Assessing the importance of ecological factors in driving sex ratios of populations of *Polemonium foliosissimum*, a gynodioecious plant

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Gynodioecy is a breeding system in flowering plants in which there are coexisting hermaphrodite and female morphs. Gynodioecy is thought to be the most likely intermediate in the evolutionary pathway from hermaphroditism (where all flowers on plants have male and female parts) to dioecy (plants are either male or female), a transition that has occurred in over half of flowering plant families. Considerable research effort has been aimed at understanding the factors that contribute to the stability of gynodioecy, for example, in understanding what factors influence sex ratios across populations. There is evidence for both ecological and genetic factors as drivers of sex ratio variation. *Polemonium foliosissimum* is self-incompatible, meaning that hermaphrodites and females alike require pollen from another individual to set seed. In virtually all species studied to date, one of the main presumed fitness advantages for females is that their offspring may be of a higher quality than those of hermaphrodites owing to the fact that the former are the result of obligately outcrossed matings and the latter are presumably often selfed, yet this factor is not at play for *Polemonium*. I will use path analysis to test the strength of two models in predicting sex ratios across 30 populations, one which explores direct and indirect effects of ecological factors and another in which environmental/genetic factors are represented. In the ecological model I will include pollinator visitation rates (using stigma pollen loads as a proxy), seed predation rates, relative seed production of sex morphs, and abundance of flowering competitors. The second model includes population size and elevation. Preliminary analyses suggest that ecological factors may be important in driving sex ratios in this system, as population size is very weakly correlated ($r = 0.0019$) as is elevation ($r = 0.0073$).