

Fig. S1. Sum of daily behaviors for groups of alate gynes and groups of dealate gynes. Gyne-initiated behaviors within each day of filming over two weeks for two groups of alate gynes (A9 and A17) and three groups of dealate gynes (D9, D13, and D17) used in Behavioral Experiment #2. D9 was not observed from days 5-9 and days 11-14 after the onset of filming. The duel totals for D9 are only a subset of that day. Alate gynes in an additional group did not show either behavior over the two-week period.

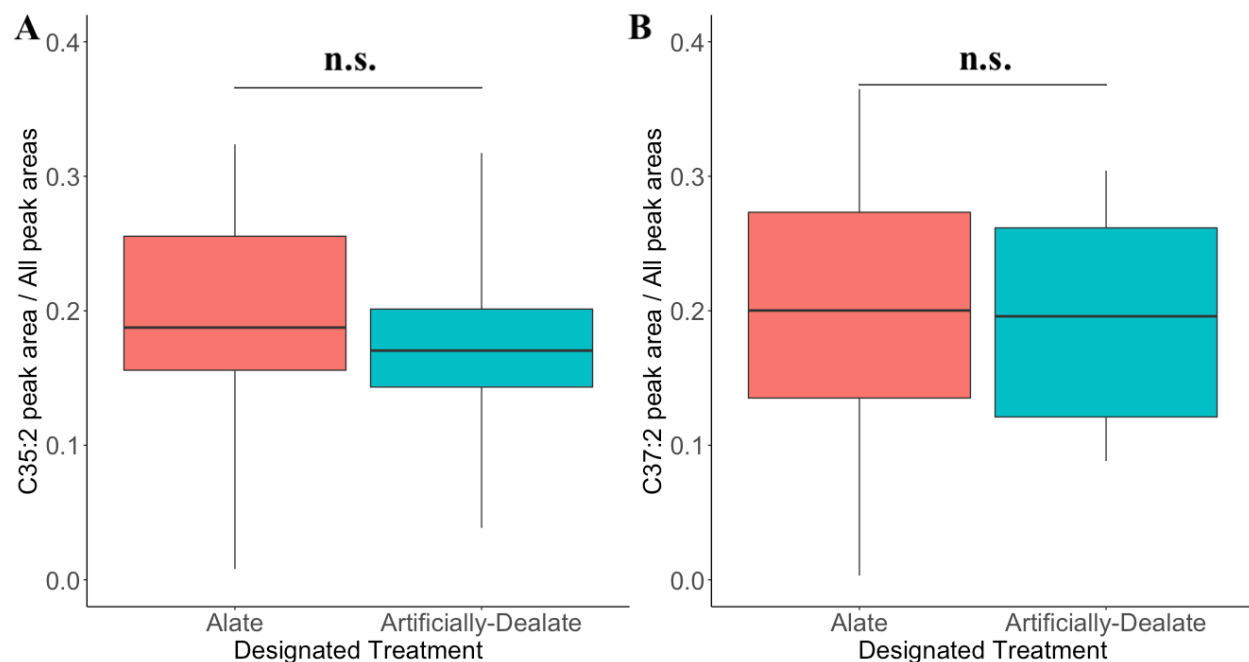


Fig. S2. One-month alate gynes in 11 colonies with established reproductives designated for different treatments show similar abundances of C35:2 or C37:2 on their cuticles. Box shows median and interquartile range, while whiskers show all data outside the interquartile range (Alate $n=34$ gynes; Artificially-Dealate $n=17$ gynes; Wilcoxon tests, **A**) Wilcoxon test Worker-like behavioral and physiological phenotype in queens with removed wings in a ponerine ant C35:2 by designated treatment, $W = 306$, $p\text{-value} = 0.27$; **B**) LMM, $F_{1, 37.6121}=0.08$, $p\text{-value} = 0.77$).

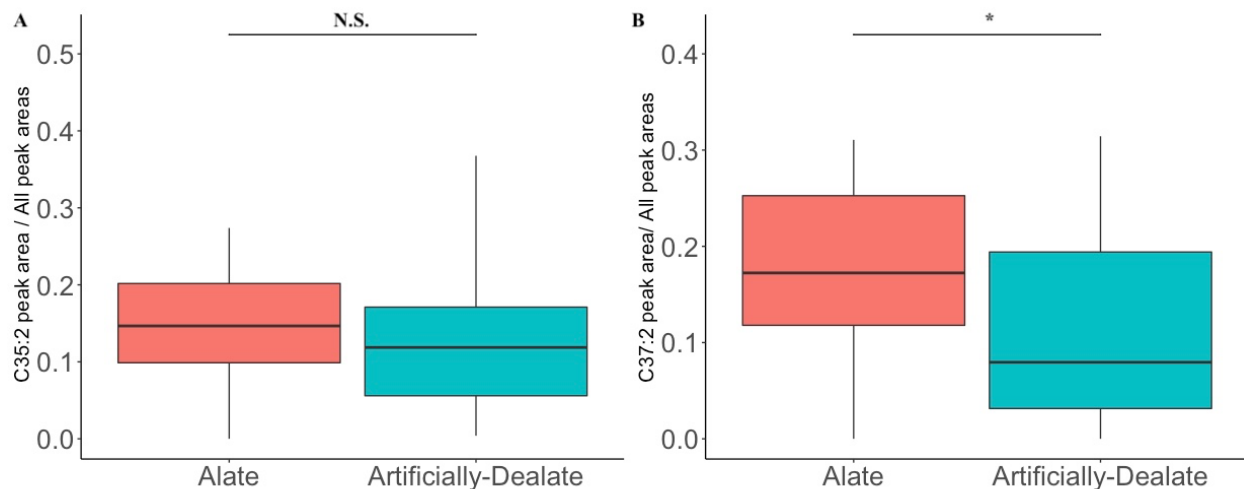


Fig. S3. Two-month alate gynes in 11 colonies with established reproductives show higher abundance of C37:2, but not C35:2 on their cuticles compared to similarly-aged artificially- dealate gynes. Box shows median and interquartile range, while whiskers show all data outside the interquartile range (Alate $n=21$ gynes; Artificially-Dealate $n=15$ gynes). *: p -value < 0.05 . **A)** LMM, $F_{1, 28.2708}=0.8414$, p -value $=0.37$; **B)** LMM, $F_{1, 26.8998}=6.45$, p -value $=0.02$.

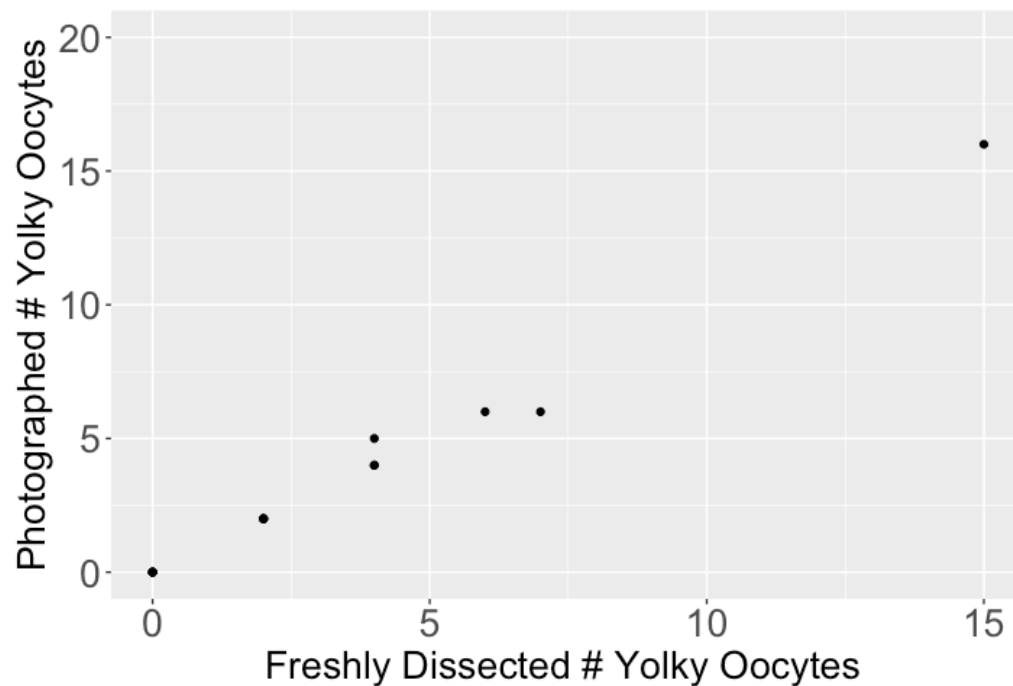


Fig. S4. The correlation between the number of yolky oocytes of blind estimates from photographs of ovary dissections of gynes and the counts made by another observer of the same ovaries when they were freshly-dissected (Pearson's correlation: 0.99, $n=14$).