ABSTRACTS
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VARIATION IN FEMALE SEX PHEROMONE AND MALECHOICE AND NO-CHOICE ASSAYS IN *Cadra cautella*

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The female sex pheromone of *Cadra cautella* is a two-component blend of (*Z*,*E*)-9,12-tetradecadienyl acetate (*Z*9,*E*12-14:Ac) and (*Z*)-9-tetradecenyl acetate (*Z*9-14:Ac). An earlier study documented considerable heritable variation in pheromone component titers and ratio. This study used choice and no-choice assays to quantify the consequences of variation in blend ratio in terms of male orientation behavior. Results from the no-choice assays demonstrated no effect of blend ratio on male wing-fanning and flight initiation behaviors. The number of males contacting the point source was not independent of blend ratio. Significantly more males contacted point sources of blends of both pheromone components than point sources of the major component (*Z*9,*E*12-14:Ac) alone. Results from the choice assays were consistent with weak stabilizing acting on blend ratio. The no-choice assays suggest that in male *Cadra cautella*: 1) the initiation of orientation flight is independent of blend ratio; and 2) location of the point source is independent of blend ratio provided both pheromone components are present. The choice assays suggest that unlike the no-choice assays there are consequences associated with variation in blend ratios that can be measured in terms of male orientation behavior. The significance of these results, are contingent on whether choice or no-choice assays are behaviorally relevant and will be discussed.

MULTI-RESPONSE PERMUTATION PROCEDURES, THE ASSUMPTION OF HOMOGENEITY OF VARIANCES AND TRAP CATCH DATA

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Few data sets generated as a part of trapping studies are able to satisfy the assumptions of normality and homogeneity of variance, in particular those with negative controls. In general, published studies rely on transformations to satisfy the assumption of normality. Unfortunately, data transformed to meet the assumption of normality will not necessarily satisfy the assumption of homogeneity of variance. Using eight key words commonly

Progression of pitch canker on Monterey pines for 13 years indicate that some Monterey pines gained natural resistance against *F. circinatum*. Further studies with repeated, widely spaced artificial inoculations of the same trees with *F. circinatum* lead to progressively smaller lesions, suggesting a systemically induced mechanism of resistance in Monterey pines. Natural occurrence of induced resistance in Monterey pines may be influenced by the amount of inoculum to which trees are exposed by tasting and feeding activities of beetles. Our objectives were to determine the relative importance of each of the known phloem and wood-boring beetles associated with *F. circinatum* and to determine how phoresy (proportion of the catch with propagules) and spore load (number of spores carried by an individual insect) on these insects relate to risk of disease transmission and tree resistance.

We have determined the natural propagule load on several species of beetles from the three native Monterey pine forests in 2004 and 2005. The phoresy rates and spore loads of *I. mexicanus* varied with season in each site. Implications to conifer defense theories in exotic pathogen-native host system will be discussed.

LINKS BETWEEN AGRICULTURAL CROPS AND NATURAL AREAS: DISPERSAL AND HABITAT SELECTION OF INSECT PREDATORS

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Insect predators play an important role in biological control of insect pests in many agricultural crops. These predators are typically generalists in both prey and habitat selection. Consequently, the larger spatial context in which a particular agricultural field occurs has been stressed by many as an important determinant of the intensity of predation of insect pests within that field. Conversely, many have stressed also the importance of agricultural fields in serving as nursery sites that sustain and promote populations of insect predators, which then disperse from these fields to other habitats both natural and cultivated. Such interplay and exchanges between individual habitats within a landscape serve well to highlight the frequently convergent concerns and aims of production agriculture and conservation biology. I will explore these ideas by focusing on one major group of insect predators, ladybird beetles (Coccinellidae), and their use especially of a major nursery crop (alfalfa) as set within the larger landscape of additional habitats of the intermountain West. I will present data from field experiments to explore the importance of local prey availability on habitat and patch selection by these predators.

ATTRACT-AND-KILL BAIT STATIONS SUCCESSFULLY REDUCE CUTWORM NUMBERS IN WASHINGTON GRAPE VINEYARDS, 2003-2005

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