

REVISION OF THE GENUS *THYANTA* STÅL, 1862
(HETEROPTERA: PENTATOMIDAE)
II. NORTH AMERICA, CENTRAL AMERICA,
AND THE WEST INDIES

D. A. RIDER¹ AND JOAN B. CHAPIN

Department of Entomology, Louisiana Agricultural Experiment Station,
Louisiana State University Agricultural Center, Baton Rouge, Louisiana 70803;

¹ present address, Department of Entomology,
North Dakota State University, Fargo, North Dakota 58105

Abstract.—The species of the pentatomid genus *Thyanta* Stål occurring north of South America are revised. All northern hemisphere species belong to the subgenera *Thyanta* and *Argosoma* Rider. Diagnoses are given for the genus, subgenera, and the 14 included species and subspecies. The subspecies *accerra* McAtee is transferred from *T. pallidovirens* (Stål) to *T. custator* (Fabricius). The following new synonymy is recognized (junior synonym in parentheses): *T. custator accerra* McAtee, 1919 (= *T. pallidovirens spinosa* Ruckes, 1957a), *T. pallidovirens* (Stål, 1859) (= *T. pallidovirens setosa* Ruckes, 1957a), and *T. maculata* (Fabricius, 1775) (= *T. casta* Stål, 1862b). Lectotype designations are made for *Cimex maculatus* Fabricius, *Pentatoma obsoleta* Dallas, *P. pallidovirens*, *T. casta*, and *T. pseudocasta* Blatchley. *Thyanta planifrons* Ruckes is reported from the United States for the first time. A key is provided for the subgenera, species, and subspecies that occur north of South America.

The genus *Thyanta* is restricted to the western hemisphere and is one of several fairly large genera in the nominate tribe and subfamily of the Pentatomidae. Historically, identifications in this genus have been difficult. In fact, Jensen-Haarup (1928) commented "The species are very variable, but at the same time inter se much similar both as to colour and sculpture, and also regarding the genital segments; a strict separation of most of the species is, therefore, rather difficult, if not rich and fresh materials of species and specimens are at hand." There has been no recent treatment of the entire genus, the last being that of Jensen-Haarup in 1928. Malloch (1919), Blatchley (1926), and Torre-Bueno (1939) all reviewed portions of the genus, but their works have become outdated largely due to the addition of many new species and subspecies (Ruckes, 1952, 1956, 1957a, b, c; Rider and Chapin, 1991).

The genus *Thyanta* is one of a group of pentatomine genera characterized by the lack of a spine or tubercle on the third (second visible) abdominal sternite. Rolston and McDonald (1984) provided a key to separate those genera occurring in the Western Hemisphere north of South America. Because there are many species and many of them are difficult to distinguish, the genus has been divided into two groups according to geographical regions. The present paper reviews those species known to occur north of South America. The South American species of *Thyanta* were recently revised by Rider and Chapin (1991).

Care should be maintained when using the key to species. It is important to have fresh, mature specimens. After death, specimens tend to become greasy and discolored, making their determinations rather tentative. In the key, when certain characters

are described as black or piceous, the true structural color is black, not just darkened due to discoloration. Teneral specimens and specimens of brown forms often have darkened areas that may be misleading when working through the key. Most characters of the genitalia can be seen without dissecting the specimen; however, accurate determinations may require some dissection. In many cases there are no reliable characters to separate females. The only way to identify females in these instances is by association with males or sometimes by geographical distribution.

When label data is cited in the text, each letter in parentheses represents a different label with (a) being closest to the specimen. Museum acronyms used in the text are defined in the acknowledgements. All measurements are in millimeters. Measurements in parentheses are of the holotype.

Thyanta Stål 1862

Thyanta Stål, 1862a:58; Stål, 1867:529; Stål, 1872:34–35; Distant, 1880:65; Summers, 1898:45; Kirkaldy, 1909:94; Van Duzee, 1917:51; Blatchley, 1926:104, 112–113; Jensen-Haarup, 1928:185–186; Furth, 1974:21–22; Froeschner, 1981:71; McPherson, 1982:48, 76–77; Rolston and McDonald, 1984:74, 76; Froeschner, 1988:592.

Type species. *Cimex perditor* F., 1794 (by subsequent designation, Kirkaldy, 1909:XXX).

Diagnosis. Third (second visible) abdominal sternite lacking medial spine or tubercle. Each ostiolar ruga sulcate proximally, reaching at least three-fourths distance from mesial margin of ostiole to lateral margin of metapleuron. Bucculae evanescent or arcuately truncate at posterior terminations. Jugal and tylus usually subequal in length; rostrum reaching at least to metacoxae. Femora unarmed; superior surface of each tibia usually sulcate. Width of scutellum at distal end of frena two-fifths or less basal scutellar width. Each paramere narrowly rounded to acute apically, lacking denticles, usually lacking lateral lobe, rarely with spinose lateral lobe.

Comments. The genus *Thyanta* is closely related to two other pentatomine genera, *Cyptocephala* Berg and *Tepa* Rolston and McDonald, from which it can be separated reliably only by differences in the male genitalia. In all northern hemisphere species of *Thyanta*, the head of each paramere lacks a lateral lobe. In *Cyptocephala* and *Tepa*, the parameres have well-developed lateral lobes. *Cyptocephala* further differs from *Tepa* and *Thyanta* by having minute denticles between the lateral lobe and the apex of the paramere. The parameres of species of *Tepa* and *Thyanta* lack denticles.

Jensen-Haarup (1928) described the subgenus *Parathyanta* within *Thyanta*. Rolston and McDonald (1984) placed *Parathyanta* in the synonymy of *Cyptocephala*. At the same time, they transferred 4 species from *Thyanta* to *Cyptocephala* and 6 species from *Thyanta* to *Tepa*. The species of both *Cyptocephala* and *Tepa* have been reviewed recently (Rolston, 1972, 1986; Rider, 1986a).

The genus *Thyanta* is divided into three subgenera: *Argosoma* Rider, *Phacidium* Breddin, and *Thyanta*. All 8 species of the subgenus *Phacidium* are restricted to South America and have been treated in an earlier paper (Rider and Chapin, 1991). *Argosoma* contains 20 species, 6 of which are known to occur outside South America. The nominate subgenus contains 9 species of which 7 are known to occur in the area covered by the present paper.

KEY TO SUBGENERA OF *THYANTA* STÅL

1. Dorsal surface relatively shiny, glossy; punctures relatively large, sparse; pygophoral opening relatively large; posteroventral surface of pygophore produced into small, blunt, chin-like protuberance; ectal surface of each paramere concave; spermathecal bulb globose *Argosoma* Rider
- Dorsal surface appearing matte, not shiny; punctures relatively small, dense; pygophoral opening relatively small, posteroventral surface of pygophore not produced into blunt, chin-like protuberance; ectal surface of each paramere convex; spermathecal bulb globose or digitiform 2
- 2(1). Pygophoral opening subtended by semicircular or rectangular impression; posterior margin of pygophore with medially emarginate production in middle; theca large, subtriangular, with small protuberance on each side near lateral dorsal margin; proximal end of sclerotized rod cone-shaped; spermathecal bulb digitiform *Thyanta* Stål
- Posteroventral surface of pygophore smoothly arcuate or with distinct sulcus, not with semicircular or rectangular impression; posterior margin of pygophore nearly transverse, lacking medial production; theca reniform, lacking protuberances on lateral dorsal margin; proximal end of sclerotized rod may be slightly swollen, but not cone-shaped; spermathecal bulb globose *Phacidium* Breddin

KEY TO SPECIES OF *THYANTA* OCCURRING NORTH OF SOUTH AMERICA

1. Anterolateral margins of pronotum piceous; mesial angle of each pronotal cicatrice black 2
- Anterolateral margins of pronotum not piceous; coloration of mesial angle of each pronotal cicatrice variable, often immaculate 3
- 2(1). Piceous markings along anterolateral pronotal margins relatively broad, usually easily visible from dorsal view; pygophoral opening subtended by semicircular impression; general form relatively broad (eastern U.S.) *calceata* (Say)
- Piceous markings along anterolateral pronotal margins relatively narrow, not easily visible from dorsal view; pygophoral opening subtended by rectangular impression; general form relatively narrow (coastal plain from central Louisiana to Florida to New York) *custator custator* (Fabricius)
- 3(1). Humeral angles rounded to angulate, but never spinose 4
- Humeral angles distinctly spinose 6
- 4(3). Dorsal punctation minute, dense, surface appearing matte; pygophoral opening subtended by rectangular impression; ectal surface of each paramere convex, lacking dorsomedial concave surface (Fig. 34); spermathecal bulb digitiform (Fig. 47) 5
- Dorsal punctation coarse, sparse, surface glossy; posteroventral surface of pygophore produced into blunt chin-like protuberance; each paramere with dorso-medial surface concave (Fig. 126); spermathecal bulb globose (Fig. 136) 10
- 5(4). Postspiracular black spot usually present on each side of each abdominal sternite and usually larger in diameter than adjacent spiracle; if absent or smaller than spiracle, then humeral angles usually angulate (eastern U.S.) *custator accerra* McAtee (part)
- Postspiracular area of each abdominal sternite immaculate; or, if black spot present, then spot is usually smaller in diameter than adjacent spiracle; humeral angles rounded, never angulate (western U.S.) *pallidovirens* (Stål)
- 6(3). Mesial angle of each pronotal cicatrice often marked with black; posterolateral angle of each abdominal sternite usually black; pygophoral opening subtended by

- semicircular impression, posterior margin with distinct medial slit (Fig. 71) 7
- Without above black markings; pygophoral opening subtended by rectangular impression, posterior margin straight, concave, or sinuous, without medial slit (Fig. 41) (southwestern U.S.; Mexico; Guatemala) . . . *custator accerra* McAtee (part)
- 7(6). Complete or partial transhumeral reddish band usually present; both anterolateral and posterolateral angles of each abdominal sternite usually piceous 8
- Reddish band between humeral angles usually absent; each abdominal sternite with anterolateral angle immaculate, each posterolateral angle with at most a small black spot 9
- 8(7). Humeral angles directed anterolaterad, usually approaching a 45-degree angle with longitudinal axis of body (Fig. 63) (southern U.S. to northern Argentina)
- *perditor* (Fabricius)
- Humeral angles directed primarily laterad and only slightly anterad (Fig. 78) (Baja California, Mexico) *spectabilis* Ruckes
- 9(7). Yellow anterolateral pronotal margins contrasting with rest of pronotum; pronotal cicatrices immaculate; usually smaller than 9.0 mm long by 6.0 mm wide (Cuba; British West Indies) *cubensis* Barber & Bruner
- Anterolateral pronotal margins concolorous with rest of pronotum; mesial angle of each pronotal cicatrice usually black; usually larger than 9.0 mm long by 6.0 mm wide (Revillagigedo Islands, Mexico) *serratulata* Ruckes
- 10(4). Southwestern U.S.; Mexico; Central America 11
- Southern Florida; West Indies 12
- 11(10). Ostiolar canal narrowed at middle, becoming slightly wider towards apex (Fig. 137); posterolateral angle of each abdominal sternite usually immaculate; apex of each paramere nearly spinose in medial view (Fig. 124) (southwestern U.S.; northwestern Mexico) *planifrons* Ruckes
- Ostiolar canal acuminate apically; posterolateral angle of each abdominal sternite piceous, sometimes only a minute portion of the tip piceous; apex of each paramere narrowly rounded in medial view (Fig. 140) (southern Texas; Mexico; Central America) *maculata* (Fabricius)
- 12(10). Each paramere in medial view with apex straight or bending slightly ventrad (Fig. 155), concave surface oriented more mediad than dorsad; posteromesial angles of basal plates distinctly excavated, resulting concavity broadly U-shaped (Fig. 165) (Trinidad and Tobago; Venezuela) *vadosa* Rider
- Each paramere in medial view with apex curving slightly dorsad, orientation of dorsomedial concave surface variable; posteromesial angles of basal plates rounded or weakly emarginate 13
- 13(12). Concave surface of each paramere oriented more mediad than dorsad (southern Florida) *pseudocasta* Blatchley
- Concave surface of each paramere oriented more dorsad than mediad 14
- 14(13). Apex of each paramere rounded in ectal view (Fig. 186); spermathecal duct with relatively small amount of swelling and coiling below proximal flange (Fig. 197) (Greater Antilles) *obsoleta* (Dallas)
- Apex of each paramere spinose in ectal view (Fig. 201); spermathecal duct with large amount of swelling and coiling below proximal flange, swelling carrot-shaped (Fig. 212) (Lesser Antilles; northern South America) *testacea* (Dallas)

Subgenus *Thyanta* Stål

Diagnosis. Punctures minute, dense. Posterior terminations of bucculae evanescent. Anterolateral pronotal margins straight to concave, sometimes marked with piceous;

humeral angles rounded to angulate, often spinose; pronotal cicatrices sometimes marked with piceous in mesial angles. Ostiolar canals acuminate apically. Superior surface of each tibia sulcate.

Posterior margins of basal plates sinuous, posteromesial angles entire (Fig. 13). Distal end of sclerotized rod cone-shaped (Fig. 14); spermathecal bulb digitiform; cylindrical structure below proximal flange (Fig. 15). Pygophoral opening small, subtended on posteroventral surface by a rectangular or semicircular impression; posterior margin of pygophore straight to concave in caudal view, with medially incised protuberance in middle (Fig. 9). Each paramere F-shaped, obtuse protuberance on shaft usually prominent, apex spinose, ectal surface convex (Fig. 3), roughened spiculate area on lateral surface linear (Fig. 5). Each lateral conjunctival lobe of aedeagus with single spinose diverticulum (Fig. 6); dorsomedial conjunctival lobe usually well-developed (Fig. 7), theca large; subtriangular in lateral view, with dorsolateral protuberance on each side near caudal limit (Fig. 8); medial penial lobes and penisfilum moderate in size.

Comments. Species of the subgenus *Thyanta* have the pygophoral opening subtended by a semicircular or rectangular impression, and the posterior margin is distinctly emarginate medially. Species of *Phacidium* have the posteroventral surface of the pygophore arcuately rounded or sulcate, and the posterior margin is not emarginate medially. The posteroventral surface of the pygophore in species of *Argosoma* is produced into a blunt, chin-like protuberance. The ectal surface of each paramere is concave in *Argosoma* and convex in both *Phacidium* and *Thyanta*.

The female genitalia are also useful in separating species of *Thyanta* and *Phacidium*. In *Thyanta*, the distal end of the sclerotized rod is cone-shaped, and the spermathecal bulb is digitiform. In *Phacidium*, the distal end of the sclerotized rod is swollen subapically and narrowed distally, and the spermathecal bulb is globose. The female genitalia of both *Phacidium* and *Argosoma* are very similar, but females can usually be separated by dorsal punctation which is relatively dense in *Phacidium* and less dense and more coarse in *Argosoma*.

Thyanta (Thyanta) calceata (Say)

Figs. 1-15, Map 1

Pentatoma calceata Say, 1831:8.

Thyanta custator (of authors, not Fabricius): Herrich-Schäffer, 1844:96, 106, fig. 771; Uhler, 1886:7 (part); Lethierry and Severin, 1893:148 (part); Kirkaldy, 1909:94 (part); Banks, 1910:90 (part).

Thyanta custator calceata: Uhler, 1872:399.

Thyanta calceata: Barber, 1911:108-111; Van Duzee, 1917:53; Hart, 1919:184, 217, fig. 70; Blatchley, 1926:113, 117-118; Torre-Bueno, 1939:231; Ruckes, 1957a:21-22; Hoffman, 1971:44; Furth, 1974:22, 23-24; McPherson, 1982:76-77, 79-80, fig. 72; Rolston and McDonald, 1984:figs. 23, 27; Froeschner, 1988:593.

Diagnosis. General form broad, ovate. Transhumeral rubiginous band usually present; vertex of head and tylus often reddish.

Lateral jugal margins nearly parallel for middle third of distance from eyes to apex (Fig. 2). Humeral angles rounded to angulate; anterolateral pronotal margins piceous, straight to weakly concave in dorsal view (Fig. 1); mesial angle of each pronotal

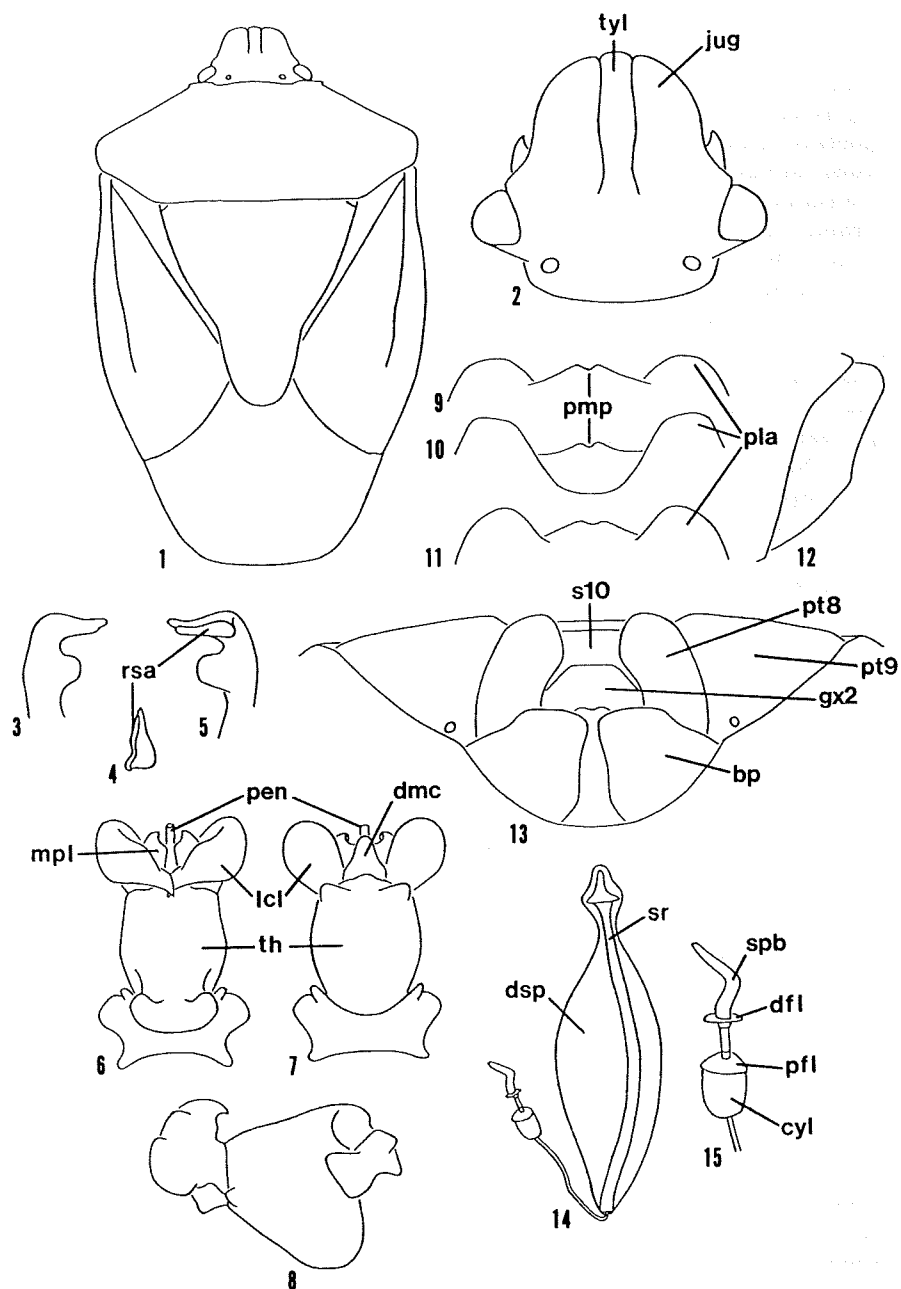
cicatrice piceous. Each abdominal sternite with postspiracular spot on each side and posterolateral angles piceous.

Mesial margins of basal plates in caudoventral view slightly concave; posterior margins sinuous; posteromesial angles rounded (Fig. 13). Posterolateral angles of pygophore continuing onto posteroventral surface as vague carinae, forming semi-circular impression in caudoventral view. Posterior margin of pygophore produced posterodorsad, in ventral and dorsal views appearing convex with small, medial, V-shaped emargination (Figs. 10, 11); slightly concave in lateral view (Fig. 12).

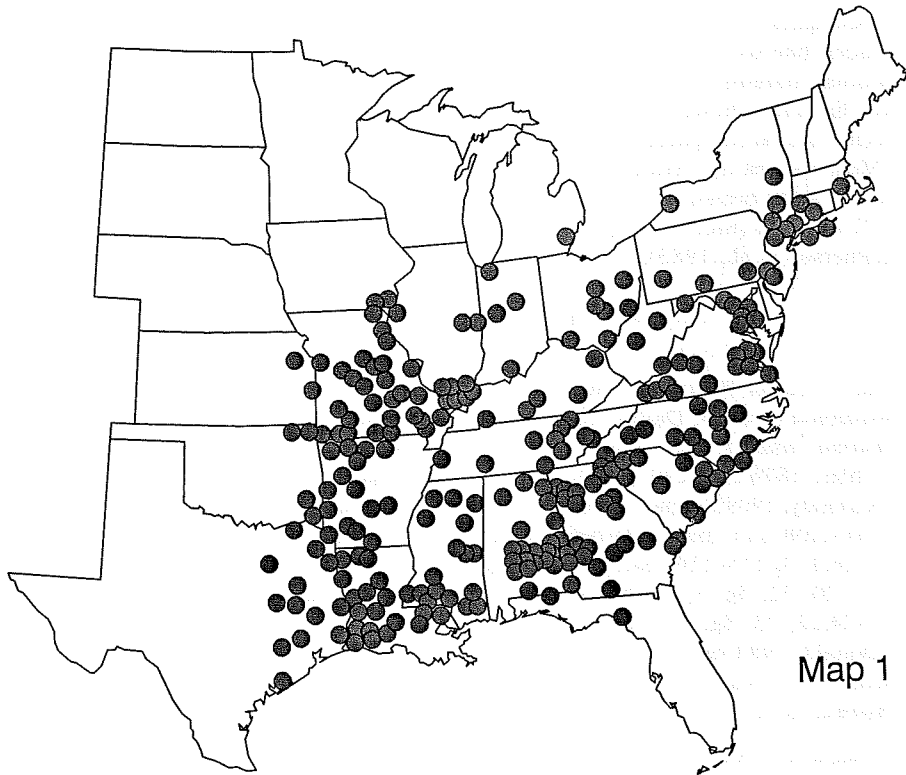
Types. The type specimen of *Pentatoma calceata* is apparently no longer in existence, and Say's original description (1831) will fit equally well for either *T. calceata* or *T. custator*. Previous usage has, however, fixed both species, and therefore designation of a neotype is not necessary.

Distribution. Eastern U.S. (Map 1).

Specimens examined. 1,105 specimens collected during every months of the year; deposited in AMNH, ARH, AUA, CAS, CNC, CUC, DAR, DBT, EGER, FMNH, FSCA, INHS, ISU, LRH, LSU, MSU, MSUE, NCSU, NDSF, OSUC, POLH, PUL, SIUC, SMEK, TAMU, UAT, UCB, UCR, UCS, UGA, UIM, UMC, USNM, VPI, WSU. UNITED STATES: Alabama: *Autauga, Barbour, Bibb, Cherokee, Chilton, Clay, Cleburne, Coosa, Covington, Dallas, De Kalb, Elmore, Houston, Lee, Lowndes, Macon, Madison, Perry, Randolph, Shelby, Tallapoosa, Wilcox, Winston.* Arkansas: *Benton, Boone, Carroll, Grant, Hempstead, Hot Spring, Logan, Marion, Nevada, Newton, Polk, Sevier, Union, Yell.* Connecticut: *Litchfield, New Haven.* District of Columbia. Florida: *Collier, Holmes, Taylor.* Georgia: *Bartow, Bibb, Bryan, Chatham, Clark, Cobb, De Kalb, Floyd, Franklin, Fulton, Habersham, Hall, Harris, Johnson, Madison, Marion, Oconee, Oglethorpe, Paulding, Peach, Rabun, Sumter, Talbot, Thomas.* Illinois: *Champaign, Franklin, Hancock, Hardin, Jackson, Johnson, Pope, Union, Vermilion, Williamson.* Indiana: *Crawford, Howard, Porter, Tippecanoe.* Iowa: *Henry, Van Buren.* Kansas: *Bourbon, Douglas.* Kentucky: *Barren, Carter, Green, Laurel, Trigg.* Louisiana: *Allen, Acadia, Beauregard, Caddo, Calcasieu, Claiborne, De Soto, East Baton Rouge, East Feliciana, Grant, Jefferson Davis, Natchitoches, Rapides, Sabine, St. Landry, Tangipahoa, Vernon, Webster, West Feliciana, Winn.* Maryland: *Allegany, Anne Arundel, Calvert, Charles, Frederick, Montgomery, Prince Georges.* Massachusetts: *Bristol.* Michigan: *Wayne.* Mississippi: *Adams, Amite, Copiah, Forrest, Franklin, Jones, Lauderdale, Leake, Lincoln, Monroe, Newton, Oktibeha, Panola, Perry, Pontotoc, Tallahatchie, Walthal.* Missouri: *Barry, Benton, Boone, Butler, Callaway, Camden, Carter, Crawford, Dade, Douglas, Greene, Harrison, Jackson, Laclede, Marion, McDonald, Montgomery, Osage, Ozark, Pettis, Phelps, Ralls, Randolph, St. Charles, St. Francois, Scotland, Scott, Shannon, Stone, Taney, Wright.* New Jersey: *Bergen, Gloucester, Morris.* New York: *Albany, Erie, Nassau, Orange, Suffolk, Ulster, Westchester.* North Carolina: *Buncombe, Columbus, Craven, Cumberland, Currituck, Harnett, Johnston, McDowell, Macon, Montgomery, Moore, Orange, Pender, Scotland, Wake.* Ohio: *Adams, Fairfield, Gallia, Hocking, Licking, Pickaway, Tuscarawas, Washington.* Oklahoma: *Craig, Latimer, McCurtain, Ottawa.* Pennsylvania: *Franklin, Lancaster, Philadelphia, Westmorland.* South Carolina: *Abbeville, Charleston, Chesterfield, Dorchester, Florence, Greenville, Horry, Lexington, Oconee, Pickens, Spartanburg, Williamsburg.* Tennessee: *Cumberland, Decatur, De Kalb, Fentress, Knox, Lauderdale, Marion, Rhea, Scott, Sevier.* Texas: *Anderson,*



Figs. 1-15. *T. calceata*. 1. Habitus. 2. Head. 3-5. Right paramere. 3. Medial view. 4. Ectal view. 5. Lateral view. 6-8. Theca and related structures. 6. Ventral view. 7. Dorsal view. 8. Lateral view. 9-12. Pygophore. 9. Caudal view. 10. Ventral view. 11. Dorsal view. 12. Lateral



Map 1

Map 1. *T. calceata*.

Angelina, Aransas, Bowie, Brazos, Camp, Cherokee, Dallas, Harris, Harrison, Jasper, Lamar, Sabine, Smith, Walker. Virginia: Charolette, Chesterfield, Clifton Forge City, Fairfax, Falls Church, Floyd, Gloucester, Hanover, King & Queen, Montgomery, Nelson, New Kent, Norfolk, Pulaski, Virginia Beach, Wythe. West Virginia: Monroe, Roane, Upshur.

Comments. *Thyanta calceata* can be separated from all other congeners except *T. custator custator* by the distinctly black anterolateral pronotal margins. It can be reliably distinguished from *T. c. custator* only by the male genitalia. In *T. calceata*, the pygophoral opening is subtended by a semicircular impression; this impression

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view. 13. Genital plates, caudoventral view. 14. Spermatheca. 15. Spermathecal pump. Symbols: bp, basal plate; cyl, cylindrical structure below proximal flange; dfl, distal flange; dmc, dorso-medial conjunctival lobe; dsp, dilation of spermatheca; gx2, second gonacoxae; jug, juga; lcl, lateral conjunctival lobe; mpl, median penial lobe; pen, penisfilum; pfl, proximal flange; pla, posterolateral angle of pygophore; pmp, posterior margin of pygophore; pt8, eighth paratergite; pt9, ninth paratergite; rsa, roughened spiculate area on lateral surface of paramere; spb, spermathecal bulb; sr, sclerotized rod; s10, tenth sternite; th, theca; tyl, tylus.

is rectangular in *T. c. custator*. Specimens of *T. calceata* are generally shorter and broader than specimens of *T. c. custator*, and the black markings on the anterolateral pronotal margins are usually darker and more extensive in *T. calceata*. These last two characters, however, may be apparent only when a series of specimens of each species can be compared.

Most species of *Thyanta* occur in two color forms, a green form in the warmer months and a brown form in the cooler months. This is particularly well documented in *T. calceata* (McPherson, 1977a, b, 1978a, b; McPherson and Paskewitz, 1982; McPherson et al., 1983).

Thyanta (Thyanta) custator custator (Fabricius)

Figs. 16–30, Map 2

Cimex custator Fabricius, 1803:164.

Pentatoma custator: Dallas, 1851:251; Walker, 1867:288.

Thyanta custator: Stål, 1862a:58; Stål, 1872:34–35 (part); Uhler, 1872:399 (part); Uhler, 1876:289–290 (part); Uhler, 1886:7 (part); Van Duzee, 1904:53 (part); Kirkaldy, 1909:94 (part); Van Duzee, 1909:155–156; Banks, 1910:90 (part); Barber, 1911:108–111 (part); Barber, 1914:523; Van Duzee, 1917:52 (part); Blatchley, 1926:113, 115–116 (part); Torre-Bueno, 1939:231 (part); Ruckes, 1957a:1–2, 4–13, 20, 22, fig. 1; Ueshima, 1963:149, 152–153; Hoffman, 1971:44–45; Furth, 1974:22, 23, fig. 45; McPherson, 1982:76–77, 80–81, fig. 73; Rolston and McDonald, 1984:figs. 24, 28; Froeschner, 1988:593.

Thyanta accerra (of authors, not McAtee): Blatchley, 1926:114, 118.

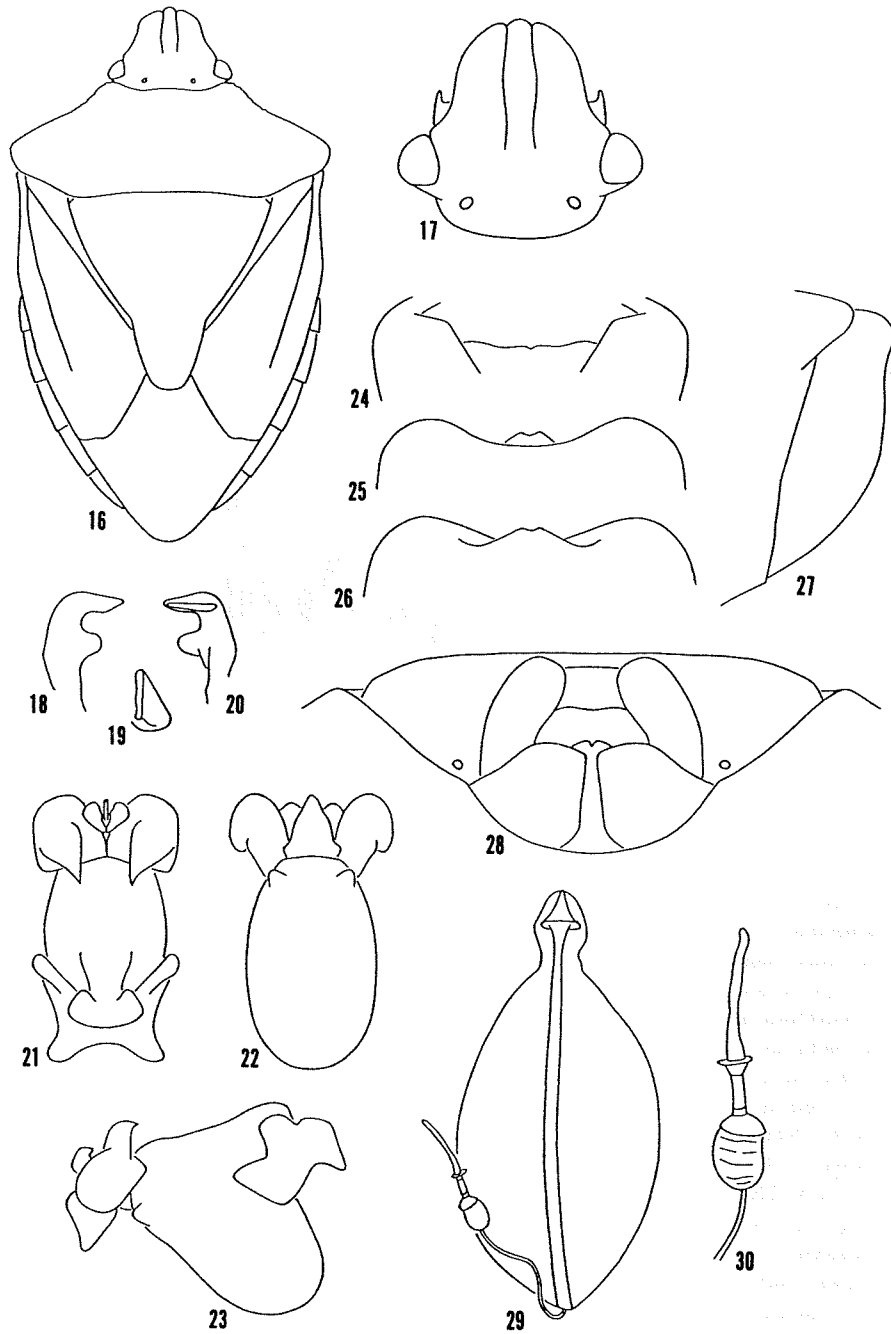
Thyanta casta (of authors, not Stål): Blatchley, 1926:113, 116–117.

Diagnosis. Dorsal surface green to brown, often with varying amount of reddish coloration between humeral angles, sometimes extending along anterolateral pronotal margins and onto basal margin of each corium.

Lateral jugal margins sinuous, not parallel (Fig. 17). Anterolateral margins of pronotum and mesial angle of each pronotal cicatrice piceous. Anterolateral pronotal margins slightly concave in dorsal view; humeral angles rounded to angulate, never spinose (Fig. 16). Ventral surface yellow-green to brown, posterolateral angles of abdominal sternites black. Each abdominal sternite with postspiracular black spot on each side.

Mesial margins of basal plates nearly straight in caudoventral view; posterior margins sinuous; posteromesial angles narrowly rounded (Fig. 28). Each posterolateral angle of pygophore continuing onto posteroventral surface as vague carina, forming rectangular impression; mesial portion of posterior margin slightly convex with small, V-shaped, emargination in middle in both ventral and dorsal views (Figs. 25, 26); pygophore slightly concave in lateral view (Fig. 27).

Figs. 16–30. *T. custator custator*. 16. Habitus. 17. Head. 18–20. Right paramere. 18. Medial view. 19. Ectal view. 20. Lateral view. 21–23. Theca and related structures. 21. Ventral view. 22. Dorsal view. 23. Lateral view. 24–27. Pygophore. 24. Caudal view. 25. Ventral view. 26. Dorsal view. 27. Lateral view. 28. Genital plates, caudoventral view. 29. Spermatheca. 30. Spermathecal pump.





Map 2. *T. custator custator*.

Types. The type specimen of *Cimex custator* is apparently no longer in existence (Zimsen, 1964), and the original description does not adequately fix the species. Fabricius' description will fit either *T. custator custator* and *T. calceata* equally well. Previous usage, however, has fixed both species, and therefore the designation of a neotype is not necessary.

Distribution. Coastal plain from central Louisiana to Florida to New York, and the Bahama Islands (Map 2).

Specimens examined. 1,243 specimens collected during every month of the year; deposited in AMNH, ARH, AUA, BMNH, CAS, CNC, CUC, DAR, DBT, FMNH, FSCA, INHS, ISU, LHR, LSU, MSU, MSUE, NCSU, OSUC, PUL, SIUC, SMEK, TAMU, UAT, UCB, UCR, UCS, UGA, UIM, UMC, USNM, UUSL, WSU. UNITED STATES: Alabama: Baldwin, Barbour, Covington, Dallas, Escambia, Henry, Houston, Lee, Macon, Madison, Mobile. Florida: Alachua, Bay, Brevard, Broward, Charlotte, Clay, Collier, Columbia, Dade, De Soto, Dixie, Duvall, Franklin, Gadsden, Glades, Gulf, Hamilton, Hardee, Hendry, Highlands, Hillsborough, Holmes, Indian River, Jackson, Lake, Lee, Leon, Levy, Liberty, Madison, Manatee, Marion, Martin, Nassau, Okaloosa, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, Putnam, St. Johns, St. Lucie, Santa Rosa, Sarasota, Seminole, Sumter, Suwanee, Taylor, Volusia,

Wakulla, Washington. Georgia: Berrien, Brantley, Brooks, Charlton, Chatham, Clinch, Decatur, Evans, Glynn, Grady, Jefferson, McIntosh, Peach, Pierce, Sumter, Thomas, Tifton, Toombs, Ware. Louisiana: Acadia, Ascension, Avoyelles, East Baton Rouge, East Feliciana, Iberville, Jefferson, Livingston, Orleans, St. Charles, St. James, St. Mary, St. Tammany, Tangipahoa, Washington, West Baton Rouge. Mississippi: Covington, Forrest, Hancock, Harrison, Jackson, Jefferson Davis, Pike. New Jersey: Burlington, Cape May, Monmouth, Ocean. New York: Suffolk. North Carolina: Bladen, Brunswick, Columbus, Duplin, Hyde, Moore, New Hanover, Onslow, Pender. South Carolina: Aiken, Bamberg, Barnwell, Beaufort, Charleston, Florence, Greenville, Horry, Jasper, Kershaw, Marion, Orangeburg, Richland. Virginia: Norfolk. Bahama Islands: South Bimini Island.

Comments. This species has been the subject of much confusion in the past. At one time the name *T. custator* was applied to nearly all specimens from the entire United States. Ruckes (1957a) showed that the true *custator* form is confined to the coastal plain from Louisiana to Florida to New York, but he felt that it was a separate species distinct from the *accerra* form. The two forms have virtually identical genitalia. They cross-breed readily in the laboratory; and where their distributions overlap, specimens intermediate between the two forms are found fairly frequently. The two forms have a very narrow overlap in their respective ranges, however, and specimens taken from outside the area of overlap are usually easily identified. These two forms probably are more correctly considered subspecies.

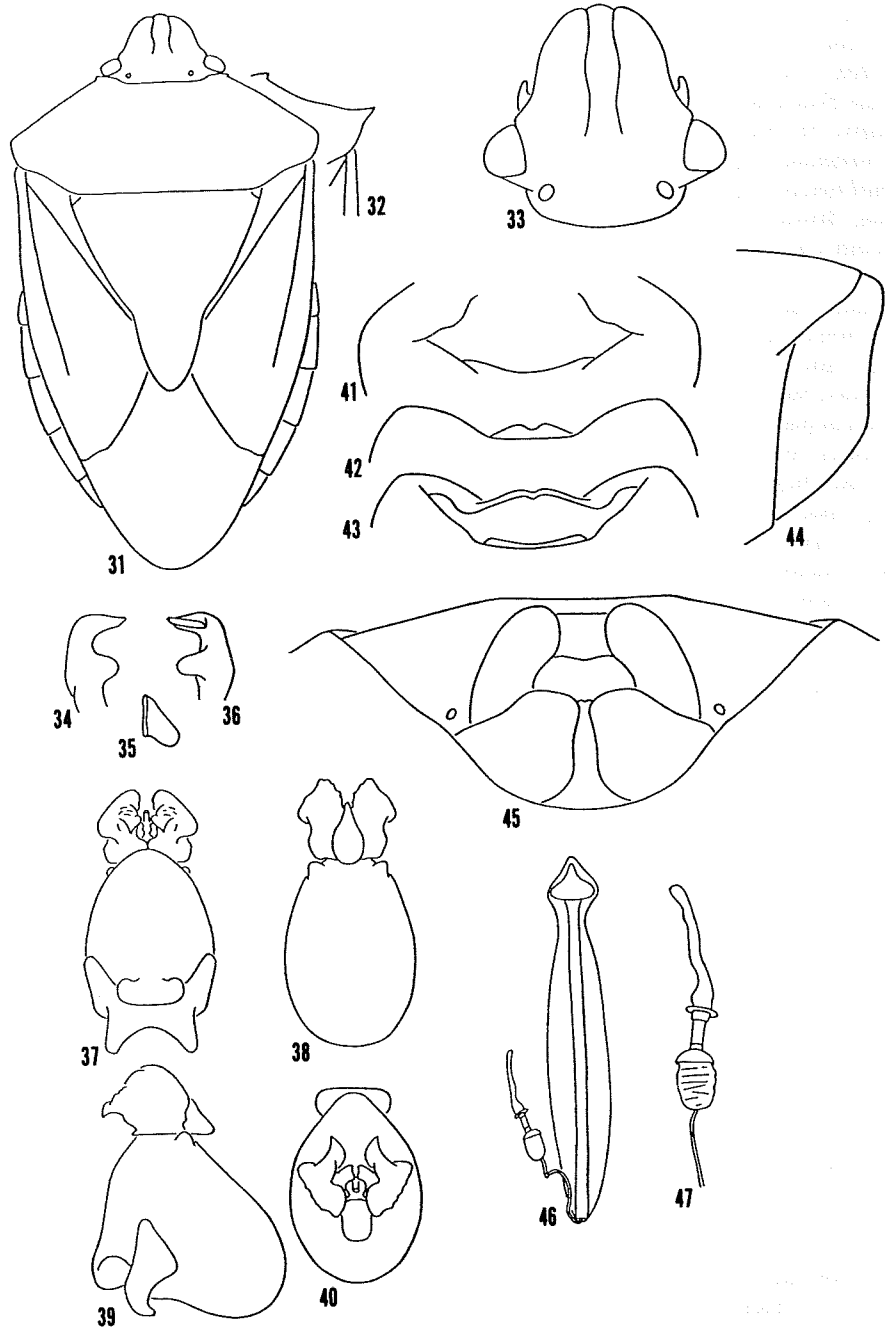
Thyanta c. custator and *T. calceata* are the only two species in the genus with distinctly black anterolateral pronotal margins. They can be separated reliably from each other only by the characters of the male genitalia. The pygophoral opening in *T. c. custator* is subtended by a rectangular impression, while this impression is semicircular in *T. calceata*. When large series are present, some separation can be made based on the general shape of the body: *T. custator* is slightly longer and narrower than *T. calceata*. Fortunately, there is very little overlap in their distributions.

Thyanta (Thyanta) custator accerra McAtee
Figs. 31–47, Map 3

Thyanta custator var. *accerra* McAtee, 1919:16.

Thyanta custator: Stål, 1872:34–35 (part); Uhler, 1872:399 (part); Uhler, 1876:289–290 (part); Uhler, 1877:404; Popenoe, 1884:62; Uhler, 1886:7 (part); Lethierry and Severin, 1893:148 (part); Osborn, 1894:121; Uhler, 1894a:230–231; Van Duzee, 1894:171; Blatchley, 1895:269; Gillette and Baker, 1895:16; Van Duzee, 1904:53 (part); Barber, 1906:260; Kirkaldy, 1909:94 (part); Banks, 1910:90 (part); Barber, 1911:108–111 (part); Zimmer, 1912:232–233; Torre-Bueno, 1914:92; Van Duzee, 1914:4–5 (part); Van Duzee, 1917:52 (part); Hart, 1919:184–185; Malloch, 1919:217, fig. 75; Blatchley, 1926:113, 115–116 (part); Torre-Bueno, 1939:231 (part).

Thyanta perditior (of authors, not Fabricius): Uhler, 1872:399 (part); Uhler, 1876:289 (part); Uhler, 1877:404 (part); Popenoe, 1884:62; Uhler, 1886:7; Osborn, 1894:121; Uhler, 1894a:230 (part); Gillette and Baker, 1895:16; Van Duzee, 1904:52–53 (part); Kirkaldy, 1909:95 (part); Zimmer, 1911:232 (part); Torre-Bueno, 1914:92; Malloch, 1919:217, fig. 79; Blatchley, 1926:113, 114–115, fig. 24 (part).



Thyanta pallido-virens (of authors, not Stål): Banks, 1910:90 (part); Rolston and McDonald, 1984:fig. 31.

Thyanta accerra: Deay and Gould, 1935:305–306; Torre-Bueno, 1939:233; Harris, 1943:150; Ward et al., 1977:40; McPherson, 1979b:94; McPherson, 1982:77, 78–79, fig. 167; Froeschner, 1988:592–593.

Thyanta pallidovirens accerra: Ruckes, 1957a:14–15, 19–22; Ueshima, 1963:152–153; Hoffman, 1971:44–45; Furth, 1974:22–23; McPherson, 1979a:83–84.

Thyanta pallidovirens spinosa Ruckes, 1957a:18–19; Ward et al. 1977:40; Froeschner, 1988:593. **NEW SYNONYMY.**

Diagnosis. Green to dark brown, sometimes with varying amounts of reddish coloration between humeral angles, often extending onto basal margin of each corium.

Lateral jugal margins sinuous, not parallel (Fig. 33). Humeral angles rounded to angulate (spinose in desert areas of southwestern United States and Mexico); anterolateral margins of pronotum straight to concave in dorsal view (Figs. 31, 32), stramineous to green, sometimes reddish, but never piceous; pronotal cicatrices immaculate. Each abdominal sternite with postspiracular black spot present on each side (eastern U.S.) or absent (western U.S.). Posterolateral angles of abdominal sternites immaculate or minutely marked with piceous.

Mesial margins of basal plates in caudoventral view slightly concave; posterior margins sinuous; posteromesial angles rounded (Fig. 45). Posterolateral angles of pygophore continuing onto posteroventral surface of pygophore as vague carinae, forming rectangular impression; mesial portion of posterior margin of pygophore convex with slight mesial emargination in ventral and dorsal views (Figs. 42, 43); pygophore only slightly concave in lateral view (Fig. 44).

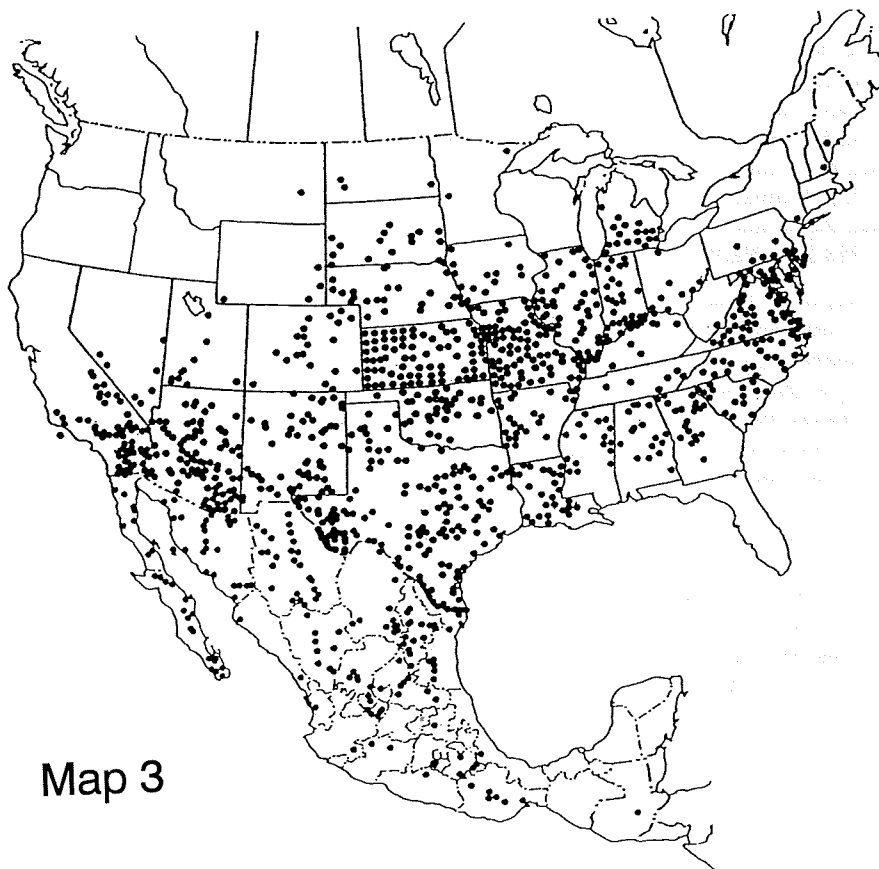
Types. McAtee (1919) described *accerra* as a variety of *T. custator*; he examined four specimens: three from Barachias, Alabama, and one from San Antonio, Texas. Blatchley (1926) elevated *accerra* to full species rank, but his concept of the species was incorrect. Blatchley's *T. accerra* was actually *T. c. custator*. The type specimens, which are housed in the U.S. National Museum of Natural History (Washington, D.C.), were examined.

Ruckes (1957a) described *T. pallidovirens spinosa* from 75♂♂ and 51♀♀ specimens. The holotype, which was examined, is from Patagonia, Santa Cruz Co., Arizona, and is deposited in the American Museum of Natural History (New York).

Distribution. Eastern two-thirds of U.S. west to Montana, Nevada, and southern California; Mexico; and Guatemala (Map 3).

Specimens examined. 8,677 specimens collected during every month of the year; deposited in AMNH, ARH, ASUT, AUA, BMNH, CAS, CNC, CUC, DAR, DBT, EGER, ENGL, FMNH, FSCA, INHS, ISU, LACM, LHR, LSU, MSU, MSUB, MSUE, NCSU, NDSF, NMSU, OSUC, POLH, PUL, SIUC, SMEK, TAMU, UAT,

←
Figs. 31–47. *T. custator accerra*. 31. Habitus. 32. Variation in humeral angle. 33. Head. 34–36. Right paramere. 34. Medial view. 35. Ectal view. 36. Lateral view. 37–40. Theca and related structures. 37. Ventral view. 38. Dorsal view. 39. Lateral view. 40. Ectal view. 41–44. Pygophore. 41. Caudal view. 42. Ventral view. 43. Dorsal view. 44. Lateral view. 45. Genital plates, caudoventral view. 46. Spermatheca. 47. Spermathecal pump.



Map 3

Map 3. *T. custator accerra*.

UCB, UCR, UCS, UGA, UIM, UMAA, UMC, UNAM, UNL, USNM, UUSL, VPI, WSU. UNITED STATES: Alabama: Chambers, Dallas, De Kalb, Elmore, Green, Henry, Jefferson, Lee, Macon, Madison, Montgomery, Morgan, St. Clair, Tallapoosa. Arizona: Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, Yuma. Arkansas: Benton, Boone, Conway, Graighead, Faulkner, Garland, Hempstead, Hot Spring, Howard, Lawrence, Lincoln, Little River, Logan, Mississippi, Montgomery, Newton, Pike, Polk, Pulaski, Washington, Yell. California: Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, San Diego, Santa Barbara, Ventura. Colorado: Boulder, Chafee, Clear Creek, Douglas, El Paso, Jefferson, Gunnison, Larimer, Las Animas, Lincoln, Logan, Montezuma, Morgan, Otero, Prowers, Pueblo, Teller, Washington, Yuma. Delaware: Kent. District of Columbia. Florida: Highlands. Georgia: Bartow, Clarke, Crawford, Dade, Decatur, Fulton, Habersham, Henry, Lamar, Macon, Madison, Morgan, Oconee, Oglethorpe, Peach, Spalding, Talbot, Twiggs, Whitfield, Wilkes, Worth. Hawaii: Honolulu. Illi-

nois: Adams, Alexander, Cass, Champaign, Clay, Coles, Cook, Cumberland, Edgar, Effingham, Grundy, Hancock, Hardin, Henry, Jackson, Jo Daviess, Johnson, Kankakee, Macon, Macoupin, Madison, Marion, Marshall, Mason, Massac, McDonough, McHenry, Menard, Morgan, Ogle, Peoria, Piatt, Pope, Pulaski, St. Clair, Scott, Union, Vermilion, Wabash, Warren, Washington, White, Will, Williamson. Indiana: Cass, Clark, Dearborn, Floyd, Greene, Harrison, Howard, Jackson, Jefferson, Jennings, Johnson, Knox, Kosciusko, Lagrange, Lake, Lawrence, Marion, Morgan, Noble, Owen, Parke, Perry, Posey, Putnam, St. Joseph, Starke, Switzerland, Tippecanoe, Vanderburgh, Washington, Wayne. Iowa: Audubon, Boone, Floyd, Fremont, Harrison, Johnson, Linn, Lyon, Monona, Polk, Story, Union, Woodbury. Kansas: Allen, Anderson, Atchison, Barbor, Bourbon, Chautauqua, Cherokee, Cheyenne, Clark, Comanche, Decatur, Dickenson, Doniphan, Douglas, Ellis, Ellsworth, Finney, Ford, Geary, Gove, Graham, Gray, Greeley, Greenwood, Hamilton, Harper, Harvey, Hodgeman, Johnson, Kearny, Kingman, Kiowa, Labette, Lane, Leavenworth, Linn, Logan, Meade, Miami, Mitchell, Montgomery, Morton, Neosho, Norton, Osborne, Ottawa, Pawnee, Phillips, Pottawatomie, Pratt, Rawlins, Reno, Riley, Rooks, Rush, Russell, Scott, Sedgwick, Seward, Sheridan, Sherman, Smith, Stafford, Stanton, Stevens, Sumner, Thomas, Wabaunsee, Wallace, Washington, Wichita, Wilson. Kentucky: Campbell, Christian, Fayette, Green, Hardin, Jefferson, Oldham, Rowan, Scott, Trimble. Louisiana: Acadia, Avoyelles, Bossier, Caddo, Calcasieu, Cameron, Catahoula, Claiborne, Concordia, East Baton Rouge, East Feliciana, Evangeline, Franklin, Grant, Iberville, Jefferson Davis, Livingston, Madison, Natchitoches, Ouachita, Rapides, Richland, St. Landry, Tensas, Vermilion, Webster, West Baton Rouge. Maine: Oxford. Maryland: Allegany, Anne Arundel, Baltimore, Calvert, Frederick, Montgomery, Prince Georges, Queen Annes, Talbot, Washington. Michigan: Barry, Berrien, Calhoun, Ingham, Ionia, Jackson, Kalamazoo, Kent, Lenawee, Livingston, Mason, Montcalm, Oakland, Shiawassee, Van Buren, Washtenaw, Wayne. Minnesota: Grant, St. Louis. Mississippi: Bolivar, Clay, Grenada, Hinds, Issaquena, Lauderdale, Lee, Lowndes, Marshall, Monroe, Noxubee, Oktibbeha, Panola, Pontotoc, Warren, Yazoo. Missouri: Atchison, Audrain, Barry, Barton, Benton, Boone, Buchanan, Caldwell, Callaway, Camden, Cape Girardeau, Carroll, Carter, Cedar, Chariton, Clark, Clay, Clinton, Cole, Cooper, Crawford, Dade, Dallas, Douglas, Dunklin, Franklin, Gasconade, Gentry, Greene, Grundy, Henry, Howard, Howell, Jackson, Jasper, Johnson, Lafayette, Lawrence, Lewis, Lincoln, Livingston, Madison, Maries, Marion, Miller, Mississippi, Moniteau, Montgomery, Morgan, New Madrid, Newton, Nodaway, Oregon, Osage, Pemiscot, Pettis, Phelps, Pike, Platte, Polk, Putnam, Ralls, Rankin, Ray, Reynolds, St. Charles, Ste. Genevieve, St. Louis, Saline, Scott, Shannon, Stoddard, Stone, Sullivan, Taney, Vernon, Warren, Washington, Wright. Montana: Custer. Nebraska: Adams, Cass, Chase, Cherry, Cheyenne, Custer, Frontier, Garden, Hall, Keith, Lancaster, Lincoln, Morrill, Nance, Otoe, Scotts Bluff, Sioux, Thomas, Thurston. Nevada: Clark, Esmeralda, Lincoln, Mineral, White Pine. New Hampshire: Rockingham. New Jersey: Atlantic, Burlington, Cape May, Cumberland, Gloucester, Salem. New Mexico: Bernalillo, Catron, Chaves, Cibola, Colfax, De Baca, Dona Ana, Eddy, Grant, Guadalupe, Hidalgo, Lincoln, Luna, McKinley, Otero, Quay, Rio Arriba, Roosevelt, Sandoval, San Miguel, Santa Fe, Tarrant, Union, Valencia. New York: Orange. North Carolina: Bertie, Bladen, Caldwell, Chowan, Cleveland, Craven, Dare, Duplin, Edgecombe, Granville, Iredell, Johnston, McDowell, Mecklenberg, Montgomery, Moore,

Pasquotauk, Pender, Person, Rowan, Scotland, Vance, Wake, Warren, Washington, Wayne. North Dakota: *Cass, Hettinger, Stark.* Ohio: *Adams, Athens, Clinton, Franklin, Hamilton, Lawrence, Lucas, Monroe, Pickaway, Sandusky, Trumbull, Washington.* Oklahoma: *Alfalfa, Beckham, Caddo, Canadian, Carter, Cleveland, Comanche, Custer, Garfield, Grant, Harper, Jackson, Kay, Kingfisher, Lincoln, Logan, Mayes, McIntosh, Noble, Oklahoma, Osage, Pawnee, Payne, Sequoyah, Stephens, Texas, Tulsa, Wagoner, Woods, Woodward.* Pennsylvania: *Adams, Berks, Bucks, Centre, Franklin, Lancaster.* South Carolina: *Abbeville, Allendale, Anderson, Barnwell, Charleston, Chesterfield, Florence, Horry, Laurens, Lee, Marlboro, Oconee, Richland, Spartanburg, Sumter.* South Dakota: *Beadle, Bennett, Brookings, Brule, Buffalo, Clay, Custer, Fall River, Jones, Lawrence, Minnehaha, Pennington, Stanley, Sully, Tripp, Union.* Tennessee: *Benton, Cooke, Davidson, Hamilton, Knox, Roane, Sevier.* Texas: *Anderson, Aransas, Atascosa, Bailey, Bandera, Bastrop, Bee, Bell, Bexar, Bosque, Brazos, Brewster, Burlison, Burnet, Caldwell, Cameron, Camp, Collin, Colorado, Comal, Comanche, Coryell, Crockett, Crosby, Culberson, Dallas, Deaf Smith, Denton, Dimmit, Donley, Duval, Eastland, El Paso, Erath, Fayette, Flatonia, Floyd, Frio, Galveston, Gillespie, Gonzales, Gray, Guadalupe, Hale, Harris, Hays, Hemphill, Hidalgo, Hill, Houston, Howard, Hudspeth, Jackson, Jeff Davis, Jim Hogg, Jim Wells, Kaufman, Kendall, Kennedy, Kerr, Kimble, King, Kinney, Kleberg, Knox, Leon, Live Oak, Llano, Lubbock, Lynn, Madison, Marion, Maverick, McLennon, Medina, Milam, Montague, Moore, Motley, Nueces, Oldham, Palo Pinto, Parker, Pecos, Potter, Presidio, Randall, Real, Reeves, Robertson, Runnels, San Patricio, Shelby, Smith, Starr, Sutton, Swisher, Tarrant, Taylor, Terrell, Travis, Upshur, Uvalde, Val Verde, Victoria, Walker, Ward, Webb, Wichita, Willbarger, Willacy, Williamson, Wise, Zapata.* Utah: *Iron, Juab, Kane, Piute, Salt Lake, Sanpete, Sevier, Washington.* Virginia: *Accomack, Albemarle, Appamattox, Arlington, Augusta, Bedford, Buckingham, Campbell, Caroline, Carroll, Charlotte, Charlottesville City, Chesterfield, Clifton Forge City, Frederick, Hampton, James City, King George, King William, Loudoun, Montgomery, Nelson, New Kent, Newport News City, Norfolk City, Patrick, Pittsylvania, Petersburg City, Prince Edward, Richmond City, Roanoke, Rockbridge, Rockingham, Staunton City, Suffolk, Virginia Beach City, Westmorland, Winchester City, Wythe.* West Virginia: *Monroe, Morgan.* Wisconsin. Wyoming: *Goshen, Laramie, Niobrara, Uinta.*

MÉXICO: *Aguascalientes: Aguascalientes; Arroyo San Pedro, 38 mi N Aguascalientes. Baja California Norte: Bahía de los Angeles; Canyon del Tajo; Diablo Dry Lake, San Felipe Valley; Ensenada; Gonzaga Bay; Guadalupe Canyon; 4 mi SW La Zopopita; L Cantillas Canyon; 60 mi S Mexicali; Mission San Borja; Persebu; 13 mi S Puertocitos; 24 mi N Punta Prieta; 9 mi SE Rancho Laguna Chapola; 7 mi NE Ranch Rosarito; San Felipe; 15 mi S San Felipe; 21 km S San Quintin. Baja California Sur: Bahía Concepción; 40 mi S El Arco Mine; La Paz; 7 mi SW La Paz; 25 mi W La Paz; Las Tinajitas; Loreto; 10.3 mi SW Los Mendanos; 8 mi SW Mission San Javier; 15 mi N San Ignacio; San José de Comondu; 4 mi W San José del Cabo; 5 mi SE Santa Rosalía; 10 mi W Santa Rosalía; Santiago; 1 mi E Todos Santos; 4 mi N Todos Santos; 30 mi E V. Insurgentes; 45.5 mi E V. Insurgentes. Chiapas: Cintalpa; Comitán. Chihuahua: Ciudad Camargo; 20 mi SW Ciudad Camargo; 25 mi SW Ciudad Camargo; Catarinas; Chihuahua; 3 mi NW Chihuahua; 16 mi SE Chihuahua; 46 mi N Chihuahua; 1.1 mi S Colonel Alvaro Obregon; Ciudad Delicias; 3 mi SE*

Ciudad Delicias; 10 mi S Ciudad Delicias; El Herradero; Gallego; 8 mi S Gallego; 10 mi W Gallego; Garcia; Hidalgo del Parral; 8 mi NE Hidalgo del Parral; 25 mi W Hidalgo del Parral; 44 mi S Hidalgo del Parral; Huejotitlan; 6 mi WSW Jiménez; 10 mi N Jiménez; 24 mi N Jiménez; La Bufa; 11.1 km S RR at La Junta; Madera; Marqueño; Matachic; 6 mi NE Meoquí; Moctezuma; Nuevo Casas Grandes; 43 mi SE Nuevo Casas Grandes; 45 mi NW Nuevo Casas Grandes; 2 km W Oginaga, Río Conchos; 7 mi E Pedernales; Salaices; Samalayuca; San José Babicora; Santa Barbara; 63 mi W Santa Barbara; Santa Clara; Santa Clara Canyon, 5 mi W Parrita; Valle de Olivos; Valle de Zaragoza; 23 mi N V. Ahumada; 15 mi S V. Matamoras. *Coahuila*: 10 mi S Allende; 10 mi S Ciudad Acuña; Arroyo de la Zorra; 20 mi SE Arteaga; Boquillas del Carmen; 14.3 mi S Castaños; Guadalupe; 12 mi N Hermanas; La Gloria, S of Monclova; Nueva Rosita; Saltillo; 1 mi E Saltillo; 1 mi SE Saltillo; 4 mi S Saltillo; 6 mi NE Saltillo; 7 mi SSW Saltillo; 12.4 mi S Saltillo; 15 mi N Saltillo; 15 mi S Saltillo; 16 mi SE Saltillo; 17 mi SE Saltillo; 20 mi SE Saltillo; 29 mi SE Saltillo; 39 mi W Saltillo; 66 km S Saltillo; 5 km N San Esteban; San Jose de la Niña; San Pedro de las Colonias; 12 mi SE San Pedro de las Colonias; Serranas del Burro; Torreón; 22 mi N Zaragoza. *Durango*: 8 mi S Canutillo; 30 mi N Cuencamé; 14 mi S Donata Guerra; Durango; 11 mi W Durango; 20 mi W Durango; 25 mi S Durango; 69 mi N Durango; Encino; Guadalupe Victoria; La Loma; 2 mi S Menores de Arriba; Navajos, 20 mi E El Salto; Nombre de Dios; 18 mi SE Nombre de Dios; Pedricena; 3 mi NW Pedricena; Rodeo; San Juan del Río; Santa Lucia; 5 mi NE Sauz. *Guanajuato*: León. *Guerrero*: Iguala. *Hidalgo*: Tasquillo. *Jalisco*: 2 mi S Ciudad Guzmán; Lagos de Moreno; 5.6 mi NE Lagos de Moreno; 13 mi SW Lagos de Moreno; San Juan de los Lagos; 1 mi NE V. Hidalgo. *Michoacán*: 10.3 mi W Morelia; Zamora. *Morelos*: Ruinas Xochicalco; Tepoztlán. *Nayarit*: San Blas. *Nuevo León*: Apodaca; Aramberri; 3 mi E Galeana; Hacienda Vista Hermosa, V. Santiago; 9 mi W Iturbide; Linares; 10 mi S Linares; 15 mi W Linares; 16 mi S Linares; 1.7 mi S Montemorelos; 15 mi SE Montemorelos; Monterrey; 4 mi S Monterrey; 5 mi S Monterrey; 6 mi S Monterrey; 10 mi W Monterrey; Paso Mamulique; Peña Nevada Zaragoza; Pesqueria; 10 mi N Providencia; 41 mi S Sabinas Hidalgo; 22 mi S San Roberto; 40 mi S San Roberto; 46 mi NW San Roberto; Santiago; Vallecillo. *Oaxaca*: 3 mi SE El Tule; 10 mi N Miltepec; Mitla; Oaxaca; 2 mi NW Oaxaca; Ruinas Zaachila; 13 km W Tehuantepec; 22 mi SE Totalapán, San José Viejo. *Puebla*: Acatlán; 11 mi SE Acatlán; 19 mi NW Calcapán; Chilac; Puebla; 6 mi SW Tehuacán; 7 mi NE Tehuacan; Valseguillo. *Querétaro*: Oro. *San Luis Potosí*: 3 mi W Cedral; 12 mi W Ciudad del Maíz; 20 mi S Ciudad Valles; 19.6 mi N El Huizache; 28.5 mi S El Huizache; El Salto; 34 mi S Salinas; 10 mi NE San Luis Potosí; 31 mi S San Luis Potosí; 46 mi N San Luis Potosí; 84 mi NE San Luis Potosí; 123 mi NE San Luis Potosí; V Hidalgo; 12 mi NE V. Hidalgo. *Sinaloa*: Los Mochis; 5 mi N Mazatlán; 46 mi E Mazatlán. *Sonora*: 20 mi SE Agua Prieta; 65 mi SE Agua Prieta; Alamos; 7 mi SE Alamos; 7 mi W Alamos; 10 mi W Alamos; Bahía Kino; 1 mi W Caborca; Cabullona; Campo Utah; El Desemboque; El Fuerte; 5 mi E Esqueda; 20 mi S Estacion Llano; Guaymas; 26 mi SE Guaymas; Hermosillo; 40 mi N Hermosillo; 42 mi S Hermosillo; 9 mi NNE Imuris; La Chiripa; La Choya; La Floresta Ranch, 8 mi E Tastiota; Magdalena; Minas Nuevas; Mira Mar Beach; Navojoa; 5 mi E Navojoa; Nogales; Palm Canyon, 17 mi E Magdalena; Pitiquito; Pozo Coyote; Puerto Peñasca; San Bernardino, Río Mayo; 8 mi S Santa Ana; Santa Rosa Ranch; Santa Teresa; Sonora; 20 mi S Sonoyta;

38 km S Sonoyta; Tastiota; Tiburón Island; V. de Seris, 5 mi SW Hermosillo; Yavaros. *Tamaulipas*: Ciudad Victoria; 25 mi S Ciudad Victoria; 81 mi NW Ciudad Victoria; 35 km N El Limon; Gómez Farías; Guemes, 15 mi N Ciudad Victoria; Lago Republica Española; Matamoros; San Fernando; San José. *Veracruz*: 1 mi NE Acultzingo; Orizaba. *Zacatecas*: 4 mi NE Concepción del Oro; Fresnillo; 1 mi N Fresnillo; 8 mi S Fresnillo; 9 mi S Fresnillo; 25 mi W Fresnillo, Laguna Balderama; 14 mi N Luis Moya; Sain Alto; 28 mi NE Sierra Viejo.

GUATEMALA: *Jutiapa*: 6 mi NE El Progreso.

Comments. This subspecies is extremely variable and has been the subject of much confusion in the past. Its relationship with the nominate subspecies is discussed under the comments section of that subspecies.

Ruckes (1957a) divided *T. pallidovirens* into four subspecies: *pallidovirens* from the far western U.S.; *setosa* from the northwestern U.S.; *spinosa* from the southwestern U.S. and Mexico; and *accerra* from the eastern U.S. Ueshima (1963) showed that specimens of *pallidovirens* from California have a different chromosome number than specimens from the eastern U.S. (14 + XY in the male versus 16 + XY, respectively). Because of this difference, he believed that the two populations were genetically isolated and were probably two distinct species. The difference in chromosome number has been confirmed in the present study. Cross-breeding and free-choice mating experiments also have been conducted, the results of which support the separation of the two taxa into distinct species (e.g., specimens from California and Louisiana mated and laid eggs, but the eggs were infertile).

Ruckes (1957a) described *T. pallidovirens setosa* from Idaho and eastern areas of Oregon and Washington. During this study, specimens from Nez Perce Co., Idaho were karyotyped. They had a chromosome complement of 14 + XY in the male, the same as *T. pallidovirens* from California.

Ruckes (1957a) described *T. pallidovirens spinosa* from the southwestern U.S. Ueshima (1963) karyotyped specimens of this form collected from southeastern California. He found that males had a chromosome complement of 14 + XY, and he concluded that the designation of *spinosa* as a subspecies of *T. pallidovirens* was probably correct. During the present study, however, specimens karyotyped from several localities in southern Arizona were found to have a chromosome complement of 16 + XY. Also, in cross-breeding experiments, specimens from Arizona and Louisiana readily interbred with no apparent difficulties and produced viable young. Therefore, it is probable that *spinosa* is *T. custator accerra*, not *T. pallidovirens*.

Ruckes (1957a) used the spinose humeral angles of *T. pallidovirens spinosa* to separate it from *T. custator accerra* (=his *T. p. accerra*). This character is relatively variable, however. Long series from many localities within the range of *spinosa* usually include specimens with spinose humeral angles and specimens with rounded humeral angles, as well as many intermediates. Geographical separation of the two forms is not complete, and therefore *spinosa* is placed as a junior synonym of *T. c. accerra*.

Distinguishing *T. custator accerra* and *T. pallidovirens* can be difficult. In general, specimens of *T. c. accerra* (excluding the *spinosa* form) have a postspiracular black spot on each side of each abdominal sternite, while specimens of *T. pallidovirens* do not. However, some (<10%) specimens of *T. pallidovirens* have postspiracular black spots, but the spots are usually smaller than the adjacent spiracle. Conversely, some

(<10%) specimens of *T. c. accerra* lack postspiracular black spots. Fortunately, the two species are geographically separated except in the southwestern U.S., where *T. pallidovirens* overlaps considerably with the *spinosa* form of *T. c. accerra*. These two forms can usually be separated by the degree of spinosity of the humeral angles. *Thyanta pallidovirens* always has rounded humeral angles, while the *spinosa* form of *T. c. accerra* usually has angulate to spinose humeral angles. Also, most specimens of *T. pallidovirens* have at least a partial reddish transhumeral band, a condition that is rare in the *spinosa* form of *T. c. accerra*.

Thyanta (Thyanta) pallidovirens (Stål)

Figs. 48–62, Map 4

Pentatoma pallidovirens Stål, 1859:227; Walker, 1867:288.

Thyanta pallidovirens: Stål, 1862a:58; Stål, 1872:35; Uhler, 1886:7; Lethierry and Severin, 1893:148; Uhler, 1894a:231; Van Duzee, 1904:53–54; Banks, 1910:90 (part); Van Duzee, 1917:52; Torre-Bueno, 1939:232; Ruckes, 1957a:1–22, Froeschner, 1988:593.

Thyanta custator (of authors, not Fabricius): Uhler, 1872:399 (part); Uhler, 1876:289–290 (part); Kirkaldy, 1909:94 (part); Van Duzee, 1914:4–5 (part); Van Duzee, 1916:231; Van Duzee, 1917:52 (part).

Thyanta pallidovirens setosa Ruckes, 1957a:17–18; Froeschner, 1988:593. **NEW SYNONYMY.**

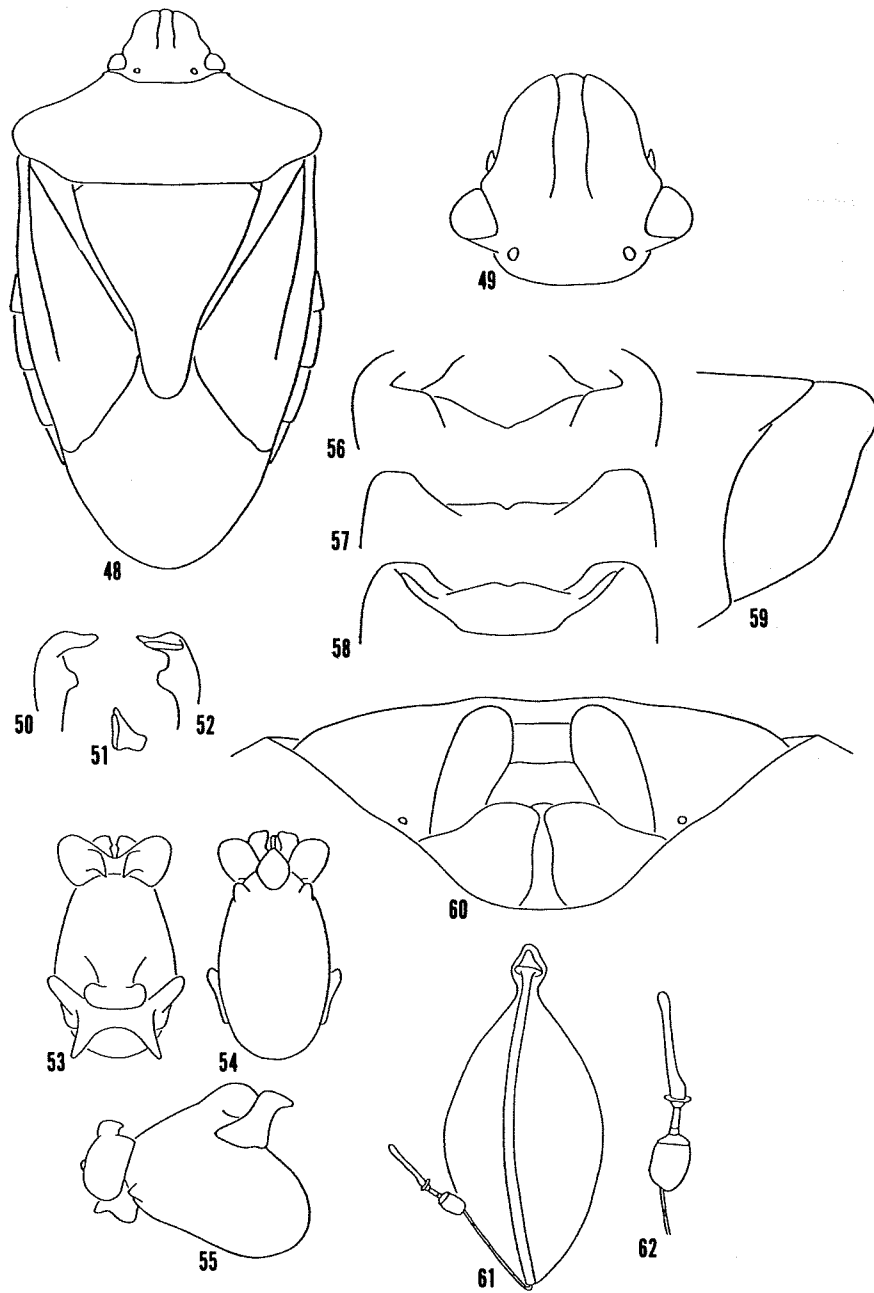
Diagnosis. Dorsal coloration often with varying amounts of reddish between humeral angles, often extending onto basal margin of each corium and along anterolateral pronotal margins; sometimes apex of scutellum reddish.

Lateral jugal margins sinuous, not parallel (Fig. 49). Anterolateral margins of pronotum straight to slightly concave in dorsal view, green to reddish, never piceous; humeral angles rounded (Fig. 48); pronotal cicatrices immaculate. Postspiracular black spots usually lacking; if present, then usually smaller than adjacent spiracle. Posterolateral angles of abdominal sternites immaculate.

Basal plates in caudoventral view with mesial margins straight to slightly concave; posterior margins sinuous; posteromesial angles narrowly rounded (Fig. 60). Posterolateral angles of pygophore continuing onto posteroventral surface of pygophore as carinae, forming rectangular impression; posterior margin slightly concave in caudal view, usually with small, medial, V-shaped emargination (Fig. 56); posterolateral angles prominent in ventral and dorsal views (Figs. 57, 58); pygophore slightly concave in lateral view (Fig. 59).

Types. Stål (1859) described *Pentatoma pallidovirens* from 1♂ and 1♀ specimen from California without designating a holotype or paratype. The ♂ specimen labeled (a) "California" (b) "Kinb." (c) "Type" (d) "Typus" (e) "*Thyanta pallidovirens* Stal" (f) "109 51" (g) "349 84" (h) "Riksmuseum Stockholm" is designated the lectotype. The ♀ specimen labeled (a) "California" (b) "Kinb." (c) "♀" (d) "Type." (e) "Allo-typus" (f) "350 84" (g) "Riksmuseum Stockholm" is designated paralectotype. The lectotype and the paralectotype, which are conserved in the Naturhistoriska Riksmuseet (Stockholm, Sweden), were examined.

Ruckes (1957a) described *T. pallidovirens setosa* from 18♂♂ and 10♀♀ specimens.



Figs. 48-62. *T. pallidovirens*. 48. Habitus. 49. Head. 50-52. Right paramere. 50. Medial view. 51. Ectal view. 52. Lateral view. 53-55. Theca and related structures. 53. Ventral view. 54. Dorsal view. 55. Lateral view. 56-59. Pygophore. 56. Caudal view. 57. Ventral view. 58. Dorsal view. 59. Lateral view. 60. Genital plates, caudoventral view. 61. Spermatheca. 62. Spermathecal pump.



Map 4

Map 4. *T. pallidovirens*.

The holotype, which was examined, is from Pullman, Whitman Co., Washington, and is deposited in the American Museum of Natural History (New York).

Distribution. Western U.S. (Map 4).

Specimens examined. 3,606 specimens collected during every month of the year; deposited in AMNH, CAS, DAR, EGER, FMNH, FSCA, INHS, ISU, LACM, LHR, LSU, MSU, MSUB, MSUE, NCSU, ODAS, OSUC, PUL, SIUC, SMEK, TAMU, UCB, UCR, UCS, UGA, UIM, UNAM, USNM, UUSL, WSU. CANADA: *British*

Columbia: Cache Ck; Coldstream; Comox; Lytton; Malahat; Nanaimo; Vancouver Isl; Royal Oak; Saanich Dist; Vernon; Victoria; Wellington.

UNITED STATES: California: *Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Inyo, Kern, Lake, Lassen, Los Angeles, Madera, Marin, Mariposa, Mendocino, Merced, Modoc, Mono, Monterey, Napa, Nevada, Orange, Placer, Plumas, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Tehama, Trinity, Tulare, Tuolumne, Ventura, Yolo, Yuba.* Idaho: *Ada, Benewah, Bingham, Blaine, Boise, Bonner, Butte, Cassia, Clearwater, Elmore, Franklin, Fremont, Gern, Gooding, Idaho, Kootenai, Lake, Latah, Lewis, Nez Perce, Oneida, Owyhee, Shoshone, Twin Falls, Valley.* Montana: *Lake, Lewis & Clark, Ravalli, Sanders.* Nevada: *Carson City, Douglas, Lyon, Washoe.* Oregon: *Baker, Benton, Crook, Curry, Deschutes, Douglas, Grant, Harney, Hood River, Jackson, Jefferson, Josephine, Klamath, Lake, Linn, Malheur, Marion, Multnomah, Polk, Sherman, Tillamook, Umatilla, Union, Wasco, Washington, Wheeler, Yamhill.* Utah: *Box Elder, Cache, Garfield, Morgan, Salt Lake, Sevier, Utah, Washington, Wheeler, Yamhill.* Washington: *Asotin, Benton, Chelan, Clark, Columbia, Douglas, Grant, King, Kittitas, Mason, Okanagon, Pierce, San Juan, Snohomish, Spokane, Thurston, Walla Walla, Whitman, Yakima.*

Comments. Ruckes (1957a) distinguished *T. pallidovirens setosa* from other U.S. *Thyanta* by the increased amount of pilosity on the legs and rostrum. This is a difficult character to discern. The brown autumnal-vernal forms of several other species and subspecies are also characterized by more and longer hairs on the same body structures (McPherson, 1979a). Because *T. p. setosa* differs from the nominate subspecies in no other significant manner, *T. p. setosa* is placed as a junior synonym of *T. pallidovirens*.

No reliable morphological character will consistently separate *T. pallidovirens* from *T. custator accerra*, as discussed in detail under the comments section of *T. c. accerra*. Basically, in the southwestern U.S. the two usually can be separated by the shape of the humeral angles, which are rounded in *T. pallidovirens* and angulate to spinose in *T. c. accerra*. In the northwestern U.S., the two species seem to be geographically isolated (Maps 3, 4). Here, separation often can be made based on the presence (in *T. c. accerra*) or absence (in *T. pallidovirens*) of postspiracular black spots.

Thyanta (Thyanta) perditor (Fabricius)

Figs. 63-77, Map 5

Cimex perditor Fabricius, 1794:102; Fabricius, 1803:163.

Pentatoma fascifera Palisot de Beauvois, 1817:150, fig. 8 (syn. by Dallas, 1851:206).

Pentatoma collaris Westwood, 1837:40 (syn. by Dallas, 1851:206).

Cimex transversalis Herrich-Schäffer, 1841:66 (syn. by Dallas, 1851:206).

Cimex dimidiatus Herrich-Schäffer, 1841:fig. 629 (syn. by Dallas, 1851:206).

Pentatoma dimidiatum: Herrich-Schäffer, 1844:94 (syn. by Dallas, 1851:206).

Euschistus perditor: Dallas, 1851:206; Walker, 1867:247.

Pentatoma (Mormidea) perditor: Guérin-Méneville, 1857:367.

Thyanta perditor: Stål, 1862a:58; Stål, 1862b:104; Stål, 1868:29; Stål, 1872:34; Uhler, 1872:399 (part); Uhler, 1876:289; Uhler, 1877:404 (part); Distant, 1880:66; Berg, 1884:100; Distant, 1893:333; Lethierry and Severin, 1893:148; Uhler, 1893:705; Uhler, 1894a:230 (part); Uhler, 1894b:173; Distant, 1900:432; Van Duzee, 1904:52–53 (part); Van Duzee, 1907:9; Kirkaldy, 1909:95; Banks, 1910:90; Zimmer, 1912:14 (part); Barber, 1914:523; Van Duzee, 1917:51–52; Barber, 1923:12; Blatchley, 1926:113, 114–115 (part); Barber, 1939:292–293; Torre-Bueno, 1939:230; Ruckes, 1957a:1, 20; Froeschner, 1988:593.

Euschistus fasciatus Walker, 1867:245 (syn. by Stål, 1872:34).

Euschistus adjunctor Walker, 1867:249 (syn. by Stål, 1872:34).

Thyanta (Thyanta) perditor: Rider and Chapin, 1991.

Diagnosis. Transhumeral rubiginous band usually present; tylus and vertex of head often reddish.

Lateral jugal margins sinuous, not parallel (Fig. 64). Humeral angles spinose, each spine directed anterolaterad; anterolateral pronotal margins not piceous, concave in dorsal view (Fig. 63). Mesial corner of each pronotal cicatrice black. Each abdominal sternite with postspiracular black spot on each side, both anterolateral and posterolateral angles usually piceous.

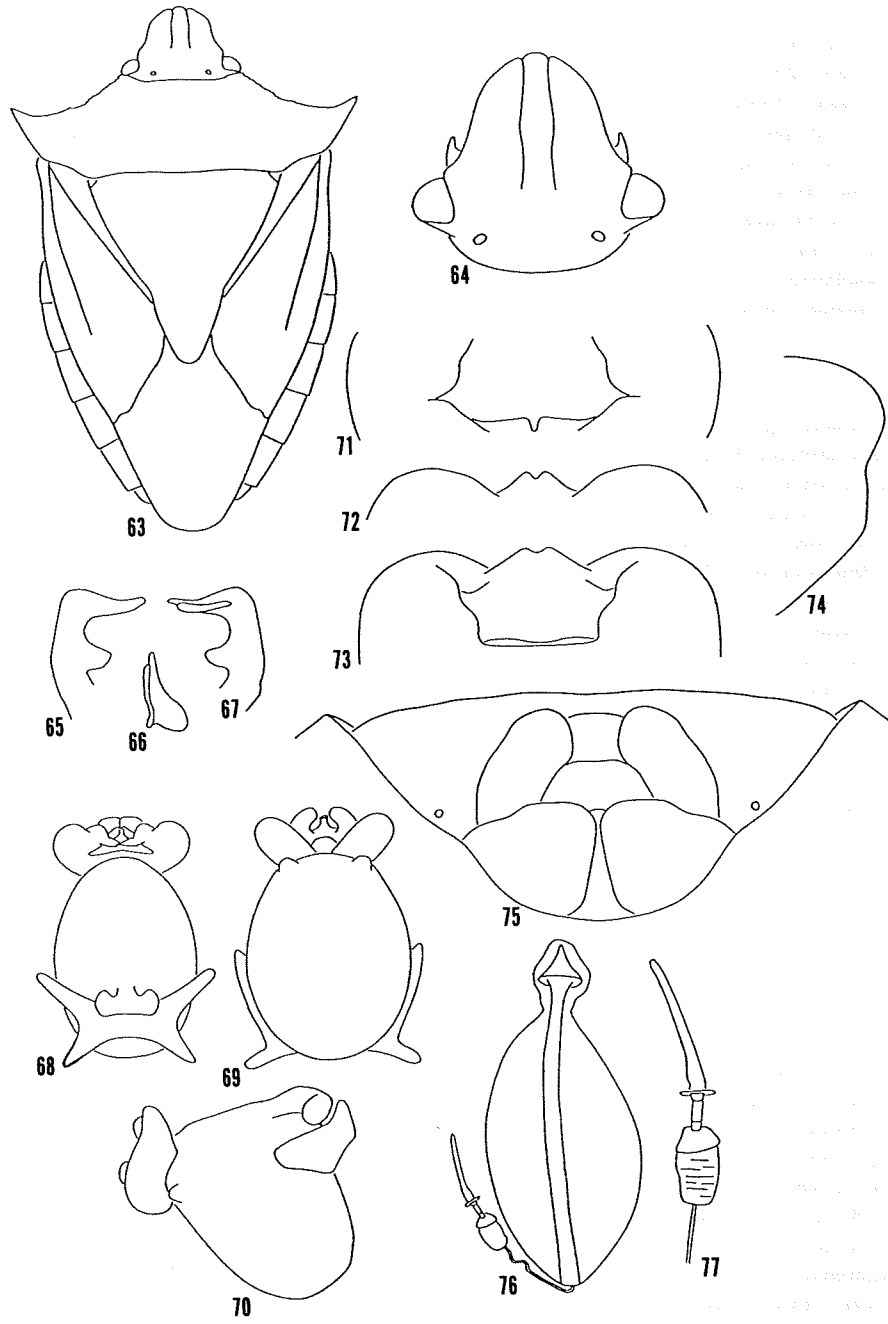
Basal plates with mesial margins straight to slightly convex in caudoventral view; posterior margins sinuous (Fig. 75). Pygophoral opening subtended by semicircular impression; posterior margin of pygophore produced posterodorsad, in ventral and dorsal views convex medially with small, medial, V-shaped emargination (Figs. 72, 73), concave in lateral view (Fig. 74).

Types. Fabricius (1794) described *Cimex perditor* from 2♂♂ and 2♀♀ specimens without designating a holotype or paratypes. Rider and Chapin (1991) made lectotype and paralectotype designations. All four specimens, which are housed in the Universitetets Zoologiske Museum (Copenhagen, Denmark), were examined.

Rider and Chapin (1991) confirmed the status of *Pentatoma fascifera* Palisot de Beauvois, *P. collaris* Westwood, *Cimex transversalis* Herrich-Schäffer, *Euschistus fasciatus* Walker, and *E. adjunctor* Walker as junior synonyms. They also designated lectotypes for the latter two species. At one time *Euschistus rubiginosus* Dallas was considered a synonym of *T. perditor*. Rider (1986b), however, examined the holotype of *E. rubiginosus* and determined that it was a senior synonym of *Euschistus incus* Rolston.

Distribution. This is the most widely distributed species in the genus, occurring from southern Florida, Texas, and Arizona south through Central America, West Indies, and South America to northern Argentina (Map 5).

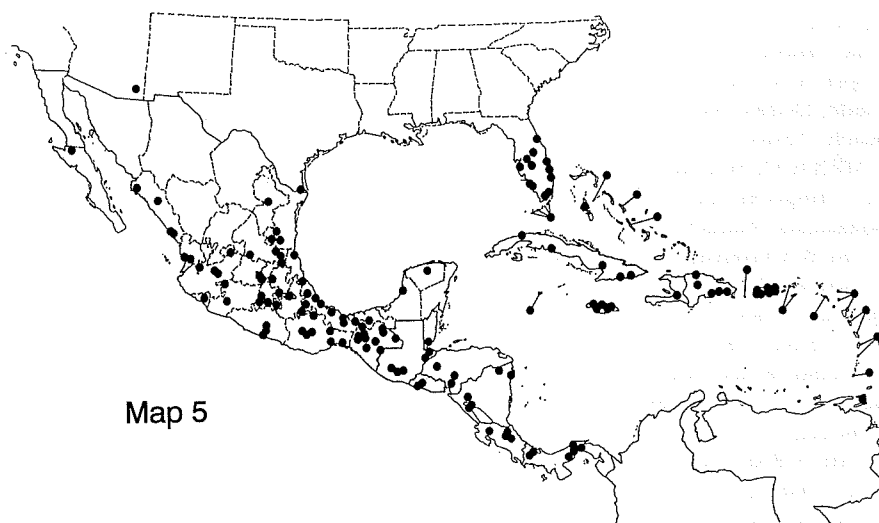
Specimens examined. 844 specimens collected during every month of the year; deposited in AMNH, AUA, BMNH, CAS, CNC, CU, DAR, DBT, FSCA, INHS, ISU, LHR, LSU, MSU, MSUE, OSUC, PUL, SIUC, SMEK, TAMU, UAT, UCB, UCR, UCS, UGA, UMAA, UMC, UNAM, USNM, WSU. UNITED STATES: Arizona: *Cochise*: Southwest Research Station, 5 mi W Portal. Florida: Flamingo; Mahogany Hammock; Paradise Key; Pine Castle; Windly. *Broward*: Deerfield Beach. *Collier*: Immokalee; Royal Palm Park. *Dade*: Coral Gables; Everglades National Park; Florida City; 5 mi SW Florida City; Goulds; Grossman Hammock; Hialeah; Homestead; Kendall; Miami; Miami Springs; Princeton. *Highlands*: Avon Park; Lake Plac-



id; Sebring. *Indian River*: Vero Beach. *Lee*: Fort Myers. *Manatee*: Palmetto; Terra Ceia. *Martin*: Stuart. *Monroe*: Big Pine Key; Key Largo; Key West; Marathon Key; Upper Key Largo; Upper Matecumbe Key. *Orange*: Orlando. *Palm Beach*: Belle Glade; Delray; Royal Palm Park. *Polk*: Lake Hamilton; Lakeland. *Volusia*: Daytona Beach. Texas: *Cameron*: Brownsville; Sabal Palm Grove near Southmost.

MÉXICO: Hochmilco; Lagos de Moreno; Paricutin. *Aguascalientes*: Aguascalientes. *Campeche*: km 71 Carr. Campeche-Meizina. *Chiapas*: Arriaga; 4.4 mi N Bochil; Bonampak Ruínas; Chicoasen; Chorreadera State Park; Cintalpa; 5 mi S Cintalpa; 13 mi W Cintalpa; Comitán; 31.5 mi SE Comitán; Dos Lagos; El Sumidero; 1.6 mi S Jitotol; 13 mi S La Trinitario; 18 km S La Trinitario; 12 mi W Ocozocoautla; Palenque; Palenque Ruínas; 23 mi S Palenque, 4 mi NE Pichucalco; 1 mi S Rayón; 2 mi SE Revolucion Mexicana; 3 mi W Rizo de Oro; Sanches Ranch Las Rosas; San Cristóbal de las Casas; 8 mi SE San Cristóbal las Casas; 23 mi W San Cristóbal de las Casas; 39 mi E San Cristóbal las Casas; Simojovel; 10 km WNW Soyalo; 2 mi E Suchiapa; Sumidero Canyon; 9 mi SE Tapilula; Teopisca; 14 mi N Tuxtla Gutiérrez; 3.5 km S Río Tuliija. *Colima*: Colima Volcano. *Durango*: 9 mi W La Ciudad; Peasa Pena. *Guanajuato*: León. *Guerrero*: Acahuizotla; Acapulco de Juárez; 5 mi S, 2.5 mi E Chilpancingo; km 8 Carr. Chilpancingo Omilteme; 17 mi N Mexcala; Mochitlán; 1.5 mi W Mochitlán; 13 mi SW Tierra Colorado. *Hidalgo*: Hwy 45, 17 mi NE Huichapan. *Jalisco*: 16 km E Agua el Obispo; Ajijic; Guadalajara; 5 mi SE Plan de Barrancas. *México*: 4.3 mi NE Ixtapán de la Sal; Tejupilco; Temascaltepec, Real de Arriba; Teotihuacán; 11 mi W Texcoco; 1 mi NE Tlamacas, P. N. Popocatepetl; Valle de Bravo; 21 mi NW Valle de Bravo. *Michoacán*: Apatzingán; 11 mi E Apatzingán; Jiquilpán; Palo Alto; Tancitaro. *Morelos*: Cuautla; Cuernavaca; Jojutla; Morelos; Pte de Ixtla; Xochicallo. *Nayarit*: 13 mi NW Ahuacatlán; Jesus Maria; Nayarit-Jalisco line, Hwy 15; 15 km E San Blas; Tepic. *Nuevo León*: 9 mi S Monterrey; 3 mi S Pacheco. *Oaxaca*: 7.7 mi S Ejutla; El Camaron, 20 mi E Oaxaca; 2.7 mi NW El Camaron; 10 mi S El Camaron; 27 mi E Juchitán; 3 km E La Ventosa; 3.4 mi SE Matatlán; 11 mi N Matías Romero; SE Nejapa; 30 mi NW Oaxaca; 45 mi SE Oaxaca; 53 mi NE Oaxaca; Tehuantepec; Temazcal; 23 mi W Tequistlán; Totolapán; 18 mi NW Totolapán; 23 km NW Totolapán; Tuxtepec. *Puebla*: 5.1 mi SW Tehuacán; 6 mi SW Tehuacán. *Querétaro*: Querétaro; 29 mi N Querétaro; 10 mi E San Juan del Río. *San Luis Potosí*: 5 mi E Ciudad del Maíz; 11 km N Ciudad Valles; 20 mi S Ciudad Valles; El Pujal; El Salto Falls; Micos; 31 mi S San Luis Potosí; Tamazunchale; 30 mi S Tamazunchale; Valle Hidalgo; 2 mi E Xilita. *Sinaloa*: 22.6 mi S Culiacán; Los Mochis; Mazatlán; 15 mi N Mazatlán; Valle Unión; 5 mi E Valle Unión. *Tabasco*: 30 mi W Cárdenas; Chontalpa; Pajelagatero; Pico do Oro; 5 km S Villahermosa; 14 mi SE Villahermosa. *Tamaulipas*: Bocatoma; 11 mi SW Ciudad Victoria; 6 mi W Río Sabinas, near Encino; 19 mi NE Tula. *Tlaxcala*: 2 mi W Tlaxcala. *Veracruz*: Alvarado; Catemaco; 7 mi SE Catemaco; Coatzacoalcos; Córdoba; 1 mi E Córdoba;

← Figs. 63–77. *T. perditor*. 63. Habitus. 64. Head. 65–67. Right paramere. 65. Medial view. 66. Ectal view. 67. Lateral view. 68–70. Theca and related structures. 68. Ventral view. 69. Dorsal view. 70. Lateral view. 71–74. Pygophore. 71. Caudal view. 72. Ventral view. 73. Dorsal view. 74. Lateral view. 75. Genital plates, caudoventral view. 76. Spermatheca. 77. Spermathecal pump.



Map 5. *T. perdior*.

Cotaxtla; Extación Mieron das Fortín; 1 mi W Fortín de las Flores; Jalapa; 10 mi E Jalapa; Lake Catemaco; 5 mi N Lerdo de Tejada; Los Tuxtlas Biological Station; L. Rivera. Atzagan; 4 mi NE Minatitlán; Nanchital; Orizaba; Papantla; Plan del Río; 3 mi SW Sontecompanán; 15.8 mi S Tampico; Vega de Alatorre; Veracruz. *Yucatán*: 10 km N Pisté.

GUATEMALA: Chocoma. *Chimaltenango*: Yepocapa. *Guatemala*: Guatemala City. *Izabal*: Livingston; Los Amates; Morales. *Jutiapa*: San Jerónimo. *Sac.*: Antigua Guatemala. *Sololá*: Panajachel, Lago de Atitlán. *Suchitepequez*: Alta Vista; 8 mi N Santa Bárbara. BELIZE: Punta Gorda. EL SALVADOR: La Libertad; San Salvador. HONDURAS: 1 mi W Jicaro Galan Junction, Rio Nacaome; Tegucigalpa; Uyace Peak; Yojoa Lake; Zomorano. NICARAGUA: km 4 to Masaya. *Estelí*: 13.4 mi NW Sebaco. *León*: Los Zarzales; Malpaisillo. *Managua*: Los Brasiles; Managua; Tipitapa. *Musawas*: Waspuk R. *Zelaya*: Puerto Cabezas. COSTA RICA: Isla Bonita; Reventazon Valley; San Carlos. *Cartago*: Santiago; Turrialba. *Guanacaste*: La Pacifica near Cañas. *Heredia*: Heredia; 2 mi E Puerto Viejo; Varablanca. *Puntarenas*: Monteverde. *San José*: 5.5 km SE Desamparados; San José. PANAMA: New California. *Bocas del Toro*: Chiriquí Grande. *Canal Zone*: Barro Colorado Island; Cristóbal. *Chiriquí*: Boquete; Cerro Punta; Porteillos. *Coclé*: Cerro Pena near El Valle. *Panamá*: Cerro Jefe; Madden Lake.

BAHAMA ISLANDS: *Andros Island*: Andros Town. *Cat Island*. *Long Island*: Clarencetown. *New Providence Island*: Nassau. CUBA: El Cobre. *Ciudad de la Habana*: La Habana. *Cienfuegos*: Palmira; Soledad nr Cienfuegos. *Granma*: Cayamas. *Guantánamo*: Mtns nr Guantánamo. *Las Tunas*: Jobabo. *Pinar del Río*: San Vicente. *Santiago de Cuba*: 12 mi N Santiago de Cuba. JAMAICA: Balaclava; Claremont Baron Hill Trelawny; Hope Bay; Kingston; Liguanea Plain; Mandeville; Montego

Bay. HAITI: *Ouest*: Kenscoff; Port-au-Prince. DOMINICAN REPUBLIC: 8 mi up Macorís River. *Distrito Nacional*: Santo Domingo. *La Romana*: La Romana Center. *La Vega*: Jarabacoa. *Peravia*: 2 km N Nizao; 21 km NW San José. *Puerto Plata*. *San Cristóbal*: San Cristóbal. *San Pedro de Macorís*: Boca Chica. PUERTO RICO: Cialitos Cruces, El Verde, Mona Island. *Aguadilla*: Añasco, Isabela, Rincón, San Sebastián. *Arecibo*: 7 km S Ciales, Dorado, Manatí, Utuado, Vega Baja. *Bayamon*: Corozal. *Guayama*: Arroyo. *Humacao*: Humacao, Loíza, 1 mi SE Luquillo, Naguabo. *Mayagüez*: Boqueron, Guánica Forest, Guayanilla, Mayagüez, San Germán. *Ponce*: Coamo Springs, Juana Díaz, Ponce, 3 mi N Santa Isabel. *San Juan*: Río Piedras. U.S. VIRGIN ISLANDS: *St. Croix*: Frederiksted. *St. Thomas*. BRITISH WEST INDIES: *Antigua*: Bello. *Barbuda*: Codrington. *Dominica*: Castle Bruce Road nr Savane David; Clarke Hall Est; 4.7 mi E Pt Casse; 5 km SW Pt Casse; Roseau. *Grand Cayman*: 3 mi N Georgetown; Western Dist. *Grenada*: Grand Anse; Mount Gay Est; St. Georges. *St. Kitts*: Basseterre; 4 mi W Basseterre. *St. Lucia*: Castries. *St. Vincent*. *Trinidad*: Cumuto; St. Augustine. FRENCH WEST INDIES: *Guadeloupe*: Pointe-à-Pitre. *Martinique*: 2 km N St. Pierre. BARBADOS.

Comments. *Thyanta perditor* is one of a group of very closely related species, all of which have distinctly spinose humeral angles. The characters used to separate these species are sometimes subtle and hard to diagnose unless a series of specimens is available. Fortunately, most have very little overlap in their distributional ranges.

Thyanta (Thyanta) spectabilis Ruckes

Figs. 78–92, Map 6

Thyanta spectabilis Ruckes, 1957c:175–178, figs. 3–4.

Thyanta perditor (of authors, not Fabricius): Van Duzee, 1923:127.

Diagnosis. Rubiginous transhumeral band usually present; often tylus and vertex of head reddish.

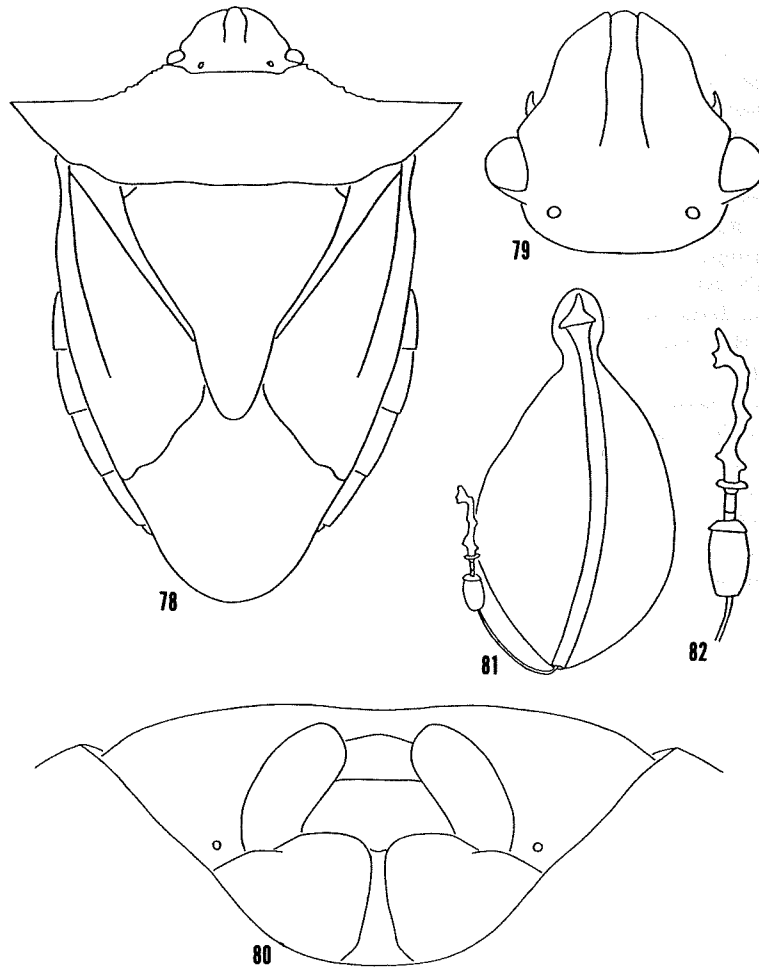
Lateral jugal margins sinuous, not parallel (Fig. 79). Anterolateral pronotal margins concave, not piceous; humeral angles spinose, spines directed primarily laterad and only slightly cephalad (Fig. 78). Mesial corner of each pronotal cicatrice usually piceous. Each abdominal sternite with postspiracular black spot on each side, anterolateral and posterolateral angles piceous.

Basal plates in caudoventral view with mesial margins straight to slightly convex; separated basally; posterior margins sinuous (Fig. 80). Spermathecal bulb digitiform, but with numerous short protuberances (Fig. 82). Pygophoral opening subtended by semicircular impression; posterior margin of pygophore produced posterodorsad, in ventral and dorsal views convex medially with small, medial V-shaped emargination (Figs. 84, 85); slightly concave in lateral view (Fig. 86).

Types. Ruckes (1957c) described *Thyanta spectabilis* from 2♂♂ and 6♀♀ specimens, all from Baja California, Mexico. The ♂ holotype was examined and is presently conserved in the California Academy of Sciences (San Francisco).

Distribution. Baja California, Mexico (Map 6).

Specimens examined. 17 specimens collected during every month of the year except February, April, September, and October; deposited in CAS, DBT, UCB, UIM,



Figs. 78–82. *T. spectabilis*. 78. Habitus. 79. Head. 80. Genital plates, caudoventral view. 81. Spermatheca. 82. Spermathecal pump.

UNAM, USNM. MÉXICO: Lower California; 2 km W El Centenario. *Baja California Norte*: Bahía de los Angeles. *Baja California Sur*: Cabo San Lucas; 28 mi S El Arco Mine, Rancho Santa Marguerita; 2 mi E El Coyote, NE of La Paz; 6 mi S, 1 mi E El Pescadero; La Paz; 6 km S San Pedro; Santa Anita; 7 mi N Santa Anita; 2 km SE, 3.5 km NE Santa Rita; 21.6 mi N Todos Santos; Venancio.

Comments. *Thyanta spectabilis* is very closely related to *T. perditor*, and may actually be a subspecies of that species. The genitalia of the two species are virtually identical; the only difference is that the parameres in *T. spectabilis* are somewhat larger than those in *T. perditor*. This is expected, however, since specimens of *T.*