This dataset contains data from:

The data were collected by:

Devin Arbuthnott, e-mail: darbuth@uw.edu

Tanja Schwander, e-mail: tanja.schwander@unil.ch

The dataset includes the following data files and the described columns.

**Lab Female Mating rate.csv:** results from experiment to measure female mating rate and fecundity when exposed to differing numbers of males in the lab.

*1) Block*: Experimental block (1 or 2). In block 1, wild females collected as adults were used. In block 2, wild females collected as virgins and reared to sexual maturity were used.

*2) trial*: The arbitrary replicate number given to each trial.

*3)* *population*: The population identity of the female and males in the trial.

*4) Number of males*: The number of males present in the petri dish with which the female interacted (1, 2, or 4).

*5) Number of matings*: The observed number of mating events for the experimental female over the course of the experiment.

*6) Number of eggs laid*: The total number of eggs laid by the experimental female over the course of the experiment.

**Polyandry Matings.csv:** results from an experiment measuring female survival, fecundity, and egg hatching success through time when singly or multiply mated.

*1) ID*: arbitrary identification number given to each female.

*2)* *Treatment*: female mating treatment, either mated singly (1x) or multiply (multi).

*3) longevity*: the age (in days) at death of the female.

*4) eggs1-4+*: the number of eggs laid in experimental periods 1-4 (described in methods).

*5) Hatched1-4+*: the number of eggs that hatched of the eggs laid in periods 1 – 4.

*6) hatching1-4+*: the proportion of eggs laid that hatched of eggs laid in periods 1–4.

*7) total hatching*: the overall hatching rate of eggs pooled over all experimental periods.

*8) total eggs*: the cumulative number of eggs laid by each female.

*9) total offspring*: the total number of surviving offspring produced by each female.

**NaturalMatings.csv:** The paternity and effective paternity of eggs laid by wild caught adult females.

*1) Female*: the arbitrary identification number of wild caught females.

*2) # offspring genotyped*: the number of offspring produced by each female that underwent genotyping to assign paternity.

*3) patriline1-6*: the number of offspring sired by males 1 – 6. Patriline identities were randomly assigned, and patrilines do not necessarily coincide across females.

*4) abs paternity*: the absolute number of sires for each female’s cohort of offspring.

*5) effective paternity*: the functional number of sires for each female’s cohort of offspring, taking paternity skew into account.

*6) #eggs*: the number of eggs laid by females while in captivity.

*7) #hatched*: the number of eggs that hatched.

*8) hatching*: the proportion of eggs laid that successfully hatched.

*9) most successful male*: the maximum proportion of offspring that was sired by a single male per female.

*10) B index*: the paternity skew index, which increases as the paternity proportions depart from equality (see text for details).

*11) lower 95% ci*: the lower 95% confidence interval for the B index.

*12) upper 95% ci*: the upper 95% confidence interval for the B index.

*13) B-Equal*: the value that corresponds to the B value expected if males contributed equally to offspring.

**NaturalMatingsGenotypes.csv:** The genotypes of mothers and offspring from the NaturalMatings.csv file used to assign paternity to offspring.

*1) female:* The identity of the genotyped female.

*2) offspring:* the identity of the genotyped offspring of the listed female.

*3) locus*: The identity of the six loci genotyped to determine paternity. The cells listed within the loci represent the alleles present within that locus.

*4) Paternity:* The identified male that sired the genotyped offspring based on output from COLONY. Male identities start over for each female (male 1 for one female does not correspond to male 1 for another female). Values of “P” indicate that offspring were produced via parthenogenesis and thus have no sire.

*5) FatherID:* The identified male that sired the genotyped offspring. Unlike the previous column, each male is given a distinct number.