Analysis of Ecosystems homework No. 2

Put your name here

21 January 2019

Loaded packages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ggplot2 | plyr | pander | s20x | pacman |

# Graph critique

The following figure comes from a [recent paper in Nature Ecology & Evolution](https://www.nature.com/articles/s41559-018-0752-7) by Clements & Hay. Offer a critique of these graphs, in terms of what we’ve read and discussed in class. What are some good elements of the graphs? What is poor, and how could it be improved?

# Re-draw graphs

## Load the data

Data for Fig. b are available in .

* Load these data into .
* Show the structure of the data.
* Give your own assessment/description of the variables.

## Distribution graphs

* Present one or more graphs that redraw Fig. b in ways that emphasize the distribution of the data.
* Briefly describe how these visualizations differ from Fig. b. Are there different patterns?

## Calculate summary statistics

Calculate meaningful summary statistics that would be useful for comparing the treatment effect as presented in Fig. b.

## Graph the mean effect

Present a graph with means and an appropriate measure of variance that represents the test conducted in the P-values in Fig. b. Maximize your ratio.

The bottom graph is a better way to look at the means. It is arguably disingenuous to show an overall mean for each treatment when in fact the study design has an obvious hierarchy: the sample sizes don’t reflect just a bunch of corals, but instead the corals were grouped as replicates within discrete plots. We might then be interested in variability among plots, as well as among treatments.

# Reflection

Reflect on the different ways these data can be presented. Some thoughts include:

* How are they visually different?
* How are they different in terms of data representation?
* Do the different ways of visualizing these data affect your interpretation in terms of the hypothesis (difference among treatments)?

### Session info

R version 3.5.2 (2018-12-20) Platform: x86\_64-w64-mingw32/x64 (64-bit) Running under: Windows 10 x64 (build 17763)

Matrix products: default

locale: [1] LC\_COLLATE=English\_United States.1252 [2] LC\_CTYPE=English\_United States.1252  
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[5] LC\_TIME=English\_United States.1252

attached base packages: [1] stats graphics grDevices utils datasets methods base

other attached packages: [1] ggplot2\_3.1.0 plyr\_1.8.4 pander\_0.6.3 s20x\_3.1-27 pacman\_0.5.0