

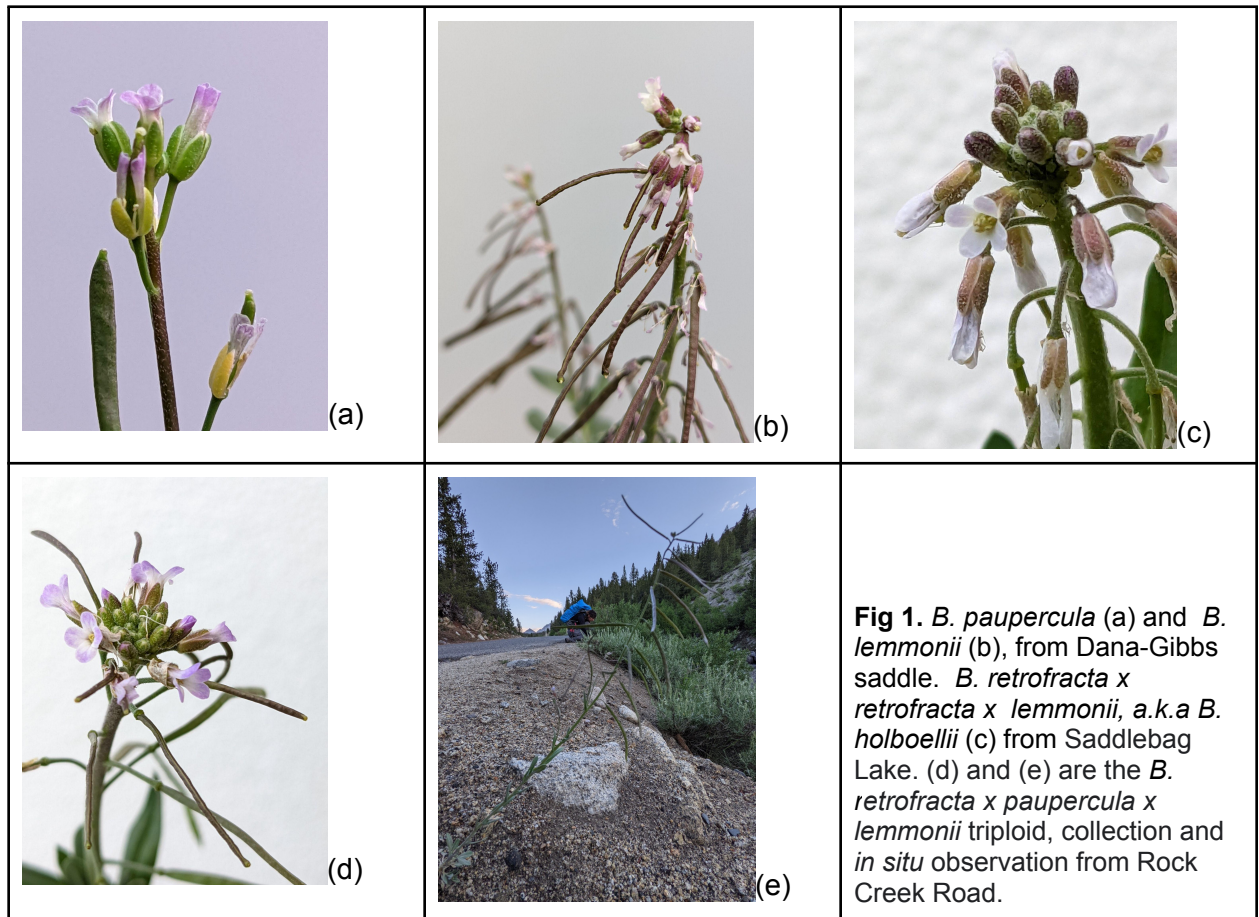
## Unusual Robustness of a Novel *Boechera* of the Eastern Sierra 2021 Mary DeDecker Botanical Grant Progress Report

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In 2004, an inconspicuous, intermediate-looking *Boechera* was collected high in the Clark range in southeastern Yosemite. This mountain plant conformed to no known species, but laboratory testing at SDSU revealed that the plant had unusual heat stress tolerance, surpassing even its desert-dwelling relations. Genetic testing suggested that the plant was a triploid hybrid of *B. retrofracta*, *B. paupercula*, and *B. lemmonii*. In my 2021 field work, I returned to the original Yosemite collection site as well as numerous sites throughout the Eastern Sierras in Mono and Inyo counties in search of more of these strange plants. In my 12 collecting trips between July and August, I logged over a thousand *Boechera* observations, and collected over 100 tissue and seed samples of (putatively) the novel triploid and other *Boechera* hybrids, as well as the parental species *B. retrofracta*, *B. paupercula* and *B. lemmonii*. Genetic analysis is ongoing. However, morphological review confirms that the novel triploid exists in significant numbers at Red Peak Pass, Ottoway Lakes, Merced Peak, Saddlebag Lake, Gardisky Lake, Ruby Lake and along Rock Creek Road. For the next two years, I will be continuing genetic assessment of the collections, completing stress test assessments, expanding my field work, and performing a population analysis to elucidate the extent, origin and population dynamics of the (as yet unnamed) *retrofracta* x *paupercula* x *lemmonii* triploid.



**Fig 1.** *B. paupercula* (a) and *B. lemmonii* (b), from Dana-Gibbs saddle. *B. retrofracta* x *retrofracta* x *lemmonii*, a.k.a *B. holboellii* (c) from Saddlebag Lake. (d) and (e) are the *B. retrofracta* x *paupercula* x *lemmonii* triploid, collection and *in situ* observation from Rock Creek Road.