Scientific Note

New data on *Oncopeltus* (*Erythrischius*) *unifasciatellus* Slater, 1964 (Hemiptera: Heteroptera: Lygaeidae) in Argentina and Brazil

Nuevos datos sobre *Oncopeltus* (*Erythrischius*) *unifasciatellus* Slater, 1964 (Hemiptera: Heteroptera: Lygaeidae) en Argentina y Brasil

Hélcio R. Gil-Santana[1*], Diego L. Carpintero[2] and Héctor Alejandro Keller[3]

[1]*Laboratório de Diptera, Instituto Oswaldo Cruz, Av. Brasil, 4365, 21040-360, Rio de Janeiro, Brazil.* ✉ **helciogil@uol.com.br.* [2]*División Entomología, Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Av. Ángel Gallardo, 470, CP. C1405DJR, Ciudad Autónoma de Buenos Aires, Argentina. E-mail: dcarpint@macn.gov.ar.* [3]*Instituto de Botánica del Nordeste – IBONE, Sgto. Cabral 2131, Corrientes, Argentina. E-mail: kellerhector@hotmail.com*

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Abstract. Seven plants belonging to Apocynaceae are recorded as new hosts of *Oncopeltus* (*Erythrischius*) *unifasciatellus* Slater, 1964 (Hemiptera: Heteroptera: Lygaeidae): *Mandevilla laxa* (Ruiz & Pav.) Woodson, *Mandevilla pentlandiana* (A.DC.) Woodson, *Oxypetalum appendiculatum* Mart., *Oxypetalum balansae* Malme, *Oxypetalum pannosum* Decne. and *Oxypetalum teyucuarense* Farinaccio & Keller-A. in Argentina, and *Gomphocarpus physocarpa* (E.Mey.) Schlechter in Brazil. Additionally, new geographical occurrences of *O. unifasciatellus* in the Argentinian provinces of Mendoza and Misiones are recorded.

Key words: Asclepiadoideae; host plants; Lygaeinae; Lygaeoidea; new records.

Resumen. Se registran siete plantas pertenecientes a Apocynaceae como nuevos hospedantes de *Oncopeltus* (*Erythrischius*) *unifasciatellus* Slater, 1964 (Hemiptera: Heteroptera: Lygaeidae): *Mandevilla laxa* (Ruiz y Pav.) Woodson, *Mandevilla pentlandiana* (A.DC.) Woodson, *Oxypetalum appendiculatum* Mart., *Oxypetalum balansae* Malme, *Oxypetalum pannosum* Decne. y *Oxypetalum teyucuarense* Farinaccio y Keller-A. en Argentina, y *Gomphocarpus physocarpa* (E.Mey.) Schlechter en Brasil. Adicionalmente, se registran nuevas ocurrencias geográficas de *O. unifasciatellus* en las provincias argentinas de Mendoza y Misiones.

Palabras clave: Asclepiadoideae; Lygaeinae; Lygaeoidea; nuevos registros; plantas hospedantes.

Lygaeinae, one of the three subfamilies of Lygaeidae (Hemiptera: Heteroptera), includes 22 genera and about 177 species in the Neotropics (Henry *et al*. 2015; Faúndez *et al*. 2021; Dellapé and Henry 2022). Among them, species of *Oncopeltus* Stål, 1868 are associated to plants belonging to subfamily Asclepiadoideae (Apocynaceae), including *Oncopeltus* (*Erythrischius*) *unifasciatellus* Slater, 1964 (Faúndez and Sánchez 2017). The following plants have been recorded as hosts of *O. unifasciatellus*: *Araujia* spp., *Asclepias curassavica* L., *Calotropis procera* (Aiton) W.T. Aiton, *Morrenia odorata* (H. et A.) Lindley. (Apocynaceae),

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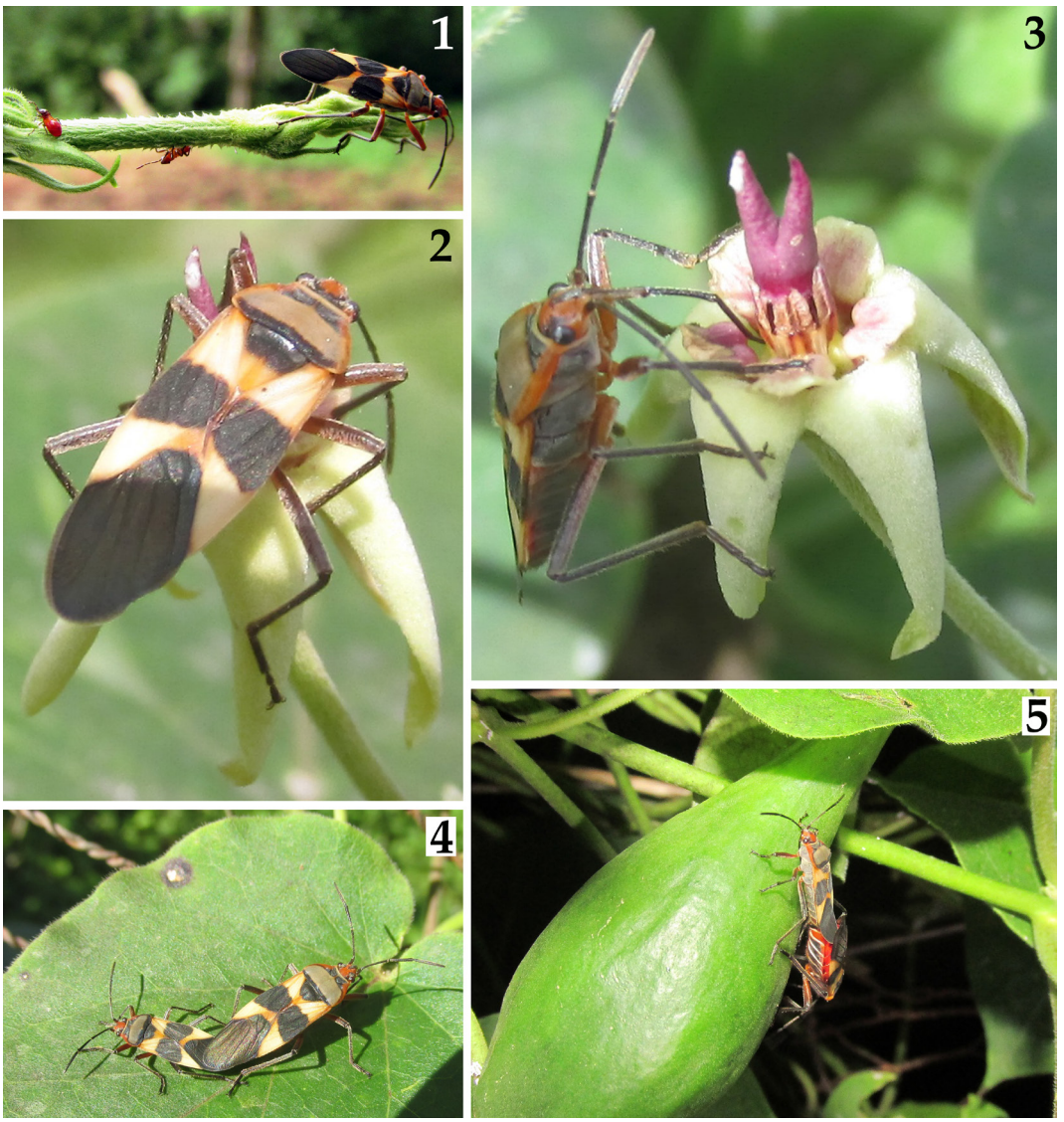
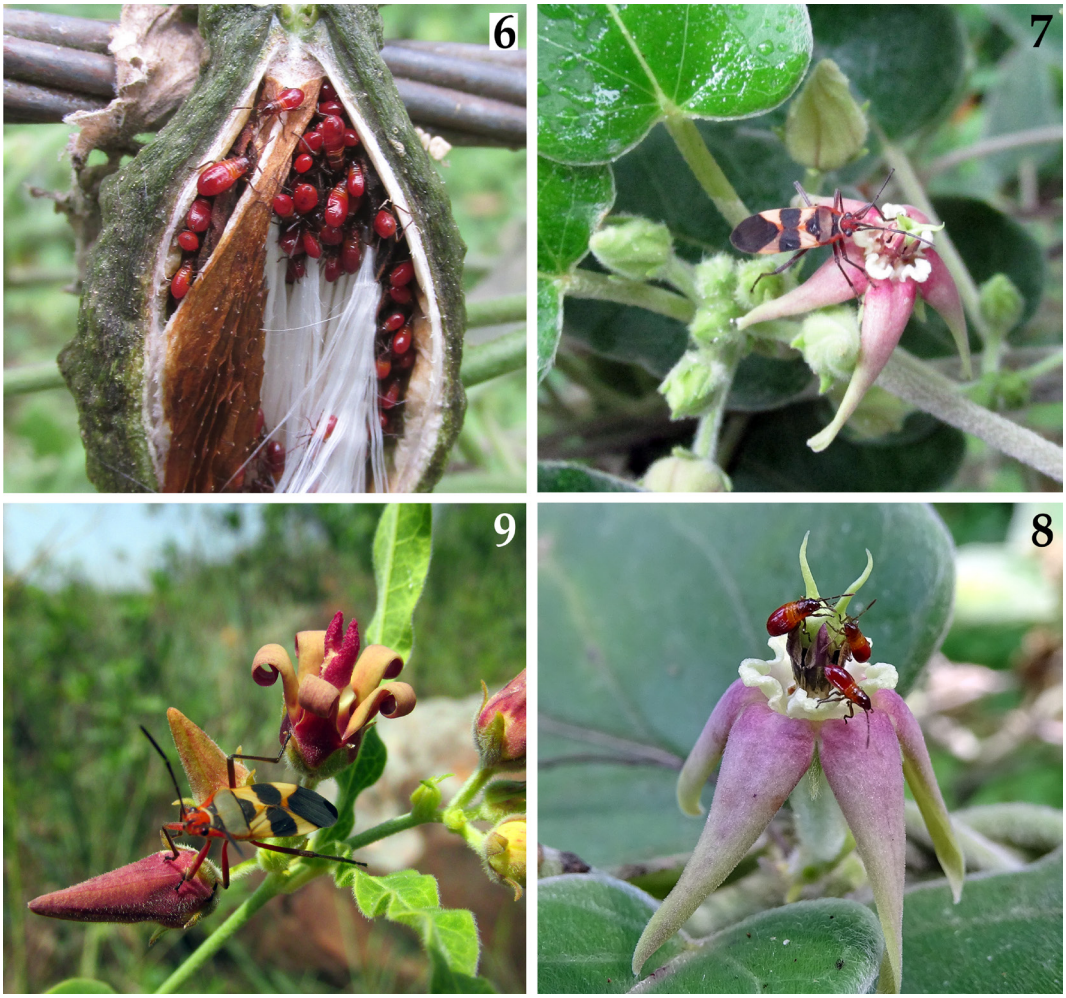
Gossypium sp. and *Sida rhombifolia* L. (Malvaceae) (Silva *et al*. 1968; Root and Chaplin 1976; Carpintero and Testoni 2013), among which *A. curassavica* is considered its major host (Root and Chaplin 1976). The latter authors recorded several data about the biology and development of *O. unifasciatellus* in this plant.

The geographic distribution of *O. unifasciatellus* in Argentina was summarized by Coscarón (2017), recording the species to the following provinces: Buenos Aires, Córdoba, La Rioja, Santa Fé, Santiago del Estero, Entre Ríos, Tucumán, Corrientes. Additionally, Faúndez and Sánchez (2017) recorded the species from Salta. Data about the geographical distribution of *O. unifasciatellus* in Brazil is lacking.



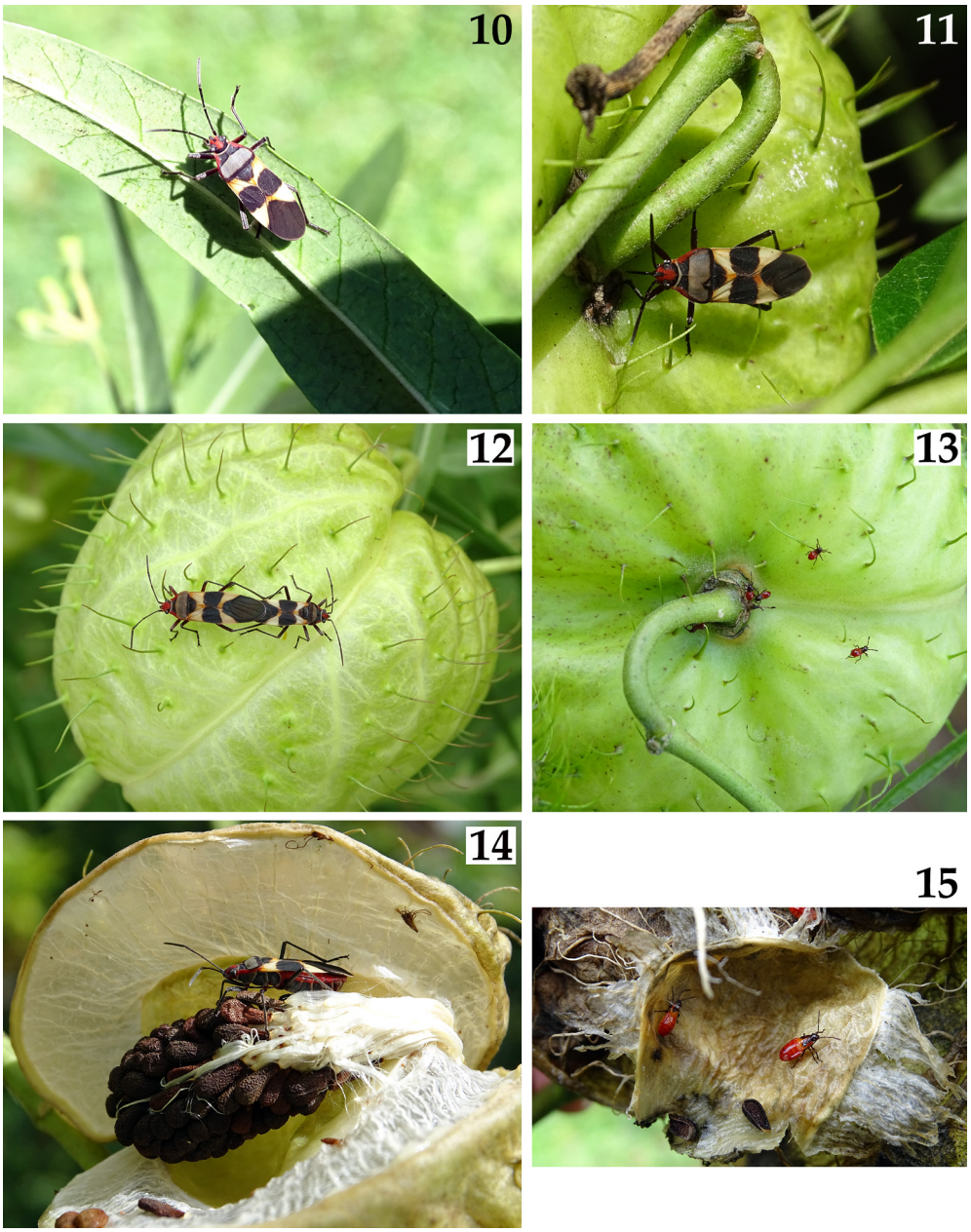
Figures 1-5. *Oncopeltus unifasciatellus* on species of Apocynaceae in Argentina. 1. Adult and young nymphs on *Oxypetalum appendiculatum*. 2-5. Adults on *Oxypetalum balansae*. 2-3. Feeding on flowers. 4-5. Couples in copula. / *Oncopeltus unifasciatellus* sobre especies de Apocynaceae en Argentina. 1. Adulto y ninfas jóvenes en *Oxypetalum appendiculatum*. 2-5. Adultos sobre *Oxypetalum balansae*. 2-3. Alimentándose de flores. 4-5. Parejas en cópula.



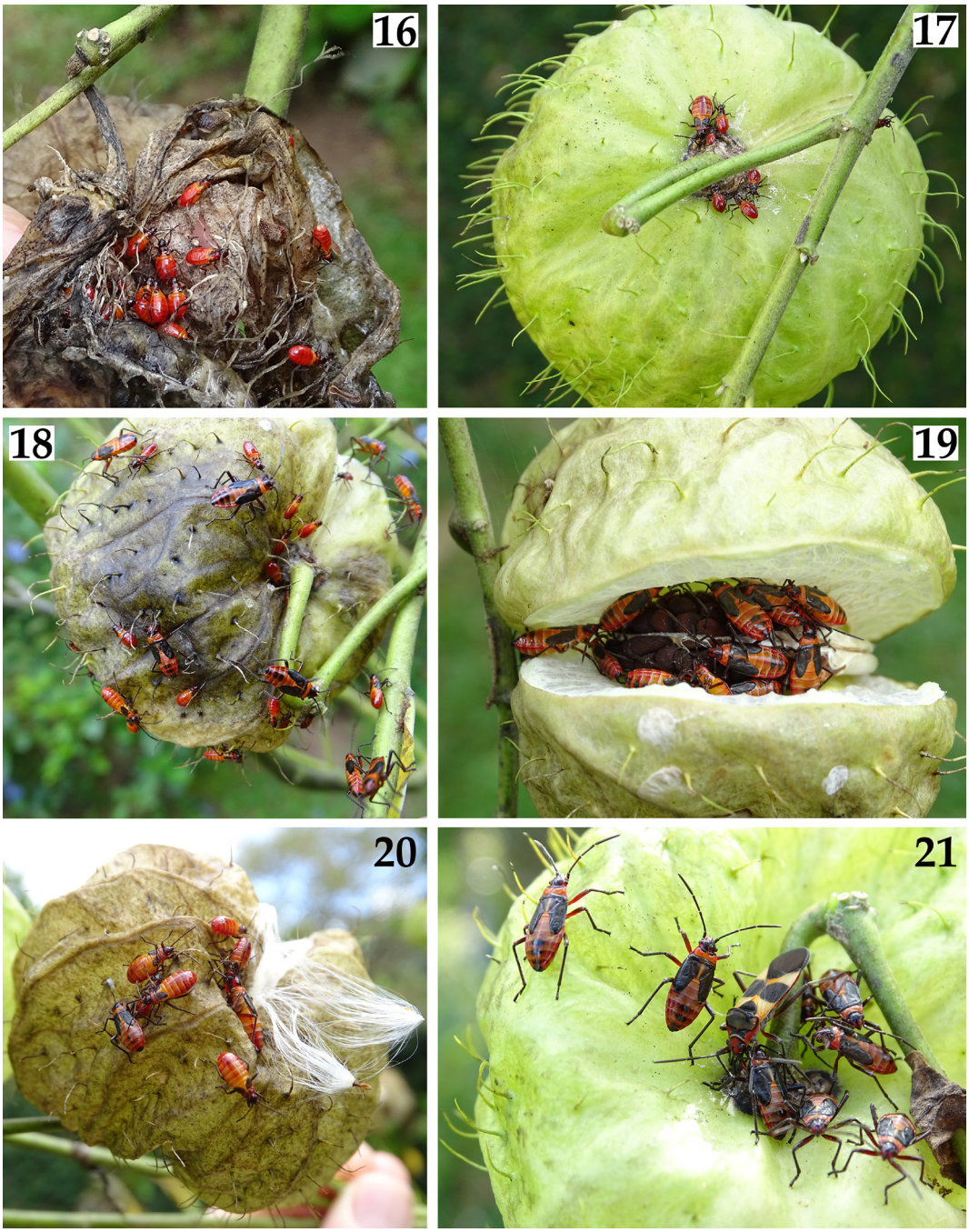
Figures 6-9. *Oncopeltus unifasciatellus* on species of Apocynaceae in Argentina. 6. Group of nymphs of intermediate instars inside an open fruit of *Oxypetalum balansae*. 7-8. On flowers of *Oxypetalum pannosum*. 7. Adult. 8. Young nymphs. 9. Adult on *Oxypetalum teyucuarense*. / *Oncopeltus unifasciatellus* sobre especies de Apocynaceae en Argentina. 6. Grupo de ninfas de estadios intermedios dentro de un fruto abierto de *Oxypetalum balansae*. 7-8. Sobre flores de *Oxypetalum pannosum*. 7. Adulto. 8. Ninfas jóvenes. 9. Adulto sobre *Oxypetalum teyucuarense*.

In the context of the revision of several genera of the subfamily Asclepiadoideae (Apocynaceae) in the Argentinian flora (Keller 2020, 2021; Keller and Goyder 2021; Keller and Liede-Schumann 2021; Liede-Schumann and Keller 2021; Liede-Schumann *et al*. 2021; Rapini and Keller 2021), the third author (HAK) had the opportunity to record some observations of various Heteroptera species associated with plants in Argentina (*e.g.*, Gil-Santana and Keller 2022), including several specimens of *O. unifasciatellus* as permanent phytophagous insect in Misiones (new geographical record), on the following plants and locations: *Oxypetalum appendiculatum* Mart. (Fig. 1) (26°12'4,66"S / 54°30'18,87"W, departamento Eldorado), *Oxypetalum balansae* Malme (Figs. 2-6) (26°17'11,37"S / 54°36'48,27"W and 27°06'14,1"S / 54°59'8,7"W, departamentos Eldorado and Cainguás, respectively), *Oxypetalum pannosum* Decne. (Figs. 7-8) (27°25'55,6" S / 55°34'50,6"' W, departamento Candelaria) and *Oxypetalum teyucuarense* Farinaccio & Keller-A (Fig. 9) (27°16'51.6"S / 55°33'45.1"W, departamento San Ignacio). The records were done by direct

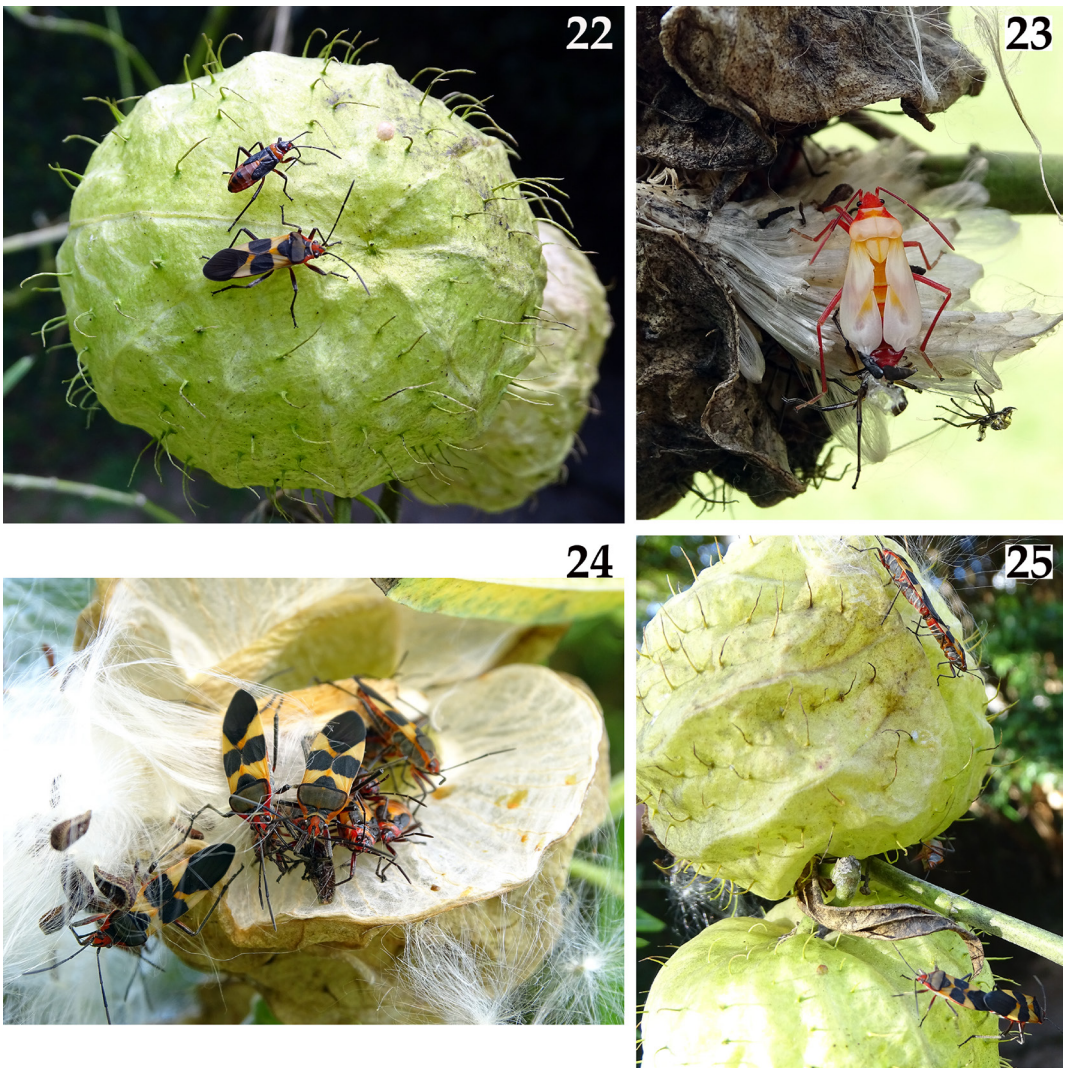
observation of live specimens on the vegetation during the period from September to March of 2014 to 2020. In addition to several events of the biological cycle on these plants (mating, juvenile stages) (Figs. 1, 4-6, 8), it was possible to verify the suction of fruits and floral nectar by adults (Figs. 3, 7). Abundant nymphs are usually found inside the open fruit of these species (Fig. 6), or sometimes also in the apical buds.



Figures 10-15. *Oncopeltus unifasciatellus* on *Gomphocarpus physocarpa* in Brazil. 10-12. Adults. 10. On a leaf. 11-12. On fruits. 11. Feeding. 12. A couple in copula. 13. Young nymphs on a fruit. 14. An adult inside an open fruit. 15. Intermediate instar nymphs on a portion of an open fruit. / *Oncopeltus unifasciatellus* sobre *Gomphocarpus physocarpa* en Brasil. 10-12. Adultos. 10. Sobre una hoja. 11-12. Sobre frutas. 11. Alimentándose. 12. Pareja en cópula. 13. Ninfas jóvenes sobre una fruta. 14. Adulto dentro de un fruto abierto. 15. Ninfas de estadio intermedio en una porción de fruta abierta.



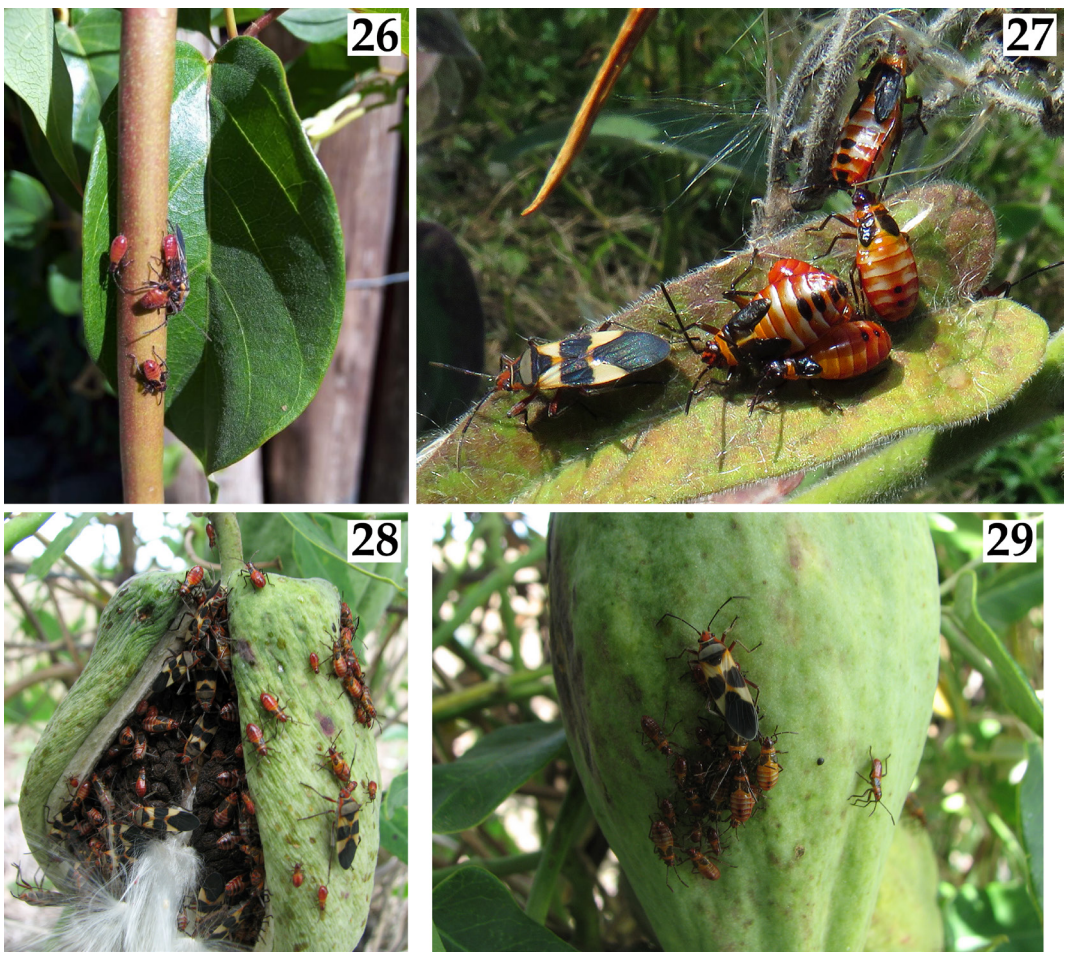
Figures 16-21. *Oncopeltus unifasciatellus* on fruits of *Gomphocarpus physocarpa* in Brazil. 16-17. Groups of nymphs of intermediate instars. 18. Group of nymphs of intermediate and late instars. 19-20. Groups of nymphs of late instar. 19. Inside an open fruit. 21. Nymphs of late instar and an adult. / *Oncopeltus unifasciatellus* sobre frutos de *Gomphocarpus physocarpa* en Brasil. 16-17. Grupos de ninfas de estadios intermedios. 18. Grupo de ninfas de estadios intermedio y tardío. 19-20. Grupo de ninfas de estadio tardío. 19. Dentro de una fruta abierta. 21. Ninfas de estadio tardío y un adulto.



Figures 22-25. *Oncopeltus unifasciatellus* on *Gomphocarpus physocarpa* in Brazil. 22. An adult and a nymph of late instar on a fruit. 23. A newly molted adult. 24. Adults and late instar nymphs in an open fruit. 25. Two couples in copula on a fruit. / *Oncopeltus unifasciatellus* sobre *Gomphocarpus physocarpa* en Brasil. 22. Adulto y ninfa de estadio tardío en una fruta. 23. Adulto recién mudado. 24. Adultos y ninfas de estadio tardío en un fruto abierto. 25. Parejas en cópula sobre una fruta.

The first author (HRG-S) recorded the constant presence and phytophagy of *O. unifasciatellus* on other species of Asclepiadoideae (Apocynaceae), *Gomphocarpus physocarpa* (E.Mey.) Schlechter, in two cities of the State of Rio de Janeiro, Brazil. The first observations were done in 1978 and 1979 in a locality at sea level (22°56'S / 43°03'W), in Niterói, from which he did not keep photographic records. Later, at the end of 2021 and beginning of 2022, in Nova Friburgo (22°17'S / 42°29'W; ca. 1000 m.a.s.l.), he was able to record several specimens in various stages of development on a single plant, in the following sequence: 1) a few adults on the plant: end of November 2021 (*e.g.*, Figs. 10-11); 2) more adults, some of them observed in copula (Fig. 12): first two weeks of December 2021; 3) nymphs of young instars, adults on mature fruits or inside spontaneous open fruits (Figs. 13-14): two last weeks of January 2022; 4) nymphs of intermediate instars (Fig. 15), including numerous groups of

them (Figs. 16-17): last two weeks of February; 5) nymphs of intermediate and late instars, mostly on fruits (Figs. 18-20), sometimes with adults (Figs. 21-22): last week of February to first two weeks of March; 6) Adults newly molted (Fig. 23), adults with nymphs of last instars, mostly on or inside open fruits (Fig. 24) and adults in copula (Fig. 25): middle of March 2022. Although several to numerous specimens were observed on the plant (*e.g.*, Figs. 16-21, 24), there were no apparent damages caused by the insects on it (the dead fruits were caused by accidental breakages of some branches by human activity, not related with the presence of the bugs there). If possible, future more controlled observations may be done to study the biology of *O. unifasciatellus* on each plant and locality in order to compare them with those obtained previously (*e.g.*, Root and Chaplin 1976) and to record possible differences.



Figures 26-29. *Oncopeltus unifasciatellus* on some species of Apocynaceae in Argentina. 26. Intermediate nymphs and an adult on the trunk of *Mandevilla laxa*, photograph by Claudia Gonzalez. 27-29. On *Araujia sericifera*. 27. Late instar nymphs and an adult, photograph by Alberto De Magistris. 28-29. Nymphs of various stages and adults on fruits. / *Oncopeltus unifasciatellus* sobre algunas especies de Apocynaceae en Argentina. 26. Ninfas intermedias y un adulto en el tronco de *Mandevilla laxa*, fotografía por Claudia Gonzalez. 27-29. Sobre *Araujia sericifera*. 27. Ninfas de estadio tardío y un adulto, fotografía por Alberto De Magistris. 28-29. Ninfas de varios estadios y adultos sobre frutos.

The second author (DLC) was informed of two additional records of new Apocynaceae host plants of *O. unifasciatellus* in the respective localities in Argentina, as follows.

Mandevilla laxa (Ruiz & Pav.) Woodson ("jazmin de Chile") (Fig. 26), in the locality Luján de Cuyo (33°10'00"S / 62°57'00"W), province of Mendoza (new geographical record), and *Mandevilla pentlandiana* (A.DC.) Woodson, in Villa del Dique (32°10'32"S / 64°29'08"W) (Departamento de Calamuchita), Córdoba, as observed by the agronomist Alberto De Magistris, in Córdoba.

Additionally, photographs of *O. unifasciatellus* on *Araujia sericifera* Brot. are presented (Figs. 27-29) to enhance the current name of the plant (synonym of *A. hortorum* E. Fourn).

The identification of *O. unifasciatellus* is confirmed by the second author (DLC), following its undoubted diagnostic characteristics shown in the photographs.

In regard to some of the hosts plants of *O. unifasciatellus* recorded here, it is noteworthy the following. *Araujia sericifera* is a invasive species in various regions of the world (Keller and Ezcurra 2021). *Gomphocarpus physocarpus* is cultivated as an ornamental plant for parks and gardens; its fruits are used in dried flower arrangements, and it has also been cultivated for fiber and for its medicinal uses (Keller *et al*. 2021). *Oxypetalum teyucuarense* is critically endangered with only 23 known individuals (Farinaccio and Keller 2014). Therefore, it is important to record new insects associated to these species in a context of enlarging the knowledge about their biology and ecological relations.

As a result of our observations, seven additional Apocynaceae species are recorded as plant hosts of the bug *O. unifasciatellus*: *Mandevilla laxa*, *M. pentlandiana*, *Oxypetalum appendiculatum*, *O. balansae*, *O. pannosum*, *O. teyucuarense* and *Gomphocarpus physocarpa*.

Also, new geographical occurrences of *O. unifasciatellus* in Argentinian provinces of Mendoza and Misiones were recorded here.

Acknowledgments

We are grateful to Claudia Gonzalez (Mendoza) and the agronomist Alberto De Magistris (Chairman of Systematic Botany and Ecology and Phytogeography of the Faculty of Agricultural Sciences of the National University of Lomas de Zamora) for providing the photographs 26 and 27, respectively. The second author is especially thankful to CONICET (Argentina) for their support in this research.

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