

The Great Lakes Entomologist

Volume 14
Number 2 - Summer 1981 *Number 2 - Summer*
1981

Article 2

June 1981

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Recommended Citation

Mahar, Joseph M. and Oemke, Mark P. 1981. "A North American Record for *Valgus Hemipterus* (Coleoptera: Scarabaeidae) and Information on its Life Cycle," *The Great Lakes Entomologist*, vol 14 (2)
Available at: <https://scholar.valpo.edu/tgle/vol14/iss2/2>

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A NORTH AMERICAN RECORD FOR *VALGUS HEMIPTERUS* (COLEOPTERA: SCARABAEIDAE) AND INFORMATION ON ITS LIFE CYCLE¹

Joseph M. Mahar and Mark P. Oemke²

ABSTRACT

A rotting American elm log containing adults of *Valgus hemipterus* (L.) was discovered on 6 May 1980, at the Rose Lake Wildlife Experiment Station, Shiawassee County, Michigan. This appears to be the first record of this European species in North America. Larvae were collected in the summer, and pupae and teneral adults in the early fall suggesting a univoltine life cycle with the adults overwintering.

On 6 May 1980, an American elm log, *Ulmus americana* L., containing over 100 adult *Valgus hemipterus* (L.) was discovered at the Rose Lake Wildlife Experiment Station, Shiawassee County, Michigan. As far as is known, this is the first record of this European species in North America. Previously, *V. hemipterus* has been found throughout Europe (Baguena 1955; Fallou 1880, 1883, 1889; Frings 1906; Shenkling 1922; Medvedev 1969) and from Algeria and Tunis (Shenkling 1922).

Three other *Valgus* species occur in North America: *V. californicus* Horn, *V. canaliculatus* (Fabricius), and *V. seticollis* (Beauvois). Larvae of these species are known termitophiles (Richter 1966). Larvae of *V. hemipterus* however, have not been associated with termites. Fallou (1889) remarked on the similarity of the galleries tunnelled in logs by *V. hemipterus* larvae to those formed by termites.

Adult females are usually attracted to moist rotting wood to oviposit. The degree of wetness is variable however, and Fallou (1889) reported oviposition in fairly dry logs as well as living trees that had the bark removed. Oak, birch, elm, and chestnut are common host trees in France. Fallou (1889) remarked on the damage done by the larvae to acacia fence-posts.

ADULTS. The sexes are dimorphic with the female having an acute pygidial spine with several short, lateral teeth (Figs. 1 and 2). One female was observed using her spine, which was held perpendicular to her body, to gouge a hole in rotted elm wood, an activity lasting about 15 min. The hole was presumably used as an ovipositional site as recounted by Fallou (1889).

The majority of adults found on 6 May were in their pupal chambers located at the end of the excavated larval galleries (Fig. 1). Galleries extended from the log surface to a depth of 4 in. into the wood. Nearly all adults were inactive, possibly in diapause. By the middle of May adults were moving within the chambers, and one mating pair was found 3 in. deep within the log. This suggests that in some cases the entire life cycle may pass within the log. Frings (1906) reported that adults were active in mid-May in Germany.

IMMATURES. Additional logs were found on 20 August containing late instar larvae. Their presence was often indicated by large accumulations of frass on the log exterior. The larvae (Fig. 4) have a distinctive heart shaped anal tergite. A complex sculptured pattern covers the plate, readily discernible under magnification. The complete larval description

¹Michigan Agricultural Experiment Station Journal Article No. 9854.

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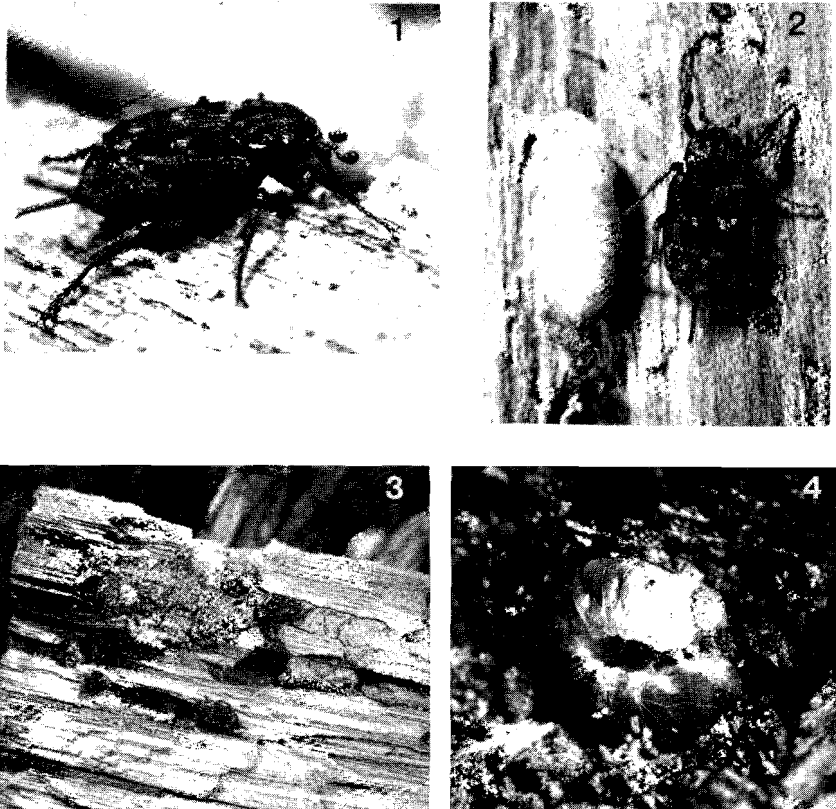


Fig. 1. Teneral female of *V. hemipterus*.
Fig. 2. Adult female and pupa of *V. hemipterus*.
Fig. 3. Exposed larval galleries of *V. hemipterus*.
Fig. 4. *Valgus hemipterus* larva, with unidentified mites.

was given by Medvedev (1969). Creamy white pupae and teneral adults were first discovered on 20 September 1980 (Fig. 2).

LIFE CYCLE. From our observations, it appears that *Valgus hemipterus* is univoltine, as reported by Fallou (1889) and Medvedev (1969). Adults collected in mid-May and held in the lab oviposited, and early instar larvae were recovered by mid-June. Larvae develop throughout the summer and pupate in the early fall. In late September only teneral adults and pupae were found, indicating that these are the probable overwintering stages. This contradicts Medvedev (1969) who reported larvae overwintering in Russia but agrees with Fallou (1889) who noticed that adults emerge in the fall but remain within the detritus of the log until spring.

We have been unable to determine how *Valgus hemipterus* arrived in the Rose Lake Wildlife Experiment Station, since the logs in which specimens of *V. hemipterus* were found were from the local area.

ACKNOWLEDGMENTS

We would like to thank Dan Young for his help in collecting and identifying specimens, Dr. R. Gordon for verifying the identification, and Drs. H. Howden and P. Richter for verifying the new record. Drs. Roland Fischer and Fred Stehr reviewed the paper. Voucher specimens have been deposited in the Michigan State University collection and in the U.S. National Museum.

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