

Assignment 3 ggplot

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Loadig Data

I've used the following data sets: sierraclim, resthin.shallow, and resthin.deep. I've merged resthin.shallow and resthin.deep to obtain one single data base, which I've called thin_data

```
other <- data.frame(month = seq (1,12),
                    month_names = month.abb,
                    season =c("Fall","Fall","Winter","Winter","Winter",
                              "Spring","Spring","Spring","Summer","Summer",
                              "Summer","Fall"))

climate_Data <- read.table("./data/sierraclim.txt", header= T) %>%
  left_join(other)

## Joining, by = "month"

thinshallow <- read.table("./data/resthin.shallow.txt", header = T) %>%
plyr::rename(c(trans = "transshallow",
               evap = "evapshallow",
               psn = "psnshallow",
               plantc = "plantshallow"))

thin_data <- read.table("./data/resthin.deep.txt", header = T) %>%
plyr::rename(c(trans = "transdeep",
               evap = "evapdeep",
               psn = "psndeep",
               plantc = "plantdeep")) %>%
  left_join(thinshallow, by = c("scen","thin","shared","day","month","wy"))

get_legend<-function(myggplot){
  tmp <- ggplot_gtable(ggplot_build(myggplot))
  leg <- which(sapply(tmp$grobs, function(x) x$name) == "guide-box")
  legend <- tmp$grobs[[leg]]
  return(legend)
}
```

Plot 1

```
biomass_Pery1 <- thin_data %>%
  select(scen, thin, plantdeep, plantshallow) %>%
  gather(type, biomass, 3:4) %>%
  filter(thin == .05)

A <- ggplot(biomass_Pery1, aes(as.factor(x = scen), y = biomass, fill = type)) +
  geom_boxplot(col = "black") +
```

```

stat_summary(geom = "point", fun.y = "mean", color = "indianred1") +
xlab("Year") +
ylab("Biomass") +
theme_bw() +
removeGrid(x=TRUE, y=TRUE) +
scale_fill_manual(values = c("turquoise1", "turquoise4"), labels = c("Deep", "Shallow")) +
theme(legend.direction = "horizontal") +
annotate("text", x=0.8, y=6, label="A", colour="black", size=5, hjust=0.5) +
theme(axis.text = element_text(face = "bold", colour="black", size=9))

legend <- get_legend(A)

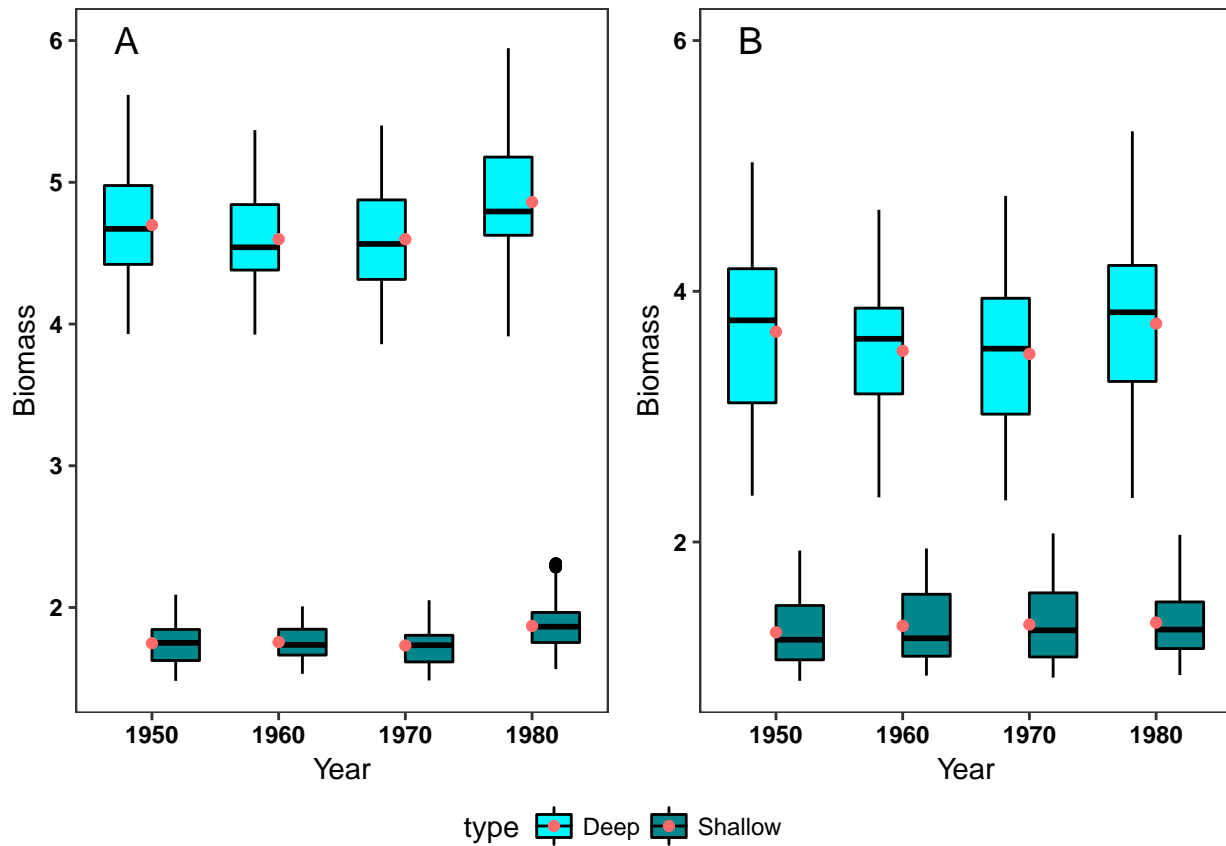
A <- A +
  theme(legend.position="none")

biomass_Pery2 <- thin_data %>%
  select(scen, thin, plantdeep, plantshallow) %>%
  gather(type, biomass, 3:4) %>%
  filter(thin == 40.00)

B <- ggplot(biomass_Pery2, aes(as.factor(x = scen), y = biomass, fill = type)) +
  geom_boxplot(col = "black") +
  stat_summary(geom="point", fun.y = "mean", color="indianred1") +
  xlab("Year") +
  ylab("Biomass") +
  theme_bw() +
  removeGrid(x=TRUE, y=TRUE) +
  scale_fill_manual(values = c("turquoise1", "turquoise4"), labels = c("Deep", "Shallow")) +
  theme(legend.position="none") +
  annotate("text", x=0.8, y=6, label="B", colour="black", size=5, hjust=0.5) +
  theme(axis.text = element_text(face = "bold", colour="black", size=9))

```

```
grid.arrange(A, B, legend, ncol=2, nrow = 2,
              layout_matrix = rbind(c(1,2), c(3,3)),
              widths = c(2.7, 2.7), heights = c(2.5, 0.2))
```



Plot 2

```
temp <- climate_Data %>%
  select(tmin,tmax, year, month_names, season) %>%
  filter(year == 1960 | year == 2013)

C <- ggplot(temp, aes(tmin, tmax))+
  geom_point(aes(shape = factor(season), colour = factor(year))) +
  xlab("Minimum Temperature (°C)") +
  ylab("Maximum Temperature (°C)") +
  theme_bw() +
  removeGrid(x=TRUE, y=TRUE) +
  labs(shape = "Season", colour = "Year")+
  scale_color_manual(values=c("lightsteelblue4", "orange2")) +
  theme(legend.box = "horizontal", legend.text = element_text(size = 9, face = "bold")) +
  theme(legend.title = element_text(face = "bold")) +
  theme(axis.text = element_text(face = "bold", colour="black", size=9))

legend2 <- get_legend(C)
```

```

C <- C + theme(legend.position="none")

D <- ggplot(temp, aes(tmin))+
  geom_density(aes(fill=factor(year)), size = 0.8, alpha =0.5 ) +
  xlab("Minimum Temperature (°C)") +
  ylab("Frequency") +
  theme_bw() +
  removeGrid (x=TRUE, y=TRUE) +
  theme(legend.position = "none") +
  theme(axis.text = element_text(face ="bold", colour="black", size=9)) +
  scale_fill_manual(values=c("lightsteelblue4", "orange2"))

E <- ggplot(temp, aes(tmax))+
  geom_density(aes(fill=factor(year)), size = 0.8, alpha =0.5 ) +
  xlab("Minimum Temperature (°C)") +
  ylab("Frequency") +
  theme_bw() +
  removeGrid(x=TRUE, y=TRUE) +
  theme(legend.position = "none") +
  theme(axis.text = element_text(face ="bold", colour="black", size=9)) +
  scale_fill_manual(values=c("lightsteelblue4", "orange2"))

grid.arrange(D, legend2, C, E, ncol=2, nrow=2,
  widths=c(2.8, 1.8), heights=c(2.5, 3))

```

