

Exploring potential hybridization in a rare endemic species of Indian paintbrush (*Castilleja christii*, Orobanchaceae) using molecular and morphological techniques

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Hybridization is abundant throughout the plant world and is an important evolutionary process for most angiosperm species. Though hybridization can give rise to new species, it can also lead to extinctions via genetic swamping in rare individuals, making species with restricted ranges interesting subjects in which to frame questions around hybridization. The partially parasitic genus Indian paintbrush (*Castilleja*; Orobanchaceae) has a high potential for hybridization (Heckard and Chuang, 1977). On Mt. Harrison (Cassia county, Idaho), the federally threatened, endemic Christ's Indian paintbrush (*Castilleja christii*) co-occurs with several other species of Indian paintbrush. Field observations of morphologically intermediate putative hybrids between *C. christii* and other congeneric species have led us to explore putative hybridization events within the population of *C. christii*, which to date have not been explored scientifically. Because hybrids may possess characters novel to those of parental species, molecular techniques are employed in addition to morphological comparisons, as a means of identifying natural hybridization with more confidence. Hybrid indices will allow us to estimate the degree of hybridization between *C. christii* and congeneric species. If hybridization is occurring between *C. christii* and other congeneric species, hybrid indices are expected to show intermediate values for hybrids, both morphologically and molecularly via shared markers from both parental species in hybrid individuals. If hybrid individuals are closer in hybrid index scores to one of the parental species, introgression may be occurring which has potential impacts on the unique genetic identity of *Castilleja christii*.