***Experimental evolution reveals that males evolving within warmer thermal regimes improve reproductive performance under heatwave conditions in a model insect***

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7 data files overall that are linked to the findings of this study, incorporated plots and tables/Rscripts - all uploaded in ‘.csv’ format

**1) Filename: Thlevoacclimtestesfull.csv**

Dataset describing testes volume measurements as a consequence of thermal evolution and acclimation of the regimes.

Column A: ID

Thermal regime/line/population identification

Column B: Line

Independent line/population identification

Column C: Replicate

Replicate measures within each unit of interest

Column D: Regime

Identifies which thermal regime

Column E: Reared

Identifies the thermal exposure by regime

Column F: Elytra\_length

Body size measurement

Column G: Testes\_size

Testes volume (mm3)

**2) Filename:** Thlheatwaveacclimationave.csv

Dataset describing offspring counts under thermal acclimation of the regimes (averaged).

Column A: Regime

Identifies which thermal regime

Column B: Rearing.Temp

Thermal exposure of the line/regime

Column C: Line

Independent line/population identification

Column D: Adult.count.20D

Measures of reproductive fitness (offspring counts)

**3) Filename:** Thlheatwaveacclimationfull.csv

Dataset describing offspring counts under thermal acclimation of the regimes (full).

Column A: Line

Line identification/regime

Column B: Replicate

Replicate measurements

Column C: Regime

Independent regime identification

Column D: Rearing

Rearing temperature/exposure

Column E: Adult.count.10D.1

Measures of reproductive fitness first ten day block (offspring counts)

Column F: Adult.count.10D.2

Measures of reproductive fitness second ten day block (offspring counts)

Column G: Adult.count20D

Measures of total (days 1+2) reproductive fitness, sum (offspring counts)

**4) Filename:** Thlheatwaveadaptationave.csv

Dataset describing offspring counts under thermal adaptation of the regimes (averaged).

Column A: Regime

Identifies which thermal regime

Column B: Heatwave.temp

Experimental thermal exposure of the line/regime

Column C: Line

Independent line/population identification

Column D: Adult.count.20D

Measures of reproductive fitness (offspring counts)

Column E: std.dev

Standard deviation calculated

Column F: count

Replicate counts

Column G: std.error

Standard error calculated

Column H: no38.21

Unique coding for ease of plot/analysis

**5) Filename:** Thlheatwaveadaptationfull.csv

Dataset describing offspring counts under thermal adaptation of the regimes (full).

Column A: ID

Identification/regime

Column B: Line

Line identification

Column C: Regime

Independent regime identification

Column D: Heatwave.temp

Rearing temperature/exposure

Column E: Rep

Replicates

Column F: Adult.count.10D.1

Measures of reproductive fitness first ten day block (offspring counts)

Column G: Adult.count.10D.2

Measures of reproductive fitness second ten day block (offspring counts)

Column H: Adult.count20D

Measures of total (days 1+2) reproductive fitness, sum (offspring counts)

**6) Filename:** Thlheatwavesurvival.csv

Dataset describing survival of adults post thermal exposures by regime.

Column A: Replicate

Replicates

Column B: Regime

Thermal regime/population/line

Column C: Rearing

Exposure temperature

Column D: N

Sample size (in groups of single sex) of number of animals per Petri dish exposed

Column E: Survivors

Survivors within the groups (counts)

Column F: Deaths

Deaths within the groups (counts)

Column G: Prop.survivors

Proportions calculated from the preceding columns ($E / $D\*100)

**7) Filename:** Percent change calculations.csv

This dataset involves the summaries (average values) of the different work packages presented in the study and how we arrived at increase/decrease percentages based on the regime.