Table S1: Colony collection, morphometry and fecundity experiment a) Colony collection coordinates, social structure, queen number and queen morph composition (undetermined composition if at least one queen of undetermined morph). **b)** Morphometric measurements of all field-collected queens **c)** Frequency of queen morphs in colonies of different social structure based on 536 colonies collected at 15 different sites in the Chiricahua Mountains, Arizona, August 2015. **d)** Morphometry of queens used in the fecundity experiment. The photos used for the measurements are labelled with colony number, the treatment and the coloration of the queen (red or blue), if necessary. **e)** Design of the fecundity experiment including sample sizes.

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Table S2: Paraquat experiments a) Information on queens used for the calculation of concentration of Paraquat solution used for in order to obtain a similar quantity of paraquat per body mass between the two queens morph. **b)** Results from the multiple comparison for the survival of queens between the different treatments including the *low-Paraquat macrogyne* treatment.

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Table S3: Differentially gene expression analysis. Differentially expressed contigs between macrogynes and microgynes with **a)** the list of upregulated contigs in macrogynes and **b)** the list of upregulated contigs in microgynes; **c)** upregulated transcripts (p-value FDR-adjusted) for each queen morph among the top 10 with the highest Log2FoldChange (LFC) and blast annotated, with their BLAST annotation and species as well as their UniProt function in *Homo sapiens* and the results from the functional enrichment analysis with **d)** the functions enriched in macrogynes and **e)** the functions enriched in microgynes. **f)** Quality statistics of de novo assembled transcriptome **e)** Back mapping rate of trimmed reads against de novo assembled transcriptome.

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Fig. S1: a) Number of eggs per colony according to queen morph and social structure; **b)** reproductive skew in polygynous-macrogynes (MacPo), polygynous-microgynes (MicPo) and mixed experimental colonies; **c)** reproductive skew between polygynous macrogynes according to colony size.

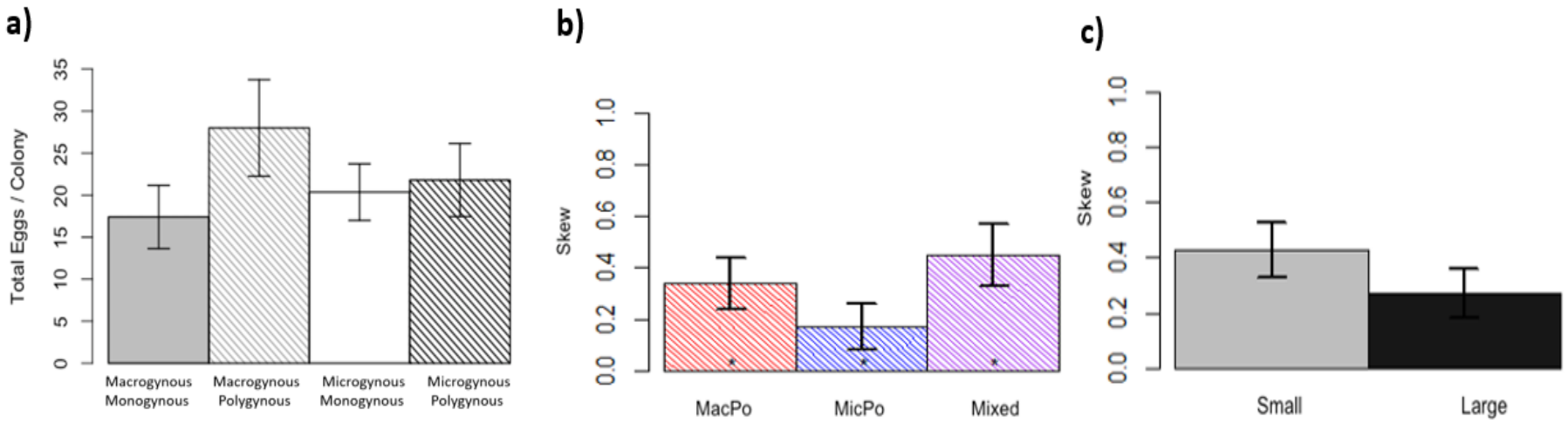

Fig. S2: Influence of spatial distance between queens of the polygynous treatments on **a)** the reproductive skew (LM: x^2 = 3.04; Df = 1; P = 0.09); **b)** the total number of eggs produced (LM: F = 4.76; Df = 1; P = 0.04); **c)** scaling of metabolic rate (in µW and measured at 20°C) of insect species according to their body mass from Chown et al. 2007, with data *T. rugatulus* queens from this study, red for macrogynes and blue for microgynes (mean ± SE); **d)** differences between macrogyne and microgyne queens in survival (dashed grey line: control; dotted grey line: *low-paraquat-macrogyne*; solid grey line : *paraquat-macrogyne*; solid black line *paraquat-microgyne*). Letters summarize post-hoc multiple comparisons (Paraquat-macro vs. control-oil: 5.25, p < 0.01; low-Paraquat-macro vs. control-oil: 2.19, p = 0.12; Paraquat-micro vs. control-oil: 3.84, p < 0.01; low-Paraquat-macro vs. Paraquat-macro: -3.80, p < 0.01; Paraquat-micro vs. Paraquat-macro: -2.35, p = 0.08; Paraquat-micro vs. low-Paraquat-macro: 1.94, p = 0.21).