

My title*

My subtitle if needed

First author

Another author

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First sentence. Second sentence. Third sentence. Fourth sentence.

1 Introduction

You can and should cross-reference sections and sub-sections. We use R Core Team (2023) and Wickham et al. (2019).

The remainder of this paper is structured as follows. Section 2....

2 Data

Some of our data is of penguins (Figure 4), from Horst, Hill, and Gorman (2020).

We are interested in the height of Lake Huron (Figure 1).

We are interested in the height of black cherry trees (Figure 2).

We are interested in making the penguins graph look bad. (Figure 3)

This is a table of the average speed of light experiments (**averagelightspeed?**)

Table 1: Michelson data estimating the speed of light (km/sec, with 299000 subtracted), based on five experiemnts in 1879 on the speed of light, averaged over 20 runs

Experiment Number	Average Measurement (km/s)
1	909
2	856

*Code and data are available at: [LINK](#).

Table 1: Michelson data estimating the speed of light (km/sec, with 299000 subtracted), based on five experiemnts in 1879 on the speed of light, averaged over 20 runs

Experiment Number	Average Measurement (km/s)
3	845
4	820
5	832

Talk more about it.

And also planes (Figure 5). (You can change the height and width, but don't worry about doing that until you have finished every other aspect of the paper - Quarto will try to make it look nice and the defaults usually work well once you have enough text.)

Talk way more about it.

3 Model

The goal of our modelling strategy is twofold. Firstly,...

3.1 Model set-up

Define y_i as the number of seconds that the plane remained aloft. Then β_i is the wing width and γ_i is the wing length, both measured in millimeters.

$$y_i | \mu_i, \sigma \sim \text{Normal}(\mu_i, \sigma) \quad (1)$$

$$\mu_i = \alpha + \beta_i + \gamma_i \quad (2)$$

$$\alpha \sim \text{Normal}(0, 2.5) \quad (3)$$

$$\beta \sim \text{Normal}(0, 2.5) \quad (4)$$

$$\gamma \sim \text{Normal}(0, 2.5) \quad (5)$$

$$\sigma \sim \text{Exponential}(1) \quad (6)$$

We run the model in R (R Core Team 2023).

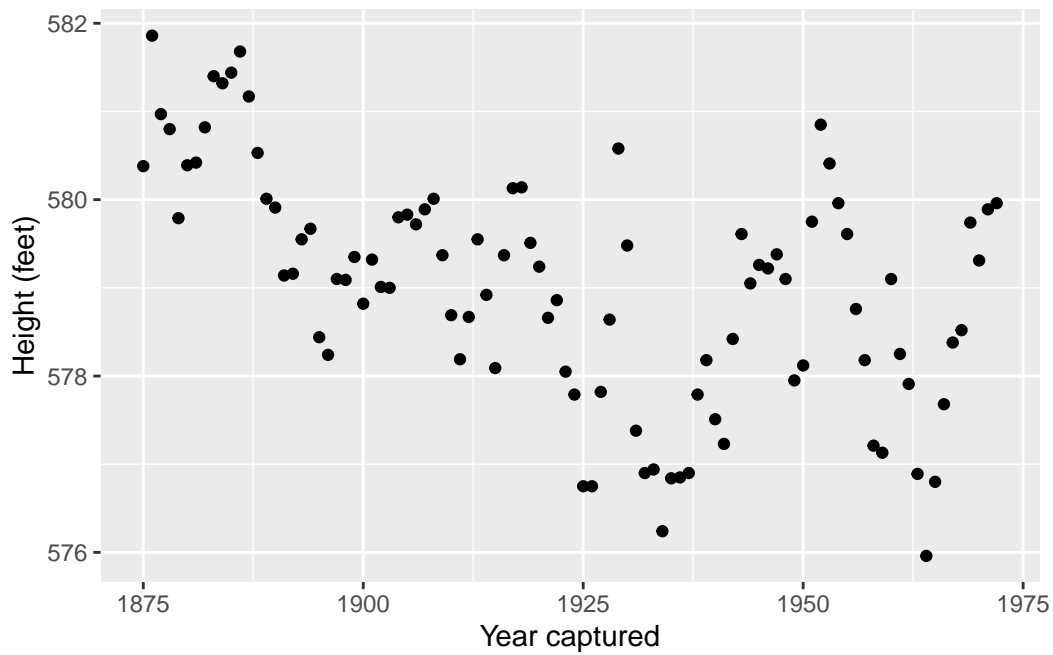


Figure 1: Annual measurements of the level, in feet, of Lake Huron 1875–1972.

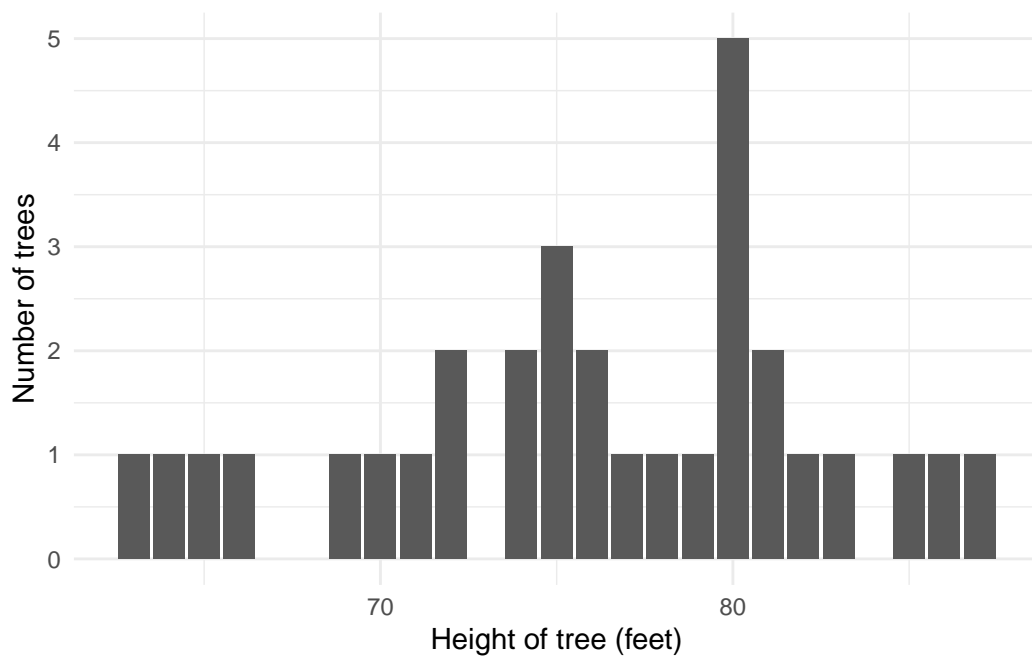


Figure 2: Provides measurements of the height in 31 felled black cherry trees.

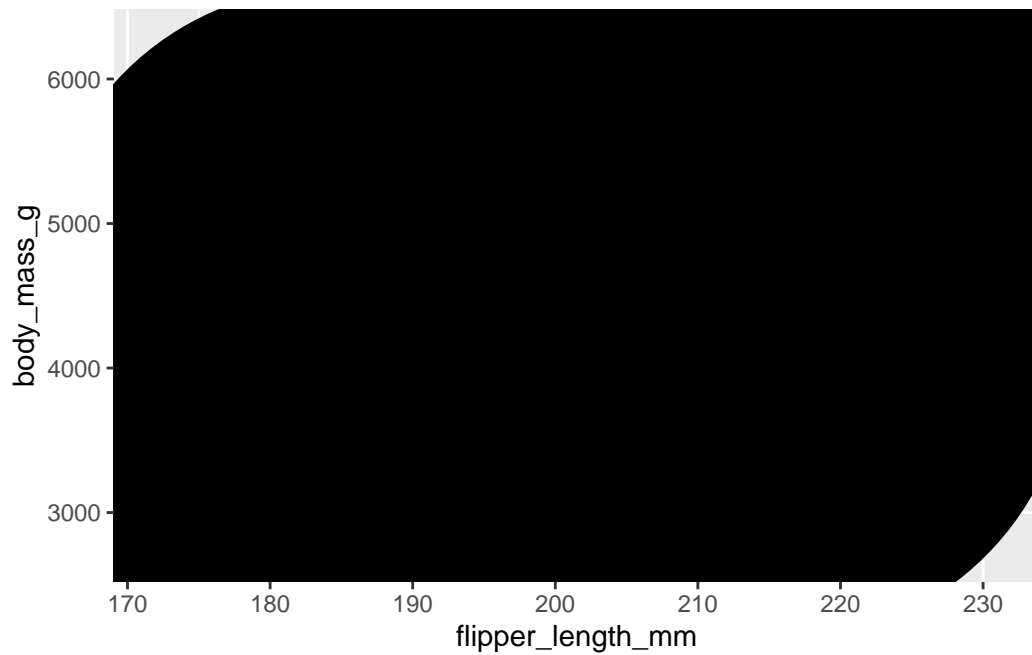


Figure 3: Flipper length and body mass for Adelie, Chinstrap and Gentoo Penguins.

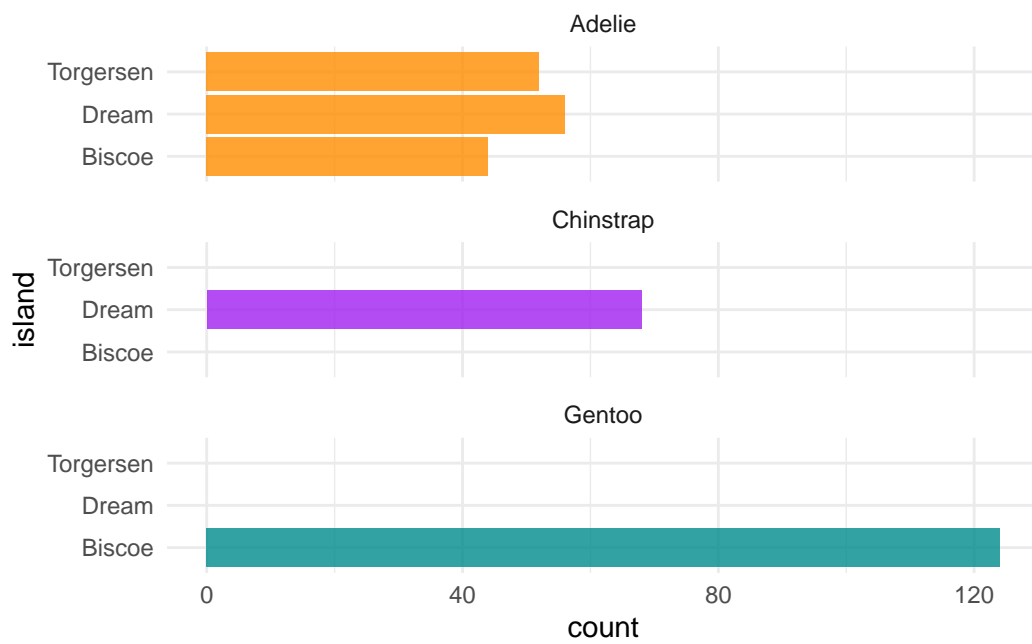


Figure 4: Bills of penguins

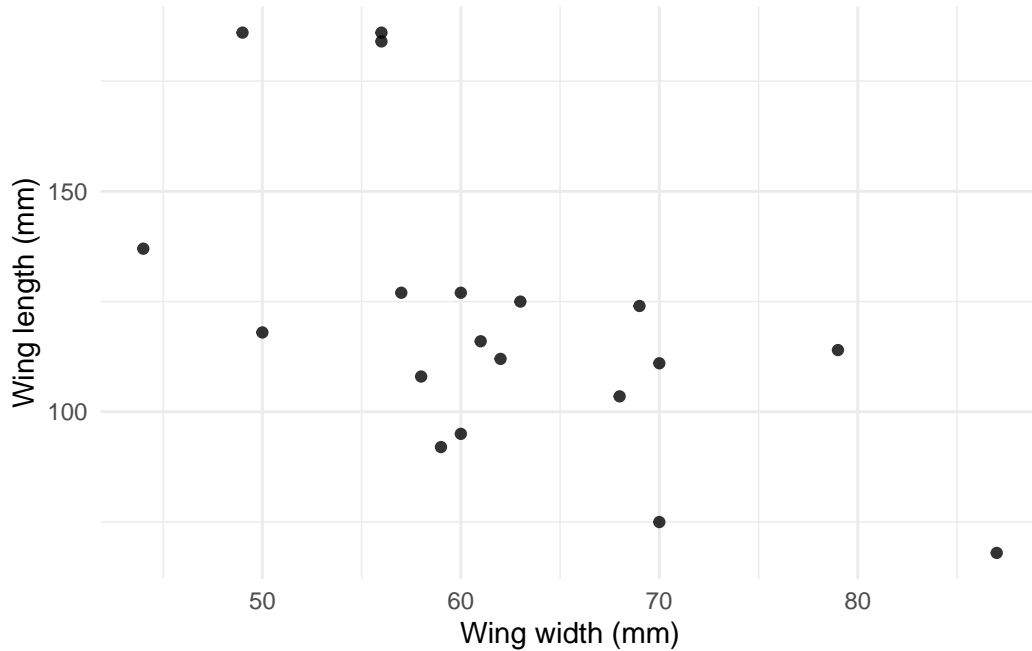


Figure 5: Relationship between wing length and width

3.1.1 Model justification

We expect a positive relationship between the size of the wings and time spent aloft. In particular...

We can use maths by including latex between dollar signs, for instance θ .

4 Results

Our results are summarized in `?@tbl-modelresults`.

5 Discussion

5.1 First discussion point

If my paper were 10 pages, then should be be at least 2.5 pages. The discussion is a chance to show off what you know and what you learnt from all this.

5.2 Second discussion point

5.3 Third discussion point

5.4 Weaknesses and next steps

Weaknesses and next steps should also be included.

Appendix

A Additional data details

References

- Horst, Allison Marie, Alison Presmanes Hill, and Kristen B Gorman. 2020. *Palmerpenguins: Palmer Archipelago (Antarctica) Penguin Data*. <https://doi.org/10.5281/zenodo.3960218>.
- R Core Team. 2023. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.
- Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Grolmund, et al. 2019. "Welcome to the tidyverse." *Journal of Open Source Software* 4 (43): 1686. <https://doi.org/10.21105/joss.01686>.