

THE SCIENTIFIC NAME OF THE TARNISHED PLANT BUG

(HEMIPTERA, MIRIDAE)

BY JAMES A. SLATER AND NORMAN T. DAVIS, *Department of
Zoology and Entomology, Iowa State College, Ames*

In 1818 Palisot de Beauvois (Griffin, 1937) described a plant bug from the United States under the name *Coreus* ? *lineolaris* (the colored figure accompanying the description is labeled *linearis*; Beauvois himself, however, rectified this in the Errata section). This name *lineolaris* was used for the economically important Tarnished Plant Bug by Harris (1841 and 1862), Uhler (1872, 1877a, 1877b, 1878a, and 1878b), LeBaron (1871), and Walsh (1864).

In 1831 Thomas Say described the Tarnished Plant Bug as *Capsus oblineatus*.

Reuter (1876) tentatively synonymized *Capsus oblineatus* Say with the Palearctic Linnaean species *Lygus pratensis*. This synonymy was adopted by Uhler (1886) in his "Check-list" where he recognized *lineolaris* P.B. and *oblineatus* Say as identical and placed both names as synonyms of *Lygus pratensis* (L.). This synonymy was followed by subsequent American workers without question until Knight (1917) in his revision of the Nearctic *Lygus* recognized that the Nearctic species was at least of varietal distinctness from the Palearctic *pratensis*. Unfortunately, in placing the American Tarnished Plant Bug as a variety of *pratensis* Knight chose to use the Say name *oblineatus* and called the species *Lygus pratensis* var. *oblineatus* (Say). In 1941 Knight showed that the genital parameres of the Nearctic and Palearctic species are distinctly different and raised the American form to specific rank, calling it *Lygus oblineatus* (Say).

There is no question that the Palisot de Beauvois name *lineolaris* has priority over *oblineatus* of Say by many years. From the meagre description and the figure it is evident that the Palisot de Beauvois specimens could have been only the Tarnished Plant Bug or the related *Lygus vanduzeei* Knight. The length line showing actual length in the plate is 6 mm. *L. vanduzeei* is a much larger species than this; a sample of 4 males and 3 females measured gives the following: Males, mean 7.20 (6.85-7.72); females, mean 7.46 (7.33-7.72). Although the Tarnished Plant Bug is generally somewhat under 6 mm. in length, an occasional specimen will reach this length. In a series of 3 male and 3 female specimens measured, even the smallest male more closely approached the 6 mm. figure than did the smallest *vanduzeei*, while the means were much closer. Females, mean 5.71 (5.43-6.09); males, mean 5.30 (5.24-5.39).

In measuring total length in most Miridae the method of measurement is most important in arriving at comparable figures, as the mem-

brane of the hemelytron is deflexed downward at a considerable angle, and the head and thorax likewise are curved downward from the plane of the scutellum and coriaceous portions of the hemelytra. The above measurements were taken with the insect in a more or less natural position. If the insects were "straightened out" it would of course only emphasize the close relationship of length in the Tarnished Plant Bug with that given for the Palisot de Beauvois species. If one considers the method of mounting in common use in Europe, where the specimen is glued flat on a supporting card (which has a tendency to straighten out the insect), it will further be realized that a measurement of 6 mm. would very closely approximate the length of the Tarnished Plant Bug if mounted on a supporting card. The coloration of the scutellum, while similar in both species, is much more sharply delimited in many specimens of the Tarnished Plant Bug than it is in any specimens of *vanduzeei* that we have examined, and compares very closely with the Palisot de Beauvois figure.

It is also very unlikely that the specimen seen by Palisot de Beauvois and recorded as from "États-Unis d'Amérique" could have come from within the range of *vanduzeei*. In the two sections of his work which were published in 1818, fifteen North American species are treated. Of these, 10 are definitely recorded as from southeastern seaboard states. This is a region where the Tarnished Plant Bug is everywhere abundant. *Lygus vanduzeei*, on the other hand, is widely distributed in the northeastern states, but is not known to occur south of Virginia. In Virginia and also in Pennsylvania records for *vanduzeei* are for localities situated high in the mountainous western parts of those states. Thus, a combination of factors involving Palisot de Beauvois' description of *lineolaris* and the probable source of his specimens would seem to remove any doubt that Say's *oblineatus* is the same species.

We have been able to confirm Knight's (1941) conclusions that the Nearctic species is distinct from the Palearctic *pratensis*. It is also distinct from the closely related Palearctic *Lygus rutilans* Horvath. Dr. Eduard Wagner of Hamburg, Germany, has kindly examined specimens of our species and agrees that they are distinct from Palearctic forms.

In the males the right paramere is distinctly different in all three species. *L. lineolaris* (fig. 4) has a prominent fold at the base of the hypophysis which is obsoletely developed in both of the Palearctic species. In both *lineolaris* and *pratensis* the hypophysis is sharply angled, whereas in *rutilans* (fig. 5) it projects as an even curving surface. The female structures of the bursa copulatrix also illustrate good differences in the three species. The sclerotized rings of *L. lineolaris* (fig. 9) are much more elongate than in the Palearctic species, whose rings are very similar to one another, although those of *rutilans* (fig. 7) taper more strongly mesad than is the case with *pratensis* (fig. 8). The condition of the posterior wall of the bursa is very interesting in the three species. Slater (1950) considered this posterior wall to be chiefly of generic value in the genus *Lygus*. However, in the species under

consideration good specific differences are present. The A structures (see Slater, 1950 for letter designations) are very similar in *pratensis* (fig. 1) and *lineolaris* (fig. 3) with the caudal margin evenly rounded, whereas in *rutilans* (fig. 2) the caudal margin of the A structure is strongly angled near the lateral edge. Structure B in *lineolaris* has an accessory projection which is absent in the other two species. The C structure of *lineolaris* is also very different in shape from the two Palearctic forms whose C structures are nearly identical.

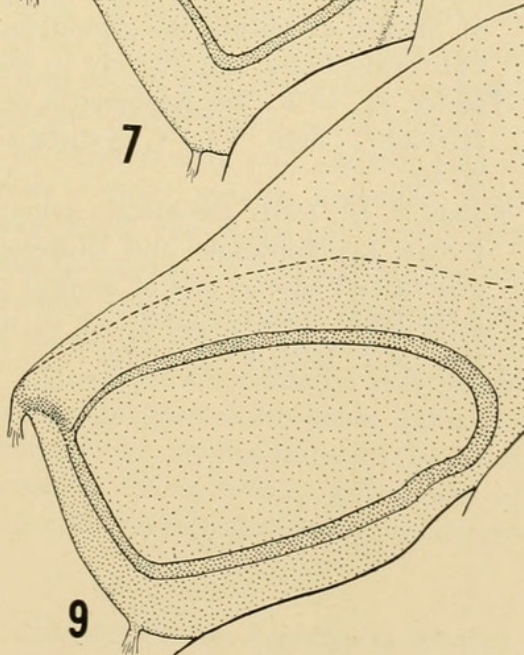
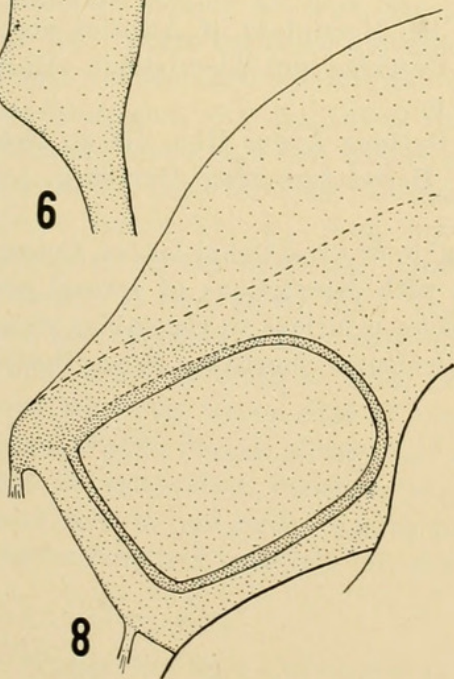
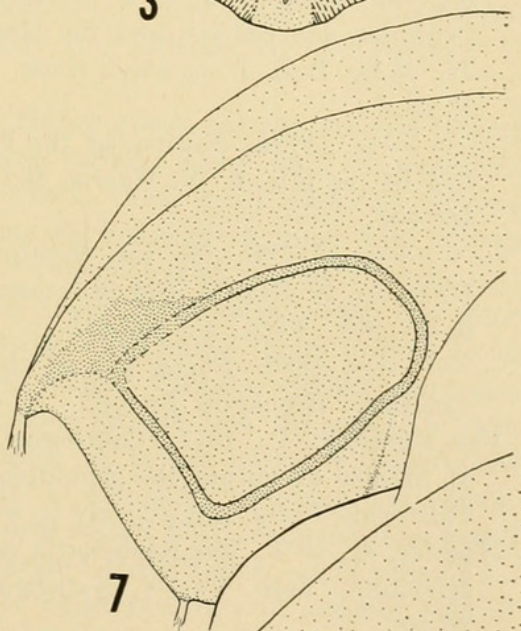
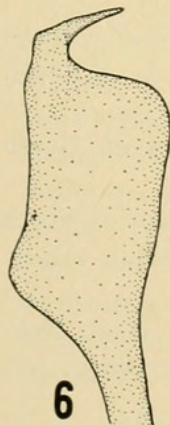
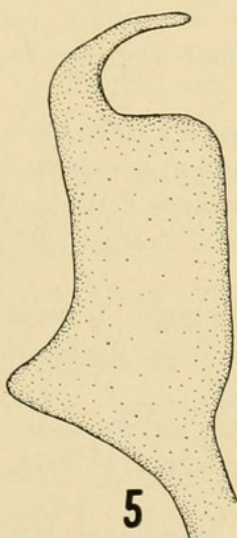
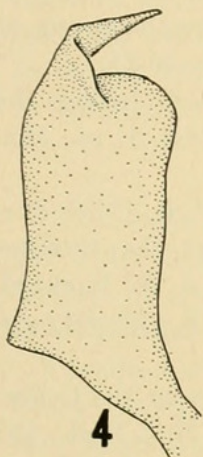
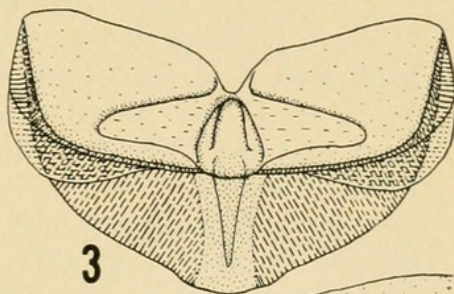
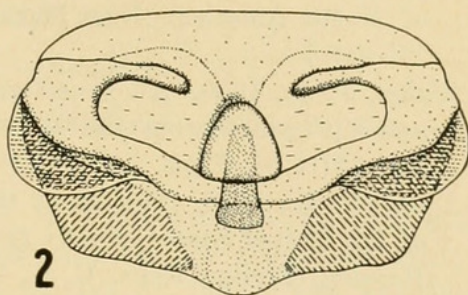
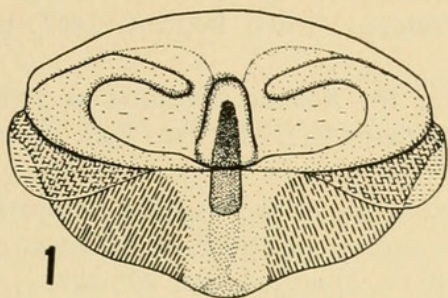
The valid name of the Nearctic *Lygus* known in the economic literature as the Tarnished Plant Bug is, therefore, *Lygus lineolaris* (Palisot de Beauvois), 1818. The species is referable to the subgenus *Exolygus* Wagner (1949).

An excellent bibliography of the Tarnished Plant Bug is contained in the Van Duzee (1917) Catalogue and therefore synonymy other than that pertaining to the preceding discussion is not included in the present paper.

REFERENCES

- Griffin, F. J., 1937. A further note on Palisot de Beauvois, Insectes Rec. Afr. Amer. 1805-1821. Soc. Bibl. Nat. Hist. 1 (4): 121-122.
- Harris, T. W., 1841. A Report on the Insects of Massachusetts, injurious Vegetation. Boston, xi + 640 pp., 278 figs., 8 pls. 3rd (Flint) ed.
- Knight, H. H., 1917. A Revision of the genus *Lygus* as it occurs in America North of Mexico, with Biological data on the species from New York. Bull. Cornell Agr. Expt. Sta. 391: 555-645.
- , 1941. The Plant Bugs, or Miridae, of Illinois. Bull. Ill. Nat. Hist. Surv. 22 (Art. 1): 1-234 pp., 181 figs.
- LeBaron, W., 1871. First Annual Report on the Noxious Insects of the State of Illinois. Springfield, 96 pp., illust. [Original not seen.]
- Palisot de Beauvois, A. M. F. J., 1805-1821. Insectes recueillis en Afrique et en Amérique, dans les royaumes d'Oware et de Benin, à Saint-Domingue et dans les États-Unis pendant les années 1781-1797. Paris, 267 pp., 90 pls.
- Reuter, O. M., (1875) 1876. Capsinae ex america boreali in Museo Holmiensi asservatae, descriptae. Ofv. Svenska Vet.-Akad. Forh., 32 (9): 59-92.

Fig. 1, *Lygus pratensis* (L.), posterior wall of bursa copulatrix, anterior view; fig. 2, *L. rutilans* Horvath, posterior wall of bursa copulatrix, anterior view; fig. 3, *L. lineolaris* (P.B.), posterior wall of bursa copulatrix, anterior view; fig. 4, *L. lineolaris* (P.B.), right paramere; fig. 5, *L. rutilans* Horvath, right paramere; fig. 6, *L. pratensis* (L.), right paramere; fig. 7, *L. rutilans* Horvath, left ring of dorsal wall of bursa copulatrix; fig. 8, *L. pratensis* (L.), left ring of dorsal wall of bursa copulatrix; fig. 9, *L. lineolaris* (P.B.), left ring of dorsal wall of bursa copulatrix.



- Say, T., 1831. Descriptions of New Species of Heteropterous Hemiptera of North America. New Harmony, 39 pp. (Fitch Reprint, 1857, pp. 755-812.)
- Slater, J. A., 1950. An Investigation of the Female Genitalia as Taxonomic Characters in the Miridae (Hemiptera). *Ia. St. Coll. Journ. Sci.* 25: 1-81, 7 pls.
- Uhler, P. R., 1872. Notices of the Hemiptera of the western territories of the United States, chiefly from the surveys of Dr. F. V. Hayden. *In* Hayden, Prelim. Rept. U. S. Geol. Surv. Montana, pp. 392-423.
- , 1876. List of Hemiptera of the region west of the Mississippi River, including those collected during the Hayden explorations of 1873. *Bull. U. S. Geol. Geog. Sur. Terr.*, 1: 269-361, pls. 19-21.
- , 1877a. Report upon the Hemiptera collected during the years 1874 and 1875. *Ann. Rept. Chief Eng. for 1877*, vol. 1, pp. 322-1,334 (Wheeler).
- , 1877b. Report upon the insects collected by P. R. Uhler during the exploration of 1875, including monographs of the families Cydnidae and Saldae, and the Hemiptera collected by A. S. Packard, Jr., M.D. *Bull. U. S. Geol. Geog. Sur. Terr.*, 3: 355-475, 765-801, pls. 27-28.
- , 1878a. Notices of the Hemiptera Heteroptera in the Collection of the late T. W. Harris, M.D. *Proc. Boston Soc. Nat. Hist.*, 19: 365-446.
- , 1878b. On the Hemiptera collected by Dr. Elliot Coues, U. S. A., in Dakota and Montana, during 1873-74. *Bull. U. S. Geol. Geog. Sur. Terr.*, 4: 503-512.
- , 1886. Check list of the Hemiptera Heteroptera of North America. Brooklyn, 34 pp.
- Van Duzee, E. P., 1917. Catalogue of the Hemiptera of America north of Mexico excepting the Aphididae, Coccidae and Aleurodidae. *Univ. California Pubs. Ent.*, 2: xiv + 902 pp.
- Wagner, E., 1949. Zur Systematik der Gattung *Lygus* Hhn. (Hem. Het., Miridae). *Verh. Ver. f. Naturwiss. Heimatforschung Hamburg*. 30: 26-40.
- Walsh, B. D., 1864. On certain remarkable or exceptional larvae, Coleopterous, Lepidopterous and Dipterous with descriptions of several new genera and species and of several species injurious to vegetables which have been already published in agricultural journals. *Proc. Boston Soc. Nat. Hist.* 9: 286-318.



Slater, James A and Davis, Norman T. 1952. "The Scientific Name Of The Tarnished Plant Bug (Hemiptera. Miridae)." *Proceedings of the Entomological Society of Washington* 54, 194–198.

View This Item Online: <https://www.biodiversitylibrary.org/item/54979>

Permalink: <https://www.biodiversitylibrary.org/partpdf/56221>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Smithsonian

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Entomological Society of Washington

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.