

# Western Conifer Seed Bug

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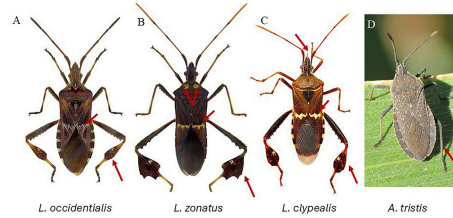
## Quick Facts

- The western conifer seed bugs are leaf-footed bugs with a leaf-like expansion of their hind legs.
- Adults have a faint, thin white zigzag across their backs, unlike other leaf-footed bug species.
- They feed on conifer needles and on seeds of conifer cones.
- In fall, conifer seed bugs seek shelter in homes and structures.
- They do not bite nor do they damage houses.
- Exclusion is the best strategy to manage them.

## Description

The western conifer seed bug (*Leptoglossus occidentalis*) belongs to the family Coreidae, also known as leaf-footed bugs. Almost all insects in this family have hind legs (i.e., back legs) with expanded tibiae (fourth segment of the leg) that look like leaves, hence the name “leaf-footed” bug.

Besides the western conifer seed bug, three other species of leaf-footed bug are commonly present in Utah: the squash bug (*Anasa tristis*), *Leptoglossus zonatus*, and *L. clypealis*. The squash bug is considered the most economically important species in Utah due to the damage it causes to squash. Unlike other leaf-footed bugs, the squash bug lacks the characteristic leaf-like tibia, making it easier to distinguish from other species. Adults western conifer seed bugs are similar in appearance to *L. zonatus* and *L. clypealis*, but they have a faint white zigzag across the back. In contrast, in the other two species, the white line is thicker (Fig. 1). Other distinguishable features include the presence of a pointed spine called a clypeus at the front of the head of *L. clypealis* and two yellow spots just behind the head of *L. zonatus*. Additionally, both *L. clypealis* and *L. zonatus* feed on a variety of plants, whereas the western conifer seed bug primarily feeds on conifer needles and seeds.



**Figure 1.** Leaf-

footed bugs present in Utah and distinguishing morphological characters (red arrows)

(A) The western conifer seed bug, *Leptoglossus occidentalis*, is characterized by a faded white zigzag line on its back<sup>1</sup>; (B) *Leptoglossus zonatus* is distinguishable by two yellow spots just behind its head<sup>1</sup>; (C) *Leptoglossus clypealis* bears a long clypeus<sup>2</sup>; (D) The squash bug, *Anasa tristis*, note the absence of leaf-shaped tibia. Credit: USU Extension.



**Fig. 2.** Adult

western conifer seed bug with wings closed (left) and wings opened<sup>3</sup> (right). Credit: USU Extension.

**Adults:** Adults are about 3/4 inch long and brown to reddish in color. The abdomen is yellow or light orange with five black stripes on the edge. The full orange and black patterns appear on the abdomen during flight when wings are opened (Fig. 2). Adults produce a loud buzz when flying and have scent glands that emit an odor similar to pine. Adults also have long legs and long, thin antennae.

**Nymphs:** Young nymphs are orange and become reddish to brownish as they molt into older instars (Fig. 3). Nymphs are distinguished from adults by having wing pads instead of fully developed wings. There are five nymphal stages in total.



**Fig. 3.** *Western*

*conifer seed bug nymph.*<sup>4</sup>

**Eggs:** Eggs are about 0.08 inch each and light brown when freshly laid, becoming reddish when older. Females deposit eggs in chains on needles.

## Native Range

The western conifer seed bug was first reported in Utah in 1910. Its original western U.S. range spanned from Canada to Mexico and from the Pacific Coast to Colorado. With the help of transportation and commerce, the insect reached the Midwest by the end of the 1960s and the East Coast by the 1980s. In the 1990s, it was reported in the Northeastern U.S. and Southeastern Canada. In addition, the western conifer seed bug has spread to many regions of the world, including Europe, South America, South Africa, and Australia.

## Life Cycle

Western conifer seed bug has one generation per year in Utah. Adults emerge from their overwintering sites in May and June and begin to lay eggs on needles. Eggs hatch in about 10 days. Newly hatched nymphs feed on needles and tender tissues of cone scales. Older nymphs and adults feed on the seeds using their piercing-sucking mouthparts. Adults lay eggs throughout the summer. In the fall, as temperatures decrease, adults look for overwintering sites, including homes and other structures.

## Plant Hosts

Douglas-fir, pines, spruces, hemlocks, and other conifers are common hosts.

## Symptoms and Damage

Western conifer seed bugs use their piercing-sucking mouthparts to feed on conifer needles and seeds within developing cones. They consume individual seeds by destroying the endosperm, leaving damaged cones with shrunk endosperms. The feeding damage does not hurt

the tree, but it can reduce seed production by decreasing seed germinability and viability. Occasionally, the western conifer seed bug can be a pest in pine seed nursery production.

In Utah, the insects become a nuisance pest when large numbers of adults enter buildings in search of protected sites to overwinter. The insect generally does not bite or transmit disease, although one report of a human bite was recorded and interpreted as a mistake during an attempted feed. The western conifer seed bug does not damage homes.

## Management



**Fig. 4.** *Door cracks*

*are an entry point for the western conifer seed bug.* Credit: USU Extension.

### Mechanical Control

Managing the western conifer seed bug, as a nuisance pest, should focus on preventing its entry into homes via physical exclusion. Check that any possible entry points, including screens, wall vents, windows, doors, door sweeps, chimney, and attic vents, are in good repair (Fig. 4). Seal cracks and crevices around windows, walls, and doors, especially on south- and west-facing sides of a structure. If adults successfully enter the house, remove them with a vacuum or manually transfer them into a jar and release them outside.

### Chemical Control

A fall application of a synthetic pyrethroid insecticide around windows, doors, under leaves, and exterior cracks, when the first insects are agglomerating, could reduce the number of conifer seed bugs. When using insecticides, make sure to read and follow directions on the pesticide label. Always wear gloves, a long-sleeved shirt, and pants when spraying.



Fig. 5. *Hadronotus*

*pennsylvanicus* female.<sup>5</sup>

### Biological Control

In Europe, where the western conifer seed bug has been accidentally introduced, it is considered an invasive species damaging the conifers' seed production. Several studies have investigated using parasitoids (micro-wasps) as biological control agents for use in commercial forestry and natural coniferous stands. In Italy and Spain, researchers identified egg-parasitoids from the family Eupelmidae (*Anastatus* spp.) and Encyrtidae (*Ooencyrtus* spp.). In the U.S., the most common egg-parasitoid of leaf-footed bugs is *Hadronotus pennsylvanicus* (previously classified as *Gryon pennsylvanicum*), which belongs to the family Scelionidae (Fig. 5).

## References and Image Credits

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