

Stink Bugs (Hemiptera: Heteroptera: Pentatomidae) of Minnesota: An Annotated Checklist and New State Records

Robert L. Koch^{1,3}, David A. Rider², Paul P. Tinerella², and Walter A. Rich¹

Abstract

Pentatomidae have been relatively poorly documented in Minnesota. Based on literature and museum records, an annotated checklist of the Pentatomidae of Minnesota was created. State-level and county-level records for Minnesota and the distribution of each species in North America are provided. Fifty-one species of Pentatomidae (12 Asopinae, 37 Pentatominae, and 2 Podopinae) are recorded for Minnesota. Of this total, 15 species are newly recorded for the state. Knowledge of the fauna of Pentatomidae in Minnesota will be important for providing baseline data for monitoring of potential shifts in the fauna resulting from the invasions of exotic Pentatomidae. Furthermore, a list of native Pentatomidae will be necessary for monitoring non-target impacts, if classical biological control is implemented for management of exotic Pentatomidae.

In the continental U.S. and Canada, the family Pentatomidae (i.e., stink bugs) comprises about 222 species (Froeschner 1988). The invasions and range expansions of several exotic Pentatomidae have brought a new level of attention to this family in North America. Recent invaders include *Halyomorpha halys* (Stål) (Hoebeke and Carter 2003), *Bagrada hilaris* (Burmeister) (Palumbo and Natwick 2010), and *Agonoscelis puberula* Stål (Thomas et al. 2003). Furthermore, the ranges of two established exotic species, *Piezodorus guildinii* (Westwood) and *Picromerus bidens* (Linnaeus) are expanding (Tindall and Fothergill 2011, Swanson et al. 2013).

Knowledge of the native and established fauna of Pentatomidae will be important for providing baseline data for monitoring changes in diversity or abundance that may occur after the invasion of exotic species. Changes to the existing fauna could result from competitive interactions among species (Reitz and Trumble 2002, Kenis et al. 2009). For example, in parts of Japan, non-native *Nezara viridula* (L.) has replaced the native *Nezara antennata* Scott (Kiritani 2011). Furthermore, a checklist of species within this family is needed to facilitate assessment of potential non-target impacts of management tactics implemented against invasive Pentatomidae, especially if classical biological control is considered for management of these pests (e.g., Leskey et al. 2012, Talamas et al. 2013).

McPherson's (1980) call for the creation of updated species lists of Pentatomidae for states with obvious gaps, such as Minnesota and Wisconsin, has remained largely unanswered. Despite recent attention to the pentatomid fauna of North America (Bundy 2012, O'Donnell and Schaefer 2012, Packauskas 2012, Rider 2012, Sites et al. 2012, Swanson 2012, Zack et al. 2012, Paiero et al. 2013), this group has been relatively poorly documented in Minnesota. Records

¹Department of Entomology, University of Minnesota, 1980 Folwell Avenue, Saint Paul, MN 55108.

²Department of Entomology, North Dakota State University, NDSU Dept. 7650, P. O. Box 6050, Fargo, ND 58108.

³Corresponding author (e-mail: koch0125@umn.edu).

for the occurrence of various species specifically in Minnesota are scattered in the literature (i.e., Walker 1867; Uhler 1871; Lugger 1900; Van Duzee 1917; Hart 1919; Hussey 1921; Stoner 1921; Knight 1952; Barber and Sailor 1953; McPherson 1980, 1982; Froeschner 1988; Rider and Chapin 1992; Rider 1995, 2012). However, a comprehensive, updated checklist for this family in Minnesota is lacking. Therefore, based on museum records and literature, we present a checklist of the Pentatomidae of Minnesota annotated with locality information.

Materials and Methods

An annotated checklist of species of Pentatomidae known to occur in Minnesota was generated by review of the literature and examination of holdings in the University of Minnesota Insect Collection (UMSP), North Dakota State University Insect Collection (NDSU), University of North Dakota Insect Collection (UND), and the personal collection of David A. Rider (DAR). The extensive regional insect collection from the University of Minnesota Cedar Creek Ecosystem Science Reserve, Anoka County, Minnesota, recently was accessioned to the UMSP and also was examined for relevant material. State-level and county-level records for Minnesota and the North American distributions, primarily from McPherson (1982), are provided for each species. Minnesota counties are shown in Fig. 1. General taxonomic keys used to identify or verify material were McPherson (1982), Rider (2012), and Paiero et al. (2013). Nomenclature follows Froeschner (1988), except in cases of subsequent nomenclatural changes. Asterisks (*) following species names indicate new records for Minnesota.

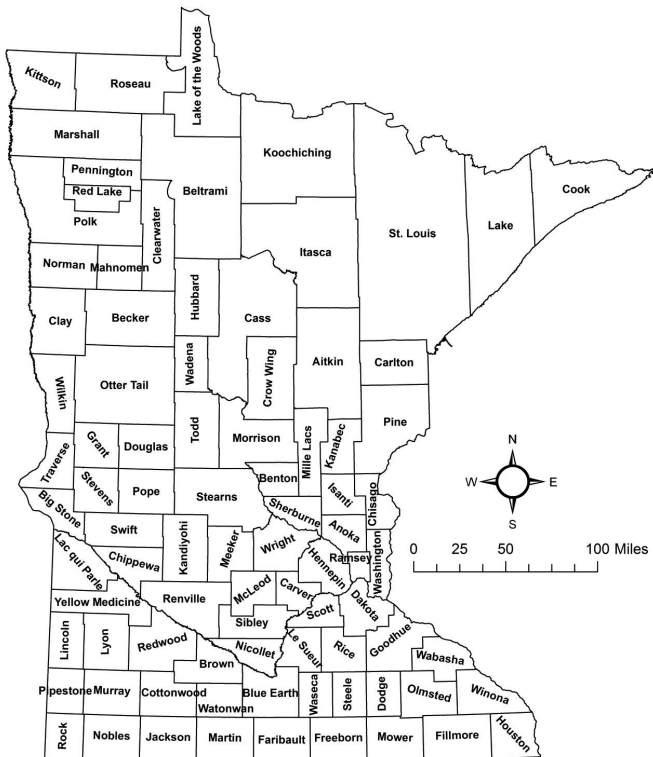


Figure 1. Map of Minnesota counties.

Results and Discussion

Our review of the literature, reconciliations of recent taxonomic actions, and examination of DAR, NDSU, UMSP, and UND specimens resulted in a final checklist of 51 species of Pentatomidae (12 Asopinae, 37 Pentatominae, and 2 Podopinae) for Minnesota. Fifteen of these species are newly recorded for the state and include *Apoecilus cynicus* (Say), *Perillus exaptus* (Say), *Zicrona caerulea* (Linnaeus), *Agonoscelis puberula* Stål, *Banasa calva* (Say), *Banasa dimidiata* (Say), *Banasa sordida* (Uhler), *Dendrocoris humeralis* (Uhler), *Euschistus variolarius* (Palisot de Beauvois), *Holcostethus macdonaldi* Rider and Rolston, *Mecidea major* Sailer, *Mecidea minor* Ruckes, *Neottiglossa trilineata* (Kirby), *Prionosoma podopioides* Uhler, and *Trichopepla semivittata* (Say). In comparison, the number of species of Pentatomidae recorded for other states or provinces in the region are 45 from North Dakota (Rider 2012), 57 from Missouri (Sites et al. 2012), 50 from Michigan (Swanson 2012, Swanson et al. 2013), and 47 from Ontario (Paiero et al. 2013).

Records of three species are of particular interest. *Halyomorpha halys*, an Asian species first detected in Minnesota in 2010 (Koch 2014), continues to be found as an invader of human-made structures. *Agonoscelis puberula*, an African species detected in Mexico, Jamaica, Hispaniola and the southern U.S. (Thomas et al. 2003), is reported for the first time in the north central U.S. A single specimen of *A. puberula* was found, and its continued presence in Minnesota needs to be confirmed by further collecting. In addition, four male specimens of *M. major* were found. *Mecidea major* is generally considered a southern species previously known to occur as far north as Missouri and southern Illinois (McPherson 1982). Further collecting is needed to confirm an established population in Minnesota.

Beyond the species presented in the checklist, some additional species may occur in Minnesota. *Euschistus politus* Uhler has been reported from Minnesota (Malloch, in Hart 1919); however, this record for Minnesota is questionable, because Malloch stated: "In addition to these, there is a much darker female specimen from Minnesota, labeled by Mr. Hart 'politus?'". *Euschistus politus* recently has been reported for Missouri (Sites et al. 2012), Michigan (Swanson 2012), and Ontario (Paiero et al. 2013). *Amaurochrous dubius* (Palisot de Beauvois) was recorded by Uhler (1876) from Minnesota; however, it has since not been cited from the state and no new specimens have been located. The geographic ranges of *Hymenarcys nervosa* (Say) and *Mepheronarcys aequalis* (Say) likely include Minnesota (McPherson 1982), but specimens or reports in the literature specific to Minnesota were not found. *Hymenarcys nervosa* and *M. aequalis* have both recently been reported for Kansas (Packauskas 2012), Missouri (Sites et al. 2012), and Michigan (Swanson 2012). Further work is needed to document the fauna of the other families of Pentatomoidea in Minnesota.

PENTATOMIDAE Leach, 1815

PENTATOMIDAE: ASOPINAE Spinola, 1850

Apoecilus bracteatus (Fitch, 1856)

Minnesota (Hart, 1919, as *Apateticus crocatus*): Clay Co. (DAR, NDSU), Clearwater Co. (UND), Cook Co. (UMSP), Hennepin Co. (UMSP), Kittson Co. (UMSP), Polk Co. (UMSP), Pope Co. (UMSP), Ramsey Co. (UMSP), Stearns Co. (DAR).

North America: Reported from "Quebec and New England west to Vancouver, Canada, Idaho, Colorado, New Mexico, Utah, and California" (McPherson 1982, as *Apateticus bracteatus*).

Apoecilus cynicus (Say, 1831) *

Minnesota: Chisago Co. (UMSP), Clay Co. (NDSU), Hennepin Co. (UMSP), Morrison Co. (DAR), Norman Co. (UMSP), Ramsey Co. (UMSP), Waseca Co. (UMSP).

North America: Reported from "Quebec and New England south to Florida, and west to Montana, Colorado, Texas, and Arizona" (McPherson 1982, as *Apateticus cynicus*).

***Perillus bioculatus* (Fabricius, 1775)**

Minnesota: Anoka Co. (UMSP), Cass Co. (UMSP), Chisago Co. (Knight 1952, UMSP), Dakota Co. (Knight 1952, UMSP), Goodhue Co. (UMSP), Hennepin Co. (UMSP), Kanabec Co. (Knight 1952, UMSP), Le Sueur Co. (UMSP), Mille Lacs Co. (UMSP), Nicollet Co. (Knight 1952, UMSP), Olmstead Co. (UMSP), Otter Tail Co. (UMSP), Pennington Co. (Knight 1952), Ramsey Co. (Knight 1952, UMSP), Rock Co. (UMSP), Saint Louis Co. (Knight 1952), Scott Co. (Knight 1952, UMSP), Stearns Co. (Knight 1952). Also recorded from Hastings (UMSP), Itasca State Park (DAR, UMSP), and Princeton (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from "Quebec, Ontario, and New York west to the Pacific Coast, and south to Florida, New Mexico, Arizona, California, and lower California" (McPherson 1982).

***Perillus circumcinctus* Stål, 1862**

Minnesota (Stoner 1920, Knight 1952): Anoka Co. (UMSP), Hennepin Co. (Knight 1952, UMSP), Houston Co. (UMSP), Kittson Co. (UMSP), Mille Lacs Co. (UMSP), Otter Tail Co. (Hart 1919), Pope Co. (UMSP), Sherburne Co. (UMSP), Washington Co. (UMSP). Also recorded from Itasca State Park (UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported from "Quebec west to Saskatchewan, Canada, and south to New Jersey, Illinois, Missouri, and Nebraska" (McPherson 1982).

***Perillus exaptus* (Say, 1825) ***

Minnesota: Cass Co. (UMSP), Cook Co. (UMSP), Crow Wing Co. (UMSP), Lake Co. (UMSP), Mille Lacs Co. (UMSP), Olmstead Co. (UMSP), Polk Co. (UMSP), Saint Louis Co. (DAR). Also recorded from Itasca State Park and Kawishiwi River (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from "Quebec and New England west to the Pacific Coast, and south to New Jersey, Missouri, New Mexico, Utah, and California" (McPherson 1982).

***Podisus brevispinus* Phillips, 1992**

Minnesota (Hart 1919, as *Apateticus modestus*): Anoka Co. (UMSP), Becker Co. (DAR), Beltrami Co. (UMSP), Carlton Co. (UMSP), Cass Co. (UMSP), Clay Co. (DAR), Clearwater Co. (DAR, UMSP), Cook Co. (UMSP), Crow Wing Co. (DAR), Hennepin Co. (UMSP), Houston Co. (UMSP), Isanti Co. (UMSP), Itasca Co. (DAR, UMSP), Kanabec Co. (UMSP), Lake Co. (UMSP), Morrison Co. (DAR), Norman Co. (UMSP), Olmstead Co. (UMSP), Pine Co. (UMSP), Ramsey Co. (UMSP), Rice Co. (UMSP), Saint Louis Co. (UMSP), Stearns Co. (DAR). Also recorded from Itasca State Park (DAR, UMSP), Kawishiwi River (UMSP) and La Crescent (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from "Quebec and New England west to British Columbia, Montana, and Idaho, and south to North Carolina, Georgia, and New Mexico" (McPherson 1982, as *Podisus modestus*).

***Podisus maculiventris* (Say, 1832)**

Minnesota (Walker 1867, as *Arma spinosa*, Lugger 1900, as *Podisus spinosa*): Big Stone Co. (UMSP), Blue Earth Co. (UMSP), Brown Co. (UMSP), Chisago Co. (UMSP), Clay Co. (DAR), Cottonwood Co. (UMSP), Dakota Co. (UMSP), Douglas Co. (UMSP), Fillmore Co. (UMSP), Freeborn Co. (DAR, UMSP), Goodhue Co.

(UMSP), Hennepin Co. (UMSP), Jackson Co. (UMSP), Lincoln Co. (UMSP), Lyon Co. (UMSP), Martin Co. (UMSP), McLeod Co. (UMSP), Mille Lacs Co. (UMSP), Morrison Co. (DAR, UMSP), Nobles Co. (UMSP), Norman Co. (UMSP), Olmstead Co. (UMSP), Pine Co. (UMSP), Pipestone Co. (UMSP), Pope Co. (UMSP), Ramsey Co. (UMSP), Rice Co. (UMSP), Rock Co. (UMSP), Saint Louis Co. (UMSP), Scott Co. (UMSP), Sibley Co. (UMSP), Steele Co. (UMSP), Todd Co. (UMSP), Traverse Co. (UMSP), Wabasha Co. (UMSP), Waseca Co. (UMSP), Washington Co. (UMSP), Watonwan Co. (UMSP), Wright Co. (DAR), Yellow Medicine Co. (UMSP).

North America: Reported from “Quebec and New England west to the Pacific Coast, and south to Florida, Arizona, and California” (McPherson 1982).

***Podisus placidus* Uhler, 1870**

Minnesota (Hart 1919, as *Apateticus placidus*): Anoka Co. (UMSP), Carlton Co. (UMSP), Cass Co. (UMSP), Clearwater Co. (Rider 2012, UMSP), Crow Wing Co. (UMSP), Hennepin Co. (UMSP), Houston Co. (UMSP), Isanti Co. (UMSP), Kittson Co. (UMSP), Lyon Co. (UMSP), Mille Lacs Co. (UMSP), Olmstead Co. (UMSP), Pine Co. (UMSP), Ramsey Co. (UMSP), Roseau Co. (UMSP), Saint Louis Co. (NDSU, Rider 2012, UMSP), Washington Co. (UMSP). Also recorded from Itasca State Park (DAR, UMSP) and Lake City (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from “Quebec west to British Columbia, and south to New Jersey, Arkansas, Colorado, Utah, and Idaho” (McPherson 1982).

***Podisus serieventris* Uhler, 1871**

Minnesota (Uhler 1871, Hart 1919, as *Apateticus serieventris*): Crow Wing Co. (UMSP), Goodhue Co. (UMSP), Itasca Co. (DAR), Lake Co. (DAR, UMSP), Olmstead Co. (UMSP), Saint Louis Co. (UMSP). Also recorded from Itasca State Park (DAR, UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported from “Nova Scotia and Quebec west to British Columbia, and south to North Carolina, Florida, New Mexico, Utah, and Idaho” (McPherson 1982).

***Rhacognathus americanus* Stål, 1870**

Minnesota: Otter Tail Co. (Stoner 1921).

North America: “Reported from Massachusetts northwest to Alberta, Canada, and southwest through Ohio to Nebraska” (McPherson 1982).

***Stiretrus anchorago* (Fabricius, 1775)**

Minnesota (Lugger 1900): Anoka Co. (UMSP), Houston Co. (UMSP), Le Sueur Co. (UMSP), Nicollet Co. (UMSP), Olmstead Co. (UMSP), Pine Co. (UMSP), Ramsey Co. (UMSP), Washington Co. (UMSP).

North America: Reported from “Ontario and New England south to Florida, and west to Iowa, Kansas, and Texas” (McPherson 1982).

***Zicrona caerulea* (Linnaeus, 1758) ***

Minnesota: Saint Louis Co. (UMSP).

North America: Reported from “Quebec, Hudson Bay, Maine, New Hampshire, and Michigan west to British Columbia, and then south through Idaho, Utah, and Colorado, New Mexico, Arizona, and California” (McPherson 1982).

PENTATOMIDAE: PENTATOMINAE Leach, 1815

***Aelia americana* Dallas, 1851**

Minnesota: Anoka Co. (UMSP), Clay Co. (NDSU, Rider 2012), Isanti Co. (UMSP), Polk Co. (NDSU, Rider 2012, UMSP), Pope Co. (UMSP), Red Lake Co. (UMSP), Roseau Co. (UMSP), Wright Co. (UMSP). Also recorded from Itasca

State Park (UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported from “British Columbia south to Arizona, east to Manitoba, Michigan, and Illinois” (McPherson 1982).

***Agonoscelis puberula* Stål, 1854 ***

Minnesota: Anoka/Isanti Co. (UMSP). A single specimen was collected from an old field on 16 July 1996 at the Cedar Creek Ecosystem Science Reserve, University of Minnesota.

North America: Jamaica, Dominican Republic, Mexico and United States (Arizona, New Mexico and Texas) (Thomas et al. 2003).

***Banasa calva* (Say, 1832) ***

Minnesota: Anoka Co. (UMSP), Goodhue Co. (UMSP), Houston Co. (UMSP), Ramsey Co. (UMSP).

North America: Reported from “Quebec, Ontario, and New England south to North Carolina and Georgia, and west to British Columbia, Oregon, Colorado, and lower California” (McPherson 1982).

***Banasa dimidiata* (Say, 1832) ***

Minnesota: Anoka Co. (UMSP), Becker Co. (DAR, NDSU), Beltrami Co. (UND), Carlton Co. (UMSP), Clay Co. (NDSU), Cook Co. (UMSP), Goodhue Co. (UMSP), Hennepin Co. (DAR, UMSP), Houston Co. (UMSP), Isanti Co. (UMSP), Itasca Co. (DAR), Lake Co. (UMSP), Meeker Co. (UMSP), Morrison Co. (DAR), Norman Co. (NDSU, UMSP), Ramsey Co. (DAR, UMSP), Red Lake Co. (UMSP), Rice Co. (UMSP), Saint Louis Co. (UMSP), Stearns Co. (UMSP), Washington Co. (UMSP), Wright Co. (UMSP). Also recorded from Itasca State Park and Lake City (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from “Quebec and New England west to the Pacific Coast, and south to Florida, Oklahoma, Texas, and California” (McPherson 1982).

***Banasa sordida* (Uhler, 1871) ***

Minnesota: Dakota Co. (UMSP).

North America: Reported from “Ontario and New England west to Vancouver Island, and south to Maryland, Virginia, North Carolina, New Mexico, and California” (McPherson 1982).

***Brochymena quadripustulata* (Fabricius, 1775)**

Minnesota (Lugger 1900, as *Brochymena annulata*): Anoka Co. (UMSP), Brown Co. (UMSP), Carver Co. (UMSP), Cass Co. (UMSP), Chisago Co. (UMSP), Clay Co. (DAR, NDSU, Rider 2012, UMSP), Dakota Co. (UMSP), Fillmore Co. (UMSP), Hennepin Co. (UMSP), Houston Co. (UMSP), Kandiyohi Co. (UMSP), Mille Lacs Co. (UMSP), Norman Co. (UMSP), Olmstead Co. (UMSP), Otter Tail Co. (UMSP), Ramsey Co. (UMSP), Red Lake Co. (UMSP), Scott Co. (UMSP), Stearns Co. (DAR, NDSU, Rider 2012), Wabasha Co. (UMSP), Washington Co. (UMSP). Also recorded from Itasca State Park (UMSP) and Lake City (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from “southern Canada and the continental United States, from the Atlantic to Pacific coasts, and ranges south into northern Mexico, but is most common north of 40° N” (McPherson 1982).

***Chinavia hilaris* (Say, 1832)**

Minnesota (Lugger, 1900, as *Nezara pennsylvanica*): Anoka Co. (UMSP), Becker Co. (DAR, NDSU, Rider 2012), Beltrami Co. (NDSU), Big Stone Co. (NDSU, Rider 2012), Cass Co. (NDSU), Clay Co. (DAR, NDSU, Rider 2012),

Clearwater Co. (UMSP), Hennepin Co. (UMSP), Houston Co. (UMSP), Isanti Co. (UMSP), Le Sueur Co. (UMSP), Lyon Co. (UMSP), Martin Co. (UMSP), Norman Co. (NDSU), Olmstead Co. (UMSP), Otter Tail Co. (Rider 2012, UND), Pipestone Co. (UMSP), Ramsey Co. (UMSP), Rice Co. (UMSP), Scott Co. (NDSU, Rider 2012), Stearns Co. (DAR, NDSU, Rider 2012), Traverse Co. (UMSP), Waseca Co. (UMSP), Washington Co. (UMSP), Winona Co. (UMSP).

North America: Reported from “Quebec and New England west through southern Canada and the northern states to the Pacific Coast, and south and southwest to Florida, Texas, Arizona, Utah, and California” (McPherson 1982, as *Acrosternum hilare*).

***Chinavia pennsylvanica* (Gmelin, 1790)**

Minnesota: Houston Co. (UMSP). Luggler (1900) included this species for Minnesota, but was based on a misidentification (Rider 2012).

North America: Reported from “Quebec and New England west to Iowa and Minnesota, and south to Georgia, Florida, Missouri, and possibly Kansas” (McPherson 1982, as *Acrosternum pennsylvanicum*).

***Chlorochroa belfragii* (Stål, 1872)**

Minnesota: Clay Co. (NDSU, Rider 2012), Kandiyohi Co. (UMSP), Pine Co. (UMSP).

North America: Reported from “Nebraska, Iowa, Illinois, Virginia, and Canada” (McPherson 1982, as *Rhytidolomia belfragii*).

***Chlorochroa persimilis* Horvath, 1908**

Minnesota (Luggler 1900, as *Lioderma ligata*): Anoka Co. (UMSP), Beltrami Co. (UMSP), Clay Co. (NDSU), Goodhue Co. (UMSP), Isanti Co. (UMSP), Norman Co. (NDSU, UMSP), Pine Co. (UMSP), Polk Co. (NDSU, UMSP), Ramsey Co. (UMSP), Scott Co. (UMSP), Sherburne Co. (UMSP), Wabasha Co. (UMSP), Washington Co. (UMSP). Also recorded from Itasca State Park (UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported from “Quebec and New England south to Florida, and west to at least the Mississippi River, and probably to Iowa and Kansas” (McPherson 1982).

***Coenus delius* (Say, 1832)**

Minnesota: Anoka Co. (UMSP), Big Stone Co. (UMSP), Carlton Co. (UMSP), Chippewa Co. (DAR), Chisago Co. (UMSP), Clay Co. (DAR, NDSU), Crow Wing Co. (UMSP), Douglas Co. (UMSP), Freeborn Co. (Rider 1995), Hennepin Co. (Rider 1995, UMSP), Houston Co. (UMSP), Isanti Co. (UMSP), Kandiyohi Co. (UMSP), Lac qui Parle Co. (DAR), Lincoln Co. (UMSP), Mahnomen Co. (UMSP), Marshall Co. (UMSP), Norman Co. (NDSU, UMSP), Olmsted Co. (UMSP), Polk Co. (NDSU, UMSP, UND), Pope Co. (UMSP), Ramsey Co. (UMSP), Renville Co. (UMSP), Rock Co. (UMSP), Roseau Co. (UMSP), Scott Co. (UMSP), Sherburne Co. (UMSP), Stearns Co. (DAR), Traverse Co. (UMSP), Wadena Co. (UMSP), Washington Co. (UMSP), Wilkin Co. (UMSP), Winona Co. (Rider 1995), Wright Co. (DAR). Also recorded from Itasca State Park (UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported from “Quebec and New England south to North Carolina, and west to British Columbia, Montana, Idaho, Utah, Oklahoma, and Texas” (McPherson 1982).

***Cosmopepla lintneriana* Kirkaldy, 1909**

Minnesota (Luggler 1900, as *Cosmopepla carnifex*): Aitkin Co. (UMSP), Anoka Co. (UMSP), Beltrami Co. (UMSP), Big Stone Co. (UMSP), Brown Co. (DAR), Cass Co. (UMSP), Chisago Co. (UMSP), Clay Co. (DAR, NDSU), Clearwater Co. (UMSP, UND), Cook Co. (UMSP), Crow Wing Co. (UMSP), Dodge Co. (UMSP),

Douglas Co. (UMSP), Faribault Co. (UMSP), Fillmore Co. (UMSP), Freeborn Co. (UMSP), Goodhue Co. (UMSP), Hennepin Co. (DAR, UMSP), Houston Co. (UMSP), Hubbard Co. (NDSU), Isanti Co. (UMSP), Itasca Co. (UMSP), Kanabec Co. (UMSP), Kittson Co. (UMSP), Lac qui Parle Co. (UMSP), Lake Co. (NDSU, UMSP), Lake of the Woods Co. (UMSP), Le Sueur Co. (UMSP), Lyon Co. (UMSP), McLeod Co. (UMSP), Mille Lacs Co. (UMSP), Morrison Co. (UMSP), Nicollet Co. (UMSP), Norman Co. (UMSP), Olmstead Co. (UMSP), Otter Tail Co. (UMSP), Pennington Co. (UMSP), Pine Co. (UMSP), Polk Co. (UMSP), Ramsey Co. (UMSP), Renville Co. (UMSP), Rice Co. (UMSP), Roseau Co. (UMSP), Saint Louis Co. (UMSP), Scott Co. (UMSP), Sherburne Co. (UMSP), Stearns Co. (DAR, UMSP), Steele Co. (UMSP), Todd Co. (NDSU, UMSP), Traverse Co. (UMSP), Wabasha Co. (UMSP), Wadena Co. (UMSP), Washington Co. (UMSP), Wilkin Co. (UMSP), Winona Co. (UMSP), Wright Co. (UMSP). Also recorded from Itasca State Park (NDSU, UMSP), Lake City (UMSP), Saint Cloud (UMSP), and Sullivan Lake (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from “Nova Scotia and New England west to British Columbia and Washington, and south to Georgia, Texas, and Mexico” (McPherson 1982, as *Cosmopepla bimaculata*).

***Dendrocoris humeralis* (Uhler, 1877) ***

Minnesota: Anoka Co. (UMSP), Houston Co. (UMSP), Ramsey Co. (UMSP).

North America: Reported from “New England south to Georgia, and west through Colorado and New Mexico to California” (McPherson 1982).

***Euschistus ictericus* (Linnaeus, 1763)**

Minnesota: Anoka Co. (UMSP), Carlton Co. (UMSP), Carver Co. (UMSP), Chisago Co. (UMSP), Clay Co. (DAR, NDSU, Rider 2012), Dakota Co. (DAR, Rider 2012, UMSP), Dodge Co. (UMSP), Fillmore Co. (UMSP), Goodhue Co. (UMSP), Hennepin Co. (UMSP), Houston Co. (UMSP), Kanabec Co. (UMSP), Koochiching Co. (UMSP), Lake Co. (UMSP), Le Sueur Co. (UMSP), Norman Co. (UMSP), Olmstead Co. (UMSP), Otter Tail Co. (UMSP), Pine Co. (UMSP), Pope Co. (UMSP), Ramsey Co. (UMSP), Sherburne Co. (UMSP), Stearns Co. (DAR, UMSP, UND), Wadena Co. (UMSP), Washington Co. (UMSP).

North America: Reported from “northern United States and Canada from coast to coast, and also ranges southward to Florida, Oklahoma, and Texas” (McPherson 1982).

***Euschistus latimarginatus* Zimmer, 1910**

Minnesota: Anoka Co. (UMSP), Isanti Co. (UMSP), Polk Co. (NDSU, Rider 2012).

North America: This is a Great Plains species (Rider 2012) ranging sporadically from Texas to North Dakota.

***Euschistus servus euschistoides* (Vollenhoven, 1868)**

Minnesota (Lugger 1900, as *Euschistus variolarius*): Anoka Co. (UMSP), Becker Co. (DAR, UMSP), Beltrami Co. (UMSP), Cass Co. (UMSP), Chisago Co. (UMSP), Clay Co. (DAR, NDSU), Clearwater Co. (NDSU, UMSP), Crow Wing Co. (UMSP), Dakota Co. (UMSP), Dodge Co. (UMSP), Douglas Co. (UMSP), Fillmore Co. (UMSP), Goodhue Co. (UMSP), Hennepin Co. (DAR, UMSP), Houston Co. (UMSP), Hubbard Co. (UMSP), Isanti Co. (UMSP), Itasca Co. (DAR), Kanabec Co. (UMSP), Kandiyohi Co. (UMSP), Kittson Co. (NDSU, UMSP), Mahnomen Co. (UMSP), Marshall Co. (NDSU, UMSP), Nicollet Co. (UMSP), Norman Co. (DAR, NDSU, UMSP), Olmstead Co. (UMSP), Otter Tail Co. (UMSP), Pennington Co. (UMSP), Pine Co. (UMSP), Polk Co. (NDSU, UMSP, UND), Ramsey Co. (UMSP), Renville Co. (UMSP), Rice Co. (UMSP), Roseau Co. (UMSP), Saint Louis Co. (NDSU, UMSP), Sherburne Co. (UMSP), Stearns Co. (UMSP, UND),

Steele Co. (UMSP), Todd Co. (UMSP), Wabasha Co. (DAR, UMSP), Wadena Co. (UMSP), Washington Co. (UMSP), Winona Co. (UMSP). Also recorded from Itasca State Park (UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported “across the northern United States and southern Canada” (McPherson 1982).

***Euschistus tristigmus luridus* Dallas, 1851**

Minnesota: Aitkin Co. (UMSP), Anoka Co. (UMSP), Becker Co. (DAR, NDSU, UMSP), Beltrami Co. (UMSP), Carlton Co. (UMSP), Cass Co. (UMSP), Chisago Co. (UMSP), Clay Co. (DAR, NDSU), Clearwater Co. (DAR, UMSP), Cook Co. (UMSP), Crow Wing Co. (UMSP), Dakota Co. (UMSP), Douglas Co. (UMSP), Fillmore Co. (UMSP), Goodhue Co. (UMSP), Hennepin Co. (UMSP), Houston Co. (UMSP), Hubbard Co. (UMSP), Isanti Co. (UMSP), Itasca Co. (DAR, UMSP), Kanabec Co. (UMSP), Kittson Co. (UMSP), Koochiching Co. (NDSU), Lac qui Parle Co. (UMSP), Lake Co. (UMSP), Lake of the Woods Co. (UMSP), Le Sueur Co. (UMSP), Lyon Co. (UMSP), Mille Lacs Co. (UMSP), Morrison Co. (UMSP), Nicollet Co. (UMSP), Norman Co. (UMSP), Olmstead Co. (UMSP), Otter Tail Co. (NDSU), Pine Co. (UMSP), Polk Co. (UMSP), Pope Co. (UMSP), Ramsey Co. (UMSP), Red Lake Co. (UMSP), Rice Co. (UMSP), Roseau Co. (UMSP), Saint Louis Co. (Malloch, in Hart 1919, NDSU, UMSP), Stearns Co. (DAR, UMSP), Todd Co. (UMSP), Traverse Co. (UMSP), Wabasha Co. (UMSP), Wadena Co. (UMSP), Washington Co. (UMSP), Winona Co. (UMSP). Also recorded from Princeton (UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported “north of latitude 41° N from Nova Scotia, Quebec, and New England west to Washington” (McPherson 1982).

***Euschistus variolarius* (Palisot de Beauvois, 1817) ***

Minnesota: Anoka Co. (UMSP), Benton Co. (UMSP), Big Stone Co. (NDSU, UMSP), Blue Earth Co. (UMSP), Brown Co. (DAR), Carver Co. (UMSP), Chipewewa Co. (UMSP), Chisago Co. (UMSP), Clay Co. (DAR, NDSU), Cottonwood Co. (UMSP), Dakota Co. (UMSP), Dodge Co. (UMSP), Douglas Co. (UMSP), Goodhue Co. (UMSP), Faribault Co. (UMSP), Fillmore Co. (UMSP), Freeborn Co. (UMSP), Grant Co. (UMSP), Hennepin Co. (UMSP), Houston Co. (UMSP), Isanti Co. (UMSP), Jackson Co. (UMSP), Kanabec Co. (UMSP), Kandiyohi Co. (UMSP), Lac qui Parle Co. (UMSP), Le Sueur Co. (UMSP), Lincoln Co. (UMSP), Lyon Co. (UMSP), Mahnomon Co. (NDSU), Martin Co. (UMSP), McLeod Co. (UMSP), Meeker Co. (UMSP), Morrison Co. (UMSP), Mower Co. (UMSP), Murray Co. (UMSP), Nicollet Co. (DAR, UMSP), Nobles Co. (UMSP), Olmstead Co. (UMSP), Otter Tail Co. (NDSU), Pine Co. (UMSP), Pipestone Co. (UMSP, UND), Polk Co. (UMSP), Pope Co. (UMSP), Ramsey Co. (UMSP), Rice Co. (UMSP), Rock Co. (UMSP), Scott Co. (UMSP), Sherburne Co. (UMSP), Stearns Co. (DAR, UMSP), Steele Co. (UMSP), Stevens Co. (NDSU, UMSP), Swift Co. (UMSP), Todd Co. (UMSP), Traverse Co. (UMSP), Wabasha Co. (UMSP), Wadena Co. (UMSP), Waseca Co. (UMSP), Washington Co. (UMSP), Wilkin Co. (UMSP), Winona Co. (UMSP), Wright Co. (UMSP), Yellow Medicine Co. (UMSP). Also recorded from Kawishiwi River and Lake City (UMSP), but a specific county could not be determined as these localities span multiple counties. Luggar (1900) includes this species for Minnesota, but was based on a misidentification (Rider 2012).

North America: Reported from “Quebec, Ontario, and New England south to Florida, and west to British Columbia, Idaho, and Utah” (McPherson 1982).

***Halyomorpha halys* (Stål), 1855**

Minnesota: Anoka Co. (Koch 2014, UMSP), Carver Co. (Koch 2014), Chisago Co. (Koch 2014), Dakota Co. (Koch 2014), Hennepin Co. (Koch 2014), Ramsey Co. (Koch 2014, UMSP), Saint Louis County (M. Abrahamson, pers.

comm.), Washington Co. (Koch 2014, UMSP), Winona Co. (Koch 2014, UMSP). Rider (2012) reported this species being found in shipping containers in Clay Co.

North America: The known range of this species is rapidly expanding. It has been recorded from at least 38 states and the District of Columbia in the U.S. and from parts of Canada (Leskey et al. 2012).

***Holcostethus abbreviatus* Uhler, 1872**

Minnesota: Anoka Co. (UMSP), Big Stone Co. (UMSP), Clay Co. (NDSU, Rider 2012), Goodhue Co. (UMSP), Kanabec Co. (UMSP), Kittson Co. (UMSP), Mille Lacs Co. (UMSP), Norman Co. (UMSP), Polk Co. (UMSP), Ramsey Co. (UMSP), Scott Co. (UMSP). Also recorded from Hastings (UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported from "Iowa northwest to British Colombia and Washington, west to Oregon and California, and southwest to New Mexico and lower California" (McPherson 1982).

***Holcostethus limbolarius* (Stål, 1872)**

Minnesota: Anoka Co. (UMSP), Benton Co. (UMSP), Blue Earth Co. (DAR), Brown Co. (DAR), Cass Co. (UMSP), Chippewa Co. (UMSP), Clay Co. (NDSU, Rider 2012, UMSP), Cottonwood Co. (UMSP), Dakota Co. (UMSP), Freeborn Co. (UMSP), Goodhue Co. (UMSP), Grant Co. (UMSP), Hennepin Co. (UMSP), Houston Co. (UMSP), Isanti Co. (UMSP), Kanabec Co. (UMSP), Kandiyohi Co. (UMSP), Kittson Co. (UMSP), Lac qui Parle Co. (UMSP), Lake Co. (UMSP), Le Sueur Co. (UMSP), Lincoln Co. (UMSP), Lyon Co. (UMSP), Marshall Co. (NDSU, Rider 2012, UMSP), Norman Co. (UMSP), Otter Tail Co. (UMSP), Polk Co. (DAR, UMSP), Pope Co. (UMSP), Ramsey Co. (UMSP), Rock Co. (UMSP), Saint Louis Co. (UMSP), Scott Co. (UMSP), Stearns Co. (DAR), Steele Co. (UMSP), Todd Co. (UMSP), Traverse Co. (UMSP), Wadena Co. (UMSP), Washington Co. (UMSP), Yellow Medicine Co. (UMSP). Also recorded from Itasca State Park and Royalton (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from "Quebec, Ontario, and New England west across the continent, and south and west to Georgia, Texas, "Old Mexico," New Mexico, and California" (McPherson 1982).

***Holcostethus macdonaldi* Rider and Rolston, 1995 ***

Minnesota: Anoka Co. (UMSP), Cass Co. (UMSP), Isanti Co. (UMSP), Lake Co. (UMSP), Mille Lacs Co. (UMSP), Ramsey Co. (UMSP). Also recorded from Itasca State Park (UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported from "Quebec west to Alberta, Canada, and south to Illinois and Colorado" (McPherson 1982, as *Holcostethus piceus*).

***Mecidea major* Sailer 1952 ***

Minnesota: Anoka Co. (UMSP). Also recorded from Anoka/Isanti Co. (UMSP).

North America: Reported from "Arizona and Texas north to Kansas, Missouri and southern Illinois" (McPherson 1982).

***Mecidea minor* Ruckes 1946 ***

Minnesota: Nicollet Co. (DAR), Rock Co. (UMSP).

North America: Reported from "northern third of Mexico north to central California, northern Utah, and central South Dakota, with the eastern boundary near the eastern borders of Texas, Oklahoma, and Kansas" (McPherson 1982). Rider (2012) collected this species from Cass County, North Dakota, which is on the border with Minnesota.

***Meneles insertus* (Say, 1832)**

Minnesota: Becker Co. (DAR, Rider 2012), Chisago Co. (UMSP), Clay Co. (DAR, Rider 2012, UMSP), Hennepin Co. (UMSP), Mille Lacs Co. (UMSP), Olmstead Co. (UMSP), Ramsey Co. (UMSP), Washington Co. (UMSP).

North America: Reported from “Quebec, Ontario, and New England west to Nebraska and Kansas, southwest to Arizona and California, and south to Arkansas and Florida” (McPherson 1982).

***Mormidea lugens* (Fabricius, 1775)**

Minnesota: Anoka Co. (UMSP), Beltrami Co. (UMSP), Cass Co. (UMSP), Chisago Co. (UMSP), Clearwater Co. (Rider 2012, UMSP), Crow Wing Co. (UMSP), Fillmore Co. (DAR, Rider 2012), Goodhue Co. (UMSP), Hennepin Co. (UMSP), Houston Co. (UMSP), Hubbard Co. (NDSU, Rider 2012), Isanti Co. (UMSP), Lake Co. (UMSP), Morrison Co. (DAR, Rider 2012), Norman Co. (NDSU, Rider 2012), Olmstead Co. (UMSP), Pine Co. (UMSP), Polk Co. (NDSU, Rider 2012), Ramsey Co. (UMSP), Saint Louis (UMSP), Stearns Co. (UMSP), Todd Co. (UMSP), Washington Co. (UMSP), Winona Co. (UMSP). Also recorded from Itasca State Park (DAR, UMSP) and Minneiska (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from “Ontario, Quebec, and Maine south to Florida, and west to North and South Dakota, Wyoming, Colorado, Oklahoma, and Texas, and into Mexico” (McPherson 1982).

***Murgantia histrionica* (Hahn, 1834)**

Minnesota: Dakota Co. (UMSP), Houston Co. (UMSP), Murray Co. (Hodson and Cook 1960, UMSP), Polk Co. (UMSP). Hodson and Cook (1960) treat their records of *Murgantia histrionica* in Minnesota as a one-time, long-range aerial transport into the state.

North America: Reported from “New England west to Colorado, and south and southwest to Florida, Texas, and California; it has occasionally been reported from as far north as Iowa, South Dakota, and Minnesota” (McPherson 1982).

***Neottiglossa sulcifrons* Stål, 1872**

Minnesota: Clay Co. (NDSU, Rider 2012), Houston Co. (UMSP), Pope Co. (UMSP), Rock Co. (UMSP), Yellow Medicine Co. (UMSP).

North America: Reported from “New Jersey south to Georgia, and west to Nebraska, Kansas, and New Mexico; also known from South Dakota, Utah, British Columbia, and lower California” (McPherson 1982).

***Neottiglossa trilineata* (Kirby, 1837) ***

Minnesota: Anoka Co. (UMSP), Cass Co. (UMSP).

North America: Ranges from “Quebec, Nova Scotia, northern Michigan, and Nebraska west to British Columbia and California” (McPherson 1982).

***Neottiglossa undata* (Say, 1832)**

Minnesota (Van Duzee 1917): Anoka Co. (UMSP), Beltrami Co. (UND), Blue Earth Co. (UMSP), Cass Co. (UMSP), Clay Co. (DAR, NDSU, UMSP), Clearwater Co. (Rider 1989, UMSP), Cook Co. (UMSP), Crow Wing Co. (UMSP), Douglas Co. (UMSP), Fillmore Co. (UMSP), Goodhue Co. (UMSP), Hennepin Co. (UMSP), Houston Co. (UMSP), Isanti Co. (UMSP), Itasca Co. (Rider 1989, DAR), Kanabec Co. (UMSP), Kittson Co. (UMSP), Lac qui Parle Co. (UMSP), Lake Co. (UMSP), Marshall Co. (UMSP), Mille Lacs Co. (UMSP), Morrison Co. (UMSP), Norman Co. (NDSU), Olmstead Co. (UMSP), Pine Co. (UMSP), Pipestone Co. (UMSP), Polk Co. (Rider 1989, NDSU, UMSP), Pope Co. (UMSP), Ramsey Co. (UMSP), Roseau Co. (UMSP), Saint Louis Co. (NDSU, UMSP), Traverse Co. (UMSP), Washington Co. (UMSP). Also recorded from Itasca State Park (DAR,

UMSP), Kawishiwi River (UMSP), and Roosevelt (UMSP), but a specific county could not be determined as these localities span multiple counties.

North America: Reported from “Quebec and New England west across southern Canada and the northern United States to the Pacific coast, and generally occurs no farther south than New Jersey” (McPherson 1982).

***Oebalus pugnax pugnax* (Fabricius, 1775)**

Minnesota (Lugger 1900): Beltrami Co. (UMSP), Ramsey Co. (UMSP).

North America: Reported “throughout the continental United States east of the Rocky Mountains as far north as New York, southern Minnesota, and southern Michigan” (McPherson 1982).

***Parabrochymena arborea* (Say, 1825)**

Minnesota: Anoka Co. (UMSP), Becker Co. (NDSU, Rider 2012), Chisago Co. (UMSP), Hennepin Co. (UMSP), Morrison Co. (DAR, NDSU, Rider 2012), Otter Tail Co. (NDSU, Rider 2012), Ramsey Co. (UMSP), Stearns Co. (DAR, NDSU, Rider 2012). Also recorded from Baker Hills (UMSP), but a specific county could not be determined as the locality spans multiple counties.

North America: Reported from “Quebec, Ontario, and New England south to Florida, and west to Kansas, New Mexico, Mexico, North Dakota, South Dakota, and Iowa” (McPherson 1982, as *Brochymena arborea*, Rider 2012).

***Prionosoma podopioides* Uhler, 1863 ***

Minnesota: Ramsey Co. (UMSP), Scott Co. (UMSP).

North America: Reported from “British Columbia south to lower California, and east to Michigan and Illinois” (McPherson 1982).

***Sciocoris microphthalmus* Flor, 1860**

Minnesota: Carlton Co. (UMSP), Clay Co. (NDSU), Hennepin Co. (Hussey 1921), Mille Lacs Co. (UMSP), Saint Louis Co. (Hart 1919), Traverse Co. (UMSP).

North America: Reported from “Quebec west to Alberta, Canada, and south to Massachusetts, Iowa, North Dakota, and possibly Oklahoma” (McPherson 1982).

***Thyanta custator accerra* McAtee, 1919**

Minnesota: Becker Co. (UMSP), Beltrami Co. (UMSP), Clay Co. (NDSU), Goodhue Co. (UMSP), Grant Co. (Rider and Chapin 1992), Isanti Co. (UMSP), Nobles Co. (UMSP), Ramsey Co. (UMSP), Saint Louis Co. (Rider and Chapin 1992).

North America: Reported from “New York south to Georgia, and west to Idaho, northeastern Utah, northeastern New Mexico, and Texas; it also ranges into south-central Canada” (McPherson 1982, as *Thyanta accerra*).

***Trichopepla atricornis* Stål, 1872**

Minnesota: Blue Earth Co. (DAR), Brown Co. (DAR), Clay Co. (DAR, NDSU, Rider 2012), Redwood Co. (DAR), Traverse Co. (UMSP).

North America: Reported from “Ohio, Illinois, and Wisconsin west to Alaska, British Columbia, and California” (McPherson 1982).

***Trichopepla semivittata* (Say, 1832) ***

Minnesota: Wright Co. (UMSP).

North America: Reported from “Southern Canada, the continental United States, and northern Mexico” (McPherson 1982).

PENTATOMIDAE: PODOPINAE Amyot and Serville, 1843

***Amaurochrous brevitylus* Barber and Sailer, 1953**

Minnesota: Blue Earth Co. (DAR), Clay Co. (NDSU, Rider 2012), Houston

Co. (UMSP). Hubbard Co. (Barber and Sailer 1953), Mille Lacs Co. (UMSP), Nicollet Co. (DAR).

North America: Reported from “Quebec, Canada, Massachusetts, New York, New Jersey, Wisconsin, Minnesota, Iowa, Nebraska, Kansas, Arizona, Michigan, and Illinois” (McPherson 1982).

Amaurochrous cinctipes (Say, 1828)

Minnesota: Anoka Co. (UMSP), Becker Co. (UMSP), Chisago Co. (UMSP), Crow Wing Co. (UMSP), Dakota Co. (UMSP), Goodhue Co. (UMSP), Houston Co. (UMSP), Hennepin Co. (UMSP), Kanabec Co. (UMSP), Pope Co. (UMSP), Mille Lacs Co. (UMSP), Ramsey Co. (UMSP), Saint Louis Co. (Hart 1919), Sherburne Co. (UMSP).

North America: Reported from “Quebec and New England south to the Carolinas, and west and southwest to Minnesota, Nebraska, Kansas, Missouri, Louisiana, and Texas” (McPherson 1982).

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