

**A NEARCTIC PEST OF PINACEAE ACCIDENTALLY
INTRODUCED INTO EUROPE: *LEPTOGLOSSUS
OCCIDENTALIS* (HETEROPTERA: COREIDAE)
IN NORTHERN ITALY¹**

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ABSTRACT: The western conifer-seed bug, *Leptoglossus occidentalis*, an important pest of pines in North America, is reported from urban areas of northern Italy as the first Old World record for this coreid.

Leptoglossus occidentalis Heidemann, the western conifer-seed bug, is a pest of trees, primarily species in the Pinaceae (Mitchell 2000), on which it typically is found at the tips of branches and on cones (Blatt and Borden 1996b, Mitchell 2000). It feeds on seeds of the host tree (Koerber 1963, Krugman and Koerber 1969) and extracts lipids and probably proteins (Bates et al. 2000a), affecting seed production (Blatt and Borden 1996b, Bates et al. 2000b, Mitchell 2000). Hosts include many species of *Pinus*, Douglas fir (*Pseudotsuga menziesii* (Mirbel) Franco), and *Tsuga canadensis* (L.) Carrière (Mitchell 2000). The recent spread of *L. occidentalis* from the western part of North America (Mexico, the United States, and Canada) across the continent to the east is well documented (Katovich and Kulman 1987, McPherson et al. 1990, Marshall 1991, Gall 1992, Mitchell 2000). It may be transported with Christmas trees (Mitchell 2000), in shipments of corn, and, possibly, with landscaping materials or by transcontinental shipping (Gall 1992). It probably is able to move into commercial pine plantations because of its strong flight ability (Gall 1992). The overwintering adults commonly are attracted to buildings in the autumn (Gall 1992) and may form large (Blatt 1994), pheromone-mediated (Blatt and Borden 1996a) aggregations.

Two of us (MV and GT) observed specimens of *Leptoglossus* in autumn and early winter of 1999 and 2000 in gardens and in and near houses at various locations (Abbiategrasso, Corbetta, Gessate, Arcugnano) in northern Italy. Specimens were hand collected in Abbiategrasso, Gessate, and Arcugnano and later determined to be *L. occidentalis*. Voucher material is housed in the collections of the Museo Naturalistico Archeologico (Vicenza, Italy), the Museo Civico di Storia Naturale (Venice, Italy), Museo Civico di Storia Naturale (Milan, Italy), the Illinois Natural History Survey Insect Collection (Champaign, Illinois, USA), and the collections of MV and GT.

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MATERIAL EXAMINED

ITALY: LOMBARDY: Province of Milan: Abbiategrasso: inside a house: 1 ♀, 29 Sep 2000 (M. Bertolotti); 2 ♀ ♀, 18 Oct 2000 (F. Bellati); 1 ♂, 21 Oct 2000 (M. Bertolotti); 1 ♂, 24 Oct 2000 (F. Bellati). Abbiategrasso: outside a house: 1 ♂, 2 Oct 2000 (M. Bertolotti); 1 ♂ 1 nymph, 20 Oct 2000 (M. Bertolotti); 2 ♀ ♀, 21 Oct 2000 (S. Villa); 1 ♀, 28 Oct 2000 (M. Scaiola); 1 ♂, 14 Dec 2000 (M. Villa). Abbiategrasso: in city cemetery: 1 ♀, 2 Nov 2000 (S. Villa). Abbiategrasso: in city park: 3 ♀ ♀, 23 Oct 2000 (S. Villa). Abbiategrasso: near *Picea excelsa* in city garden: 1 ♀, 29 Sep 2000 (S. Villa). Gessate: in city park: 1 ♂, 20 Oct 2000 (G. Villa). Gessate: near house: 1 ♀, 2 Nov 2000 (F. Leoni). VENETO: Province of Vicenza: Arcugnano: Perarolo (Monti Berici, elev. 240 m), outside walls of house associated with gardens and trees (including Pinaceae): 3 ♀ ♀, 13 Oct 1999 (G. Tescari); 2 ♀ ♀, 23 Oct 1999 (G. Tescari); 1 ♂, 1 ♀, 28 Oct 2000 (G. Tescari).

DISCUSSION

The morphologically similar *Leptoglossus gonagra* (F.) [= *Leptoglossus australis* (F.) (Baranowski and Slater 1986)] is known from the tropics and subtropics throughout the world (Packauskas and Schaefer 2001) including northern Africa (Moulet 1995) but has not been reported from Europe. *Leptoglossus gonagra* has scalloped emarginations along the outer border of the metatibial dilation, whereas the margin is entire in *L. occidentalis*. The two species are separated easily in the keys provided by McPherson et al. (1990) and Packauskas and Schaefer (2001). The remaining species of *Leptoglossus* are native only to the Western Hemisphere (Brailovsky and Sánchez 1983). No native Italian coreids (Faraci and Rizzotti Vlach 1995) have metatibial dilations, which allows even the somewhat similar species of *Gonocerus* Latreille to be distinguished easily from *Leptoglossus*.

Based on its well-documented spread across North America, *L. occidentalis* could rapidly become a well-established pest of coniferous trees throughout Italy and other parts of Europe.

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LITERATURE CITED

- Baranowski, R.M. and J.A. Slater. 1986. Coreidae of Florida (Hemiptera: Heteroptera). Arthropods of Florida and neighboring land areas, Volume 12. Fla. Dept. Agric. & Cons. Serv., Contrib. No. 630. 82 pp.
- Bates, S.L., J.H. Borden, A. Savoie, S.E. Blatt, C.G. Lait, A.R. Kermode and R.G. Bennett. 2000a. Impact of feeding by *Leptoglossus occidentalis* (Hemiptera: Coreidae) on the major storage reserves of mature Douglas-fir (Pinaceae) seeds. Can. Entomol. 132:91-102.
- Bates, S.L., J.H. Borden, A.R. Kermode, and R.G. Bennett. 2000b. Impact of *Leptoglossus occidentalis* (Hemiptera: Coreidae) on Douglas-fir seed production. J. Econ. Entomol. 93:1444-1451.

- Blatt, S.E.** 1994. An unusually large aggregation of the western conifer seed bug, *Leptoglossus occidentalis* (Hemiptera: Coreidae), in a man-made structure. *J. Entomol. Soc. Brit. Col.* 91:71.
- Blatt, S.E. and J.H. Borden.** 1996a. Evidence for a male-produced aggregation pheromone in the western conifer seed bug, *Leptoglossus occidentalis* Heidmann (Hemiptera: Coreidae). *Can. Entomol.* 128: 177-178.
- Blatt, S.E. and J.H. Borden.** 1996b. Distribution and impact of *Leptoglossus occidentalis* Heidmann (Hemiptera: Coreidae) in seed orchards in British Columbia. *Can. Entomol.* 128:1065-1076.
- Brailovsky, H.C. and C. Sánchez.** 1983. Hemiptera-Heteroptera de México XXIX. Revisión de la familia Coreidae Leach. Part 4. Tribu Anisoscelidini Amyot-Serville. *An. Inst. Biol. Univ. Nal. Autón. México* 53 (1982), Ser. Zool.(1):219-275.
- Faraci, F. and M. Rizzotti Vlach.** 1995. Heteroptera. In: Minelli, A., S. Ruffo and S. La Posta, eds. Checklist delle specie della fauna italiana, 14. Calderini, Bologna. pp. 1-56.
- Gall, W.K.** 1992. Further eastern range extension and host records for *Leptoglossus occidentalis* (Heteroptera: Coreidae): well-documented dispersal of a household nuisance. *Gt. Lakes Entomol.* 25:159-171.
- Katovich, S.A. and H.M. Kulman.** 1987. *Leptoglossus corculus* and *Leptoglossus occidentalis* (Hemiptera: Coreidae) attacking red pine, *Pinus resinosa*, cones in Wisconsin and Minnesota. *Gt. Lakes Entomol.* 20:119-120.
- Koerber, T.W.** 1963. *Leptoglossus occidentalis* (Hemiptera: Coreidae) a newly discovered pest of coniferous seed. *Ann. Entomol. Soc. Am.* 56:229-234.
- Krugman, S.L. and T.W. Koerber.** 1969. Effect of cone feeding by *Leptoglossus occidentalis* on ponderosa pine seed development. *For. Sci.* 15:104-111.
- Marshall, S.A.** 1991. A new Ontario record of a seed eating bug (Hemiptera: Coreidae) and other examples of the role of regional insect collections in tracking changes to Ontario's fauna. *Proc. Entomol. Soc. Ont.* 122:109-111.
- McPherson, J.E., R.J. Packauskas, S.J. Taylor and M.F. O'Brien.** 1990. Eastern range extension of *Leptoglossus occidentalis* with a key to *Leptoglossus* species of America north of Mexico (Heteroptera: Coreidae). *Gt. Lakes Entomol.* 23:99-104.
- Mitchell, P.L.** 2000. Leaf-Footed Bugs (Coreidae). In: Schaefer, C.W. and A.R. Panizzi, eds. Heteroptera of economic importance. CRC Press, Boca Raton, Fla. pp. 337-403.
- Moulet, P.** 1995. Hémiptères Coreoidea euro-méditerranéens Faune de France 81. Fédération Française des Sociétés de Sciences Naturelles, Paris. 336 pp.
- Packauskas, R.J. and C.W. Schaefer.** 2001. Clarification of some taxonomic problems in Anisoscelini and Leptoscelini (Hemiptera: Coreidae: Coreinae). *Proc. Entomol. Soc. Washington* 103:249-256.