

Short Communication

First Field Record of Active Larval Feeding by *Cimbex quadrimaculata* (Hymenoptera: Cimbicidae) on Sour Cherry (*Prunus cerasus* L.) in Türkiye

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The almond sawfly, *Cimbex quadrimaculata* (Müller, 1766) (Hymenoptera: Cimbicidae), is an important defoliating insect primarily associated with almond and other rosaceous trees in Türkiye. During a visual survey conducted on 10 July 2026, five third-instar larvae of *Cimbex quadrimaculata* were observed on a single five-year-old sour cherry tree (*Prunus cerasus* L.). The larvae were identified as *Cimbex quadrimaculata* based on external morphological characters. Larval feeding was confirmed through continuous direct observation under natural conditions. Although the infestation level was low, the finding is noteworthy because, to the best of our knowledge, no published study has documented active larval feeding by *Cimbex quadrimaculata* on *Prunus cerasus* under natural field conditions in Türkiye. The observation was made under high summer temperatures (approximately 38°C), when almond fruits had already reached maturity, whereas sour cherry trees still retained tender foliage suitable for larval feeding. This suggests that *C. quadrimaculata* may occasionally utilize alternative rosaceous hosts late in the growing season when the primary host becomes less suitable. This study provides the first documented field record of active feeding by *C. quadrimaculata* larvae on *Prunus cerasus* under natural conditions in Türkiye, thereby extending previous host records reported only at the genus (*Prunus* spp.) level.

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Introduction

Species of the family Cimbicidae are external foliage feeders that develop mainly on woody plants, particularly members of the family Rosaceae. Among them, *Cimbex quadrimaculata* (Müller, 1766) is one of the largest sawflies occurring in the Western Palearctic region and is regarded as an economically important defoliator of fruit trees in Türkiye^{[1][2]}. Early studies described the species primarily as a pest of almond orchards, where larvae consume young and mature leaves and may cause severe defoliation during outbreak years^[1].

The first comprehensive account of the distribution, biology and host plants of *C. quadrimaculata* in Türkiye was provided by Bodenheimer^[3]. In this classical monograph, the species was reported to occur throughout much of the country, feeding mainly on cultivated almond (*Prunus dulcis*), wild almond, hawthorn (*Crataegus* spp.) and, less frequently, pear (*Pyrus* spp.). Bodenheimer^[3] also described its life cycle in detail, reporting that adults emerge predominantly in March, females insert single eggs into pockets prepared in young leaves, mature larvae leave the host plants between late April and mid-May to construct yellow cocoons in the soil, overwinter as prepupae and complete pupation before adult emergence in the following spring. Heavy infestations were reported to cause complete defoliation of almond orchards in some regions of Türkiye.

Subsequent investigations considerably expanded the known host range of *C. quadrimaculata*. Maçan^[1] confirmed the pest status of the species in almond-growing areas of southeastern Türkiye, while Bolu et al.^[2] documented its widespread occurrence in almond orchards of eastern and southeastern Anatolia. More recently, Bolu^[4] characterized the species as a polyphagous defoliator associated with several economically important rosaceous fruit trees, including almond (*Prunus dulcis*), apple (*Malus domestica*), pear (*Pyrus communis*), plum (*Prunus domestica*), peach (*Prunus persica*), apricot (*Prunus armeniaca*) and cherry (*Prunus* spp.), and confirmed its distribution in Adıyaman, Diyarbakır, Elazığ and Mardin provinces.

Although Bolu^[4] reported *Cimbex quadrimaculata* from cherry (*Prunus* spp.), no published record has identified sour cherry (*Prunus cerasus* L.) as a confirmed host species in Türkiye. Therefore, the present study documents the first field observation of active larval feeding on *P. cerasus*, extending the host record from the genus level to the species level under natural field conditions.

Materials and Methods

Field observations were conducted on 10 July 2026 in Sütölçe Village, Elazığ Province, Türkiye. During a visual survey, five third-instar larvae of *Cimbex quadrimaculata* were observed on a single five-year-old sour cherry tree (*Prunus cerasus* L.). Identification was based on external larval morphology, including body shape, colour pattern, head capsule characteristics and other diagnostic characters described by Bodenheimer^[3], Maçan^[1] and Bolu^[4]. The observed specimens showed all diagnostic larval characters consistent with published descriptions of *C. quadrimaculata*. All five larvae were observed continuously for approximately 5 min under natural field conditions without disturbance. Active feeding on *P. cerasus* leaves was confirmed for all individuals, and feeding behaviour together with characteristic leaf damage was documented photographically.

Results and Discussion

Cimbex quadrimaculata is widely distributed throughout Türkiye and the Western Palearctic region and has been reported from numerous rosaceous host plants. Historical records indicate that the species develops mainly on cultivated almond (*Prunus dulcis*), wild almond, hawthorn (*Crataegus* spp.) and, less frequently, pear (*Pyrus* spp.)^[3]. Later studies expanded its host range to include apricot (*Prunus armeniaca*), peach (*Prunus persica*), plum (*Prunus domestica*), apple (*Malus domestica*), pear (*Pyrus communis*) and cherry (*Prunus* spp.)^{[2][4][1]}. However, to the best of our knowledge, active larval feeding on *Prunus cerasus* under natural field conditions has not previously been documented in the published literature from Türkiye.

During the present study, five third-instar larvae of *C. quadrimaculata* were found feeding on the leaves of a single five-year-old sour cherry tree in Sütölçe Village, Elazığ Province. Although the population density was low, the observation is biologically significant because it demonstrates that sour cherry can function as a suitable host under natural field conditions. Since the species is capable of causing severe defoliation on almond during outbreak years ^{[3][1]}, the occurrence of larvae on sour cherry suggests that commercial sour cherry orchards may also warrant periodic monitoring. This finding expands the known ecological amplitude of the species by demonstrating that larvae are capable of utilizing *P. cerasus* under natural field conditions.

An interesting aspect of the present observation is its timing. The larvae were detected on 10 July 2026, when daytime temperatures reached approximately 38°C. At this time, almond fruits in the surrounding

orchards had already reached the ripening stage, whereas sour cherry trees were in the final stage of fruit development and still possessed relatively tender foliage suitable for feeding. Bodenheimer^[3] reported that mature larvae normally complete their development on almond, descend to the soil and pupate within yellow cocoons before the end of spring. In contrast, the presence of actively feeding third-instar larvae during mid-summer indicates that some individuals may continue larval development on alternative rosaceous hosts after almond foliage has become less suitable.

Although the present study does not provide evidence for the occurrence of a second or third generation, These observation suggests that under exceptionally warm environmental conditions and when suitable foliage remains available, *C. quadrimaculata* may occasionally prolong larval feeding by utilizing alternative host plants. Whether this behaviour reflects host switching, asynchronous larval development, or the initiation of a partial additional generation remains unclear and should be investigated through detailed phenological and developmental studies.

The feeding injury consisted of irregular chewing damage on the leaf lamina, closely resembling the characteristic injury previously described on almond hosts. The feeding larva and the associated leaf damage observed on *Prunus cerasus* are shown in Figure 1.



Figure 1. Third-instar larvae of *Cimbex quadrimaculata* feeding on leaves of *Prunus cerasus* and the characteristic chewing damage observed under field conditions in Sütölçe Village, Elazığ Province, Türkiye.

Although cherry (*Prunus* spp.) has previously been listed as a host^[4], no published study has specifically documented larval feeding on *P. cerasus* under field conditions. Therefore, the present observation extends the host association from the genus level to the species level.

Nevertheless, the present observation should be regarded as a preliminary host record based on a limited number of larvae. Future studies should include larval rearing to adulthood, molecular confirmation, and repeated field surveys across different regions to clarify the ecological significance of *P. cerasus* as an alternative host.

From a plant protection perspective, sour cherry orchards located close to almond-growing areas may deserve periodic monitoring, particularly during unusually warm summers when alternative host utilization may occur.

Conclusion

The present study documents the first field record of active larval feeding by *C. quadrimaculata* on *Prunus cerasus* in Türkiye. Although based on a limited number of larvae, the observation extends the known host association from the genus (*Prunus*) to the species (*P. cerasus*) level. The finding also indicates that sour cherry may occasionally serve as an alternative host under warm summer conditions. Future studies integrating larval rearing, molecular confirmation and broader field surveys will be essential to determine whether *Prunus cerasus* represents an occasional or regularly utilized alternative host of *C. quadrimaculata*.

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Declarations

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