

*Effects of Plant Chemical Variation
on a Specialist Herbivore: Willow Leaf Beetles
in the Eastern Sierra Nevada*

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Abstract. Predators may play an important role in determining the suitability of plants to insect herbivores. Results of a study on the effects of predators on the interaction between a leaf beetle, *Chrysomela aenicollis* Schaeffer (Family Chrysomelidae), and its willow host plants are presented in this paper. In the eastern Sierra Nevada, this beetle occurs only at high elevations (2,440 to 3,350 m or 8,000 to 11,000 ft). Its larvae use salicin, a toxic chemical present in the leaves of their host plants, to produce their own defensive secretion, salicylaldehyde. This defensive secretion can deter potential predators from attacking the larvae. Along *C. aenicollis*'s range, species of *Salix* (willow) are extremely variable in their salicin contents, and *C. aenicollis* larvae cannot produce their secretion on the lowest-salicin willow species. I predicted that *C. aenicollis* should be attracted to high-salicin willows. Indeed, in laboratory-choice tests, larvae and adults preferred high-salicin

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