VARIABLES EXPLANATION

Each sheet in the file presents different types of data, listed below.

- Clima_NDVI: NDVI stands for Normalized Difference Vegetation Indices and indicates how densely vegetated our study areas are.

- Clima_Worldclim 19Bio: Worldclim 19BIO refers to the 19 most representative climatic variables obtained from Worldclim. BIO1 = Annual Mean Temperature; BIO2 = Mean Diurnal Range (Mean of monthly (max temp - min temp)); BIO3 = Isothermality (BIO2/BIO7) (* 100); BIO4 = Temperature Seasonality (standard deviation *100); BIO5 = Max Temperature of Warmest Month; BIO6 = Min Temperature of Coldest Month; BIO7 = Temperature Annual Range (BIO5-BIO6); BIO8 = Mean Temperature of Wettest Quarter; BIO9 = Mean Temperature of Driest Quarter; BIO10 = Mean Temperature of Warmest Quarter; BIO11 = Mean Temperature of Coldest Quarter; BIO12 = Annual Precipitation; BIO13 = Precipitation of Wettest Month; BIO14 = Precipitation of Driest Month; BIO15 = Precipitation Seasonality (Coefficient of Variation); BIO16 = Precipitation of Wettest Quarter; BIO17 = Precipitation of Driest Quarter; BIO18 = Precipitation of Warmest Quarter; BIO19 = Precipitation of Coldest Quarter.

- Edaphology: Edaphology reflects soil type at each of the localities studied.

- PopGen_Alleles: This sheet presents the allele scoring for each of the 16 microsatellite markers used for population genetics analyses. Sample IDs: "A": Navazo del Toro, "B": Gerena, "C": El Puntal, "D": El Pedroso, "E": Aznalcazar, "F": Constantina. Sample IDs only serve practical purposes and do not have any relation to geographical order.

- Stable Isotopes: We measured carbon and nitrogen using an isotope ratio mass spectrometer to compare the trophic level of the different *E. calamita* populations studied. For carbon, we used the variable "normalized 13C" which are the original ^{13}C values normalized for fat, using the equation $\delta^{13}C_{normalized} = \delta^{13}C_{untreated} - 1.11 + 0.37C:N$ following Caut et al. (2013). "Delta 15N x 1000" is the variable used for ^{15}N. Sample weight (mg) is the weight of the sample weighed to the nearest 0.1 mg and placed in a tin capsule for ^{13}C and ^{15}N determination.

- Standard metabolic rate: Standard metabolic rate refers to the resting metabolic rate of ectotherms. This has been measured in a terrestrial respirometer overnight. For each hour, we averaged the O_2 consumption of the most stable plateau periods. One

single value for O_2 consumption was obtained for each individual, listed in the column "VO2", measured as mL O_2/min.

- Skeletochronology: Skeletochronology refers to the estimation of the chronological age of an animal by counting the lines of arrested growth (LAG) on the cross sections of a bone. In our data, the column "age" refers to the estimated age counting LAGs, and "maturation" refers to the estimated age at maturation.

- Telomeres: A telomere consists of repetitive DNA and associated proteins located at the ends of linear chromosomes. Telomere length is known to shorten as a function of growth and stress, where shorter telomere length is predicted in populations that experienced accelerated growth or high oxidative stress. The column "STD2" is the final telomere length variable we used for our analyses, relative to the amount of the single copy gene GAPDH.

- Advertisement calls: Male advertisement calls were recorded and analyzed. Call characteristics such as call duration (s), interval duration (s), note repetition rate (min^{-1}), and dominant frequency (Hz) were determined.

- Female preference: Female preference assays were done with two loud speakers on both ends of an experimental arena, each playing back the calls of southern males and northern males, to determine female preferences. "Call N" refers to northern calls (incl. Aznalcazar, Gerena, El Pedroso, and Constantina). "Call S" refers to southern calls (incl. Navazo del Toro and El Puntal). A checkmark refers to the choice of a female to each call.