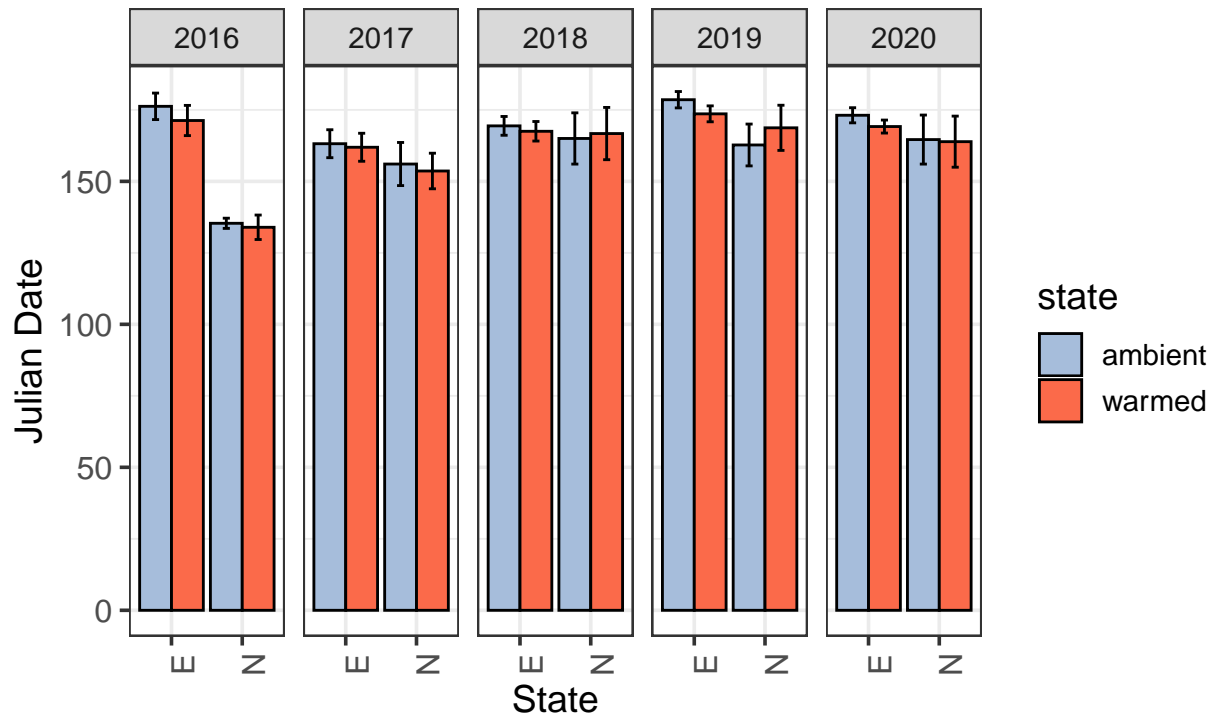
```
sum_duration_boxp("umbs")
```





## Native vs Exotic Avg Julian Date of First Flower

umbs

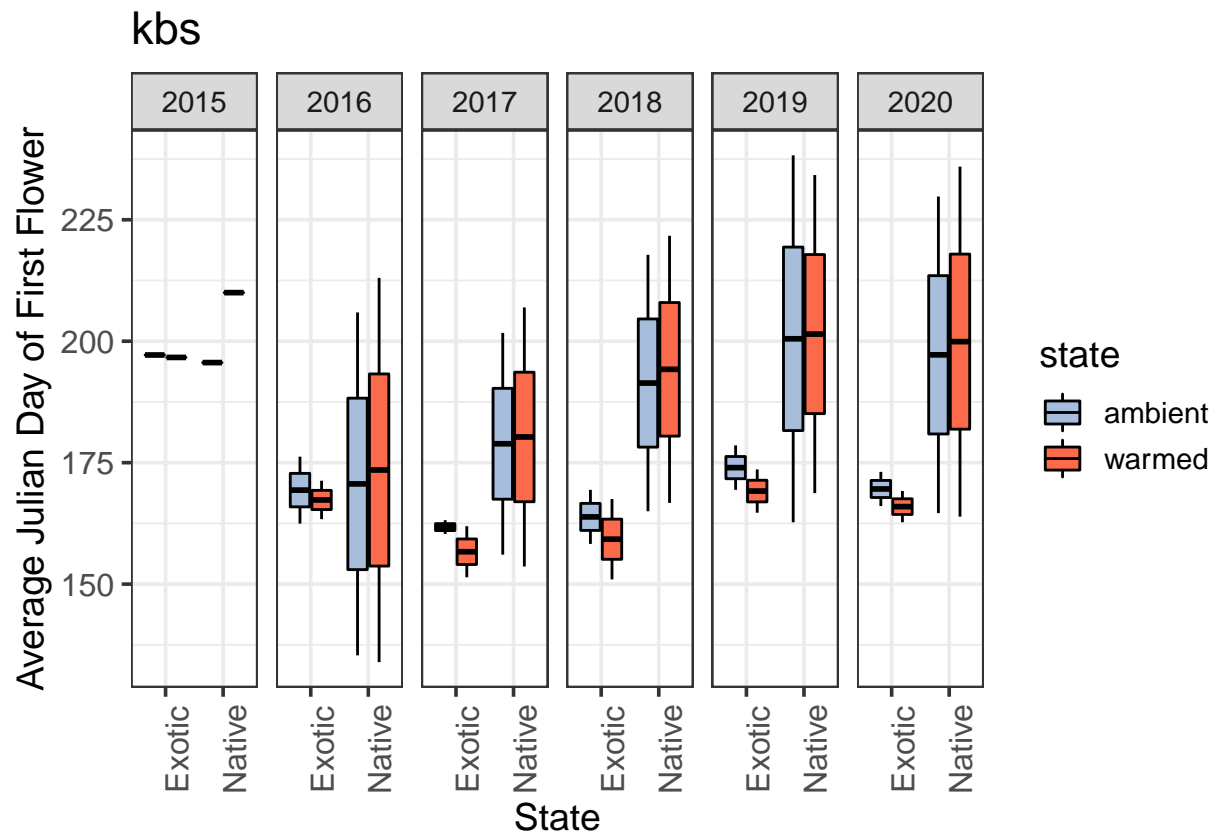


Boxplot

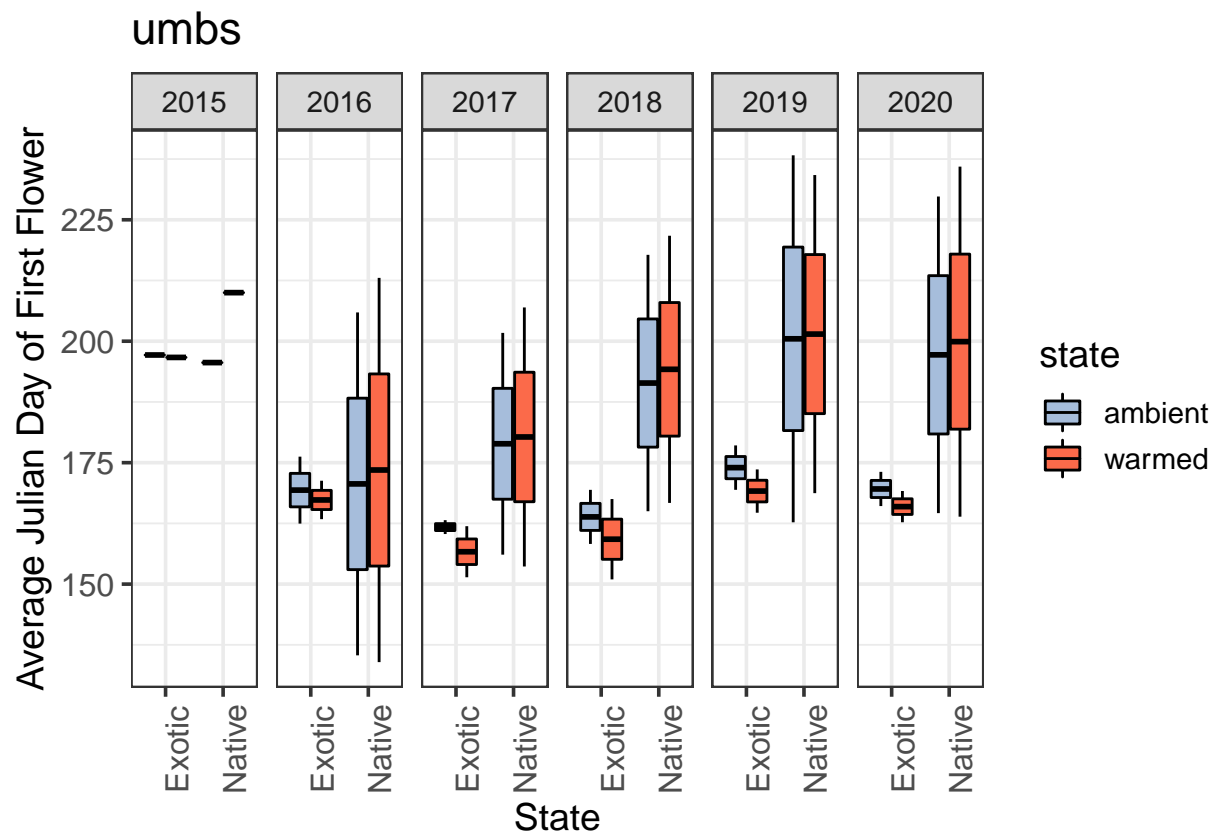
#

```
sum_org_boxp <- function(loc) {
  duration <- subset(sum_flwr_org, site == loc)
  return(ggplot(sum_flwr_org, aes(x = origin, y = avg_julian, fill = state)) +
    facet_grid(. ~ year) + geom_boxplot(color = "black") + labs(x = "State",
      y = "Average Julian Day of First Flower", title = loc) + scale_fill_manual(values = c("#a6bddb",
        "#fb6a4a")) + scale_x_discrete(labels = c(ambient = "A", warmed = "W")))
}

sum_org_boxp("kbs")
```

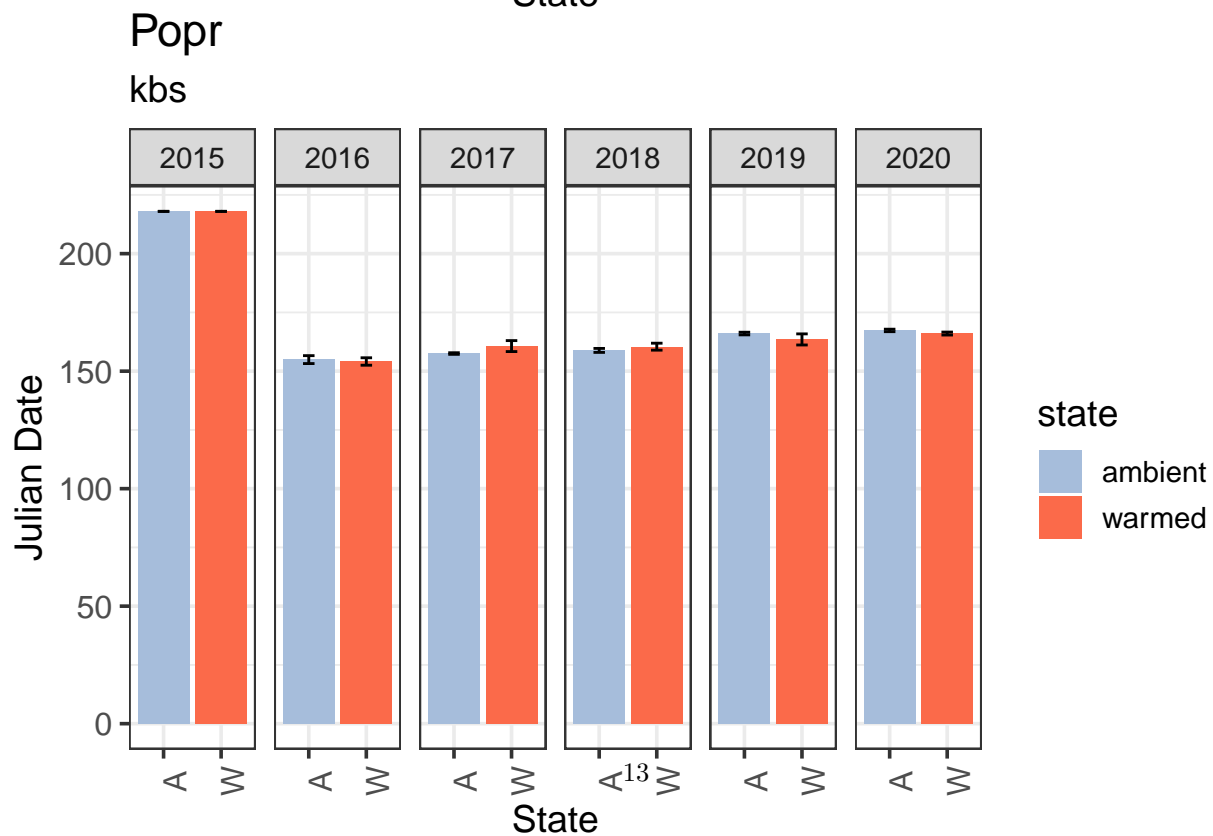
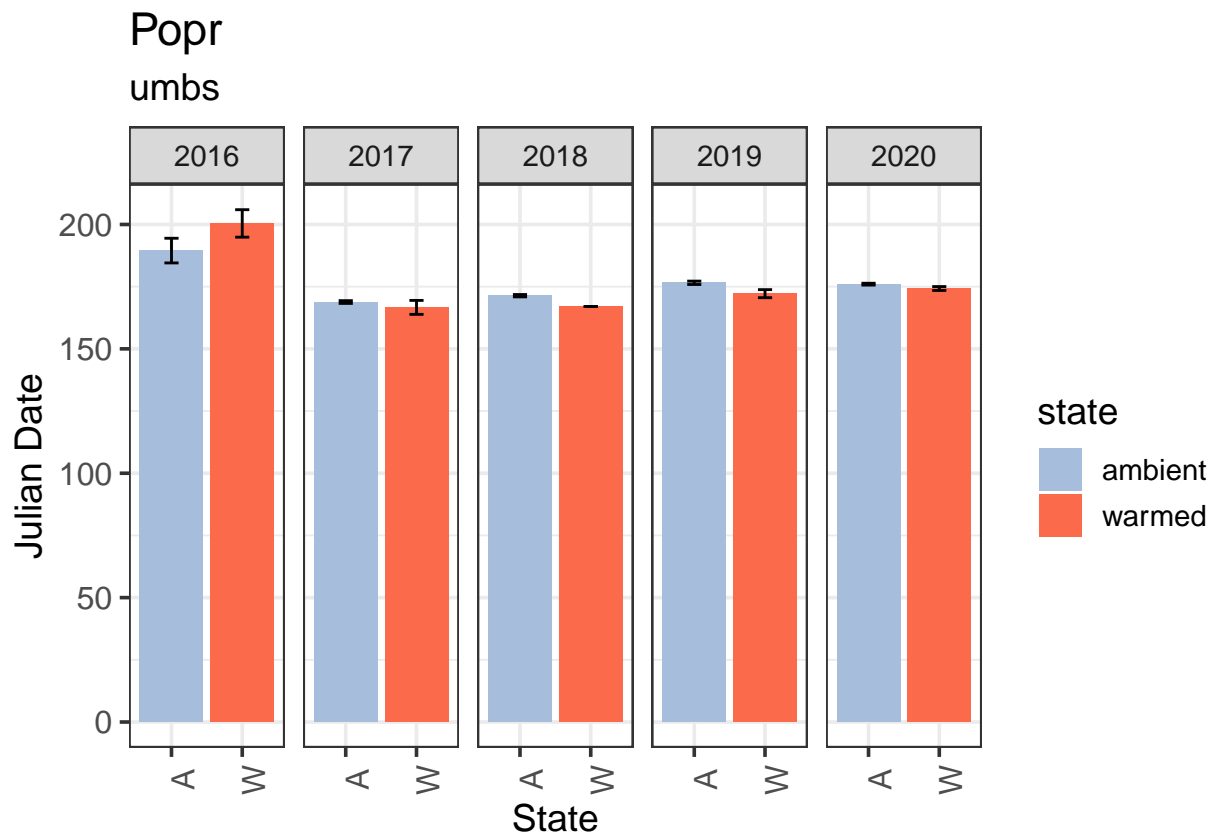


```
sum_org_boxp("umbs")
```

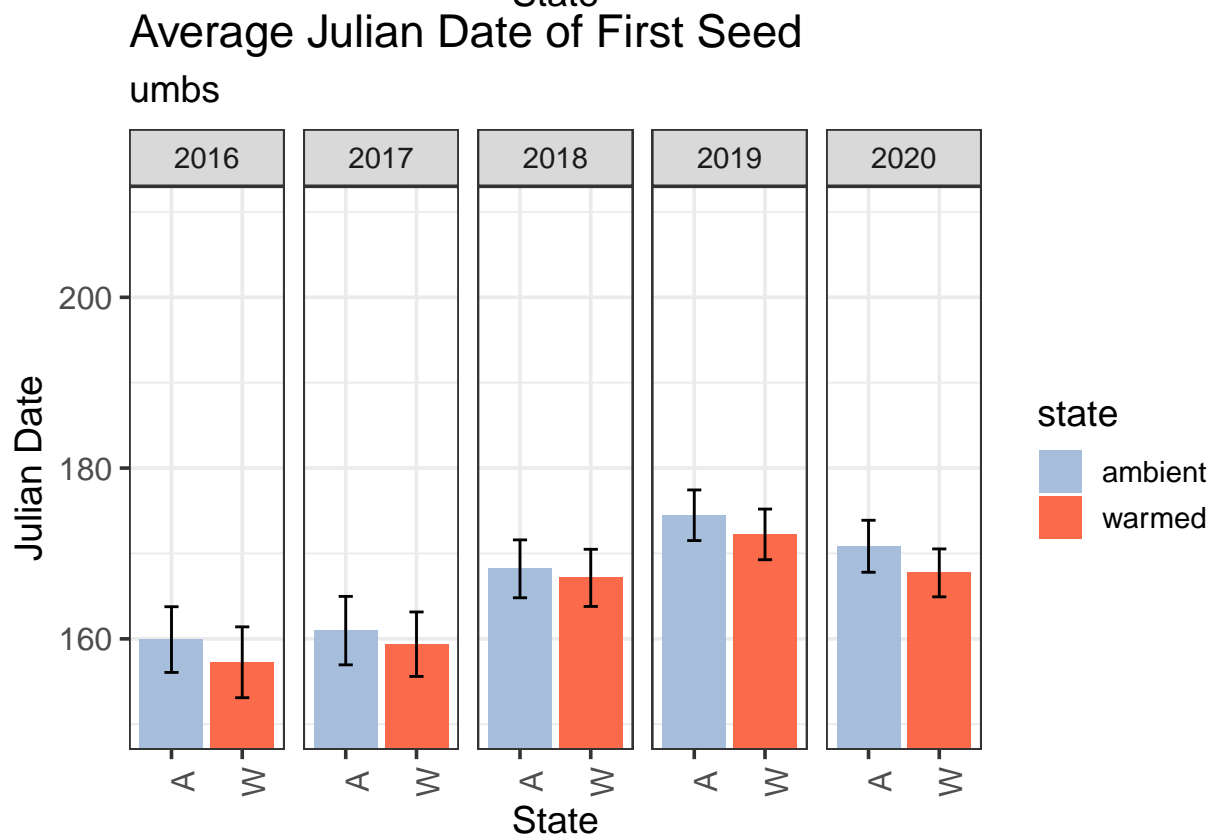
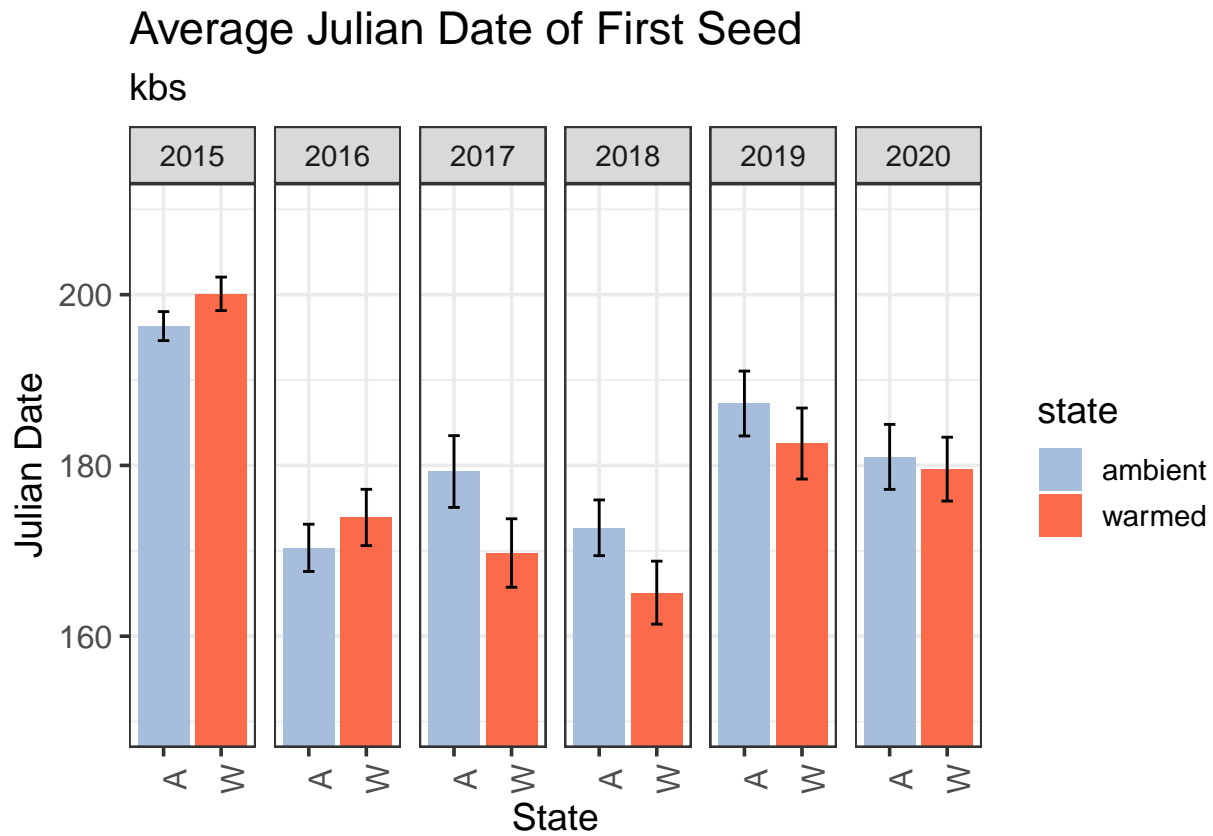


## Plots to Visualize Seed Set

Plots for a given species and site and it's mean julian day of first seed for every year of data collection



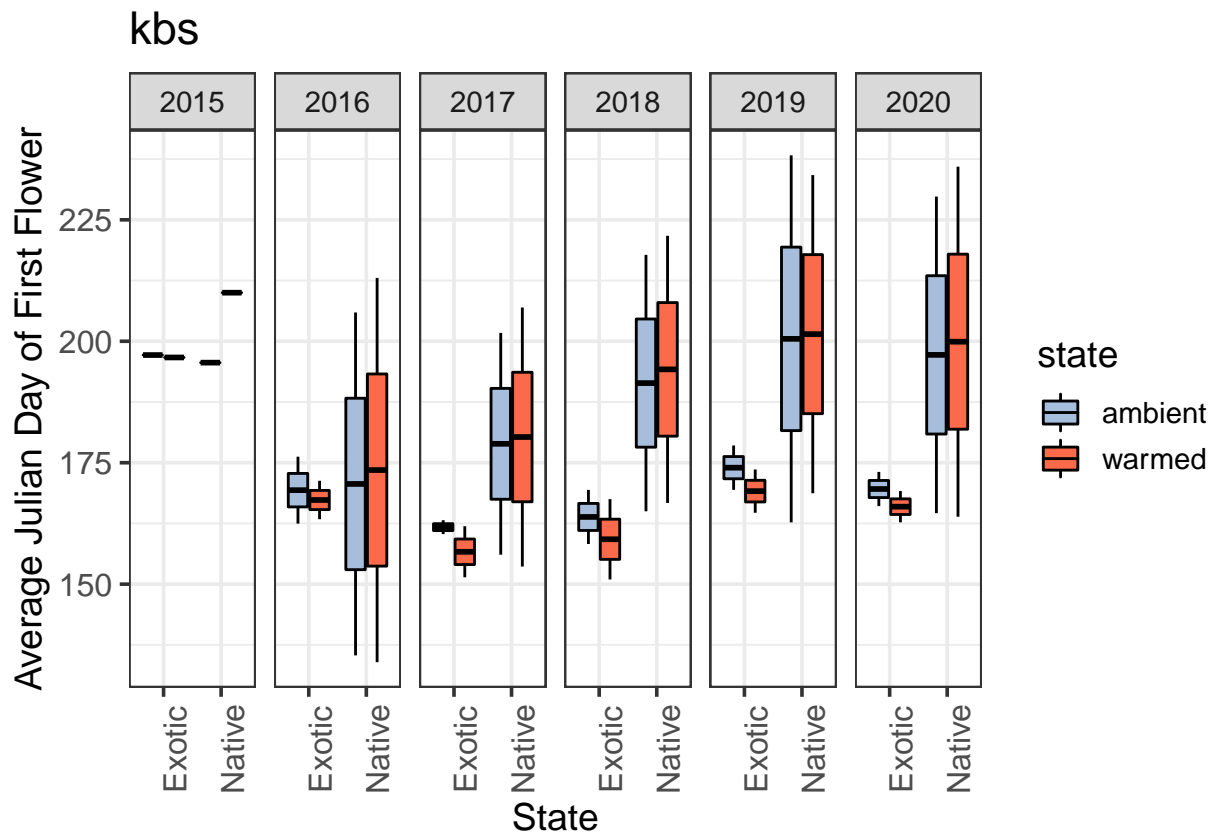
Plots for a given site and year for average first date of seed comparing ambient vs warmed plots



## Boxplot

```
sum_sd_boxp <- function(loc) {
  duration <- subset(sum_firstsd_site, site == loc)
  return(ggplot(sum_flwr_org, aes(x = origin, y = avg_julian, fill = state)) +
    facet_grid(. ~ year) + geom_boxplot(color = "black") + labs(x = "State",
    y = "Julian Day of Greenup", title = loc) + scale_fill_manual(values = c("#a6bddb",
    "#fb6a4a")) + scale_x_discrete(labels = c(ambient = "A", warmed = "W")))
}

sum_org_boxp("kbs")
```



```
sum_org_boxp("umbs")
```

