Screening Aid

Velvet Longhorn Beetle
Trichoferus campestris (Faldermann)

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Trichoferus campestris (Faldermann), the velvet longhorn beetle, is a wood-boring beetle native to Asia (also in literature as *Hesperophanes campestris*). The recorded host plants for this beetle are numerous, encompassing at least 40 genera of woody plants. They preferentially attack apple (*Malus*) and mulberry (*Morus*), but have been recorded on *Betula*, *Broussonetia*, *Gleditsia*, *Salix*, *Sorbus*, and various other fruit and deciduous trees. The most likely pathway for these beetles into North America is imported wood dunnage and wood packaging, as this pest is able to develop in very dry wood. In 1997, a localized infestation of this species occurred in a storage site in New Brunswick, New Jersey. Two specimens were recorded in a residential area near Montreal in 2002, and adults and larvae were collected from dying logs of Norway maple (*Acer platanoides*) in Ontario. Since then, adults have been captured in Lindgren funnel traps deployed in Illinois, Ohio, Minnesota, and Utah. The widespread host availability in North America, and the ability of this beetle to attack healthy trees and also develop in dry wood, creates high potential for this pest to become established.

Fig. 1: Adult of *Trichoferus campestris* (Photo by Gyorgy Csoka, Hungary Forest Research Institute, Bugwood.org).

Mass flights of adult velvet longhorn beetles occur from the end of June to the beginning of August. Eggs develop in small branches and developing larvae bore under bark to create large galleries. Nearly all the bark is destroyed by the developing larvae. Leaves of attacked trees wilt and turn yellow, and large exit holes surrounded by burrowing debris are abundant.

Fig. 2: Damage by *Trichoferus campestris*. (Photo by Gyorgy Csoka, Hungary Forest Research Institute, Bugwood.org).

Trichoferus campestris is a member of the Cerambycinae, a large subfamily (more than 11,000 species) within the Cerambycidae. Members of this subfamily are generally characterized by their prognathous head with truncate terminal palpomeres, antennae borne on raised tubercles without a distinct club, absence of lateral pronotal carinae, and short broad mandibles.

Male velvet longhorn beetles are 9.6–18 mm long, while females are 15.6–18.9 mm long. The entire body is a uniform brown-black with a golden pubescence and sporadic long hairs extending past the pubesence. Antennae are slightly shorter than or as long as body length in male, and shorter than body length in females.

The only non-target present in North America is *Hesperophanes pubesence.* However, differentiation between the two can be difficult and there is confusion about the taxonomy and relationship between these genera. Therefore, any cerambycid resembling these species should be sent in for identification by a trained coleopterist. Basic knowledge of coleopteran morphology is necessary to screen for these suspects.

Traps and collected specimens should be sorted initially for the presence of beetles of the appropriate size, color, and shape. Beetles meeting all of the following requirements should be moved to Level 1 Screening (Page 3):

1) Beetles measure between 9.5–19.0 mm in length (Fig. 3).

2) Beetles have an overall shape that is similar to the outline depicted in Figs. 3–5.

3) Beetles are elongate and parallel sided (Figs. 3–5).

4) Beetles are brown-black, with yellow-golden pubesence and no metallic sheen (Figs. 4 & 5).

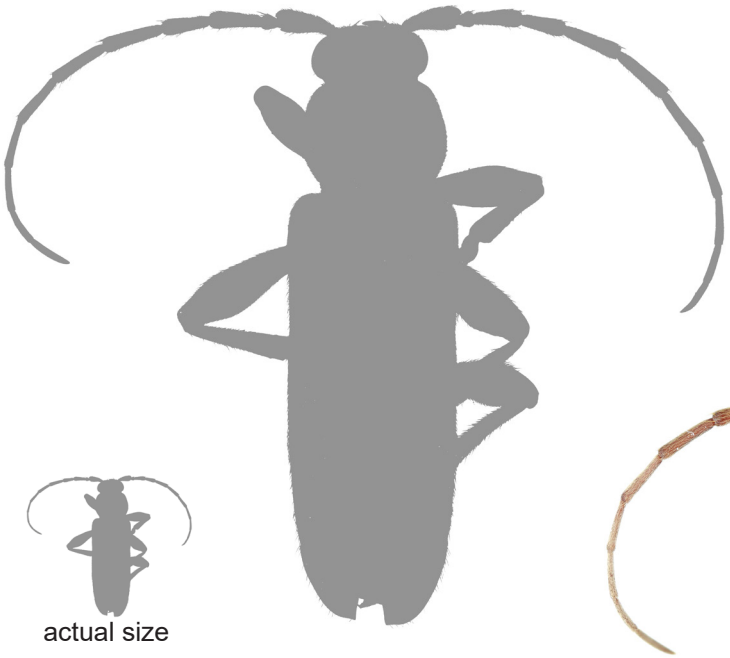

Fig. 3: Outline and size of *T. campestris.*

Fig. 4: Lateral view of of *Trichoferus* sp.

Fig. 5: Coloration of *T. campestris.*

Beetles that meet the sorting requirements should be screened for suspect in Cerambycinae. Separation to subfamily can be accomplished based on general body shape and characters of the head:

1) Prognathous (forward-facing) head with truncate terminal palpomeres (Fig. 7).

2) Antennae borne on raised tubercles, without a distinct club (Figs. 6 & 7).

3) Absence of lateral pronotal carinae (Fig. 7).

4) Short broad mandibles (Fig. 6)

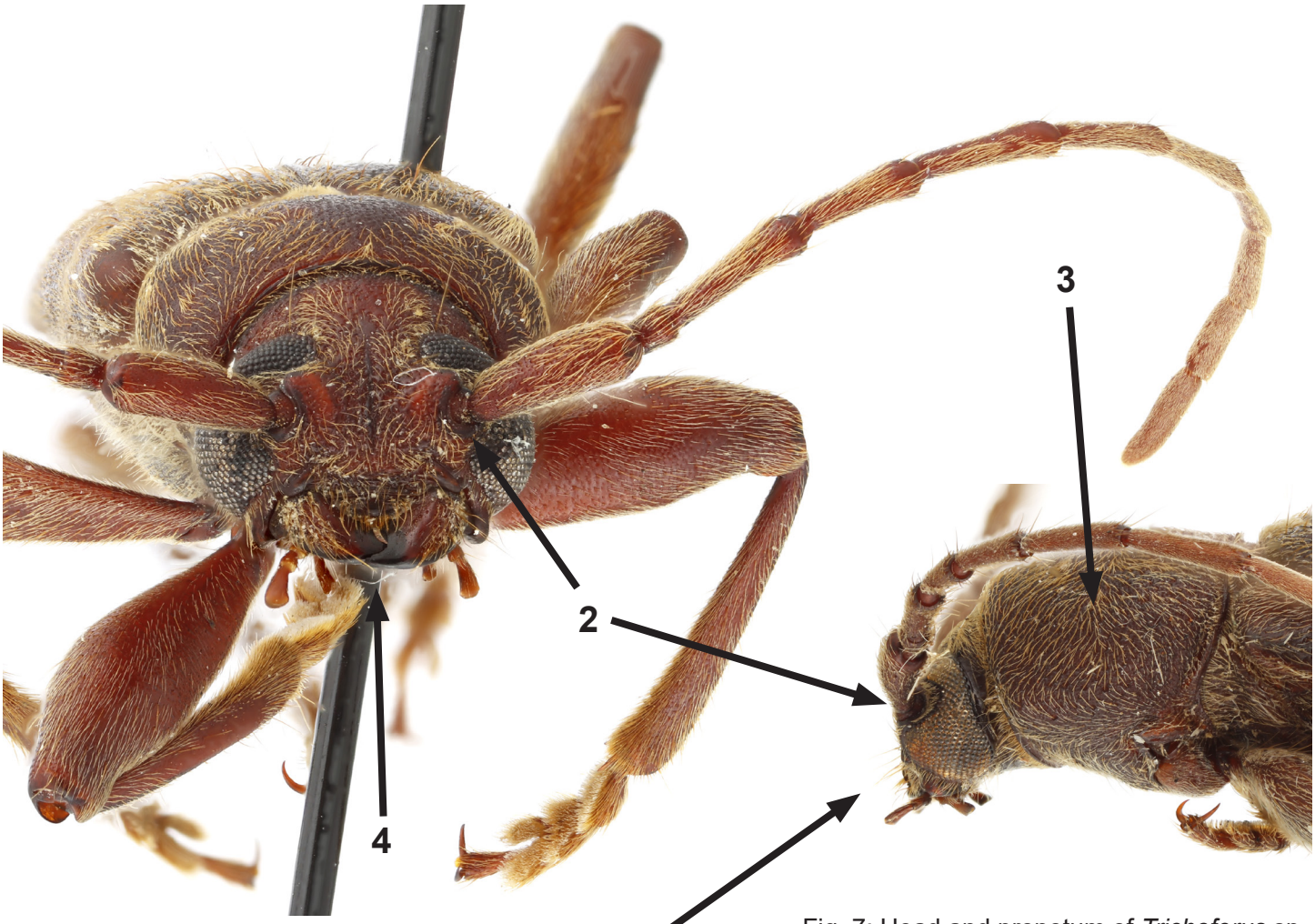

Fig. 6: Head of *T. campestris.*

Fig. 7: Head and pronotum of *Trichoferus* sp.

The only similar non-target in North America is a member of the *Trichoferus-Hesperophanes* complex, *Hesperophanes pubescens.* This species is difficult to separate from *T. campestris*. One source (Grebennikov et al. 2018) states that *T. campestris* has long erect setae protruding above the pubescence that are absent in *H. pubescens.* However, we have found that these hairs can be present OR absent in *H. pubescens*. Usually, differences in coloration and scutellum shape can separate the two: *T. campestris* is generally a darker brown-black (Fig. 8), with a scutellum that is about as wide as it is long with a very slightly tapered posterior margin (Fig. 10), while *H. pubescens* is lighter in color (Fig. 9), with a scutellum that is wider than long and with a more widely rounded posterior margin (Fig. 11).

Fig. 8: *Trichoferus campestris* (Photo by Christopher Pierce, USDA-APHIS-PPQ, Bugwood.org).

Fig. 9: *Hesperophanes pubescens*.

Fig. 10: Scutellum of *T. campestris*.

Fig. 11: Scutellum of *H. pubescens*.

Key to Sort and Screen *Trichoferus campestris* Suspects in the United States

1. Body length 9.5–19.0 mm, elongate and parallel sided, brown-black, with yellow-golden pubesence; with antennae on raised tubercles, without distinct club, and lateral pronotal carinae absent ..... ***Trichoferus campestris* suspect**

1'. Body length less than or more than 9.5–19.0 mm, not elongate, not parallel sided, not brown-black, lacking pubesence; antennae not arising from raised tubercles, and/or with a distinct club; lateral pronotal carinae present .....Not *Trichoferus campestris*

Citation

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