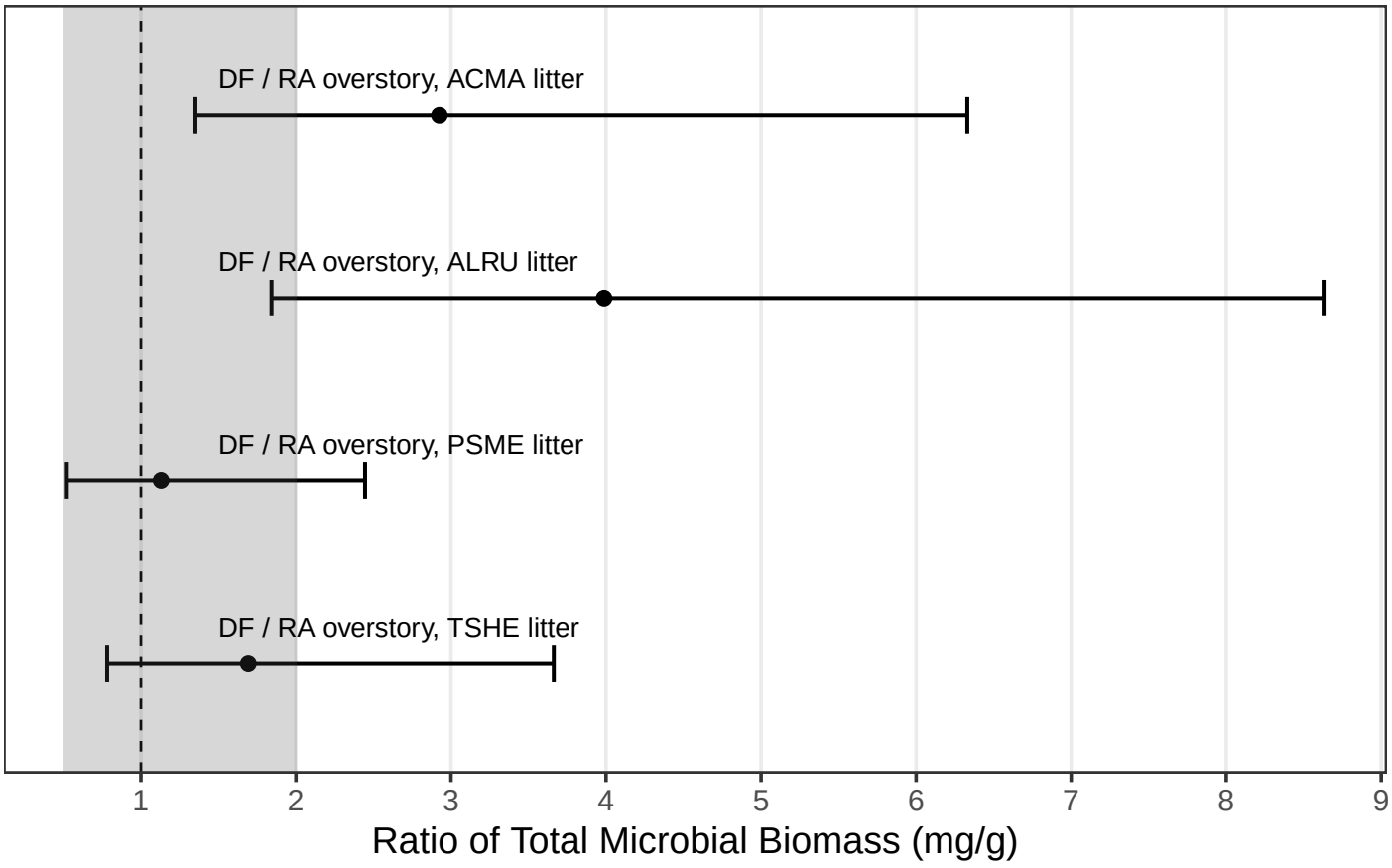
FES 524 Winter 2022 Lab 5

Bonus graphics

Today we will make a second plot and stack it with the plot we made at the end of Lab 5 to get a single figure. The figure we will build on is named `g1`.

This is what the figure we'll be working with looked like at the end of Lab 5.

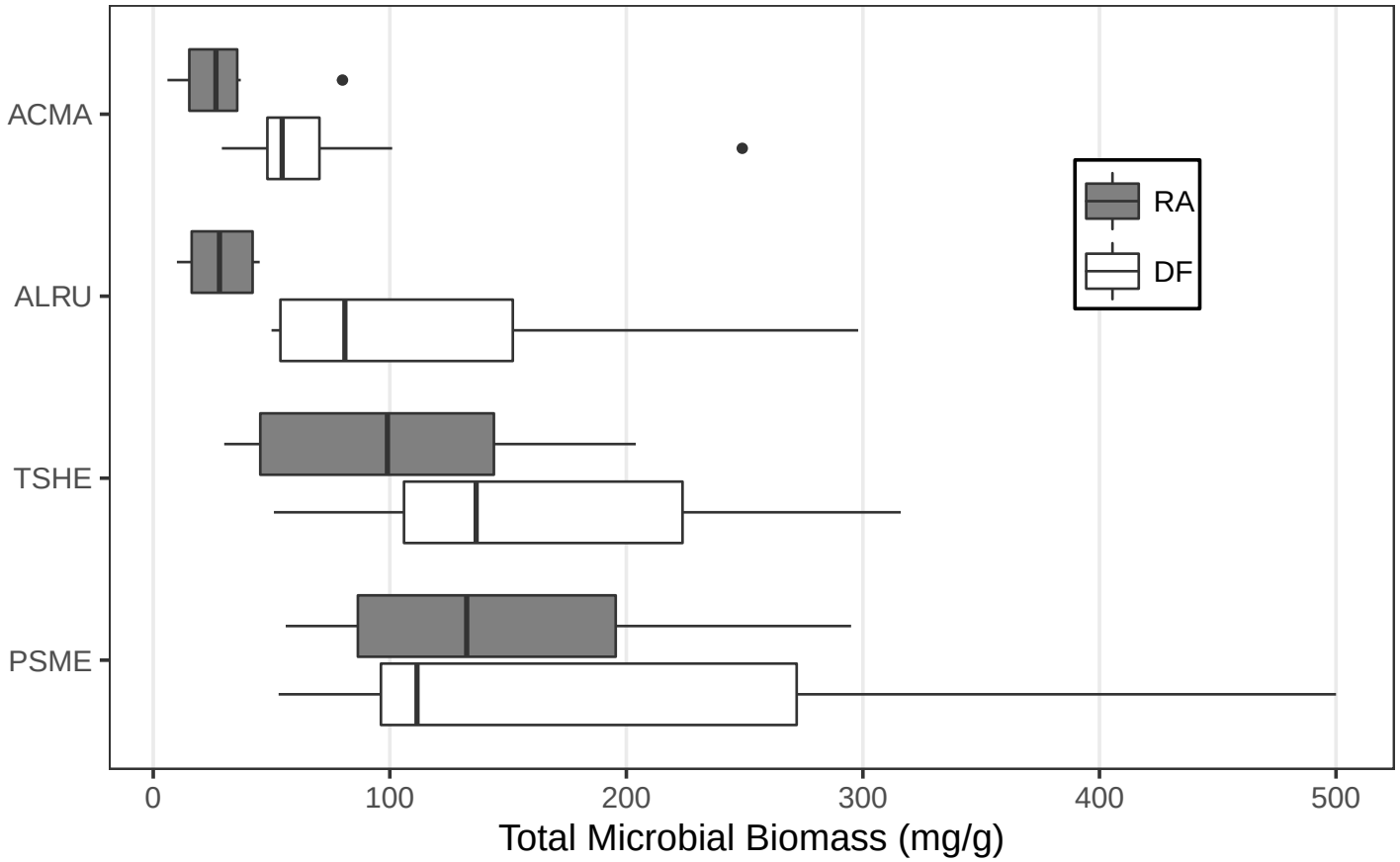


This week I'll make a second graphic of the raw data via boxplots and combine with my results graphic. I will make horizontal boxplots.

I do lots of tweaks here, in particular with the legends. That work is done in `theme()`.

```
( g2 = ggplot(dbiomass, aes(x = biomass, y = litterspp, fill = overstory) ) +
       geom_boxplot() + # Make horizontally dodged boxplots
       theme_bw(base_size = 15) + # increase base size of text
       scale_fill_grey(start = 1, end = .5, # Use greys for fill
                       guide = guide_legend(reverse = TRUE) ) + # reverse legend box
       labs(x = "Total Microbial Biomass (mg/g)",
            y = NULL) +
       theme(panel.grid.minor = element_blank(),
             panel.grid.major.y = element_blank(),
             legend.position = c(.8, .7),
             legend.background = element_rect(color = "black"), # box around legend
             legend.title = element_blank(), # remove legend title
             legend.key.size = unit(1, "cm"), # increase legend size
             legend.margin = margin(t = -5, r = 2, b = 1, l = 1), # narrower margins
```

```
        legend.text = element_text(margin = margin(l = -5) ) ) + # move text left
    scale_y_discrete(limits = rev( unique(dbiomass$litterspp) ) ) ) # reverse y axis
```



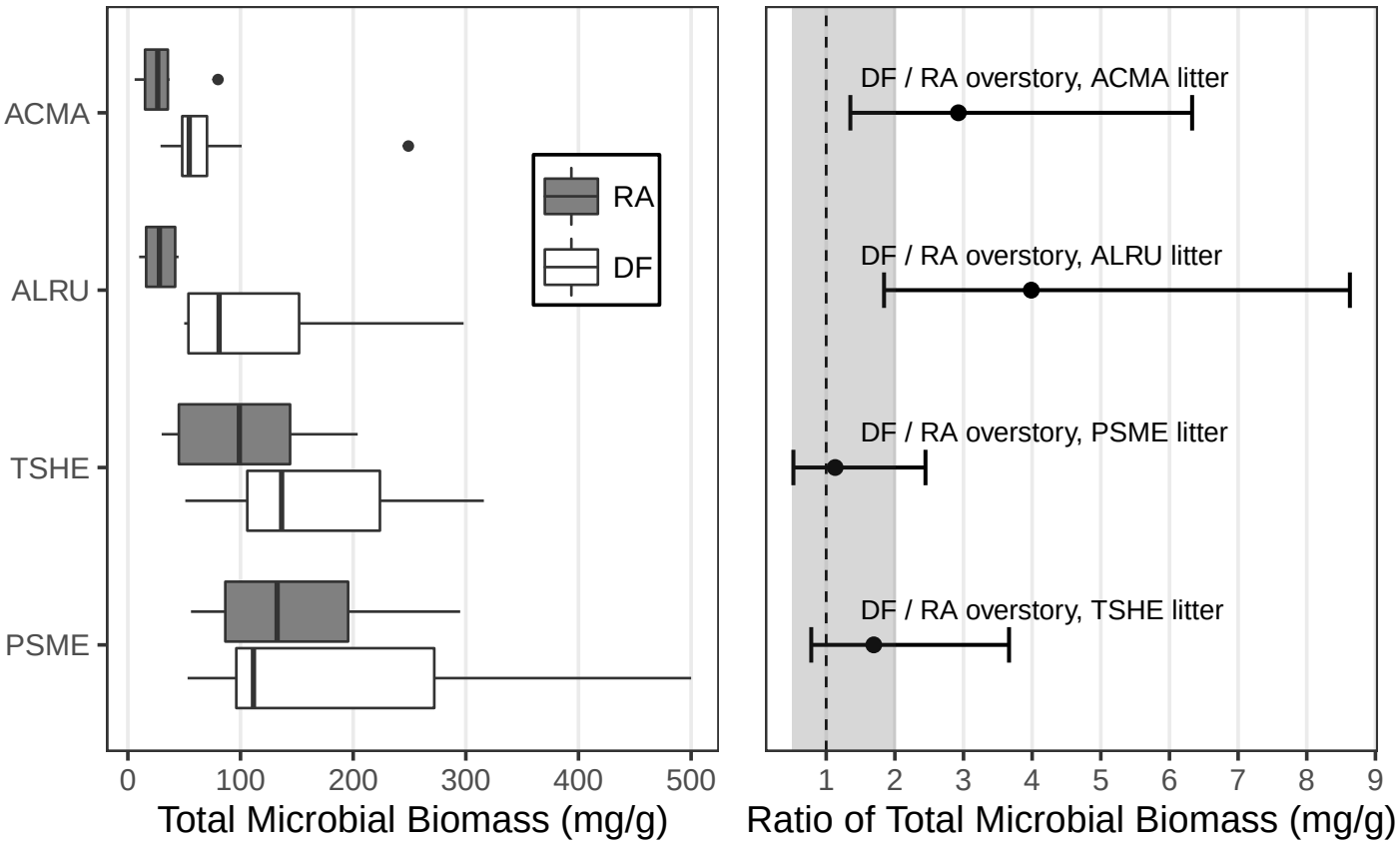
Arranging the two plots together into one figure is an option for these. It makes the caption harder to write but gets the plots together into one.

The **patchwork** package has some really nice options for putting multiple plots together, along with a vignette to help you get started: https://patchwork.data-imaginist.com/articles/guides/assembly.html.

```
library(patchwork)
```

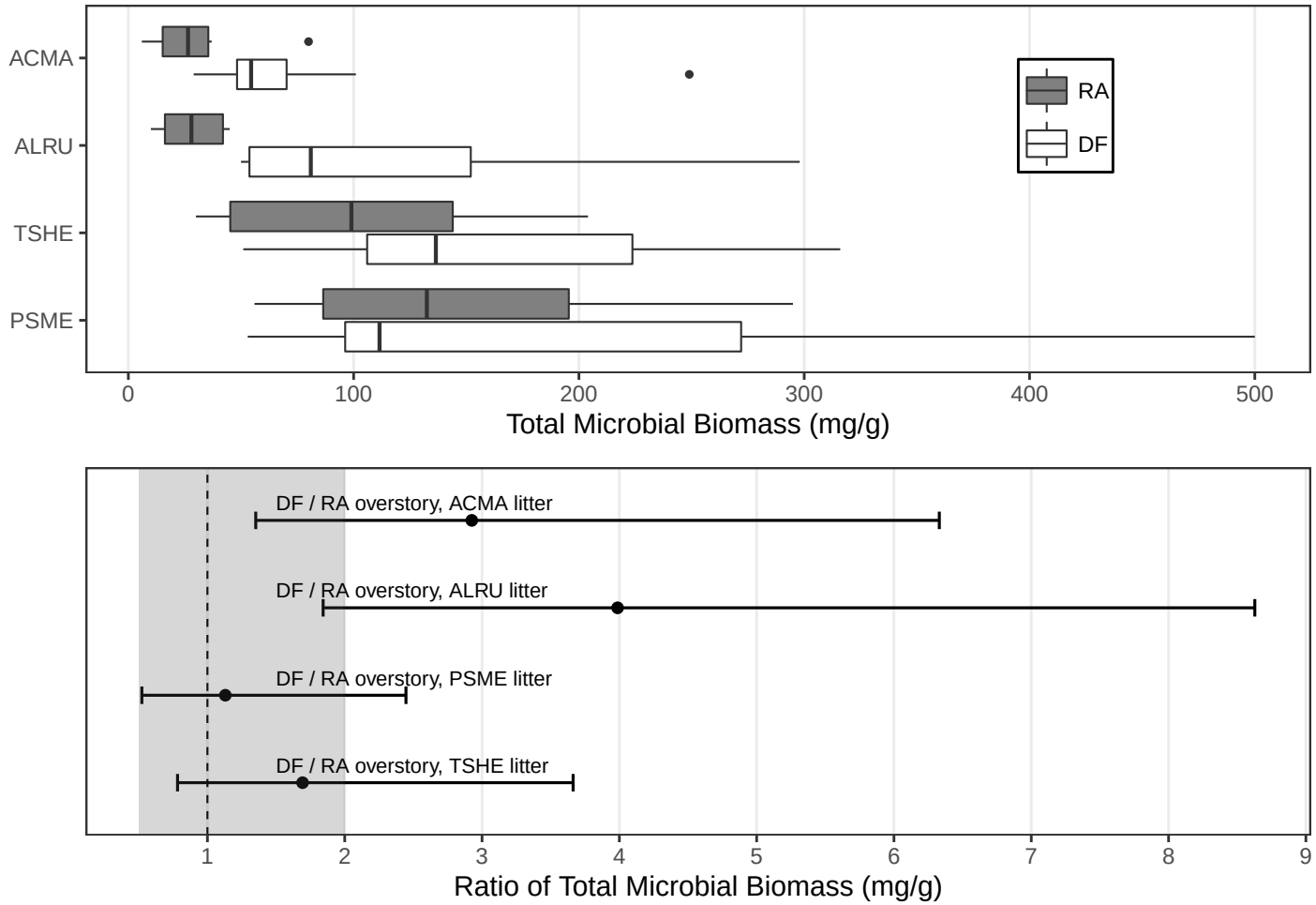
To *patchwork* two plots together side-by-side, use `+`.

```
g2 + g1
```



To stack two plots together, use `/`. You can see that **patchwork** employs a lot of "magic" to align plot axes.

```
g2 / g1
```

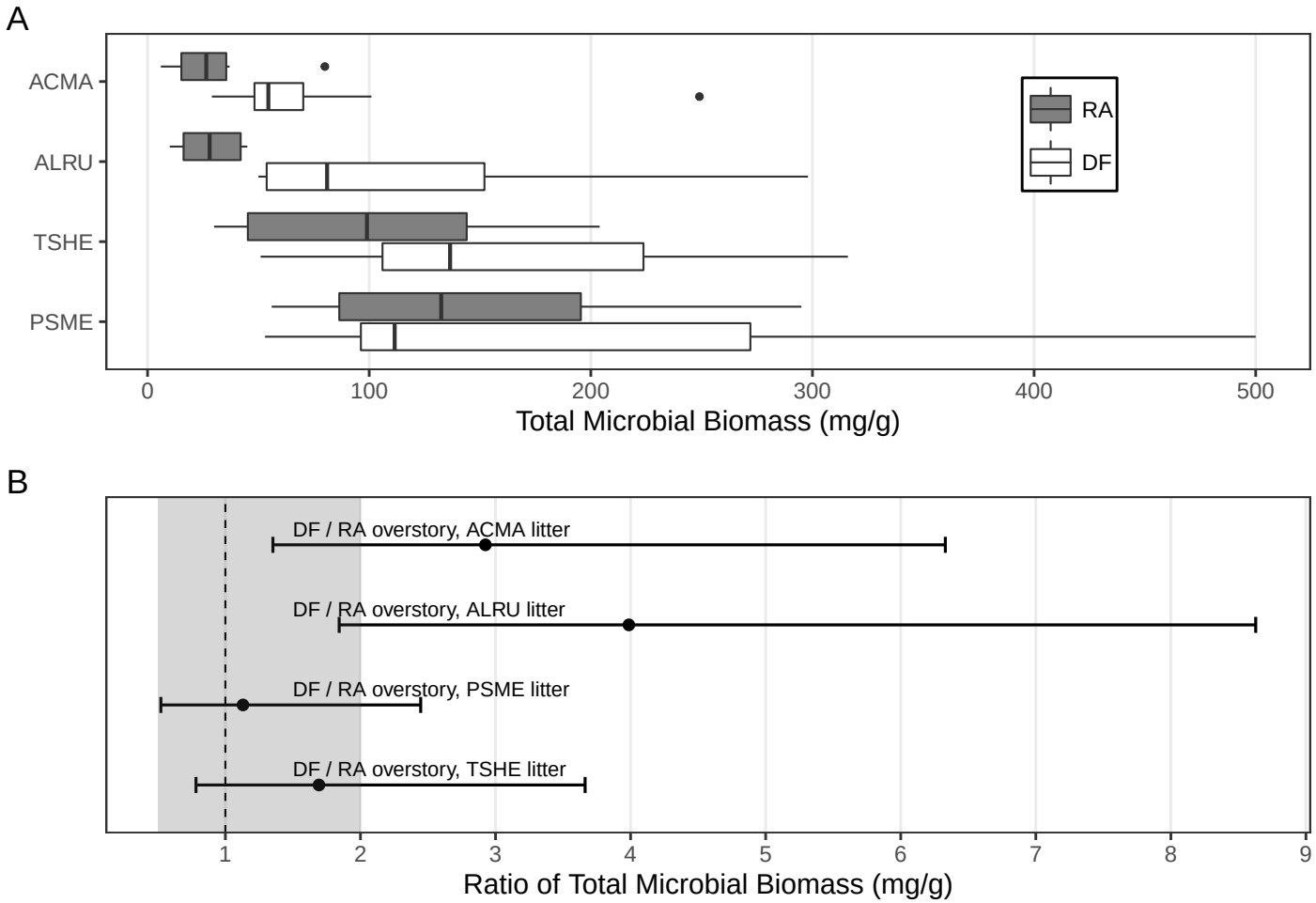


The results can be named for saving.

```
g3 = g2 / g1
```

You can add letter tags to each plot using `plot_annotation()`. See more examples in the "tagging" vignette, https://patchwork.data-imaginist.com/articles/guides/annotation.html#tagging-1.

```
g3 + plot_annotation(tag_levels = 'A')
```



Saving plots based on **patchwork** still works with `ggsave()`. In the example here we'll save our final figure as a PNG files named `lab5figure` at a fairly large size.

```
ggsave("lab5figure.png", g3 + plot_annotation(tag_levels = 'A'),
       width = 10, height = 7)
```