Juvenile proportion GAM

GAM as a mixed model

- GAMs can include smooths of factors while using a 'random effect' smoothing basis, making the GAM a mixed model
- Formula:

```
## propjuv ~ ti(Breeding_year) + ti(days) + ti(Breeding_year, days) +
##     s(lon, k = 4) + s(zone, bs = "re") + s(Observer, bs = "re") +
##     s(Food_type, bs = "re") + s(flocksize, bs = "re")
```

- Model has a high AIC score: 1619.1254969

Model summary

- Breeding year is the only significant fixed effect, flocksize the only significant random effect.

```
##                               edf      Ref.df       Chi.sq      p-value
## ti(Breeding_year)        3.661495e+00  3.927258 4.757600e+01 2.314996e-09
## ti(days)                 1.000080e+00  1.000160 1.196865e+00 2.739674e-01
## ti(Breeding_year,days)   1.719907e+00  2.112361 2.046965e+00 3.522658e-01
## s(lon)                   1.000065e+00  1.000129 1.887291e+00 1.695205e-01
## s(zone)                  1.709083e-05  2.000000 1.590334e-06 9.300557e-01
## s(Observer)              9.749186e-05 28.000000 5.940974e-05 7.492460e-01
## s(Food_type)             2.422394e-04 18.000000 4.191758e-05 1.000000e+00
## s(flocksize)             7.736071e-01  1.000000 3.208603e+00 4.166169e-02
```

Visualising trend