

Arthropod Pests and Predators Associated With Bittersweet Nightshade, a Noncrop Host of the Potato Psyllid (Hemiptera: Triozidae)

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Abstract

Bittersweet nightshade (*Solanum dulcamara* L.) is a key noncrop host of the potato psyllid (*Bactericera cockerelli* Sulc), proposed to be a source of the psyllids that colonize potato (*Solanum tuberosum* L.) fields in the northwestern United States. Here, we describe the broader community of arthropod potato pests, and also predatory arthropods, found in bittersweet nightshade patches. Over 2 yr, we sampled arthropods in patches of this weed spanning the potato-growing region of eastern Washington State. The potato psyllid was the most abundant potato pest that we found, with reproduction of these herbivores recorded throughout much of the growing season where this was measured. Aphid, beetle, and thrips pests of potato also were collected on bittersweet nightshade. In addition to these herbivores, we found a diverse community of >40 predatory arthropod taxa. Spiders, primarily in the Families Dictynidae and Philodromidae, made up 70% of all generalist predator individuals collected. Other generalist predators included multiple species of predatory mites, bugs, and beetles. The coccinellid beetle *Stethorus punctillum* (Weise) was observed eating psyllid eggs, while the parasitoid wasp *Tamarixia triozae* (Burks) was observed parasitizing potato psyllid nymphs. Overall, our survey verified the role of bittersweet nightshade as a potato psyllid host, while suggesting that other potato pests also use these plants. At the same time, we found that bittersweet nightshade patches were associated with species-rich communities of natural enemies. Additional work is needed to directly demonstrate movement of pests, and perhaps also predators, from bittersweet nightshade to potato fields.

Key words: *Bactericera cockerelli*, green peach aphid, Colorado potato beetle, generalist predator, spider