



BUL 1037

Centrocoris volxemi—A Newly Introduced Idaho Insect



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Introduction and Description

CENTROCORIS VOLXEMI (PUTON) is an introduced non-native true bug (Order: Hemiptera, Suborder: Heteroptera, Family: Coreidae) with a mottled brown and white overall appearance. This insect is about one-third of an inch in length as an adult. The native range of this insect includes Iran, Iraq, Russia, Turkey, Turkmenistan, Uzbekistan, Kazakhstan, Saudi Arabia, Korea, China, and Indochina. Discovery of *C. volxemi* in the United States (Utah) was first verified in 2020 in iNaturalist photographs (<https://www.inaturalist.org>) and in the summer of 2021 in Box Elder County/Tremonton, Utah (Zahniser et al. 2022). Shortly after those observations (in late October 2021) it was collected in Elmore County/Mountain Home, Idaho, and identified to species-level by Heteropteran expert Michael Forthman (California Department of Food and Agriculture) (personal communication 2021). To date, scientists do not know how it arrived in the United States, though it could have been via common worldwide transportation, freight, and/or imported plant materials. Since its introduction and establishment, the insect has expanded its known range in the United States and Idaho. It has been documented numerous times in Ada, Canyon, Bonneville, and Bear Lake Counties (iNaturalist 2022).

C. volxemi adults are dull to light brown with white specks on the forewings and white markings around the margin of the abdomen (Figure 1). They have four-segmented antennae, but two segments are distinguishably thicker, the segment closest to the head and the apical segment, which often also appears darker in coloration. The eye color matches that of its body, a dull to light brown mottled appearance. These insects are known to be great fliers as adults, especially if they are disturbed. They may become a nuisance home-invading insect during the late fall or early winter, when they seek refuge for overwintering locations. They overwinter as adults in refuge sites and locations inhabited by humans. Relatively large populations (dozens of individuals in one location) have been observed on the sides of residences, other buildings, and recreational vehicles in Mountain Home, Pine, and Featherville, Idaho.



Figure 1. Adult *Centrocoris volxemi*, showing the mottled brown and white overall appearance with white markings on the forewings and abdominal margin. Courtesy of Ellie Poulton.

Life Cycle and Host Plants

C. volxemi goes through incomplete metamorphosis (hemimetabolous) with three distinct life stages (egg > nymph > adult) and one known generation per year in temperate regions. Eggs hatch about two to three weeks after they are laid in the spring. Nymphs appear as light tan insects overall, mottled with darker brown specks throughout the entire body (Figure 2). Nymphs go through a total of five nymphal instars, molting each time and developing into adults in about two weeks, depending upon ambient temperatures and adequate food supply. After reaching adulthood, adults begin mating in the late summer or early fall. As temperatures and daylength decrease, *C. volxemi* adults search for protected overwintering sites (including homes, sheds, shops and the like). In the early spring females begin laying eggs for the new generation; each female may lay hundreds of eggs, mainly upon the soil surface or in leaf litter.



Figure 2. Fifth instar *C. volxemi* nymph, scale bars = 1 mm. Adapted from figures 5 and 6 in Zhaniser et al. (2022). Courtesy of James N. Zahniser, United States Department of Agriculture Animal and Plant Health Inspection Service.

As with all true bugs, *C. volxemi* have piercing-sucking mouthparts that are inserted into food sources to feed. These insects are strictly plant feeding and their main host plant in the United States appears to be prickly Russian thistle, *Salsola tragus* (Figure 3). Because prickly Russian thistle is quite common throughout the Intermountain West and *C. volxemi* has no known natural enemies, it is speculated to have the capability to widely disperse throughout Idaho and adjoining states in the upcoming years. Prickly Russian thistle is officially listed as a noxious weed in California, Arkansas, and Ohio. The entire host plant range of *C. volxemi* is also unknown to date, though science recognizes plants within the genus *Salsola* as a known and documented host plant.



Figure 3. *C. volxemi* on prickly Russian thistle (tumbleweed).

Pest Status, Management, and Possible Expansion throughout Idaho

Because *C. volxemi* is unlikely to drastically damage host plants in Idaho and because of the sheer abundance of prickly Russian thistle, this insect may become a nuisance pest. Adults may form large aggregations near protected areas (homes, sheds, shops, etc.) during the late fall and may enter these structures to overwinter. These insects possess scent glands as well, on each metathoracic

segment (second thoracic segment), which release unpleasant smells if disturbed or physically crushed. The combination of forming large aggregations in buildings or structures and the possibility of releasing odorous chemicals make *C. volxemi* a potential nuisance pest. Currently, there are no legal insecticides registered in Idaho for homeowner or commercial use to specifically manage this insect.

If large populations exist near homes/buildings, we recommend implementing several management strategies (Integrated Pest Management) to help control *C. volxemi* as nuisance pests. First and foremost, “bug proofing” your home/building by sealing entry points is a key strategy. Improving weather stripping on loose-fitting exterior doors, caulking around windows, and repairing screen doors should reduce the ability of these bugs to enter. Using a standard shop vacuum to physically remove them prevents foul odors from permeating or staining carpets and furniture. Deploying sticky traps around windowsills or entry points physically captures adults as they try to enter for overwintering purposes. Using diatomaceous earth as a barrier insecticide treatment around homes is a least-toxic alternative chemical approach. Lastly, several active ingredients listed for use in Idaho are available as broad-acting nerve poisons or insect growth regulators for barrier insecticide treatments. These active ingredients are sold under dozens of commercial trade names and include acephate, beta-cyfluthrin, bifenthrin, carbaryl, chlorfenapyr, cyfluthrin, cyhalothrin, cypermethrin, deltamethrin, esfenvalerate, fipronil, fluvalinate, gamma-cyhalothrin, imidacloprid, lambda-cyhalothrin, novaluron, permethrin, pyriproxyfen, and zeta-cypermethrin. All pesticides, including least-toxic alternatives, have benefits and potential hazards. Please read and follow the pesticide label for specific directions, paying attention to the directions for use and application rates. Inconsistent use of a product or disregarding the label is a violation of both state and federal laws.

Since the initial discovery in the United States near Tremonton, Utah, in 2021, the insect has spread throughout surrounding areas of Idaho, including southern Idaho from as far west as Nampa and as far east as Idaho Falls and Georgetown, Idaho. In 2021, sightings of *C. volxemi* in Idaho had only been reported in and near Mountain Home and possibly near Arco. Given the current establishment of this insect, its wide availability, flight capability, as well as genetic and phenotypic plasticity, plus a statewide abundance of host plants, the insect might continue its quick expansion throughout Idaho and adjoining states with similar climates to its native range. As of late summer 2022, iNaturalist reported observations of individual adults as far south as Hurricane, Utah, as far east as Vernal, Utah, as far north as Star, Idaho, and as far west as Nampa, Idaho.

References

- iNaturalist. 2022. “*Centrocoris volxemi*.” <https://www.inaturalist.org/taxa/958021>, accessed 21 October 2022.
- Zhaniser, J. N., T. J. Henry, Z. R. Schumm, L. R. Spears, C. Nischwitz, B. Scow, and N. Volesky. 2022. “*Centrocoris volxemi* (Puton) (Hemiptera: Heteroptera: Coreidae), First Records for North America and Second Species of the Genus in the United States.” *Proceedings of the Entomological Society of Washington* 123(4): 878–88.

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