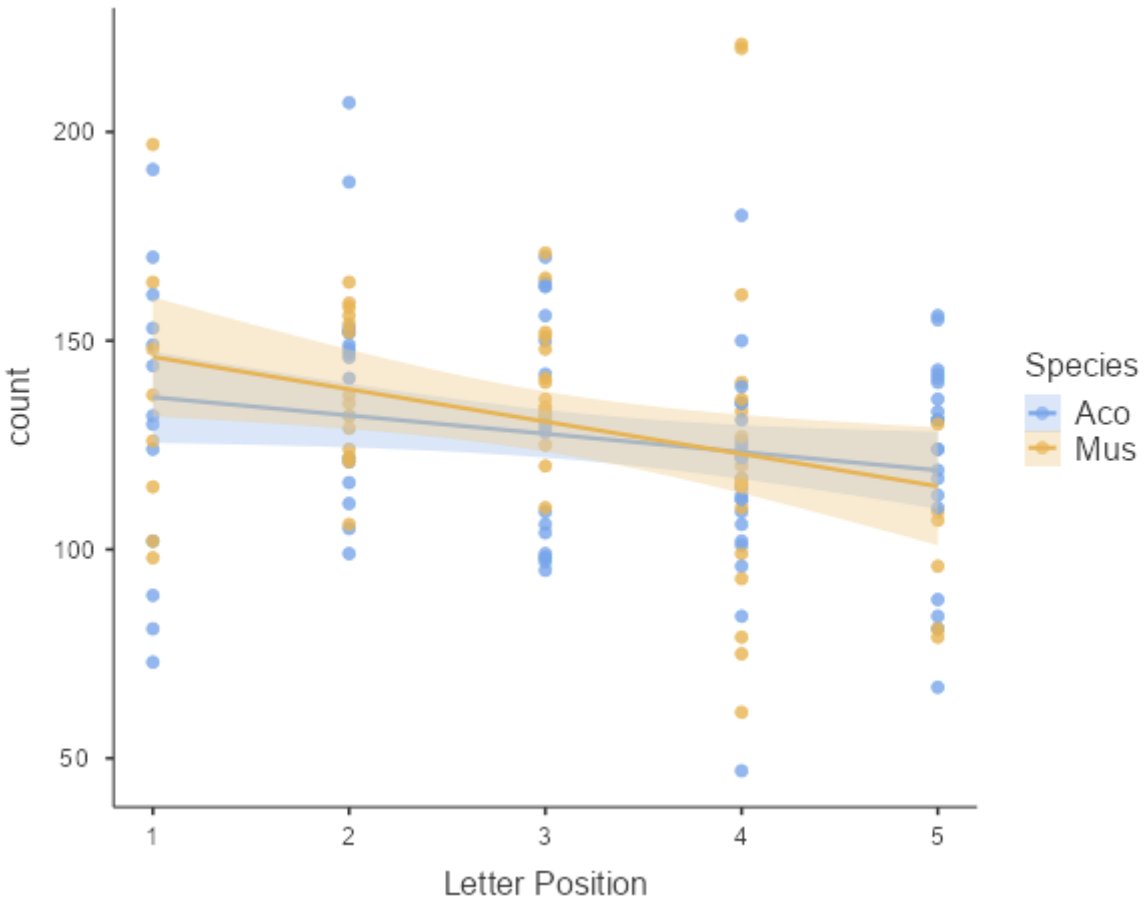
# Results

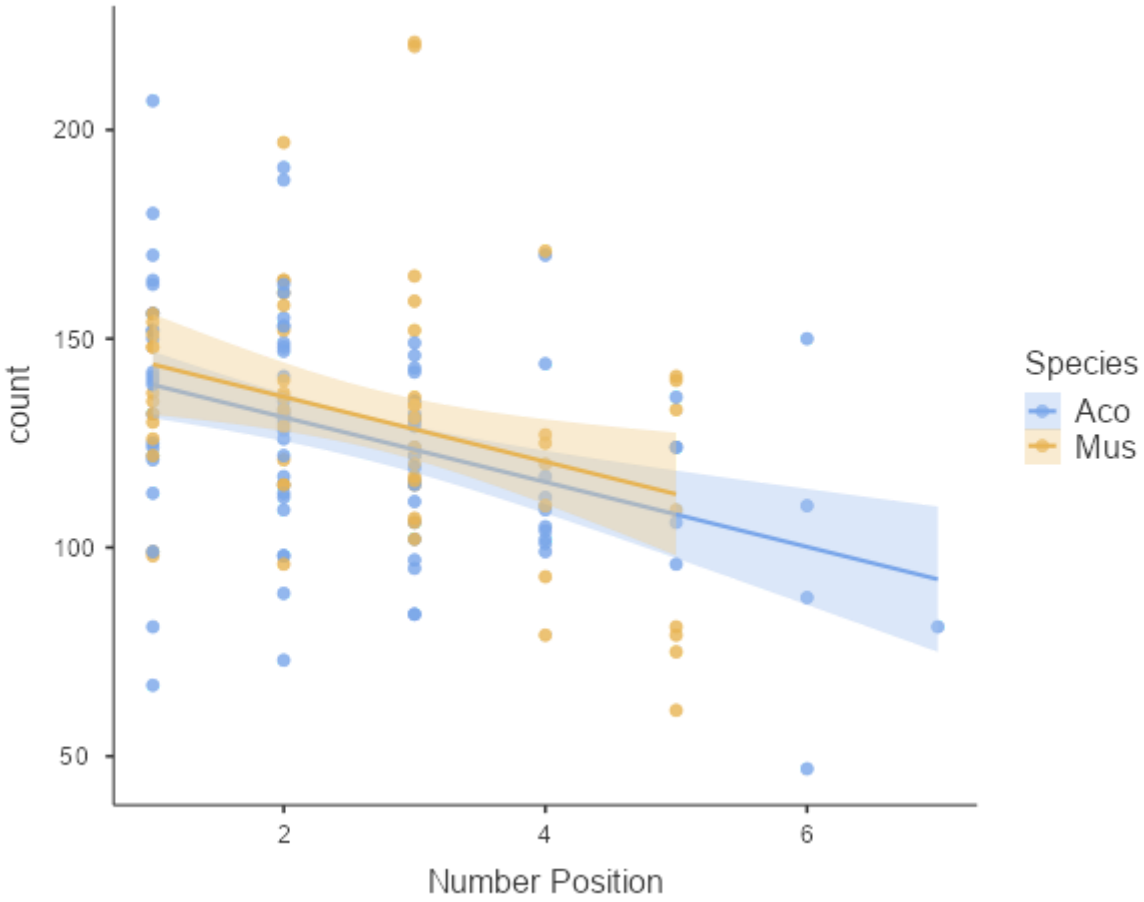
## Scatterplot

```
scatr::scat(
    data = data,
    x = Letter Position,
    y = count,
    group = Species,
    line = "linear",
    se = TRUE)
```




## Scatterplot

```
scatr::scat(
    data = data,
    x = Number Position,
    y = count,
    group = Species,
    line = "linear",
    se = TRUE)
```




## Correlation Matrix

```
jmv::corrMatrix(
    data = data,
    vars = vars(Number Position, Letter Position, count),
    pearson = FALSE,
    spearman = TRUE,
    plots = TRUE)
```

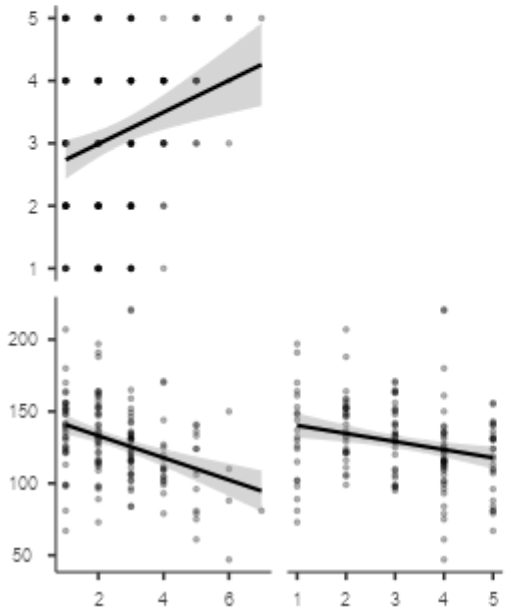
Correlation Matrix

| | | Number Position | Letter Position | count |
|---|---|---|---|---|
| Number Position | Spearman's rho | — | | |
| | p-value | — | | |
| Letter Position | Spearman's rho | 0.225 | — | |
| | p-value | 0.005 | — | |
| count | Spearman's rho | -0.364 | -0.274 | — |
| | p-value | <.001 | <.001 | — |

### Plot

Number Position Letter Position count

Number Position




Letter Position

count

## Descriptives

```
jmv::descriptives(
    formula = count ~ Species,
    data = data)
```

Descriptives

| | Species | count |
|---|---|---|
| N | Aco | 94 |
| | Mus | 64 |
| Missing | Aco | 0 |
| | Mus | 0 |
| Mean | Aco | 127 |
| | Mus | 131 |
| Median | Aco | 127 |
| | Mus | 131 |
| Standard deviation | Aco | 28.0 |
| | Mus | 30.1 |
| Minimum | Aco | 47.0 |
| | Mus | 61.0 |
| Maximum | Aco | 207 |
| | Mus | 221 |

## Mixed Model

```
gamlj::gamljMixed(
    formula = count ~ 1 + Species + Letter Position + Number Position+( 1 | AnimalID ),
    data = data)
```

Model Info

| Info | |
|---|---|
| Estimate | Linear mixed model fit by REML |
| Call | count ~ 1 + Species + Letter Position + Number Position+( 1 \| AnimalID ) |
| AIC | 1479.462 |
| BIC | 1482.460 |
| LogLikel. | -726.061 |
| R-squared Marginal | 0.160 |
| R-squared Conditional | 0.261 |
| Converged | yes |
| Optimizer | bobyqa |

**[3]**

## Model Results

Fixed Effect Omnibus tests

| | F | Num df | Den df | p |
|---|---|---|---|---|
| Species | 0.738 | 1 | 24.6 | 0.398 |
| Letter Position | 4.580 | 1 | 152.2 | 0.034 |
| Number Position | 18.189 | 1 | 152.0 | <.001 |

*Note.* Satterthwaite method for degrees of freedom

Fixed Effects Parameter Estimates

| | | | | 95% Confidence Interval | | | | |
|---|---|---|---|---|---|---|---|---|
| Names | Effect | Estimate | SE | Lower | Upper | df | t | p |
| (Intercept) | (Intercept) | 128.80 | 3.65 | 121.65 | 135.947 | 9.51 | 35.307 | <.001 |
| Species1 | Mus - Aco | 5.40 | 6.28 | -6.92 | 17.717 | 24.60 | 0.859 | 0.398 |
| Letter Position | Letter Position | -3.62 | 1.69 | -6.94 | -0.305 | 152.18 | -2.140 | 0.034 |
| Number Position | Number Position | -6.85 | 1.61 | -9.99 | -3.699 | 152.00 | -4.265 | <.001 |

Random Components

| Groups | Name | SD | Variance | ICC |
|---|---|---|---|---|
| AnimalID | (Intercept) | 9.35 | 87.4 | 0.120 |
| Residual | | 25.32 | 641.1 | |

*Note.* Number of Obs: 157 , groups: AnimalID 11

# References


**[1]** The jamovi project (2022). *jamovi*. (Version 2.3) [Computer Software]. Retrieved from https://www.jamovi.org.

**[2]** R Core Team (2021). *R: A Language and environment for statistical computing*. (Version 4.1) [Computer software]. Retrieved from https://cran.r-project.org. (R packages retrieved from MRAN snapshot 2022-01-01).

**[3]** Gallucci, M. (2019). *GAMLj: General analyses for linear models*. [jamovi module]. Retrieved from https://gamlj.github.io/.