

**NEW DISTRIBUTIONAL AND HOST-PLANT RECORDS FOR THE
HETEROPTERANS *AUFEIUS IMPRESSICOLLIS* STÅL (RHOPALIDAE) AND
PRIONOSOMA PODOPIOIDES UHLER (PENTATOMIDAE) IN THE
SOUTHEASTERN UNITED STATES, WITH NOTES ON THEIR
WESTERN UNITED STATES HOSTS**

A. G. WHEELER, JR.

Department of Entomology, Clemson University, Clemson, SC 29634-0365, U.S.A.
(e-mail: awhlr@clemson.edu)

Abstract.—The rhopalid *Aufeiuss impressicollis* Stål and pentatomid *Prionosoma podopioides* Uhler, native to western North America, were not known east of the Mississippi River until the early twentieth century and were first reported from the Southeast (South Carolina) in 1988. New state records for *A. impressicollis* are Georgia and North Carolina, and North Carolina is a new state record for *P. podopioides*; additional South Carolina records are given for both species. Most collections of *A. impressicollis* in the Southeast were from *Amaranthus palmeri* S.Wats.; host plants in California were other species of Amaranthaceae plus Chenopodiaceae. Southeastern collections of *P. podopioides* were from crowns of bunchgrasses growing near its main hosts, *Plantago aristata* Michx. and *P. wrightiana* Dcne. Adults in Oklahoma and Texas were taken on *P. patagonica* Jacq. and *P. rhodosperma* Dcne.; Oklahoma and Texas also are new state records.

Key Words: insect distribution, Rhopalidae, Pentatomidae, host-plant relationships

The rhopalid *Aufeiuss impressicollis* Stål and pentatomid *Prionosoma podopioides* Uhler are little-known, mainly western North American heteropterans. Eastern U.S. records for both species are scant. Ohio, the first eastern record for *A. impressicollis* (Osborn and Drake 1915), remained the easternmost record until it was reported from Maryland (Wheeler 1984). The first southeastern record was South Carolina (Wheeler 1988). Blatchley's (1926) manual of eastern U.S. Heteroptera did not include *P. podopioides*; at the time, its easternmost records—Iowa and Missouri (Stoner 1916, 1920)—were west of the area treated by Blatchley (east of 90th meridian). Previously published records of *P. podopioides* east of the Mississippi River now include Michigan (McPherson 1970), Illinois (McPherson and Cuda 1975), and South Carolina (Wheeler 1988).

Here I provide additional southeastern records of *A. impressicollis* and *P. podopioides* and, based on observations in eastern and western states, notes on their habitats and host plants. Adults of both species were collected at all sites; sites at which nymphs of *A. impressicollis* were observed with adults are indicated by asterisks. Voucher specimens have been deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

Aufeiuss impressicollis Stål 1870

New southeastern U.S. records.—GEORGIA: *Jefferson Co., Rt. 1, 2.8 km NE of Wrens (33°13.5'N, 82°22.0'W), 15 Oct. 2000; McDuffie Co., Rt. 78, 2.7 km W of Harlem (32°25.2'N, 82°20.5'W), 15 Oct. 2000; *Richmond Co., Rt. 1, 3.8 km NNE of Blythe (33°19.4'N, 82°11.1'W), 15 Oct. 2000.

NORTH CAROLINA: Montgomery Co., Rt. 220, 5 km S of Emery (35°12.1'N, 79°43.6'W), 16 May 1999. SOUTH CAROLINA: *Aiken Co., Rt. 25, 0.1 km S of Edgefield Co. line, 9 km N of North Augusta (33°35.2'N, 81°56.5'W), 15 Oct. 2000; Calhoun Co., Rt. 6, 16 km NW of St. Matthews (33°41.8'N, 80°56.4'W), 21 Oct. 2000; Darlington Co., Rt. 34, 4.7 km W of Darlington (34°18.0'N, 79°55.4'W), 4 Nov. 2000; Dillon Co., Rt. 917, 3.6 km W of Latta (34°20.3'N, 79°28.2'W), 4 Nov. 2000; Edgefield Co., CR 407 nr jct. CR 37, 8.5 km SW of Eureka (33°39.5'N, 81°51.6'W), 28 Nov. 1998; Rt. 25, 3.9 km SSW of Trenton (33°42.7'N, 81°51.3'W), 15 Oct. 2000; Greenville Co., SR 50, 0.3 km N of Rt. 418, 4.5 km NW of Fork Shoals (34°38.4'N, 82°21.1'W), 29 Oct. 2000; Kershaw Co., Rt. 34, 5.5 km E of Camden (34°14.3'N, 80°32.9'W), 4 Nov. 2000; Lee Co., jct. Rt. 34 & CR 39, 0.5 km W of Una (34°16.1'N, 80°08.2'W), 4 Nov. 2000; Rt. 15, 2 km SW of Bishopville (34°12.4'N, 80°15.9'W), 4 Nov. 2000; Lexington Co., Rt. 302, 2 km NNE of Pelion (33°46.8'N, 81°14.3'W), 21 Oct. 2000; Marion Co., Rt. 76, Marion (34°10.7'N, 79°22.6'W), 2 Nov. 2000; *Orangeburg Co., Rt. 178, 2.3 km NNE of North (33°37.0'N, 81°04.7'W), 21 Oct. 2000; Sumter Co., Rt. 261, 4.2 km S of Wedgefield (33°51.4'N, 80°30.9'W), 26 May 1999; Wedgefield (33°53.5'N, 80°31.1'W), 21 Oct. 2000.

Habitats and host plants.—Southeastern collections were from disturbed sites such as roadsides and cotton and soybean fields, mainly in the fall-line sandhills. The collection from Greenville Co., S.C., was in the piedmont.

An adult was beaten from the crown of weeping lovegrass (*Eragrostis curvula* [Schr.] Nees; Poaceae) in North Carolina, and adults were on fruits of Mexican tea or wormseed (*Chenopodium ambrosioides* L.; Chenopodiaceae) southwest of Eureka, Edgefield Co., S.C. All other collections were from Palmer's amaranth (*Amaranthus palmeri* S. Wats.; Amaranthaceae), the host

plant on which this rhopalid was found initially in the Southeast (Wheeler 1988).

In the western United States, an adult was beaten from the crown of weeping lovegrass in late April 2000 at each of three sites: Carter (34°11.2'N, 97°00.6'W) and Woodward (36°15.5'N, 99°09.7'W) counties in Oklahoma (new state record) and Gaines Co., Tex. (32°37.2'N, 102°38.4'W). In late May 2001, an adult was found in the crown of weeping lovegrass in Terry Co., Tex. (33°13.7'N, 102°09.1'W). In California in mid-August 1998, nymphs and adults were on tumble pigweed (*A. albus* L.) in Fresno County (36°51.7'N, 120°27.8'W), and on prostrate pigweed (*A. blitoides* S. Wats.) in San Benito County (36°56.8'N, 121°23.4'W). Host plants—that is, species on which nymphs were found—in a sparsely vegetated gravel lot at the Port of Stockton, San Joaquin County (37°57.1'N, 121°19.3'W), in mid-August 1998 were *A. albus*, *A. blitoides*, *C. ambrosioides*, and Russian thistle (*Salsola tragus* L.; Chenopodiaceae). Nymphs and adults appeared to be more numerous on and under the amaranths *A. albus* and *A. blitoides* than they were on the chenopods *C. ambrosioides* or *S. tragus*.

Prionosoma podopioides Uhler 1863

New southeastern U.S. records.—NORTH CAROLINA: Moore Co., Aberdeen (35°07.9'N, 79°26.0'W), 25 Aug. 1996; Richmond Co., Rt. 1, 2.4 km NNE of Marston (35°00.3'N, 79°34.0'W), 25 Aug. 1996, 12 July 1998. SOUTH CAROLINA: Chesterfield Co., Rt. 1, Middendorf (34°31.3'N, 80°09.5'W), 11 July & 6 Sept. 1998; Edgefield Co., CR 407 nr jct. CR 37, 8.5 km SW of Eureka (33°39.5'N, 81°51.6'W), 27 June & 28 Nov. 1998, 12 May 2001; Fairfield Co., Rt. 34, 0.6 km W of Kershaw Co. line, 12.6 km SSE of Ridgeway (34°16.4'N, 80°49.9'W), 20 May 2000.

Habitats and host plants.—All southeastern collections were from the fall-line sandhills. *Plantago aristata* Michx., a known host plant (Wheeler 1988), was present at all sites in North Carolina and South Car-

olina, but the pentatomid was collected from bunchgrasses within one or two m of bracted plantain, except in May 2001 when two third instars were found on a new host, Wright's plantain (*P. wrightiana* Dcne.), in Edgefield Co., S.C. In North Carolina, four adults were beaten from crowns of weeping lovegrass in Richmond County, and an adult was beaten from weeping lovegrass in Moore County. In South Carolina, crowns of weeping lovegrass yielded three adults in Chesterfield County and an adult (28 Nov.) in Edgefield County. An adult also was beaten from the crown of broomsedge (*Andropogon virginicus* L.; Poaceae) in Fairfield County. In Edgefield County, an adult also was swept from the inflorescences of southern jointweed (*Polygonella americana* [Fisch. & Mey.] Small; Polygonaceae).

In the western United States, I collected an adult of *P. podopioides* in Oklahoma (new state record) from the crown of *Andropogon* sp. in Dewey County (35°58.0'N, 98°58.6'W) on 26 April 2000 and three adults from woolly plantain (*Plantago patagonica* Jacq.) in Woodward County (36°19.2'N, 99°20.1'W) on 25 June 1999; in Texas (new state record) an adult was found on redseed plantain (*P. rhodosperma* Dcne.) in Scurry Co. (32°53.4'N, 101°03.9'W), on 25 May 2001. If nymphal development occurs on redseed plantain and woolly plantain, these plants are new host records for *Prionosoma podopioides*.

DISCUSSION

Although they belong to different heteropteran families, *A. impressicollis* and *P. podopioides* are similar in having been described more than 130 years ago and in being seldom collected and poorly known throughout their current ranges. Both the rhopalid and the pentatomid also belong to monotypic genera, are considered western species that are recent additions to the fauna of the southeastern United States, develop frequently on western plants that are naturalized in the East, and are narrowly host specific.

Amaranthus palmeri, the only plant spe-

cies on which nymphs of *Aufeius impressicollis* have been collected in the Southeast (Wheeler 1988), is indigenous to the Southwest or southern Great Plains (e.g., Muenschner 1980, Great Plains Flora Association 1986). Correll and Johnston (1970) remarked that *A. palmeri* is rarely adventive in the eastern United States, but since 1974, this plant has become an increasingly important weed in crops such as cotton, peanut, and soybean in the southeastern states (Webster and Coble 1997). Because nymphs of *A. impressicollis* were found on several chenopods in California, the host range of this rhopalid appears also to include the Chenopodiaceae, a family closely related to the Amaranthaceae (e.g., Heywood 1993, Takhtajan 1997).

I assumed that one of the rhopalid's chenopodiaceous hosts in California was *Salsola tragus* and did not submit the plant for identification. In California, however, Russian thistle consists of genetically divergent populations, one of which is unnamed. The more widespread species is true *S. tragus* (Ryan and Ayres 2000).

An important host of *P. podopioides* in the Southeast is bracted or buckhorn plantain (*Plantago aristata*; Plantaginaceae) (Wheeler 1988), a plant of disturbed habitats, particularly dry roadsides and sandy soils (e.g., Harper 1944, Johnson 1981). This plant might be native to the southwestern states or South America (Harper 1944). Gleason and Cronquist (1991) listed the original U.S. range of bracted plantain as Illinois to Louisiana and Texas, noting that it is naturalized farther east. *Plantago aristata* was not recorded from the southeastern states until the 1860s (Harper 1944, Fernald 1950).

Another western heteropter that recently became established in the eastern United States, *Catorhintha mendica* Stål, apparently tracked the eastern spread of its principal host, wild four o'clock (*Mirabilis nyctaginea* [Michx.] MacMill.; Nyctaginaceae) (Balduf 1957, Hoebeke and Wheeler 1982). Whether the eastward spread of either *A. impressicollis* or *P. podopioides* was as host dependent as that of *C. mendica* is unknown.

Both the rhopalid and pentatomid also were beaten from the crowns of bunchgrasses, especially those of *Eragrostis curvula*. In the southeastern states, the well-developed crowns of this African grass provide shelter and overwintering sites for numerous native heteropteran species (Wheeler 1999; AGW, unpublished data).

ACKNOWLEDGMENTS

I thank G. F. Hrusa (California Department of Food and Agriculture, Sacramento), P. D. McMillan (Clemson University), and J. F. Townsend (formerly Clemson University) for identifying plants; L. A. Allen (San Joaquin County Department of Agriculture, Stockton, Calif.) for facilitating field work in his county; T. J. Henry (Systematic Entomology Laboratory, USDA, Washington, D.C.) for companionship during field work in California (1998) and Oklahoma (1999); D. A. Rider (North Dakota State University, Fargo) for sharing his knowledge of pentatomid distribution; and P. H. Adler (Clemson University) for reviewing the manuscript.

LITERATURE CITED

- Balduf, W. V. 1957. The spread of *Catorhintha mendica* Stal (Coreidae, Hemiptera). *Proceedings of the Entomological Society of Washington* 59: 176–185.
- Blatchley, W. S. 1926. *Heteroptera or True Bugs of Eastern North America, with Especial Reference to the Faunas of Indiana and Florida*. Nature Publishing Co., Indianapolis, Ind. 1116 pp.
- Correll, D. S. and M. C. Johnston. 1970. *Manual of the Vascular Plants of Texas*. Texas Research Foundation, Renner, Tex. 1881 pp.
- Fernald, M. L. 1950. *Gray's Manual of Botany*, 8th ed. American Book Co., New York. 1632 pp.
- Gleason, H. A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*, 2nd ed. New York Botanical Garden, Bronx, N.Y. 910 pp.
- Great Plains Flora Association. 1986. *Flora of the Great Plains*. University Press of Kansas, Lawrence. 1392 pp.
- Harper, R. M. 1944. Notes on *Plantago*, with special reference to *P. cordata*. *Castanea* 9: 121–130.
- Heywood, V. H., ed. 1993. *Flowering Plants of the World*. Oxford University Press, New York. 335 pp.
- Hoebeke, E. R. and A. G. Wheeler, Jr. 1982. *Catorhintha mendica*, a Great Plains coreid now established on the Atlantic Coast (Hemiptera: Coreidae). *Entomological News* 93: 29–31.
- Johnson, M. F. 1981. Phrymaceae and Plantaginaceae in Virginia. *Virginia Journal of Science* 32: 12–16.
- McPherson, J. E. 1970. A key and annotated list of the Scutelleroidea of Michigan (Hemiptera). *Michigan Entomologist* 3: 34–63.
- McPherson, J. E. and J. P. Cuda. 1975. The first record in Illinois of *Prionosoma podopioides* (Hemiptera: Pentatomidae). *Journal of the Kansas Entomological Society* 48: 371–373.
- Muenschner, W. C. 1980. *Weeds*, 2nd ed. Cornell University Press, Ithaca, N.Y. 586 pp.
- Osborn, H. and C. J. Drake. 1915. Additions and notes on the Hemiptera-Heteroptera of Ohio. *Ohio Naturalist* 15: 501–508.
- Ryan, F. J. and D. R. Ayres. 2000. Molecular markers indicate two cryptic, genetically divergent populations of Russian thistle (*Salsola tragus*) in California. *Canadian Journal of Botany* 78: 59–67.
- Stål, C. 1870. *Enumeratio Hemipterorum. Bidrag till en företeckning öfver alla hittills kända Hemiptera, jemte systematiska meddelanden*. Part 1. *Kongliga Svenska Vetenskaps-Akademiens Handlingar* 9(1): 1–232.
- Stoner, D. 1916. Distributional notes on some Iowa Pentatomoidea. *Proceedings of the Iowa Academy of Science* 23: 303–307.
- . 1920. The Scutelleroidea of Iowa. *University of Iowa Studies in Natural History* 8: 1–140.
- Takhtajan, A. 1997. *Diversity and Classification of Flowering Plants*. Columbia University Press, New York. 643 pp.
- Uhler, P. R. 1863. Hemipterological contributions. No. 2. *Proceedings of the Entomological Society of Philadelphia* 2: 361–366.
- Webster, T. M. and H. D. Coble. 1997. Changes in the weed species composition of the southern United States: 1974 to 1995. *Weed Technology* 11: 308–317.
- Wheeler, A. G., Jr. 1984. *Aufeius impressicollis* (Hemiptera: Rhopalidae): Easternmost U.S. record, host plant relationships, and laboratory rearing. *Journal of the New York Entomological Society* 92: 174–178.
- . 1988. First southeastern U.S. records of the western heteropterans *Prionosoma podopioides* (Pentatomidae) and *Aufeius impressicollis* (Rhopalidae), with a review of distribution and host plants. *Journal of the New York Entomological Society* 96: 304–309.
- . 1999. *Oncozygia clavicornis* Stål and *Allopodops mississippiensis* Harris and Johnston: Association of rarely collected Nearctic turtle bugs (Heteroptera: Pentatomidae: Podopinae) with an introduced African grass. *Proceedings of the Entomological Society of Washington* 101: 714–721.



Wheeler, A. G. 2002. "New distributional and host-plant records for the heteropterans *Aufesius impressicollis* stal (Rhopalidae) and *Prionosoma podopioides* uhler (Pentatomidae) in the Southeastern United States, with notes on their Western United States hosts." *Proceedings of the Entomological Society of Washington* 104, 138–141.

View This Item Online: <https://www.biodiversitylibrary.org/item/54767>

Permalink: <https://www.biodiversitylibrary.org/partpdf/54870>

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>.