

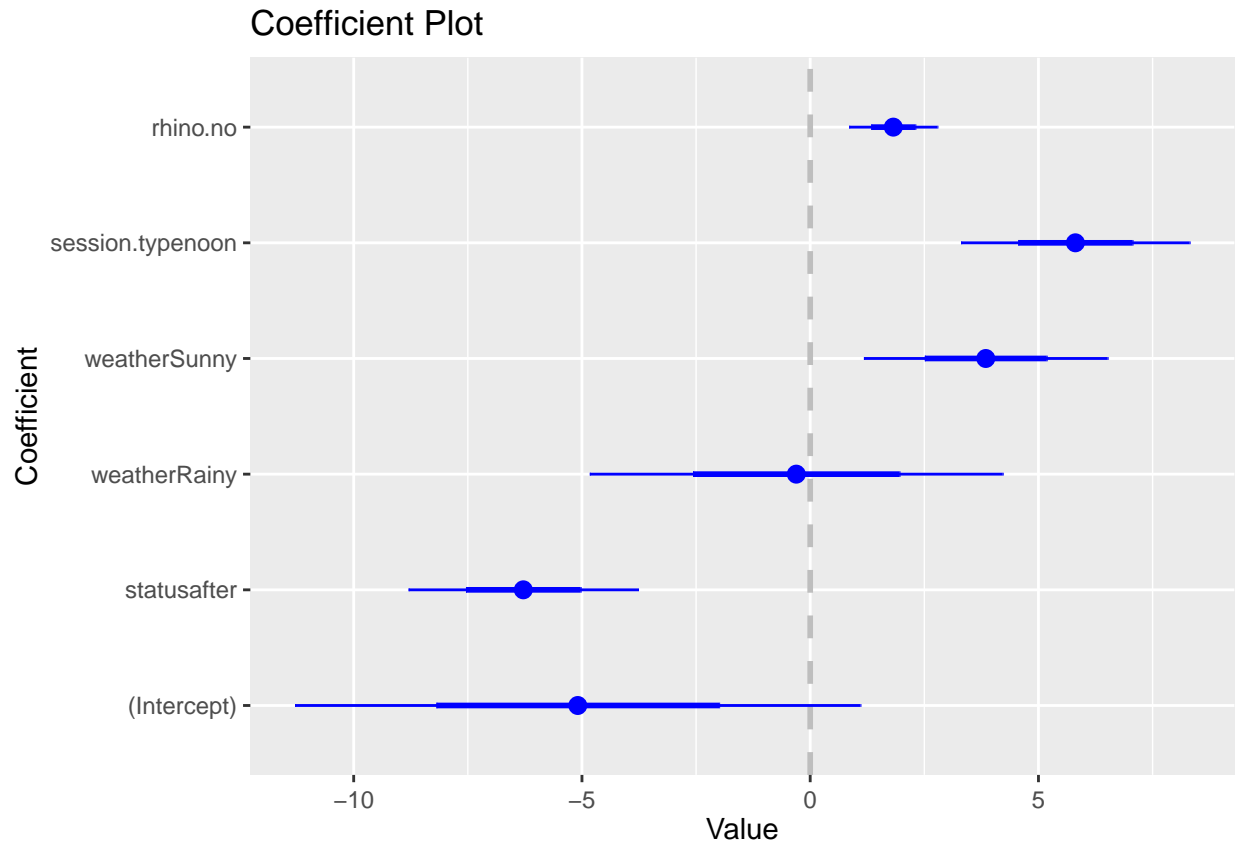
mynah-rhino-interaction

2022-11-22

```
summary(m9)
```

```
##
## Call:
## lm(formula = max.birds ~ status + weather + session.type + rhino.no,
##     data = data.analysis)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -11.639  -4.137  -1.118   3.583  19.144
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -5.0915     3.0962  -1.644  0.10350
## statusafter     -6.2844     1.2561  -5.003 2.70e-06 ***
## weatherRainy    -0.3051     2.2612  -0.135  0.89296
## weatherSunny     3.8459     1.3347   2.881  0.00493 **
## session.typenoon  5.8091     1.2513   4.642 1.14e-05 ***
## rhino.no         1.8203     0.4831   3.768  0.00029 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.166 on 92 degrees of freedom
## Multiple R-squared:  0.4352, Adjusted R-squared:  0.4045
## F-statistic: 14.18 on 5 and 92 DF,  p-value: 2.829e-10
```

```
coefplot(m9)
```



m9 intercept refers to rhino numbers = 2, during the evening, cloudy weather and before sprinkler installation. Therefore, m9 suggests that mynah numbers are lowest after the installation of the sprinklers, during the evening, when 2 rhinos are on exhibit and during the cloudy and/or rainy weather (not significant between these two levels).

So, mynah numbers increases with increasing rhinos (coefficient = 1.8203) on display. That is, every increase of one rhino leads to a increase in maximum number of mynahs by 1.82 (~ to 2).

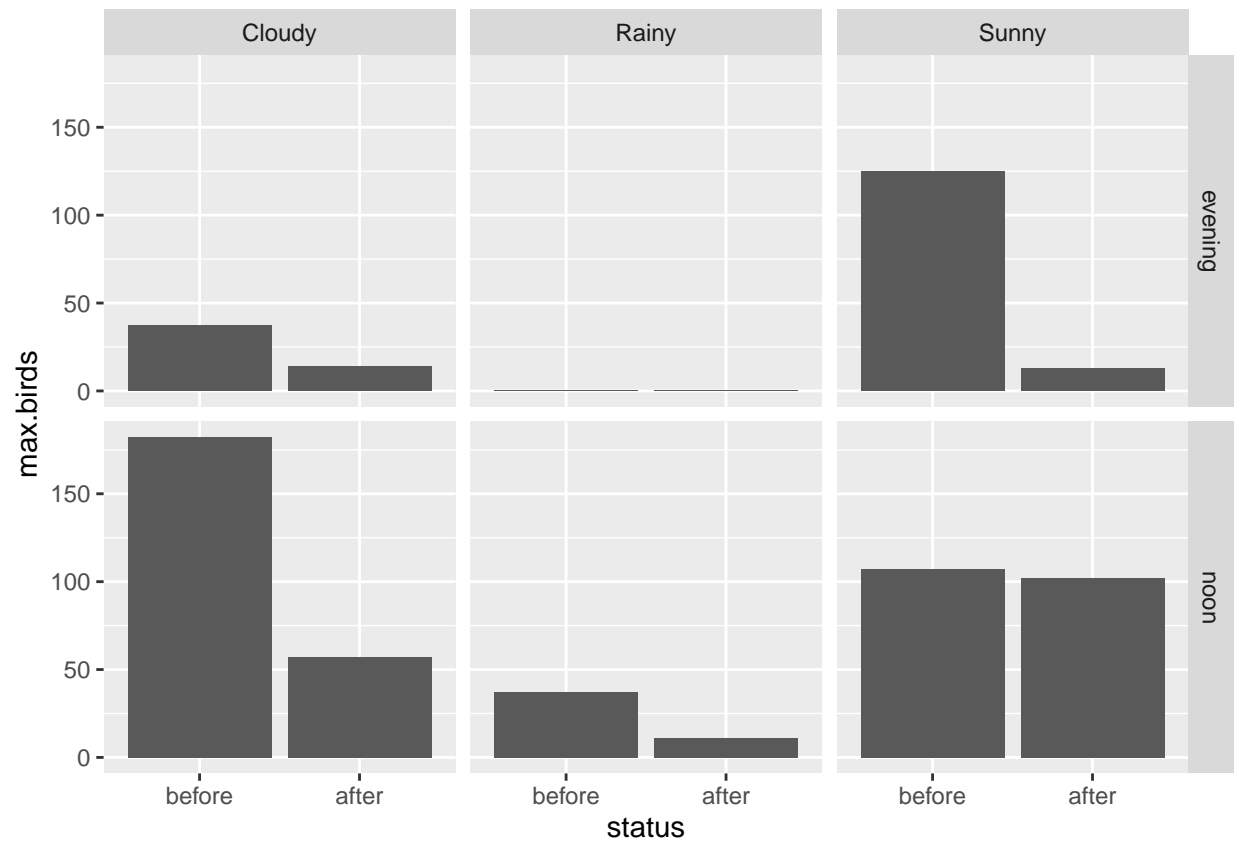
In other words, sampling in the afternoon also tends to result in a larger number of mynahs present; this has relevance to bird biology

```
data.analysis %>%
  group_by(status) %>%
  dplyr::summarise(mean.total = mean(total.mynah),
                   mean.feed = mean(total.feed),
                   max.birds = max(max.feed),
                   max.total= max(max.birds))
```

```
## # A tibble: 2 x 5
##   status mean.total mean.feed max.birds max.total
##   <fct>     <dbl>     <dbl>     <int>     <int>
## 1 before    104.      11.7         6         6
## 2 after     38.9       4.54         4         4
```

```
# mynah between status
data.analysis %>%
```

```
ggplot(aes(x = status, y = max.birds)) +
  geom_bar(stat = 'identity') +
  facet_grid(session.type~weather)
```



```
# mynah count over time, trend, between status
data.analysis %>%
  ggplot() +
  geom_point(aes(x = session.no, y = max.birds, colour = status))+
  geom_line(aes(x = session.no, y = max.birds, colour = status)) +
  facet_grid(.~status)
```

