Plant sex and size influence nutrient content and mycorrhizal colonization of the gynodioecious plant *Polemonium foliosissimum*

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Females of gynodioecious plants must compensate for loss of male function. One way in which they might do so is to enhance resource acquisition through symbiotic mycorrhizal fungi and, in turn, produce more seeds than hermaphrodites. We investigated the relationship between female and hermaphrodite *Polemonium foliosissimum* and their mycorrhizal associates. A fully factorial clipping experiment was conducted in the field, thus reducing the carbon available to be exchanged with the fungal partner. Mycorrhizal colonization of roots was quantified and soil and plant tissue analyses were performed. Although females and hermaphrodites did not differ in percent mycorrhizal colonization, the leaves of females contained higher amounts of potassium and sulfur. Percent colonization was significantly correlated with leaf concentrations of aluminum, iron, magnesium, and calcium. Further, the size of the plant host influenced mycorrhizal colonization prior to and subsequent to the clipping treatment. Last, mycorrhizal vesicle colonization increased in plants subject to the clipping treatment. Taken together, our data suggest subtle, but potentially important, gender-specific relationships with mycorrhizal fungi.