and used the *pvalue* function to determine the probability of discovering the relationship we observed by chance. We determined overall start and end dates by taking an average across models, weighted by the Akaike model weights provided by *climwin*.

We also calculated climate windows for direct comparison with another recent study of phenology in flycatchers [16]. Samplonius et al. [16] (see Figure S4) restricted the length of study years and set their reference date to the average of annual mean laydates (May 2 in our case), searching all possible climate windows at least 15 days in duration between 0-60 days before this date. This was in contrast to the wider search interval (90 days) and the later reference date (June 4) in our analysis, which yielded a larger number of possible windows.

Once we identified these biologically-relevant time windows, we calculated the mean temperature for each year during the window and regressed these values against year to determine the change in temperature during the study period (21 years) and over the entire time series (46 years). We then constructed linear models where the response variable was mean annual laydate. In one model, we included temperature as the sole predictor. In a second model, we included both temperature and year; this allowed us to test whether there was a significant effect of year while accounting for plasticity in response to temperature, and vice versa. In both models, we weighted each observation by the square root of the number of nests monitored in that year.

Because we expected an advance in the birds' spring phenology, we speculated that the birds' climate-sensitive window itself may have also advanced. We explored the possibility of a shifting window by searching for climate windows across different subsets of study years. Specifically, we used subsets that were 23 years in duration (50% of the years in the study), incremented by one year. For example, we started with the 23-year subset from 1973-1995, then 1974-1996, then 1975-1997, etc., until the final subset of 1996-2018. Therefore, in total we tested 24 different subsets. In this manner, we investigated robustness of the climate window approach to small changes in the choice of study years and searched for any longitudinal trends in identified climate windows. We calculated the slope of change in the median date of the window over time and performed 1000 bootstrapped reanalyses with *climwin* to assess the robustness of the slope to variation in sampled nests.

DATA AND CODE AVAILABILITY

All biological data used in the analysis are available within the article and on the Mendeley Data repository (https://doi.org/10.17632/6n38vwnwc7.1). The weather data are publicly available from the German weather service: https://www.dwd.de/EN/climate_environment/cdc/cdc_node.html).