Feather Cort Levels Figure Practice #2

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Practice Figures #2

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Ambient temperature, body condition and sibling rivalry explain feather corticosterone levels in developing black kites

```r
#Install packages
library(ggplot2)
library(colorspace)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
library(ggforce)
```

```r
#setwd
setwd("C:/Users/frank/OneDrive/Desktop/R CSVs")

#Read CSV
read.csv("feathercort.csv")
```

```
##    INDIVIDUAL NEST.ID AGE BODY.CONDITION BROOD.ORDER MEAN.TEMPERATURE
## 1          1      58  41           1.23        FIRST            21.59
## 2          2      62  43           0.90       SECOND            21.94
## 3          3      40  27           0.90       SECOND            22.43
## 4          4      42  31           1.12        FIRST            22.37
## 5          5       7  36           1.04        FIRST            21.97
## 6          6      15  36           0.88        FIRST            21.92
## 7          7     194  32           1.03    SINGLETON            20.21
## 8          8     127  31           1.10        FIRST            19.20
## 9          9     179  29           0.75       SECOND            20.00
## 10        10     100  25           1.30        FIRST            20.70
## 11        11     115  38           1.09        FIRST            20.44
## 12        12     115  33           1.04       SECOND            20.36
## 13        13     103  31           0.93       SECOND            20.29
## 14        14     102  33           1.19        FIRST            20.40
## 15        15     184  26           1.33        FIRST            20.00
## 16        16     117  37           1.03        FIRST            19.71
## 17        17     146  35           0.99        FIRST            19.59
## 18        18     176  33           1.06        FIRST            19.36
## 19        19     106  37           0.98        FIRST            20.17
## 20        20     140  27           0.82        FIRST            20.14
## 21        21     164  29           0.99        FIRST            20.00
## 22        22     121  25           1.09        FIRST            20.70
## 23        23     163  31           1.21        FIRST            20.11
## 24        24     163  29           1.02       SECOND            20.18
## 25        25     135  27           1.10        FIRST            20.54
## 26        26     157  25           1.09        FIRST            20.70
## 27        27     138  25           1.30        FIRST            20.47
## 28        28     138  25           1.20       SECOND            20.47
## 29        29     144  25           1.37        FIRST            20.47
## 30        30     144  22           1.01       SECOND            21.10
## 31        31     158  25           0.90        FIRST            21.93
## 32        32     122  34           0.97        FIRST            20.34
## 33        33     122  34           1.10       SECOND            20.34
## 34        34     122  29           1.06        THIRD            20.97
## 35        35     199  32           0.80        FIRST            21.54
## 36        36     130  29           0.95    SINGLETON            20.97
## 37        37     119  31           1.10       SECOND            20.29
## 38        38     168  40           1.22    SINGLETON            20.45
## 39        39     139  27           1.28        FIRST            20.77
## 40        40     139  25           0.83       SECOND            21.43
## 41        41     155  29           1.15        FIRST            20.62
## 42        42     156  27           0.95        FIRST            20.77
## 43        43     129  32           1.06        FIRST            20.58
## 44        44     129  32           0.99       SECOND            20.58
## 45        45     195  31           1.06        FIRST            20.63
## 46        46     118  33           1.08        FIRST            20.53
## 47        47     195  31           0.95       SECOND            20.63
## 48        48     119  33           1.17        FIRST            20.40
## 49        49     118  33           0.92       SECOND            20.53
## 50        50     123  23           0.86    SINGLETON            22.05
## 51        51     171  27           0.83    SINGLETON            20.88
## 52        52     311  30           1.07        THIRD            16.94
## 53        53     311  36           1.09       SECOND            17.10
```

```
## 54          54     311   37        1.07      FIRST      17.25
## 55          55     289   43        0.93      FIRST      17.56
## 56          56     289   43        0.93      SECOND     17.56
## 57          57     241   37        1.10      SECOND     16.84
## 58          58     241   37        1.13      FIRST      16.84
## 59          59     286   27        1.05      FIRST      22.68
## 60          60     239   26        1.30      FIRST      16.95
## 61          61     239   26        0.94      SECOND     16.95
## 62          62     242   27        0.82      SECOND     17.02
## 63          63     242   29        0.87      FIRST      16.99
## 64          64     258   29        1.30      FIRST      16.87
## 65          65     288   29        0.95      SINGLETON  16.99
## 66          66     325   30        1.00      SECOND     16.88
## 67          67     325   33        1.11      FIRST      16.73
## 68          68     321   24        1.13      SECOND     17.20
## 69          69     321   27        1.35      FIRST      17.02
## 70          70     310   31        1.23      SECOND     17.86
## 71          71     220   23        1.26      FIRST      18.65
## 72          72     266   38        1.05      FIRST      18.57
## 73          73     266   35        0.64      SECOND     18.63
## 74          74     323   21        0.93      SINGLETON  22.08
## 75          75     307   29        1.05      FIRST      20.08
## 76          76     307   24        0.91      SECOND     21.57
## 77          77     261   28        0.89      FIRST      18.54
## 78          78     261   28        0.81      SECOND     18.54
## 79          79     260   38        0.98      FIRST      18.01
## 80          80     260   35        0.90      SECOND     18.18
## 81          81     272   35        1.19      FIRST      18.18
## 82          82     282   30        0.85      FIRST      18.28
## 83          83     282   30        1.02      SECOND     18.28
## 84          84     249   31        1.00      FIRST      18.19
## 85          85     249   31        0.61      SECOND     18.19
## 86          86     249   24        0.53      THIRD      19.07
## 87          87     236   32        1.07      THIRD      16.92
## 88          88     244   33        1.25      FIRST      17.07
## 89          89     244   31        0.86      SECOND     17.16
## 90          90     304   24        1.19      FIRST      17.01
## 91          91     205   27        1.17      FIRST      16.91
## 92          92     263   19        1.14      FIRST      16.71
## 93          93     203   26        1.04      SECOND     16.94
## 94          94     204   19        1.09      SECOND     16.71
## 95          95     203   28        1.21      FIRST      16.85
## 96          96     314   33        0.97      SECOND     16.89
## 97          97     314   34        1.07      FIRST      17.05
## 98          98     252   32        1.07      FIRST      16.77
## 99          99     292   25        1.13      FIRST      17.03
## 100        100     292   23        1.11      SECOND     17.12
## 101        101     319   25        1.06      FIRST      17.03
## 102        102     312   28        1.11      SECOND     20.21
## 103        103     202   21        1.30      FIRST      22.03
## 104        104     268   30        1.14      FIRST      20.20
## 105        105     268   30        1.06      SECOND     20.20
## 106        106     205   43        0.67      SECOND     18.81
## 107        107     221   31        0.81      SINGLETON  19.95
```

```
## 108          108    302   22           1.33   SINGLETON          21.93
## 109          109    225   24           1.07      FIRST           21.77
## 110          110    243   41           1.09      FIRST           18.97
## 111          111    243   38           1.03      SECOND          19.08
## 112          112    312   31           1.09      FIRST           19.74
## 113          113    283   29           0.92      FIRST           22.13
## 114          114    290   39           0.66      FIRST           20.47
## 115          115    236   32           1.07      FIRST           16.92
## 116          116    226   21           1.16      FIRST           17.12
## 117          117    322   36           1.08      FIRST           17.22
## 118          118    250   34           1.17      FIRST           16.90
## 119          119    214   30           0.98      FIRST           17.61
## 120          120    214   27           0.67      SECOND          17.49
## 121          121    211   31           1.16      FIRST           17.63
## 122          122    246   27           0.88   SINGLETON          18.06
## 123          123    253   37           1.20      FIRST           17.00
## 124          124    253   36           1.27      SECOND          17.00
## 125          125    256   31           1.15      FIRST           17.16
## 126          126    257   28           1.09      FIRST           17.15
## 127          127    257   26           0.70      SECOND          16.99
## 128          128    294   30           1.13      FIRST           17.19
## 129          129    294   26           0.82      SECOND          16.99
## 130          130    232   45           0.92      FIRST           17.50
## 131          131    232   42           0.81      SECOND          17.15
## 132          132    223   30           0.87      FIRST           17.44
## 133          133    299   31           0.80      FIRST           17.42
## 134          134    298   24           0.75      FIRST           17.36
## 135          135    247   28           0.83   SINGLETON          24.38
## 136          136    235   38           1.11      SECOND          20.62
## 137          137    270   41           1.00   SINGLETON          20.39
## 138          138    320   43           1.20      FIRST           20.12
## 139          139    320   40           1.01      SECOND          20.55
## 140          140    262   33           1.07      FIRST           21.86
## 141          141    262   33           0.86      SECOND          21.86
## 142          142    265   32           0.84   SINGLETON          22.25
## 143          143    315   33           0.70   SINGLETON          23.92
## 144          144    217   29           0.91      FIRST           24.22
## 145          145    309   25           0.79   SINGLETON          24.83
## 146          146    295   28           0.72   SINGLETON          24.70
## 147          147    235   38           1.02      FIRST           20.62
## 148          148    310   55           0.99      THIRD           21.90
## 149          149    287   28           0.80   SINGLETON          24.38
## 150          150    296   25           1.02      FIRST           24.08
## 151          151    428   32           1.03   SINGLETON          19.76
## 152          152    370   32           0.80      FIRST           20.39
## 153          153    418   31           1.13      FIRST           19.71
## 154          154    393   32           0.98      SECOND          22.89
## 155          155    393   32           1.03      FIRST           22.89
## 156          156    394   35           0.99      FIRST           21.36
## 157          157    394   30           0.88      SECOND          21.82
## 158          158    407   32           1.22      FIRST           19.61
## 159          159    425   32           1.06      FIRST           22.89
## 160          160    451   31           1.00      SECOND          19.71
## 161          161    452   33           1.03      FIRST           19.42
```

```
## 162        162    366    38            1.16        FIRST          19.03
## 163        163    366    34            0.75        SECOND         19.28
## 164        164    340    33            0.76        FIRST          22.85
## 165        165    379    32            1.18        FIRST          19.61
## 166        166    379    27            1.20        SECOND         20.13
## 167        167    368    34            1.03        FIRST          19.42
## 168        168    368    34            1.00        SECOND         19.42
## 169        169    368    29            0.55        THIRD          19.97
## 170        170    448    35            0.93        FIRST          19.71
## 171        171    448    33            1.01        SECOND         19.87
## 172        172    336    30            1.00        FIRST          20.24
## 173        173    338    32            0.90      SINGLETON        19.60
## 174        174    343    28            1.06        FIRST          20.48
## 175        175    341    24            1.14        FIRST          23.08
## 176        176    399    28            1.02        FIRST          20.23
## 177        177    399    24            0.74        SECOND         19.77
## 178        178    415    33            1.14        FIRST          19.68
## 179        179    415    32            1.08        SECOND         19.76
## 180        180    419    32            0.95        FIRST          19.76
## 181        181    419    28            1.06        SECOND         20.23
## 182        182    389    32            1.06        FIRST          19.76
## 183        183    430    31            1.12        FIRST          19.86
## 184        184    401    31            1.05      SINGLETON        21.88
## 185        185    430    26            0.79        SECOND         20.34
## 186        186    453    23            0.90        FIRST          22.77
## 187        187    404    41            0.79        SECOND         22.91
## 188        188    459    29            0.99        FIRST          24.93
## 189        189    459    25            0.60        SECOND         26.92
## 190        190    367    36            1.11        FIRST          23.72
## 191        191    455    25            0.86        FIRST          20.50
## 192        192    334    26            0.95        FIRST          23.93
## 193        193    339    40            0.89        FIRST          20.74
## 194        194    440    31            0.92        FIRST          21.88
## 195        195    440    30            0.73        SECOND         21.82
## 196        196    440    29            0.57        THIRD          21.66
## 197        197    441    29            1.09        FIRST          21.66
## 198        198    441    25            0.64        SECOND         21.83
## 199        199    343    26            0.77        SECOND         20.27
## 200        200    439    29            1.07      SINGLETON        20.34
## 201        201    358    31            1.06      SINGLETON        20.12
## 202        202    371    33            0.74        FIRST          20.23
## 203        203    421    30            1.03        SECOND         17.85
## 204        204    421    31            1.04        FIRST          17.91
## 205        205    390    27            1.00        FIRST          17.62
## 206        206    390    27            1.19        SECOND         17.62
## 207        207    390    24            1.13        THIRD          18.02
## 208        208    383    36            1.01        FIRST          18.99
## 209        209    426    39            1.09      SINGLETON        20.51
## 210        210    427    32            1.17        SECOND         19.61
## 211        211    427    36            1.06        FIRST          18.99
## 212        212    391    33            0.99        SECOND         25.55
## 213        213    333    39            1.11        SECOND         25.20
## 214        214    411    36            0.99        SECOND         22.97
## 215        215    414    40            0.83        FIRST          24.13
```

```
## 216        216      425    29         0.84      SECOND       23.66
## 217        217      460    33         0.88      FIRST        22.85
## 218        218      388    47         1.12      FIRST        22.05
## 219        219      388    41         1.01      SECOND       22.91
## 220        220      406    31         0.72      SINGLETON    22.72
## 221        221      342    31         0.81      FIRST        22.72
## 222        222      411    36         1.00      FIRST        22.97
## 223        223      408    30         1.08      SINGLETON    22.93
## 224        224      380    26         0.63      SINGLETON    24.30
## 225        225      534    45         1.04      FIRST        20.74
## 226        226      517    35         1.00      FIRST        21.35
## 227        227      517    31         0.93      SECOND       21.34
## 228        228      523    34         0.93      FIRST        20.77
## 229        229      533    38         0.96      FIRST        23.65
## 230        230      514    32         1.06      FIRST        21.55
## 231        231      514    30         0.87      SECOND       21.47
## 232        232      566    27         1.09      FIRST        21.40
## 233        233      548    25         1.28      SINGLETON    21.92
## 234        234      480    24         1.18      FIRST        20.21
## 235        235      480    24         1.29      SECOND       20.21
## 236        236      554    29         1.15      FIRST        20.91
## 237        237      554    29         1.11      SECOND       20.91
## 238        238      554    25         1.02      THIRD        21.15
## 239        239      555    28         1.15      FIRST        21.16
## 240        240      555    28         1.10      SECOND       21.16
## 241        241      555    23         0.56      THIRD        20.95
## 242        242      560    30         1.13      FIRST        20.92
## 243        243      560    26         0.89      SECOND       21.68
## 244        244      547    29         1.07      FIRST        21.09
## 245        245      547    29         0.92      SECOND       21.09
## 246        246      471    30         0.94      FIRST        20.92
## 247        247      473    26         0.91      FIRST        21.64
## 248        248      565    36         1.06      FIRST        20.71
## 249        249      549    27         0.91      FIRST        21.40
## 250        250      549    25         0.70      SECOND       21.92
## 251        251      479    35         1.32      FIRST        21.28
## 252        252      479    33         1.15      SECOND       21.19
## 253        253      512    33         1.02      FIRST        21.19
## 254        254      551    30         1.06      FIRST        20.92
## 255        255      551    30         1.02      SECOND       20.92
## 256        256      511    25         1.08      FIRST        19.92
## 257        257      513    31         1.22      FIRST        21.00
## 258        258      469    27         0.91      FIRST        20.70
## 259        259      568    33         0.94      FIRST        20.76
## 260        260      568    29         0.68      SECOND       21.26
## 261        261      550    26         1.05      SINGLETON    20.32
## 262        262      472    29         1.09      FIRST        21.26
## 263        263      472    24         1.00      SECOND       19.67
## 264        264      491    38         1.01      FIRST        20.75
## 265        265      491    37         0.86      SECOND       20.98
## 266        266      491    33         0.72      THIRD        21.43
## 267        267      557    36         0.91      SECOND       20.46
## 268        268      542    35         1.08      FIRST        20.76
## 269        269      487    29         1.11      SINGLETON    19.82
```

```
## 270      270      546   34          0.99       FIRST      20.52
## 271      271      546   30          0.77       SECOND     19.83
## 272      272      552   25          0.80       FIRST      20.19
## 273      273      558   29          1.09       FIRST      19.82
## 274      274      482   35          1.12       FIRST      20.74
## 275      275      482   32          1.03       SECOND     20.58
## 276      276      521   38          1.02       FIRST      20.67
## 277      277      521   38          1.00       SECOND     20.67
## 278      278      489   44          1.12       SECOND     20.52
## 279      279      557   40          0.89       FIRST      20.79
## 280      280      515   35          1.08       FIRST      21.28
## 281      281      515   35          1.20       SECOND     21.28
## 282      282      545   30          1.48       FIRST      20.92
## 283      283      561   29          1.14       FIRST      21.09
## 284      284      561   29          0.69       SECOND     21.09
## 285      285      559   36          1.08       FIRST      21.19
## 286      286      559   35          1.16       SECOND     21.15
## 287      287      488   33          1.15       FIRST      21.05
## 288      288      470   31          1.00       SINGLETON  20.76
## 289      289      544   40          1.14       FIRST      20.68
## 290      290      544   40          1.10       SECOND     20.68
## 291      291      496   40          0.98       FIRST      20.80
## 292      292      539   34          0.82       FIRST      20.48
## 293      293      541   38          1.20       FIRST      20.75
## 294      294      541   36          1.16       SECOND     21.17
## 295      295      543   30          1.12       FIRST      21.28
## 296      296      468   40          1.07       FIRST      20.80
## 297      297      468   40          0.98       SECOND     20.80
## 298      298      564   29          0.78       SINGLETON  25.79
## 299      299      519   27          1.02       FIRST      20.30
## 300      300      537   32          0.92       FIRST      20.13
## 301      301      502   28          0.85       FIRST      26.63
## 302      302      518   44          0.94       FIRST      20.83
## 303      303      510   40          1.15       FIRST      20.43
## 304      304      510   38          0.98       SECOND     20.75
## 305      305      497   31          0.96       SECOND     21.26
## 306      306      501   36          1.02       FIRST      20.17
## 307      307      501   34          1.04       SECOND     20.55
## 308      308      525   33          0.99       FIRST      20.74
## 309      309      525   31          0.90       SECOND     21.26
## 310      310      532   32          0.96       FIRST      21.35
## 311      311      535   37          1.21       FIRST      20.10
## 312      312      535   33          1.01       SECOND     20.74
## 313      313      506   32          0.99       FIRST      18.58
## 314      314      506   31          0.89       SECOND     18.76
## 315      315      503   31          1.09       FIRST      18.76
## 316      316      503   31          1.18       SECOND     18.76
## 317      317      485   30          1.15       SECOND     18.83
## 318      318      494   25          1.06       THIRD      19.92
## 319      319      483   39          1.20       FIRST      23.44
## 320      320      483   39          1.11       SECOND     23.44
## 321      321      516   39          0.74       FIRST      23.44
## 322      322      492   34          1.10       FIRST      20.39
## 323      323      659   28          0.85       SECOND     22.28
```

```
## 324        324    616   29          1.10    SINGLETON          22.21
## 325        325    590   31          1.08       FIRST           22.32
## 326        326    590   31          0.85      SECOND           22.32
## 327        327    609   31          1.15       FIRST           21.97
## 328        328    609   27          0.87      SECOND           22.67
## 329        329    656   25          0.99       FIRST           22.58
## 330        330    656   22          0.95      SECOND           22.40
## 331        331    600   23          1.31       FIRST           22.41
## 332        332    653   35          1.13       FIRST           21.35
## 333        333    653   30          1.01       THIRD           22.22
## 334        334    653   34          1.05      SECOND           21.45
## 335        335    608   27          1.05       FIRST           22.63
## 336        336    608   24          1.03      SECOND           22.54
## 337        337    626   32          1.19       FIRST           22.00
## 338        338    626   31          1.14      SECOND           22.24
## 339        339    626   24          0.85       THIRD           22.54
## 340        340    620   31          1.19       FIRST           22.32
## 341        341    618   27          1.02       FIRST           22.40
## 342        342    659   34          1.15       FIRST           22.43
## 343        343    638   37          1.07       FIRST           21.88
## 344        344    646   38          1.02       FIRST           21.92
## 345        345    646   35          1.04      SECOND           21.72
## 346        346    629   39          0.97       FIRST           22.04
## 347        347    604   39          0.87       FIRST           22.04
## 348        348    628   27          0.74       FIRST           21.50
## 349        349    586   23          1.23       FIRST           21.50
## 350        350    610   32          0.95      SECOND           21.98
## 351        351    623   26          1.06       FIRST           22.57
## 352        352    624   39          1.13       FIRST           22.22
## 353        353    624   33          0.83      SECOND           21.93
## 354        354    607   37          1.21       FIRST           22.12
## 355        355    607   37          1.10      SECOND           22.12
## 356        356    602   34          1.20       FIRST           21.95
## 357        357    602   31          0.77      SECOND           22.05
## 358        358    594   37          1.14       FIRST           22.12
## 359        359    594   34          1.22      SECOND           21.95
## 360        360    594   33          0.65       THIRD           21.93
## 361        361    610   32          0.97       FIRST           21.98
## 362        362    655   34          0.95       FIRST           21.91
## 363        363    655   34          0.95      SECOND           21.91
## 364        364    649   32          1.15    SINGLETON          22.05
## 365        365    617   37          0.96       FIRST           22.06
## 366        366    630   30          1.01       FIRST           22.00
## 367        367    630   29          0.95      SECOND           22.00
## 368        368    606   34          1.03       FIRST           21.91
## 369        369    606   34          1.03      SECOND           21.91
## 370        370    716   32          1.24      SECOND           21.46
## 371        371    716   32          1.08       FIRST           21.46
## 372        372    679   26          1.11       FIRST           20.38
## 373        373    697   29          1.12       FIRST           20.47
## 374        374    718   28          1.09       FIRST           22.13
## 375        375    680   33          0.83       FIRST           22.65
## 376        376    691   24          1.13       FIRST           20.94
## 377        377    686   29          1.23       FIRST           20.66
```

```
## 378           378    711  21            0.78       FIRST        22.42
## 379           379    672  31            1.06    SINGLETON       22.13
## 380           380    675  33            0.89       FIRST        21.93
## 381           381    675  33            0.85      SECOND        21.93
## 382           382    677  29            1.06       FIRST        22.24
## 383           383    723  39            0.99      SECOND        22.52
## 384           384    671  38            1.01       FIRST        22.48
## 385           385    671  34            0.57      SECOND        22.45
## 386           386    670  31            0.97       FIRST        22.57
## 387           387    706  25            0.50      SECOND        23.00
## 388           388    703  35            1.17       FIRST        22.61
## 389           389    718  21            0.60      SECOND        21.86
## 390           390    730  29            0.68       FIRST        23.06
## 391           391    690  36            1.15       FIRST        22.90
## 392           392    710  25            0.92       FIRST        23.69
## 393           393    704  37            0.86       FIRST        24.08
## 394           394    692  28            0.89       FIRST        24.88
## 395           395    674  31            0.86       FIRST        24.69
## 396           396    707  40            1.02       FIRST        21.17
## 397           397    707  38            1.13      SECOND        20.97
## 398           398    684  30            1.11       FIRST        21.01
## 399           399    683  24            1.03       FIRST        20.94
## 400           400    697  22            0.75      SECOND        22.03
## 401           401    699  31            1.06       FIRST        20.79
## 402           402    699  26            0.67      SECOND        22.21
## 403           403    719  28            1.07       FIRST        21.41
## 404           404    719  26            0.96      SECOND        22.21
## 405           405    724  26            0.73       FIRST        22.21
## 406           406    724  22            0.49      SECOND        22.63
## 407           407    723  28            1.15       FIRST        22.31
## 408           408    728  31            0.88       FIRST        22.00
## 409           409    728  28            0.80      SECOND        22.13
## 410           410    681  32            1.06       FIRST        21.93
## 411           411    722  37            0.80       FIRST        21.47
## 412           412    725  35            1.06       FIRST        21.97
## 413           413    725  33            0.99      SECOND        21.93
## 414           414    725  31            0.92       THIRD        22.13
## 415           415    701  27            0.85       FIRST        20.28
## 416           416    676  25            0.88       FIRST        20.25
## 417           417    686  31            0.41      SECOND        21.92
## 418           418    731  30            0.94       FIRST        22.00
## 419           419    731  25            0.77      SECOND        22.12
## 420           420    709  35            0.86    SINGLETON       21.42
## 421           421    693  38            0.80    SINGLETON       22.65
## 422           422    702  27            1.07       FIRST        22.13
## 423           423    713  38            1.01       FIRST        20.97
## 424           424    688  29            0.87       FIRST        22.15
## 425           425    689  36            1.01    SINGLETON       21.18
## 426           426    687  31            1.10       FIRST        21.92
## 427           427    717  29            1.10       FIRST        22.21
##      FEATHER.CORT
## 1          5.57
## 2         10.00
## 3         15.75
```

```
## 4       7.29
## 5       9.45
## 6      11.06
## 7      12.47
## 8      23.45
## 9      10.24
## 10     10.79
## 11      6.32
## 12      8.52
## 13     22.53
## 14      9.07
## 15     13.77
## 16      9.76
## 17      7.36
## 18      8.93
## 19      7.60
## 20     12.66
## 21     18.14
## 22     19.90
## 23      7.76
## 24      9.37
## 25      9.77
## 26     10.01
## 27      9.23
## 28     13.95
## 29     10.99
## 30     27.85
## 31     14.69
## 32      9.51
## 33      8.75
## 34     11.19
## 35      9.91
## 36      6.90
## 37      6.59
## 38      7.41
## 39      9.64
## 40     17.65
## 41      8.74
## 42     10.68
## 43      9.28
## 44      8.44
## 45      8.76
## 46      8.70
## 47     18.47
## 48      7.22
## 49      8.62
## 50     13.07
## 51     11.10
## 52     14.82
## 53      8.79
## 54     13.27
## 55      7.27
## 56      7.77
## 57      9.34
```

```
## 58         12.96
## 59          8.24
## 60         11.77
## 61         18.32
## 62         14.39
## 63          8.56
## 64          8.35
## 65          9.54
## 66          8.24
## 67          8.22
## 68         22.70
## 69         10.41
## 70         12.66
## 71         12.09
## 72          6.81
## 73         10.81
## 74         10.60
## 75          7.87
## 76         10.42
## 77         12.17
## 78         19.83
## 79          9.45
## 80         18.11
## 81          7.87
## 82         20.88
## 83         11.30
## 84         10.45
## 85         12.61
## 86         13.84
## 87         11.42
## 88          7.80
## 89          9.39
## 90         12.01
## 91         10.77
## 92         12.21
## 93         28.08
## 94         24.87
## 95         13.77
## 96          9.25
## 97         10.19
## 98         11.82
## 99         13.02
## 100        15.67
## 101        11.73
## 102         9.87
## 103        11.72
## 104         9.46
## 105        10.07
## 106         8.72
## 107         6.69
## 108        15.20
## 109         8.09
## 110         6.03
## 111         6.86
```

```
## 112         9.29
## 113         9.05
## 114        10.39
## 115         7.83
## 116        12.16
## 117         8.54
## 118        14.30
## 119         9.76
## 120        12.97
## 121        11.10
## 122         9.12
## 123         8.31
## 124        12.57
## 125        11.54
## 126        10.73
## 127        18.91
## 128        13.86
## 129        14.61
## 130         7.74
## 131         8.08
## 132         7.73
## 133         9.55
## 134         9.27
## 135         7.34
## 136         4.27
## 137        13.94
## 138        10.85
## 139        10.68
## 140        10.13
## 141        20.00
## 142         8.29
## 143         9.15
## 144        12.08
## 145         6.74
## 146        11.31
## 147         5.57
## 148         8.88
## 149         7.68
## 150        12.24
## 151        10.11
## 152        14.30
## 153         9.82
## 154         6.71
## 155         7.57
## 156        10.28
## 157        15.72
## 158        12.76
## 159         4.29
## 160        18.40
## 161        18.42
## 162         9.47
## 163        15.36
## 164        13.17
## 165         7.73
```

```
## 166          12.92
## 167          14.34
## 168          15.49
## 169          18.54
## 170          17.33
## 171          22.24
## 172           9.85
## 173          14.37
## 174          13.81
## 175           7.76
## 176          17.72
## 177          18.18
## 178           8.28
## 179           6.25
## 180          14.77
## 181          14.13
## 182           9.38
## 183          14.88
## 184           9.06
## 185          23.56
## 186           8.64
## 187           6.59
## 188          11.60
## 189          14.04
## 190           4.89
## 191          15.38
## 192           9.46
## 193          13.11
## 194           7.47
## 195          10.35
## 196           9.00
## 197          10.91
## 198           9.38
## 199          14.80
## 200           9.91
## 201          11.14
## 202          33.33
## 203          20.19
## 204          15.94
## 205          11.08
## 206          13.09
## 207          18.47
## 208          18.08
## 209          17.57
## 210          11.02
## 211           6.45
## 212           7.27
## 213          11.02
## 214           3.85
## 215          11.36
## 216           7.87
## 217          13.65
## 218           5.40
## 219           2.68
```

```
## 220         4.46
## 221         5.06
## 222         5.66
## 223         2.45
## 224        10.83
## 225        10.99
## 226         4.75
## 227         8.60
## 228        12.94
## 229        13.60
## 230         9.83
## 231         6.98
## 232         9.20
## 233         5.81
## 234        10.60
## 235        11.60
## 236         8.57
## 237         8.21
## 238        18.47
## 239        11.20
## 240        18.16
## 241        10.71
## 242        12.25
## 243        19.12
## 244        10.33
## 245        19.34
## 246         8.83
## 247        10.17
## 248        15.38
## 249         9.37
## 250         5.90
## 251         6.68
## 252         8.03
## 253        16.14
## 254        10.15
## 255         7.80
## 256        10.69
## 257        25.01
## 258        12.40
## 259         6.95
## 260         9.93
## 261         5.16
## 262        12.05
## 263        22.34
## 264         5.31
## 265        31.23
## 266        10.43
## 267        12.37
## 268         9.87
## 269        18.78
## 270        17.06
## 271        20.22
## 272        15.48
## 273         9.08
```

```
## 274          14.59
## 275          11.73
## 276           7.57
## 277          11.96
## 278          16.28
## 279          10.67
## 280           5.09
## 281          10.13
## 282          10.64
## 283          11.00
## 284          14.53
## 285           8.65
## 286          15.25
## 287           8.95
## 288           6.30
## 289          11.32
## 290          11.94
## 291           8.87
## 292          10.10
## 293           5.60
## 294           3.26
## 295           8.72
## 296           3.33
## 297           6.38
## 298          14.19
## 299           9.81
## 300          12.79
## 301           5.72
## 302           6.28
## 303           2.69
## 304           4.95
## 305           8.46
## 306          12.89
## 307          18.57
## 308          10.71
## 309          13.87
## 310          11.41
## 311           8.54
## 312          14.77
## 313          14.45
## 314          17.17
## 315           6.32
## 316           5.63
## 317          10.20
## 318          12.72
## 319           4.39
## 320           5.55
## 321           8.08
## 322          11.01
## 323           8.24
## 324           8.43
## 325          23.97
## 326          18.36
## 327           8.24
```

```
## 328          14.53
## 329          12.18
## 330          21.07
## 331          21.30
## 332          10.29
## 333           6.75
## 334           7.14
## 335           7.73
## 336          15.12
## 337           8.93
## 338           6.81
## 339          13.25
## 340          11.62
## 341          10.40
## 342           9.57
## 343          10.29
## 344           7.35
## 345          10.55
## 346           7.60
## 347           6.04
## 348          18.01
## 349           8.61
## 350          10.83
## 351           9.81
## 352          10.33
## 353          13.42
## 354          15.99
## 355          22.46
## 356          11.45
## 357          15.38
## 358           9.21
## 359          13.53
## 360          14.46
## 361           9.39
## 362           7.05
## 363           7.01
## 364           7.64
## 365           6.30
## 366           5.60
## 367           9.59
## 368           5.50
## 369           8.49
## 370          13.40
## 371          14.45
## 372          12.52
## 373          15.30
## 374           9.86
## 375          13.75
## 376           9.01
## 377          15.60
## 378           6.80
## 379           7.31
## 380           8.50
## 381           7.94
```

```
## 382            9.27
## 383            5.58
## 384            6.68
## 385           10.78
## 386           17.70
## 387           12.29
## 388            7.56
## 389           37.74
## 390            9.91
## 391            6.89
## 392           11.71
## 393           12.67
## 394            9.89
## 395            9.07
## 396           23.12
## 397           10.39
## 398            7.49
## 399           11.10
## 400           10.19
## 401            7.60
## 402           22.10
## 403            6.33
## 404            9.20
## 405           11.20
## 406           11.63
## 407            7.99
## 408            8.43
## 409           14.67
## 410           13.92
## 411           17.88
## 412            7.72
## 413            7.29
## 414            8.23
## 415           15.13
## 416           13.71
## 417           14.26
## 418           17.05
## 419           15.41
## 420            7.30
## 421            7.69
## 422            6.84
## 423            9.22
## 424           10.49
## 425            6.91
## 426            8.72
## 427            7.51
```

```r
feathercort<-read.csv("feathercort.csv")

#Create data.frame
feathercort.df<-data.frame(feathercort)
```

```
#setting up ggplot for brood order vs feather cort
 theme_set(theme_bw())
 h<- ggplot(feathercort.df, aes(x=BROOD.ORDER, y = FEATHER.CORT, color = BROOD.ORDER))+
   labs(x = "Brood Order", y = "Feather CORT (pg/mm)") +
   scale_color_brewer(palette = "Dark2", guide = "none")
```
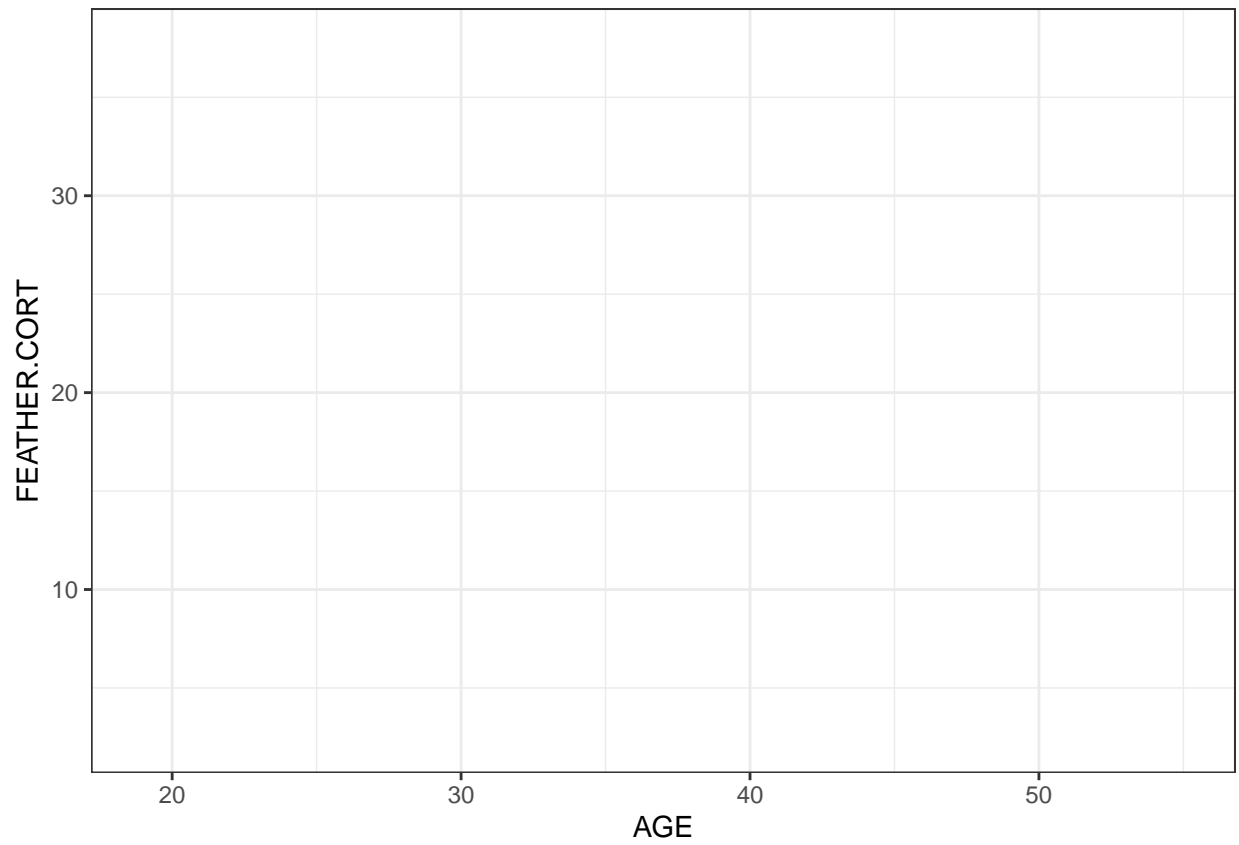
```
# Plotting geom_violin
 h+geom_violin(fill = "gray80", size = 1, alpha=0.5)
```
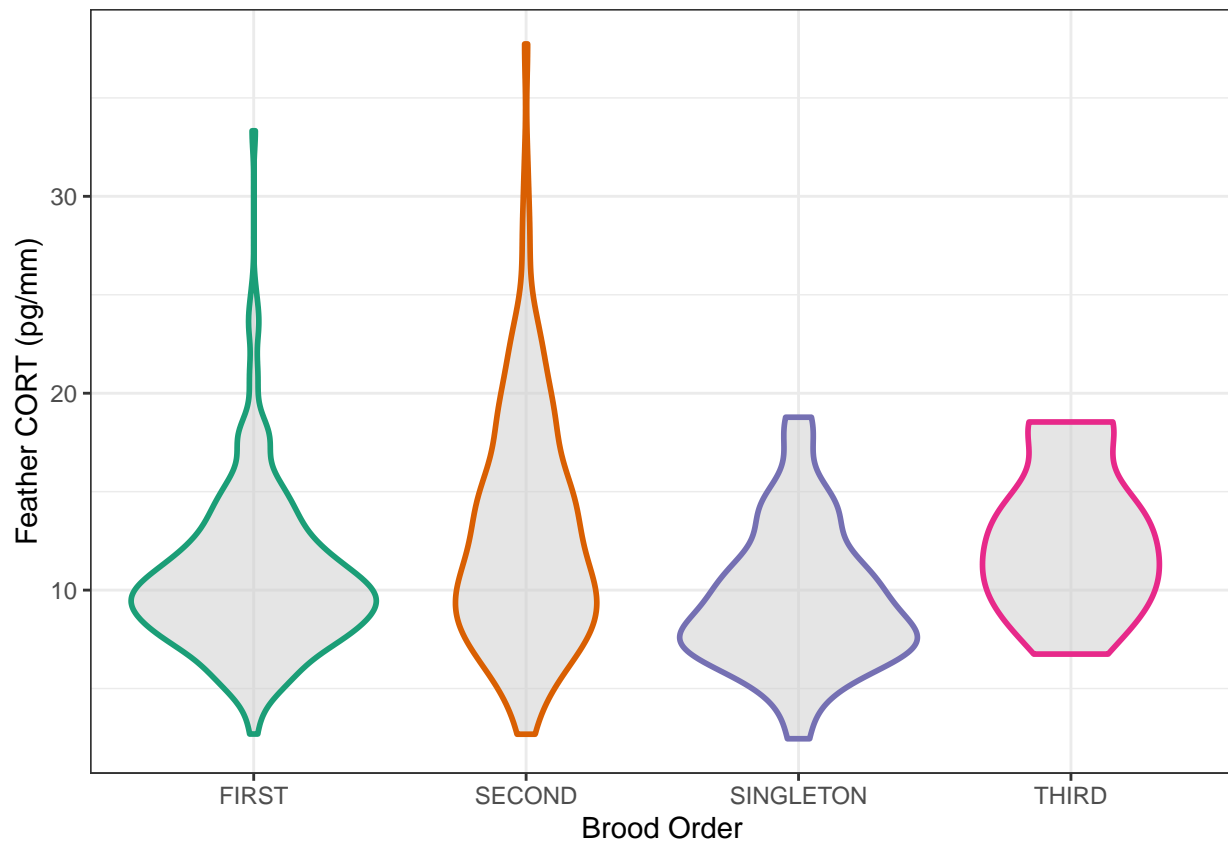


```
#Adding jitter plot over and coord flip
 h+geom_violin(fill = "gray80", size = 1, alpha=0.5)+
   geom_jitter(alpha = .50, width = .075)+
   coord_flip()
```
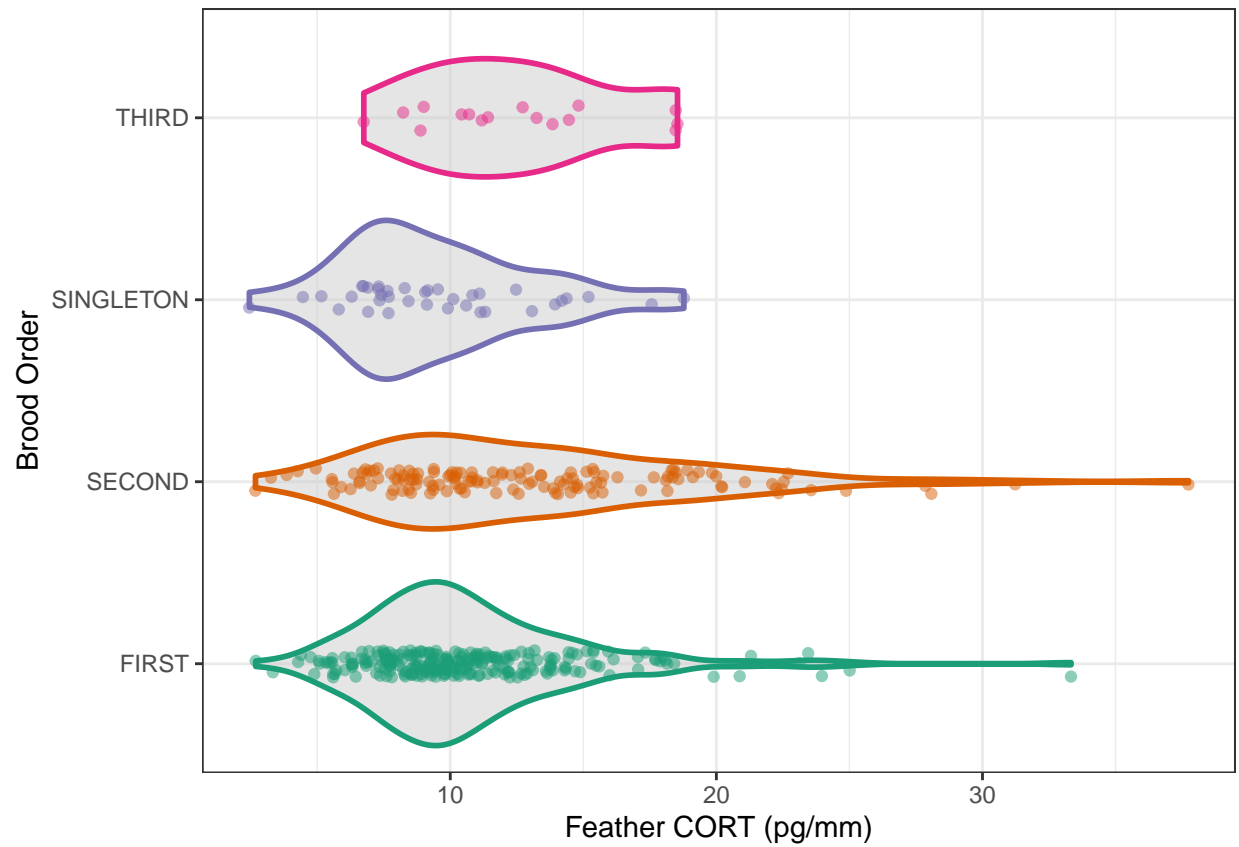
```r
#Plot age vs cort level
(age <- ggplot(feathercort.df, aes(x = AGE, y = FEATHER.CORT)))
```
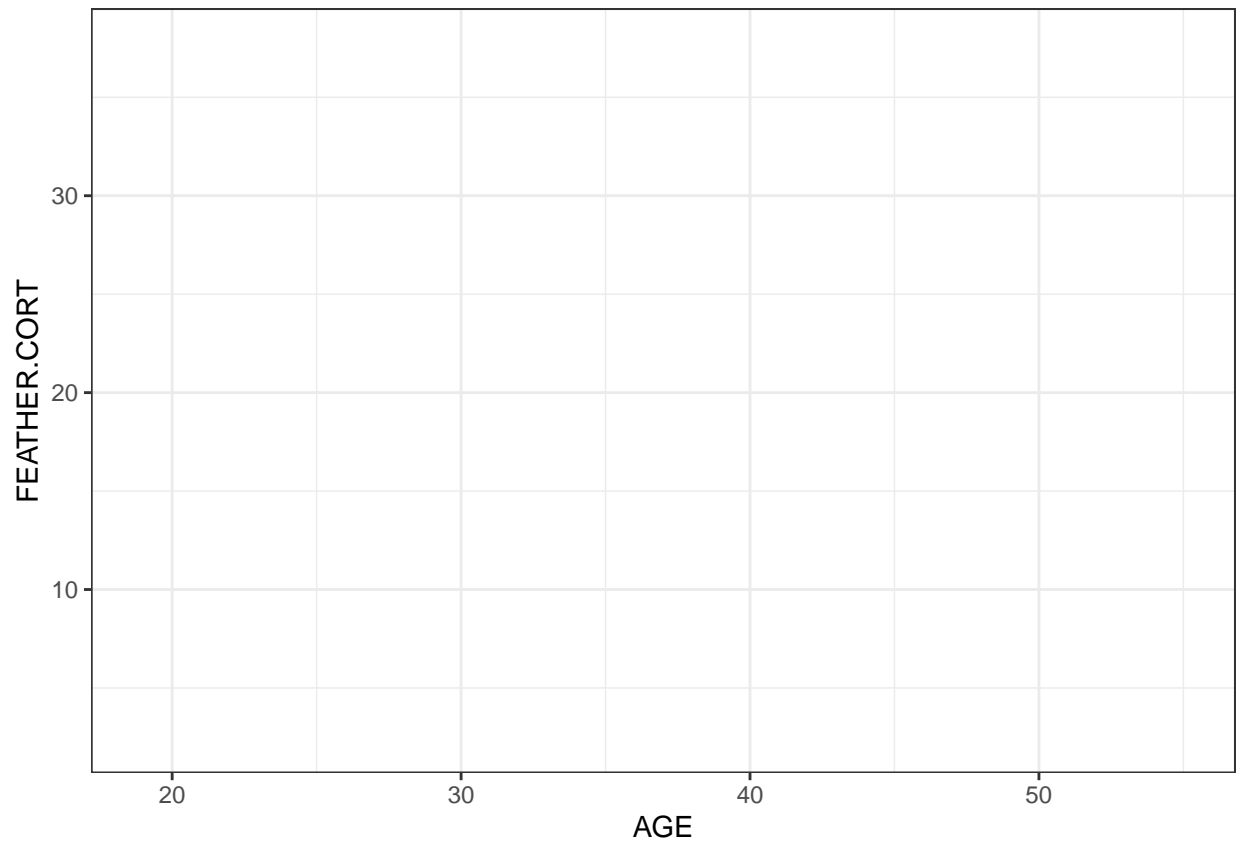
Y-axis: FEATHER.CORT (10, 20, 30)
X-axis: AGE (20, 30, 40, 50)

```
age + geom_jitter()+geom_smooth(method = "lm")
```

```
## `geom_smooth()` using formula 'y ~ x'
```
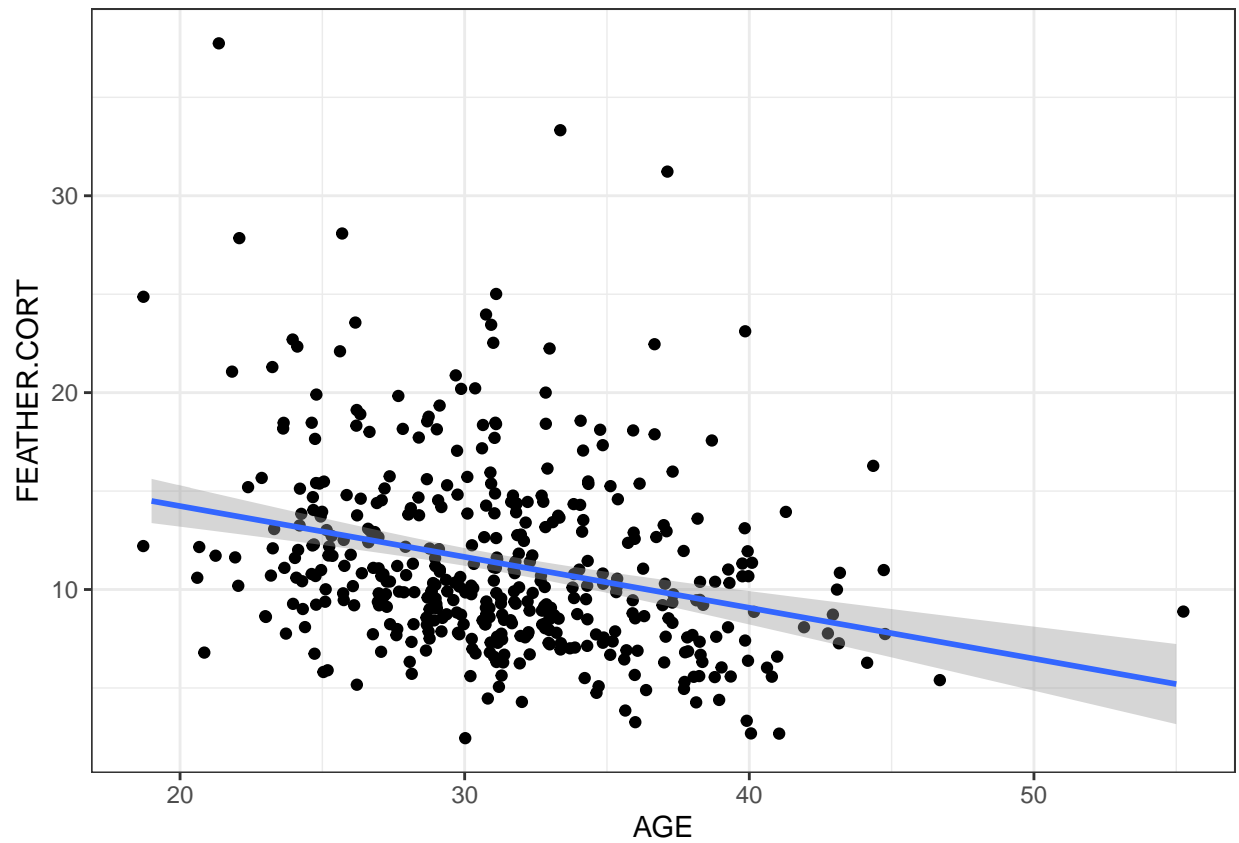
```
#add trendline
(age <- ggplot(feathercort.df, aes(x = AGE, y = FEATHER.CORT)))
```

```
age + geom_point()+geom_smooth(method = "lm")
```

```
## `geom_smooth()` using formula 'y ~ x'
```