

**Figure S4. Identification of the time window in which mean ambient temperature best explains flycatcher laydate. Related to Figure 4. (A–D)** Only in a small number of windows did mean breeding site temperature show a strong relationship with laydate. The model-averaged best climate window occurred between March 29 and May 13. **(A)** Cumulative model weight; models summing to 0.95 of cumulative weight occupied a small range of windows. **(B)** Boxplots indicating the starting and ending dates of models summing to 0.95 cumulative weight; boxplots show the median as a line, the interquartile range as a box, and the farthest outliers less than 1.5 times the interquartile range from the box as whiskers. **(C)** Heatmap showing  $\Delta\text{AICc}$  values for all tested climate windows. **(D)** Results of a randomization procedure to determine the probability that the observed signal is a false positive; histogram shows the lowest  $\Delta\text{AICc}$  value for each randomization, and the red dashed line indicates the observed lowest  $\Delta\text{AICc}$  value. **(E–H)** Samplonius et al. [S1] compared several flycatcher populations. Compared to our study, they used different years (1991-2015) and examined a narrower temporal range for possible climate windows. If we apply these methods to our population, estimated slopes of temperature and flycatcher laydate against year for 1991-2015 are comparable with Figure 4 in [S1]: temperature:  $0.074\text{ }^{\circ}\text{C yr}^{-1}$ , 95% CI [0.0055,0.14]; laydate:  $-0.26\text{ d yr}^{-1}$ , 95% CI [-0.39, -0.13]). The model-averaged best climate window occurred between March 26 and April 27. The relationship between laydate and temperature, accounting for longitudinal change over time, was  $-1.1\text{ d }^{\circ}\text{C}^{-1}$  (95% CI [-1.8,-0.37]), and the rate of annual change was  $-0.18\text{ d yr}^{-1}$  (95% CI [-0.31,-0.056]). Not accounting for longitudinal trend, the relationship between laydate and temperature was  $-1.5\text{ d }^{\circ}\text{C}^{-1}$  (95% CI [-2.2,-0.75]). Our detected rate of change in laydate ( $-0.26\text{ d yr}^{-1}$ ) was consistent with the advance predicted by Samplonius et al. [S1], given a measured change in temperature of  $0.074\text{ }^{\circ}\text{C yr}^{-1}$  (see Figure 4 in that study). Similarly, our measured degree of plasticity ( $-1.1\text{ d }^{\circ}\text{C}^{-1}$ , accounting for the effect of year) is comparable with other flycatcher populations in Figure 3 in [S1].