

Additional file 3

Modelling evening fuel load

Each evening fuel load could not be measured for every of the 30 birds, because not all present birds fed within two hours before sunset (Additional file 4). Evening fuel load was measured only once in one bird, but usually two to four times per individual (median = 3). Thus, the variable evening fuel load ($efl_{i,t}$) contained missing values. These missing values were imputed by using a linear mixed regression on day since arrival ($daysa_{i,t}$) with individual intercept and individual slope:

$$efl_{i,t} \sim \text{Norm}(mefl_{i,t}, \sigma_{efl})$$

$$mefl_{i,t} = \gamma_0 + b_i + (\gamma_1 + d_i)daysa_{i,t}$$

with $b_i \sim \text{Norm}(0, \sigma_b)$ and $d_i \sim \text{Norm}(0, \sigma_d)$.

We then used the model predictions for each individual and day for those days where no measurements were available.