

The difference in mass between subspecies of common chaffinch, *Fringilla coelebs*

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Introduction

A number of [subspecies of the common chaffinch, *Fringilla coelebs*](#), have been described based principally on the differences in the pattern and colour of the adult male plumage (Suárez et al. 2009). Two of groups of these subspecies are the “coelebs group” (Figure 1a) that occurs in Europe and Asia and the “canariensis group” (Figure 1b) that occurs on the Canary Islands.



Figure 1: Adult male *Fringilla coelebs* of the coelebs group on the left (Andreas Trepte, CC BY-SA 2.5 <https://creativecommons.org/licenses/by-sa/2.5>, via Wikimedia Commons) and of the canariensis group on the right (H. Zell, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons).

This study sought to determine whether the two subspecies differ in mass. The raw data are in File [S1](#).

Methods

We randomly sampled 20 *F. c. coelebs* males and 20 *F. c. palmae* males and determined their mass with spring scales. Analysis was carried out with R version 4.3.1 (R Core Team 2023) and tidyverse (Wickham et al. 2019) packages.

Results

Canariensis ($\bar{x} \pm s.e.$: 22.27 ± 0.48 g) have significantly higher mass than coelebs (20.48 ± 0.48 g) ($t = 2.65$; $d.f. = 38$; $p = 0.01$). See Figure [2](#)

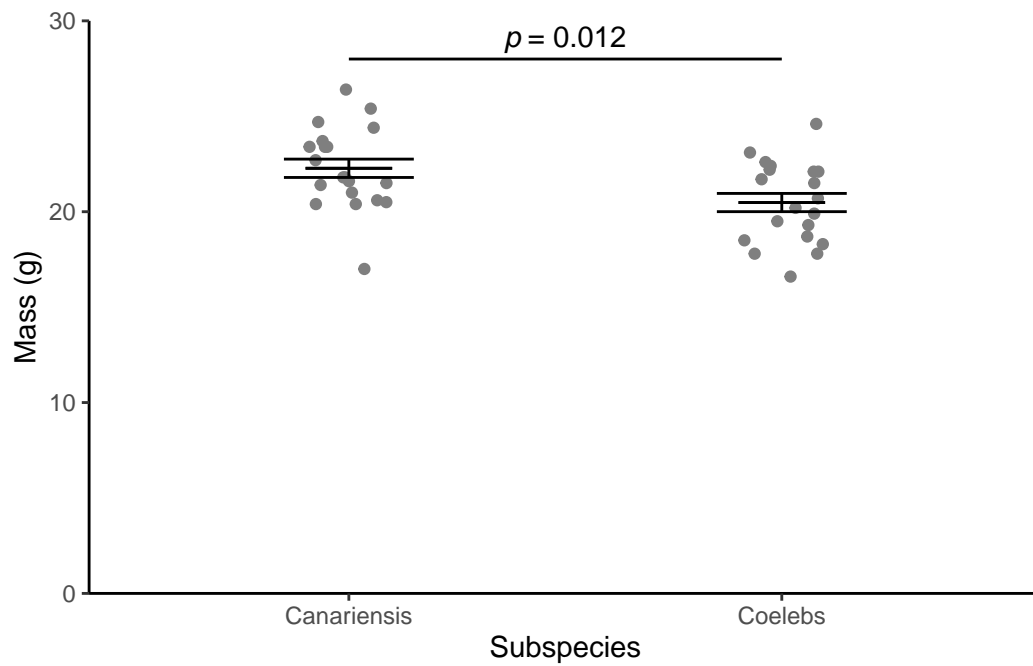


Figure 2: **Canariensis chaffinches are heavier than Coelebs chaffinches.** The mean mass of 20 randomly sampled males from each subspecies was determined. Error bars are ± 1 standard error. Canariensis chaffinches were significantly heavier than Coelebs ($t = 2.65$; $d.f. = 38$; $p = 0.01$). Data analysis was conducted in R (R Core Team 2023) with tidyverse packages (Wickham et al. 2019).

There is another figure showing the distribution of the data in Figure 3 presented here only to demonstrate the auto numbering of figures. The same figure is in “Supplemental Figures”. See Figure S1

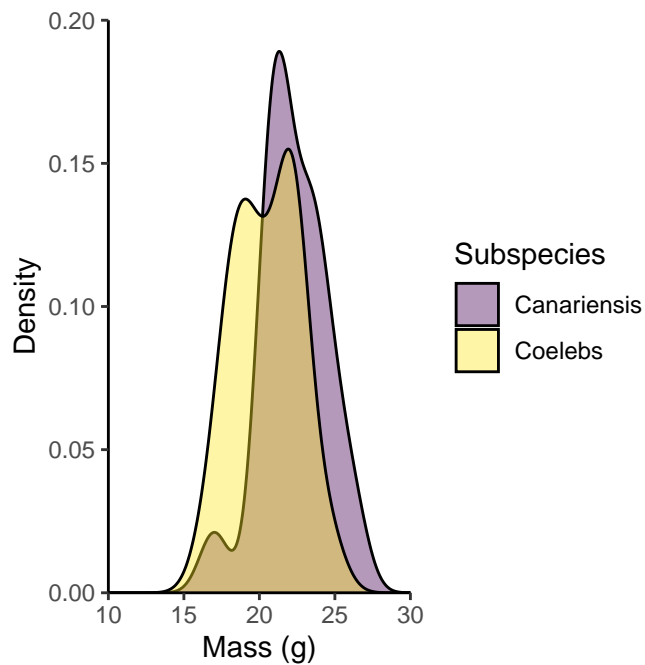


Figure 3: Unnecessary extra figure to demonstrate the autonumbering.

These results are gratuitously reproduced in Table 1 just to include a table.

Table 1: Summary of mass(g) for the two subspecies of chaffinch.

Subspecies	Mean	Sd	N	Se
Canariensis	22	2.1	20	0.48
Coelebs	20	2.1	20	0.48

I have created a mutli-column figure with mixed content. Take a look at Figure 4. You can see two histograms in Figure 4a and Figure 4b. There is also a photo of a chaffinch in Figure 4c.

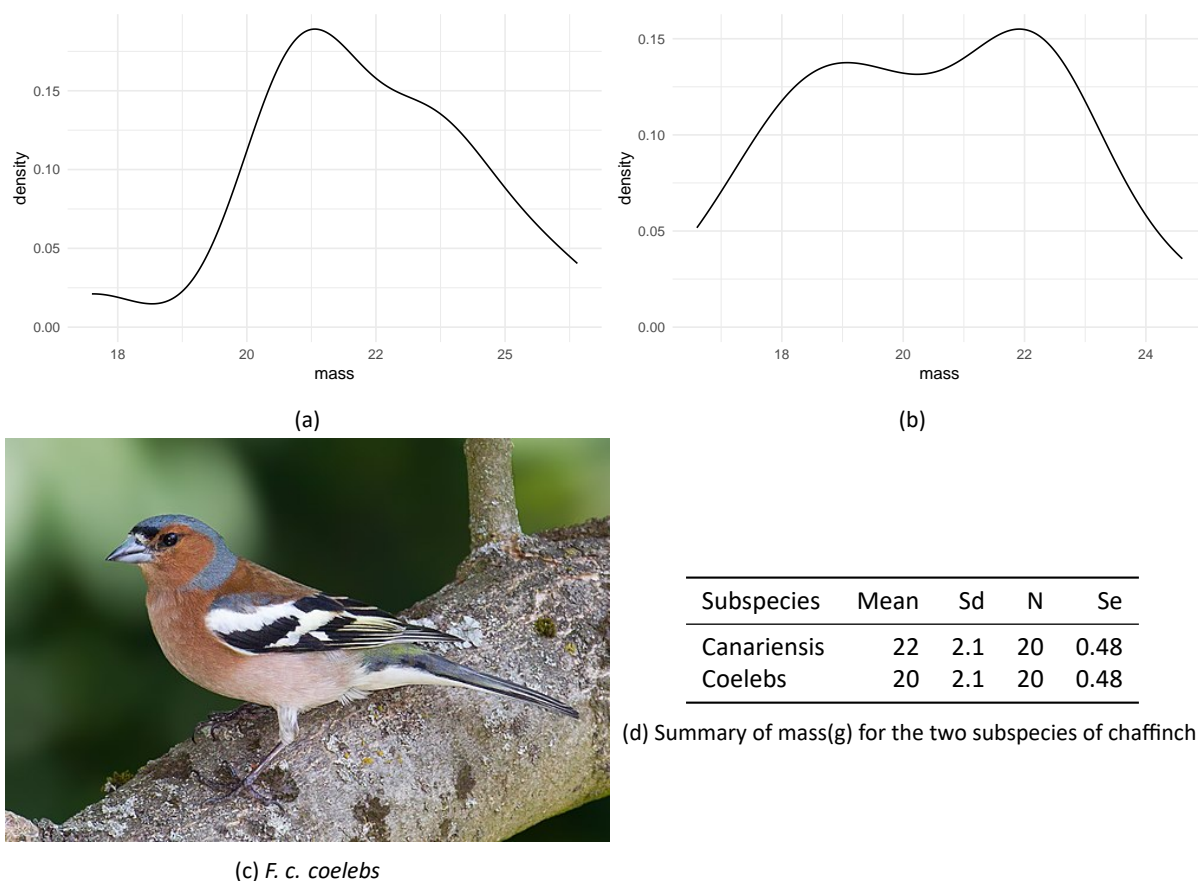


Figure 4: A figure with a some plots and a photo. There's even a table in there although, IMO tables should not be in figures, but placed separately. I had to use the fig- prefix in the label to get make it be treated like a figure with caption below etc.

Discussion

Here we pick up points from the introduction.

References

- R Core Team. 2023. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.
- Suárez, Nicolás M., Eva Betancor, Tilman E. Klassert, Teresa Almeida, Mariano Hernández, and José J. Pestano. 2009. "Phylogeography and Genetic Structure of the Canarian Common Chaffinch (*Fringilla Coelebs*) Inferred

with mtDNA and Microsatellite Loci.” *Molecular Phylogenetics and Evolution* 53 (2): 556–64. <https://doi.org/10.1016/j.ympev.2009.07.018>.

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D’Agostino McGowan, Romain François, Garrett Grolemond, et al. 2019. “Welcome to the {Tidyverse}” 4: 1686. <https://doi.org/10.21105/joss.01686>.

Supplemental

Files

File S1

[chaff.txt](#)

File S2

[example-pdf.pdf](#)

Figures

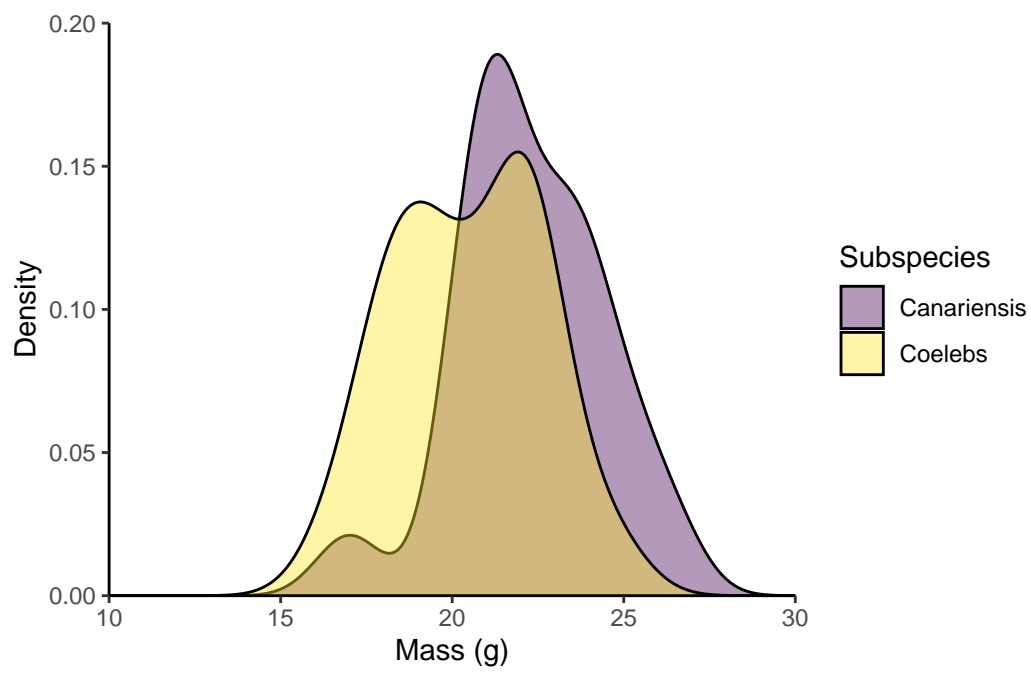


Figure S1: Here's that same figure again, but this time it's in the supplemental material.