Number of flight calls

```
response.name="logst(n.calls)"
elev="e1"
```

```
aic = AIC(mod.interact,
          mod.light.year,
          mod.light); aic
```

```
##                     df       AIC
## mod.interact   26.22691 -364.0446
## mod.light.year 22.57075 -276.7783
## mod.light      22.52872 -276.8101
```

```
calls.e1.model = eval(parse(text=rownames(aic)[which.min(aic$AIC)]))
bm = calls.e1.model
```

The best model includes the $light \times year$ interaction term.

```
summary(bm)
```

```
##
## Family: gaussian
## Link function: identity
##
## Formula:
## eval(parse(text = response.name)) ~ eval(LIGHT) * year + max_eta.e1 +
##     s(as.numeric(eval(TIME)), by = year) + s(eval(BIRD_DENSITY),
##     by = year)
##
## Parametric coefficients:
##                      Estimate Std. Error t value Pr(>|t|)
## (Intercept)          -2.342e+01  2.880e+00  -8.134 1.38e-13 ***
## eval(LIGHT)1          1.519e-01  3.356e-02   4.527 1.20e-05 ***
## year2013             7.632e+00  3.756e+00   2.032  0.04390 *
## year2015            -5.346e+01  5.492e+00  -9.733  < 2e-16 ***
## year2016             9.635e+00  3.070e+00   3.138  0.00204 **
## max_eta.e1           4.233e-07  1.427e-06   0.297  0.76706
## eval(LIGHT)1:year2013 -1.087e-01  4.737e-02  -2.296  0.02306 *
## eval(LIGHT)1:year2015  3.107e-01  4.517e-02   6.877 1.49e-10 ***
## eval(LIGHT)1:year2016 -9.658e-02  5.088e-02  -1.898  0.05957 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Approximate significance of smooth terms:
##                                     edf Ref.df      F  p-value
## s(as.numeric(eval(TIME))):year2010 0.8308 0.8309 99.157  < 2e-16 ***
## s(as.numeric(eval(TIME))):year2013 1.0912 1.2291 35.199 0.001458 **
## s(as.numeric(eval(TIME))):year2015 1.5598 1.5603 69.656  < 2e-16 ***
## s(as.numeric(eval(TIME))):year2016 0.5385 0.5388 23.884 0.000447 ***
## s(eval(BIRD_DENSITY)):year2010     6.2036 7.0849  7.762 2.59e-08 ***
## s(eval(BIRD_DENSITY)):year2013     1.0000 1.0000  0.638 0.425828
## s(eval(BIRD_DENSITY)):year2015     6.0761 7.0266 17.366  < 2e-16 ***
## s(eval(BIRD_DENSITY)):year2016     1.1145 1.2185  0.129 0.629785
## ---
```