

Poisson

Oct 29

28/10/2020

```
head(gala)
```

```
##           Species Endemics  Area Elevation Nearest Scrutz Adjacent
## Baltra      58          23 25.09      346      0.6  0.6      1.84
## Bartolome   31          21  1.24      109      0.6 26.3     572.33
## Caldwell    3           3  0.21      114      2.8 58.7      0.78
## Champion    25          9  0.10      46       1.9 47.4      0.18
## Coamano     2           1  0.05      77       1.9  1.9     903.82
## Daphne.Major 18         11  0.34      119      8.0  8.0      1.84
```

```
help(gala)
```

```
# plot(bmod)
```

```
gal.glm <- glm(Species ~ . - Endemics,
               family = poisson,
               data = gala)
```

```
summary(gal.glm)
```

```
##
## Call:
## glm(formula = Species ~ . - Endemics, family = poisson, data = gala)
##
## Deviance Residuals:
##   Min       1Q   Median       3Q      Max
## -8.275  -4.497  -0.944   1.917  10.185
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)  3.15e+00  5.17e-02  60.96 < 2e-16 ***
## Area        -5.80e-04  2.63e-05 -22.07 < 2e-16 ***
## Elevation    3.54e-03  8.74e-05  40.51 < 2e-16 ***
## Nearest      8.83e-03  1.82e-03   4.85 1.3e-06 ***
## Scrutz      -5.71e-03  6.26e-04 -9.13 < 2e-16 ***
## Adjacent    -6.63e-04  2.93e-05 -22.61 < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for poisson family taken to be 1)
##
##   Null deviance: 3510.73  on 29  degrees of freedom
## Residual deviance: 716.85  on 24  degrees of freedom
## AIC: 889.7
```

```

##
## Number of Fisher Scoring iterations: 5
gal.quasi <- glm(Species ~ . - Endemics,
                 family = quasipoisson,
                 data = gala)
summary(gal.quasi)

##
## Call:
## glm(formula = Species ~ . - Endemics, family = quasipoisson,
##      data = gala)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -8.275  -4.497  -0.944   1.917  10.185
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  3.154808   0.291590   10.82  1e-10 ***
## Area        -0.000580   0.000148   -3.92  0.00065 ***
## Elevation    0.003541   0.000493    7.19  2e-07 ***
## Nearest      0.008826   0.010262    0.86  0.39829
## Scruz       -0.005709   0.003525   -1.62  0.11838
## Adjacent    -0.000663   0.000165   -4.01  0.00051 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for quasipoisson family taken to be 31.75)
##
##      Null deviance: 3510.73  on 29  degrees of freedom
## Residual deviance:  716.85  on 24  degrees of freedom
## AIC: NA
##
## Number of Fisher Scoring iterations: 5
plot(gal.quasi$linear.predictors, gal.quasi$residuals)

```

