```
## Family: gaussian
## Link function: identity
##
## Formula:
## eval(parse(text = response.name)) ~ eval(LIGHT) + year + s(as.numeric(eval(TIME)),
##     by = year) + s(eval(BIRD_DENSITY), by = year)
##
## Parametric coefficients:
##                Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -9104.3033  3624.2956  -2.512   0.0128 *
## eval(LIGHT)1     0.6030     0.1508   3.997 9.17e-05 ***
## year2012      3548.9179  4249.1148   0.835   0.4046
## year2013      9179.5991  4062.8409   2.259   0.0250 *
## year2015      6153.2760  3960.3706   1.554   0.1219
## year2016      7001.7664  5347.7746   1.309   0.1920
## ---
## 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 1.000  1.000 6.287  0.0128 *
## s(as.numeric(eval(TIME))):year2012 1.000  1.000 6.248  0.0133 *
## s(as.numeric(eval(TIME))):year2013 1.000  1.000 0.000  0.9982
## s(as.numeric(eval(TIME))):year2015 1.000  1.000 3.408  0.0664 .
## s(as.numeric(eval(TIME))):year2016 1.000  1.000 0.286  0.5932
## s(eval(BIRD_DENSITY)):year2010     1.873  2.358 1.040  0.3603
## s(eval(BIRD_DENSITY)):year2012     1.000  1.000 1.462  0.2281
## s(eval(BIRD_DENSITY)):year2013     1.790  1.956 0.313  0.6989
## s(eval(BIRD_DENSITY)):year2015     2.573  3.188 2.310  0.0881 .
## s(eval(BIRD_DENSITY)):year2016     1.122  1.231 0.080  0.7182
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## R-sq.(adj) =  0.291   Deviance explained = 35.4%
## GCV = 0.71656  Scale est. = 0.65019   n = 209
```

Results for the main text:

```
res = summary(bm)$p.table
res = cbind(res,Factor=10^(res[,"Estimate"]))
# Effect of light after exponentiating the coefficient to get multiplicative factor
print.model.summary(res[2,5],res[2,3],res[2,4],units="x",effect.word="factor")
```

```
## [1] "factor = 4x, t = 4.00, P < 0.0001"
```

Some deviation from the normal line, but all points are either within the bounds of the simulated datasets or very close.

```
qq.gam(bm,rep=1000,pch=1,level=1)
```