Analysis of Ecosystems homework week 3

Data visualization

The assignment

Graph critique

The following figure comes from a recent paper in Nature Ecology & Evolution 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?

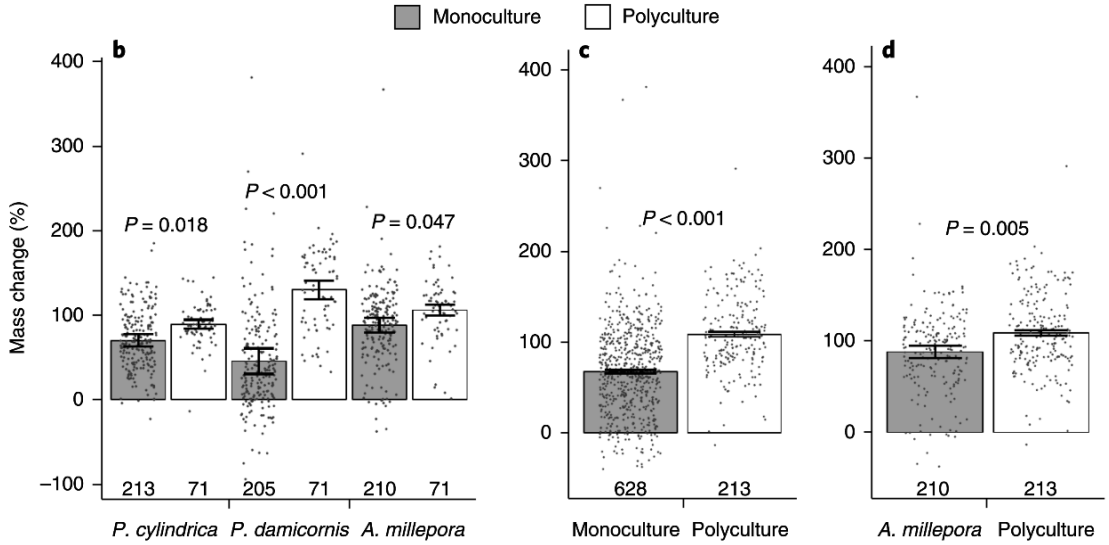

Figure 1: Clements & Hay. 2019. Biodiversity enhances coral growth, tissue survivorship and suppression of macroalgae. Nature ecology & evolution. DOI: https://doi.org/10.1038/s41559-018-0752-7

Re-draw graphs

Load the data

Data for Fig. 1b are available in `ClementsHay2019.csv`.

- Load these data into `R`.
- Show the structure of the data.
- Give your own assessment/description of the variables.
- *Does anything about the data make you re-think your answer above??*

Distribution graphs

- Present one or more graphs that redraw Fig. 1b in ways that emphasize the distribution of the data.
- Briefly describe how these visualizations differ from Fig. 1b. Are there different patterns?

Calculate summary statistics

Calculate meaningful summary statistics that would be useful for comparing the treatment effect as presented in Fig. 1b.

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. 1b. Maximize your $data : ink$ ratio.

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)?