**ReadMe for “Fitness metrics and components.R”**

The following ReadMe gives a brief overview of how to use “Fitness metrics and components.R” to produce the temperature response panels in Figure 1 of the manuscript.

**Input:** User-defined response for a fitness metric or fitness component

**Output:** Plots of temperature responses as in Figure 1 of the manuscript.

**To run:**

1. Select the fitness metric or fitness component by removing the “#” in front of the desired response (making sure that there is a "#" in front of all other responses)
2. Run the script

**Potential issues:**

* The script only works if the working directory (see line 9) is in the main folder of the downloaded GitHub repo

**Script details:**

Lines 5-18 Load required packages, set working directory and have user enter required information

Lines 20-28 Read in habitat temperature parameters and model predictions for *rm* and *R0* and select data for *Clavigralla shadabi* in Benin (change “1,” for different insect populations)

Lines 30-44 Quantify daily mean temperatures (for histograms in Fig. 1A,B)

Lines 46-64 Set plot options and define temperature responses (note: increased mortality at low temperatures is incorporated for illustrative purposes; see Fig. 1D)

Lines 66-75 Plot TPC curves

Lines 77-97 Quantify mean values of *rm* and *R0* (orange and blue points in Fig. 1A,B)

Lines 99-106 Plot temperature histograms for the recent and future climates (see Fig. 1A,B)