

NOTA / NOTE

Detection of the invasive western conifer seed bug *Leptoglossus occidentalis* Heidemann, 1910 (Heteroptera: Coreidae: Coreinae) in Chile.

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Abstract: The first detection of the western conifer seed bug *Leptoglossus occidentalis* Heidemann, 1910 (Heteroptera: Coreidae: Coreinae) in Chile is provided. Specimens were recorded in Valparaíso city, Valparaíso Region, Chile. As some specimens were identified from a ship in Coquimbo Region in Chile (contiguous to Valparaíso) in the previous month to this contribution, it is very likely that some specimens from that ship made it to Chilean territory near Valparaíso, the main Chilean port. This record is the first for this species in the Southern Hemisphere. The possible impacts in the case of establishment are discussed. Identification tips for the species of *Leptoglossus* Guérin-Ménéville, 1831 present in Chile are provided.

Key words: Hemiptera, Coreidae, Anisoscelini, *Leptoglossus occidentalis*, invasive species, new record, South America.

Resumen: Detección de la chinche de las coníferas *Leptoglossus occidentalis* Heidemann, 1910 (Heteroptera: Coreidae: Coreinae) en Chile. Se detecta la chinche de las coníferas *Leptoglossus occidentalis* Heidemann, 1910 (Heteroptera: Coreidae: Coreinae) por primera vez en Chile. Los ejemplares fueron registrados en la ciudad de Valparaíso, Región de Valparaíso, Chile. Como algunos ejemplares fueron detectados en el mes previo a este trabajo en una embarcación en la Región de Coquimbo (contigua a Valparaíso), es muy posible que algunos ejemplares de dicha embarcación lograsen alcanzar territorio chileno cerca de Valparaíso, el principal puerto del país. El presente registro es el primero para esta especie en el hemisferio sur. Se discuten los posibles impactos en caso de establecimiento y se proporcionan datos para la identificación de las especies de *Leptoglossus* Guérin-Ménéville, 1831 presentes en Chile.

Palabras clave: Hemiptera, Coreidae, Anisoscelini, *Leptoglossus occidentalis*, especie invasora, nuevo registro, Sudamérica.

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Leptoglossus Guérin-Ménéville, 1831 is a genus of Coreidae (Hemiptera) whose species are usually called leaf-footed bugs, because of the foliaceous dilations of their metatibiae (Mitchell, 2000). This is one of the more complex genus within the tribe Anisoscelini in the Western Hemisphere (Brailovsky, 2014), and currently comprises 62 species (Faúndez & Carvajal, 2016). Some species within this genus have economic importance as these damage some crops (Mitchell, 2000). Additionally one species, *Leptoglossus concaviusculus* Berg, 1892 has been reported biting humans (Faúndez & Carvajal, 2011).

Leptoglossus occidentalis Heidemann, 1910 (Figs. 1, 2 and 4) is one of the two invasive species within this genus (Brailovsky, 2014). It is native to the western part of North America and it has been extended easternwards, reaching several countries in Europe (Liz et al., 2008), and it has also been recorded from Japan (Ishikawa & Kikuhara, 2008), Korea (Ahn et al., 2013) and Tunisia (Jamaa et al., 2013).

In Chile, *Leptoglossus* is represented by only one native species, *Leptoglossus chilensis* (Spinola, 1852). The purpose of this contribution is to provide the first records of *L. occidentalis* from Chile.

Material examined: Chile: Valparaíso Region, Valparaíso, 01/04/2017, J. Velázquez leg., 1♂ & 1♀, inside of a home; Valparaíso, 02-04-2017, A. Pérez leg., 1♀, outside wall of a home. (All material in the Heteroptera Reference Collection of the CEBCh, Chile). In addition, two photographic records were received from Valparaíso on 02-04-2017.

This record is the first one for this species in the Southern Hemisphere. In the previous month we received notice of *L. occidentalis* specimens on a ship in Coquimbo Region (contiguous northwards to Valparaíso Region), coming from Philippines, without any evidence of specimens leaving the ship. Thus, specimens from that ship could have flown to Chilean territory. Given the records received, it seems that these handled well the flying distance from ship to land. Valparaíso is the main port in Chile, so therefore, we can not discard the possibility of specimens coming from another ship. It is uncertain how this species will establish in the future in Chile. However the climatic conditions in the area are similar to many others in which it has successfully established. In addition, Chile has a lot of coniferous plantations that may be used by this bug. On the other hand, Zhu et al. (2014) made a predictive invasive model for this species, in which the central and southern parts of Chile have been identified as suitable for *L. occidentalis*. Therefore, if this species succeed on Chilean territory it may have an economic impact. Also by its synanthropic habits, it may be a nuisance as it enters into homes. This behavior has already been observed in the specimens here recorded.

The presence of tibial foliaceous dilations sets *L. occidentalis* apart from all the Chilean Coreidae, except *L. chilensis*. From *L. chilensis* it can be easily differentiated by having a more slender and elongated tibial dilation (Figs. 4 and 5) and by having a zig-zag ivory transverse line following veins of hemelytra (Figs. 1, 2), whereas *L. chilensis* does not have any ivory lines or bands in the hemelytra (Fig. 3). This is the third heteropteran invasion in less than one year in Chile, including the painted bug *Bagrada hilaris* (Burmeister, 1835) (Faúndez et al. 2016, 2017) and the brown marmorated stink bug *Halyompha halys* (Stal, 1855) (Faúndez & Rider, 2017). Therefore, it is suggested to do more extensive survey, as well as train the Chilean agricultural agencies on invasive Heteroptera, in order to help with their work to avoid additional pests enter the country.

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References

- Ahn, S.J.; Son, D.; Choo, H.Y. & Park, C.G. 2013. The first record on *Leptoglossus occidentalis* (Hemiptera: Coreidae) in Korea, a potential pest of the pinaceous tree species. *Journal of Asia-Pacific Entomology*, **16**(3): 281-284.
- Brailovsky, H. 2014. Illustrated key for identification of the species included in the genus *Leptoglossus* (Hemiptera: Heteroptera: Coreidae: Coreinae: Anisoscelini), and descriptions of five new species and new synonyms. *Zootaxa*, **3794**(1): 143-178.

Faúndez, E.I. & Carvajal, M.A. 2011. Primer registro de una picadura de *Leptoglossus chilensis* (Spinola, 1852) (Hemiptera: Heteroptera: Coreidae) en un ser humano. *Boletín de Biodiversidad de Chile*, **6**: 22-25.

Faúndez E.I. & Carvajal M.A. 2016. Sobre la relación entre *Leptoglossus chilensis* (Spinola, 1852) y *Leptoglossus concaviusculus* Berg, 1892 stat. rest. (Heteroptera: Coreidae), con nuevos datos acerca de su morfología. *Anales del instituto de la Patagonia*, **44**(3): 65-70.

Faúndez, E.I.; Lüer, A. & Cuevas, A.G. 2017. The establishment of *Bagrada hilaris* (Burmeister, 1835) (Heteroptera: Pentatomidae) in Chile, an avoidable situation? *Arquivos Entomológicos*, **17**: 239-241.

Faúndez, E.I.; Lüer, A.; Cuevas, A.G.; Rider, D.A. & Valdebenito, P. 2016. First record of the painted bug *Bagrada hilaris* (Burmeister, 1835) (Heteroptera: Pentatomidae) in South America. *Arquivos Entomológicos*, **16**: 175-179.

Faúndez, E.I. & Rider, D.A. 2017. The brown marmorated stink bug *Halyomorpha halys* (Stål, 1855) (Heteroptera: Pentatomidae) in Chile. *Arquivos Entomológicos*, **17**: 305-307.

Ishikawa, T. & Kikuhara, Y. 2009. *Leptoglossus occidentalis* Heidemann (Hemiptera: Coreidae), a presumable recent invader to Japan. *Japanese Journal of Entomology*, **12**(3): 115-116.

Jamâa, M.B.; Mejri, M.; Naves, P. & Sousa, E. 2013. Detection of *Leptoglossus occidentalis* Heidemann, 1910 (Heteroptera: Coreidae) in Tunisia. *African Entomology*, **21**(1): 165-167.

Lis, J.A.; Lis, B. & Gubernator, J. 2008. Will the invasive western conifer seed bug *Leptoglossus occidentalis* Heidemann (Hemiptera: Heteroptera: Coreidae) seize all of Europe? *Zootaxa*, **1740**: 66-68.

Mitchell, P.L. 2000. *Leaf-footed bugs (Coreidae)*, pp. 337-403. In: Schaefer, C.W. & Panizzi, A.R. (eds.). *Heteroptera of economic importance*, CRC press. Boca Ratón, Florida. 828 pp.

Zhu, G.P.; Rédei, D.; Kment, P. & Bu, W.J. 2014. Effect of geographic background and equilibrium state on niche model transferability: predicting areas of invasion of *Leptoglossus occidentalis*. *Biological Invasions*, **16**(5): 1069-1081.



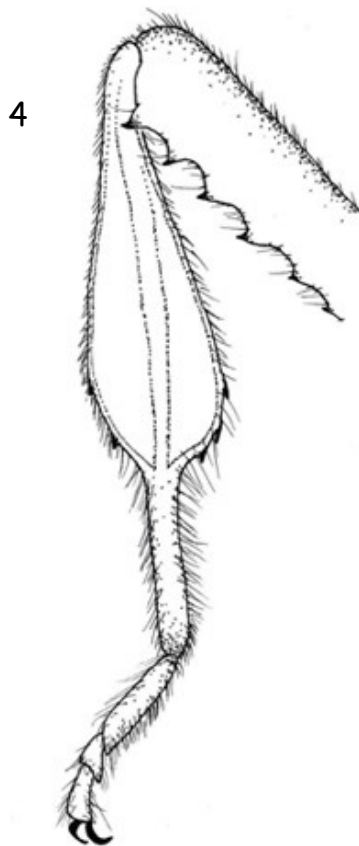
Fig. 1. - *Leptoglossus occidentalis*, living specimen in Valparaíso, Chile.



Fig. 2.- *Leptoglossus occidentalis*, hemelytral ivory veins, detail.



Fig. 3.- *Leptoglossus chilensis*, habitus (modified from Faúndez & Carvajal, 2016).



Figs. 4-5.- Metatibial dilations of *Leptoglossus* from Chile. 4.- *Leptoglossus occidentalis*. 5.- *Leptoglossus chilensis*.