

Interactions between hemiparasites, hosts, and herbivores

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Background: Golden paintbrush is a hemiparasite, meaning that in addition to photosynthesizing, it attaches to the root systems of neighboring host plants and acquires water, carbon, nutrients, and secondary compounds. Golden paintbrush is a larval food plant for Taylor's checkerspot butterfly. Both species occur in Puget lowland prairies and are federally protected.

Key question: Does the identity of golden paintbrush's host plant indirectly influence survival or performance of checkerspot larvae when they eat golden paintbrush? How?

Methods: During summer 2014, golden paintbrush will be grown in a greenhouse in pots with one of six hosts. We will introduce checkerspot larvae to half of the paintbrush plants from each host treatment, and measure survival and several metrics of performance for both the paintbrush and the checkerspot larvae.

Taylor's checkerspot (*Euphydryas editha taylori*) is a subspecies of Edith's checkerspot. This study will use *E. editha colonia* as a surrogate since *taylori* is endangered.



herbivore

Taylor's checkerspot caterpillar

hemiparasite

golden paintbrush

host

one of six species:

Oregon sunshine

western buttercup

lanceleaf plantain

Roemer's fescue

yarrow

lupin

