
David Allen Rider

Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation
https://digitalcommons.lsu.edu/gradschool_disstheses/4669

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Historical Dissertations and Theses by an authorized administrator of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.
INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book. These are also available as one exposure on a standard 35mm slide or as a 17" x 23" black and white photographic print for an additional charge.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
The systematics of the genus *Thyanta* Stål (Hemiptera: Heteroptera: Pentatomidae)

Rider, David Allen, Ph.D.

The Louisiana State University and Agricultural and Mechanical Col., 1988
The Systematics of the Genus *Thyanta* Stål
(Hemiptera: Heteroptera: Pentatomidae)

A Dissertation
Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy
in
The Department of Entomology

by
David Allen Rider
B. S., Purdue University, 1979
M. S., Auburn University, 1982

December 1988
ABSTRACT

The pentatomid genus Thyanta Stål is one of several large genera in the nominate subfamily and tribe. Thyanta belongs among those genera of Pentatomini lacking a spine or tubercle at the base of the third (second visible) abdominal sternite. The genus is divided into two subgenera: Phacidium Breddin, containing a single species, T. aeruginosa Berg; and the nominate subgenus, containing 36 species and one subspecies. The subgenus Thyanta is further divided into four species groups based primarily on differences and similarities in male and female genitalia. The perditor species group contains nine species and one subspecies, the maculata species group consists of 20 species, the juvenca species group includes six species, and the convexa species group contains one species.

The genus Thyanta contains one subspecies and 37 species, of which 15 are described here for the first time: T. boliviensis, T. convexa, T. curvata, T. emarginata, T. excavata, T. fimbriata, T. hamulata, T. infuscata, T. obtusa, T. robusta, T. rubicunda, T. sinuata, T. straminea, T. vadosa, and T. xerotica. Additionally, nine new synonymies are recognized: T. casta Stål, 1862, a junior synonym of T. maculata (F., 1775); T. signoreti Ruckes, 1956, a junior synonym of T. testacea (Dallas, 1851); T. pallidovirens setosa Ruckes, 1957, a junior synonym of T. pallidovirens (Stål, 1859); T. humilis Bergroth, 1891 and
ACKNOWLEDGEMENTS

This project would not have been possible without the help and encouragement of many friends and colleagues. To each I am sincerely grateful.

Taxonomic studies require the examination of many preserved specimens which are usually borrowed from many different collections. I thank the curators who generously loaned specimens for this project. A list of curators and their respective institutions is provided in the materials and methods. Special appreciation goes to several of my colleagues who made a special effort to collect specimens of *Thyanta* for this project, namely Cheryl Barr (Louisiana State University), Joe Eger (Dow Chemical, Tampa, Florida), Edward Riley (Texas A&M University) and Donald Thomas (USDA/ARS, Tuxtla Gutierrez, Mexico). Don also generously provided detailed instructions on karyotyping methods. I also thank Dr. F. J. D. McDonald (Australia), who during one of his visits to LSU, showed me the correct techniques in dissecting the genitalia of both male and female stink bugs.

Departmental financial support has been provided in the form of a research assistantship, except for the summer of 1988 during which I was provided with a research associate position. I am also grateful to the department for providing some financial support for most of my major collecting trips, notably the trips to Costa Rica, Panama, Puerto Rico,
French Guiana, and Mexico. I also thank Sigma Xi, the scientific research society, and the American Museum of Natural History, Roosevelt Memorial Grant, for providing additional monies which supported the research trip to Arizona and California in August 1987.

I am grateful to all the members of my graduate committee for all their help. I am especially grateful to Dr. L. H. Rolston, who suggested this project and has provided advice and encouragement whenever it was needed. He also allowed me full access to his personal collection of pentatomids and to his personal library. I sincerely thank my major advisor, Dr. J. B. Chapin, who also generously provided suggestions during all aspects of this study. She also gave me great latitude during this research and has encouraged learning through doing.

I acknowledge the kind words and encouragement from the many faculty members and students in the entomology department. I thank Dr. J. Fuxa who allowed me access to his phase contrast microscope for the chromosome work. I also thank Dr. L. Meek for the occasional use of his computer and camera equipment. I also appreciate the advice from Jerry Lenhard on photography related problems.

I express sincere appreciation to my parents and my sister who have always been supportive. They always provided an atmosphere of learning. I am grateful to them for not only allowing me, but also encouraging me to study whatever I became interested in.

I offer my sincerest gratitude to my wife, Jayma, to whom I dedicate this dissertation. Without her friendship and companionship this project would not have been possible. Her tolerance and support provided the inspiration needed to complete this study.
DISCLAIMER

The new species described in the present document are not intended as a permanent scientific record. These new names will be published subsequently in scientific journals, and the publication date of the species should be taken from the journal publication dates. Until such time, these names and the new combinations proposed herein should not be used by other authors.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>DISCLAIMER</td>
<td>vi</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>ix</td>
</tr>
<tr>
<td>LIST OF MAPS</td>
<td>xi</td>
</tr>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II. LITERATURE REVIEW</td>
<td>3</td>
</tr>
<tr>
<td>History of the genus <em>Thyanta</em></td>
<td>3</td>
</tr>
<tr>
<td>Color forms</td>
<td>8</td>
</tr>
<tr>
<td>Karyology</td>
<td>9</td>
</tr>
<tr>
<td>Host plants</td>
<td>9</td>
</tr>
<tr>
<td>Parasites and predators</td>
<td>13</td>
</tr>
<tr>
<td>Biology</td>
<td>14</td>
</tr>
<tr>
<td>III. MATERIALS AND METHODS</td>
<td>16</td>
</tr>
<tr>
<td>Borrowed specimens</td>
<td>16</td>
</tr>
<tr>
<td>Type specimens</td>
<td>20</td>
</tr>
<tr>
<td>Collecting</td>
<td>20</td>
</tr>
<tr>
<td>Dissection of genitalia</td>
<td>21</td>
</tr>
<tr>
<td>Illustrations</td>
<td>22</td>
</tr>
<tr>
<td>Measurements</td>
<td>23</td>
</tr>
</tbody>
</table>
Rearing specimens .............................................. 23
Cross-breeding .................................................. 23
Free-choice mating experiments ......................... 24
Karyological studies ............................................ 24

IV. TAXONOMY ................................................. 26

Thyanta Stål 1862 ............................................. 26
Key to subgenera, species groups, and species
of Thyanta ..................................................... 29
Key to species of Thyanta occurring north of
South America ..................................................... 40
Key to South American species of Thyanta ............ 44
Subgenus Phacidium Breddin ............................... 52
Subgenus Thyanta Stål ....................................... 57
  Perditor species group .................................... 58
  Maculata species group ................................ 143
  Convexa species group ................................ 245
  Juvenca species group .................................. 251

DISTRIBUTION MAPS ........................................... 283

LITERATURE CITED ........................................... 297

INDEX TO SPECIES NAMES OF THYANTA ................. 315

VITA ............................................................ 317
## List of Figures

<table>
<thead>
<tr>
<th>FIGURES</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-16</td>
<td>T. aeruginosa Berg</td>
<td>55</td>
</tr>
<tr>
<td>17-31</td>
<td>T. calceata (Say)</td>
<td>61</td>
</tr>
<tr>
<td>32-46</td>
<td>T. custator custator (Fabricius)</td>
<td>70</td>
</tr>
<tr>
<td>47-63</td>
<td>T. custator accerra McAtee</td>
<td>78</td>
</tr>
<tr>
<td>64-78</td>
<td>T. pallidovirens (Stål)</td>
<td>101</td>
</tr>
<tr>
<td>79-93</td>
<td>T. perditor (Fabricius)</td>
<td>115</td>
</tr>
<tr>
<td>94-98</td>
<td>T. spectabilis Ruckes</td>
<td>124</td>
</tr>
<tr>
<td>99-108</td>
<td>T. spectabilis Ruckes (continued)</td>
<td>126</td>
</tr>
<tr>
<td>109-124</td>
<td>T. cubensis Barber and Bruner</td>
<td>130</td>
</tr>
<tr>
<td>125-137</td>
<td>T. serratulata Ruckes</td>
<td>133</td>
</tr>
<tr>
<td>138-153</td>
<td>T. setigera Ruckes</td>
<td>137</td>
</tr>
<tr>
<td>154-169</td>
<td>T. rubicunda new species</td>
<td>140</td>
</tr>
<tr>
<td>170-185</td>
<td>T. planifrons Ruckes</td>
<td>147</td>
</tr>
<tr>
<td>186-200</td>
<td>T. maculata (Fabricius)</td>
<td>153</td>
</tr>
<tr>
<td>201-215</td>
<td>T. pseudocasta Blatchley</td>
<td>159</td>
</tr>
<tr>
<td>216-230</td>
<td>T. obsoleta (Dallas)</td>
<td>165</td>
</tr>
<tr>
<td>231-245</td>
<td>T. testacea (Dallas)</td>
<td>169</td>
</tr>
<tr>
<td>246-260</td>
<td>T. patrulias (Stål)</td>
<td>174</td>
</tr>
<tr>
<td>261-276</td>
<td>T. acuminata Ruckes</td>
<td>180</td>
</tr>
<tr>
<td>277-291</td>
<td>T. hamulata new species</td>
<td>184</td>
</tr>
<tr>
<td>Page Range</td>
<td>Species Name</td>
<td>Page</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>292-306</td>
<td>T. <em>boliviensis</em> new species</td>
<td>189</td>
</tr>
<tr>
<td>307-321</td>
<td>T. <em>brasiliensis</em> Jensen-Haarup</td>
<td>196</td>
</tr>
<tr>
<td>322-326</td>
<td>T. <em>emarginata</em> new species</td>
<td>201</td>
</tr>
<tr>
<td>327-331</td>
<td>T. <em>excavata</em> new species</td>
<td>205</td>
</tr>
<tr>
<td>332-346</td>
<td>T. <em>vadosa</em> new species</td>
<td>210</td>
</tr>
<tr>
<td>347-361</td>
<td>T. <em>curvata</em> new species</td>
<td>215</td>
</tr>
<tr>
<td>362-369</td>
<td>T. <em>sinuata</em> new species</td>
<td>220</td>
</tr>
<tr>
<td>370-383</td>
<td>T. <em>obtusa</em> new species</td>
<td>224</td>
</tr>
<tr>
<td>384-398</td>
<td>T. <em>xerotica</em> new species</td>
<td>229</td>
</tr>
<tr>
<td>399-413</td>
<td>T. <em>infuscata</em> new species</td>
<td>236</td>
</tr>
<tr>
<td>414-418</td>
<td>T. <em>straminea</em> new species</td>
<td>240</td>
</tr>
<tr>
<td>419-425</td>
<td>T. <em>similis</em> Van Duzee</td>
<td>244</td>
</tr>
<tr>
<td>426-440</td>
<td>T. <em>convexa</em> new species</td>
<td>248</td>
</tr>
<tr>
<td>441-455</td>
<td>T. <em>fimbriata</em> new species</td>
<td>254</td>
</tr>
<tr>
<td>456-470</td>
<td>T. <em>juvenca</em> Stål</td>
<td>259</td>
</tr>
<tr>
<td>471-485</td>
<td>T. <em>acutangula</em> Jensen-Haarup</td>
<td>264</td>
</tr>
<tr>
<td>486-500</td>
<td>T. <em>robusta</em> new species</td>
<td>269</td>
</tr>
<tr>
<td>501-515</td>
<td>T. <em>acuta</em> Ruckes</td>
<td>274</td>
</tr>
<tr>
<td>516-530</td>
<td>T. <em>cornuta</em> Ruckes</td>
<td>278</td>
</tr>
<tr>
<td>MAP</td>
<td>PAGES</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>T. calceata (Say) ....................................................................... 284</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>T. custator custator (Fabricius) ............................................ 285</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>T. custator accerra McAtee .................................................... 286</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>T. pallidovirens (Stål) ......................................................... 287</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>T. pseudocasta Blatchley .......................................................... 288</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>T. planifrons Ruckes, T. spectabilis Ruckes ................................ 289</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>T. maculata (Fabricius) ................................................................ 290</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>T. perditor (Fabricius) ................................................................ 291</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>T. cubensis Barber and Bruner, T. obsoleta (Dallas), T. testacea (Dallas) 292</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>T. aeruginosa Berg, T. convexa new species, T. curvata new species, T. perditor (Fabricius), T. rubicunda new species ..................... 293</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>T. acuminata Ruckes, T. infuscata new species, T. patruelis (Stål), T. sinuata new species, T. straminea new species, T. testacea (Dallas), T. xeroteca new species .................................................. 294</td>
<td></td>
</tr>
</tbody>
</table>

INTRODUCTION

The pentatomid genus *Thyanta* Stål is one of several large genera in the nominate subfamily and tribe. Its species lack a spine or tubercle on the base of the third (second visible) abdominal sternite and therefore the genus belongs in section one of the Pentatomini. Rolston and McDonald (1984) provided a key to the Western Hemisphere genera of this section which occur north of South America. Species of *Thyanta* are also characterized by elongate ostiolar rugae. In South America only seven section-one genera have each ostiolar ruga reaching three-fifths or more of the distance from the mesial margin of the ostiole to the lateral margin of the metapleuron. Rolston (1987) provided a key to help identify these seven genera.

The species of *Thyanta* are restricted to the New World, but several species are widespread. Species occur from southern Canada to Central Argentina, including the Galapagos Islands (Van Duzee 1937, Linsley and Usinger 1966, Froeschner 1981, 1985) and the Hawaiian Islands (Beardsley 1965). Several species are known to occur on agricultural crops, occasionally in large enough numbers to cause economic problems (Sanderson 1904).

The genus *Thyanta* has had a particularly confused taxonomic history. In fact, Jensen-Haarup (1928) remarked "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." He also commented that the identification of species would be "rather difficult, if not rich and fresh materials of species and specimens are at hand."

This is evidenced by the confusion that has surrounded the taxonomic history of even the North American forms. Some confusion still exists. Hopefully the present work will shed some light on the chaos.

The only taxonomic work that included the entire genus was that by Jensen-Haarup in 1928. He described a new subgenus and four new species, and provided a key to the 24 species known to him. Blatchley (1926) described one new species and keyed the eight eastern North American forms. Torre-Bueno (1939) published a key to the 10 North American forms known to him. All three of these keys are now seriously out-of-date. Ruckes began a revision of Thyanta in the 1950's, but died before completing it, although he did solve several taxonomic problems and described numerous new species. There has been no comprehensive treatment of the Central or South American species nor of the genus as a whole since 1928.

During this project, over 20,000 specimens have been examined, including the type material for most species. The new species are described and diagnoses are provided for the others. Illustrations of all known species and distribution maps of most species are included. Keys have been provided for the identification of subgenera, species groups, and species.
LITERATURE REVIEW

History of the Genus Thyanta.

In 1765, Julius Rohr, a German naturalist, traveled to the New World for the purpose of helping in the fortification of some of the West Indies islands. However, he collected many insect specimens which he sent back to Europe and later donated to J. C. Fabricius. In 1775, Fabricius described Cimex maculatus, a species eventually transferred to the genus Thyanta Stål, from at least one of these specimens (Zimsen 1964). During the present study I had the opportunity to examine this specimen, the oldest one known in the genus.

During the next 30 years, Fabricius described two more species which were eventually placed in Thyanta. In 1794, he described Cimex perditor, the most widespread species in the genus, and the one that Kirkaldy, in 1909, selected as the type species of Thyanta. In 1803, Fabricius described Cimex custator from at least one specimen donated to him by the French naturalist L. A. Bosc d'Antic. Although Bosc did most of his collecting around New York, the type locality of C. custator is "Carolina."

One additional good species of Thyanta was described during the first half of the 19th century. Palisot de Beauvois (1805) described Pentatoma fascifera, which Dallas (1851) placed as a junior synonym of Thyanta perditor, and Westwood (1837) described three species which were
at one time considered to be species of *Thyanta*. One of these three nominal species, *Pentatoma collaris*, was placed as a junior synonym of *T. perditor* by Dallas (1851); the second species, *P. antiquensis*, was eventually transferred from *Thyanta* to *Cyptocephala* Berg (Rolston and McDonald 1984), where it is a valid species; and the third species, *P. vitrea*, cannot be placed to genus because the type specimen lacks the abdomen. Herrich-Schäffer (1841) described *Cimex transversalis* and mistakenly referred to the same species as *C. dimidiatus* in figure 629. Both names were sunk as junior synonyms of *T. perditor* by Dallas (1851). *Pentatoma chilense*, also described by Herrich-Schäffer (1853), is regarded a nomen dubium.

The only valid species of *Thyanta* to come from this period was described by the Father of American Entomology, Thomas Say. In 1831, he described several pentatomid species including two which were once placed in *Thyanta*. The first, *Pentatoma rugulosa*, was eventually transferred by Rolston and McDonald (1984) to the closely related genus *Tepa* Rolston and McDonald. The second, *Pentatoma calceata*, at one time considered a junior synonym of *T. custator*, is a valid species. Unfortunately, Say’s collection was destroyed by dermestid beetles (Osborn 1937).

The second half of the 19th century was very productive of descriptive taxonomy. Also during this period, workers began to develop keys to the known taxa, and the first large catalogs began to appear. The main contributors to pentatomid taxonomy during this time were Dallas, Stål, Walker, Berg, and Bergroth.
In 1851, Dallas published his list of hemipterous insects in the British Museum in which he described many new pentatomid species, including five that were later placed in Thyanta. Two of these, Pentatoma obsoleta and P. testacea, are valid species of Thyanta. Two others have been transferred to other genera. Pentatoma taeniola was placed as a junior synonym of P. antiquensis by Distant (1900a), a species transferred to Cyptocephala by Rolston and McDonald (1984). Pentatoma paryvula was transferred from Thyanta to Banasa Stål (Rolston 1976) and later to the genus Acrosternum Fieber (Thomas 1980). The fifth species, P. inconspicua, is regarded as a nomen dubium.

The works of the greatest heteropterist ever, Carlos Stål, began to appear in the late 1850’s. He described the genus Thyanta (1862a) and placed in it six species: Pentatoma pallidovirens and P. patruelis, species he described in 1859, and P. perditor, P. custator, P. taeniola, and P. nigro-punctata Signoret. Pentatoma nigro-punctata is an African species which Stål (1876) included in his new genus Aethemenes. As mentioned previously, P. taeniola is a junior synonym of Cyptocephala antiquensis. Later, Stål (1862b) described T. juvenca and T. casta. The latter species is regarded as a junior synonym of T. maculata in the present study. Thus, three of four species described by Stål are still valid.

Walker (1867) described two species, Euschistus fasciatus and E. adjunctor, that were later placed in Thyanta, but Stål (1872) synonymized both names with T. perditor. Berg (1878) also added two species, T. aeruginosa and T. patagiata, to the genus; the latter was eventually transferred to Banasa (Thomas 1980). Bergroth added a
species, *T. humilis*, in 1891, which in the present study is considered a junior synonym of *T. patruelis*. Reed (1898) described *Pentatoma pilosus* which Kirkaldy (1909) placed as a junior synonym of *T. juvenca*. Kuhlgatz (1903) described *viridescens* as a variety of *T. humilis*. It is now regarded as a nomen dubium.

Van Duzee, another prolific American worker, added five species to the genus in the course of his studies. *Thyanta brevis* and *T. punctiventris*, described in 1904, and *T. jugosa* and *T. panda*, described in 1923, were all transferred to *Tepa* (Rolston and McDonald 1984), while *T. similis*, described in 1933, remains a valid species of *Thyanta*. Breddin (1912) described the species *euchlorum* in his new genus *Phacidium*. *Phacidium* is a subgenus of *Thyanta*, and *P. euchlorum* was sunk as a junior synonym of *T. aeruginosa* by Rolston and McDonald (1984). Malloch (1919) described *T. elegans*, but this species was transferred to *Cyptocephala* (Rolston and McDonald 1984). McAtee (1919) described *T. accerra* as a variety of *T. custator*, and Blatchley (1926) raised it to full species status. It is now considered a subspecies of *T. custator*. Blatchley, in his 1926 book on the Heteroptera of eastern North America, also described *T. pseudocasta* from south Florida. Barber and Bruner described *T. cubensis* from Cuba in 1932.

A major work on the genus *Thyanta* was that by Jensen-Haarup in 1928. He consolidated all the previous work by providing a key to the known species. He also described the subgenus *Parathyanta* and four new species. *Parathyanta* was placed as a junior synonym of *Cyptocephala* by Rolston and McDonald (1984). Two of his species, *T. mendozana* and *T. acutangula*, are actually the same species, and in the present study the
former is placed as a junior synonym of the latter. Another of his species, *T. elegantula*, was transferred to *Cyptocephala* (Rolston and McDonald 1984). The status of his fourth species, *T. brasiliensis*, remains unchanged.

Ruckes began a revision of the genus *Thyanta* during the 1950's, but he died in 1964 before completing the project. He did contribute much information about the genus, mainly through his descriptions of 13 new species and two new subspecies. One of his species, *T. bimini* (1952), was transferred to *Cyptocephala* (Rolston and McDonald 1984). Another species, *T. picturata* (1957b), was placed as a junior synonym of *T. antiquensia* (Rolston 1972) which was later transferred to *Cyptocephala* (Rolston and McDonald 1984). Of the remaining 11 species, seven are still valid: *Thyanta acuta* (1952); *T. acuminata*, *T. cornuta*, and *T. planifrons* (1956); and *T. serratulata*, *T. setigera*, and *T. spectabilis* (1957c). In the present study, the remaining four species and two subspecies are reclassified as follows: *T. humeralis* (1956) is a junior synonym of *T. brasiliensis*, *T. nitidula* (1956) is a junior synonym of *T. patruelis*, *T. signoreti* (1956) is a junior synonym of *T. testacea*, *T. crinita* (1957b) is a junior synonym of *T. acutangula*, *T. pallidovirens setosa* (1957a) is a junior synonym of *T. pallidovirens*, and *T. pallidovirens spinosa* (1957a) is a junior synonym of *T. custator accerra*.

Bliven (1956) added *T. coloradensis* to the genus, and Rolston (1972) added *T. yerma*. Both have been transferred to *Tepa* (Rolston and McDonald 1984), with *T. coloradensis* being placed as a junior synonym of *T. jugosa* (Rider 1986).
Color Forms.

Most species of *Thyanta* exhibit two color forms: a dull-green form during the summer months and a brown form during the fall and spring months. The brown form was first described by McAtee (1919), but he did not correlate it with the different seasons. Ruckes (1957a) was the first to associate the brown forms with the colder months. He called them autuminal-vernial color forms. He also discovered that they had longer hairs on the legs than the summer forms. McPherson (1977a) verified the seasonal dimorphism, but showed in laboratory experiments with *T. calceata* (1977b) that the two forms were due to differences in photoperiod rather than temperature. Those reared under long light periods (16 hours light:8 hours dark) were usually green, while those reared under short light periods (8 hours light:16 hours dark) were usually brown. He also showed that adults seemed to have the ability to change from one color to the other if the photoperiods were changed. Sailer (1951) also noted a similar change of color in living adults. Further studies with *T. calceata* (McPherson 1978a) showed that the photoperiod to which the fourth and fifth instars were exposed determined the color form of the adults. McPherson (1978b) also showed that there was a threshold photoperiod (12.5 hours light:11.5 hours dark) above which adults would be green and below which they would be brown. He studied *T. custator accerra* (= *T. pallidovirens accerra*) (1979a) and found that photoperiod affected pubescence, but he did not get any brown adults. He did have trouble rearing *T. c. accerra*, and so had small sample sizes.
Karyology.

The karyology of several species of *Thyanta* has been investigated. Schrader and Hughes-Schrader (1956) examined in great detail the chromosomal evolution of six species of *Thyanta*, and they described and illustrated the meiotic process in each of these species. They also reported some cross-breeding studies between several closely related North American species. More chromosomal studies were done by Ueshima (1963). These two studies have helped solve several taxonomic problems, but they have also raised questions about other species.

Host Plants.

*Thyanta* species have been collected on a wide range of plants and do not appear to be host specific. The following associations are reported in the literature, but the species of *Thyanta* was misdetermined or probably misdetermined in many cases. These instances are noted in the table.

<table>
<thead>
<tr>
<th>Host</th>
<th><em>Thyanta</em> sp.</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>pallidovirens</em></td>
<td>Essig 1911</td>
</tr>
<tr>
<td>arborvita</td>
<td><em>custator accerra</em></td>
<td>Hoffman 1971</td>
</tr>
<tr>
<td>asparagus</td>
<td><em>custator accerra</em></td>
<td>Chittenden 1898, Hart 1919, Esselbaugh 1948</td>
</tr>
<tr>
<td>aster</td>
<td><em>custator accerra</em></td>
<td>Esselbaugh 1948</td>
</tr>
<tr>
<td>Plant</td>
<td>Author(s)</td>
<td>Year(s)</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>beans</td>
<td><em>calceata</em></td>
<td>Oetting and Yonke 1971</td>
</tr>
<tr>
<td></td>
<td><em>custator accerra</em></td>
<td>Beardsley 1965</td>
</tr>
<tr>
<td>beets</td>
<td><em>custator accerra</em></td>
<td>Esselbaugh 1948</td>
</tr>
<tr>
<td>Bidens</td>
<td><em>perditor</em></td>
<td>Panizzi and Herzog 1984</td>
</tr>
<tr>
<td>blackberry</td>
<td><em>calceata</em></td>
<td>McPherson and Mohlenbrock 1976, McPherson 1977a</td>
</tr>
<tr>
<td>buckbush</td>
<td><em>calceata</em></td>
<td>Oetting and Yonke 1971</td>
</tr>
<tr>
<td>buckwheat</td>
<td><em>custator accerra</em></td>
<td>Hoffman 1971</td>
</tr>
<tr>
<td>chichory</td>
<td><em>custator accerra</em></td>
<td>Hoffman 1971</td>
</tr>
<tr>
<td>clover</td>
<td><em>calceata</em></td>
<td>Oetting and Yonke 1971</td>
</tr>
<tr>
<td></td>
<td><em>custator accerra</em></td>
<td>Stoner 1915, 1920, Blatchley 1926, Esselbaugh 1948, Oetting and Yonke 1971</td>
</tr>
<tr>
<td>Citrus</td>
<td><em>perditor</em></td>
<td>Martorell 1976</td>
</tr>
<tr>
<td>Cleome</td>
<td><em>perditor</em></td>
<td>Martorell 1976</td>
</tr>
<tr>
<td>coralberry</td>
<td><em>custator accerra</em></td>
<td>Esselbaugh 1948</td>
</tr>
<tr>
<td>corn</td>
<td><em>custator accerra</em></td>
<td>Sanderson 1904, Forbes 1905, Hart 1919, Esselbaugh 1948, McPherson 1982</td>
</tr>
<tr>
<td>cotton</td>
<td><em>custator accerra</em></td>
<td>Morrill 1910, Esselbaugh 1948</td>
</tr>
<tr>
<td></td>
<td><em>pallidovirens</em></td>
<td>Essig and Hoskins 1944</td>
</tr>
<tr>
<td>cowpeas</td>
<td><em>custator accerra</em></td>
<td>Sanderson 1904, Esselbaugh 1948, Hoffman 1971</td>
</tr>
<tr>
<td>cress</td>
<td><em>calceata</em></td>
<td>Oetting and Yonke 1971</td>
</tr>
<tr>
<td>Crotalaria</td>
<td><em>perditor</em></td>
<td>Martorell 1976, Rossetto et al. 1978</td>
</tr>
</tbody>
</table>
daisy  custator accerra  Hoffman 1971

dogwood  custator accerra  Hoffman 1971

eggplant  custator accerra  Beardsley 1965

elderberry  custator accerra  Hoffman 1971

goldenrod  calceata  Blatchley 1926

Gossypium  perditor  Martorell 1976

grass  calceata  Oetting and Yonke 1971

custator accerra  Hart 1919, Blatchley 1926,

hay  pallidovirens  Benedict and Cothren 1975

haw bush  custator custator  Dozier 1920

horseweed  calceata  Oetting and Yonke 1971

huckleberry  custator accerra  Furth 1974

ironweed  custator accerra  Schwitzgebel and Wilbur 1942

lettuce  custator accerra  Esselbaugh 1948

lima beans  custator accerra  Hoffman 1971

mesquite  custator accerra  Ward et al. 1977

milkweed  calceata  Oetting and Yonke 1971

mullein  calceata  Oetting and Yonke 1971, Furth 1974,

milkweed  custator accerra  McPherson and Mohlenbrock 1976,

oats  custator accerra  McPherson 1977a

Oetting and Yonke 1971, Furth 1974,

McPherson 1977a

Adkins 1917, Blatchley 1926,

Oetting and Yonke 1971

Sanderson 1904, Esselbaugh 1948,

McPherson 1982
<table>
<thead>
<tr>
<th>Plant</th>
<th>Species</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>peas</td>
<td>calceata</td>
<td>Oetting and Yonke 1971</td>
</tr>
<tr>
<td>peaches</td>
<td>calceata</td>
<td>Rings 1957</td>
</tr>
<tr>
<td>Phaseolus</td>
<td>perditor</td>
<td>Martorell 1976</td>
</tr>
<tr>
<td>pine</td>
<td>calceata</td>
<td>Furth 1974</td>
</tr>
<tr>
<td>Piriqueta</td>
<td>perditor</td>
<td>Martorell 1976</td>
</tr>
<tr>
<td>pokeweed</td>
<td>custator accerra</td>
<td>Esselbaugh 1948</td>
</tr>
<tr>
<td>primrose</td>
<td>calceata</td>
<td>Dickerson and Weiss 1920</td>
</tr>
<tr>
<td></td>
<td>custator accerra</td>
<td>Hoffman 1971</td>
</tr>
<tr>
<td>rabbit bush</td>
<td>custator accerra</td>
<td>Esselbaugh 1948</td>
</tr>
<tr>
<td>ragweed</td>
<td>custator accerra</td>
<td>Hussey 1922, Hoffman 1971</td>
</tr>
<tr>
<td>raspberry</td>
<td>calceata</td>
<td>Furth 1974</td>
</tr>
<tr>
<td>rice</td>
<td>perditor</td>
<td>Gomez 1980, Kishino 1980</td>
</tr>
<tr>
<td>Sesamum</td>
<td>perditor</td>
<td>Rossetto et al. 1978</td>
</tr>
<tr>
<td>Sesbania</td>
<td>custator custator</td>
<td>Panizzi and Slansky 1985b</td>
</tr>
<tr>
<td></td>
<td>perditor</td>
<td>Fennah 1935</td>
</tr>
<tr>
<td>sorghum</td>
<td>custator accerra</td>
<td>Sanderson 1904, Hayes 1922, Esselbaugh 1948</td>
</tr>
<tr>
<td></td>
<td>perditor</td>
<td>Rossetto et al. 1978, Busoli et al. 1984</td>
</tr>
<tr>
<td>soybeans</td>
<td>calceata</td>
<td>Oetting and Yonke 1971, Jones and Sullivan 1979</td>
</tr>
<tr>
<td></td>
<td>custator accerra</td>
<td>Blickenstaff and Huggans 1962, Hoffman 1971, Oetting and Yonke 1971</td>
</tr>
</tbody>
</table>
thistle | *pallidovirens* | Goedan and Ricker 1968

*timothy* | *calceata* | Oetting and Yonke 1971

*Yarrow* | *perditor* | Fennah 1935, Waldbauer 1977,

Rossetto et al. 1978, Gomez 1980,

Kishino 1980, Grazia et al. 1982,

Panizzi and Slansky 1985a

*tomato* | *calceata* | Oetting and Yonke 1971

*Wheat* | *pallidovirens* | Hoffman et al. 1987

*Yarrow* | *calceata* | Oetting and Yonke 1971

*Yarrow* | *pallidovirens* | Forbes 1905, Esselbaugh 1948

*Yarrow* | *perditor* | Hoffman 1971, McPherson 1982

*Yarrow* | *perditor* | Oetting and Yonke 1971

*Yarrow* | *pallidovirens* | Oetting and Yonke 1971

*Yarrow* | *calceata* | Oetting and Yonke 1971

*Yarrow* | *pallidovirens* | Forbes 1905, Esselbaugh 1948

*Yarrow* | *perditor* | Hoffman 1971, McPherson 1982

Parasites and Predators.

Species of *Thyanta* have enemies including both predators and parasites. Knowlton (1944) found 26 specimens of *Thyanta* species in the stomachs of 19 different birds. Krombein et al. (1979) listed six species of wasps that provision their nests with species of *Thyanta*. Two, *Astatia nubea* Cresson and *A. occidentalis* Cresson, are in the family Astatidae; one, *Solierella inermis* (Cresson), is in the family Larridae; and three, *Bicyrtes capnoptera* (Handlirsch), B.
quadrifasciatus (Say), and B. ventralis (Say), are in the family Nyssonidae. Krombein et al. (1979) also listed five hymenopteran species which have been recorded as egg parasites of different species of Thyanta. One, Anastatus hirtus (Ashmead), is in the family Eupelmidae; and four, Telenomus dimmocki Ashmead, T. podisi Ashmead, Trissolcus thyantae Ashmead, and T. utahensis (Ashmead), are in the family Scelionidae.

The following four species of tachinid flies have also been reared from species of Thyanta: Gymnoclytia occidua (Walker) (Oetting and Yonke 1971), Cylindromyia fuminennis (Bigot) (Oetting and Yonke 1971), Euclytia flava (Townsend) (Oetting and Yonke 1971, Buschman and Whitcomb 1980), and Trichopoda pennipes (Fabricius) (Buschman and Whitcomb 1980). Finally, Headlee and McColloch (1913) reported finding several Thyanta specimens infected with the chinch-bug fungus, Sporotrichum globuliferum Spegazini (= Beauveria globulifera), and an Entomophthora species.

Biology.

Several mass migrations of Thyanta custator accerra (= T. custator) species have been reported. Severin (1937) observed one on the night of 5 October 1936 at Sioux Falls, South Dakota. Thousands of stink bugs swarmed the lights and buildings of the city. Ainslee (1938, 1939) reported two more flights at Sioux City, Iowa on the nights of 5 October 1937 and 8 October 1939. Wilbur (1939) also recorded a mass migration occurring on 14 October 1939 and involving at least 12 different locations in Kansas. Esselbaugh (1948) discussed these migrations and advanced the theory that the insects were in search of a place to
hibernate rather than a food source due to the late date on which all the migrations took place.

Several workers have presented life-history studies for various species of *Thyanta*. The species studied include *T. calceata* (Oetting and Yonke 1971, McPherson 1977a) and *T. custator accerra* (= *T. custator*) (Esselbaugh 1948, Oetting and Yonke 1971). The eggs of *Thyanta* were described by Esselbaugh (1946), and the nymphs were described by DeCoursey and Esselbaugh (1962). Flight patterns have been investigated (McPherson and Weber 1980) as well as mating behavior (Gamboa and Alcock 1973).
MATERIALS AND METHODS

Borrowed Specimens.

During this study, over 20,000 specimens were examined. The following is a list of the institutions and colleagues who generously lent specimens and/or type specimens.

AMNH American Museum of Natural History, New York, R. T. Schuh
ARH University of Florida, Agricultural Research Center, Homestead, R. M. Baranowski
ASUT Arizona State University, Tempe, F. F. Hasbrouck
AUA Auburn University, Auburn, Alabama, W. E. Clark
BMNH British Museum (Natural History), London, England, W. R. Dolling
CAS California Academy of Sciences, San Francisco, P. H. Arnaud, Jr.
CELM Colección Entomológica "Luis Maria Murillo", Bogotá, Colombia, I. Zenner-Polania
CNC Canadian National Collection, Ottawa, Ontario, R. Foottit
CU Cornell University, Ithaca, New York, J. K. Liebherr
CUC Clemson University, Clemson, South Carolina, J. C. Morse
DAR D. A. Rider (personal collection), Baton Rouge, Louisiana
DBT D. B. Thomas (personal collection), Tuxtla Gutierrez, Mexico
eger J. E. Eger (personal collection), Tampa, Florida
ENGL H. D. Engleman (personal collection), Coco Solo, Panama
FMNH  Field Museum of Natural History, Chicago, Illinois, E. H. Smith
FSCA  Florida State Collection of Arthropods, Gainesville, F. W. Mead
IIAS  Instituto de Investigaciones Agropecuarias, Estacion Experimental
       La Platina, Santiago, Chile, E. Prado C.
IML   Fundación e Instituto Miguel Lillo, Universidad Nacional de
       Tucumán, Argentina, M. V. A. Toledo
INHS  Illinois Natural History Survey, Champaign, D. Voegtlin
ISU   Iowa State University, Ames, J. Laffoon
LACM  Los Angeles County Museum of Natural History, California, C. L.
       Hogue
LHR   L.H. Rolston (personal collection), Baton Rouge, Louisiana
LSU   Louisiana State University, Baton Rouge, J. B. Chapin
MBR   Museo Argentino de Ciencias Naturales "Bernardino Rivadavia",
       Buenos Aires, A. O. Bachman
MCN   Museu de Ciências Naturais, Porto Alegre, Rio Grande do Sul,
       Brazil, J. Grazia
MGA   Museu do Ginásio Anchieta, Porto Alegre, Rio Grande do Sul,
       Brazil, J. Grazia
MHNS  Museo National de Historia Natural, Santiago, Chile, A.
       Camousseight M.
MLP   Facultad de Ciencias Naturales y Museo, Universidad Nacional de La
       Plata, Argentina, R. A. Ronderos
MNHP  Muséum National d'Histoire Naturelle, Paris, France, J. Carayon
MNRJ  Museu Nacional, Rio de Janeiro, Brazil, J. Grazia
MSU   Mississippi State University, Mississippi State, R. L. Brown, P.
       R. Miller
MSUB Montana State University, Bozeman, S. Rose
MSUE Michigan State University, East Lansing, R. L. Fischer
MZRS Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, J. Grazia
MZS Université Louis Pasteur, Musée Zoologique, Strasbourg, France, J. Matter
NCSR North Carolina State University, Raleigh, C. Parron
NDSF North Dakota State University, Fargo, E. U. Balsbaugh, Jr.
NHMV Naturhistorisches Museum, Vienna, Austria, A. Kaltenbach
NMSU New Mexico State University, Las Cruces, G. S. Forbes, J. R. Zimmerman
NRS Naturhistoriska Riksmuseet, Stockholm, Sweden, P. Lindskog
OSUC Oregon State University, Corvallis, K. A. Phillips
POLH University of Colorado, Englewood, J. T. Polhemus
PUL Purdue University, West Lafayette, Indiana, A. V. Provonsia
SIUC Southern Illinois University, Carbondale, J. E. McPherson
SMEK Snow Museum of Entomology, University of Kansas, Lawrence, P. D. Ashlock
TAMU Texas A&M University, College Station, J. C. Schaffner
UAT University of Arizona, Tucson, F. G. Werner
UCB Essig Museum of Entomology, University of California, Berkeley, J. A. Powell
UCR University of California, Riverside, S. I. Frommer
UCS University of Connecticut, Storrs, J. E. O’Donnell
UCV Instituto de Zoologia Agricola, Universidad Central de Venezuela, Maracay, J. Grazia
During this study I visited several major collections including the American Museum of Natural History (New York), the National Museum of Natural History (Washington, D.C.), the Florida State Collection of Arthropods (Gainesville), and the California Academy of Sciences (San Francisco).
Type Specimens.

The type material was examined for all but four of the 22 nominal species of Thyanta. The type specimens for three species, T. custator (F.), T. calceata (Say), and T. juvenca Stål, apparently are no longer in existence. An offer to send the types of the distinctive T. aeruginosa from Argentina was declined due to concern for their safety in the postal system. The type specimens for 11 other taxa which were previously believed to be species of Thyanta were examined. Also, the types were examined for most of the species of Cryptoccephala and Tena.

Neotypes were not designated for species where type material was no longer in existence. Although T. calceata and T. custator have had a confused taxonomic history, their identities have not been in question in recent times. For species in which the original author did not designate a holotype or paratypes, lectotype and paralectotype designations were made, and a label was added to each specimen to represent this designation.

Collecting.

In addition to the preserved museum specimens, many live specimens were collected. Fresh specimens exhibit certain characters, especially color characteristics, much more clearly than preserved specimens. The karyotyping and crossbreeding portions of this study required living or freshly preserved specimens. Also, personal collecting often provided important biological data.

During this study, some specimens were collected locally in Louisiana, but I also had the opportunity to travel throughout the U.S.
and to the neotropics. Within the U.S., I made several trips to south Texas, south Florida, Indiana, and to Arizona and California. Neotropical ventures included trips to Costa Rica, Panama, Puerto Rico, French Guiana, and Mexico. All of these trips yielded many valuable specimens and much information regarding their biology.

Species of Thyanta came readily to lights, and running a black light and/or a mercury-vapor light was often the most effective method of collection. Usually, either batteries or generators were used so that lights could be run in less-accessible areas. Lights were hung in front of white sheets to increase their effectiveness.

Daytime collecting consisted mainly of sweeping or beating vegetation. Species of Thyanta are relatively general feeders but prefer herbaceous rather than woody plants. The best locations to collect them were along roadsides or in old-field situations.

They do, however, seem to prefer plant species in certain families: Malvaceae, Euphorbiaceae, Verbenaceae, and Fabaceae. They also show different plant preferences at different times of the year. For example, the species in Louisiana evidently prefer clovers in the spring, a species of Verbena during early to mid-summer, and a couple of species of Euphorbiaceae late in the year.

Dissection of Genitalia.

Female. The specimen was relaxed by submerging the entire body in either Kumar's relaxing fluid for about 5 minutes or in nearly boiling water for 3-5 minutes. The specimen was placed ventral surface upward and the entire abdomen was removed using a microscalpel. The abdomen
was then placed in hot KOH for 4-5 minutes. It was removed from the KOH and placed in water and the spermatheca was teased loose using a fine dissecting needle. When the study of the spermatheca was completed, a few drops of acetic acid were added to the water to stop the action of the KOH. The spermatheca, with a few drops of glycerin, was placed in a microvial which was placed on the pin beneath the specimen. The abdomen was rinsed in ethyl alcohol and glued back onto the specimen.

Male. The specimen to be dissected was relaxed as above. The pygophore was gently teased loose from the abdomen, and was placed in hot concentrated KOH for 3-4 minutes or until the pygophore turned brown. The pygophore was then placed in water, and the aedeagus and right paramere were teased loose from the pygophore. Once study of the aedeagus and paramere was completed, a few drops of acetic acid were added. The aedeagus and paramere were then placed with a few drops of glycerin in a microvial which was placed on the pin beneath the specimen. The pygophore was rinsed in ethyl alcohol and was glued to a point, which was placed on the pin with the specimen.

Illustrations.

Structures of the head, body, and genitalia were illustrated using a Wild M5-86125 microscope equipped with a drawing tube. The eyepiece oculars were 10x and the objective lenses used were either 12x, 25x, or 50x, depending on the structure being illustrated. Similar structures of different species within each species group were all drawn at the same magnification so that direct size comparisons could be made.
Measurements.

All measurements were made by using a calibrated ocular grid on a dissecting scope and are in millimeters. In the text, measurements in parentheses represent the holotype specimen.

The total length was measured with the scutellum of the specimen parallel to the plane of focus and was the distance from the apex of the head to the apex of the abdomen, excluding hemelytral membranes. The total width was the distance across the humeral angles. The total length of the head was measured with the dorsal surface of the head parallel to the plane of focus and was the distance from the apex to an imaginary line drawn through the posterior margins of the ocelli. The width of the head was measured across the eyes.

Rearing Specimens.

For several aspects of this study, it was desirable to rear some of the species in the laboratory. Most species of Thyanta are relatively easy to rear. Adults and nymphs were kept in 1- to 2-pint cups covered with thin fabric. The diet consisted of fresh, washed green beans and either a few raw peanuts or raw sunflower seeds. The beans and seeds were changed every 3-4 days. Care was taken not to overcrowd the specimens because mortality increased when large numbers were kept in a single container.

Cross-Breeding.

In an effort to gain some information on the relationships between species, cross-breeding experiments were set up whenever possible.
Pairs to be cross-bred were placed in pint ice cream containers with green beans and raw sunflower seeds or raw peanuts. Observations were made several times daily to record mating frequency and duration of mating. Eggs were removed every 2-3 days and placed in separate containers for rearing. When the progeny of successful crosses reached the adult stage, backcrosses to the parental lines were made whenever possible.

Free-Choice Mating Experiments.

In cases where closely related species interbred with no apparent difficulties, experiments were set up to determine if they had a preference for a mating partner when given a choice. In these experiments a specimen of species "a" would be placed with two specimens of the opposite sex, one each from species "a" and species "b." All possible reciprocal crosses were also set up. Observations were made several times daily to determine mating preference.

Karyological Studies.

Specimens. For chromosome studies it is best to have sexually mature, fresh, live specimens. If live material is not available, specimens can be preserved in Carnoy's solution (3 parts absolute ethyl alcohol: 1 part glacial acetic acid). It is important to karyotype specimens preserved in Carnoy's within one month of initial preservation.

Stain. Chromosome squashes were stained with Lacto-aceto-orcein stain. The stain was made by placing in a beaker 50 ml lactic acid, 50
ml acetic acid, and 2 gm orcein. The mixture was heated to a boil and then allowed to cool.

Procedure. All chromosome studies were made from testis squashes. The specimen to be karyotyped was placed ventral surface upward, and the abdomen was dissected from the body. The testes were bright orange and were located ventrally near the base of the abdomen. They were carefully teased from the abdomen and placed on a microscope slide. Two drops of lacto-aceto-orcein stain were added, and the tissue stain was allowed to stand for 5-10 minutes. A cover slip was then placed over the sample which was then squashed by pushing downward on the cover slip with a blunt instrument. Excess stain was blotted from the slide.

Chromosome squashes were viewed with a Zeiss phase-contrast microscope equipped with a Nikon camera attachment. The tissue could be examined at 500x magnification, and photographs of appropriate cells were taken at 480x. The squashed tissue was searched to locate actively dividing cells. Accurate counts could be made only from polar views of first and second meiotic metaphase spermatocytes. No attempt was made to measure actual chromosome volume as this technique is still somewhat experimental and direct comparisons with other studies are difficult at best.
TAXONOMY

Thyanta Stål 1862


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 3/4 distance from mesial margin of ostiole to lateral margin of metapleuron. Each buccula evanescent or arcuately truncate at posterior termination. Juga 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 reliably separated only by differences in the male genitalia. In all species of Thyanta except two, the head of each paramere lacks a lateral lobe. Two South American species have parameres with a spinose lateral lobe. Cyptocephala and Tepa both have parameres with well-developed lateral lobes which are narrowly rounded apically. 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 both Tepa and Thyanta lack denticles.

Jensen-Haarup (1928) described the subgenus Parathvanta within Thyanta. Rolston and McDonald (1984) placed Parathvanta 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 1986).

The genus Thyanta can be divided into two subgenera: Phacidium Breddin and Thyanta. Phacidium contains a single species, T. aeruginosa Berg, which is restricted to southern South America; and the nominate subgenus contains 36 species and one subspecies.

The nominate subgenus can be further divided into four species groups: the convexa group contains a single species, T. convexas new species, which is restricted to South America; the juvenca group contains six species all of which are restricted to South America; the maculata group contains twenty species, some of which are widespread;
and the perditor group contains nine species and one subspecies, some of which are also widespread.

To aid in the identification of species of *Thyanta*, three keys have been provided. The first key includes the entire genus and is rather technical, as it attempts to key out subgenera and species groups early, allowing related species to be keyed near each other. To accomplish this goal, however, emphasis has been placed on male and female genitalia. This key will provide the most accurate identifications, but it is the most difficult to use.

The next two keys are more artificial, but should be easier to use. Each of them includes only a portion of the genus: one keys those species occurring north of South America, and the other includes only those species occurring in South America. No special attempt has been made to key related species together. Although male and female genitalia are still used in many cases, more easily seen characters and geographical distributions are used extensively in these two keys.

Care is necessary when working with the keys to species. Many species of *Thyanta* have both green and brown forms. In some cases it will be necessary to have fresh, mature specimens of the green form to make accurate determinations. Mention of black or brown markings on the body surface refer to true structural coloration. Teneral specimens and specimens of the brown form tend to become greasy, and certain of their structures darken due to discoloration. Female specimens often have no reliable external characteristics for identification. Characters of the male genitalia can usually be seen without dissecting the specimen, but accurate determinations may require some dissection.
When label data is cited in the text, each letter in parentheses represents a separate label, with (a) being closest to the specimen. Museum acronyms are defined in Materials and Methods. All measurements are in millimeters. Measurements in parentheses are of the holotype.

Key to subgenera, species groups, and species of Thyanta

1 Juga distinctly longer than tylus (Fig. 2); superior surface of each tibia asulcate; segment two of each antenna much longer than segment three (subgenus Phacidium Breddin) (southern South America) ........................................ aeruginosa Berg

- Juga and tylus subequal in length; superior surface of each tibia sulcate; segment two of each antenna at most only slightly longer than segment three (subgenus Thyanta Stål) ................. 2

2 (1) Dorsal punctation minute, dense, dorsal surface matte; each paramere F-shaped, obtuse protuberance on shaft prominent (Fig. 19); theca subtriangular (Fig. 24), dorsolateral protuberance on each side near caudal limit (Fig. 23); apex of sclerotized rod of spermatheca cone-shaped (Fig. 30), spermathecal bulb digitiform (Fig. 31) (perditor species group) ..................................... 3

- Dorsal punctation variable, but often coarse, sparse, dorsal surface often glossy; each paramere not distinctly F-shaped, protuberance on shaft relatively small or absent (Fig. 172); theca reniform (Fig. 177), lacking dorsolateral protuberances (Fig. 176); apex of sclerotized rod of spermatheca straight or slightly swollen, not cone-shaped (Fig. 183), spermathecal bulb globose (Fig. 184) .................................................. 14
3 (2) Anterolateral margins of pronotum piceous; mesial angle of each pronotal cicatrice marked with black .............................. 4
   - Anterolateral margins of pronotum not piceous; coloration of mesial angle of each pronotal cicatrice variable, but often immaculate .............................................................. 5

4 (3) 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, usually not visible from dorsal view; pygophoral opening subtended by a rectangular impression; general form relatively narrow (coastal plain from eastern Louisiana to Florida to New York) ....................... *custator custator* (Fabricius)

5 (3) Each humeral angle rounded to angulate, but never spinose ..... 6
   - Each humeral angle distinctly spinose ............................. 7

6 (5) Post-spiracular black spot usually present on each abdominal sternite and usually larger in size than adjacent spiracle; if absent or small, then each humeral angle usually angulate (eastern U.S.; Mexico) ........... *custator accerra* McAtee (part)
   - Post-spiracular area of each abdominal sternite usually immaculate, or if black spot present, then it is usually smaller in size than adjacent spiracle; each humeral angle rounded, never angulate (Fig. 64) (western U.S.) ............ *pallidovirens* (Stål)

7 (5) Pygophoral opening subtended by semicircular impression; medial portion of posterior margin of pygophore produced posterodorsad
with medial slit (Fig. 87); often with black spot on mesial angle of each pronotal cicatrice and on posterolateral angle of each abdominal sternite ........................................... 8

- Pygophoral opening subtended by rectangular impression; posterior margin of pygophore straight to slightly sinuous, not produced medially (Fig. 57); without above black markings (southwestern U.S.; Mexico; Guatemala) .......... custator accerra McAtee (part)

8 (7) Anterolateral and posterolateral angles of each abdominal sternite piceous ....................................................... 9

- Anterolateral angle of each abdominal sternite immaculate, color of posterolateral angle variable ......................................... 11

9 (8) Spine of each humeral angle protruding beyond base of adjacent corium by half the width of eye or less (Fig. 138) (Galapagos Islands, Ecuador) .................. setigera Ruckes

- Spine of each humeral angle protruding beyond base of adjacent corium by more than half the width of eye (Fig. 79) ........... 10

10 (9) Each humeral angle directed anterolaterad, usually approaching 45-degree angle with longitudinal axis of body (Fig. 79)
(southern U.S. to northern Argentina) .............................. perditor (Fabricius) (part)

- Each humeral angle directed primarily laterad and only slightly anterad (Fig. 94) (Baja California, Mexico) .. spectabilis Ruckes

11 (8) Anterolateral margins of pronotum in dorsal view strongly denticulate for anterior three-fourths (Fig. 154); lateral margins of body often pink; post-spiracular black spots usually absent (Chile) ......................... rubicunda new species
- Anterolateral pronotal margins in dorsal view with at most a few weak denticles on anterior half; lateral margins of body not pink; post-spiracular black spots often present ............. 12

12(11) Transhumeral band usually present, at least partially (southern U.S. to northern Argentina) ........ perditor (Fabricius) (part)
- Transhumeral band usually completely absent ..................... 13

13(12) Anterolateral pronotal margins contrastingly yellow in color; pronotal cicatrices immaculate; usually less than 9.0 mm long and less than 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 marked with black; usually more than 9.0 mm long and usually more than 6.0 mm wide (Revillagegedo Islands, Mexico) ........ serratulata Ruckes

14 (2) Posterior termination of each buccula roundly truncate (Fig. 3); in dorsal view, anterolateral margins of pronotum slightly convex (Fig. 426) (convexa species group) (Peru) ... convexa new species
- Posterior termination of each buccula evanescent (Fig. 276); in dorsal view, anterolateral margins of pronotum straight or concave ............................................................ 15

15(14) Dorsal punctation relatively coarse, relatively sparse, dorsal surface glossy; posteroventral surface of pygophore produced into blunt chin-like protuberance; dorsomedial surface of each paramere concave (Fig. 174) (maculata species group) ........ 16
- Dorsal punctation relatively small, dense, dorsal surface appearing matte; posteroventral surface of pygophore rounded or
sulcate, but not chin-like; dorsomedial surface of each paramere convex (Fig. 443) (juvenca species group) ..................... 49

16(15) Scutellum with medial longitudinal band calloused, pale, usually continuing onto pronotum (Fig. 419); hemelytral membrane with vague fuscous band from distal end of scutellum to apex (Galapagos Islands, Ecuador) ..................... similis Van Duzee

- Scutellum not calloused, occasionally a thin medial line present on pronotum; hemelytral membrane not marked as above ........... 17

17(16) Inner basal angle of each hemelytral membrane fuscous (Fig. 399) (Ecuador) ........................................ infuscata new species

- Inner basal angle of each hemelytral membrane hyaline, although membrane may have distal brown flecks ......................... 18

18(17) Ostiolar canal narrowed at middle, becoming slightly wider towards apex (Fig. 185) (southwestern U.S.; northwestern Mexico) ................................................................. planifrons Ruckes

- Ostiolar canal acuminate apically, not narrowed in middle .... 19

19(18) Each humeral angle nearly spinose, produced beyond base of adjacent corium by more than width of eye (Fig. 414); exocorium stramineous in color (Colombia) ............ straminea new species

- Each humeral angle rounded to angulate, but not spinose, protruding beyond base of adjacent corium by less than width of eye; exocorium concolorous with rest of hemelytra ........... 20

20(19) Males ........................................................ 21

- Females .......................................................... 34
21(20) In medial view, apex of each paramere produced dorsad and caudad forming a distinct hook (Fig. 279) (Colombia; Peru) .......... 

................................................. hamulata new species

- Apex of each paramere variable, but never forming distinct hook

................................................. 22

22(21) In ectal view, each paramere with well-developed, spinose lateral lobe (Fig. 264) (southern South America) ...... acuminata Ruckes

- Each paramere unarmed laterally ................. 23

23(22) Lateral wall of genital cup with elongate black carina; roughened spiculate area on lateral surface of each paramere linear, elongate (Fig. 296) (Peru; Bolivia) .... boliviensis new species

- Lateral wall of genital cup with black tubercle; roughened spiculate area on lateral surface of each paramere localized, circular ................................................. 24

24(23) In medial view, apex of each paramere narrowly rounded, angled nearly 60 degrees from longitudinal axis of head of paramere (Fig. 349) (Venezuela) ................. curvata new species

- In medial view, apex of each paramere variable, but if narrowly rounded then not angled dorsad beyond 45 degrees from longitudinal axis of head of paramere ......................... 25

25(24) Posterior margin of pygophore in caudal view broadly V-shaped (Fig. 364) (Colombia) ....................... sinuata new species

- Posterior margin of pygophore in caudal view broadly U-shaped ...

................................................................. 26

26(25) In ectal view, apex of each paramere broadly rounded (Fig. 219) 

................................................................. 27
- In ectal view, apex of each paramere narrowly rounded or spinose

- Chin-like protuberance on posteroventral surface of pygophore extending caudad of posterior margin in ventral and dorsal views (Figs. 225, 226); protuberance on shaft of each paramere small (Fig. 218) (Greater Antilles) ............... obsolete (Dallas)

- Chin-like protuberance not extending caudad of posterior margin of pygophore in ventral and dorsal views (Figs. 379, 380); protuberance on shaft of each paramere prominent (Fig. 372) (Colombia; Venezuela) .................. obtusa new species

- Protuberance on shaft of each paramere large, prominent (Fig. 309) ......................................................... 29

- Protuberance on shaft of each paramere absent or small ........ 30

- Chin-like protuberance on posteroventral surface of pygophore relatively broad in ventral view (Fig. 315); in lateral view, concavity of pygophore broadly V-shaped (Fig. 318) (southern South America) ......................... brasiliensis Jensen-Haarup

- Chin-like protuberance on posteroventral surface of pygophore relatively narrow in ventral view (Fig. 341); in lateral view, concavity of pygophore U-shaped (Fig. 343) (Trinidad & Tobago; Venezuela) ........................................... vadosa new species

- Chin-like protuberance on posteroventral surface of pygophore extending caudad of posterior margin in dorsal and ventral views ......................................................... 31

- Chin-like protuberance not extending caudad of posterior margin in dorsal and ventral views ........................................... 32
31(30) Apex of each paramere in medial and lateral views rounded (Figs. 386, 388); aedeagus with dorsomedial conjunctival lobe present (Fig. 390) (coastal desert from southern Ecuador to northern Chile) ........................................... xerotica new species
- Apex of each paramere in medial and lateral views spinose (Figs. 248, 250); aedeagus with dorsomedial conjunctival lobe absent (Fig. 252) (South America) ......................... patruelis Stål

32(30) In ectal view, apex of each paramere spinose (Fig. 234); concave surface of each paramere oriented more dorsad than mediad (Lesser Antilles; northern South America) ............... testacea (Dallas)
- In ectal view, apex of each paramere narrowly rounded; concave surface of each paramere oriented more mediad than dorsad .... 33

33(32) Each humeral angle prominent, protruding beyond base of adjacent corium by half width of eye or more (Fig. 201); aedeagus with dorsomedial conjunctival lobe lacking (Fig. 207) (southern Florida) ........................................... pseudocasta Blatchley
- Each humeral angle protruding beyond base of adjacent corium by less than half width of eye (Fig. 186); aedeagus with dorsomedial conjunctival lobe present (Fig. 192) (southern Arizona and Texas south to Panama) ......................... maculata (Fabricius)

34(20) Distal end of sclerotized rod nearly linear, gradually becoming narrower toward apex (Fig. 290) ................................. 35
- Distal end of sclerotized rod abruptly narrowed, swollen subapically (Fig. 244) ............................................. 38

35(34) Posteromesial angle of each basal plate distinctly and deeply excavated (Fig. 324) (Peru) ............... emarginata new species
- Posteromesial angle of each basal plate rounded or only slightly excavated .............................................. 36

36(35) Dilation of spermatheca constricted in middle, appearing double
(Fig. 290) (Colombia; Peru) ................. hamulata new species
- Dilation of spermatheca not constricted, appearing single .... 37

37(36) Dilation of spermatheca abruptly narrowed for apical third,
ending near apex of sclerotized rod (Fig. 320) (central and southern South America) ................ brasiliensis Jensen-Haarup
- Dilation of spermatheca not narrowed apically, reaching about three-fourths distance from base to apex of sclerotized rod (Fig. 305) (Peru; Bolivia) ................. boliviensis new species

38(34) Coiling and swelling of spermathecal duct below proximal flange
extensive, longer than spermathecal pump, swelling carrot-shaped
(Figs. 245, 260) .............................................. 39
- Coiling and swelling of spermathecal duct below proximal flange
less extensive, not carrot-shaped (Fig. 184) ...................... 40

39(38) Northern Brazil and northern Peru north through Lesser Antilles .
......................................................... testacea (Dallas)
- Central Brazil and southern Peru south to Argentina ...........
......................................................... patruelis Stål

40(38) Posteromesial angle of each basal plate distinctly and deeply excavated .............................................. 41
- Posteromesial angle of each basal plate rounded or only slightly excavated .............................................. 42
41(40) Concavity resulting from excavations of basal plates with sides divergent (Fig. 344) (Trinidad & Tobago; Venezuela) ..........

.......................................................... vadosa new species

- Concavity resulting from excavations of basal plates with sides nearly parallel (Fig. 329) (Colombia; Venezuela) ..............

.......................................................... excavata new species

42(40) North of South America ...................................... 43

- South America .................................................. 45

43(42) Southern Arizona and Texas south to Panama .............

.......................................................... maculata (Fabricius)

- Southern Florida; West Indies ................................. 44

44(43) Southern Florida ............................................. pseudocasta Blatchley

- Greater Antilles ................................................. obsoleta (Dallas)

45(42) Southern South America .................................... acuminata Ruckes

- Northern South America ........................................ 46

46(45) Coastal desert areas from southern Ecuador to northern Chile ....

.......................................................... xerotica new species

- Colombia; Venezuela ............................................. 47

47(46) Usually with two oblong reddish transhumeral spots, one on each side of middle (Colombia; Venezuela) ....... curvata new species

- Dorsal surface lacking all reddish or black markings .......... 48

48(47) Jugal margins subparallel for middle third of distance from eyes to apex of head (Fig. 371) (Colombia; Venezuela) .............

.......................................................... obtusa new species

- Jugal margins sinuous, not parallel (Fig. 363) (Colombia) .......

.......................................................... sinuata new species
49(15) Each humeral angle rounded (Figs. 441, 456) ...................... 50
- Each humeral angle angulate, usually spinose ..................... 51

50(49) Pronotum with irregular, transhumeral, pale callous (Fig. 441);
posteroventral surface of pygophore sulcate; posterior margin of
pygophore with fringe of long hairs; spermathecal duct swollen
into distinct cylindrical structure below proximal flange (Fig.
455) (southern South America) ............... fimbriata new species
- Pronotum uncalloused; posteroventral surface of pygophore
glabrous; spermathecal duct below proximal flange may be swollen
and coiled, but not forming distinct cylindrical structure (Fig.
470) (Chile; western Argentina) .............. juvenca Stål

51(49) Each humeral angle distinctly spinose, produced beyond base of
adjacent corium by the width of eye or more ...................... 52
- Each humeral angle angulate but not distinctly spinose, produced
beyond base of adjacent corium by less than width of eye (Fig.
471) (Brazil; Argentina) .................. acutangula Jensen-Haarup

52(51) Each humeral angle rather robust, directed anterolaterad (Fig.
486); in ventral and dorsal views, posterolateral angles of
pygophore appearing double-cone-shaped (Figs. 495, 496) (southern
Brazil) ................................................ robusta new species
- Each humeral angle smaller, directed laterad and only slightly
anterad (Figs. 501, 516); in ventral and dorsal views, pygophore
not double-cone-shaped (Figs. 510, 511, 525, 526) ............ 53

53(52) Apex of head broadly rounded (Fig. 502); pygophore in lateral
view sinuously convex (Fig. 512), in caudal view, posterior
margin broadly U-shaped (Fig. 509) (southern South America) ....

.................................................. acuta Ruckes

- Apex of head narrowly rounded (Fig. 517); pygophore in lateral view concave (Fig. 527); in caudal view, posterior margin broadly V-shaped (Fig. 524) (Venezuela; Bolivia; Brazil) .................

.................................................. cornuta Ruckes

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, but 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 eastern Louisiana to Florida to New York) ........................... custator custator (Fabricius)

3 (1) Each humeral angle distinctly spinose ................................ 4

- Each humeral angle rounded to angulate, but never spinose ....... 8

4 (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. 87) .......... 5

- Without above black markings; pygophoral opening subtended by rectangular impression, posterior margin straight, concave, or sinuous, lacking medial slit (Fig. 57) (southwestern U.S.; Mexico; Guatemala) .............. custator accerra McAtee (part)

5 (4) Transhumeral reddish band usually present, at least partially; usually both anterolateral and posterolateral angles of each abdominal sternite piceous................................. 6

- Reddish band between humeral angles usually lacking; each abdominal sternite with anterolateral angle immaculate, each posterolateral angle with at most a small black spot .......... 7

6 (5) Each humeral angle directed anterolaterad, usually approaching a 45-degree angle with longitudinal axis of body (Fig. 79) (southern U.S. to northern Argentina) ...... perditor (Fabricius)

- Each humeral angle directed primarily laterad and only slightly anterad (Fig. 94) (Baja California, Mexico) .. spectabilis Ruckes

7 (5) Anterolateral pronotal margins contrastingly yellow; pronotal cicatrices immaculate; usually less than 9.0 mm long and less than 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 more than 9.0 mm long and more than 6.0 mm wide (Revillagigedo Islands, Mexico) .......................... serratulata Ruckes
8 (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. 50); spermathecal bulb digitiform (Fig. 63) ..... 9
- Dorsal punctation coarse, sparse, surface glossy, shiny;
posteroventral surface of pygophore produced into blunt chin-like
protuberance; each paramere with dorsomedial surface concave
(Fig. 174); spermathecal bulb globose (Fig. 184) ............. 10

9 (8) Post-spiracular black spot usually present on each abdominal
sternite and usually larger than adjacent spiracle; if lacking or
smaller than spiracle, then each humeral angle usually angulate
(eastern U.S.) .................. custator accerra McAtee (part)
- Post-spiracular area of each abdominal sternite immaculate, or if
black spot present, then it is usually smaller than adjacent
spiracle; each humeral angle rounded, never angulate (western
U.S.) ........................................ pallidovirens (Stål)

10 (8) 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. 185); posterolateral angle of each abdominal
sternite usually immaculate; apex of each paramere nearly spinose
in medial view (Fig. 172) (southwestern U.S.; northwestern
Mexico) .......................... planifrons Ruckes
- Ostiolar canal acuminate apically; posterolateral angle of each
abdominal sternite piceous, sometimes only minutely so; apex of
each paramere narrowly rounded in medial view (Fig. 188)
(southern Texas; Mexico; Central America) . . maculata (Fabricius)

12(10) Each paramere in medial view with apex straight or bending
slightly ventrad (Fig. 334); concave surface oriented more mediad
than dorsad; posteromesial angles of basal plates distinctly
excavated, resulting concavity broadly U-shaped (Fig. 344)
(Trinidad and Tobago; Venezuela) .......... vadosa new species
- 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. 219);
spermathecal duct with relatively small amount of swelling and
coiling below proximal flange (Fig. 230) (Greater Antilles) ..... obsoleta (Dallas)
- Apex of each paramere spinose in ectal view (Fig. 234);
spermathecal duct with large amount of swelling and coiling below
proximal flange, swelling carrot-shaped (Fig. 245) (Lesser
Antilles; northern South America) ........... testacea (Dallas)
Key to South American species of *Thyanta*

1. Juga distinctly longer than tylus (Fig. 2); superior surface of each tibia asulcate; segment two of each antenna much longer than segment three (subgenus *Phacidium* Breddin) (southern South America) .......................... aeruginosa Berg
   - Juga and tylus subequal in length; superior surface of each tibia sulcate; segment two of each antenna at most only slightly longer than segment three (subgenus *Thyanta* Stål) ..................... 2

2. (1) Posterior termination of each buccula roundly truncate (Fig. 3); in dorsal view, anterolateral margins of pronotum slightly convex (Fig. 426); (Peru) .................. convexa new species
   - Posterior termination of each buccula evanescent (Fig. 276); in dorsal view, anterolateral margins of pronotum straight to concave ............................................. 3

3. (2) Scutellum with medial longitudinal band calloused, pale, usually continuing onto pronotum (Fig. 419); hemelytral membrane with vague fuscous band from distal end of scutellum to apex (Galapagos Islands, Ecuador) .................. similis Van Duzee
   - Scutellum uncalloused, occasionally a thin medial line present on pronotum; hemelytral membrane not marked as above .............. 4

4. (3) Inner basal angle of each hemelytral membrane fuscous (Fig. 399) (Ecuador) .......................... infuscata new species
   - Inner basal angle of each hemelytral membrane hyaline, although membrane may have distal brown flecks ......................... 5
5 (4) Dorsal punctation coarse, sparse, surface glossy, shiny; posteroventral surface of pygophore produced into blunt chin-like protuberance .................................................. 6
- Dorsal punctation minute, dense, surface appearing matte; posteroventral surface of pygophore variable, but not produced into blunt chin-like protuberance ................................. 30

6 (5) Each humeral angle nearly spinose, produced beyond base of adjacent corium by more than width of eye (Fig. 414); exocorium stramineous (Colombia) ............................. straminea new species
- Each humeral angle rounded to angulate but not spinose, protruding beyond base of adjacent corium by less than width of eye; exocorium concolorous with rest of hemelytra .................. 7

7 (6) Males ........................................................................ 8
- Females ........................................................................ 18

8 (7) In ectal view, each paramere armed laterally with either spinose or acutely triangular lateral lobe (Figs. 264, 280) ............. 9
- Each paramere unarmed laterally ..................................... 10

9 (8) In ectal view, lateral lobe of each paramere triangular (Fig. 280); in medial view, apex of each paramere curving dorsad and caudad forming distinct hook (Fig. 279) (Colombia; Peru) .........
................................................................. hamulata new species
- Lateral lobe of each paramere in ectal view spinose (Fig. 264); in medial view, apex of each paramere curving gently dorsad, but not forming hook (Fig. 263) (southern South America) .................
................................................................. acuminata Ruckes

10 (8) Occurring north of the equator ................................. 11
- Occurring south of the equator ................................. 15

11(10) In medial view, apex of each paramere rounded, angled dorsad nearly 60 degrees from longitudinal axis of head of paramere (Fig. 349) (Venezuela) .................. curvata new species
- In medial view, apex of each paramere variable, but if rounded, then not angled dorsad beyond 45 degrees from longitudinal axis of head of paramere ................................. 12

12(11) Posterior margin of pygophore in caudal view broadly and sinuously V-shaped (Fig. 364) (Colombia) .... sinuata new species
- Posterior margin of pygophore in caudal view broadly U-shaped .......................................................... 13

13(12) In ectal view, apex of each paramere obtusely rounded (Fig. 373) (Colombia; Venezuela) .................. obtusa new species
- In ectal view, apex of each paramere narrowly rounded to spinose .......................................................... 14

14(13) Each paramere in medial view with apex straight or bending slightly ventrad (Fig. 334), concave surface oriented more mediad than dorsad (Trinidad and Tobago; Venezuela) ................
.......................................................... vadosa new species
- Each paramere in medial view with apex curving gently dorsad (Fig. 233), concave surface oriented more dorsad than mediad (Lesser Antilles; northern South America) ..... testacea (Dallas)

15(10) Lateral wall of genital cup with elongate black carina; roughened spiculate area on lateral surface of each paramere linear, elongate (Fig. 296) (Peru; Bolivia) .... boliviensis new species
- Lateral wall of genital cup with black tubercle; roughened spiculate area on lateral surface of each paramere circular, localized ................................................................. 16

16(15) In medial view, apex of each paramere spinose; lacking obtuse protuberance on shaft of paramere (Fig. 248) (central and southern South America) ............................... patruelis Stål
- In medial view, apex of each paramere rounded, presence of obtuse protuberance on shaft of paramere variable, but if apex of paramere nearly spinose then protuberance prominent .............. 17

17(16) In medial view, apex of each paramere narrowly rounded; shaft of each paramere with prominent obtuse protuberance (Fig. 309) (central and southern South America) ................................. brasiliensis Jensen-Haarup
- In medial view, apex of each paramere broadly rounded; shaft of each paramere lacking protuberance (Fig. 386) (coastal desert from southern Ecuador to northern Chile) ... xerotica new species

18 (7) Posteromesial angle of each basal plate deeply and distinctly excavated ................................................................. 19
- Posteromesial angle of each basal plate rounded or only slightly emarginate ................................................................. 21

19(18) Concavity resulting from excavations of basal plates with sides distinctly divergent (Fig. 344) (Trinidad and Tobago; Venezuela) ................................................................. vadosa new species
- Concavity resulting from excavations of basal plates with sides subparallel or slightly convergent ................................. 20
20(19) Concavity resulting from excavations of basal plates longer than wide (Fig. 324); surface of basal plates distinctly rugose; distal end of sclerotized rod nearly linear, gradually becoming narrower toward apex (Fig. 325) (Peru) ... *emarginata* new species

- Concavity resulting from excavations of basal plates wider than long (Fig. 329); surface of basal plates weakly rugose, distal end of sclerotized rod swollen subapically, narrowed apically (Fig. 330) (Colombia; Venezuela) ........... *excavata* new species

21(18) Distal end of sclerotized rod nearly linear, gradually becoming narrower towards apex ........................................... 22

- Distal end of sclerotized rod swollen subapically, narrowed apically ............................................................. 24

22(21) Dilation of spermatheca constricted in middle, appearing double (Fig. 290) (Colombia; Peru) .......... *hamulata* new species

- Dilation of spermatheca not constricted in middle, appearing single .......................................................... 23

23(22) Dilation of spermatheca abruptly narrowed for apical third, ending near apex of sclerotized rod (Fig. 320) (central and southern South America) .............. *brasiliensis* Jensen-Haarup

- Dilation of spermatheca not narrowed apically, reaching about three-fourths distance from base to apex of sclerotized rod (Fig. 305) (Peru; Bolivia) ............... *boliviensis* new species

24(21) Occurring north of equator ................................................. 25

- Occurring south of equator ................................................. 28
25(24) Spermathecal duct with large amount of swelling and coiling below proximal flange, swelling carrot-shaped (Fig. 245) (Lesser Antilles; northern South America) .......... testacea Dallas
- Spermathecal duct with relatively small amount of swelling and coiling below proximal flange, swelling not carrot-shaped .... 26

26(25) Usually with two oblong reddish transhumeral spots, one on each side of middle (Colombia; Venezuela) .......... curvata new species
- Dorsal surface lacking all reddish or black markings .......... 27

27(26) Jugal margins subparallel for middle third of distance from eyes to apex of head (Fig. 371) (Colombia; Venezuela) .................
................................................................. obtusa new species
- Jugal margins sinuous, not parallel (Fig. 363) (Colombia) ....
................................................................. sinuata new species

28(24) Spermathecal duct with large amount of swelling and coiling below proximal flange, swelling carrot-shaped (Fig. 260) (southern Peru and central Brazil south to Argentina) .......... patruelis Stål
- Spermathecal duct with relatively small amount of swelling and coiling below proximal flange, swelling not carrot-shaped .... 29

29(28) Coastal desert from southern Ecuador to northern Chile ........
................................................................. xerotica new species
- Bolivia; Paraguay; Argentina ......................... acuminata Ruckes

30(5) Pygophoral opening subtended by a semicircular impression;
posterior margin of pygophore produced posterodorsad medially, with medial slit (Figs. 87, 88); each paramere F-shaped, obtuse protuberance on shaft usually prominent (Fig. 81); distal end of
sclerotized rod cone-shaped (Fig. 92); spermathecal bulb digitiform (Fig. 93) .................................................. 31
- Posteroventral surface of pygophore arcuately rounded or deeply sulcate; posterior margin of pygophore not produced medially (Fig. 449), lacking medial slit; each paramere robust, not F-shaped (Fig. 443); distal end of sclerotized rod swollen subapically, narrowed apically (Fig. 454); spermathecal bulb globose (Fig. 455) ............................................. 33

31(30) Anterolateral margins of pronotum in dorsal view strongly denticulate for anterior three-fourths (Fig. 154); lateral margins of body often pink; post-spiracular black spots usually lacking (Chile) ....................... rubicunda new species
- Anterolateral margins of pronotum in dorsal view with at most a few weak denticles on anterior half; lateral margins of body not pink; post-spiracular black spots usually present ............. 32

32(31) Spine of each humeral angle protruding beyond base of adjacent corium by half width of eye or less (Fig. 138) (Galapagos Islands, Ecuador) ................................. setigera Ruckes
- Spine of each humeral angle protruding beyond base of adjacent corium by more than half width of eye (Fig. 79) (southern U.S. to northern Argentina) ............................ perditor Fabricius

33(30) Each humeral angle rounded (Figs. 441, 456) ...................... 34
- Each humeral angle angulate, usually spinose ..................... 35

34(33) Pronotum with irregular transhumeral pale callous (Fig. 441); posteroverentral surface of pygophore sulcate; posterior margin of pygophore with fringe of long hairs; spermathecal duct swollen
into distinct cylindrical structure below proximal flange (Fig. 455) (southern South America) ............ fimbriata new species

- Pronotum not calloused; posteroventral surface of pygophore glabrous; spermathecal duct below proximal flange swollen and coiled, but not forming distinct cylindrical structure (Fig. 470) (Chile; western Argentina) .................. juvenca Stål

35(33) Each humeral angle distinctly spinose, produced beyond base of adjacent corium by width of eye or more ................. 36

- Each humeral angle angulate but not distinctly spinose, produced beyond base of adjacent corium by less than width of eye (Fig. 471) (Brazil; Argentina) ................ acutangula Jensen-Haarup

36(35) Each humeral angle rather robust, directed anterolaterad (Fig. 486); in ventral and dorsal views, posterolateral angles of pygophore appearing double-cone-shaped (Figs. 495, 496) (southern Brazil) .................................................. robusta new species

- Each humeral angle smaller, directed laterad and only slightly anterad (Figs. 501, 516); in ventral and dorsal views, pygophore not double-cone-shaped (Figs. 510, 511, 525, 526) ............ 37

37(36) Apex of head broadly rounded (Fig. 502); pygophore in lateral view sinuously convex (Fig. 512); in caudal view, posterior margin broadly U-shaped (Fig. 509) (southern South America) .................................................. acuta Ruckes

- Apex of head narrowly rounded (Fig. 517); pygophore in lateral view concave (Fig. 527); in caudal view, posterior margin broadly V-shaped (Fig. 524) (Venezuela; Bolivia; Brazil) ............

.................................................. cornuta Ruckes
Subgenus Phacidium Breddin
Phacidium Breddin, 1912:92; Rolston and McDonald, 1984:83-84 (syn. with Thyanta).

Type species. Phacidium euchlorum Breddin, 1912 (by monotypy).

Diagnosis. Posterior termination of each buccula roundly truncate (Fig. 3). Anterolateral margins of pronotum weakly carinate. Superior surface of each tibia asulcate. Spermathecal bulb globose, cylindrical structure present just below proximal flange (Fig. 15), distal end of sclerotized rod slightly swollen (Fig. 14).

Comments. This subgenus contains a single species, Thyanta aeruginosa Berg. The characters listed above will easily separate this distinctive species from all other congeners.

Rolston and McDonald (1984) examined the types of Phacidium euchlorum Breddin and concluded that it was a junior synonym of Thyanta aeruginosa, and thus Phacidium was a junior synonym of Thyanta. The present study verifies this conclusion, but T. aeruginosa itself is rather aberrant within Thyanta, deserving subgeneric status.

Thyanta (Phacidium) aeruginosa Berg
Figs. 1-16, Map 10
Thyanta aeruginosa Berg, 1878:24; Lethierry and Severin, 1893:147; Kirkaldy, 1909:94; Rolston and McDonald, 1984:83-84.
**Diagnosis.** General form ovate, distinctly convex; dorsal punctation minute, dense, dorsal surface appearing matte.

Head distinctly declivitous; juga clearly longer than tylus, jugal margins nearly parallel for middle third of distance from eyes to apex (Fig. 2). Segment 2 of each antenna nearly twice as long as segment 3. Anterolateral margins of pronotum weakly carinate, straight to slightly concave from dorsal view; each humeral angle rounded, at most protruding slightly beyond base of adjacent corium (Fig. 1); pronotal cicatrices immaculate. Corium with a few interstellate pale points; hemelytral membrane hyaline, lacking brown flecks. Connexivum and abdominal venter lacking all black markings. Ostiolar canal acuminate apically. Superior surface of each tibia asulcate.

Mesial margins of basal plates in caudoventral view straight to slightly convex; posterior margins nearly straight; posteromesial angles rounded (Fig. 16). Spermathecal bulb globose; spermathecal duct forming cylindrical structure below proximal flange (Fig. 15); sclerotized rod slightly swollen subapically, narrowed apically (Fig. 14).

Posteroventral surface of pygophore arcuately rounded; posterior margin of pygophore sinuously U-shaped in caudal view (Fig. 4); slightly convex in lateral view (Fig. 7); posterolateral angles prominent in ventral and dorsal views (Figs. 5, 6). Apex of each paramere spinose, curving gently medially from ectal view (Fig. 13); ectal surface convex, lacking dorsomedial concave surface (Fig. 11); roughened, spiculate area on lateral surface of paramere elongate, linear (Fig. 12). Aedeagus with each lateral conjunctival lobe somewhat reduced, apex of median penal lobes easily visible from lateral view (Fig. 10); penisfilum well-
Figs. 1-16. *T. aeruginosa*. Fig. 1. Habitus. Fig. 2. Head. Fig. 3. Buccula, lateral view. Figs. 4-7. Pygophore. Fig. 4. Caudal view. Fig. 5. Ventral view. Fig. 6. Dorsal view. Fig. 7. Lateral view. Figs. 8-10. Theca and related structures. Fig. 8. Ventral view. Fig. 9. Dorsal view. Fig. 10. Lateral view. Figs. 11-13. Right paramere. Fig. 11. Medial view. Fig. 12. Ectal view. Fig. 13. Lateral view. Fig. 14. Spermatheca. Fig. 15. Spermathecal pump. Fig. 16. Genital plates, caudoventral view.

Symbols: bp, basal plate; cyl, cylindrical structure below proximal flange; dfl, distal flange; dsp, dilation of spermatheca; gx2, second gonacoxa; jug, juga; lcl, lateral conjunctival lobe; mpl, median penal lobe; pen, penisfilum; pfl, proximal flange; pla, posterolateral angle of pygophore; pmp, posterior margin of pygophore; ptb, posterior termination of buccula; 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.
developed (Fig. 8); theca lacking dorsolateral protuberances near caudal limit (Fig. 9).

**Types.** *Thyanta aeruginosa* was described from at least one male and one female specimen from Buenos Aires and Mendoza, Argentina (Berg 1878). The syntypes were not examined due to the possible risk involved in sending them through the postal service from South America. Two homotype specimens designated by the late H. Ruckes were examined. The homotypes are housed in the U.S. National Museum of Natural History (Washington, D.C.). The syntypes are conserved in the Universidad Nacional de La Plata (Argentina).

Breddin (1912) described *Phacidium euchlorum* from one female and two male specimens without designating a holotype or paratypes. Rolston and McDonald (1984) synonymized this species with *T. aeruginosa* and designated a lectotype and paralectotypes. The type specimens, which are housed in the Université Louis Pasteur, Strasbourg, France, were examined.

**Distribution.** Southern South America (Map 10).

**Specimens Examined.** 117 specimens collected between 24 September and 25 June; deposited in AMNH, BMNH, CAS, CU, DAR, LHR, MBR, MLP, SMEK, UNL, USNM. PARAGUAY: Gran Chaco, 260km W Paraguay R. ARGENTINA: Ibarra Grasso. **Buenos Aires:** Buenos Aires; Punta Lara; Sta de la Ventana; Tigre. **Catamarca:** Resistencia. **Córdoba:** Ao. Tegua; Córdoba. **Corrientes:** Concepción. **Formosa:** Gran Guardia. **Jujuy:** Jujuy. **La Rioja:** 20km N La Rioja. **Mendoza:** Mendoza; Potrerillos; Sn Martin. **Neuquén:** Barrancas. **Río Negro:** General Fernandez Oro. **Sn Juan:** Sn Juan; 51mi N Sn Juan. **Sn Luis:** Buena-Vista R. Batavia. **Sta Fe:**
Carcaraña; Montevideo; Villa Ana. **Santiago del Estero:** Chaco de Santiago; Rio Salado. **Tucumán:** S. Miguel de Tucumán. URUGUAY: **Colonia:** La Estanzuela. **Montevideo:** Montevideo. **S. José:** Sta Luzia.

**Comments.** *Thyanta aeruginosa* can be separated from all other congeners by the asulcate tibiae, the juga which are distinctly longer than the tylus, and the second antennal segment which is nearly twice as long as the third segment.

Subgenus *Thyanta* Stål


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

**Diagnosis.** Posterior termination of each buccula usually evanescent. Anterolateral pronotal margins distinctly carinate. Superior surface of each tibia sulcate. Distal end of sclerotized rod cone-shaped (Fig. 30) or slightly swollen subapically (Fig. 183) to straight apically (Fig. 290); spermathecal bulb digitiform or globose; cylindrical structure sometimes present below proximal flange (Fig. 31).

**Comments.** This subgenus contains the remaining species of *Thyanta*. It can, however, be divided easily into four species groups: *convexa* species group, *juvenca* species group, *maculata* species group, and
perditor species group. These groups are based primarily on differences and similarities in the structure of the male and female genitalia.

**Perditor species group**

**Diagnosis.** Punctures minute, dense, dorsal surface matte.

Anterolateral margins of pronotum straight to concave, yellow to green, sometimes marked with piceous; each humeral angle rounded to angulate, often spinose; each pronotal cicatrice sometimes marked with piceous in mesial angle. Posterior termination of each buccula evanescent.

Ostiolar canal acuminate apically. Posterior margin of basal plates sinuous, posteromesial angles entire (Fig. 29). Distal end of sclerotized rod cone-shaped (Fig. 30); spermathecal bulb digitiform; cylindrical structure located below proximal flange (Fig. 31).

Pygophoral opening relatively small, subtended on posterovertral surface by either a rectangular or a semicircular impression. Each paramere F-shaped, obtuse protuberance on shaft prominent (reduced in T. rubicunda n. sp.), apex spinose, ectal surface convex, lacking dorsomedial concave surface (Fig. 19), roughened spiculate area on lateral surface linear (Fig. 21). Each lateral conjunctival lobe of aedeagus with single spinose diverticulum (Fig. 22); dorsomedial conjunctival lobe present and usually well-developed (Fig. 23); theca large, subtriangular from lateral view, with dorsolateral protuberance on each side near caudal limit (Fig. 24); median penal lobes and penisfilum moderate in size.

**Comments.** This species group is distinct and may deserve subgeneric status. The structure of the male and female genitalia is constant within the group and is quite distinct from the rest of the
species in the genus. No other species have the distal end of the
sclerotized rod cone-shaped, the spermathecal bulb digitiform, or the
theca subtriangular with dorsolateral protuberances.

This species group consists of 9 species and 1 subspecies: Thyanta
calceata (Say), T. cubensis Barber & Bruner, T. custator custator (F.),
T. custator accerra McAtee, T. pallidovirens (Stål), T. perditor (F.),
T. rubicunda new species, T. serratulata Ruckes, T. setigera Ruckes, and
T. spectabilis Ruckes.

Thyanta (Thyanta) calceata (Say)
Figs. 17-31, 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.

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

Jugal margins nearly parallel for middle third of distance from
eyes to apex (Fig. 18). Each humeral angle rounded to angulate;
Figs. 17-31. *T. calceata*. Fig. 17. Habitus. Fig. 18. Head. Figs. 19-21. Right Paramere. Fig. 19. Medial view. Fig. 20. Ectal view. Fig. 21. Lateral view. Figs. 22-24. Theca and related structures. Fig. 22. Ventral view. Fig. 23. Dorsal view. Fig. 24. Lateral view. Figs. 25-28. Pygophore. Fig. 25. Caudal view. Fig. 26. Ventral view. Fig. 27. Dorsal view. Fig. 28. Lateral view. Fig. 29. Genital plates, caudoventral view. Fig. 30. Spermatheca. Fig. 31. Spermathecal pump. Symbols: bp, basal plate; cyl, cylindrical structure below proximal flange; dfl, distal flange; dmc, dorsomedial conjunctival lobe; dsp, dilation of spermatheca; gx2, second gonacoxa; jug, juga; lcl, lateral conjunctival lobe; mpl, median penal 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.
anterolateral pronotal margins piceous, straight to weakly concave in dorsal view (Fig. 17); mesial angle of each pronotal cicatrice piceous. Each abdominal sternite with post-spiracular spot and each posterolateral angle piceous.

Mesial margins of basal plates in caudoventral view slightly concave; posterior margins sinuous; posteromesial angles rounded (Fig. 29). Posterolateral angles of pygophore continuing onto posteroventral surface as vague carinae, forming semicircular impression in caudoventral view. Posterior margin of pygophore produced posterodorsad, in ventral and dorsal views appearing convex with a small medial V-shaped emargination (Figs. 26, 27); slightly concave in lateral view (Fig. 28).

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 deemed necessary.


Specimens Examined. 1105 specimens collected during every month of the year; deposited in AMNH, ARH, AUA, CAS, CNC, CUC, DAR, DBT, EGER, FMNH, FS, INHS, ISU, LHR, LS, MS, MSUE, NCSR, NDSF, OSUC, POLH, PUL, SIUC, SMEK, TAMU, UART, UCB, UCR, UCS, UGA, UIM, UMC, USNM, VPI, WSU.

Talladega, Tallapoosa Natl For.  
Cleburne: 2mi S Heflin; Talladega Natl For, Chocq. WMA.  
Coosa: 5mi S Rockford.  
Covington: Blue Spgs Mon.  
Area.  
Dallas.  
De Kalb: Desoto St Pk.  
Elmore: Lightwood Comm.  
Houston: Baymore Grocery; 2mi S Columbia.  
Lee: Auburn; 3mi N Auburn; 0.3mi S Hwy 26, 0.1mi W Hwy 29.  
Lowndes: 5mi NE Braggs.  
Macon: 5.1mi E Shorter; Hwy 81, 1mi N Hwy 199; Hwy 81 at I-85.  
Madison: 8mi SE Huntsville.  
Perry: 5mi W Marion.  
Randolph: Tallapoosa R & Hwy 48.  
Shelby: 2mi SE Harpersville; Hwy 70, 1mi E Hwy 31; Hwy 280, 2mi SE Hwy 27.  
Tallapoosa: Alexander City; Dadeville; Smith Mtn Tower; Horseshoe Bend National Park; 4mi S Tallapoosa R.  
Wilcox: Canton Bend; Lower Coastal Plain Sub Stn.  
ARKANSAS: Barnes.  
Benton: Rogers.  
Boone: 1mi N Ohmaha.  
Carroll.  
Grant: 6mi E Prattsville.  
Hempstead: Hope.  
Hot Spg: Malvern.  
Logan: Magazine; Magazine Mtn; Paris.  
Marion: Bull Shoals.  
Nevada: Prescott.  
Newton: Jasper.  
Polk: S of Board Camp, R29W, T3S sec. 22.  
Sevier: De Queen.  
Union: Smackover.  
Yell: 8mi WNW Danville; 3mi W Havana; Waveland.  
CONNECTICUT: Litchfield: Twinn Lakes.  
New Haven: S Meridian.  
DISTRICT OF COLUMBIA: Rock Ck Pk; Washington; Woodridge.  
FLORIDA:  
Collier: Marco.  
Holmes: 2mi E Hwy 181, I-10.  
Taylor: 32mi SE Perry.  
GEORGIA: Head R; Sand Mtn; Sitton's Gulch.  
Bartow: Adairsville.  
Bibb: Macon.  
Bryan: Richmond Hill.  
Chatham: Savannah.  
Clarke: Athens; 4.5mi W Athens.  
Cobb: Kennesaw Mtn.  
De Kalb: Stone Mtn.  
Floyd: Armuchee.  
Franklin: V. Brant St Pk.  
Fulton: Alpharetta; Atlanta.  
Habersham: 3.6mi SE Batesville.  
Hall: Hwy 52, 4.9mi NW Hwy 23.  
Harris: Hamilton.  
Johnson: Kite.  
Madison: 2.2mi NW Hull.  
Marion: Buena Vista, Cook's Lake.  
Oconee: Durham Farm.  
Oglethorpe: Echols Mill.  
Paulding: Dallas.
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 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 tend to be darker and more extensive in *T. calceata*. These last two characters, however, may be apparent only when a series of specimens can be compared.

*Thyanta (Thyanta) custator custator* (Fabricius)

Figs. 32-46, 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.
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.

Jugal margins sinuous, not parallel (Fig. 33). Anterolateral margins of pronotum and mesial angle of each pronotal cicatrice piceous. Anterolateral pronotal margins slightly concave in dorsal view; each humeral angle rounded to angulate, never spinose (Fig. 32). Ventral surface yellow-green to brown, posterolateral angle of each abdominal sternite black. Each abdominal sternite with post-spiracular black spot on each side.

Mesial margins of basal plates in caudoventral view nearly straight; posterior margins sinuous; posteromesial angle narrowly rounded (Fig. 44). 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. 41, 42); pygophore slightly concave in lateral view (Fig. 43).

**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 or T. calceata equally well. Previous usage, however,
Figs. 32-46. *T. custator custator*. Fig. 32. Habitus. Fig. 33. Head.
Figs. 34-36. Right Paramere. Fig. 34. Medial view. Fig. 35.
Ectal view. Fig. 36. Lateral view. Figs. 37-39. Theca and
related structures. Fig. 37. Ventral view. Fig. 38. Dorsal view.
Fig. 39. Lateral view. Figs. 40-43. Pygophore. Fig. 40. Caudal
view. Fig. 41. Ventral view. Fig. 42. Dorsal view. Fig. 43.
Lateral view. Fig. 44. Genital Plates, caudoventral view. Fig.
45. Spermatheca. Fig. 46. Spermathecal pump.
has fixed both species, and therefore the designation of a neotype is not deemed necessary.

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

Expt Stn. **Jefferson**: Grand Isle St Pk. **Livingston**: Denham Spgs.

**Orleans**: New Orleans City Pk. **St. Charles**: Harahan. **St. James**: **St. Mary**: Franklin. **St. Tammany**: Abita Spgs; Hwy 36, SE of Abita Spgs; Folsom; Goodbee; 4mi N Mandeville; Pearl R; Tchefuncte Ck at Hwy 190; Hwy 437 S LA 1081. **Tangipahoa**: Ponchatoula; Robert; I-55, 1mi S Hwy 1048. **Washington**: Lee Mem. For, Sheridan. **W. Baton Rouge**: Erwinville; Hwy 415 at I-10. **MISSISSIPPI**: **Covington**. **Forrest**: Ashe Nursery nr Maxie. **Hancock**: Sta Rosa; 2mi N Waveland, Bayou La Croix; I-10 at Hwy 607. **Harrison**: Gulfport; W side Pass Christian; I-10, 5.2mi E Wolf R. **Jackson**: Ocean Spgs; St. Andrews Isl. **Jeff Davis**: **Pike**: I-55, 1.5mi S Hwy 98. **NEW JERSEY**: Anglesea; Lahaway. **Burlington**: Brown’s Mills; New Lisbon. **Cape May**: Sea Isle City. **Monmouth**: Sandy Hook. **Ocean**: Lakehurst; Pt Pleasant; Tuckerton. **NEW YORK**: Northwest, Long Isl; Rockaway Bch, Long Isl. **Suffolk**: Coram, Long Isl; Sag Harbor, Long Isl; Smith’s Pt Fire Isl Bch; Wading R, Long Isl; Yaphank, Long Isl. **NORTH CAROLINA**: Long Ck. **Bladen**: Council; White Lk. **Brunswick**: Leland; Smith’s Isl; Southport. **Columbus**: Chadbourn. **Duplin**: Coastal Plain Veg. Res Stn, Faison. **Hyde**: Ocracoke. **Moore**: Southern Pines. New **Hanover**: Carolina Bch; Wilmington. **Onslow**: New R. **Pender**: Burgaw; Holly Shelter; Rocky Pt. **SOUTH CAROLINA**: Meredith. **Aiken**: Aiken; White Pd. **Bamburg**: Denmark. **Barnwell**: Blackville; Edisto Isl. **Beaufort**: Beaufort; Hunting Isl St Pk. **Charleston**: McClellanville; Mt Pleasant. **Florence**: Florence. **Greenville**: Greenville. **Horry**: Myrtle Bch; Surfside. **Jasper**: Ridgeland. **Kershaw**: Bethune. **Marion**: Orangeburg; Holly Hill. **Richland**: Columbia. **VIRGINIA**: Norfolk: Norfolk.

**BAHAMA ISLANDS**: South Bimini Isl.
Comments. This species has been the subject of much confusion in the past. At one time the name 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, in nature, 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, and specimens taken from outside the range of overlap are usually easily identified. It is believed that these two forms are more correctly considered subspecies.

_Thyanta c. custator_ and _T. calceata_ are the only two species in the genus with the anterolateral margins of the pronotum distinctly black. These two species can be separated reliably 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. 47-63, 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, 1911:232–233; 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 perditor (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.


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.

Jugal margins sinuous, not parallel (Fig. 49). Each humeral angle rounded to angulate (spinose in desert areas of southwestern United States and Mexico); anterolateral margins of pronotum straight to concave in dorsal view (Figs. 47, 48), stramineous to green, sometimes reddish, but never piceous; pronotal cicatrices immaculate. Each abdominal sternite with post-spiracular black spot present (eastern U.S.) or lacking (western U.S.). Posterolateral angle of each abdominal sternite immaculate or minutely marked with piceous.

Mesial margins of basal plates in caudoventral view slightly concave; posterior margins sinuous; posteromesial angle rounded (Fig. 61). Each posterolateral angle of pygophore continuing onto posteroventral surface of pygophore as vague carina, forming rectangular impression; mesial portion of posterior margin of pygophore convex with slight mesial emargination in ventral and dorsal views (Figs. 58, 59); pygophore only slightly concave in lateral view (Fig. 60).

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 are housed in the U.S. National Museum of Natural History (Washington, D.C.).
Figs. 47-63. *T. custator accerra*. Fig. 47. Habitus. Fig. 48. Humeral angle, spinose form. Fig. 49. Head. Figs. 50-52. Right paramere. Fig. 50. Medial view. Fig. 51. Ectal view. Fig. 52. Lateral view. Figs. 53-56. Theca and related structures. Fig. 53. Ventral view. Fig. 54. Dorsal view. Fig. 55. Lateral view. Fig. 56. Caudal view. Figs. 57-60. Pygophore. Fig. 57. Caudal view. Fig. 58. Ventral view. Fig. 59. Dorsal view. Fig. 60. Lateral view. Fig. 61. Genital plates, caudoventral view. Fig. 62. Spermatheca. Fig. 63. Spermathecal pump.
Ruckes (1957a) described *T. pallidovirens spinosa* from 75 male and 51 female specimens. The holotype 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.** 8677 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, NCSR, NDSF, NMSU, OSUC, POLH, PUL, SIUC, SMEK, TAMU, UAT, UCB, UCR, UCS, UGA, UIM, UMAA, UMC, UNAM, UNL, USNM, UUSL, VPI, WSU. UNITED STATES: ALABAMA: Barachias. Chambers. Dallas: Selma. De Kalb: Crossville. Elmore: Lightwood Comm. Greene. Henry: Haleburg. Jefferson: Bessemer; Birmingham. Lee: Auburn; 1mi W Auburn; 4mi N Auburn. Macon: 5.1mi E Shorter; Tuskeegee; I-85 at Hwy 81. Madison: Gurley; Huntsville. Montgomery: Montgomery. Morgan: Decatur. St. Clair: Chandler Mtn. Tallapoosa: Dadeville. ARIZONA: Arcadia; 2mi E Big Lk; Bill Williams Fk; Capitan Mtn; Canon Lk; Faraway Rch; Twin Pks; Walnut. Apache: Ganado; Springerville; White Mtns. Cochise: 5mi SE Apache; Benson; 18mi W Bisbee; Bowie; Chiricahua Mtns; Douglas; 3mi N Douglas; 5mi E Douglas; 10mi NW Douglas; 13mi E Douglas; Dragoon Mtns; Guadalupe Mtns; Herb Martyr Dam; Huachuca Mtns; 8mi NE Montezuma Pass; 4mi E Palominas; Paradise; 6mi SE Parker Cyn Lk; Pearce; Peloncillo Mtns; Portal; 1mi E Portal; 1mi N Portal; 1mi S Portal; 1mi SW Portal; 1.7mi W Portal; 2mi E Portal; 2mi NE Portal; 6mi W Portal; Sn Pedro R, Fairbank; 10mi E Sierra Vista; SW Res Stn; St. David; Tombstone; Whetstone Mtns; Wilcox; 2mi SE.
Wilcox; 11.4mi ESE Wilcox; Hwy 82 at Hwy 90. Cococino: 24mi W Cameron; Flagstaff; 17mi NW Flagstaff; 18mi N Flagstaff; 20mi N Flagstaff; Grand Cyn; Oak Ck Cyn; Sn Francisco Mtns; Sedona; 10mi N Sedona; Tuba City; Williams. Gila: Carrizo Ck at Hwy 60; Globe; 3mi N Kohls Rnch, Horton Ck; Mescal Mtns; Pinal Mtns; Pine; Pioneer Pass; Sra. Ancha Mtns.

Graham: Arivaipa; Ft Thomas; Geronimo; Graham Mtns; Safford; Sn Jose; Solomon; Thatcher. Greenlee: 17mi SW Alpine; Duncan. Maricopa: Agua Caliente; Apache Lk; 12mi W Roosevelt; 1.6mi SE Barnes Butte; Buckeye; 3.5mi S Cave Ck; Gila Bend; 13mi S Gila Bend; 28mi S Gila Bend; 10mi NE Hyder; Mesa; Phoenix; 1mi W Roosevelt; Sentinel; Sun City; Sunflower; 3mi S Sunflower; Tempe; 1mi S Tempe; Wickenburg; 3mi SW Wickenburg; 3mi E Wintersburg; 10mi S Wittman. Mohave: Bullhead City; Lk Havasu; Hualapai Mtns; Kingman; 22mi E Kingman; Wickieup; 16mi N Wickieup; 24mi SE Wickieup. Navajo: 4mi SW Forestdale; Holbrook; Joseph City; Show Low; 3mi NWW Show Low; 30mi SW Show Low; Taylor; Winslow. Pima: Ajo; Ajo Mtns; Arivaca; Catalina St Pk; Continental; 6mi SE Continental; 4mi E Florence Jct; 7mi S Kofa Mtns; Madera Cyn; Organ Pipe Natl Mon; 8mi SE Quijotoa; Rincon Mtns; Saguaro Natl Mon; Sta Catalina Mtns; Sta Rita Mtns; 5mi NW Sells; Sierrita Mtns; Tucson; 16mi SE Tucson; 25mi E Tucson. Pinal: Apache Jct; Casa Grande; 24mi W Casa Grande; Eloy; Florence; 6mi S Florence; 3mi W Magna; Maricopa; Oracle; 14mi E Oracle; Picacho; Picacho Pks St Pk; Sacaton; Superior; 7mi W Superior; 9mi W Superior. Sta Cruz: Amado; 10mi SE Amado; Atascosa Mtn; Baboquivari Mtns; Madera Cyn; Nogales; 1mi W Nogales; 14mi E Nogales; 20mi N Nogales; Pajarita Mtns; Patagonia; Patagonia Mtns; Pena Blanca; Pena Blanca Lk; 1mi W Pena Blanca Lk; Sonoita; Sycamore Cyn; Tumacacori Mtns.
Yavapai: Ash Pk; Bradshaw Mtn; Cherry; Cococino Natl For; Congress; Cottonwood; Dewey; Heslampa Dist; 12mi S Jerome; Kirkland; Prescott; 10mi S Prescott; 12mi SW Sedona; Stehr Lk nr Childs. Yuma: 15mi N Dome; Ehrenberg; Hyder; Martinez Lk; Parker; Poston; 4mi W Salome; Wellton; Wenden; Yuma. ARKANSAS: Benton: Siloam Spgs. Boone: 1mi N Ohmaha. Conway. Craighead: Jonesboro; 3mi E Jonesboro. Faulkner: Conway. Garland: Hot Spgs Natl Pk; 5mi W Hot Spgs Natl Pk. Hempstead: Hope. Hot Spg: Malvern. Howard. Lawrence: Imboden. Lincoln: Gould. Little Rock: Magazine; Paris. Mississippi: Osceola. Montgomery: Mt Ida. Newton: Jasper. Pike. Polk. Pulaski: L Rock. Washington: Prairie Gr. Yell: 3mi W Havana; Waveland. CALIFORNIA: Carson Pass; Mandeville Cyn; Pine Flats Cp; Saltdale. Imperial: Algodones Dunes; Bard; Brawley; Calexico; Glamis; 2mi N Glamis; 3mi NW Glamis; Holtville; Hot Mineral Spa; Imperial Vly Rec Area; In-Ko-Pah Pk; Lk Haughtelin; Ocotillo; 2mi S Palo Verde; 3mi S Palo Verde; Salton City; 5.4mi W Seeley; Travertine; Westmorland; 1mi W Westmorland; 5mi N Westmorland. Inyo: Big Pine; Bishop; China Rch; Death Vly; Homewood Cyn, 13.5mi N Trona; Independence; Inyo Mtns; Lone Pine; Olanchar; Panamint Mtns; 7mi NE Panamint Spgs. Kern: Bodfish; 3.4mi E, 2.4mi N Buttonwillow; Mojave; Rosamond. Los Angeles: Big Pines Rec Area; Big Tujunga Cyn; Claremont; La Puente; Mint Cyn, 11mi W Palmdale; Palmdale; Saddleback Butte; Valyermo; 2.5mi SSW Valyermo. Riverside: Banning; Blythe; 5mi NE Blythe; 5mi S Blythe; 9mi W Blythe; 10mi SE Blythe; 19.4mi W Blythe; Cathedral City; Chino Cyn nr Palm Spgs; Chuckwalla Mtns; Coachella Vly; Cohuilla Lk; Corn Spgs; Dead Indian Ck; Deep Cyn; Hemet Cyn; Hopkins Well; Indian Wells; Indio; 3mi W Indio; 6mi NW Indio;
20mi S Indio; Joshua Tree Natl Mon; 5mi E Midland; Palm Des; Palm Spgs; 3mi NW Palm Spgs; Ripley; Sn Jacinto Mtns; Thermal; Whitewater; Whitewater Cyn; Windy Pt, 3mi S Whitewater; Wister. Sn Bernardino: Baker; 9mi S Baker; 23mi SW Baker; Baldwin Lk; 6mi N Baldwin Lk; Barstow; 20mi E Barstow; 11mi N Cajon Pass; Crestline; Daggett; Death Vly Natl Mon; 9mi SE Essex; 12mi SE Ivanpah; 25mi S Ivanpah; 2mi S Kelso; 10mi SW Kelso; 3mi S Kramer Jct; Lk Arrowhead; 2mi W Lucerne Vly; 6mi W Ludlow; Morongo Vly; Needles; Newberry; Oro Grande; Parker Dam; Phelan; Providence Mtns; Sheephole Mtns; Twenty-nine Palms; 14mi E Twenty-nine Palms; 17.3mi W Twenty-nine Palms. Sn Diego: Anza Des; Anza-Borrego Spgs St Pk; 6mi E Banner; Borrego Spgs; Campo; Jacumba; 1mi W Lk Henshaw; Mtn Spgs; Ocotillo Wells; Pine Cyn; Sn Felipe Ck; Scissors Crossing; Warner Spgs; 6mi S Warner Spgs. Sta Barbara: Los Padres Natl For; Sn Miguel Isl; Sta Barbara; 8mi NE Sta Maria; Summerland. Ventura: Sn Nicolas Isl, Thousand Spgs. COLORADO: Cherry Ck St Pk; Deer Ck Cyn; Mt Morgan; Niederland; Poudre R Cyn; Turkey Ck Cyn. Boulder: Boulder; Boulder Cyn; Ward. Chaffee: Salida. Clear Ck: Idaho Spgs; I-75, 6mi E Hwy 6. Douglas: Waterton. El Paso: Colorado Spgs; Manitou Spgs. Jefferson: Chatfield St Pk; Denver. Gunnison: Crested Butte. Larimer: Ft Collins; Loveland. Las Animas: NE of Trinchera; 6mi E Branson. Lincoln: Limon. Logan: Peetz. Montezuma: Mesa Verde; Mesa Verde Natl Pk. Morgan. Otero: La Junta. Prowers: Lamar. Pueblo: Pueblo. Teller: Florissant, Big Spg Rch; S Base Blue Mtn, nr Florissant. Washington: Akron. Yuma: 21mi N, 3mi W Yuma. DELAWARE: Kent: Dover; Smyrna. DISTRICT OF COLUMBIA: Anacostia; Washington. FLORIDA: Haulover; St. Francis. Highlands: Lk Placid. GEORGIA: Bartow;
Cartersville. **Clarke**: Athens; 4.5mi W Athens; Horseshoe Bend; White Hall. **Crawford**: Dade; Rising Fawn. **Decatur**: Stone Mtn. **Fulton**: Alpharetta; Atlanta. **Habersham**: Cornelia. **Henry**: 5mi S Mt Panola. **Lamar**: Barnesville. **Macon**: Oglethorpe. **Madison**: Hull; 1mi NW Hull; 2.4mi NW Hull. **Morgan**: Rutledge. **Oconee**: Durham Farm. **Oglethorpe**: Arnoldsville. **Peach**: Ft Vly. **Spalding**: Talbot: Prattsburg. **Twiggs**: 5mi S Bullard. **Whitfield**: Wilkes: Washington. **Worth**: Beating. **HAWAII**: Honolulu: Oahu, Pearl Harbor. **ILLINOIS**: Bishop Hill; Fountain Bluff; Mayview; Sands; Wichert. **Adams**: Quincy. **Alexander**: Cairo; E Cape Girardeau; Thebes. **Casas**: Arenzville. **Champaign**: Champaign; Mahomet; Philo; Seymour; Univ Woods; Urbana. **Clay**: Clay City. **Coles**: Charleston. **Cook**: Chicago. **Cumberland**: Greenup. **Edgar**: Borton. **Effingham**: Watson. **Grundy**: Mazon. **Hancock**: Hamilton. **Hardin**: Cave-in Rock; Elizabethtown. **Henry**: Jackson: Carbondale; Gorham; Grd Tower; Murphysboro; 2mi E Sand Ridge. **Jo Daviess**: Apple R Cyn St Pk. **Johnson**: Goreville; Vienna; W Vienna. **Kankakee**: St. Anne. **Lk**: Fox Lk; Zion. **Macon**: Decatur. **Macoupin**: Carlinville; 3mi E Girard. **Madison**: Glen Carbon. **Marion**: Centralia. **Marshall**: Henry. **Mason**: Bath; Havana; Mason City; Topeka; W Havana. **Massac**: New Columbia. **McDonough**: Adair. **McHenry**: Algonquin. **Menard**: Athens; Petersburg. **Morgan**: Meredosia. **Ogle**: Oregon. **Peoria**: Peoria. **Piatt**: White Heath. **Pope**: Golconda; Lusk Ck. **Pulaski**: Pulaski. **St. Clair**: E St. Louis. **Scott**: Bluffs. **Union**: Anna; Bald Knob Cross; Cobden; Giant City St Pk; Jonesboro St Pk; Pine Hills; Ware. **Vermillion**: Muncie. **Wabash**: Lancaster. **Warren**: Roseville. **Washington**: Dubois; Nashville; Oakdale. **White**: Epworth. **Will**: **Williamson**: Carterville; Crab Orchard Lk; Devil's Kitchen Lk; L
Grassy Lk; Riddle Prop; Southern Acres. INDIANA: Mineral Spg. Cass:
0.5mi S Galveston. Clark: Henryville; St For. Dearborn: 1mi N Bright.
Ledges St Pk; Pilot Mound. Floyd: Charles City. Fremont: Shenandoah;
Lyon: Gitche Manitou St Pk. Monona: Lewis & Clark St Pk; Mapleton.
Polk: Des Moines. Story: Ames; 3mi SE Huxley; Sopers Mill Dam, 4mi E
Gilbert. Union: Afton. Woodbury: Moville; Sergeant Bluff; Sioux City.
Doniphan. Douglas: Baldwin City; Lawrence; 5mi S Lawrence; 9mi SW
Reno: 5mi SE Hutchison. Riley: Manhattan; L Gobi nr Manhattan. Rocks.
Oldham. Rowan. Scott: Georgetown. Trimble: Milton. LOUISIANA:
Acadia: Crowley; Crowley Rice Res Stn. Avonelles: Bunkie; Hamburg.
Bossier: Curtis. Caddo: Shreveport; Vivian. Calcasieu: Hayes; Lk
Evangeline. Franklin: Baskin. Grant: 6mi N Pollock. Iberville: 5mi S
Plaquemine; St. Gabriel Expt Stn. Jefferson Davis: Jennings; Raymond.
Livingston: Denham Spgs. Madison: Tallulah. Natchitoches:
Richland: Alto. St. Landry: Eunice; Lebeau; Opelousas; Rosa. Tenesas:
Erwinville; 2mi W Port Allen; Hwy 415 at I-10. MAINE: Oxford: Dixfield.
MARYLAND: Allegany: Cumberland. Anne Arundel: Annapolis. Baltimore:
Catonsville. Calvert: Chesapeake Bch; Plum Pt; Port Republic.
Frederick: Indian Spgs Rd. Montgomery: Seneca; Takoma Pk. Prince
Georges: Blandensburg; Coll Pk; Beltsville. Queen Anne: Bryantown.
Talbot: Easton. Washington: Hagerstown. MICHIGAN: Alicia; Alto; Bath;
Kibbie. Barry: Hastings; Orangeville; Yankee Spgs Game Area. Berrien:
Benton Harbor; Bridgeman; E.K. Warren Preserve; St. Joseph. Calhoun:
Livingston: E.S. George Preserve.  Mason: 7mi S Lnd.  Montcalm:
Grd Jct; S Haven.  Washtenaw: Ann Arbor; Manchester.  Wayne.  MINNESOTA:
Grant: Ashby.  St. Louis: Ely.  MISSISSIPPI: Bolivar: Benoit.  Clay:
Starkville.  Panola: 2mi NW Batesville; 9mi W Batesville; 1mi ESE Como;
3mi NW Courtland.  Pontotoc: 1mi SE Ecru; 2mi NW Randolph.  Warren:
Newton.  Yazoo: Yazoo City.  MISSOURI: Arthur; Burton; Muffitville;
Columbia; 5.5mi N Columbia; Grindstone Natl Area; Hartsburg; Huntsdale;
Calwood; Fulton; Holts Summit; Tucker Prairie.  Camden: Camdenton; Linn
Ck; Montreal; Richland.  Cape Girardeau: Cape Girardeau; Fruitland.
Chariton: Praire Hill; Rothville.  Clark: Gregory Landing.  Clay:
Booneville.  Crawford: Cuba; 2.5mi N Rosati; Steelville.  Dade:
Franklin: Robertsville; St. Clair.  Gasconade: Drake.  Gentry:
Jackson: Atherton; Grain Vly; Kansas City.  Jasper: Joplin.  Johnson:
Burlington: Marlton. Cape May: Ocean City; W Cape May; Wildwood.
Cumberland: Bridgeton. Gloucester: Glassboro. Salem: Elmer. NEW
MEXICO: Cottonwood Spgs; Friona; Organ Pipe; Sandin; Saratoga Spgs,
Whitewater Cyn, 4mi NE Glenwood. Chaves: Bottomless Lks StPk; 31mi W
Hope; 7mi NE Pinon; Roswell; 10mi W Roswell; Sunset, 34mi N Roswell.
Cibola: Bluewater. Colfax: 5mi E Eagle's Nest; Maxwell; Raton;
Springer. De Baca: Alamogordo Reservoir. Dona Ana: Garfield; Las
Cruces; 3mi E Las Cruces; 15mi N Las Cruces; 25mi E Las Cruces;
Mesquite; Organ; 4mi SW Organ; Organ Mtns; Pyramid Pk; Radius Hot Spgs;
Univ. Pk. Eddy: 8mi S Artesia; Carlsbad; 35mi SE Carlsbad; Guadalupe
Mtns; Pecos R at Hwy 31; Whites City; 6.5mi NE Whites City. Grant:
Bayard; Cherry Ck nr Pinos Altos; Faywood; 1mi SW Faywood; Gila Natl
For; Gila R at Hwy 15; Mangus Spgs, 11mi S Cliff; Pinos Altos; 6mi N Sn
Lorenzo; Hwy 15, 2mi N Hwy 180; Hwy 78, 3.4mi E AZ line. Guadalupe:
Cuervo; Sta Rosa; Vaughn. Hidalgo: Animas Mtns; Cienega Lk; Post Office
Cyn; Rodeo; 2mi N Rodeo; 18mi N Rodeo; 28mi N Rodeo; Skeleton Cyn.
Lincoln: Capitan; Ruidoso; 5mi N Ruidoso. Luna: Deming; 7mi NE Deming;
4.5mi NW Florida; Rockhound St Pk. McKinley: Gallup; 3mi N Prewitt.
Otero: Cloudcroft; 2mi S Cloudcroft; 2.3mi E Cloudcroft; 4mi E
Cloudcroft; 10mi W Cloudcroft; 31mi NE Las Cruces; 21mi SW Mayhill;
Oliver Lee Mem. St Pk; White Sands. Quay: Tucumcari; 35mi W Tucumcari.
Miguel: Cowles; Las Vegas Hot Spgs. Sta Fe: Sta Fe. Torrance: Tajique.
Union: Clayton; 8mi N Clayton; 9mi S Clayton; Des Moines; 5mi S Des Moines; Sofia. Valencia: Los Lunas. NEW YORK: Rockaway Bch, Long Isl.
Moore: Eagle Spgs; Southern Pines. Pasquotank: Elizabeth City. Pender:
Circleville; Leistville; S Bloomfield. Sandusky: Clyde. Trumbull:
Luther; Oklahoma City; 11mi N Oklahoma City. Osage. Pawnee: Pawhuska;
Wagoner: 5mi N Wagoner. Woods: 2.5mi SW Plainview; Waynoka; 3mi W
Waynoka. **Woodward**: Boiling Spgs St Pk; Mooreland; Woodward.

**PENNSYLVANIA**:
- **Adams**: Gettysburg.
- **Bucks**: 2mi E Jamison.
- **Centre**: Phillipsburg.
- **Franklin**: Chambersburg; Marion.
- **Lancaster**: Pequea. S **CAROLINA**:
  - **Abbeville**: Antreville. **Allendale**;
  - **Charleston**;
  - **Chesterfield**: Walters Orchard, McBee. **Florence**: Florence.
- **Horry**: Myrtle Bch. **Laurens**: Waterloo. **Lee**: Rosehill. **Marlboro**: Clio.
- **Oconee**: Clemson; Walhalla. **Richland**: Columbia. **Spartanburg**:
  - Sumter: Sumter. S **DAKOTA**:
  - **Beadle**: Huron.
  - **Bennett**: Martin. **Brookings**:
  - **Brule**: Chamberlain. **Buffalo**:
  - Ft Thompson. **Clay**: Vermilion. **Custer**. Fall R: Ardmore; Hot Spgs.
- **Jones**: Capa; Draper. **Lawrence**: Roubaix. **Minnehaha**: Palisades nr Garretson; Sioux Falls. **Pennington**: Rapid City. **Stanley**: Ft Pierce.
- **Sully**: Agar. **Tripp**: Winner. **Union**: Elk Pt; 3mi S Jefferson.

**TENNESSEE**:
- **Benton**: Camden. **Cooke**: Newport. **Davidson**: Nashville.
- **Hamilton**: Chattanooga. **Knox**: Knoxville. **Roane**. **Sevier**: Elkmont GSMNP.

**TEXAS**:
- Concan; Garner St Pk; Kansas City; Longfellow; Wellborn, Brazos R; Winter Haven. **Anderson**: Tennessee Colony. **Aransas**. **Atascosa**:
  - Lytle. **Bailey**: Muleshoe. **Bandera**: Lost Maples St Nat Area; 3mi E Tarplay. **Bastrop**: Bastrop; Paige. **Bee**: Beeville. **Bell**: Temple.
- **Bexar**: Ft Sam Houston; Mt View Acres, 3mi W Leon Vly; Sn Antonio.
- **Bosque**: Clifton; 2mi W Iredell; 4.5mi W Iredell. **Brazos**: Bryan; Coll Stn; 3mi W Coll Stn. **Brewster**: Alpine; 5mi E Alpine; 5mi S Alpine; 9mi N Alpine; 9mi S Alpine; 9mi W Alpine; 10mi W Alpine; 22mi S Alpine; 30mi S Alpine; 36mi S Alpine; Big Bend Natl Pk; Castolon; Chisos Mtns; 2mi E Lajitas; Marathon; 6mi SW Marathon; 7mi S Marathon; 8mi W Marathon; 12mi

MÉXICO: Aguascalientes: Aguascalientes; Arroyo Sn Pedro, 38mi N Aguascalientes. Baja California Norte: Bahía de los Angeles; Cyn del Tajo; Diablo Dry Lk, Sn Felipe Vly; Ensenada; Gonzaga Bay; Guadalupe Cyn; 4mi SW La Zopopita; L Cantillas Cyn; 60mi S Mexicali; Mission Sn Borja; Persebu; 13mi S Puertocitos; 24mi N Punta Prieta; 9mi SE Rch Laguna Chapola; 7mi NE Rch Rosarito; Sn Felipe; 15mi S Sn Felipe; 21km S Sn Quintin. Baja California Sur: Bahía Concepción; 40mi S El Arco Mine; La Paz; 7mi SW La Paz; 25mi W La Paz; Las Tinajitas; Loreto; 10.3mi SW Los Mendanos; 8mi SW Mission Sn Javier; 15mi N Sn Ignacio; Sn José de Comondu; 4mi W Sn José del Cabo; 5mi SE Sta Rosalía; 10mi W Sta Rosalía; Santiago; 1mi E Todos Santos; 4mi N Todos Santos; 30mi E V. Insurgentes; 45.5mi E V. Insurgentes. Chiapas: Cintalpa; Comitán. Chihuahua: Cd Camargo; 20mi SW Cd Camargo; 25mi SW Cd Camargo; Catarinas; Chihuahua; 3mi NW Chihuahua; 16mi SE Chihuahua; 46mi N Chihuahua; 1.1mi S Col. Alvaro Obregon; Cd Delicias; 3mi SE Cd Delicias; 10mi S Cd Delicias; El Herradero; Gallego; 8mi S Gallego; 10mi W Gallego; Garcia; Hidalgo del Parral; 8mi NE Hidalgo del Parral; 25mi W Hidalgo del Parral; 44mi S Hidalgo del Parral; Huejotitlan; 6mi WSW Jiménez; 10mi N Jiménez; 24mi N Jiménez; La Bufa; 11.1km S RR at La Junta; Madera; Marqueño; Matachic; 6mi NE Meoqui; Moctezuma; Nuevo Casas Grandes; 43mi SE Nuevo Casas Grandes; 45mi NW Nuevo Casas Grandes; 2km W Oginaga, Río Conchos; 7mi E Pedernales; Salaices; Samalayuca; Sn José Babcora; Sta Barbara; 63mi W Sta Barbara; Sta Clara; Sta Clara Cyn, 5mi W Parrita; Valle de Olivos;
Valle de Zaragoza; 23mi N V. Ahumada; 15mi S V. Matamoras. Coahuila:
10mi S Allende; 10mi S Cd Acuña; Arroyo de la Zorra; 20mi SE Arteaga;
Boquillas del Carmen; 14.3mi S Castaños; Guadalupe; 12mi N Hermanas; La
Gloria, S of Monclova; Nueva Rosita; Saltillo; 1mi E Saltillo; 1mi SE
Saltillo; 4mi S Saltillo; 6mi NE Saltillo; 7mi SSW Saltillo; 12.4mi S
Saltillo; 15mi N Saltillo; 15mi S Saltillo; 16mi SE Saltillo; 17mi SE
Saltillo; 20mi SE Saltillo; 29mi SE Saltillo; 39mi W Saltillo; 66km S
Saltillo; 5km N Sn Esteban; Sn Jose de la Niña; Sn Pedro de las
Colonias; 12mi SE Sn Pedro de las Colonias; Serranas del Burro; Torreón;
22mi N Zoragoza. Durango: 8mi S Canutillo; 30mi N Cuencamé; 14mi S
Donata Guerra; Durango; 11mi W Durango; 20mi W Durango; 25mi S Durango;
69mi N Durango; Encino; Guadalupe Victoria; La Loma; 2mi S Menores de
Arriba; Navajos, 20mi E El Salto; Nombre de Dios; 18mi SE Nombre de
Dios; Pedricena; 3mi NW Pedricena; Rodeo; Sn Juan del Río; Sta Lucia;
Jalisco: 2mi S Cd Guzmán; Lagos de Moreno; 5.6mi NE Lagos de Moreno;
13mi SW Lagos de Moreno; Sn Juan de los Lagos; 1mi NE V. Hidalgo.
Michoacán: 10.3mi W Morelia; Zamora. Morelos: Ruinas Xochicalco;
Tepoztlán. Nayarit: Sn Blas. Nuevo León: Apodaca; Aramberri; 3mi E
Galeana; Hacienda Vista Hermosa, V. Santiago; 9mi W Iturbide; Linares;
10mi S Linares; 15mi W Linares; 16mi S Linares; 1.7mi S Montemorelos;
15mi SE Montemorelos; Monterrey; 4mi S Monterrey; 5mi S Monterrey; 6mi S
Monterrey; 10mi W Monterrey; Paso Mamulique; Peña Nevada Zaragoza;
Pesqueria; 10mi N Providencia; 41mi S Sabinas Hidalgo; 22mi S Sn
Roberto; 40mi S Sn Roberto; 46mi NW Sn Roberto; Santiago; Vallecillo.
Oaxaca: 3mi SE El Tule; 10mi N Miltepec; Mitla; Oaxaca; 2mi NW Oaxaca;
Ruinas Zaachila; 13km W Tehuantepec; 22mi SE Totalapán, Sn José Viejo.

Puebla: Acatlán; 11mi SE Acatlán; 19mi NW Calcacapec; Chilac; Puebla; 6mi SW Tehuacán; 7mi NE Tehuacan; Valseguillo. Querétara: Oro. Sn Luis Potosí: 3mi W Cedral; 12mi W Cd del Maíz; 20mi S Cd Valles; 19.6mi N El Huizache; 28.5mi S El Huizache; El Salto; 34mi S Salinas; 10mi NE Sn Luis Potosí; 31mi S Sn Luis Potosí; 46mi N Sn Luis Potosí; 84mi NE Sn Luis Potosí; 123mi NE Sn Luis Potosí; V Hidalgo; 12mi NE V. Hidalgo.

Sinaloa: Los Mochis; 5mi N Mazatlán; 46mi E Mazatlán. Sonora: 20mi SE Agua Prieta; 65mi SE Agua Prieta; Alamos; 7mi SE Alamos; 7mi W Alamos; 10mi W Alamos; Bahía Kino; 1mi W Caborca; Caballona; Campo Utah; El Desemboque; El Fuerte; 5mi E Esqueda; 20mi S Estacion Llano; Guaymas; 26mi SE Guaymas; Hermosillo; 40mi N Hermosillo; 42mi S Hermosillo; 9mi NNE Imuris; La Chiripa; La Choya; La Floresta Rnch, 8mi E Tastiota; Magdalena; Minas Nuevas; Mira Mar Bch; Navojoa; 5mi E Navojoa; Nogales; Palm Cyn, 17mi E Magdalena; Pitiquito; Pozo Coyote; Puerto Peñasca; Sn Bernardino, Río Mayo; 8mi S Sta Ana; Sta Rosa Rnch; Sta Teresa; Sonora; 20mi S Sonoyta; 38km S Sonoita; Tastiota; Tiburón Isl; V. de Seris, 5mi SW Hermosillo; Yavaros. Tamaulipas: Cd Victoria; 25mi S Cd Victoria; 81mi NW Cd Victoria; 35km N El Limon; Gómez Farías; Guemes, 15mi N Cd Victoria; Lago Republica Española; Matamoros; Sn Fernando; Sn José. Veracruz: 1mi NE Acultzingo; Orizaba. Zacatecas: 4mi NE Concepción del Oro; Fresnillo; 1mi N Fresnillo; 8mi S Fresnillo; 9mi S Fresnillo; 25mi W Fresnillo, Laguna Balderama; 14mi N Luis Moya; Sain Alto; 28mi NE Sierra Viejo.

GUATEMALA: Jutiapa: 6mi 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 proposed 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. Also, cross-breeding and free-choice mating experiments have been conducted, the results of which also 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) also karyotyped specimens of this form collected from southeastern California. He found that they also had a chromosome complement of 14 + XY in the male, and he concluded that its
designation as a subspecies of *T. pallidovirens* was probably correct. During this study, however, specimens karyotyped from several southern Arizona localities 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. Therefore, it is probable that *spinosa* is more closely allied to *T. custator accerra* than to *T. pallidovirens*.

The character used by Ruckes (1957a) to separate *T. pallidovirens spinosa* from *T. custator accerra* (= his *T. p. accerra*) was the spinose humeral angles. This character is relatively variable, however. Long series from many localities within the range of *spinosa* usually include both specimens with spinose humeral angles and specimens with rounded humeral angles, as well as many intermediates. Geographical separation of the two forms is not distinct, and so *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 post-spiracular black spot on each side of each abdominal sternite, while specimens of *T. pallidovirens* do not. In reality, it is not that clear-cut. Some (< 10%) specimens of *T. pallidovirens* have post-spiracular black spots, but the spots are usually smaller than the diameter of the adjacent spiracle. Conversely, sometimes (< 10%) specimens of *T. c. accerra* lack post-spiracular black spots. Fortunately, there seems to be a geographical separation between the two species, except in 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, a relatively large percentage of the *T. pallidovirens* population will 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. 64-78, Map 4

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


*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. 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.

Jugal margins sinuous, not parallel (Fig. 65). Anterolateral margins of pronotum straight to slightly concave in dorsal view, green
Figs. 64-78. *T. pallidovirens*. Fig. 64. Habitus. Fig. 65. Head. Figs. 66-68. Right paramere. Fig. 66. Medial view. Fig. 67. Ventral view. Fig. 68. Lateral view. Figs. 69-71. Theca and related structures. Fig. 69. Ventral view. Fig. 70. Dorsal view. Fig. 71. Lateral view. Figs. 72-75. Pygophore. Fig. 72. Caudal view. Fig. 73. Ventral view. Fig. 74. Dorsal view. Fig. 75. Lateral view. Fig. 76. Genital plates, caudoventral view. Fig. 77. Spermatheca. Fig. 77. Spermathecal pump.
to reddish, never piceous; each humeral angle rounded (Fig. 64); pronotal cicatrices immaculate. Post-spiracular black spots usually lacking; if present, then usually smaller than diameter of adjacent spiracle. Posterolateral angle of each abdominal sternite immaculate.

Basal plates in caudoventral view with mesial margins straight to slightly concave; posterior margins sinuous; posteromesial angle narrowly rounded (Fig. 76). Posterolateral angles of pygophore continuing onto posteroventral surface of pygophore as carinae, forming a rectangular impression; posterior margin transverse in caudal view, slightly concave, usually with a small medial V-shaped emargination (Fig. 72); posterolateral angles prominent in ventral and dorsal views (Figs. 73, 74); pygophore slightly concave in lateral view (Figs. 75).

Types. Stål (1859) described Pentatoma pallidovirens from one male and one female specimen from California without designating a holotype or paratype. The male specimen labeled (a) "California" [handwritten] (b) "Kinb." (c) "Type" (d) "Typus" [red paper] (e) "Thyanta pallidovirens Stal" [handwritten] (f) "109 51" ['51' handwritten; pink paper] (g) "349 84" ['84' handwritten; pink paper] (h) "Riksmuseum Stockholm" [green paper] is designated the lectotype. The female specimen labeled (a) "California" [handwritten] (b) "Kinb." (c) "♀" (d) "Type." (e) "Allotypus" [red paper] (f) "350 84" ['84' handwritten; pink paper] (g) "Riksmuseum Stockholm" [green paper] is designated paralectotype. The lectotype and the paralectotype, which are conserved in the Naturhistoriska Rikoriska Rikomuseet (Stockholm, Sweden), were examined.
Ruckes (1957a) described *T. pallidovirens setosa* from 18 male and 10 female specimens. The holotype is from Pullman, Whitman Co., Washington, and is deposited in the American Museum of Natural History (New York).

**Distribution.** Western U.S. (Map 3).

**Specimens Examined.** 3566 specimens collected during every month of the year; deposited in AMNH, CAS, DAR, EGER, FMNH, FSCA, INHS, ISU, LACM, LHR, LSU, MSU, MSUB, MSUE, NCSR, 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 Isi; Royal Oak; Saanich Dist; Vernon; Victoria; Wellington.

UNITED STATES: CALIFORNIA: Alma; Branch; Cawelo; Chilao; Dana Glacier; Dodge Ridge; Dorrington; Echo; Elys Pk; Gariban; Hilinday; Indian Mission; Jamesburg; Lundy; Niles; Oak Glen; Oak Grove; 3mi S Oclsu Spgs; Ortego, Pacific; Palius; Pt. Richmond; Richardson Spgs; Sand Flat; Sta Catalina Isl, Pebble Beach Cyn; Santiago; Sequoia Tube; Shively; Towie; Vly of the Falls; Vly of the Sun; Wildcat Ck Cyn; Wishon. Alameda: Alameda City; Albany; Arroyo Macho; Berkeley; Calaveras Res; Coyote Ck nr Warm Spg; Livermore; 10mi E Livermore; Oakland; Patterson Pres, Del Valle Lk; Pleasanton. Alpine: Hope Vly; Markleeville. Amador: 2mi E Fiddletown; Ione; 5mi N Ione. Butte: Chico; 12.9km SE Chico; French Ck; Oroville; 5mi SE Oroville. Calaveras: Arnold; Avery; Mokelumne Hill; Railroad Flat; 4mi S Railroad Flat; 4.8km S W Pt. Colusa: Colusa; 8mi S Wilbur Spg; Williams. Contra Costa: Antioch; 2mi E Antioch; Antioch Dunes; Avon; Brentwood; Clayton; Concord; El Cerrito; Kensington; Lafayette; Mt Diablo; Orinda; Pacheco
Ck; 2mi W Pittsburg; Richmond; Russelman Pk; Walnut Ck. El Dorado:
American R; 2mi E Camino; 3mi S Camino; Chile Bar; China Flat; Cosumnes
R, 3.8mi SE Somerset; El Dorado Natl For; Fallen Leaf Lk; Fred's Place;
13mi E Georgetown; Grass Lk; Greenwood; Kyburz; 2mi W Kyburz; 1mi E
Meadow Br; Pino Grande; Placerville; 2mi W Placerville; 3mi W
Placerville; Pollock Pines; Pyramid R.S.; Rescue; Riverton; Snowline
Camp; Webber Ck nr Camino. Fresno: Big Panoche Ck; Biola; Firebaugh;
2mi NE Firebaugh; 10mi W Firebaugh; Fresno; Helm Ck; Huntington Lk;
Jocalitos Cyn, 6mi S Coalinga; Kings Cyn Natl Pk; Los Gatos; Lost Lk,
1mi W Friant; Mendota; Oxalis; Shaver Lk; Silver Ck, 10mi W Mendota.
Glenn: Artois; Butte City; Orland. Humboldt: Alderpoint; Beatrice;
Blocksburg; Carlotta; Dinsmore; 3mi W Dinsmore; Dyerville; 2mi S
Ettersburg; Eureka; Fark; Ft Seward; Holmes; Kneeland; 5mi E Kneeland;
Laribee Vly; Pepperwood; Samoa; Shively. Inyo: Antelope Spg, 8mi SW
Deep Spgs; Big Pine; 7mi W Big Pine; Bishop; 2mi N Bishop; Independence;
Inyo Mtns; Lone Pine; 9mi W Lone Pine; Mazourka Cyn; Mono Pass; North
Lk, 20mi W Bishop; Panamint Mtns; Rock Ck; Ruby Lk; 7mi W Westgard Pass.
Kern: Bakersfield; Democrat Spgs; Famoso; 5mi NW Freemont Vly;
Glennville; 3mi NE Havilah; 10mi N Johannesburg; Kern Cyn; Kernville; Lk
Isabella; Lost Hills; 6mi NE Mojave; Onyx; Pinoche Cyn; Shafter; 30mi NW
Taft; Tehachapi; Wasco; Woody. Lake: Cache Ck; Lakeport; Lower Lk; Mt
St. Helena; Plush; Upper Lk; 7mi N Upper Lk. Lassen: Bieber; Blue Lk;
5mi S Doyle; Hallelujah Jct; Honey Lk; 3mi S Janesville; Lassen Volcanic
Natl Pk; Martins Spgs; 37km N Susanville; 3mi N Termo; Westwood. Los
Angeles: Acton; Agoura Hills; Altadena; Angeles Natl For; Azusa; Baldwin
Hills; Beverly Glen; Big Dalton Dam; Big Pines; Big Tujunga Cyn; Boquet
Cyn; Burbank; Camp Baldy; Chatsworth; Claremont; Crater Camp; Crystal Lk; Cypress; Devil’s Gate Dam; Devil’s Run Bowl; Duarte; Elizabeth Lk Cyn; El Monte; El Segundo Dunes; Glendora; Gorman; La Crescenta; Lebec; Tejon Pass; Littlerock; 10mi SSE Littlerock; Long Bch; Los Angeles; Malibu Lk; Mint Cyn, 1mi W Palmdale; Monrovia; Mt Baldy; Mt Sn Antonio; Mt Wilson; Newhall; Pallette Ck nr Valyermo; Palmdale; 3mi E Palmdale; Pasadena; 2.2mi S Pearblossom; Redondo; Sn Franciquito Cyn; Sn Gabriel Mtns; Sn Marino; Sta Monica Mtns; Tanbark Flat; Tapia Pk; Temple City; Topango Cyn; Valyermo; 2.5mi SSW Valyermo; 3mi W Vincent; W Hollywood Hills; Westwood Hills; Whittier. Madera: Bass Lk; Boggy Mdws, 4.75mi ESE Fish Camp; Mercey Hot Spgs; Miami; Nelder Grove; N Fk; Oakhurst; Sn Joaquin Expt Stn; Sierra Natl For; Soquel Basin; Sugar Pine. Marin: Alpine Lk; Corte Madera Ck; Inverness; Kent Lk; Lagunitas; Laurel Dell; Mill Vly; Mt Tamalpais; 1mi N Olema; S Anselmo; Stinson Bch. Mariposa: Feliciana Mtn; Fish Camp; Mariposa; 2mi ESE Mariposa Grove; Miami Rgr Stn; 2mi S Miami Rgr Stn; 4mi SW Sugar Pine; Sweetwater Ck; 2mi N Usona; Wawona; Yosemite Natl Pk. Mendocino: Beaver Glade Stn; 3mi N Branscomb; Covelo; 1mi N Eel R Rgr Stn; 2.5mi N Eel R Rgr Stn; 4mi N Eel R Rgr Stn; 4mi W Eel R Rgr Stn; 7mi W Eel R Rgr Stn; Hopland Fld Stn; Inglenook Fent Dunes nr Cleone; Leggett; Mendocino; Mendocino Natl For; Potters Vly; Ryan Ck; Ukiah; Yorkville. Merced: Dos Palos. Modoc: Buck Ck Rgr Stn; Cedar Pass; Cedarville; 2mi S Cedarville; 10mi S Cedarville; 1mi E New Pine Ck; Rush Ck; Warner Mtns. Mono: Bodie; Canby; Coleville; Hammil; 1mi N Leavitt Lk; Leavitt Pk; Lee Vining; Mammoth Lks; Mammoth Mdws; McGee Ck; 3mi W Monitor Pass; Mono Lk; Robinson Ck; Rock Ck Lk; Sardine Ck; Sonora Pass; Tom’s Place; 1mi SW Tom’s Place; 1mi W Tom’s
Place; Topaz Lk; White Mtns. Monterey: Arroyo Seco; 8mi NE Arroyo Seco; Carmel; Carmel Vly; Cone Mtn; King City; Lockwood; Monterey; Paraiso Hot Spgs; Salinas; Sn Antonio Cyns; Sta Lucia Mtns. Napa: Calistoga; Howell Mtn; Pope Ck. Nevada: Boca; Bowman Lk; Dutch Flat; 10mi S Grass Vly; Hobart Mills; N Sn Juan; Russell Vly; Sagehen Ck; Truckee; 7mi N Truckee; 7mi SE Truckee; 11mi E Truckee; 3mi S Washington. Orange: Brea; El Toro; Fullerton; Huntington Bch; Irvine; Laguna Bch; Los Alamitos; Sta Ana; Trabuco Cyn; Westminster; Yorba Linda. Placer: 5mi NE Auburn; Bear Vly, 1mi N Emigrant Gap; Cisco Grove; Forest Hill; Lk Tahoe; New Castle; Putt Reservoir; Tahoe Vista. Plumas: Buck’s Lk; 8mi NW Chester; Keddie; Lk Alamanor; Mdw Vly; Quincy; 1mi W Quincy; 4mi W Quincy; 23mi SW Quincy. Riverside: Anza; Banning; Bautista Cyn; P.L. Boyd Des. Res Ctr; Cactus Vly; Cathedral City; Gavilan Hills; Happy Vly; Hemet Cyn; Indian Wells; Indio; 6mi W Indio; Lk Elsinore; Lakeview; La Quinta; Menifee Vly; Millard Cyn; 12mi N Oak Grove; Palm Desert; Palm Spgs; 1mi SE Radec; Riverside; 5mi S Sage; Sn Jacinto Mtns; Sta Rosa Mtns; Snow Ck Cyn; Temecula; Whitewater; Whitewater Cyn. Sacramento: Citrus Hts; Courtland; Folsom Michigan Bar; Sacramento. Sn Benito: Limekiln Cyn, SW of Paicines; New Idria; 6mi SE New Idria. Sn Bernardino: Apple Vly; Arrowbear Lk; Big Bear Lk; Big Mdw; Buff Lk; Cherry Vly; Colton; Crestline; 9mi SE Essex; Forest Home; 10km SE Hesperia; 1mi N Highland; Lk Arrowhead; Lone Pine Cyn; Lucerne Vly; Mentone; Mill Ck Cyn; Mojave R, 6mi E Yermo; Ord Mtns nr Lucerne Vly; Pinon Hills; Pioneertown; Redlands; Sn Bernardino Mtns; 2mi SW Seven Oaks; 5km E Seven Oaks; Sheephole Mtns; Sky For; Slover Cyn, 2mi E Wrightwood; Summit Vly, Cajon Summit; Upland; Wrightwood; Yucaipa. Sn
Diego: Aguanga Mtns; Alpine; Borrego Spgs; Boulevard; Box Cyn; Buckham Spgs; Campo; 1mi E Cardiff; Chula Vista; Cuyamaca; De Luz; Dulzura; 3mi SE El Cajon; Elizabeth Lk Cyn; Encinitas; 4km NW Fallbrook; In-Ko-Pah Mtns; 3mi S Julian; 10mi S Julian; Laguna Mtns; Lk Henshaw; Lakeside; Mission Gorge, 4mi W Santee; Mt Laguna; 2mi S Mt Laguna; Mt Palomar; Mt Spgs; Otay; Pala; Pine Cyn; Ramona; Rancho Sta Fe; Sn Diego; Sn Felipe Ck; Scissors Crossing; 5.5mi N Scissors Crossing; Tecate; Warner Spgs; 6mi S Warner Spgs; Hwy 76, 2mi W Hwy 79. Sn Francisco: Sn Francisco.

Sn Joaquin: Bethany; Corral Hollow; Hospital Cyn; Linden; Lodi; Manteca; Tracy; Vernalis. Sn Luis Obispo: 5mi W Cayucos Ck; 7mi SW Creston; Dune Lks, 3mi S Oceano; La Panza Camp; Pennington Ck; Reservoir Cyn; Sta Margarita; 6mi NE Sta Maria; Simmler. Sn Mateo: Atherton; Brisbane; Half Moon Bay; Portola Vly; Sn Bruno Mtns; Sn Gregario. Sta Barbara: Carpenteria; Lompoc; Los Padres Natl For; Los Prietos; Sta Barbara; Sta Cruz Isl; Summerland; Toro Cyn Co. Pk. Sta Clara: Black Mtn; Cupertino; Gilroy; Holy City; Morgan Hill; Mtn View; Mt Hamilton; Palo Alto; Sn Jose; Silver Ck Hills. Sta Cruz: Big Trees; Mt Hermon; Sta Cruz Mtns; Watsonville. Shasta: 8mi SE Bartle; Black Butte; Burney Falls; Dry Lk; Hat Ck; 3mi N Hat Ck; Lk Britton; 1mi E Montgomery Ck; Pot Spg; Redding; 14mi NE Redding; Shingletown; Summit City; Viola; 2mi W Viola. Sierra: Calpine; 2.3mi NW Calpine; 16mi W Downieville; Independence Lk; 2mi W Indian Vly; Sierraville; 12mi N Truckee. Siskivou: Ash Ck Rgr Stn, 9mi E McCloud; 1mi SE Bartle; 9mi N Bartle; 15mi NE Bartle; Bear Ck, 1mi SW Pondosa; Brown’s Lk; Ft Jones; McCloud; 4mi E McCloud; 5mi E McCloud; 14mi NE McCloud; Medicine Lk; Mt Shasta; Mt Shasta City; 8mi W Sawyer’s Bar; 9mi E Shasta City; 3mi N Somesbar; Weed; 10mi NE Weed; Yreka.
Solano: 10mi SE Dixon; Green Vly; Rio Vista; Ryer Isl. Sonoma: Glen Ellen; Guernville; Hacienda; Occidental; 2mi W Occidental; Sta Rosa; Sonoma; Trinity; Vineburg. Stanislaus: Adobe Ck; Frank Raines Pk; 2mi W Knights Ferry; Modesto; Oakdale; Patterson; 10mi SW Turlock; Waterford; Westley. Tehama: Mill Ck; Mineral; Red Bluff. Trinity: Bell Ck, 6mi SW Denny; Carrville; Forest Glen; 3mi E Forest Glen; 6mi SE Hayfork; Hayfork Rgr Stn; 4mi SE Mad R Pk; Trinity Ctr; 2mi W Trinity Alps.

Tulare: Ash Mtn HQ; Fairview; 9mi S Fairview; Giant Forest Village; Hot Spgs; Mineral King; Johnsondale; 2mi E Johnsondale; Kaweah R; Lemoncove; Pixley; Porterville; Potwisha; Sequoia Natl Pk; 12mi NE Springerville; Three Rivers; Wood Lk. Tuolumne: Blue Cyn; Cherry Ck; Chipmunk Flat; Dardanelles; Eleanor Lk; Groveland; Hetch Hetchy; Leland Mdw; Mather; Oakland Rec Camp; Pinecrest; 1mi W Sonora Pass; Strawberry; Twain-Harte.

Ventura: 10mi E Camp Ozena; Casita Res; 3.6mi N Fillmore; Frazier Mtn; Ojai; Sta Paula; Saticoy; Ventura; 19mi N Wheeler Spgs. Yolo: Clarkesburg; Davis; 2mi N Rumsey; Winters. Yuba: Challege; 7mi N N Sn Juan; 18mi NE Marysville. IDAHO: Eureka; Krassel R.S.; Lenore; Regina.

Ada: Boise; 4mi NW Boise; 9mi N Boise; 13mi E Boise; Lucky Peak Res.


Clearwater: Orofino. Elmore: Glenns Ferry; Mtn Home; 4mi W Mtn Home.


Gooding: Bliss; Wendell. Idaho: Harpster; John Day Ck; Riggins; 3.9mi E Riggins; Slate Ck; 1mi S Slate Ck; 1.5mi SW Slate Ck; Whitebird; 4mi SW Whitebird. Kootenai: Coeur d’Alene. Lake: Montpelier. Latah:
Juliaetta; 3mi SW Juliaetta; 6mi S Juliaetta; Kendrick; Laird Pk; Moscow; Moscow Mtn; Potlatch; Spg Vly. Lewis: Craigmont; Kamiah. Nez Perce: Arrow Jct; 2mi E Arrow Jct; 3mi E Arrow Jct; Central Grade; Coyote Grade; 1mi SE Culdesac; 5mi NW Culdesac; 5mi S Lapwai; Lewiston; 6mi E Lewiston; 7mi NE Lewiston; 9mi S Lewiston; Myrtle; Spalding; 2mi W Spalding; 3mi S Spalding. Oneida: Holbrook. Owyhee: Bruneau; 12mi S Murphy. Shoshone: Clarkia. Twin Falls: Buhl; Hollister; Kimberly. Vly: Donnelly; McCall; 21mi N Warm Lk, Camp Ck. MONTANA: Lake: Moiese, Natl Bison Range; Polson; Ravalli. Lewis & Clark: Helena. Ravalli: Florence. Sanders: Paradise; Plains. NEVADA: Guano Rnch; Sheldon Antelope Refuge. Carson City: Carson City. Douglas: Gardnerville. Lyon: 8.5mi S Yerrington. Washoe: Gerlach; 13mi NW Gerlach; Mt Rose; Pyramid; Pyramid Lk; Reno; Sparks; Spooner Pass; Verdi. OREGON: Boardman; Breitenbush Hot Spgs; Dixie; Kiger's Isl; Macleay; Middle Sister Mtn; N Howell Prairie; Robinette; 3.2mi S Ruch; Spring Flats Camp, Scott R; Troy. Baker: 14mi S Baker; 36mi E Baker; Ballard's Landing, Hells Cyn; Haines; Homestead. Benton: Alsea Mt; Corvallis; 1mi SE Corvallis; 5mi N Corvallis; 6mi N Corvallis; 10mi S Corvallis; Mary's Peak; Lost Prairie; Wren. Curry: Humbug St Pk, Brush Ck. Deschutes: Bend; Pine Mtn; Sisters; 6mi W Sisters; Sparks Lk. Douglas: 3mi S Canyonville; 7mi E Glide; Roseburg; 2mi N Tiller. Grant: John Day Gorge. Harney: 6mi N Andrews, Alvord Desert; 7mi S Frenchglen. Hood R: Hood R; Mt Hood. Jackson: 11mi ESE Ashland; Colestin; 4mi N Copper; 22mi W Crater Lk; Dead Indian Soda Spgs; Derby; Medford; 5mi E Medford; 6mi NE Medford; 10mi NE Medford; Mt Ashland; 1mi E Pinehurst; Prospect; 4mi S Prospect; Talent; Union Ck; Weedruff Mdws; 14mi NE Winner.
Jefferson: Cove. Palisades Pk; Madras; Pelton Dam, 7mi S Warm Spgs.

Josephine: 5mi SW Cave Jct; 3mi N Grants Pass; Grave Ck; Grayback Ck; O'Brien; Oregon Caves Natl Mon; 2mi N Rough & Ready St Pk; 4mi W Selma; 9mi W Selma; 10mi W Selma; Sunny Vly; Wilderville; 6mi W Wolf Ck.

Klamath: 11mi S Bonanza; 20mi SE Chemult; Crater Lk; 13mi S La Pine; 5mi E Pinehurst. Lake: Hart Mtn Antelope Refuge; Lakeview; 26mi NW Lakeview; 2mi SE La Pine; 8mi S Quartz Mtn; Summer Lk. Linn: 1mi NE Albany; 8.5mi E Crabtree; Lacombe; Willamette Natl For. Malheur: Cow Lks; 20mi E Juntura; Ontario; Sucker Ck Cyn; 5mi S Vale. Marion: Salem; Silverton Hills; Woodburn. Multnomah: Portland. Polk: Falls City.

Okanagon: Malott. Pierce: Parkland; Puyallup; Spanaway Lk; Tacoma. Sn Juan: Friday Harbor; Sn Juan Isl. Snohomish: Sultan. Spokane: Spokane. Thurston: Nisqually; Olympia; 10mi SE Olympia; Rochester. Walla Walla: Walla Walla. Whitman: Almota; Kamiak Butte; Penewawa; Pullman; Steptoe Cyn, 10mi SW Colton; Wawawai. Yakima: Donald; Ft Simcoe; Satus Pass; 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. 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*. This has been 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. g. accerra*. In the northwestern U.S., the two species seem to be geographically isolated (Maps 3, 4). Here, separation can often be made based on the presence (in *T. g. accerra*) or absence (in *T. pallidovirens*) of post-spiracular black spots.
Thyanta (Thyanta) perditor (Fabricius)

Figs. 79-93, Maps 8, 10

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

Pentatoma fascifera Palisot de Beauvois, 1805:150, 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.


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, 1900b:432; Van Duzee, 1904:52, 53 (part); Van Duzee, 1907:9; Kirkaldy, 1909:95; Banks, 1910:90; Zimmer, 1911:14 (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.


Euschistus adjunctor Walker, 1867:249 (syn. by Stål, 1872:34)
**Diagnosis.** A transhumeral rubiginous band usually present; often tylius and vertex of head reddish.

Jugal margins sinuous, not parallel (Fig. 80). Each humeral angle spinose, spine directed anterolaterad; anterolateral pronotal margins not piceous, concave in dorsal view (Fig. 79). Mesial corner of each pronotal cicatrice black. Each abdominal sternite with post-spiracular black spot on each side. Both anterolateral and posterolateral angles of each abdominal sternite usually piceous.

Basal plates in caudoventral view with mesial margins straight to slightly convex; posterior margins sinuous (Fig. 91). 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. 88, 89); posterior margin concave in lateral view (Fig. 90).

**Types.** Fabricius (1794) described *Cimex perditor* from two female and two male specimens without designating a holotype or paratypes. The male specimen labeled (a) "C: perditor" [handwritten] (b) "Thyanta perditor F." [handwritten] is designated lectotype. The remaining male specimen and the two female specimens are designated paralectotypes. They have the following label data: one male labeled (a) "Thyanta perditor F." [handwritten]; one female labeled (a) [green paper; no writing] (b) "Thyanta perditor F." [handwritten]; and one female labeled (a) [green paper; no writing] (b) "♀" (c) "Type" [red paper] (d) "Thyanta perditor F." [handwritten]. All four specimens, which are housed in the Universetetets Zoologiske Museum (Copenhagen, Denmark), were examined.
Figs. 79-93. *T. perditor.* Fig. 79. Habitus. Fig. 80. Head. Figs. 81-83. Right Paramere. Fig. 81. Medial view. Fig. 82. Ectal view. Fig. 83. Lateral view. Figs. 84-86. Theca and related structures. Fig. 84. Ventral view. Fig. 85. Dorsal view. Fig. 86. Lateral view. Figs. 87-90. Pygophore. Fig. 87. Caudal view. Fig. 88. Ventral view. Fig. 89. Dorsal view. Fig. 90. Lateral view. Fig. 91. Genital plates, caudoventral view. Fig. 92. Spermatheca. Fig. 93. Spermathecal pump.
Pentatoma fascifera Palisot de Beauvois, *P. collaris* Westwood, *Cimex transversalis* Herrich-Schäffer, and *C. dimidiatus* Herrich-Schäffer were all placed as junior synonyms of *T. perditor* by Dallas (1851). The type specimens of Herrich-Schäffer are apparently no longer in existence, but the descriptions, including the figure of *C. dimidiatus*, agree reasonably well with *T. perditor*.

*Pentatoma fascifera* was described from Santo Domingo, Dominican Republic (Palisot de Beauvois 1805). Although its description is rather short, it does not differ in any significant way from *T. perditor*. Also, *T. perditor* is the only species of Thyanta in the Dominican Republic that has distinctly spinose humeral angles.

Westwood (1837) described *P. collaris* from the island of St. Vincent in the West Indies. Its description fits *T. perditor* in all respects, and *T. perditor* is the only species of Thyanta with distinctly spinose humeral angles that occurs in St. Vincent.

Walker (1867) described many new species including *Euschistus fasciatus* and *E. adjector*. Both of these species were placed as junior synonyms of *T. perditor* by Stål (1872). In neither case did Walker designate a holotype or paratypes, and it is difficult to ascertain how many specimens he examined. *Euschistus fasciatus* was described from at least two specimens, but only one syntype was located. It is here designated the lectotype and has the following label data: (a) "Type" [circular label; blue-green border] (b) "58.135 Mex. (Oajaca)" (c) "12. EUSCHISTUS FASCIATUS." [dorsal surface], "West Indies" [ventral surface]. Only one syntype of *E. adjector* was located. This specimen, labeled (a) "Type" [circular label; blue-green border] (b) "Belize"
[circular label; dorsal surface], "51 117" [ventral surface] (c) "39.
EUSCHISTUS ADJUNCTOR." [dorsal surface], "O varius aut ochraceus, dense
p" [ventral surface], is designated the lectotype. Both lectotypes were
examined and are typical specimens of T. perditor; both are conserved at

At one time Euschistus rubiginosus Dallas was considered a synonym
of T. perditor. Rider (1986), however, examined the holotype and
determined that it was a species of Euschistus. Further examination
revealed that it was a senior synonym of E. 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
(Maps 8, 10).

**Specimens Examined.** 1054 specimens collected during every month of
the year; deposited in AMNH, AUA, BMNH, CAS, CELM, CNC, CU, DAR, DBT,
FSCA, INHS, ISU, LHR, LSU, MSU, MSUE, OSUC, PUL, QCAZ, SIUC, SMEK, TAMU,
UAT, UCB, UCR, UCS, UGA, UMAA, UMC, UNAM, UNCM, USNM, WSU. UNITED
STATES: ARIZONA: Cochise: Southwest Research Stn, 5mi W Portal.
FLORIDA: Flamingo; Mahogany Hammock; Paradise Key; Pine Castle; Windly.
Broward: Deerfield Bch. Collier: Immokalee; Royal Palm Pk. Dade: Coral
Gables; Everglades Natl Pk; Florida City; 5mi SW Florida City; Goulds;
Grossman Hammock; Hialeah; Homestead; Kendall; Miami; Miami Spgs;
Princeton. Highlands: Avon Pk; Lk Placid; Sebring. Indian R: Vero Bch.
Lee: Ft Myers. Manatee: Palmetto; Terra Ceia. Martin: Stuart. Monroe:
Big Pine Key; Key Largo; Key W; Marathon Key; Upper Key Largo; Upper
Matecumbe Key. Orange: Orlando. Palm Bch: Belle Glade; Delray; Royal
Palm Pk. Polk: Lk Hamilton; Lakeland. Volusia: Daytona Bch. Texas:

Cameron: Brownsville; Sabal Palm Grove nr Southmost.

México: Hochmilco; Lagos de Moreno; Paricutin. Aguascalientes:

Aguascalientes. Campeche: km 71 Carr. Campeche–Meizina. Chiapas:

Arriaga; 4.4mi N Bochil; Bonampak Ruinas; Chicoasen; Chorreadera StPk;
Cintalpa; 5mi S Cintalpa; 13mi W Cintalpa; Comitán; 31.5mi SE Comitán;
Dos Lagos; El Sumidero; 1.6mi S Jitotol; 13mi S La Trinitario; 18km S La
Trinitario; 12mi W Ocozocoautla; Palenque; Palenque Ruinas; 23mi S
Palenque 4mi NE Pichucalco; 1mi S Rayón; 2mi SE Revolución Méxicana; 3mi
W Rizo de Oro; Sanches Ench Las Rosas; Sn Cristóbal de las Casas; 8mi SE
Sn Cristóbal las Casas; 23mi W Sn Cristóbal de las Casas; 39mi E Sn
Cristóbal las Casas; Simojovel; 10km WNW Soyalo; 2mi E Suchiapa;
Sumidero Cyn; 9mi SE Tapilula; Teopisca; 14mi N Tuxtla Gutiérrez; 3.5km
S Rio Tulija. Colima: Colima Volcano. Durango: 9mi W La Ciudad; Peasa
Pena. Guanajuato: León. Guerrero: Acahuizotla; Acapulco de Juárez; 5mi
S, 2.5mi E Chilpancingo; km 8 Carr. Chilpancingo Omilteme; 17mi N
Mexcala; Mochitlán; 1.5mi W Mochitlán; 13mi SW Tierra Colorado.

Hidalgo: Hwy 45, 17mi NE Huichapan. Jalisco: 16km E Agua el Obispo;
Ajijic; Guadalajara; 5mi SE Plan de Barrancas. México: 4.3mi NE Ixtapán
de la Sal; Tejupilco; Temascaltepec, Real de Arriba; Teotihuacán; 11mi W
Texcoco; 1mi NE Tlamacas, P. N. Popocatepetl; Valle de Bravo; 21mi NW
Valle de Bravo. Michoacán: Apatzingán; 11mi E Apatzingán; Jiquilpán;
Palo Alto; Tancitaro. Morelos: Cuautla; Cuernavaca; Jojutla; Morelos;
Pte de Itla; Xochicallo. Nayarit: 13mi NW Ahuacatlán; Jesus María;
Nayarit–Jalisco line, Hwy 15; 15km E Sn Blas; Tepic. Nuevo León: 9mi S
Monterrey; 3mi S Pacheco. Oaxaca: 7.7mi S Ejutla; El Camaron, 20mi E
Oaxaca; 2.7mi NW El Camarón; 10mi S El Camarón; 27mi E Juchitán; 3km E La Ventosa; 3.4mi SE Matatlán; 11mi N Matías Romero; SE Nejapa; 30mi NW Oaxaca; 45mi SE Oaxaca; 53mi NE Oaxaca; Tehuantepec; Temazcal; 23mi W Tequistlán; Totolapán; 18mi NW Totolapán; 23km NW Totolapán; Tuxtepec.
Puebla: 5.1mi SW Tehuacán; 6mi SW Tehuacán. Querétaro: Querétaro; 29mi N Querétaro; 10mi E San Juan del Río. San Luis Potosí: 5mi E Cd del Maíz; 11km N Cd Valles; 20mi S Cd Valles; El Pujal; El Salto Falls; Micos; 31mi S San Luis Potosí; Tamazunchale; 30mi S Tamazunchale; V. Hidalgo; 2mi E Xilita. Sinaloa: 22.6mi S Culiacán; Los Mochis; Mazatlán; 15mi N Mazatlán; V. Unión; 5mi E V. Unión. Tabasco: 30mi W Cárdenas; Chontalpa; Pajelagatero; Pico do Oro; 5km S Villahermosa; 14mi SE Villahermosa. Tamaulipas: Bocatoma; 11mi SW Cd Victoria; 6mi W Río Sabinas, nr Encino; 19mi NE Tula. Tlaxcala: 2mi W Tlaxcala. Veracruz: Alvarado; Catemaco; 7mi SE Catemaco; Coatzacoalcos; Córdoba; 1mi E Córdoba; Cotaxtla; Estación Mierón das Fortín; 1mi W Fortín de las Flores; Jalapa; 10mi E Jalapa; Lk Catemaco; 5mi N Lerdo de Tejada; Los Tuxtlas Biol. Stn; L. Rivera. Atzagan; 4mi NE Minatitlán; Nanchital; Orizaba; Papantla; Plan del Río; 3mi SW Sontecomapán; 15.8mi S Tampico; Vega de Alatorre; Veracruz. Yucatán: 10 km N Piste.

Zarzales; Malpaisillo. Managua: Los Brasiles; Managua, Tipitapa.

Reventazon Vly; Sn Carlos. Cartago: Santiago; Turrialba. Guanacaste:
La Pacifica nr Cañas. Heredia: Heredia; 2mi E Puerto Viejo; Varablanca.
Puntarenas: Montevertede. Sn José: 5.5km SE Desamparados; Sn José.

PANAMA: New California. Bocas del Toro: Chiriquí Grande. Canal Zone:
Barro Colorado Isl; Cristóbal. Chiriquí: Boquete; Cerro Punta;
Porteillos. Coclé: Cerro Pena nr El Valle. Panamá: Cerro Jefe; Madden Lk.

BAHAMA ISLANDS: Andros Isl: Andros Town. Cat Isl. Long Isl:

JAMAICA: Balaclava; Claremont Baron Hill Trelawny; Hope Bay; Kingston;
Liguanea Plain; Mandeville; Montego Bay. HAITI: Quest: Kenscoff; Port-
au-Prince. DOMINICAN REPUBLIC: 8mi up Macorís R. Distrito Nacional:
Santo Domingo. La Romana: La Romana Center. La Vega: Jarabacoa.
Peravia: 2km N Nizao; 21km NW Sn José. Puerto Plata. Sn Cristóbal: Sn Cristóbal. Sn Pedro de Macorís: Boca Chica. PUERTO RICO: Ciales
Cruces, El Verde, Mona Isl. Aguadilla: Añasco, Isabela, Rincón, Sn
Sebastián. Arecibo: 7km S Ciales, Dorado, Manatí, Utuado, Vega Baja.
Mayagüez, Sn Germán. Ponce: Coamo Spgs, Juana Díaz, Ponce, 3mi N Sta Isabel. Sn Juan: Río Piedras. U.S. VIRGIN ISLANDS: St. Croix:
Frederiksted. St. Thomas. BRIT W INDIES: Antigua: Bello. Barbuda:
Codrington. Dominica: Castle Bruce Rd nr Savane David; Clarke Hall Est;
4.7mi E Pt Casse; 5km SW Pt Casse; Roseau. Grd Cayman: 3mi N
Georgetown; Western Dist. Grenada: Grd Anse; Mount Gay Est; St.
St. Vincent. Trinidad: Cumuto; St. Augustine. FR W INDIES: Guadeloupe:
Pointe-à-Pitre. Martinique: 2km N St. Pierre. BARBADOS.

COLOMBIA: La Ceja, S.H. Antioquia: Bello; Medellin Vly; Sopetrán;
Union. Cundinamarca: Silvania, 60km SW Bogotá. Magdalena: San
Jerónimo; Sta Marta. Tolima: 9 km NW Espinal. Valle del Cauca: Bitaco
Vly, 1km above Bitaco; Buga; Palmira; Pance, 11km S Cali; 1km W Yumbo.
FR. GUIANA: Cayenne: Macouria. ECUADOR: Coto Callao; Juive; Oriente Río
Cugobambilla; Diluriguin, H. la Esperie; Palmeras; Pomasqui; Puembo;
Pululahua; Quito; San Rafael; Tandapi; Valle de los. Tungurahua: Ambato
Mulalillo. PERU: Valle Chanchamayo. Amazonas: Bagua Chica. Avancucho:
Huanta; Rio Pampas. Cusco: Macchupicchu. Huánuco: 30mi NE Huánuco;
Pozuzo; Tingo María. Junín: Estancia Naranjal Sn Ramón. Lima:
Barranca; Lima. BOLIVIA: Prov. Sara; Tropical. Cochabamba: Prov.
Chapare, Alto Palmar; Prov. Chapare, Chapare; Prov. Chapare, Christal-
BRAZIL: Warta PR. Gourou: Barbalha. Mato Grosso: 35mi W Araguaia;
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 are 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. 94-108, Map 6


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

Diagnosis. A rubiginous transhumeral band usually present; often tylius and vertex of head reddish.

Jugal margins sinuous, not parallel (Fig. 95). Anterolateral pronotal margins concave, not piceous; each humeral angle spinose, spine directed primarily laterad and only slightly cephalad (Fig. 94). Mesial corner of each pronotal cicatrice usually piceous. Each abdominal sternite with post-spiracular black spot on each side; anterolateral angle and posterolateral angle of each abdominal sternite piceous.

Basal plates in caudoventral view with mesial margins straight to slightly convex; separated basally; posterior margins sinuous (Fig. 98). Pygophoral opening subtended by a semicircular impression; posterior margin of pygophore produced posterodorsad, in ventral and dorsal views.
Figs. 94-98. *T. spectabilis*. Fig. 94. Habitus. Fig. 95. Head. Fig. 96. Spermatheca. Fig. 97. Spermathecal pump. Fig. 98. Genital plates, caudoventral view.
Figs. 99-108. *T. spectabilis*. Figs. 99-102. Pygophore. Fig. 99. Caudal view. Fig. 100. Ventral view. Fig. 101. Dorsal view. Fig. 102. Lateral view. Figs. 103-105. Right paramere. Fig. 103. Medial view. Fig. 104. Ectal view. Fig. 105. Lateral view. Figs. 106-108. Theca and related structures. Fig. 106. Ventral view. Fig. 107. Dorsal view. Fig. 108. Lateral view.
convex medially with a small medial V-shaped emargination (Figs. 100, 101); slightly concave in lateral view (Fig. 102).

**Types.** Ruckes (1957c) described *Thyanta spectabilis* from two male and six female specimens, all from Baja California, Mexico. The male 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, UNAM, USNM. MÉXICO: "Lo. Cal."; 2 km W El Centenario. Baja California Norte: Bahía de los Ángeles. Baja California Sur: Cabo Sn Lucas; 28mi S El Arco Mine, Rncho Sta Marguerita; 2mi E El Coyote, NE of La Paz; 6mi S, 1mi E El Pescadero; La Paz; 6km S Sn Pedro; Sta Anita; 7mi N Sta Anita; 2km SE, 3.5km NE Sta Rita; 21.6mi 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. spectabilis* are larger than those of *T. perditor*. The only reliable character to separate the two species is the orientation of the humeral spine. In *T. perditor* the humeral angle is directed anterolaterad, while in *T. spectabilis* it is directed primarily laterad and only slightly cephalad.
Thyanta (Thyanta) cubensis Barber & Bruner

Figs. 109-124, Map 9

Thyanta cubensis Barber & Bruner, 1932:257-258, figs. 4-5; Bruner & Barber, 1949:158; Alayo, 1967:18, 20.

**Diagnosis.** Dorsal coloration brown to green; transhumeral reddish markings lacking.

Jugal margins sinuous, not parallel (Fig. 110). Anterolateral margins of pronotum slightly concave in dorsal view, usually contrastingly pale yellow; each humeral angle spinose, spine small, directed anterolaterad (Fig. 109); pronotal cicatrices immaculate. Anterolateral abdominal angles immaculate; posterolateral angle of each abdominal sternite piceous. Post-spiracular black spot present on each side of each abdominal sternite.

Basal plates in caudoventral view with mesial margins straight to slightly convex; posterior margins sinuous; posteromesial angle broadly rounded (Fig. 122). Pygophoral opening subtended by semicircular impression in caudal view; posterior margin of pygophore produced posterodorsad, convex with small medial V-shaped emargination in both ventral and dorsal views (Figs. 119, 120); pygophore slightly concave in lateral view (Fig. 121).

**Types.** Barber & Bruner (1932) described Thyanta cubensis from 14 male and five female specimens all from Cuba. The holotype and 11 paratypes were examined. The holotype is housed in the U.S. National Museum of Natural History (Washington, D.C.).

**Distribution.** Bahama Islands and Cuba (Map 9).
Figs. 109-124. *T. cubensis*. Fig. 109. Habitus. Fig. 110. Head. Figs. 111-113. Right paramere. Fig. 111. Medial view. Fig. 112. Ectal view. Fig. 113. Lateral view. Figs. 114-117. Theca and related structures. Fig. 114. Ventral view. Fig. 115. Dorsal view. Fig. 116. Lateral view. Fig. 117. Caudal view. Figs. 118-121. Pygophore. Fig. 118. Caudal view. Fig. 119. Ventral view. Fig. 120. Dorsal view. Fig. 121. Lateral view. Fig. 122. Genital plates, caudoventral view. Fig. 123. Spermatheca. Fig. 124. Spermathecal pump.

Comments. Thyanta cubensis is often smaller than the other species related to T. perditor, the humeral spines are shorter, the transhumeral reddish markings are usually absent, and the pronotal and abdominal black markings are reduced or absent.

Thyanta (Thyanta) serratulata Ruckes
Figs. 125-137

Thyanta serratulata Ruckes, 1957c:178-179, figs. 5-6.

Diagnosis. Body shape broad, stout.

Jugal margins sinuous, not parallel (Fig. 126). Anterolateral pronotal margins in dorsal view concave, serrate, especially anteriorly, immaculate; each humeral angle spinose, spine relatively short, directed anterolaterad (Fig. 125). Pronotal cicatrices immaculate or often marked with black in each mesial angle. Post-spiracular black spots absent. Anterolateral angles of abdominal sternites immaculate; posterolateral abdominal angles concolorous with rest of segment or sometimes marked with black.
Figs. 125-137. *T. serratulata*. Fig. 125. Habitus. Fig. 126. Head.
Figs. 127-129. Right paramere. Fig. 127. Medial view. Fig. 128. Ectal view. Fig. 129. Lateral view. Figs. 130-132. Theca and related structures. Fig. 130. Ventral view. Fig. 131. Dorsal view. Fig. 132. Lateral view. Figs. 133-134. Pygophore. Fig. 133. Caudal view. Fig. 134. Lateral view. Fig. 135. Genital plates, caudoventral view. Fig. 136. Spermatheca. Fig. 137. Spermathecal pump.
Basal plates in caudoventral view with mesial margins straight to slightly convex; posterior margins sinuous (Fig. 135). Pygophoral opening subtended by semicircular impression; posterior margin of pygophore produced posterodorsad, convex with small medial V-shaped emargination in caudal view (Fig. 133); slightly concave in lateral view (Fig. 134).

Types. Ruckes (1957c) described T. serratulata from 13 male and 13 female specimens. The holotype and 17 paratypes were examined. The holotype is housed in the California Academy of Sciences (San Francisco).

Distribution. Known only from the type locality: Clarión Island, Revillagigedo Islands, Mexico.

Specimens Examined. 21 specimens collected between 27 February and 8 May; deposited in AMNH, CAS, LACM, USNM. MÉXICO: Colima: Revillagigedo Islands, Clarión Island.

Comments. Thyanta serratulata can be identified by the broad, stout shape; the short humeral spine; the lack of post-spiracular black spots, and the reduction or absence of black markings on the lateral abdominal angles.

Thyanta (Thyanta) setigera Ruckes

Figs. 138-153


Thyanta perditor (of authors, not Fabricius): Heidemann, 1901:365; Barber, 1934:282; Van Duzee, 1937:112.
Diagnosis. Ovate. Dorsal surface green or brown, usually with at least partial transhumeral rubiginous band.

Apex of head broadly rounded; jugal margins sinuous, not parallel (Fig. 139). Anterolateral margins of pronotum concave in dorsal view, immaculate, with at most a few weak denticles anteriorly; each humeral angle acute, weakly spinose, oriented laterad, spine protruding beyond base of adjacent corium by less than half width of eye (Fig. 138). Mesial angle of each pronotal cicatrice piceous. Post-spiracular black spot present on each side of each abdominal sternite; posterolateral angle and usually anterolateral angle of each abdominal sternite marked with black.

Mesial margins of basal plates in caudoventral view nearly straight; posterior margins sinuous (Fig. 151). Pygophoral opening subtended by semicircular impression; posterior margin in caudal view distinctly convex with medial V-shaped emargination (Fig. 147); concave in lateral view (Fig. 150).

Types. Ruckes (1957c) described T. setigera from 24 male and 27 female specimens, all from the Galapagos Islands. The holotype and 27 paratypes were examined. The holotype is housed in the California Academy of Sciences (San Francisco).

Distribution. Galápagos Islands, Ecuador.

Figs. 138-153. *T. setigera*. Fig. 138. Habitus. Fig. 139. Head. Figs. 140-142. Right paramere. Fig. 140. Medial view. Fig. 141. Ectal view. Fig. 142. Lateral view. Figs. 143-146. Theca and related structures. Fig. 143. Ventral view. Fig. 144. Dorsal view. Fig. 145. Lateral view. Fig. 146. Caudal view. Figs. 147-150. Pygophore. Fig. 147. Caudal view. Fig. 148. Ventral view. Fig. 149. Dorsal view. Fig. 150. Lateral view. Fig. 151. Genital plates, caudoventral view. Fig. 152. Spermatheca. Fig. 153. Spermathecal pump.
N Seymour Isl.  Rábida Isl.  Sn Cristóbal Isl.  Sta Cruz Isl: 1.5mi N Academy Bay; Bellavista; Conway Bay; Sullivan Bay. Santiago Isl.

Comments. This species can be identified by the distinctive humeral angle. The only other species closely related to *T. perditor* with a very short humeral angle is *T. cubensis*. *Thyanta cubensis* has most of the black markings on the pronotum and abdomen reduced, usually lacks the transhumeral rubiginous band, and usually has contrastingly yellow anterolateral pronotal margins. *Thyanta setigera* has well-developed black markings on the pronotum and abdomen, usually has at least a partial transhumeral rubiginous band, and has the anterolateral margins of the pronotum concolorous with the rest of the pronotum.

*Thyanta (Thyanta) rubicunda* Rider, new species

Figs. 154-169, Map 10

Description. Elongate ovate, dorsal surface pale to medium green or brown, often with pinkish-red markings between humeri, on apex of scutellum, and along lateral margins of pronotum, coria, and connexiva; punctures usually concolorous with surface.

Apex of head broadly rounded; jugal margins sinuous, not at all parallel, only slightly concave in front of eyes (Fig. 155). Antennae pale brown to green, distal fourth of segment 3 dark brown, segments 4-5 entirely dark brown. Anterolateral pronotal margins in dorsal view concave, strongly denticulate for anterior two-thirds; each humeral angle spinose, oriented anterolaterad, spine relatively short (Fig. 154). Mesial angle of each pronotal cicatrice piceous. Coria densely
Figs. 154-169. *T. rubicunda*. Fig. 154. Habitus. Fig. 155. Head. Figs. 156-158. Right paramere. Fig. 156. Medial view. Fig. 157. Ectal view. Fig. 158. Lateral view. Figs. 159-162. Theca and related structures. Fig. 159. Ventral view. Fig. 160. Dorsal view. Fig. 161. Lateral view. Fig. 162. Caudal view. Figs. 163-166. Pygophore. Fig. 163. Caudal view. Fig. 164. Ventral view. Fig. 165. Dorsal view. Fig. 166. Lateral view. Fig. 167. Genital plates, caudoventral view. Fig. 168. Spermatheca. Fig. 169. Spermathecal pump.
and uniformly punctate; distal margin convex; costal angle angulate, reaching to middle of penultimate connexival segment (Fig. 154); hemelytral membrane hyaline with a few scattered brown flecks. Connexiva narrowly exposed; posterolateral angle of each segment usually immaculate, sometimes minutely marked with black.

Ventral surface pale brown to green; punctures usually concolorous with surface. Rostrum pale brown to green, segment 4 mostly black, apex reaching between metacoxae. Femora and tibiae pale brown to green, tarsal segments and apex of each tibia darker. Post-spiracular black spots lacking (except in brown form); posterolateral angle of each abdominal sternite at most minutely marked with black; anterolateral angles immaculate.

Mesial margins of basal plates in caudoventral view weakly concave, widely separated basally, almost contiguous apically; posterior margins sinuous, posteroemedial angle broadly rounded (Fig. 167). Apex of sclerotized rod cone-shaped (Fig. 168); spermathecal bulb digitiform, spermathecal duct forming distinct cylindrical structure below proximal flange (Fig. 169). Pygophoral opening subtended by semicircular impression; posterior margin nearly straight with a medial V-shaped emargination in caudal view (Fig. 163); trisinuous in ventral and dorsal views (Figs. 164, 165); posterolateral angles prominent in lateral view (Fig. 166). Apex of each paramere spinose in ectal view (Fig. 157); shaft rather robust at base with small tubercle (Fig. 156); roughened, spiculate area on lateral surface linear (Fig. 158). Each lateral conjunctival lobe of aedeagus with a single diverticulum (Fig. 159); dorsomedial lobe present (Fig. 160).
Measurements. Total length 8.28-10.72 (9.54); total width 5.83-7.02 (6.62); medial length of pronotum 1.62-2.13 (1.95). Medial length of scutellum 3.48-4.53 (3.86); basal width 3.20-3.75 (3.42); width at distal end of freina 1.07-1.47 (1.40). Length of head 1.72-1.90 (1.72); width 2.23-2.54 (2.30). Length of segments 1-5 of antennae 0.40-0.44 (0.44), 0.92-0.98 (0.92), 0.92-1.03 (0.92), 1.03-1.10 (1.03), and 1.07-1.14 (1.14), respectively. Length of segments 2-4 of rostrum 1.32-1.47 (1.34), 0.74-0.88 (0.77), and 0.74-0.77 (0.74), respectively.

Holotype. Male, labeled (a) "Pocos, Antofagaste Prov. E. of Atacama Salt lk., Chile March 1955, Luis E. Pena, Collector" (b) "Thyanta juvenca Stal, Lutz '57" [folded]. Deposited in the American Museum of Natural History (New York).

Paratypes. Four male and 11 female specimens. One male labeled (a) "Rayado Aconc. 18-VIII-1960" ["18-VIII" handwritten] (b) "L. Campos colector" (IIAS); one female labeled as holotype except (b) "J C Lutz Collection 1961" [right half with red dots] (USNM); two females labeled (a) "CHILE: San Pedro de Atacama, N. of Atacama Salt Lake, Antofagaster Prov. V-1-6-1964" [handwritten] (b) "L.E.Pena Collector" (AMNH); one male and one female labeled (a) "Estancia Castilla Vallenar" [handwritten; black border] (b) "8 - Mayo 1969.-" [handwritten; black border] (c) "J.Aranda Colector" (DAR, IIAS); one male labeled "Chile. Vallenar 3.VII.86 En alfalfa Col. SAG" [handwritten] (IIAS); one male labeled "CHILE Pudahuel Vegetación 25.V.85 Col. R. Hevia" [handwritten] (IIAS); one female labeled (a) "Chaca (Chile?) 11-5-55 L.E. Pena" [handwritten] (b) "Thyanta juvenca Stal, Det. J.C. Lutz" [handwritten; black border; folded] (AMNH); one female labeled (a) "Chile Mamina
IX.17.51" [handwritten] (b) "THOMAS F. HALSTEAD COLLECTION, California Academy of Sciences Accession" (CAS); one female labeled (a) "Rio Lluta, Arica Dept. Tarapaca Prov., Chile Nov. 11-13, 1955; 500 Mt. Luis E. Pena, Collector" (b) "J C Lutz Collection 1961" [right half with red dots] (c) "Thyanta juvenca Stal" [folded] (USNM); one female labeled (a) "LOMAS de PEÑUELAS LA SERENA -II-1953" [handwritten] (b) "Thyanta chilensis H.S. Det. D.B.Thomas 1978" ["Thyanta chilensis H.S." and "8" handwritten; folded] (MHNS); one female labeled "LOMAS de PEÑUELAS. LA SERENA -II-1953" [handwritten] (MHNS); one female labeled (a) "Los Andes, Chile" [handwritten] (b) "17-V-79 Coll. G. Gordh" [handwritten] (UCR); and one female labeled (a) "Peñueles 8-3-53" [handwritten] (b) "Thyanta chilensis H.S. Det. D.B. Thomas 1978" [folded] (DBT).

Distribution. Chile (Map 10).

Comments. This species can be identified by the reduced amount of black markings on the abdominal venter, by the shape and orientation of each humeral spine, by the denticulation along the anterolateral pronotal margins, and usually by the pinkish coloration along the lateral margins of the body. The shape of the paramere is also unique within the perditor species group. The obtuse protuberance on the shaft of the paramere is reduced and nearer the base of the shaft.

Etymology. In Latin, rubicunda means pink-bordered, a character that many specimens of this species exhibit.

Maculata species group

Diagnosis. Punctuation coarse, sparse, dorsal surface appearing shiny, glossy. Anterolateral margins of pronotum straight to slightly
concave, concolorous with surface of pronotum; humeral angles rounded to angulate, rarely spinose; pronotal cicatrices usually immaculate, sometimes faintly marked with fuscous in mesial angles. Posterior termination of each buccula evanescent. Ostiolar canal usually acuminate apically, rarely becoming wider apically (T. planifrons).

Distal end of sclerotized rod with or without subapical swelling, never cone-shaped; spermathecal bulb globose; spermathecal duct below proximal flange slightly to greatly swollen and coiled, but never forming distinct cylindrical structure. Pygophoral opening relatively large; posterior margin usually broadly and shallowly U-shaped; posteroverentral surface of pygophore produced into blunt chin-like protuberance. Each paramere acute to narrowly rounded apically, obtuse protuberance on shaft moderate in size to absent, possessing distinct dorsomedial concave surface; roughened, spiculate area on lateral surface of paramere usually circular, rarely linear (T. boliviensis). Theca reniform, lacking dorsolateral protuberances; each lateral conjunctival lobe usually with single diverticulum; median penal lobes and penisfilum usually relatively small.

**Comments.** This is the largest group within the genus, containing 20 species, and also the most difficult in which to identify the included species. It is often necessary to examine the male genitalia in order to make accurate determinations. Within geographical areas, the internal female genitalia are usually distinctive.

This species group can be divided into two subgroups based primarily on the structure of the spermatheca. In T. boliviensis new species, T. brasiliensis Jensen-Haarup, T. emarginata new species, and
T. hamulata new species, the sclerotized rod is somewhat elongate and lacks any swelling subapically. The remaining species have the sclerotized rod shorter and distinctly swollen subapically, becoming narrowed apically.

**Thyanta (Thyanta) planifrons** Ruckes

Figs. 170-185, Map 6

*Thyanta planifrons* Ruckes, 1956:59-61, fig. 3; Rolston and McDonald, 1984:fig. 33.

*Thyanta casta* (of authors, not Stål): Uhler, 1894a:231 (part); Van Duzee, 1904:52, 54 (part); Kirkaldy, 1909:94 (part); Banks, 1910:90; Van Duzee, 1917:53 (part); Van Duzee, 1923:127-128; Torre-Bueno, 1939:231 (part).

**Diagnosis.** Vertex of head relatively flat; jugal margins subparallel for middle third of distance from eyes to apex (Fig. 171). Anterolateral margins of pronotum straight to slightly concave in dorsal view; each humeral angle rounded, not or only slightly produced beyond base of adjacent corium (Fig. 170). Pronotal cicatrices immaculate. Rarely with reddish markings on pronotum. Ostiolar canal widening towards apex, wider distally than in middle (Fig. 185). Each abdominal sternite lacking black markings, rarely posterolateral angle of each abdominal sternite minutely piceous.

Basal plates in caudoventral view with mesial margins slightly convex, separated basally; posterior margins slightly convex; posteromesial angle rounded to slightly emarginate (Fig. 182).
Figs. 170-185. *T. planifrons*. Fig. 170. Habitus. Fig. 171. Head.

Figs. 172-174. Right paramere. Fig. 172. Medial view. Fig. 173. Ectal view. Fig. 174. Lateral view. Figs. 175-177. Theca and related structures. Fig. 175. Ventral view. Fig. 176. Dorsal view. Fig. 177. Lateral view. Figs. 178-181. Pygophore. Fig. 178. Caudal view. Fig. 179. Ventral view. Fig. 180. Dorsal view. Fig. 181. Lateral view. Fig. 182. Genital plates, caudoventral view. Fig. 183. Spermatheca. Fig. 184. Spermathecal pump. Fig. 185. Ostiole and related structures. Symbols: bp, basal plate; df1, distal flange; dsp, dilation of spermatheca; gx2, second gonacoxa; jug, juga; lcl, lateral conjunctival lobe; mpl, median penal lobe; ocl, ostiolar canal; 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; ssd, swelling of spermathecal duct; s10, tenth sternite; th, theca; tyl, tylus.
Sclerotized rod slightly swollen subapically, narrowed apically (Fig. 183); spermathecal duct with only slight amount of swelling below proximal flange (Fig. 184). Posterior margin of pygophore in caudal view broadly and shallowly U-shaped, slightly sinuous medially (Fig. 178); posterior margin weakly concave in ventral and dorsal views (Figs. 179, 180); posteroventral surface deeply emarginate in lateral view (Fig. 181). Apex of each paramere nearly acute from both medial and ectal views (Figs. 172, 173); concave surface oriented more dorsad than mediad; roughened spiculate area on lateral surface circular (Fig. 174). Each lateral conjunctival lobe of aedeagus with 1-2 non-sclerotized diverticula (Fig. 177); dorsomedial lobe apparently absent (Fig. 176); median penal lobes spatulate (Fig. 175).

Types. Ruckes (1956) described *T. planifrons* from six male and seven female specimens. The holotype, which is from 10 miles west of Alamos, Sonora, Mexico, and all 13 paratypes were examined. The holotype is housed in the American Museum of Natural History (New York).

Distribution. Southwestern U.S. and northwestern Mexico (Map 6).

Specimens Examined. 535 specimens collected during every month except February; deposited in AMNH, ASUT, CAS, DAR, DBT, EGER, FSCA, LACM, LHR, MSU, TAMU, UAT, UCB, UCR, UIM, UMC, UNAM, USNM. UNITED STATES: ARIZONA: Cochise: Portal; 5mi W Portal, SWRS. Pima: Baboquivari Mtns, Browns Cyn; Organ Pipe Cactus Natl Mon. Sta Cruz: Madera Cyn.


MÉXICO: Canipole; 10mi SW Canipole; Carmen Isl, Porto Ballandra; Puntbunda. Baja California Norte: Bahía de los Angeles; Cataviña; 10mi
S Cataviña; 8km N Punta Prieta; 15mi N Punta Prieta; Sn Felipe; 12mi S Sn Felipe; 15mi S Sn Felipe; Sn Fernando. Baja California Sur: Bahía Concepción; Cabo Sn Lucas; 3mi W Caduano; Comondu; 10mi SW Comondu; 20mi N Comondu; 23mi S Comondu; 14mi S El Arco Mine; 28mi S El Arco Mine; 6.5mi S, 1mi E El Pescadero; 15mi N El Rufugio; El Sargent; El Triunfo; 2mi NW El Triunfo; 6mi N El Triunfo; Escondido Bay; 3mi N Guajademi; Hamilton Rch; 1km SW Huatamote; Isl Annelvo; Isla Catalán; Isla Cerralvo; Isla Espírita Santo; La Paz; 2mi S La Paz; 5mi SW La Paz; 7mi SW La Paz; 13mi W La Paz; 14mi W La Paz; 15mi W La Paz; 20mi NW La Paz; 21mi W La Paz; 23km W La Paz; 25mi W La Paz; 26mi W La Paz; 33.5km NW La Paz; La Purisima; Las Animas; Las Barracas; Las Tinajitas; 2mi SE Las Virgenes; 1mi E Migriño; Miraflorres; 5mi S Miraflorres; 4mi S Mission Sn Javier; Mulegé; 1mi S Mulegé; 2mi S Rancho de la Ventana; 2.6mi E Sn Antonio; 3mi SW Sn Antonio; 5mi S Sn Antonio; 5mi W Sn Bartolo; Sn Domingo; 15mi S Sn Domingo; 15mi N Sn Ignacio; 27mi W Sn Ignacio; Sn José del Cabo; 2km W Sn José del Cabo; 10mi SW Sn José del Cabo; 1.3mi N Sn José Viejo; 3mi N Sn José Viejo; 5mi S Sn Miguel; 3km S, 1.3km E Sn Pedro; 3.5mi NE Sn Pedro; Sn Sebastian; 5mi SE Sta Rosalía; 12mi S Sta Rosalía; Santiago; 6mi SW Santiago; Sierra de la Laguna; Todos Santos; 4mi N Todos Santos; 28-29km N Todos Santos; Venancio; 30mi E V. Insurgentes. Sinaloa: Mazatlán; 34mi N Mazatlán. Sonora: 10mi W Alamos; Bahía de los Sn Carlos; Bahía Kino; 20mi NNE Cd Obregón; El Desemboque; Guaymas, Punta Sn Antonio; Hermosillo; La Choya; Minas Nuevas; 15km S Navojoa; 15mi N Navojoa; Sn Bernardino, Río Mayo; 20mi S Sonoyta; Tecoripa; Tiburón Island; Yavaros.
Comments. *Thyanta planifrons* can be separated from all other congeners by the distal widening of the ostiolar canal. Also, the vertex of the head is relatively flat, a character for which this species was named.

The widening of the ostiolar canal is unusual, but not unique. It also occurs in *Tepa jugosa* Van Duzee, a species with essentially the same distribution as *Thyanta planifrons*. The biological significance of this condition is not known, but it would make an interesting study.

*Thyanta (Thyanta) maculata* (Fabricius)

Figs. 186-200, Map 7

*Cimex maculatus* Fabricius, 1775:704.

*Thyanta casta* Stål, 1862b:104; Stål, 1872:35; Uhler, 1876:7; Distant, 1880:66; Uhler, 1886:7; Uhler, 1894a:231 (part); Lethierry and Severin, 1893:147; Kirkaldy, 1909:94 (part); Malloch, 1919:217, fig. 74; Torre-Bueno, 1939:231 (part). NEW SYNONYMY.

*Euschistus castus*: Walker, 1867:244.


Diagnosis. General color green to brown; often with varying amounts of rubiginous coloration on pronotum between humeral angles, often forming two oblong spots, one on each side of middle. Apices of scutellum and each corium occasionally rubiginous.
Jugal margins sinuous, not quite parallel (Fig. 187). Anterolateral margins of pronotum nearly straight in dorsal view; each humeral angle rounded to angulate, usually produced beyond base of each corium by less than half width of eye (Fig. 186); pronotal cicatrices immaculate. Ostiolar canal acuminate apically. Posterolateral angle of each abdominal segment piceous, sometimes only minutely so. Postspiracular spots lacking, sometimes present in brown form.

Basal plates in caudoventral view with mesial margins slightly convex, separated basally; posterior margins convex; posteromesial angle slightly emarginate (Fig. 198). Sclerotized rod swollen subapically, narrowed apically (Fig. 199); spermathecal duct moderately swollen and coiled below proximal flange (Fig. 200). Posterior margin of pygophore in caudal view broadly and shallowly U-shaped (Fig. 194); lateral angles prominent in ventral and dorsal views, chin-like protuberance relatively small (Figs. 195, 196); in lateral view, emarginate below middle (Fig. 197). Apex of each paramere obtusely rounded in ectal view (Fig. 189); concave surface oriented more mediad than dorsad, shaft rather robust with small medial protuberance (Fig. 188); roughened spiculate area on lateral surface localized, circular (Fig. 190). Aedeagus with lateral and dorsomedial conjunctival lobes large, each lateral lobe with single slightly sclerotized diverticulum (Fig. 191); penisfilum and median penal lobes obscured by conjunctiva (Fig. 193).

Types. Fabricius (1775) described *Cimex maculatus* from "America" without designating a holotype or paratypes. It is not possible to determine from his original description how many specimens he examined, but it is evident that he had more than one, as he mentions a variation.
Figs. 186-200. T. maculata. Fig. 186. Habitus. Fig. 187. Head. Figs. 188-190. Right paramere. Fig. 188. Medial view. Fig. 189. Ectal view. Fig. 190. Lateral view. Figs. 191-193. Theca and related structures. Fig. 191. Ventral view. Fig. 192. Dorsal view. Fig. 193. Lateral view. Figs. 194-197. Pygophore. Fig. 194. Caudal view. Fig. 195. Ventral view. Fig. 196. Dorsal view. Fig. 197. Lateral view. Fig. 198. Genital plates, caudoventral view. Fig. 199. Spermatheca. Fig. 200. Spermathecal pump. Symbol: dmc, dorsomedial conjunctival lobe.
Only one syntype was located and examined. It is a female in poor condition (apex of abdomen destroyed, left forewing missing, etc.), but it does possess the characters that define this species. It has the following label data: (a) "maculatus" [handwritten] (b) "Thyanta maculata F." [handwritten], and is here designated the lectotype. This specimen is housed in the Universitetets Zoologiske Museum (Copenhagen, Denmark).

Stål (1862b) described T. casta from Mexico without designating a holotype or paratypes. One syntype, a female, was located and examined. Although it lacks the reddish markings that many specimens of T. maculata possess, it differs structurally in no significant manner from T. maculata. Because it is not possible to determine the number of specimens upon which Stål's description was based, the syntype specimen is designated the lectotype. It is labeled as follows: (a) "Mexico Coll. Signoret." ["Mexico" handwritten] (b) "Casta det. Stal" ["Casta" handwritten] (c) "TYPE" [red paper] (d) "Coll. Nat.-Mus. Wien" (e) "Thyanta casta STAL" [handwritten]. The lectotype is housed in the Naturhistorisches Museum (Vienna, Austria).

Distribution. Southern Texas southward through Mexico and Central America to southern Panama (Map 7).

Specimens Examined. 497 specimens. UNITED STATES: TEXAS: Brazos. Burnet: Inks Lk St Pk. Cameron: Boca Chica; 3mi SW Boca Chica; Brownsville; Harlingen; Sabal Palm Grove Sanct. nr Southmost. Hidalgo: Bentsen Rio Grande Vly St Pk; Edinburg; McAllen; Progresso; Sta Ana Natl Wildlife Refuge. Kleburg: Kingsville. Presidio: Presidio. Sn Patricio: Corpus Christi Lk St Pk; Nueces R, 5mi SW Mathis. Starr:
Falcon Heights; 4-15mi N Roma. Webb: Laredo. Zapata: 1mi E Falcon Lk; Falcon St Pk.

MÉXICO: Campeche: Calkíní; 12mi E Campeche; El Remate; Escárcega; Ruinas Edzna; km 54, Carr. Campeche-Merida. Chiapas: Aguacero, 16km W Ocozocautla; Chicoasen Dam Area; 13mi W Cintalpa; 2mi N Ocozocautla; Ruinas Bonampak; Sn Cristóbal de las Casas; Sto Domingo, 15mi SE Simojovel; Simojovel; Suchiapa. Coahuila: Arroyo de la Zorra. Colima: 2mi N Manzanillo. Guerrero: Acapulco de Juárez; 3.7mi E Marquelia; Tecpán de Galeana. Hidalgo: Otonog. Jalisco: Chamela; Estacion de Biología Chamela. Michoacán: Acaxuato. Morelos: 4.4mi E Cuernavaca; Villa de Ayala. Nayarit: 15km E Sn Blas. Nuevo León: Apodaca; 3mi E Galeana; 16mi S Linares, Anegade Arroyo; 4.1mi S Montemorelos; Monterrey; 4mi S Monterrey; 5mi S Monterrey, Valle Alto; 6mi S Monterrey. Oaxaca: 2.7mi NW El Camaron; El Charquito; 6mi W Jalapa del Marques; 8mi N La Ventosa; Pto Escondido; Salina Cruz; Tehuantepec; 11mi W Tehuantepec; 12mi W Tehuantepec; 13km W Tehuantepec; 44mi W Tehuantepec; 2.1mi NW Totolapán. Querétaro: 1mi NW Ayutla. Quintana Roo: 1km N Coba; 20km N Felipe Carrillo Pto; 54mi SE Peto; Sn Isidrio Pto Morelos; 2mi NE Sn Miguel; R. El Ramonal; Rancho El 24; Xcun Nuevo; km 146, Carr. Chetumal-Cancún; km 146, Carr. Chetumal-Pto Juárez. Sn Luis Potosí: 12mi S Cd Mante; Cd Valles; 11km E Cd Valles; El Banito; El Salto Falls; Tamazunchale; 5mi N Tamazunchale; 30mi S Tamazunchale; Tamaulipas: Abasolo; Antiguo Morelos; Bocatoma, Cd Victoria; 6mi S Cd Victoria; 25mi S Cd Victoria; 5mi SSE Gómez Farías; 6mi S Gómez Farías; Guemes;
Hidalgo; 8mi N Jiménez; La Pesca; Llera; 5mi N Llera; 13km E
Magiscatizin; Punta Piedras; Río Corona, 30km N Cd Victoria; Sn Fernando;
6.2mi S Sn Fernando; 25mi SE Sn Fernando; Tampico; Villagran. Veracruz:
Córdoba; Cotaxtla; Cotaxtla Expt Stn; Cuitlahuac; Lk Catemaco Area; Ojo
de Agui; Puente Nacionale; Sn Andres Tuxtla; 5mi S Santiago Tuxtla;
Tolome; 10mi W Veracruz. Yucatán: Chichén Itzá; Piste; Progreso; 12km N
Quintana Roo, Hwy 295; 13mi E Valladolid; 13.3mi S Valladolid; 1km S
Xcalacooch; 10km N Xcalacooch.

BELIZE: Belize: 12mi NW Belize City. EL SALVADOR: Ruinas Sn Andres.
NICARAGUA: Chinandega; N side Cosgúina Volcano, Gulf of Fonseca.
 Managua: Jiloa; Masachapa. COSTA RICA: Limón. Guanacaste: La Pacifica,
nr Cañas. PANAMA: Chitré; La Chorrera. Canal Zone: Barro Colorado Isl;
Base of Cerro Galera.

Comments. Thyanta maculata was originally distinguished from other
congeners by the presence of two oblong reddish macules, one on each
side of the middle of the pronotum. Fewer than half the specimens of T.
maculata actually exhibit this character. Also, several other species
of Thyanta are known to have the same type of maculation in at least
some specimens (T. pseudocasta Blatchley, T. brasiliensis Jensen-Haarup,
T. curvata new species)

Thyanta maculata can be separated from other congener except T.
pseudocasta by the structure of the male genitalia. Each paramere is
rather robust with the apex rounded, and the dorsomedial concave surface
is oriented more mediad than dorsad. Thyanta pseudocasta has very
similar male genitalia, but the aedeagus is slightly different. The
aedeagus of *T. maculata* has a dorsomedial conjunctival lobe, while the same structure is apparently absent in *T. pseudocasta*. The two forms can usually be separated based upon the prominence of the humeral angles. Each humeral angle in *T. maculata* is usually produced beyond the base of the adjacent corium by less than half the width of an eye, while in *T. pseudocasta* each humeral angle usually protrudes beyond the corium by more than half the width of an eye.

*Thyanta* maculata is a variable species, especially with respect to size and coloration. For example, those specimens from the Yucatan peninsula of Mexico average much smaller than specimens from other parts of the range, but they do not differ in any other significant manner.

**Thyanta (Thyanta) pseudocasta** Blatchley

Figs. 201-215, Map 5

*Thyanta pseudocasta* Blatchley, 1926:114, 120; Blatchley, 1930:64; Torre-Bueno, 1939:230; Rolston and McDonald, 1984:figs. 26, 34.

*Thyanta casta* (of authors, not Stål): Barber, 1914:523; Van Duzee, 1917:53 (part); Torre-Bueno, 1939:231 (part).

**Diagnosis.** General color pale green to pale brown, sometimes with reddish color on anterior half of pronotum.

Jugal margins subparallel for middle third of distance from eyes to apex (Fig. 202). Anterolateral margins of pronotum nearly straight in dorsal view; each humeral angle prominent, produced beyond base of adjacent corium by more than half width of eye, rounded to angulate (Fig. 201). Pronotal cicatrices immaculate. Ostiolar canal acuminate
Figs. 201-215. *T. pseudocasta*. Fig. 201. Habitus. Fig. 202. Head.
Figs. 203-205. Right paramere. Fig. 203. Medial view. Fig. 204.
Ectal view. Fig. 205. Lateral view. Figs. 206-208. Theca and
related structures. Fig. 206. Ventral view. Fig. 207. Dorsal
view. Fig. 208. Lateral view. Figs. 209-212. Pygophore. Fig.
209. Caudal view. Fig. 210. Ventral view. Fig. 211. Dorsal view.
Fig. 212. Lateral view. Fig. 213. Genital plates, caudoventral
view. Fig. 214. Spermatheca. Fig. 215. Spermathecal pump.
apically. Posterolateral angle of each abdominal sternite piceous, sometimes only minutely so. Post-spiracular black spots absent, sometimes present in brown form.

Basal plates in caudoventral view with mesial margins straight to slightly convex; posterior margins evenly convex, posteromesial angle rounded (Fig. 213). Sclerotized rod slightly swollen subapically, narrowed apically (Fig. 214); spermathecal duct with small amount of swelling and coiling below proximal flange (Fig. 215). Posterior margin of pygophore in caudal view broadly and shallowly U-shaped, slightly sinuous medially in caudal, ventral, and dorsal views (Figs. 209, 210, 211); pygophore emarginate in lateral view (Fig. 212). Apex of paramere from ectal view nearly acute; from medial view narrowly rounded; concave surface facing mediad (Fig. 203); roughened spiculate area on lateral surface circular (Fig. 205). Aedeagus with each lateral conjunctival lobe apparently lacking sclerotized diverticula (Fig. 208); dorsomedial lobe apparently absent (Fig. 207); median penal lobes relatively small (Fig. 206).

Types. Blatchley (1926) described T. pseudocasta without designating a holotype or paratypes. In 1930, however, he designated one male specimen as "type" (lectotype). He did not mention any of the other syntypes. Although actual paralectotype designations were not made, according to the International Code of Zoological Nomenclature (Ride et al. 1985, sect. 74a[iv]), once the lectotype is designated the remaining syntypes automatically become paralectotypes. Accordingly, no such designations are needed, but labels have been added to the specimens to indicate their actual status.
Regrettably, the male lectotype is in deplorable condition; all that remains is the head and pronotum. It has the following label data:
(a) "Miami Fla. W. S. B. Coll. 3-11-24" ["Miami" and "3-11-24" handwritten] (b) "Purdue Blatchley collection" (c) "TYPE" [red paper] (d) "Thyanta pseudocasta Blatchley" [handwritten; pale red paper]. The lectotype is deposited in the Purdue University Collection (W. Lafayette, IN).

Ten additional specimens that are believed to be part of the original syntype series have been located: two females and one male labeled (a) "Miami Fla. W. S. B. Coll. 3-11-24" ["Miami" and "3-11-24" handwritten] (b) "Purdue Blatchley collection" (AMNH, PUL), except one female labeled (c) "Thyanta pseudocasta Blatchley" [handwritten] (LSU); two females and three males labeled (a) "C. Sable Fla. W. S. B. Coll. 2-23-19" ["C. Sable" and "2-23-19" handwritten] (b) "Purdue Blatchley collection" (PUL), except one male labeled (b) "H G Barber Colln1950" (USNM), and one female and one male labeled "4-5-25" [handwritten] instead of "2-23-19" on (a) (AMNH); one male labeled (a) "K. West Fla. W. S. B. Coll. 3-2-19" ["K. West" and "3-2-19" handwritten] (b) "Purdue Blatchley collection" (PUL); and one male labeled (a) "Coxam Fla. W. S. B. Coll. 3-8-21" ["Coxam" and "3-8-21" handwritten] (b) "Purdue Blatchley collection" (LSU). The lectotype and all but one paralectotype were examined.

**Distribution.** Southern Florida (Map 5).

**Specimens Examined.** 153 specimens collected during every month of the year; deposited in: AMNH, ARH, CAS, CNC, CU, DAR, DBT, EGER, FSCA, LHR, LSU, MSU, PUL, SMEK, UCB, UCS, UGA, UMC, USNM. UNITED STATES:
FLORIDA: Caxambus. Broward: Ft Lauderdale. Charlotte: Charlotte Harbor Area, L. Gasparillo Isl; Punta Gorda. Collier: Marco Isl; Royal Palm Park. Dade: Biscayne Bay; Coral Gables; Homestead; Miami. Lee: Sannibel Isl. Monroe: Big Pine Key; Cape Sable; Everglades Natl Pk; Key Largo; Key West; Marathon Key; Plantation Key; Stock Isl; Tavernier Key; 9mi NW Key Largo.

Comments. Thyanta pseudocasta is closely related to T. maculata. It can be separated from all congeners except T. maculata by the concave surface of the paramere being oriented more mediad than dorsad. Thyanta pseudocasta and T. maculata are very closely related, and T. pseudocasta may actually be a subspecies of T. maculata. The male genitalia of the two species are virtually identical, but there are some differences in the aedeagus. Thyanta maculata has a prominent dorsomedial conjunctival lobe, while this structure is apparently absent in T. pseudocasta. Also, the humeral angles are more prominent in T. pseudocasta. Because these species represent reproductively isolated populations, the conservative approach is taken and they are retained as full species.

Thyanta (Thyanta) obsoleta (Dallas)
Figs. 216-230, Map 9

Pentatoma obsoleta Dallas, 1851:251; Walker, 1867:289.
Thyanta casta (of authors, not Stål): Van Duzee, 1904:52, 54 (part);
Kirkaldy, 1909:94 (part); Barber, 1923:12; Barber, 1939:292, 293.
Diagnosis. Coloration green to pale brown, often with transhumeral reddish markings, sometimes forming two oblong spots, one each side of middle.

Jugal margins subparallel for middle third of distance from eyes to apex (Fig. 217). Anterolateral margins of pronotum straight to slightly concave in dorsal view; each humeral angle rounded to angulate, usually produced beyond base of corium by about half width of eye (Fig. 216). Pronotal cicatrices immaculate. Ostiolar canal acuminate apically. Posterolateral abdominal angles piceous; post-spiracular black spots absent, sometimes evident in brown form.

Mesial margins of basal plates in caudoventral view straight to slightly convex; posterior margins slightly convex; posteromesial angles broadly rounded (Fig. 228). Sclerotized rod swollen subapically, narrowed apically (Fig. 229); spermathecal duct moderately swollen below proximal flange with only slight amount of coiling (Fig. 230). Posterior margin of pygophore broadly and shallowly U-shaped in caudal view (Fig. 224); in lateral view concave (Fig. 227); posterior margin only slightly concave in dorsal view, posterolateral angles not prominent (Fig. 226); posteroventral surface distinctly produced into blunt chin-like protuberance in ventral view (Fig. 225). Paramere apically rounded in ectal view (Fig. 219); narrowly rounded from medial view, curving dorsad; concave surface oriented more dorsad than mediad (Fig. 218); roughened spiculate area on lateral surface circular (Fig. 220). Each lateral conjunctival lobe of aedeagus with 1-2 subacute diverticula (Fig. 223), dorsomedial lobe reduced (Fig. 222); median penal lobes large, spatulate (Fig. 221); penisfilum reduced.
Figs. 216-230. *T. obsoleta.* Fig. 216. Habitus. Fig. 217. Head. Figs. 218-220. Right paramere. Fig. 218. Medial view. Fig. 219. Ectal view. Fig. 220. Lateral view. Figs. 221-223. Theca and related structures. Fig. 221. Ventral view. Fig. 222. Dorsal view. Fig. 223. Lateral view. Figs. 224-227. Pygophore. Fig. 224. Caudal view. Fig. 225. Ventral view. Fig. 226. Dorsal view. Fig. 227. Lateral view. Fig. 228. Genital plates, caudoventral view. Fig. 229. Spermatheca. Fig. 230. Spermathecal pump.
Types. Dallas (1851) described *Pentatoma obsoleta* from Jamaica without designating a holotype or paratypes, and it is not possible to determine the number of specimens upon which he based his description. Only one female syntype was located, and it is here designated the lectotype. It is labeled (a) "Jamaica" [circular label; dorsal surface, handwritten], "45 1111" [ventral surface; handwritten] (b) "Type" [red circular label; black border] (c) "35. *Pentatoma obsoleta*,". The lectotype, which is housed in the British Museum of Natural History (London), was examined.

Distribution. Greater Antilles (Map 9).


Comments. It will be necessary to examine the male genitalia to separate this species from other species in the *maculata* group. *Thyanta obsoleta* can be distinguished from other Northern Hemisphere species by
its apically rounded parameres, which have the concave surface oriented more dorsad than mediad.

**Thyanta (Thyanta) testacea** (Dallas)

Figs. 231-245, Maps 9, 11

*Pentatoma testacea* Dallas, 1851:250; Walker, 1867:289.


*Thyanta signoreti* Ruckes, 1956:65-66, Fig. 7. NEW SYNONYMY.

**Diagnosis.** General color green to brown, rarely with rubigionous transhumeral markings.

Jugal margins subparallel for middle third of distance from eyes to apex (Fig. 232). Anterolateral pronotal margins straight to slightly concave; each humeral angle angulate to rounded, usually produced beyond base of adjacent corium by about half width of eye (Fig. 231). Pronotal cicatrices immaculate. Ostiolar canal acuminate apically. Posterolateral abdominal angles not marked with black or only minutely so; post-spiracular black spots absent, sometimes evident in brown form.

Basal plates in caudoventral view with mesial margins convex, separated basally; posterior margins convex (Fig. 243). Distal end of sclerotized rod slightly swollen subapically, narrowed apically (Fig. 244); spermathecal duct greatly swollen below proximal flange, carrot-shaped (Fig. 245). Posterior margin of pygophore broadly and shallowly U-shaped in caudal view (Fig. 239); slightly concave in lateral view.
Figs. 231-245. *T. testacea*. Fig. 231. Habitus. Fig. 232. Head. Figs. 233-235. Right paramere. Fig. 233. Medial view. Fig. 234. Ectal view. Fig. 235. Lateral view. Figs. 236-238. Theca and related structures. Fig. 236. Ventral view. Fig. 237. Dorsal view. Fig. 238. Lateral view. Figs. 239-242. Pygophore. Fig. 239. Caudal view. Fig. 240. Ventral view. Fig. 241. Dorsal view. Fig. 242. Lateral view. Fig. 243. Genital plates, caudoventral view. Fig. 244. Spermatheca. Fig. 245. Spermathecal pump.
(Fig. 242). Each paramere apically acute in both medial and ectal views (Figs. 233, 234); concave surface oriented more dorsad than mediad; roughened spiculate area on lateral surface circular (Fig. 235). Aedeagus with dorsomedial lobe apparently absent (Fig. 237).

Types. Dallas (1851) described Pentatoma testacea from "S. America" without designating a holotype or paratypes, and it is not possible to determine how many syntypes he had. Only one female syntype was located and is here designated the lectotype. It has the following label data: (a) "Type" [circular label, red circular border] (b) "40 3.30 809" [circular label, ventral surface] (c) "36. PENTATOMA TESTACEA," [dorsal surface], "hil. 136, pl. 1, f. 5. Sign." [ventral surface]. The lectotype, which is conserved in the British Museum of Natural History (London), was examined.

Ruckes (1956) described T. signoreti from one male and three female specimens from Colombia, South America. The holotype and two paratypes were examined, and they do not differ in any significant way from T. testacea. The holotype is conserved in the Naturhistorisches Museum (Vienna, Austria).

Distribution. Lesser Antilles and northern South America (Maps 9, 11).

Specimens Examined. 250 specimens collected during every month of the year; deposited in: AMNH, ARH, BMNH, CAS, CU, DBT, EGER, ENGL, INHS, UCV, LACM, LHR, LSU, MSUE, SMEK, TAMU, USNM. BRIT. VIRGIN ISLANDS: Tortola Isl. U.S. VIRGIN ISLANDS: St. Croix: Canaan; Christiansted; E Hill; Expt Stn Grounds; Hams Bluff. St. John: Est Carolina, NW of Coral Bay; Virgin Islands Natl Pk. St. Thomas: Charlotte Amalie; Est
Lilliendahl; Frenchman's Bay. BRIT. W. INDIES: Anguilla: N of Rd Bay. Antigua: Coolidge; Coolidge airport. Bequia. Dominica: Antrim; Cabrit Swamp; Clarke Hall; Grande Savane; Macoucheri; Mero Bch; Salybia; Springfield Est; S Chiltern. Grenada: Caliveny Est; Grand Anse, St. Georges Par; Granville; Mt Gay Est; St. Georges; Santeurs. Montserrat: Galway's Est; Plymouth. St. Kitts: W Farm Gut. St. Lucia: 1.5mi N Canaries. Tobago: Bucco Bay; Grafton Est. Trinidad: St. George Co., Curepe C.I.B.C. Union. FR. W. INDIES: Guadelupe: Sur Cotonnier. Martinique: Diamant; Sainte Anne. BARBADOS: Edge Hill; Freshwater Bay; Groves St. George. CURAÇAO.


Comments. Thyanta testacea is very closely related to the other species in the maculata group, and can be reliably identified only by examination of the male genitalia. The apically acute parameres curving gently dorsad will separate it from all congeners except T. patruelis,
from which it is nearly indistinguishable. The chin-like protuberance on the posteroventral surface of the pygophore is somewhat less prominent in *T. testacea* than in *T. patruelis*. There does seem to be a geographical separation of the two forms with *T. testacea* restricted to northern South America and the Lesser Antilles, and *T. patruelis* occurring from northeastern Brazil and southern Peru southward.

**Thyanta (Thyanta) patruelis** (Stål)

Figs. 246-260, Map 11


*Thyanta patruelis*: Stål, 1862a:58; Stål, 1872:35; Berg, 1878:23;


*Thyanta humilis* Bergroth, 1891:225-226. NEW SYNONYMY.

*Thyanta nitidula* Ruckes, 1956:62-63, fig. 4; Rolston and McDonald, 1984: fig. 30. NEW SYNONYMY.

**Diagnosis.** Small to medium; dorsal surface green to brown, often with reddish-purple markings between humeral angles, on dorsal surface of head, on apex of scutellum, and on apex of each corium; punctures concolorous with surface.

Jugal margins subparallel for middle third of distance from eyes to apex (Fig. 247). Anterolateral margins of pronotum straight to weakly concave in dorsal view; each humeral angle rounded to angulate, produced beyond base of adjacent corium by width of eye or less (Fig. 246).

Pronotal cicatrices immaculate. Connexiva narrowly exposed; posterolateral angle of each segment usually marked with piceous,
Figs. 246-260. *T. patruelis*. Fig. 246. Habitus. Fig. 247. Head. Figs. 248-250. Right paramere. Fig. 248. Medial view. Fig. 249. Ectal view. Fig. 250. Lateral view. Figs. 251-253. Theca and related structures. Fig. 251. Ventral view. Fig. 252. Dorsal view. Fig. 253. Lateral view. Figs. 254-257. Pygophore. Fig. 254. Caudal view. Fig. 255. Ventral view. Fig. 256. Dorsal view. Fig. 257. Lateral view. Fig. 258. Genital plates, caudoventral view. Fig. 259. Spermatheca. Fig. 260. Spermathecal pump.
sometimes only minutely so. Ostiolar canal acuminate apically. Post-spiracular spots lacking; posterolateral angle of each abdominal sternite usually piceous.

Mesial margins of basal plates straight to slightly convex, separated basally; posterior margins straight to slightly convex; each posteromesial angle rounded or slightly emarginate (Fig. 258). Sclerotized rod slightly swollen subapically, narrowed apically (Fig. 259). Spermathecal duct greatly swollen below proximal flange, carrot-shaped (Fig. 260). Posterolateral angles of pygophore only slightly prominent in lateral view (Fig. 257); posteroventral surface of pygophore distinctly depressed between blunt chin-like protuberance and posterior margin of pygophore; posterior margin of pygophore broadly and shallowly U-shaped in caudal view (Fig. 254). Apex of each paramere distinctly spinose in both medial and ectal views (Figs. 248, 249), roughened spiculate area on lateral surface circular (Fig. 250). Each lateral conjunctival lobe of aedeagus with 1-2 nonsclerotized diverticula (Fig. 253); dorsomedial lobe absent (Fig. 252); penisfilum relatively small, median penal lobes spatulate, nearly hidden by conjunctival lobes (Fig. 251).

Types. Stål (1859) described P. patruelis from one female specimen from Rio de Janeiro, Brazil. The holotype, which is conserved in the Naturhistoriska Rikoriska Rikomuseet (Stockholm, Sweden), was examined.

Bergroth (1891) described Thyanta humilis from at least two specimens from Minas Geraes, Brazil. Grazia (1987) made lectotype and paralectotype designations. The lectotype was examined, and is
currently housed in the Museum National d'Histoire Naturelle (Paris, France). Although this specimen is smaller and somewhat more depressed than the holotype of *T. patruelis*, there are very few differences that will separate the two (see comments below).

*Thyanta nitidula* was described (Ruckes 1956) from 12 male and three female specimens, all from Brazil. The holotype was examined, and is conserved in the American Museum of Natural History (New York). This specimen is intermediate in size between the lectotype of *T. humilis* and the holotype of *P. patruelis*, and falls within the range of variation exhibited by these two specimens (see comments below).

**Distribution.** North Central Brazil and southern Peru south to Argentina (Map 11).

**Specimens Examined.** 532 specimens collected during every month of the year except August; deposited in: AMNH, BMNH, CAS, CU, DAR, DBT, EGER, ISU, LACM, LHR, MBR, MGA, MCN, MNRJ, MZRS, POLH, PUL, SMEK, UMA, UNAM, USNM, UEC. PERU: Curabaya; La Merced, Chanchamaya; **Cusco;** Quillabamba. **Junín:** 40-55 km SE Satipo. **BRAZIL:** Chapada de Guimaraes; Lagoa de Camarim; Nordeste; Piriapolis. **Bahia:** Encruzilhada; Itap; Nova Conquista; Salvador. **Ceará:** Barbalha; Fortaleza. **Espírito Santo:** Guarapari; Linhares; Vitória. **Goiás:** Aragarças; Brasília; Jataí. **Mato Grosso:** Independencia. **Mato Grosso do Sul:** Aquidauana; Bodoqueña; Corumbá; Morro do Urcún; Rondonopolis. **Minas Gerais:** Cordisburgo; Pedra Azul; Bandeiro; Sta Barbara, Varginha. **Paraíba:** Juazeirinho. **Paraíba:** Araucaria; 30mi W Irati; Rolândia; Vila Velha Pk. **Pernambuco:** Bonito Prov; Caruaru; Petrolina. **Rio de Janeiro:** Mangaratiba; Nova Iguaçu; Rio de Janeiro; Teresópolis. **Rio Grande do Sul:** Campos;

Comments. Thyanta patruelis is a highly variable species with regard to both size and coloration. It is possible that it represents a group of several very closely related, morphologically indistinguishable species. Two specimens from opposite ends of the spectrum in variability (color, size) appear to be distinct species, but when a series of specimens are examined, it is obvious that all manner of intermediates exist. Also, no matter what the size or color of the specimen, the male and female genitalia are constant, with only minor variations in an occasional specimen.

Thyanta (Thyanta) acuminata Ruckes

Figs. 261-276, Map 11

Thyanta acuminata Ruckes, 1956:63-65, fig. 5.
**Diagnosis.** Small to medium; dorsal surface green to brown, sometimes with reddish markings on dorsal surface of pronotum and head; punctures usually concolorous with surface.

Apex of head evenly rounded; jugal margins subparallel for middle third of distance from eyes to apex (Fig. 262). Anterolateral margins of pronotum straight to slightly concave in dorsal view; each humeral angle rounded, protruding only slightly beyond base of adjacent corium (Fig. 261); pronotal cicatrices immaculate. Hemelytral membrane hyaline, lacking brown distal flecks. Posterolateral angle of each connexival segment usually immaculate, sometimes minutely marked with black. Ventral surface green to brown; posterolateral angle of each abdominal sternite immaculate; post-spiracular black spots absent. Ostiolar rugae acuminate apically.

Mesial margins of basal plates in caudoventral view convex, separated basally and distally; posterior margins convex; posteromesial angles broadly rounded (Fig. 273). Sclerotized rod relatively short, swollen subapically, gradually narrowing apically (Fig. 274). Swelling of spermathecal duct below proximal flange shorter than spermathecal pump and narrowing rather abruptly (Fig. 275). Posterior margin of pygophore in caudal view broadly and shallowly U-shaped, medial portion nearly straight (Fig. 269); posterolateral angles of pygophore prominent in both ventral and dorsal views (Figs. 270, 271); pygophore sinuous in lateral view (Fig. 272). Apex of each paramere in medial view narrowly rounded to spinose, curving gently dorsad (Fig. 263), with a distinct spinose lateral lobe in ectal view (Fig. 264); concave surface oriented more dorsad than mediad; roughened, spiculate area on lateral surface
Figs. 261-276. T. acuminata. Fig. 261. Habitus. Fig. 262. Head. Figs. 263-265. Right paramere. Fig. 263. Medial view. Fig. 264. Ectal view. Fig. 265. Lateral view. Figs. 266-268. Theca and related structures. Fig. 266. Ventral view. Fig. 267. Dorsal view. Fig. 268. Lateral view. Figs. 269-272. Pygophore. Fig. 269. Caudal view. Fig. 270. Ventral view. Fig. 271. Dorsal view. Fig. 272. Lateral view. Fig. 273. Genital plates, caudoventral view. Fig. 274. Spermatheca. Fig. 275. Spermathecal pump. Fig. 276. Buccula, lateral view. Symbol: ptb, posterior termination of buccula.
oval (Fig. 265). Aedeagus relatively small; each lateral conjunctival lobe with spinose diverticulum apically; each medial penal lobe spatulate; penisfilum relatively small (Figs. 266-268).

Types. Ruckes (1956) described this species from 13 male and four female specimens, all from Argentina and Paraguay. The holotype, which is conserved in the American Museum of Natural History (New York), was examined.

Distribution. Southern South America (Map 11).


Comments. This species can be separated from most other congeners by the reduction of nearly all black markings and by the lack of brown flecks in the hemelytral membrane. The spinose lateral lobe of the paramere is a character this species shares only with T. hamulata. In
T. hamulata the apex of each paramere curves dorsad and caudad forming a distinct hook, while in T. acuminata the apex of each paramere curves gently dorsad, but does not form a hook. Also, the lateral lobe of the paramere in T. hamulata is triangular, while in T. acuminata, it is digitiform and apically spinose.

Female specimens of T. acuminata can be distinguished from the other three species of the maculata group which occur in southern South America by examining the spermatheca. Thyanta boliviensis and T. brasiliensis have the sclerotized rod not at all swollen subapically; both T. acuminata and T. patruelis have this structure swollen subapically, although somewhat less so in T. acuminata. In T. patruelis the length of the swelling of the spermathecal duct below the proximal flange is equal to or longer than the spermathecal pump, and it usually narrows gradually, giving the whole swollen portion the appearance of an inverted cone. In T. acuminata, this swollen portion is much shorter and narrows rather abruptly.

**Thyanta (Thyanta) hamulata** Rider, n. sp.

Figs. 277-291, Map 12

**Description.** Dorsal surface green to pale yellowish-brown, usually without red or black markings; punctures concolorous with surface.

Apex of head broadly rounded; jugal margins subparallel for middle third of distance from eyes to apex (Fig. 278). Antennae pale brown to green, distal segments slightly darker. Anterolateral margins of pronotum in dorsal view nearly straight; each humeral angle obtusely
Figs. 277-291. *T. hamulata*. Fig. 277. Habitus. Fig. 278. Head. Figs. 279-281. Right paramere. Fig. 279. Medial view. Fig. 280. Ectal view. Fig. 281. Lateral view. Figs. 282-284. Theca and related structures. Fig. 282. Ventral view. Fig. 283. Dorsal view. Fig. 284. Lateral view. Figs. 285-288. Pygophore. Fig. 285. Caudal view. Fig. 286. Ventral view. Fig. 287. Dorsal view. Fig. 288. Lateral view. Fig. 289. Genital plates, caudoventral view. Fig. 290. Spermatheca. Fig. 291. Spermathecal pump.
rounded, protruding slightly beyond base of adjacent corium (Fig. 277). Pronotal cicatrices immaculate. Hemelytra uniformly and shallowly punctate; posterior margins weakly convex; costal angle narrowly rounded (Fig. 277), reaching beyond middle of penultimate connexival segment; hemelytral membrane hyaline, a few faint brown flecks sometimes present. Connexiva narrowly or not at all exposed, posterolateral angle of each segment sometimes minutely marked with piceous.

Ventral surface pale yellow to yellowish-green; punctures concolorous with surface; rostrum yellow to green, apical half of segment 4 piceous; reaching onto third (second visible) abdominal sternite. Ostiolar canal acuminate apically. Femora and tibiae yellowish-brown to green, tarsal segments sometimes darker. Postspiracular brown spots sometimes vaguely present in brown form; posterolateral angle of each abdominal sternite usually immaculate, rarely marked minutely with black.

Mesial margins of basal plates in caudoventral view weakly convex, separated basally; posterior margins nearly straight; posteromesial angle rounded (Fig. 289). Sclerotized rod of nearly equal diameter throughout entire length, not at all swollen near apex; dilation of spermatheca constricted near middle, ending about three-fourths distance from base of sclerotized rod (Fig. 290); spermathecal duct only slightly swollen and coiled below proximal flange (Fig. 291). Posterior margin of pygophore in caudal view broadly and shallowly U-shaped, posterolateral angles somewhat thickened (Fig. 285); chin-like protuberance prominent in ventral and lateral views (Figs. 286, 288); posterior margin nearly straight in dorsal view (Fig. 287). Each
paramere with concave surface oriented dorsad; in ectal view, apex narrowly rounded, digitiform, curving gently laterad, with angulate triangular lateral lobe (Fig. 280); from medial view apex curving dorsad and caudad forming a distinct hook (Fig. 279); roughened, spiculate area on lateral surface of paramere localized, circular (Fig. 281). Each lateral conjunctival lobe of aedeagus with single diverticulum (Fig. 284); dorsomedial lobe present, but small (Fig. 283); penisfilum and median penal lobes of moderate size (Fig. 282).

Measurements. Total length 6.31-7.41 (6.39); width 4.10-4.89 (4.10); medial length of pronotum 1.32-1.61 (1.32). Medial length of scutellum 2.80-3.31 (2.80); basal width 2.58-2.98 (2.58); width at distal end of frena 0.88-0.99 (0.92). Length of head 1.34-1.50 (1.37); width 1.88-2.08 (1.90). Length of segments 1-5 of antennae 0.37-0.42 (0.37), 0.74-0.98 (0.74), 0.81-0.98 (0.81), 0.99-1.21 (1.05), and 1.10-1.14 (1.10), respectively. Length of segments 2-4 of rostrum 1.18-1.29 (1.18), 0.75-0.81 (0.81), and 0.59-0.74 (0.59), respectively.

Holotype. Male, labeled (a) "COLOMBIA: Dept. Valle del Cauca, Bitaco Valley, Finca Kyburz 1 km above Bitaco" (b) "Altitude 4500 ft. 27-28 XI. 1963 P. C. Hutchison & J. K. Wright." Deposited in the California Academy of Sciences (San Francisco).

Paratypes. Eight male and nine female specimens. Two males and four females labeled as holotype (CAS); five males and two females labeled (a) "PERU: Dept. Cajamarca Prov. Jaén. Pucara. Rio Huancabamba, 900m 14-18 I. 1964" (b) "P. C. Hutchison and J. K. Wright Collectors" (CAS), except two males labeled "10-13 I. 1964" (CAS); one male and two females labeled "PERU: Dept. Amazonas Between Rio Marañón
and Bagua. 3-X-1964 P. C. Hutchison & J. K. Wright" (CAS); and one female labeled (a) "PERU: 94 mi. E. of Olmos, Lambayeque 1-18-1955" (b) "E.I. Schlinger & E.S. Ross collectors" (CAS).

**Distribution.** Northern South America (Map 12).

**Comments.** Only this species and T. acuminata have a distinct acute lateral lobe on each paramere. In T. hamulata, the lateral lobe is triangular, and the apex of each paramere curves dorsad and caudad, forming a distinct hook. In T. acuminata, the lateral lobe is spinose, and the apex of each paramere curves gently dorsad and does not form a distinct hook.

Only four species of Thyanta are known to lack the subapical swelling of the sclerotized rod of the spermatheca. Thyanta emarginata has the posteromesial angle of each basal plate deeply excavated; T. hamulata can be separated from both T. brasiliensis and T. boliviensis by the constriction in the middle of the dilation of the spermatheca.

**Etymology.** Named for the hamulate or hooked apex of each paramere.

**Thyanta (Thyanta) boliviensis** Rider, n. sp.

Figs. 292-306, Map 12

**Description.** Medium to large; dorsal surface olive green to reddish-brown; often with reddish-purple markings between humeral angles, on dorsal surface of head, and on apex of scutellum; punctures concolorous with surface.

Apex of head evenly rounded; jugal margins nearly parallel for middle third of distance from eyes to apex (Fig. 293). Punctures on
Figs. 292-306. *T. boliviensis*. Fig. 292. Habitus. Fig. 293. Head.

Figs. 294-296. Right paramere. Fig. 294. Medial view. Fig. 295. Ectal view. Fig. 296. Lateral view. Figs. 297-299. Theca and related structures. Fig. 297. Ventral view. Fig. 298. Dorsal view. Fig. 299. Lateral view. Figs. 300-303. Pygophore. Fig. 300. Caudal view. Fig. 301. Ventral view. Fig. 302. Dorsal view. Fig. 303. Lateral view. Fig. 304. Genital plates, caudoventral view. Fig. 305. Spermatheca. Fig. 306. Spermathecal pump.
head rather dense, surface sometimes appearing reticulate. Antennae green to pale brown, distal 3 segments usually marked with red. Anterolateral margins of pronotum straight in dorsal view; each humeral angle rounded to nearly angulate, produced beyond base of adjacent corium by half width of eye or less (Fig. 292). Pronotal cicatrices immaculate. Hemelytral punctures shallow, slightly more dense on exocorium; posterior margins slightly convex; costal angle narrowly rounded, usually reaching to middle of penultimate connexival segment (Fig. 292); hemelytral membrane hyaline, usually lacking all brown flecks. Connexiva narrowly exposed, posterolateral angle of each segment piceous.

Ventral surface yellowish-green to brown; punctures concolorous with surface. Rostrum pale brown, apical half of segment 4 piceous, reaching onto base of third (second visible) abdominal segment. Ostiolar canal acuminate apically. Femora and tibiae pale brown, tarsal segments and distal third of each tibia sometimes darker. Postspiracular spots lacking; posterolateral angle of each abdominal sternite piceous.

Mesial margins of basal plates convex, separated basally and distally; posterior margins straight to slightly convex; posteromesial angle slightly emarginate (Fig. 304). Sclerotized rod elongate, neither swollen subapically nor abruptly narrowed apically; dilation of spermatheca extending about three-fourths length of sclerotized rod, not abruptly narrowed on apical fourth (Fig. 305); spermathecal bulb slightly elongate, spermathecal duct with small amount of coiling below proximal flange (Fig. 306). Posterior margin of pygophore sinuously U-
shaped in caudal view, medial portion slightly concave (Fig. 300); pygophore emarginate in lateral view (Fig. 303); posterolateral angles not distinctly prominent in ventral or dorsal views (Figs. 301, 302). Apex of each paramere acute, nearly spinose in medial view (Fig. 294); paramere slightly lunate in ectal view, apex nearly spinose (Fig. 295); roughened, spiculate area on lateral surface of paramere linear in shape (Fig. 296), corresponding black carina on wall of pygophore also linear. Each lateral conjunctival lobe of aedeagus with one acute diverticulum apically and one obtuse slightly sclerotized diverticulum ventrally (Fig. 297); dorsomedial lobe well-developed (Fig. 298); penisfilum and median penal lobes nearly hidden by conjunctiva (Fig. 297).

**Measurements.** Total length 7.41-9.90 (7.73); total width 4.73-6.07 (4.89); medial length of pronotum 1.40-1.82 (1.51). Medial length of scutellum 3.05-4.08 (3.13); basal width 3.02-3.86 (3.13); width at distal end of frena 0.99-1.32 (1.03). Length of head 1.57-1.82 (1.64); width 2.03-2.32 (2.12). Length of segments 1-5 of antennae 0.48-0.55 (0.52), 0.75-0.99 (0.81), 1.10-1.32 (1.25), 1.32-1.53 (1.47), and 1.36-1.44 (1.44), respectively. Length of segments 2-4 of rostrum 1.21-1.51 (1.21), 0.81-0.96 (0.85), and 0.81-0.99 (0.92), respectively.

**Holotype.** Male, labeled (a) "Yungas de La Paz, Bolivia Dec. 4-20, 1955, 1200-1700 M Luis E. Pena, Collector" (b) "J C Lutz Collection 1961" [right half of label marked with red dots]. Deposited in the U.S. National Museum of Natural History (Washington, D.C.).

**Paratypes.** Fifteen male and 22 female specimens. Four males and two females labeled as holotype (USNM); six males and four females labeled as holotype, except lacking (b) (AMNH, FSCA); one male labeled
as holotype, except (b) "Thyanta humeralis Ruckes Det. J. C. Lutz"
[black border; folded] (AMNH); one male and two females labeled as
holotype, except (b) "Thyanta humeralis Ruckes Lutz '57" [folded] (AMNH,
FSCA); one male and one female labeled (a) "Coroico Bolivia" (b) "H G
Barber Colln 1950" (USNM); one female labeled (a) "BOLIVIA, L.P., 1190
m., 1 mi. E. Puente Villa, S. Yungas IV-8-1978 C & L O'Brien" (b) "Thyanta misc
ff" [folded] (ENGL); one female labeled (a) "Rurrenabaque Beni Bolivia
WMMann" (b) "Nov. 1921" [handwritten] (c) "MULFORD BIOLOGICAL
EXPLORATION 1921--1922" (USNM); 1 male and 5 females labeled "Coripata"
[handwritten], except 1 female also with (b) "Thyanta, P. DENIER det."
["Thyanta" handwritten; black border] (MLP); one female labeled
"caranavi" [handwritten] (MLP); 1 female labeled "Corzuela n 8.1.36"
[handwritten] (MLP); one female labeled "Peru, 2400m alt. Dept Cusco
Machu Picchu VII, 14-15, 1951 sweeping G. H. Dieke" (USNM); one female
labeled (a) "Macchu Picchu Ruins, Cuzco, Peru March 6 1947 Alt. 9500
ft." ["March 6" handwritten] (b) "J. C. Pallister Coll. Donor Frank
Johnson" (c) "Thyanta patruelis Stål det. H. Ruckes" [handwritten; black
border; folded] (AMNH); one male labeled "PERU: Cuzco, Pisac, 3,000m.
15. viii. 1971 C. & M. Vardy B. M. 1971-533" (BMNH); and two females
labeled (a) "Abancay, PERU. III-6-51" (b) "Ross and Michelbacher
Collectors" (CAS);

Distribution. Bolivia and southeastern Peru (Map 12).

Comments. In general appearance this species resembles larger
specimens of T. patruelis, but it is more closely related to T.
brasiliensis. Male specimens can be separated from all other species in
the maculata group by the elongate, linear spiculate area on the lateral
surface of each paramere. Male and female specimens can usually be distinguished from *T. brasiliensis* by the less-prominent humeral angles. The only way to reliably separate females of *T. boliviensis* and *T. patruelis* is by examining the spermatheca of each species. In *T. boliviensis*, the sclerotized rod is neither swollen subapically nor abruptly narrowed apically as it is in *T. patruelis*.

Only *T. brasiliensis*, *T. emarginata*, *T. excavata*, and *T. hamulata* have the sclerotized rod as described above. *Thyanta emarginata* can be identified by the distinctly excavated basal plates; the remaining three species can be distinguished by the condition of the dilation of the spermatheca. In *T. boliviensis* this structure is in the form of a single balloon-like structure; in *T. brasiliensis* it is abruptly narrowed for the distal half; and in *T. hamulata* it is constricted in the middle and then dilates again, forming a figure-8 shape.

**Etymology.** Named for the country of the type locality.

*Thyanta* (*Thyanta*) *brasiliensis* Jensen-Haarup

Figs. 307-321, Map 12


*Thyanta humeralis* Ruckes, 1956:57-59, fig. 2. NEW SYNONYMY.

**Diagnosis.** Medium to large, robust; extremely variable in coloration. One form green to pale brown, usually with dark reddish-purple markings between humeral angles, on dorsal surface of head, and on apex of scutellum. Second form pale green to fuscous, sometimes tending to purplish, often with anterior two-thirds of pronotal disc
much paler than rest, sometimes with numerous interstellate pale points on coria. Punctures usually concolorous with surface, sometimes brown.

Jugal margins nearly parallel for middle third of distance from eyes to apex (Fig. 308). Anterolateral margins of pronotum in dorsal view concave; each humeral angle narrowly rounded to angulate, sometimes marked with black, extending beyond base of adjacent corium by half width of eye or more (Fig. 307); pronotal cicatrices not marked with black. Hemelytral membrane hyaline, often with a few brown flecks. Posterolateral angle of each connexival segment usually piceous. Postspiracular black spots usually lacking, sometimes present in darker specimens; posterolateral angle of each abdominal sternite piceous.

Mesial margins of basal plates in caudoventral view nearly straight, separated basally; posterior margins sinuously convex; posteriomesial angle narrowly rounded (Fig. 319). Sclerotized rod not at all swollen subapically, gradually tapering to a narrowly rounded apex; dilation of spermatheca single, but abruptly narrowed for distal third, ending a short distance from apex of sclerotized rod (Fig. 320); spermathecal duct with a moderate amount of coiling below proximal flange (Fig. 321). Posterior margin of pygophore in caudal view broadly U-shaped, medial portion nearly straight (Fig. 315); lateral angles of pygophore and blunt chin-like protuberance prominent when viewed laterally (Fig. 318). Apex of each paramere narrowly rounded, nearly spinose in ectal view, concave surface oriented more mediad than dorsad (Fig. 309); apex narrowly rounded in medial view, shaft with prominent protuberance just below parameral head (Fig. 309); roughened, spiculate area on lateral surface obovate (Fig. 311). Each lateral conjunctival
Figs. 307-321. *T. brasiliensis*. Fig. 307. Habitus. Fig. 308. Head.

Figs. 309-311. Right paramere. Fig. 309. Medial view. Fig. 310. Ectal view. Fig. 311. Lateral view.

Figs. 312-314. Theca and related structures. Fig. 312. Ventral view. Fig. 313. Dorsal view. Fig. 314. Lateral view.

Figs. 315-318. Pygophore. Fig. 315. Caudal view. Fig. 316. Ventral view. Fig. 317. Dorsal view. Fig. 318. Lateral view.

Fig. 319. Genital plates, caudoventral view.

Fig. 320. Spermatheca. Fig. 321. Spermathecal pump.
lobe of aedeagus with one acute diverticulum (Fig. 314); medial penal lobes relatively large (Fig. 312); penisfilum medium in size; dorsomedial conjunctival lobe apparently absent (Fig. 313).

**Types.** Jensen-Haarup (1928) described *T. brasiliensis* from one male and one female specimen without designating a holotype. The male specimen labeled (a) "♂" (b) "Type Coll. J=Hrp." [black border] (c) "Type" [red paper] (d) "Thyanta brasiliensis J-Hrp Coll. Jensen Haarup." ["Coll." is overwritten by "Det."; all of label except "Coll. Jensen Haarup." handwritten; black border] (e) "Lagoa Santa Reinhardt" [handwritten; double brown border] is designated the lectotype. The female specimen labeled (a) (b) "Type Coll. J=Hrp." [black border] (c) "Type" [red paper] (d) "Rio de Janeiro Reinhardt" [handwritten; double brown border] (e) "Thyanta brasiliensis Jensen-Haarup leg." [handwritten] is designated paralectotype. Both specimens were examined, and are housed in the Universitetets Zoologiske Museum (Copenhagen, Denmark).

Ruckes (1956) described *T. humeralis* from nine male and ten female specimens. The holotype was examined; although it is slightly larger than the type of *T. brasiliensis*, there is no other significant difference. The holotype of *T. humeralis* is located in the American Museum of Natural History (New York).

**Distribution.** Southern South America (Map 12).

**Specimens Examined.** 111 specimens collected during every month of the year; deposited in AMNH, BMNH, CAS, CU, DAR, DBT, EGER, FSCA, IML, LHR, MCN, MGA, UEC, USNM, ZMUC. PERU: Loreto: Guyabamba, nr. Iquitos. BRAZIL: Lagoa Santa; Rodcio. Esperito Santo: Vitória. Mato Grosso do
Nova Teutônia. São Paulo: Campinas; Cosmopolis; Indiana. BOLIVIA:
Villa Vicencía. La Paz: Coroico. Sta Cruz: Buena Vista; Saavedra.
Caaguazú: Estancia Primera. Central: Nueva Italia. Concepción:
ARGENTINA: Córdoba: Sierra de Córdoba, Cosquin. Misiones: Eldorado;
Leandro Alem; Let; Puerto Iguazú; Victoria.

Comments. This species occurs in two fairly distinct color forms,
but an examination of the genitalia of both sexes and other
morphological characters reveals no significant differences. Because
some specimens intermediate between the two forms do occur, it is
believed that all these specimens belong to a single variable species.

This species can be recognized from other congeners by the robust
shape, sometimes by the dorsal coloration, often by the distinctly
prominent lateral angles and the posteroventral production of the
pygophore when viewed laterally, and by the shape of the parameres.
Females can be identified by the shape of the spermatheca. It is the
only species with the sclerotized rod not swollen subapically and has
the dilation of the spermatheca single, but abruptly narrowed distally
for a short distance.
Thyanta (Thyanta) emarginata Rider, n. sp.
Figs. 322-326, Map 12

Description. Dorsal surface olive-brown, head and anterior two-thirds of pronotum slightly darker; apex of scutellum reddish; punctures reddish-brown.

Apex of head evenly rounded; jugal margins sinuous, nearly parallel for middle third of distance from eyes to apex (Fig. 323); surface of head rather densely punctate, juga appearing somewhat reticulate. Antennae pale brown, some reddish hues on distal three segments.
Anterolateral margins of pronotum straight in dorsal view; each humeral angle rounded, nearly angulate, apex piceous, protruding slightly beyond base of adjacent corium (Fig. 322). Surface of pronotum transversely depressed just posterior to pronotal cicatrices; each pronotal cicatrice marked with fuscous in mesial angle. Hemelytra rather uniformly punctate; posterior margins weakly convex; costal angle reaching beyond middle of penultimate connexival segment (Fig. 322); hemelytral membrane hyaline. Connexiva narrowly exposed, stramineous; posterolateral angle of each segment piceous.

Ventral surface pale yellowish brown; punctures concolorous. Rostrum stramineous, segment four black on apical half, reaching to near posterior margin of third (second visible) abdominal sternite. Ostiolar canal acuminate apically. Femora and tibiae stramineous to pale brown. Post-spiracular black spots absent; posterolateral angle of each abdominal sternite piceous.
Figs. 322-326. *T. emarginata*. Fig. 322. Habitus. Fig. 323. Head. Fig. 324. Genital plates, caudoventral view. Fig. 325. Spermatheca. Fig. 326. Spermathecal pump.
Mesial margins of basal plates in caudoventral view slightly convex; posterior margins sinuous; posteromesial angle deeply excavated; concavity resulting from excavations in basal plates longer than wide, with lateral sides nearly parallel (Fig. 324); surface of basal plates distinctly rugose, area near excavation fuscous. Sclerotized rod relatively elongate, not at all swollen subapically; dilation of spermatheca single, but abruptly narrowed for distal two-thirds of length of sclerotized rod (Fig. 325); spermathecal duct moderately swollen and coiled below proximal flange (Fig. 326). Male unknown.

Measurements. Total length 8.36; width 5.41; medial length of pronotum 1.73. Medial length of scutellum 3.50; basal width 3.20; width at distal end of frena 1.21. Length of head 1.70; width 2.12. Length of segments 1-5 of antennae 0.49, 0.83, 0.99, 1.18, and 1.25, respectively. Length of segments 2-4 of rostrum 1.32, 0.88, and 0.87, respectively.


Distribution. Peru (Map 12).

Comments. Although several species of Thyanta are known to have the posteromesial angle of the basal plates weakly emarginate, only three have this angle deeply emarginate. The resulting concavity in the basal plates of T. vadosa is much more shallow and the sides are divergent; both T. emarginata and T. excavata have the concavity deeper, with the sides nearly parallel. Thyanta emarginata differs from T. excavata by having the resulting concavity longer than wide, and by the
distinctly rugose surface of the basal plates, which are weakly rugose in *T. excavata*.

*Thyanta emarginata* further differs from both *T. vadosa* and *T. excavata* by the structure of the spermatheca. The sclerotized rod in *T. emarginata* is not swollen subapically as it is in *T. vadosa* and *T. excavata*. The nonswollen sclerotized rod is a character that *T. emarginata* shares only with *T. hamulata*, *T. brasiliensis*, and *T. boliviensis*. None of these three species have the basal plates excavated.

**Etymology.** Named for the distinctly emarginate posteromesial angles of the basal plates.

*Thyanta (Thyanta) excavata* Rider, n. sp.

Figs. 327-331, Map 12

**Description.** Dorsal surface glossy, pale to medium green with reddish-purple transhumeral band, sometimes with reddish-purple coloration on dorsal surface of head, on apex of scutellum, and on apex of coria; punctures concolorous with surface.

Apex of head evenly rounded, jugal margins subparallel for middle third of distance from eyes to apex (Fig. 328). Antennae pale reddish-green, distal two segments slightly darker. Anterolateral margins of pronotum in dorsal view nearly straight; each humeral angle obtusely rounded, protruding only slightly beyond margin of adjacent corium (Fig. 327). Pronotal cicatrices immaculate. Hemelytra uniformly and shallowly punctate; posterior margins nearly straight; costal angle
Figs. 327-331. *T. excavata*. Fig. 327. Habitus. Fig. 328. Head. Fig. 329. Genital plates, caudoventral view. Fig. 330. Spermatheca. Fig. 331. Spermathecal pump.
narrowly rounded to angulate, extending to beyond middle of penultimate connexival segment; hemelytral membrane hyaline, lacking brown flecks. Connexiva narrowly exposed, pale green; posterolateral angle of each segment minutely marked with black.

Ventral surface glossy, pale yellow to pale green; punctures concolorous with surface; rostrum pale brown with dark brown markings, apical half of segment four piceous, reaching onto base of third (second visible) abdominal sternite. Ostiolar canal acuminate apically. Femora and tibiae pale green. Post-spiracular black spots absent; posterolateral angle of each abdominal segment minutely marked with black.

Mesial margins of basal plates in caudoventral view nearly straight; posterior margins slightly convex; posteromesial angle of each basal plate distinctly excavated; concavity resulting from excavations in basal plates wider than long, with lateral sides parallel or slightly convergent (Fig. 329); surface of basal plates weakly rugose. Sclerotized rod swollen subapically, abruptly narrowed apically (Fig. 330). Spermathecal duct only slightly swollen and coiled below proximal flange (Fig. 331). Male unknown.

Measurements. Total length 8.52-8.99 (8.99); width 5.13-5.68 (5.68); medial length of pronotum 1.66-1.89 (1.89). Medial length of scutellum 3.53-3.59 (3.59); basal width 3.20-3.42 (3.42); width at distal end of frena 1.21 (1.21). Length of head 1.68-1.72 (1.72); width 2.14-2.21 (2.21). Length of segments 1-5 of antennae 0.40 (0.40), 0.85-0.88 (0.85), 0.92-1.09 (1.09), 1.10, and 1.14, respectively.
Length of segments 2-4 of rostrum 1.31-1.44 (1.44), 0.78-0.92 (0.92), and 0.81-0.86 (0.86), respectively.

**Holotype.** Female, labeled (a) "COLOMBIA: Dept. Magdalena, Socorpa Mission, Sierra de Perija, m. VIII-5-25-1968" (b) "Borys Malkin Collector." Deposited in the American Museum of Natural History (New York).

**Paratype.** One female labeled (a) "Venezuela - AR El Limon 450m 1-VI-1965" ["1-VI" and "5" handwritten] (b) "Col. E. Osuna" [handwritten] (c) "Venezuela-Inst Zool. Agricola-Fac. Agronomia Uuv, Central" [green paper] (IZA).

**Distribution.** Northern South America (Map 12).

**Comments.** Of the three species of *Thyanta* with distinctly excavated basal plates, *T. excavata* can be identified by the wider than long concavity in the basal plates which has the lateral sides parallel or slightly convergent; and by the weakly rugose surface of the basal plates.

**Thyanta (Thyanta) vadosa** Rider, new species  
Figs. 332-346, Map 12

**Description.** Ovate; dorsal surface green to pale brown; some interstitial areas of pronotum, scutellum, and elytra pale yellow; sometimes marked with reddish-purple between humeral angles, on apex of scutellum, and on tylus and vertex of head. Punctures green to pale brown.
Apex of head arcuately rounded; jugal margins sinuous, subparallel for middle third of distance from eyes to apex (Fig. 333); vertex convex. Antennae pale green to brown, apical portions of distal three segments reddish to dark brown. Anterolateral margins of pronotum in dorsal view straight to slightly concave; each humeral angle rounded to angulate, often projecting beyond base of adjacent corium (Fig. 332). Pronotal cicatrices immaculate. Punctuation becoming sparse medially, central portion of pronotal disc subcalloused. Posterior third of pronotum often darker than rest of pronotum. Basal disc of scutellum tumid. Hemelytra glossy, punctures shallow, uniformly distributed; costal angle narrowly rounded to angulate, reaching to middle of penultimate connexival segment. Membrane hyaline with a few obsolescent brown flecks distally. Connexiva narrowly exposed, green to pale brown, posterolateral angle of each segment piceous.

Venter pale yellow to green; punctures concolorous. Femora and tibiae pale brown to green, tarsal segments and apex of each tibia darker. Rostrum green to pale brown, distal half of segment four black, reaching onto base of abdomen. Ostiolar canal acuminate apically. Post-spiracular black spots lacking (except in brown form); posterolateral angle of each abdominal sternite marked with piceous, sometimes only minutely so.

Mesial margins of basal plates in caudoventral view straight to slightly convex; posterior margins slightly convex; posteromesial angle of each basal plate broadly and shallowly emarginate, lateral sides of concavity resulting from excavations in basal plates divergent, not parallel (Fig. 344). Distal end of sclerotized rod swollen subapically,
Figs. 332-346. *T. vadosea*. Fig. 332. Habitus. Fig. 333. Head. Figs. 334-336. Right paramere. Fig. 334. Medial view. Fig. 335. Ectal view. Fig. 336. Lateral view. Figs. 337-339. Theca and related structures. Fig. 337. Ventral view. Fig. 338. Dorsal view. Fig. 339. Lateral view. Figs. 340-343. Pygophore. Fig. 340. Caudal view. Fig. 341. Ventral view. Fig. 342. Dorsal view. Fig. 343. Lateral view. Fig. 344. Genital plates, caudoventral view. Fig. 345. Spermatheca. Fig. 346. Spermathecal pump.
narrowed apically (Fig. 345); spermathecal duct moderately swollen and coiled below proximal flange (Fig. 346). Posterior margin of pygophore in caudal view broadly U-shaped, medial portion straight to slightly convex (Fig. 340); chin-like protuberance appearing relatively narrow in ventral and dorsal views (Figs. 341, 342); pygophore deeply emarginate in lateral view (Fig 343). Each paramere with concave surface oriented mediad; from ectal view, parameral apex angling gently mesad (Fig. 335); from medial view, apex acutely angulate, straight or bending slightly ventrad (Fig. 334); roughened spiculate area on lateral surface circular (Fig. 336). Each lateral conjunctival lobe of aedeagus without sclerotized diverticula (Fig. 339); dorsomedial conjunctival lobe weakly developed (Fig. 338); median penal lobes spatulate (Fig. 337).

**Measurements.** Total length 7.57-10.17 (8.04); width 4.73-6.15 (5.05). Medial length of pronotum 1.60-1.88 (1.66). Medial length of scutellum 3.15-4.08 (3.42); basal width 2.98-3.75 (3.20); width at distal end of frena 1.14-1.32 (1.18). Length of head 1.59-1.86 (1.64); width 2.12-2.39 (2.21). Length of segments 1-5 of antenna 0.44-0.52 (0.44), 0.81-0.96 (0.85), 0.96-1.14 (1.07), 1.14-1.25 (1.14), and 1.07-1.18 (1.07), respectively. Length of segments 2-4 of rostrum 1.21-1.44 (1.29), 0.74-0.88 (0.77), and 0.70-0.81 (0.74), respectively.

**Holotype.** Male, labeled (a) "Santa Margarita Hill, TRINIDAD May, 1959" (b) "Taken at light." Deposited in the Canadian National Collection, Ottawa, Canada.

**Paratypes.** Four male and five female specimens. One male labeled "Trinidad, W.I. Sept. 58-June 59" (CNC); one male labeled (a) "Bejucal, Trinidad,BWI, 24 Oct. 1945" ["Bejucal" and "24 Oct. 1945" handwritten]
(b) "E. McC. Callan Collector" (c) "on inflorescences of Cordia macrostachya" [handwritten] (USNM); one male labeled (a) "Trinidad, 8 II '52, F. Schrader, ♀, 776" ["776" printed sideways along left margin of label; all but "F. Schrader" handwritten] (b) "Thyanta pseudocasta (Blt.) cp. with TYPE, det. Ruckes" [handwritten; folded] (AMNH); one male labeled "TOBAGO: W.I. 17-19 July 1964 J. M. Capriles" (USNM); two females labeled "TRINIDAD: Curepe, Santa Margarita Circular Rd. III-19-75-X-1971 F. D. Bennett, Blacklight trap" ["III-19-75" handwritten; "-X-1971" marked out] (ARH); one female labeled (a) "St. Augustine, Trinidad, BWI, Sept. 15, 1944" ["Sept. 15, 1944" handwritten] (b) "I. E. Kirby Coll." [handwritten] (c) "I.C.T.A. 12953" ["12953" handwritten] (USNM); one female labeled (a) "Trinidad, 16 I '52, F. Schrader, 702" ["702" printed sideways along left margin of label; all but "F. Schrader" handwritten] (b) "Thyanta maculata (Fabr.), det H. Ruckes" [folded] (AMNH); and one female labeled "VENEZUELA: Lara; Yacambu National Park 13kmSE Sanare, 4800 feet, 4-7 III 1978, blacklight, cloud forest, J.B. Heppner" (USNM).

Distribution. Trinidad and Tobago; Venezuela (Map 12).

Comments. In general appearance this is a typical species of the maculata group. The shape of the emargination in the posteromesial angle of each basal plates of the female is distinctive. Thyanta emarginata and T. excavata both have the posteromesial angles of the basal plates deeply emarginate, but the sides of the resulting concavity are nearly parallel, not divergent as in T. vadosa. The male genitalia are also distinctive. Thyanta vadosa is the only species with the apex of each paramere not only acutely angulate (almost acuminate) but also
straight or bending slightly ventrad. All other species in the maculata group that have the apex of each paramere acute to acuminate also have the apex bending dorsad.

**Etymology.** Vadosa is the Latin word for shallow. This species is named for the distinct but shallow excavation of the posteromesial angle of each basal plate.

*Thyanta (Thyanta) curvata* Rider, n. sp.

Figs. 347-361, Map 10

**Description.** Medium to large; dorsal surface pale green to pale brown, female specimens usually with reddish transhumeral markings in form of oblong spot on each side of middle and smaller spot near apex of each humeral angle, sometimes apex of scutellum also reddish; punctures usually concolorous with surface.

Apex of head narrowly rounded; jugal margins not parallel (Fig. 348). Antennae pale green to pale brown, sometimes distal portions of last 3 segments darker. Anterolateral margins of pronotum straight to slightly concave in dorsal view; each humeral angle narrowly rounded, almost angulate, protruding beyond base of adjacent corium by half width of eye or less (Fig. 347); pronotal cicatrices immaculate. Hemelytra shallowly and uniformly punctate; posterior margins straight to slightly convex; posterolateral angle narrowly rounded, ending above penultimate connexival segment; hemelytral membrane hyaline, lacking distal brown flecks. Connexiva usually narrowly exposed; incisures usually minutely tipped with black.
Figs. 347-361. *T. curvata*. Fig. 347. Habitus. Fig. 348. Head. Figs. 349-351. Right paramere. Fig. 349. Medial view. Fig. 350. Ectal view. Fig. 351. Lateral view. Figs. 352-354. Theca and related structures. Fig. 352. Ventral view. Fig. 353. Dorsal view. Fig. 354. Lateral view. Figs. 355-358. Pygophore. Fig. 355. Caudal view. Fig. 356. Ventral view. Fig. 357. Dorsal view. Fig. 358. Lateral view. Fig. 359. Genital plates, caudoventral view. Fig. 360. Spermatheca. Fig. 361. Spermathecal pump.
Ventral surface pale yellowish-green to brown; punctures concolorous with surface. Rostrum green to pale brown, apical half of segment 4 piceous; reaching onto third (second visible) abdominal sternite. Ostiolar canal acuminate apically. Femora and tibiae green to brown; tarsi and distal portions of tibiae sometimes darker. Postspiracular black spots lacking; posterolateral angle of each abdominal sternite piceous.

Mesial margins of basal plates in caudoventral view straight to slightly convex; posterior margins slightly convex; posteromesial angle slightly emarginate (Fig. 359). Sclerotized rod swollen subapically, distinctly narrowed apically (Fig. 360). Spermathecal duct moderately swollen below proximal flange, without coiling from swollen area to sclerotized rod (Fig. 361). Posterior margin of pygophore in caudal view broadly and shallowly U-shaped, medial portion straight to slightly concave, sinuous (Fig. 355); blunt chin-like protuberance prominent in ventral view (Fig. 356); posterior margin broadly U-shaped in dorsal view (Fig. 357); pygophore concave in lateral view (Fig. 358). Concave surface of each paramere oriented more dorsad than mediad; in medial view apex short, rounded, distinctly bent dorsad (Fig. 349); in ectal view, apex bluntly rounded (Fig. 350); roughened, spiculate area on lateral surface of paramere circular (Fig. 351). Each lateral conjunctival lobe of aedeagus with 1-2 narrowly rounded diverticula (Fig. 354); dorsomedial lobe lacking (Fig. 353); median penal lobes and penisfilum relatively small, obscured by conjunctival membranes (Fig. 352).
Measurements. Total length 6.78-8.75 (6.75); total width 4.57-5.83 (4.57); medial length of pronotum 1.50-1.73 (1.50). Medial length of scutellum 2.94-3.61 (2.94); basal width 2.80-3.53 (2.80); width at distal end of frena 0.96-1.25 (0.96). Length of head 1.46-1.68 (1.46); width 1.88-2.23 (1.88). Length of segments 1-5 of antennae 0.35-0.44 (0.44), 0.75-0.96 (0.86), 0.77-0.99 (0.77), 0.96-1.10 (0.96), and 0.96-1.10 (0.96), respectively. Length of segments 2-4 of rostrum 1.14-1.32 (1.18), 0.77-0.88 (0.77), and 0.74-0.81 (0.74), respectively.

Holotype. Male, labeled (a) "El Limon AR VENEZUELA 450m. 31-V-57" ["31-V-57" handwritten] (b) "F.Fernandez Y., C. J. Rosales Cols." (c) "Venezuela-Inst. Zool.Agricola-Fac.Agronomia Univ. Central" [green paper]. Deposited in the Universidade Central de Venezuela (Maracay).

Paratypes. Five male and eleven female specimens. Five males and three females labeled as holotype (IZA); one female labeled (a) "Mariara Venezuela,Carabobo 460m. 12-II-1967" ["Mariara", "460", "12-II", and "67" handwritten] (b) "Trampa de luz" (c) "L.Fernandez S. col." ["L." and "S." handwritten] (d) "Venezuela-Inst. Zool.Agricola-Fac.Agronomia Univ. Central" [green paper] (IZA); one female labeled (a) "Galeras del Pao COJEDES Venezuela 26-IV-1963" [handwritten] (b) "C.J.Rosales A. Perez" ["A. Perez" handwritten] (c) "Venezuela-Inst. Zool.Agricola-Fac.Agronomia Univ. Central" [green paper] (IZA); one female labeled "VENEZUELA:Aragua 2kmN.OcumareDeLa Costa,21-22-VI-1976 A.S.Menke&D.Vincent" (USNM); three females labeled (a) "Venezuela-Barinas. Reserva Forestal-Ticoporo. 230m. 3-10-IV-66" (b) "F. Fernandez. Y Luis.J.July" (c) "Venezuela-Inst Zool.Agricola-Fac.Agronomia Univ. Central" [green paper] (IZA); one female labeled "RioFrio Colombia
S.A.2-VII-1926 George Salt" (USNM); and one female labeled (a) "El Sombrero Cenarico, Venz. 29-IV 1953" ["El Sombrero", "29-IV", and "53" handwritten] (b) "Col. J. Requena" [handwritten] (c) "Venezuela-Inst Zool. Agricola-Fac. Agronomia Univ. Central [green paper] (IZA).

**Distribution.** Northern South America (Map 10).

**Comments.** Some female specimens of this species closely resemble maculate individuals of the Central American species *T. maculata*. The male genitalia is distinctive, as no other congener has the apex of each paramere short, rounded, and curving dorsad in medial view as in this species.

**Etymology.** Named for the distinctly curved apex of each paramere.

---

**Thyanta (Thyanta) sinuata** Rider, n. sp.

Figs. 362-369, Map 11

**Description.** Small to medium; dorsal surface pale yellowish-green, lacking all red or black markings; punctures slightly darker than surface, sparse everywhere except along anterior margin of pronotum.

Apex of head narrowly rounded; jugal margins not quite parallel (Fig. 363). Antennae pale brown, distal 3 segments darker. Anterolateral margins of pronotum in dorsal view almost straight, nearly devoid of punctures submarginally; each humeral angle rounded, protruding only slightly beyond base of adjacent corium (Fig. 362); pronotal cicatrices immaculate. Hemelytra shallowly and sparsely punctate; posterior margins slightly convex; costal angle narrowly rounded, reaching to near posterior margin of penultimate connexival
Figs. 362-369. *T. sinuata*. Fig. 362. Habitus. Fig. 363. Head. Figs. 364-366. Pygophore. Fig. 364. Caudal view. Fig. 365. Ventral view. Fig. 366. Lateral view. Fig. 367. Genital plates, caudoventral view. Fig. 368. Spermatheca. Fig. 369. Spermathecal pump.
segment; hemelytral membrane hyaline with a few distal brown flecks. Connexiva usually narrowly exposed, incisures sometimes minutely marked with piceous.

Ventral surface yellowish-brown; posterolateral angle of each abdominal sternite immaculate; post-spiracular black spots lacking. Rostrum pale yellowish-green, apical half of segment 4 piceous, extending onto base of abdomen; femora and tibiae green to brown, tarsal segments sometimes darker. Ostiolar canal acuminate apically.

Mesial margins of basal plates in caudoventral view convex; posterior margins sinuous; posteromesial angle rounded (Fig. 367). Distal end of sclerotized rod swollen subapically, narrowed apically (Fig. 368); spermathecal duct with small amount of swelling and coiling below proximal flange (Fig. 369). Posterior margin of pygophore in caudal view shallowly and sinuously V-Shaped (Fig. 364); posteroventral surface only feebly produced into blunt, chin-like protuberance in ventral view (Fig. 365); emarginate in lateral view (Fig. 366). Concave surface of each paramere oriented dorsomediad; each paramere robust; in medial view apex broad, nearly angulate, not curving dorsad.

Measurements. Total length 6.62-7.89 (6.62); total width 4.49-5.50 (4.49); medial length of pronotum 1.25-1.55 (1.25). Medial length of scutellum 2.86-3.31 (2.86); basal width 2.80-3.09 (2.80); width at distal end of frena 0.96-1.10 (0.96). Length of head 1.46-1.59 (1.46); width 1.94-2.12 (1.94). Length of segments 1-5 of antennae 0.37 (0.37), 0.74-0.79 (0.74), 0.88-0.92 (0.92), 0.96-0.98 (0.96), and 0.92-0.96 (0.92), respectively. Length of segments 2-4 of rostrum 1.18-1.21 (1.18), 0.70-0.72 (0.70), and 0.66-0.68 (0.66), respectively.
Holotype. Male, labeled (a) "COLOMB Magdal. Santa Marta X-8-71 GEBohart" (b) "Thyanta signoreti Ruckes LHR 74" [folded]. The holotype specimen is in poor condition having the abdomen partially loose from the rest of the body. Deposited in the U.S. National Museum of Natural History (Washington, D.C.).

Paratypes. Two females labeled as holotype except lacking (b) (LHR, USNM).

Distribution. Known only from type locality (Map 11).

Comments. The form of the posterior pygophoral margin and the structure of the parameres are unique within the genus. The sparse overall punctation also will help identify this species. Due to the poor condition of the holotype the male genitalia was not dissected, but the characters of the parameres are visible without dissection.

Etymology. Named for the sinuously V-shaped posterior margin of the pygophore.

Thyanta (Thyanta) obtusa Rider, n. sp.

Fig. 370-383, Map 12

Description. Small to medium; dorsal surface pale green to testaceous, lacking all red and black markings; punctures usually concolorous with surface.

Apex of head arcuately rounded; jugal margins subparallel for middle third of distance from eyes to apex (Fig. 371). Antennae pale brown, apical 3 segments sometimes reddish-brown. Anterolateral margins of pronotum straight to slightly concave in dorsal view; each humeral
Figs. 370-383. *T. obtusa*. Fig. 370. Habitus. Fig. 371. Head. Figs. 372-374. Right paramere. Fig. 372. Medial view. Fig. 373. Ectal view. Fig. 374. Lateral view. Figs. 375-377. Theca and related structures. Fig. 375. Ventral view. Fig. 376. Dorsal view. Fig. 377. Lateral view. Figs. 378-381. Pygophore. Fig. 378. Caudal view. Fig. 379. Ventral view. Fig. 380. Dorsal view. Fig. 381. Lateral view. Fig. 382. Spermatheca. Fig. 383. Spermathecal pump.
angle rounded, protruding only slightly beyond base of adjacent corium (Fig. 370); pronotal cicatrices immaculate. Hemelytra shallowly and uniformly punctured; posterior margins slightly convex; costal angle narrowly rounded, reaching beyond middle of penultimate connexival segment; hemelytral membrane hyaline, usually with a few vague brown flecks distally. Connexiva narrowly exposed; incisures sometimes minutely marked with black.

Ventral surface yellowish-green to brown; punctures usually concolorous with surface. Rostrum pale green to brown, apical half of segment 4 black; usually reaching onto third (second visible) abdominal segment. Femora and tibiae green to brown, sometimes tarsal segments darker. Ostiolar canal acuminate apically. Post-spiracular black spots absent; posterolateral angle of each abdominal sternite usually immaculate, extreme tip sometimes black.

Mesial margins of basal plates nearly straight; posterior margins sinuous; posteromesial angles rounded. Sclerotized rod slightly swollen subapically, narrowed apically (Fig. 382). Spermathecal duct below proximal flange with only slight amount of swelling or coiling (Fig. 383). Posterior margin of pygophore shallowly and broadly U-shaped, medial portion straight to slightly convex in caudal view (Fig. 378); posterolateral angles prominent in ventral and lateral views (Figs. 379, 381); blunt chin-like protuberance on posteroventral surface relatively small, not visible in dorsal view (Fig. 380). Each paramere in ectal view relatively robust, apex obtuse (Fig. 373); in medial view apex rounded, curving only slightly dorsad, concave surface oriented more dorsad than mediad (Fig. 372); distinct obtuse protuberance on shaft;
roughened, spiculate area on lateral surface circular or triangular (Fig. 374). Each lateral conjunctival lobe of aedeagus with 1-2 nonsclerotized diverticula (Fig. 377); dorsomedial lobe apparently lacking (Fig. 376); penisfilum and median penal lobes nearly obscured by conjunctival membrane (Fig. 375).

Measurements. Total length 6.86-7.73 (6.86); total width 4.42-5.20 (4.42); medial length of pronotum 1.36-1.62 (1.47). Medial length of scutellum 2.96-3.15 (2.98); basal width 2.80-3.09 (2.83); width at distal end of frena 1.03-1.10 (1.03). Length of head 1.46-1.59 (1.46); width 1.92-2.13 (1.92). Length of segments 1-5 of antennae 0.37-0.42 (0.37), 0.70-0.92 (0.70), 0.83-1.03 (0.92), 1.05-1.20 (1.05), and 1.03-1.18 (1.03), respectively. Length of segments 2-4 of rostrum 1.12-1.23 (1.12), 0.68-0.79 (0.68), and 0.72-0.77 (0.72), respectively.

Holotype. Male, labeled (a) "Villa Vieja Colombia 11-IV-45" (b) "Thyanta nitidula Ruckes det. H. Ruckes" [folded]. Deposited in the California Academy of Sciences (San Francisco).

Paratypes. Four male specimens and one female specimen. Two males labeled "Magdalena, Colom. 11°10’N, 76°08’W Apr. 1973, 800 M M. Madison, Coll." (LHR); one male labeled (a) "Trujillo Trujillo, Venz. 12-VII-1964" (b) "E. Osuna M. Gelbes" (c) "Venezuela-Inst. Zool. Agricola-Fac, Agronomia Univ. Central" [green label] (IZA); one male labeled (a) "El Límon AR. VENEZUELA 450m. 30-V-65" (b) "F. Fernandez Y. Col." (c) "Venezuela-Inst. Zool. Agricola-Fac, Agronomia Univ. Central" [green label] (IZA); and one female labeled (a) "Turmero; AR Venezuela 466 m 22.V.53" ["22.V.53" handwritten] (b) "col. J. Requena" [handwritten] (c)

Distribution. Northern South America (Map 12).

Comments. This species is related to *T. sinuata* and *T. xerotica*, but can be recognized by the structure of the male genitalia. *Thyanta obtusa* has the posterior margin of the pygophore broadly U-shaped in caudal view, while in *T. sinuata* it is broadly V-shaped. *Thyanta obtusa* can be separated from *T. xerotica* by the obtuse protuberance on the shaft of each paramere, which is reduced or absent in *T. xerotica*.

Etymology. Named for the obtuse apex of each paramere when viewed medially.

*Thyanta (Thyanta) xerotica* Rider, n. sp.

Figs. 384-398, Map 11

Description. Medium to large; dorsal surface green to brown; often with reddish markings between humeral angles, on apex of scutellum, and sometimes on vertex of head and apex of each corium; punctures usually concolorous with surface, sometimes brown.

Jugal margins subparallel for middle third of distance from eyes to evenly rounded apex (Fig. 385). Antennae green to pale brown, distal 3 segments usually marked with dark brown or reddish-brown. Anterolateral margins of pronotum in dorsal view straight to slightly concave; each humeral angle rounded to nearly angulate, protruding only slightly beyond base of adjacent corium (Fig. 384); pronotal cicatrices immaculate. Hemelytra uniformly and densely punctate; posterior margins
Figs. 384-398. T. xerotica. Fig. 384. Habitus. Fig. 385. Head. Figs. 386-388. Right paramere. Fig. 386. Medial view. Fig. 387. Ectal view. Fig. 388. Lateral view. Figs. 389-391. Theca and related structures. Fig. 389. Ventral view. Fig. 390. Dorsal view. Fig. 391. Lateral view. Figs. 392-395. Pygophore. Fig. 392. Caudal view. Fig. 393. Ventral view. Fig. 394. Dorsal view. Fig. 395. Lateral view. Fig. 396. Genital plates, caudoventral view. Fig. 397. Spermatheca. Fig. 398. Spermathecal pump.
slightly convex; costal angle narrowly rounded to angulate, reaching beyond middle of penultimate connexival segment; hemelytral membrane hyaline, sometimes with numerous brown flecks. Connexiva narrowly exposed; incisures usually marked with black.

Ventral surface green to pale brown; punctures usually concolorous with surface; each humeral angle often marked with black. Rostrum green to brown, apical half of segment 4 piceous, apex reaching beyond middle of third (second visible) abdominal segment. Ostiolar canal acuminate apically. Femora and tibiae green to brown, tarsal segments and apex of each tibia often darker. Post-spiracular black spots absent, sometimes vague in brown form; posterolateral angle of each abdominal sternite piceous.

Mesial margins of basal plates in caudoventral view straight to slightly convex, separated basally; posterior margins sinuous, nearly straight; posteromesial angle broadly (Fig. 396). Sclerotized rod relatively short, somewhat swollen subapically, distinctly narrowed apically (Fig. 397); spermathecal duct only slightly swollen and coiled below proximal flange (Fig. 398). Medial portion of posterior pygophoral margin in caudal view usually concave, continuing line of lateral margins, giving posterior margin a smoothly arcuate form, medial portion sometimes straight and posterior margin more U-shaped (Fig. 392); pygophore emarginate in lateral view (Fig. 395); posterolateral angles moderately prominent in both ventral and dorsal views (Figs. 393, 394). Each paramere relatively robust, concave surface oriented dorsomediad, apex rounded in medial view (Fig. 386), angulate in ectal view (Fig. 387); roughened spiculate area on lateral surface of paramere
localized, circular (Fig. 388). Each lateral conjunctival lobe of aedeagus with 2 diverticula (Fig. 391); dorsomedial conjunctival lobe prominent (Fig. 390); penisfilum relatively small (Fig. 389).

**Measurements.** Total length 6.62-10.25 (7.41); total width 4.34-6.47 (4.73); medial length of pronotum 1.40-1.88 (1.49). Medial length of scutellum 2.72-4.25 (3.13); basal width 2.61-4.08 (2.94); width at distal end of frena 0.94-1.32 (1.05). Length of head 1.55-2.07 (1.68); width 1.99-2.65 (2.13). Length of segments 1-5 of antennae 0.40-0.52 (0.44), 0.71-1.10 (0.88), 1.07-1.42 (1.14), 1.18-1.49 (1.47), and 1.14-1.38 (1.31), respectively. Length of segments 2-4 of rostrum 1.25-1.69 (1.42), 0.70-0.92 (0.77), and 0.77-0.99 (0.77), respectively.


**Paratypes.** 24 male and 22 female specimens. Two males labeled "ECUADOR, 82 Km. W. Guayaquil Ricklefs &Austin 8 March 77" (DBT); one female labeled (a) "Guayaquil Ecuador RL Castillo" [handwritten] (b) "Thyanta nitidula Ruckes det H. Ruckes" ["Thyanta nitidula Ruckes" handwritten; folded] (CUNY); one male labeled (a) "ECUADOR La Toma 1200m. W.Loja 18,19-XI-1970 Coll:L.E.Pena" (b) "33" (DAR); seven females and four males labeled (a) "Peru S.A. 1.23 1936 E.G.Smyth" ["III.15" and "G" handwritten] (b) J.R.de la Torre-Bueno Collection K.U.", except three males labeled "I.25 1936" ["I.25" and "G" handwritten], one male labeled "III.14 1937" ["III.14" and "7" handwritten], one female labeled "III.15 1937" ["III.15" and "7" handwritten], and two females labeled "III.16 1937" ["III.16" and "7" handwritten] (SMEK); one male labeled
"Peru. Dpto. Amazonas 43 K. ne. Chikiaco 1050' 6-10 XI 1978 L. J. Barkley" (LHR); four females and one male labeled (a) "PERU:Dept. Cajamarca Prov. Jaén. Pucara. Rio Huancabamba,900m 14-18.I.1964" (b) "P. C. Hutchison and J. K. Wright Collectors", except one male labeled "10-13.I.1964" (CAS); one male labeled "PERU: Dpto. Lambayeque Cerro la Vieja, 7 km. S of Motupe, el. 100m. 2-17-VII-1981 L.J.Barkley, collector" (LHR); one female labeled (a) "10 Km.S.of Chiclayo, PERU III-21-51" (b) "Ross and Michelbacher Collectors" (CAS); two males labeled "PERU: Dpto. Lambayeque 12 km. N of Olmos el. 90m. 1-VII-81 L.J. Barkley, coll." ['1-VII-81' handwritten] (LHR); one male and one female labeled (a) "PERU:Dept. & Prov. Lambayeque. 18 km. W. of Olmos. Alt. 520m 30-IX-1964" (b) "P. C. Hutchison & J. K. Wright At Coleman lantern" (CAS); one male labeled (a) "PERU: 94 mi. E. of Olmos, Lambayeque 1-18-1955" (b) "E.I.Schlinger & E.S.Ross collectors" (CAS); two males labeled (a) "PERU: Lambayeque. Roadside veg. 1 mile S.E. of town. 20.viii.1971." (b) "Fertile irrigated region in arid coastal desert" (c) "P.S.&H.L. Broomfield B.M. 1971-486 (BMNH); one female labeled (a) "Chaclacayo Lima,Peru 750Meters" (b) "Acc.38901 E.Escomel" (AMNH); one male labeled (a) "LIMA PERU 1959 F.Cisneros Col." [handwritten; grey border] (b) "UA 696-67" [handwritten] (DAR); one female labeled (a) "Lima Peru VI-1-39 Weyrauch 91" [handwritten] (b) "Thyanta patruelis Stal det H. Ruckes" [handwritten; black border; folded] (USNM); one male labeled "PERU: Dpto. Piura Pariñas, 7 km. N, 15 km. E Talara 18-IX-1981 L.J. Barkley, coll." (LHR); one female labeled (a) "PERU: Dept. Piura, Prov. Ayabaca. 18 km above Puente Tandopa (RioQuiroz)" (b) "Alt. 1000-1700 m. 23-IX-1964 P. C. Hutchison & J. K. Wright" (CAS); four
males labeled "Tamarugal Refresco Enero 16, 1986 D. Bobadilla" [handwritten; black border] (location in Chile) (UTAC); one male labeled "Tamarugal Enero 30, 86 D. Bobadilla" [handwritten; black border] (UTAC); one female labeled "Tamarugal Enero 30, 86 A. Gallardo" [handwritten; black border] (UTAC); one male labeled (a) "4" [circular; yellow paper] (b) "PAMPA-TAMARUGAL-16-07-86 D. BOBADILLA colector" [black border; handwritten] (IIAS); one female labeled "CHILE-Arica 19.09.82 Trampa tablero Col. C. Valdés" [handwritten] (IIAS); two females labeled (a) "5" [circular; yellow paper] (b) "TARAPACA CICA.AZAPA LUZ-NEGRA 26-27-1-70" [black border; handwritten] (IIAS), except one female labeled (a) "6" [circular; yellow paper]; and one female labeled "CHILE. Pica 23.02.84 Vegetación Col. E. Prado" [handwritten] (IIAS).

**Distribution.** Coastal desert areas from Ecuador to northern Chile (Map 11).

**Comments.** This species can be distinguished from other congeners by the form of the posterior margin of the pygophore and by the structure of the parameres. The posterior margin of the pygophore in caudal view is usually arcuately U-shaped. *Thyanta xerotica* is the only species of *Thyanta* with the apex of each paramere distinctly rounded in medial view and usually lacking the obtuse protuberance on the shaft.

**Etymology.** Named for the xerophytic habitat in which this species lives.
Thyanta (Thyanta) infuscata Rider, n. sp.
Figs. 399-413, Map 11

Description. Dorsal surface pale green; posterior third of pronotum dark green, margin between pale and dark areas irregular; medial longitudinal band on scutellum yellowish-green; punctures reddish-brown.

Apex of head broadly rounded; jugal margins nearly parallel for middle third of distance from eyes to apex (Fig. 400). Antennae pale reddish-brown, distal two and one-half segments darker. Anterolateral margins of pronotum weakly concave in dorsal view; each humeral angle narrowly rounded, almost angulate, produced beyond margin of adjacent corium by about half width of eye, apex piceous (Fig. 399). Mesial margin of each pronotal cicatrice marked with fuscous or piceous, sometimes only vaguely so. Punctures on pronotum crowded anterior to cicatrices, sparse along anterolateral margins. Hemelytra uniformly and shallowly punctate, punctures slightly more dense on exocorium than corium; posterior margins nearly straight; posterolateral angle narrowly rounded (Fig. 399), extending nearly to posterior margin of penultimate connexival segment. Hemelytral membrane hyaline with numerous brown flecks; inner basal angle distinctly infuscated (Fig. 399). Connexiva pale green; each posterolateral angle piceous.

Ventral surface yellowish-green; punctures concolorous to reddish-brown. Rostrum pale yellowish brown, apical half of segment four black, reaching onto base of third (second visible) abdominal sternite. Ostiolar canal acuminate apically. Femora and tibiae pale yellowish-
Figs. 399-413. *T. infuscata*. Fig. 399. Habitus. Fig. 400. Head. Figs. 401-403. Right paramere. Fig. 401. Medial view. Fig. 402. Ectal view. Fig. 403. Lateral view. Figs. 404-406. Theca and related structures. Fig. 404. Ventral view. Fig. 405. Dorsal view. Fig. 406. Lateral view. Figs. 407-410. Pygophore. Fig. 407. Caudal view. Fig. 408. Ventral view. Fig. 409. Dorsal view. Fig. 410. Lateral view. Fig. 411. Genital plates, caudoventral view. Fig. 412. Spermatheca. Fig. 413. Spermathecal pump.
green; vague brown spot present on superior surface of each femur at
distal third. Post-spiracular black spots absent. Posterolateral angle
of each abdominal sternite piceous.

Mesial margins of basal plates in caudoventral view slightly
convex; posterior margins slightly concave; posteromesial angle slightly
emarginate, fuscous (Fig. 411). Sclerotized rod swollen subapically,
abruptly narrowed apically (Fig. 412). Spermathecal duct moderately
swollen below proximal flange, length of duct from proximal flange to
sclerotized rod relatively short (Fig. 413). Posterior margin of
pygophore broadly and sinuously U-shaped in caudal view, medial portion
slightly sinuous (Fig. 407); posteroventral surface only weakly produced
into blunt, chin-like protuberance, surface between protuberance and
posterior margin appearing only slightly depressed in lateral view (Fig.
410); posterior margin slightly concave in ventral and dorsal views
(Figs. 408, 409). Apex of each paramere narrowly rounded in medial
view, apex bent dorsad (Fig. 401); narrowly rounded in ectal view (Fig.
402); roughened, spiculate area on lateral surface circular, localized
(Fig. 403). Aedeagus with conjunctival lobes large, each lateral lobe
with 2 obtuse diverticula (Fig. 406); median penal lobes and penisfilum
relatively small, obscured by conjunctival lobes (Fig. 404); dorsomedial
conjunctival lobe relatively large (Fig. 405).

Measurements. Total length 7.41-9.46 (7.41); total width 5.20-5.83
(5.20); medial length of pronotum 1.66-1.88 (1.66). Medial length of
scutellum 3.39-3.90 (3.39); basal width 3.31-3.68 (3.31); width at
distal end of frena 1.10-1.40 (1.10). Length of head 1.46-1.64 (1.46);
width 2.08-2.21 (2.08). Length of segments 1-5 of antennae 0.39-0.44
Length of segments 2-4 of rostrum 1.23-1.29 (1.23), 0.74-0.77 (0.77), and 0.74-0.75 (0.75), respectively.


**Paratype.** One female, labeled as holotype (FSCA).

**Distribution.** Ecuador (Map 11).

**Comments.** No other species of Thyanta has the inner basal angle of each hemelytral membrane distinctly infuscated.

**Etymology.** Named for the infuscated basal angle of the hemelytral membrane.

**Thyanta (Thyanta) straminea** Rider, n. sp.

Figs. 414-418, Map 11

**Description.** Dorsal surface pale green, head and anterior disc of pronotum yellowish-brown, exocorium stramineous, apex of scutellum and apex of each humeral angle reddish; punctures pale brown.

Apex of head evenly rounded; jugal margins not quite parallel (Fig. 415); surface transversely tumid, densely and evenly punctate. Anterolateral margins of pronotum in dorsal view concave; each humeral angle acutely produced, nearly spinose, protruding beyond base of adjacent corium by more than width of eye (Fig. 414). Pronotal disc uniformly punctate except punctures somewhat crowded anterior to
Figs. 414-418. *T. straminea*. Fig. 414. Habitus. Fig. 415. Head. Fig. 416. Genital plates, caudoventral view. Fig. 417. Spermatheca. Fig. 418. Spermathecal pump.
cicatrices; pronotal cicatrices immaculate. Hemelytra rather sparsely punctate especially on distal fourth; posterior margins nearly straight; costal angle acute, reaching to anterior margin of last connexival segment; hemelytral membrane hyaline with a few faint brown flecks distally. Connexiva not exposed, pale yellow, posterolateral angle of each segment black.

Ventral surface stramineous with greenish hues on head and propleura; punctures concolorous with surface. Rostrum stramineous with brown markings, distal half of segment 4 piceous, reaching onto base of abdomen. Apex of each humeral angle reddish. Ostiolar canal acuminate apically. Femora and tibiae stramineous, tarsal segments and apex of each tibia brownish. Post-spiracular spots vague, green; posterolateral angle of each abdominal sternite piceous.

Mesial margins of basal plates in caudoventral view convex, separated distally; posterior margins sinuous; posteromesial angle brown, weakly emarginate (Fig. 416); surface of each basal plate punctate on mesial half. Distal end of sclerotized rod slightly swollen subapically, narrowed spically (Fig. 417); only small amount of swelling and coiling below proximal flange (Fig. 418). Male unknown.

**Measurements.** Total length 8.28; total width 5.96; medial length of pronotum 1.81. Medial length of scutellum 3.64; basal width 3.31; width at distal end of frena 1.32. Length of head 1.59; width 2.08. Length of segments 1-5 of antennae 0.40, 0.78, 1.07, 1.14, and 1.10, respectively. Length of segments 2-4 of rostrum 1.29, 0.70, and 0.75, respectively.
Holotype. Female labeled (a) "Buenaventura Colombia '44 C. L. Fagan" (b) "Thyanta acutangula Jen-Har. det. H. Ruckes" [black border; folded]. Deposited in the American Museum of Natural History (New York). No paratypes.

Distribution. Colombia (Map 11).

Comments. The acutely produced humeral angles and the stramineous-colored exocorium will easily identify this species within the maculata group.

Etymology. Named for the stramineous-colored exocorium.

Thyanta (Thyanta) similis Van Duzee

Figs. 419-425


Diagnosis. Small; ovate; distinctly convex. Green to testaceous often marked with dark rubescence on scutellum, hemelytra, and posterior disc of pronotum. Scutellum with medial longitudinal band from base to near apex nearly impunctate, subcalloused, cream-colored.

Apex of head broadly rounded; jugal margins subparallel for middle third of distance from eyes to apex (Fig. 420); dorsal surface of head evenly but distinctly convex transversely. Anterolateral margins of pronotum concave in dorsal view; each humeral angle rounded (Fig. 419). Pronotal cicatrices immaculate. Ostiolar canal acuminate apically. Mesial margins of basal plates in caudoventral view straight to slightly convex; posterior margins sinuously convex; posteromesial angle
Figs. 419-425. *T. similis*. Fig. 419. Habitus. Fig. 420. Head. Figs. 421-422. Pygophore. Fig. 421. Caudal view. Fig. 422. Ventral view. Fig. 423. Genital plates, caudoventral view. Fig. 424. Spermatheca. Fig. 425. Spermathecal pump.
truncated (Fig. 423). Distal end of sclerotized rod slightly swollen subapically, narrowed apically (Fig. 424); spermathecal duct slightly swollen below proximal flange (Fig. 425). Posterior margin of pygophore sinuously U-shaped in caudal view (Fig. 421); concave in lateral view. Apex of each paramere spinose in ectal view; narrowly rounded in medial view; dorsomedial concave surface oriented more dorsad than mediad; roughened spiculate area on lateral surface circular.

**Types.** Van Duzee (1933) described *T. similis* from two female specimens both collected in the Galapagos Islands. Both specimens were examined and are conserved in the California Academy of Sciences (San Francisco).

**Distribution.** Known only from the Galapagos Islands, Ecuador.

**Specimens Examined.** Five specimens collected between 22 January and 24 April; deposited in CAS, SMEK. ECUADOR: GALAPAGOS ISLANDS: Floreana Isl: Post Office Bay. Rábida Isl. Sta Cruz Isl: Academy Bay.

**Comments.** Thyanta similis and *T. setigera* are the only two species of *Thyanta* known to occur in the Galapagos Islands. These two species are easily separated by the shape of the humeral angles, which are rounded in *T. similis* and angulate to spinose in *T. setigera*. Thyanta similis is the only species in the genus that has the medial portion of the scutellum nearly impunctate and subcalloused.

**Convexa species group**

**Diagnosis.** General form distinctly convex; punctation minute, dense, dorsal surface appearing matte. Head and disc of pronotum
distinctly declivitous. Posterior termination of each buccula roundly truncate. Spermathecal bulb globose; sclerotized rod slightly swollen subapically; spermathecal duct with large amount of swelling and coiling below proximal flange. Each paramere thin, bladelike, apically acute with dorsomedial concave surface. Posteroventral surface of pygophore arcuately rounded.

Comments. This species group contains a single species, *T. convexa* new species. This species group differs from the *maculata* group by the more coarse, dense punctation. It differs from the *perditor* and *juvenca* groups by the bladelike paramere, which also has a dorsomedial concave surface. The roundly truncate posterior termination of each buccula is also unique within the subgenus.

**Thyanta (Thyanta) convexa** Rider, n. sp.

Figs. 426-440, Map 10

*Description.* General form ovate, distinctly convex. Dorsal surface stramineous to pale brown, punctures dark brown to dark green, a few interstitial pale points scattered on each corium.

Dorsal surface of head transversely convex; juga and tylus subequal in length or tylus slightly longer than juga. Jugal margins subparallel for middle third of distance from eyes to apex (Fig. 427). Antennae pale brown to green, segments 3-5 usually faintly darker on distal half of each segment. Anterolateral pronotal margins weakly convex in dorsal view (Fig. 426), concolorous with rest of pronotum. Each humeral angle narrowly rounded, protruding slightly beyond base of adjacent corium.
Figs. 426-440. T. convexa. Fig. 426. Habitus. Fig. 427. Head. Figs. 428-430. Right paramere. Fig. 428. Medial view. Fig. 429. Ectal view. Fig. 430. Lateral view. Figs. 431-434. Pygophore. Fig. 431. Caudal view. Fig. 432. Ventral view. Fig. 433. Dorsal view. Fig. 434. Lateral view. Figs. 435-437. Theca and related structures. Fig. 435. Ventral view. Fig. 436. Dorsal view. Fig. 437. Lateral view. Fig. 438. Genital plates, caudoventral view. Fig. 439. Spermatheca. Fig. 440. Spermathecal pump. Symbols: bp, basal plate; dfl, distal flange; dmc, dorsomedial conjunctival lobe; dsp, dilation of spermatheca; gx2, second gonacoxa; jug, juga; lcl, lateral conjunctival lobe; mpl, median penal 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; ssd, swelling of spermathecal duct; s10, tenth sternite; th, theca; tyl, tylus.
Pronotal cicatrices immaculate. Apex of each corium narrowly rounded, usually reaching beyond middle of penultimate connexival segment; posterior margin of corium convex; hemelytral membrane hyaline with several faint brown flecks. Connexiva pale brown, posterolateral angle of each segment usually black.

Ventral surface pale brown to green; abdominal punctures concolorous with surface; punctures on thoracic pleura usually dark brown. Posterior termination of each buccula roundly truncate. Rostrum reaching to posterior margin of third (second visible) abdominal segment. Ostiolar canal acuminate distally. Legs pale brown to green. Post-spiracular black spot usually present on each side of each abdominal sternite. Posterolateral angle of each abdominal sternite piceous.

Mesial margins of basal plates in caudoventral view convex; posterior margina sinuous, slightly concave, posteromesial angle rounded (Fig. 438). Sclerotized rod slightly swollen subapically, distinctly narrowed apically (Fig. 439); spermathecal duct swollen and with much coiling below proximal flange (Fig. 440). Posterior margin of pygophore in caudal view U-shaped, mesial portion concave (Fig. 431); posterolateral angles prominent in ventral and dorsal views (Figs. 432, 433); posteroverentral surface arcuately rounded, not produced caudad in lateral view (Fig. 434). Apex of each paramere narrowly rounded in ectal view (Fig. 429); apex curving distinctly dorsad in medial view (Fig. 428); roughened, spiculate area on lateral surface of paramere circular (Fig. 430). Each lateral conjunctival lobe of aedeagus with single rounded diverticulum (Fig. 437); dorsomedial conjunctival lobe
distinct (Fig. 436); median penial lobes and penisfilum moderately prominent (Fig. 435).

Measurements. Total length 6.31-7.18 (6.31); total width 4.10-4.73 (4.42); medial length of pronotum 1.51-1.73 (1.51). Medial length of scutellum 2.80-3.13 (2.83); basal width 2.65-2.98 (2.87); width at distal end of frena 1.03-1.25 (1.07). Length of head 1.64-1.81 (1.64); width 2.03-2.19 (2.06). Length of segments 1-5 of antennae 0.37-0.40 (0.37), 0.70-0.81 (0.81), 0.72-0.83 (0.74), 0.98-0.99 (0.98), and 0.99-1.03 (1.03), respectively. Length of segments 2-4 of rostrum 1.21-1.42 (1.21), 0.66-0.74 (0.68), and 0.81-0.83 (0.83), respectively.

Holotype. Male, labeled (a) "Peru S.A. III.19 1937 E.G.Smyth" ["III.19" and "7" handwritten] (b) "J.R.de la Torre-Bueno Collection K.U." [yellow label]. Deposited in the Snow Entomological Museum, University of Kansas (Lawrence).

Paratypes. Seven females. Two labeled as holotype (SMEK); one labeled as holotype except "III.16 1937" ["III.16" and "7" handwritten] (SMEK); one labeled as holotype except "I.26 1936" ["I.26" and "6" handwritten] (SMEK); one labeled "Peru. Dpto. Amazonas 43 K. ne. Chikiaco 1050' 6-10 XI 1978 L. J. Barkley" (LHR); one labeled (a) "PERU:8 km. NE. Pucusana, Lima.IX-12-54" (b) "E.I.Schlinger & E.S.Ross collectors" (CAS); and one labeled (a) "PERU Chancay river valley III-15-51" (b) "Ross and Michelbacher Collectors" (CAS).

Distribution. Northwestern South America (Map 10).

Comments. Thyanta convexa and T. aeruginosa are the only two species in the genus which have the posterior termination of each buccula roundly truncate; in all other species it is evanescent.
Thyanta convexa differs from T. aeruginosa in having the superior surface of each tibia sulcate and the juga and tylus subequal in length. The bladelike parameres of the male genitalia are also distinctive.

Thyanta convexa is aberrant within the nominate subgenus. It is much more convexly shaped, appearing similar to T. aeruginosa or species in the closely related genus Tepa. Also, it is the only species within the genus with the anterolateral margins of the pronotum weakly but distinctly convex.

Etymology. Named for the convex anterolateral margins of the pronotum.

Juvenca species group

Diagnosis. Punctation small, relatively dense, dorsal surface appearing matte. Posterior termination of each buccula evanescent. Each humeral angle rounded, angulate, or spinose; pronotal cicatrices usually marked with black in mesial angles. Distal end of sclerotized rod swollen subapically, narrowed and sometimes elongate apically; spermathecal bulb globose; usually with a relatively large amount of swelling and coiling below proximal flange, rarely (T. fimbriata new species) forming cylindrical structure. Posteroventral surface of pygophore arcuately rounded or with deep, broad sulcus. Each paramere apically acute, ectal surface convex, lacking dorsomedial concave surface.

Comments. This species group contains 6 species: Thyanta acuta Ruckes, T. acutangula Jensen-Haarup, T. cornuta Ruckes, T. fimbriata new
species, *T. juvenca* Stål, and *T. robusta* new species. All 6 species are restricted to South America. This species group is fairly homogeneous with the exception of *T. fimbriata* which is unique within the *juvenca* species group in having a cylindrical structure below the proximal flange of the spermatheca and a deep broad sulcus on the posteroventral surface of the pygophore. Although *T. (P.) aeruginosa* and the species in the *perditor* group also have a cylindrical structure below the proximal flange, the rest of the female genitalia and the structure of the parameres show a closer alliance with the species within this group.

**Thyanta (Thyanta) fimbriata** Rider, n. sp.

Figs. 441-455, Map 13

**Description.** Dorsal surface brown to medium green; usually anterior disc of pronotum paler than posterior disc.

Head evenly rounded apically; jugal margins sinuous, not parallel (Fig. 442). Antennae green to brown, distal third of segment 3 reddish-brown, segments 4-5 entirely reddish brown. Anterolateral margins of pronotum in dorsal view concave; each humeral angle narrowly rounded to angulate, protruding beyond base of adjacent corium (Fig. 441). Each pronotal cicatrice marked with piceous in mesial angle. Usually an elevated, pale, subcalloused line present between humeral angles. Hemelytra uniformly punctate; lateral margin at base pale, subcalloused; posterior margins convex (Fig. 441); costal angle rounded, usually reaching to near middle of penultimate connexival segment; hemelytral
Figs. 441-455. *T. fimbriata*. Fig. 441. Habitus. Fig. 442. Head. Figs. 443-445. Right paramere. Fig. 443. Medial view. Fig. 444. Ectal view. Fig. 445. Lateral view. Figs. 446-448. Theca and related structures. Fig. 446. Ventral view. Fig. 447. Dorsal view. Fig. 448. Lateral view. Figs. 449-452. Pygophore. Fig. 449. Caudal view. Fig. 450. Ventral view. Fig. 451. Dorsal view. Fig. 452. Lateral view. Fig. 453. Genital plates, caudoventral view. Fig. 454. Spermatheca. Fig. 455. Spermathecal pump. Symbols: bp, basal plate; cyl, cylindrical structure below proximal flange; dfl, distal flange; dsp, dilation of spermatheca; gx2, second gonacoxa; jug, juga; lcl, lateral conjunctival lobe; mpl, median penal 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; spb, spermathecal bulb; sr, sclerotized rod; s10, tenth sternite; th, theca; tyl, tylus.
membrane hyaline with few to many pale brown flecks. Connexiva narrowly exposed, brown to green; posterolateral angle of each segment piceous.

Ventral surface pale to medium brown, rarely with small dark-brown spots scattered on abdomen. Rostrum pale brown, most of segment four black; apex reaching between metacoxae or slightly beyond. Ostiolar canal acuminate apically. Femora and tibiae pale brown to green with fuscous spot on superior surface of each femur at distal third, rarely with scattered small brown spots; tarsal segments reddish or dark brown. Post-spiracular black spot usually present on each side of each abdominal sternite; posterolateral angle of sternites piceous, anterolateral angles immaculate.

Basal plates in caudoventral view subtriangular; mesial margins slightly convex; posterior margins sinuous, posteromesial angle narrowly rounded (Fig. 453). Sclerotized rod swollen subapically, narrowed apically (Fig. 454); spermathecal duct swollen, forming small cylindrical structure below proximal flange (Fig. 455). Posteroventral surface of pygophore deeply sulcate, becoming shallow laterally; obtuse carina below sulcus bearing row of long setae; posterior margin of pygophore sinuously V-shaped in caudal view, also bearing row of setae (Fig. 449); pygophore shallowly concave in both ventral and dorsal views (Figs. 450, 451); in lateral view, broadly convex with emargination ventrally (Fig. 452). Each paramere robust, apex spinose in both medial and ectal views (Figs. 443, 444); roughened, spiculate area on lateral surface circular (Fig. 445). Each lateral conjunctival lobe of aedeagus with 3-4 spinose diverticula (Fig. 448); dorsomedial conjunctival lobe
apparently absent (Fig. 447); penisfilum prominent (Fig. 448); median penal lobes relatively small (Fig. 446).

**Measurements.** Total length 6.47-8.44 (8.04); total width 4.49-5.91 (5.60); medial length of pronotum 1.55-1.84 (1.84). Medial length of scutellum 2.80-3.72 (3.39); basal width 2.72-3.39 (3.16); width at distal end of frena 1.07-1.40 (1.40). Length of head 1.44-1.68 (1.68); width 1.88-2.21 (2.12). Length of segments 1-5 of antennae 0.35-0.42 (0.42), 0.74-0.81 (0.79), 0.72-0.96 (0.96), 0.94-1.18 (1.18), and 0.74-1.18 (1.18), respectively. Length of segments 2-4 of rostrum 1.16-1.34 (1.34), 0.70-0.77 (0.70), and 0.66-0.81 (0.81), respectively.


**Paratypes.** Two male and one female specimens. One male labeled "Sao Paulo Campos do Jordão 16.XII.1944 F. Lane col." (MZRS); one male labeled (a) "Curitiba-Pr. IX-1960 R.Lange leg." ["IX" and "60" handwritten; black border] (b) "Lange" (MAPA); one female labeled (a) "Porto Alegre 11.10.50" ["11.10.50" handwritten; black border] (b) "Rio Grande do Sul, Pe. Buck leg." [folded] (MAPA).

**Distribution.** Southern Brazil (Map 13).

**Comments.** The distinct sulcus on the posteroventral surface of the pygophore and the double row of long setae are unique within the genus. The cylindrical structure below the proximal flange of the spermatheca is unique within this species group.

**Etymology.** Named for the double row of long hairs on the pygophore.
Thyanta juvenca Stål

Figs. 456-470, Map 13


Pentatoma pilosus Reed, 1898:132 (syn. by Kirkaldy, 1909:94).

Diagnosis. Medium-sized; slightly convex dorsally, distinctly convex ventrally. Dorsal surface pale to medium green, usually with yellow or red markings on apex of tylus, on apex of scutellum, on each humeral angle, and on legs.

Apex of head narrowly rounded; jugal margins not parallel (Fig. 457). Anterolateral margins of pronotum straight to slightly concave in dorsal view; each humeral angle obtusely to narrowly rounded, protruding only slightly beyond base of adjacent corium (Fig. 456). Each pronotal cicatrices usually immaculate, sometimes marked with black in mesial angle. Vertex of head and scutellum evenly convex.

Mesial margins of basal plates in caudoventral view straight to slightly convex; posterior margins sinuously convex; posteromesial angles rounded (Fig. 468). Sclerotized rod relatively short, swollen subapically; narrowed apically (Fig. 469); spermathecal duct with large amount of swelling and coiling below proximal flange (Fig. 470). Posterior margin of pygophore shallowly and sinuously U-shaped in caudal view (Fig. 464); posteroventral surface of pygophore straight in lateral view (Fig. 467); slightly convex in ventral and dorsal views (Figs. 465, 470).
Figs. 456-470. T. juvenca. Fig. 456. Habitus. Fig. 457. Head. Figs. 458-460. Right paramere. Fig. 458. Medial view. Fig. 459. Ectal view. Fig. 460. Lateral view. Figs. 461-463. Theca and related structures. Fig. 461. Ventral view. Fig. 462. Dorsal view. Fig. 463. Lateral view. Figs. 464-467. Pygophore. Fig. 464. Caudal view. Fig. 465. Ventral view. Fig. 466. Dorsal view. Fig. 467. Lateral view. Fig. 468. Genital plates, caudoventral view. Fig. 469. Spermatheca. Fig. 470. Spermathecal pump. Symbol: dmc, dorsomedial conjunctival lobe.
Each paramere robust; apex spinose, curved gently laterad in ectal view (Fig. 459), curving gently dorsad in medial view (Fig. 458); shaft with nearly angulate protuberance at middle; roughened, spiculate area on lateral surface linear (Fig. 460). Each lateral conjunctival lobe of aedeagus with single rounded diverticulum (Fig. 463); dorsomedial conjunctival lobe moderately large (Fig. 462); penisfilum prominent, median penal lobes small, inconspicuous (Fig. 461).

Types. Stål (1862b) described T. juvenca from one male specimen from Chile. In the original description, he stated that the type specimen was placed in the "Mus. Helsingfors" in Finland. The type specimen was not located in the Universitetets Zoologiske Museum (Helsingfors, Finland), but the original description is adequate to fix the species. In his description, Stål says "Thorax marginibus lateralibus anticis integris, levissime sinuatis, angulis lateralibus obtusus, vix prominulis." Thyanta juvenca is the only common and widespread species in Chile that has each humeral angle obtusely rounded as in the above description. Two other species of Thyanta occur in Chile. Thyanta xerotica is relatively rare and occurs only in the very northern areas. Thyanta rubicunda has each humeral angle produced into an acute spine.

Reed (1898) described Pentatoma pilosus from two male specimens from Chile without designating a holotype. The male specimen labeled (a) "Sin. Hem. Chile Coll. ECReed" (b) "C J Drake Coll. 1956" is designated the lectotype. The male specimen labeled (a) "Sin. Hem. Chile Coll. ECReed" (b) "C J Drake Coll. 1956" (c) "Pent. spe nov." [handwritten] (d) "juvenca" [handwritten; orange border] (e) "Thyanta"
[handwritten; orange border] is designated the paralectotype. Kirkaldy (1909) properly placed this species as a junior synonym of *T. iuvenca*. Both specimens were examined and are housed in the U.S. National Museum of Natural History (Washington, D.C.).

**Distribution.** Chile (Map 13).

**Specimens Examined.** 73 specimens collected from 7 September to 17 May; deposited in: AMNH, CAS, CNC, DAR, EGER, ENGL, FSCA, LHR, MNHS, UCR, UCS, USNM. CHILE: *Atacama*: Río Manflas. *Bióbio*: Arauco; Queime, E. Concepción. *Coquimbo*: Rivadavia; Vicuña. *El Liberador General Bernardo O'Higgins*: Rancagua; 10km N Sn Fernando; Sn Vicente de Tagua. *Maule*: La Jaula. Cord. Curicó; coast nr Mataquito R. *Región Metropolitana de Santiago*: Buin; Co Sn Ramon; Curacaví; El Canelo; La Matancilla; Los Maitenes; Melocoton; Quebrada Macul; Quilicura; Rinconada Maipú; Santiago. *Tarapacá*: Arica. *Valparaíso*: La Cruz; Los Andes; Ocoa; Papudo.

**Comments.** *Thyanta iuvenca* is closely related to *T. acutangula*, which may actually be a subspecies of the former. The male genitalia of the two species are nearly identical. *Thyanta iuvenca* has each humeral angle obtusely rounded, while in *T. acutangula* each humeral angle is distinctly angulate.

**Thyanta (Thyanta) acutangula** Jensen-Haarup

Figs. 471-485, Map 13


*Thyanta mendozana* Jensen-Haarup, 1928:189, 190. NEW SYNONYMY.

*Thyanta crinita* Ruckes, 1957b:44-46. NEW SYNONYMY.
Diagnosis. Medium-sized; ovate. Dorsal surface pale brown to dark green, sometimes dark brown, often marked with yellow around pronotal cicatrices, along anterolateral margins of pronotum, and on apex of scutellum; punctures usually concolorous with surface, sometimes brown.

Head evenly rounded apically; jugal margins sinuous, nearly parallel for middle third of distance from eyes to apex (Fig. 472). Anterolateral margins of pronotum slightly concave in dorsal view; each humeral angle usually angulate, flaring dorsad and slightly caudad, apex usually piceous (Fig. 471). Pronotal cicatrices immaculate or sometimes marked with black in each mesial angle.

Mesial margins of basal plates in caudoventral view straight to slightly convex; posterior margins convex; posteromesial angles rounded (Fig. 483). Sclerotized rod slightly swollen subapically, narrowed but not elongate apically (Fig. 484); spermathecal duct swollen and coiled below proximal flange (Fig. 485). Posteroventral surface of pygophore rounded; posterior margin sinuously U-shaped in caudal view, medial portion concave (Fig. 479). Posterior margin of pygophore nearly straight in ventral view (Fig. 480); slightly convex in dorsal view, posterolateral angles not at all prominent (Fig. 481); straight to weakly concave in lateral view (Fig. 482). Each paramere robust, spinose in medial and ectal views (Figs. 473, 474); roughened spiculate area on lateral surface of paramere narrow, elongate (Fig. 475). Each lateral conjunctival lobe of aedeagus spinose apically and with rounded, partially sclerotized diverticulum ventrally (Fig. 478); dorsomedial conjunctival lobe present (Fig. 477); median penal lobes hooked; penisfilum large, elongate, curving ventrad (Fig. 476).
Figs. 471-485. *T. acutangula*. Fig. 471. Habitus. Fig. 472. Head.

Figs. 473-475. Right paramere. Fig. 473. Medial view. Fig. 474. Ectal view. Fig. 475. Lateral view. Figs. 476-478. Theca and related structures. Fig. 476. Ventral view. Fig. 477. Dorsal view. Fig. 478. Lateral view. Figs. 479-482. Pygophore. Fig. 479. Caudal view. Fig. 480. Ventral view. Fig. 481. Dorsal view. Fig. 482. Lateral view. Fig. 483. Genital plates, caudoventral view. Fig. 484. Spermatheca. Fig. 485. Spermathecal pump.
Types. Jensen-Haarup (1928) described *T. acutangula* from 3 male and 3 female specimens all from Mendoza Province in Argentina. He did not, however, designate a holotype or paratypes. The male specimen labeled (a) "Est. Pedregal Prov. de Mendoza Rep. Argentina J.-Hrp." (black border) (b) "Type Coll. J=Hrp." (black border) (c) "Coll. Jensen-Haarup" (black border) (d) "Thyanta acutangula Jensen-Haarup leg." [handwritten] is designated the lectotype. The remaining five specimens are designated as paralectotypes. They have the following label data: one male labeled (a) "Mendoza" [handwritten] (b) "Coll. Jensen-Haarup" [black border] (c) "Type Coll. J=Hrp." [black border] (d) "Thyanta acutangula Jensen-Haarup leg" [handwritten]; one male labeled (a) "Mendoza 25.3.08" [handwritten] (b) "Type Coll. J=Hrp." [black border] (c) "Coll. Jensen-Haarup" [black border] (d) "Thyanta acutangula Jensen-Haarup leg" [handwritten]; one female labeled as lectotype except (b) and (c) are reversed and (d) "Thyanta acutangula J-Hrp. Coll. Jensen-Haarup" [black border; handwritten]; one female labeled (a) "Chacr. de Coria Prov. de Mendoza Rep. Argentina Jensen-Haarup" [black border] (b) "Type Coll. J=Hrp." [black border] (c) "Type" [red label] (d) "Thyanta acutangula Jensen-Haarup leg." [handwritten]; and one female labeled (a) "Mendoza 12.4.07" [handwritten] (b) "Type Coll. J=Hrp." [black border] (c) "Type" [red paper] (d) "Thyanta acutangula n. sp. J-Hrp." [handwritten]. All six specimens were examined and are conserved in the Universitetets Zoologiske Museum (Copenhagen, Denmark).

Jensen-Haarup (1928) described *T. mendozana* from one male specimen from the province of Mendoza, Argentina. The holotype is of the brown form and is slightly teneral, making some characters hard to
distinguish. Although the holotype has the humeral angles obtusely rounded, it does have fuscous markings on the ventral surface of each humeral angle, a trait characteristic of *T. acutangula*. The genitalia are virtually indistinguishable from those of *T. acutangula*. The holotype was examined and is housed in the Universitetets Zoologiske Museum (Copenhagen, Denmark).

Ruckes (1957b) described *T. crinita* from one male and two female specimens from Argentina. The holotype and one paratype were examined, and they do not differ in any significant respect from *T. acutangula*. These specimens are housed in the Cornell University collection (New York).

**Distribution.** Western Argentina (Map 13).

**Specimens Examined.** 33 specimens collected from 6 January to 5 April; deposited in: AMNH, CAS, CU, EGER, LHR, MBR, MLP, PUL, IML, USNM, UZMC. **BOLIVIA:** Cochabamba: 30mi SW Cochabamba. **ARGENTINA:** Catamarca: Belén; El Rodeo. Córdoba: 5mi N Deán Funes; Guanaco Muerto. La Pampa: Lihuel Calel. La Rioja. Mendoza: Chacr. de Coria; Est. Pedregal; Portrerillos. Neuquén: Barrancas. Río Negro: General Fernández Oro; Villa Regina. **Salta:** Cafayate; Cnel. Moldes; Sn Lorenzo. Sn Luis: Sn Martín. **Tucumán:** Crest ridge, NW Tucumán; Rio Calchaquier.

**Comments.** This species is related to *T. juvenca*, and may actually be a subspecies of *T. juvenca*. The genitalia of the two species are nearly identical. *T. acutangula* can be separated from *T. juvenca* by the angulate to spinose humeral angles.
Thyanta (Thyanta) robusta Rider, n. sp.
Figs. 486-500, Map 13

**Description.** Medium to large; dorsal surface dusky brown to greenish brown; broadly ovate, robust. Punctures brown, usually becoming fuscous near each humeral angle and irregular band just posterior to transhumeral pale subcalloused line.

Apex of head evenly rounded; jugal margins nearly parallel for middle third of distance from eyes to apex (Fig. 487). Antennae brown, segments 1-2 sometimes vaguely marked with fuscous, segments 3-5 often reddish. Anterolateral margins of pronotum concave in dorsal view; each humeral angle produced anterolaterad and dorsad, spinose (Fig. 486). Mesial angle of each pronotal cicatrice marked with fuscous, sometimes only vaguely so. A raised, transhumeral, subcalloused line usually present. Disc of pronotum anterior to cicatrices depressed, punctures crowded, small. Hemelytra with exocorium more densely punctate than rest of corium; posterior margins of corium convex, costal angle narrowly rounded, usually reaching beyond middle of penultimate connexival segment (Fig. 486); hemelytral membrane hyaline with numerous fuscous flecks. Connexiva green to brown, posterolateral angles black, sometimes posterior margin of each segment marked with fuscous.

Ventral surface pale brown to green; punctures usually concolorous with surface, sometimes pale brown. Rostrum pale brown to green, apical half of segment 4 piceous, reaching to anterior margin of third (second visible) abdominal sternite. Ostiolar canal acuminate apically. Each humeral angle often piceous. Femora and tibiae pale brown, tarsal
Figs. 486-500. *T. robusta.* Fig. 486. Habitus. Fig. 487. Head. Figs.
488-490. Right paramere. Fig. 488. Medial view. Fig. 489. Ectal
view. Fig. 490. Lateral view. Figs. 491-493. Theca and related
structures. Fig. 491. Ventral view. Fig. 492. Dorsal view. Fig.
493. Lateral view. Figs. 494-497. Pygophore. Fig. 494. Caudal
view. Fig. 495. Ventral view. Fig. 496. Dorsal view. Fig. 497.
Lateral view. Fig. 498. Genital plates, caudoventral view. Fig.
499. Spermatheca. Fig. 500. Spermathecal pump.
segments darker, reddish; femora sometimes marked with a few pale brown spots, usually one dark brown to fuscous spot on superior surface at distal third. Post-spiracular black spot usually present on each side of each abdominal sternite; posterolateral angles of abdominal sternites piceous.

Mesial margins of basal plates in caudoventral view nearly straight; posterior margins sinuously convex; posteromesial angle weakly emarginate (Fig. 498). Sclerotized rod swollen subapically, distinctly narrowed apically (Fig. 499); spermathecal duct slightly swollen and coiled below proximal flange (Fig. 500). Posteroventral surface of pygophore arcuately rounded; posterior margin in caudal view U-shaped, medial portion concave (Fig. 494). Pygophore in lateral view emarginate on dorsal half (Fig. 497); each lateral angle appearing double-cone-shaped in both ventral and dorsal views (Figs. 495, 496). Each paramere robust, apex nearly spinose in medial view (Fig. 488), narrowly rounded and curved slightly mediad in ectal view (Fig. 489); roughened, spiculate area on lateral surface of paramere linear, short (Fig. 490). Each lateral conjunctival lobe of aedeagus with 1-2 diverticula (Fig. 493); dorsomedial conjunctival lobe apparently absent (Fig. 492); penisfilum and medial penal lobes prominent (Fig. 491).

Measurements. Total length 7.41-9.78 (7.41); total width 6.47-8.04 (6.47); medial length of pronotum 1.71-1.99 (1.71). Medial length of scutellum 3.31-4.08 (3.40); basal width 3.20-3.84 (3.28); width at distal end of frena 1.21-1.66 (1.40). Length of head 1.62-1.81 (1.62); width 2.08-2.36 (2.12). Length of segments 1-5 of antenna 0.40-0.52 (0.40), 0.81-0.94 (0.81), 1.07-1.20 (1.07), 1.14-1.25 (1.14), and
1.16-1.21 (1.21), respectively. Length of segments 2-4 of rostrum 1.25-1.62 (1.25), 0.74-0.81 (0.74), and 0.77-0.96, respectively.


**Paratypes.** One male and five female specimens. One male labeled as holotype (FSCA); one female labeled (a) "Gramado, R.G. do Sul, Brasil 6-I-50 J. Becker 123" ["123" sideways; handwritten] (b) "Thyanta det RISailer" ["Thyanta" handwritten; black border; folded] (c) "Thyanta acuta Ruckes varietal form" [handwritten; black border; folded] (d) "Compared with type. Much more robust. H. Ruckes" [handwritten; black border; folded] (USNM); one female labeled "GRAMADO 2. 1954 RGS BRASIL" [black border] (MZRS); one female labeled "Brazil, Paraná 30 mi. W Irati 23 FEB 1980 D.B. Thomas Coll." ["30" and "W" handwritten] (DBT); one female labeled (a) "Tasimbé 24 II 57" [handwritten] (b) "218" (MZRS); and one female labeled (a) "Pinheinal 28 I 53" [handwritten] (b) "217" (MZRS).

**Distribution.** Brazil (Map 13).

**Comments.** This is a fairly distinctive species, although it is closely related to *T. acuta* and *T. cornuta*. It can be separated from these species by the larger, more robust shape, and by the characters of the male genitalia. The posterior margin of the pygophore is U-shaped in caudal view, but it is V-shaped in *T. cornuta*. The double-cone-shaped posterolateral angles of the pygophore in ventral and dorsal view will separate this species from *T. acuta*.

**Etymology.** Named for the robust form of the humeral angles.
Thyanta (Thyanta) acuta Ruckes

Fig. 501-515, Map 13

Thyanta acuta Ruckes, 1952:67-68.

**Diagnosis.** Medium-sized; ovate. Dorsal surface green to dark brown, sometimes with the following structures reddish: two spots on posterior disc of pronotum, one on each side of middle, extending to include nearly entire dorsal surface of pronotum; dorsal suface of head; marginal band on scutellum along each frenum; and all of hemelytra except exocorium.

Apex of head evenly rounded; jugal margins sinuous, nowhere parallel (Fig. 502). Anterolateral margins of pronotum concave in dorsal view; each humeral angle produced primarily laterad and only slightly anterodorsad, spinose (Fig. 501). Mesial angle of each pronotal cicatrice piceous; transhumeral, subcalloused line usually present.

Mesial margins of basal plates in caudoventral view nearly straight; posterior margins sinous; posteromesial angle rounded (Fig. 513). Sclerotized rod swollen at about two-thirds distance from base, distal narrowed portion elongate (Fig. 514); spermathecal bulb globose, slightly elongate, with small amount of coiling of spermathecal duct below proximal flange (Fig. 515). Posteroventral surface of pygophore arcuately rounded; posterior margin in caudal view U-shaped, medial portion slightly concave (Fig. 509); pygophore in lateral view nearly arcuately convex (Fig. 512). Each paramere rather robust, apex nearly spinose in medial view (Fig. 503); blunt, robust in ectal view (Fig.
Figs. 501-515. *T. acuta*. Fig. 501. Habitus. Fig. 502. Head. Figs. 503-505. Right paramere. Fig. 503. Medial view. Fig. 504. Ectal view. Fig. 505. Lateral view. Figs. 506-508. Theca and related structures. Fig. 506. Ventral view. Fig. 507. Dorsal view. Fig. 508. Lateral view. Figs. 509-512. Pygophore. Fig. 509. Caudal view. Fig. 510. Ventral view. Fig. 511. Dorsal view. Fig. 512. Lateral view. Fig. 513. Genital plates, caudoventral view. Fig. 514. Spermatheca. Fig. 515. Spermathecal pump.
504); roughened, spiculate area on lateral surface of paramere slightly elongate (Fig. 505). Each lateral conjunctival lobe of aedeagus with 3-4 spinose diverticula apically (Fig. 508) and 1 hooked sclerotized diverticulum ventrally (Fig. 506); penisfilum large; dorsomedial conjunctival lobe apparently absent (Fig. 507).

**Types.** Ruckes (1952) described *T. acuta* from one male and one female specimen from Paraguay. Although he described this species under the name *T. acuta*, the name written on the label with the specimens is *T. acutissimus*. The remaining label information, however, matches exactly that given in the original description, and the specimens fit the description for *T. acuta*. The holotype was examined and is housed at the University of Michigan Museum (Ann Arbor).

**Distribution.** Southern South America (Map 13).


**Comments.** This species is closely related to *T. robusta* and *T. cornuta*. It can be separated from *T. robusta* by the less robust form and by the form of the posterolateral angles of the pygophore, which are not double-cone-shaped when viewed ventrally or dorsally. The posterior margin of the pygophore in caudal view is U-shaped in *T. acuta* and V-shaped in *T. cornuta*. 
Thyanta cornuta Ruckes
Figs. 516-530, Map 13

Thyanta cornuta Ruckes, 1956:66-68.

**Diagnosis.** Small to medium; ovate. Dorsal surface olivaceous green; punctures pale brown, sometimes reddish on pronotum and hemelytra.

Jugal margins sinuous, nowhere parallel; apex of head narrowly rounded (Fig. 517). Anterolateral margins of pronotum angularly concave in dorsal view; each humeral angle produced primarily laterad and slightly anterodorsad, spinose (Fig. 516). Pronotal cicatrices usually immaculate, sometimes vaguely marked with fuscous in each mesial angle; lacking subcalloused line between humeral angles.

Mesial margins of basal plates in caudoventral view nearly straight; posterior margins sinuously convex; posteromesial angle broadly rounded (Fig. 528). Sclerotized rod relatively short, swollen subapically, narrowed distal portion elongate (Fig. 529); spermathecal duct swollen and coiled below proximal flange (Fig. 530).

Posteroventral surface of pygophore arcuately rounded; posterior margin in caudal view sinuously V-shaped, lateral margins distinctly divergent (Fig. 524). Pygophore in lateral view nearly straight to slightly concave (Fig. 527); in ventral view, lateral angles slightly prominent, medial portion slightly convex (Fig. 525). Each paramere robust, apex nearly spinose in medial view (Fig. 518), rounded in ectal view (Fig. 519); roughened spiculate area on lateral surface linear, short, near apex (Fig. 520). Each lateral conjunctival lobe of aedeagus with 4-5
Figs. 516-530. *T. cornuta*. Fig. 516. Habitus. Fig. 517. Head. Figs. 518-520. Right paramere. Fig. 518. Medial view. Fig. 519. Ectal view. Fig. 520. Lateral view. Figs. 521-523. Theca and related structures. Fig. 521. Ventral view. Fig. 522. Dorsal view. Fig. 523. Lateral view. Figs. 524-527. Pygophore. Fig. 524. Caudal view. Fig. 525. Ventral view. Fig. 526. Dorsal view. Fig. 527. Lateral view. Fig. 528. Genital plates, caudoventral view. Fig. 529. Spermatheca. Fig. 530. Spermathecal pump.
spinose diverticula apically and 1 ventral slightly sclerotized diverticulum (Fig. 521); dorsomedial conjunctival lobe apparently absent (Fig. 522); median penal lobes relatively small, penislum moderately large (Fig. 521).

Types. Ruckes (1956) described T. cornuta from one male and two female specimens from Brazil. Because the male specimen was missing the pygophore, he designated one of the female specimens as holotype. All three specimens were examined and are housed in the American Museum of Natural History (New York).

Distribution. Northern and central South America (Map 13).


Comments. This species is closely related to T. acuta and T. robusta. It can be separated from those species by the more acuminate humeral angles, and by the characters of the male genitalia. Both T. acuta and T. robusta have the posterior margin of the pygophore U-shaped with the sides nearly vertical. The posterior margin of T. cornuta is sinuously V-shaped with the sides not at all approaching the vertical axis of the body.

Thyanta chilensis (Herrich-Schäffer), nomen dubium

Pentatoma chilense Herrich-Schäffer, 1853:323; Signoret, 1863:547

The type specimen of *Pentatoma chilense* is no longer in existence, and Herrich-Schäffer's (1853) original description is not adequate to identify this species. Both Signoret (1863) and Reed (1898) state that the characters given are not sufficient to determine if it is a true *Pentatoma*. Kirkaldy (1909) transferred this species to the genus *Thyanta*, but he put a question mark beside the name. In his introductory paragraph to the key to *Thyanta* species, Jensen-Haarup (1928) stated that the key included all known species of *Thyanta* except several "dubious" species. *Thyanta chilensis* was listed as one of the dubious species.

Herrich-Schäffer's description of *P. chilensis* does not match any of the three species of *Thyanta* known to occur in Chile: *T. juvenca*, *T. rubicunda*, and *T. xerotica*. *Thyanta xerotica* is relatively uncommon and occurs only in the coastal desert areas of northern Chile to Ecuador. Approximately equal numbers of *T. juvenca* and *T. rubicunda* in museums have been identified as *T. chilensis*. Due to the inadequacy of the original description, the lack of type material, and the confusion surrounding the name, *T. chilensis* should be considered a *nomen dubium*.

**Thyanta immemor** Kirkaldy, *nomen dubium*

*Pentatoma inconspicua* Dallas, 1851:250.

(replacement name)

Dallas (1851) described T. inconspicua without giving a type locality. Kirkaldy (1909) transferred the species to Thyanta, and renamed it T. immemor, without commenting on either the name change or the transferral to Thyanta. Jensen-Haarup (1928), evidently unaware of the name change, included T. inconspicua in his key to species, but the couplet is essentially a repeat of Dallas' original description and no locality is given.

Although many of Dallas' type specimens still exist and are housed in the British Museum of Natural History, the type of T. inconspicua was not located. Dallas' original description is fairly detailed and contains several characters which would preclude this from being a species of Thyanta. Dallas describes T. inconspicua as having six lines of brown punctures on the head and a red spot on the ventral surface of the abdomen. These characters have not been observed in any specimen of Thyanta. This species may be valid, but it is doubtful that it belongs in Thyanta.

Thyanta humilis viridescens Kuhlgatz, nomen dubium
Thyanta humilis var. viridescens Kuhlgatz, 1903:256-257; Kirkaldy, 1909:94.

Kuhlgatz (1903) described viridescens as a variety of T. humilis. Although his description is fairly detailed for its time, this taxon
cannot be identified with any certainty. The type specimens were probably destroyed during World War I or II. Kuhlgatz listed the distribution of viridescens as being from Panama to Guayaquil, Ecuador. The present study has placed T. humilis as a junior synonym of T. patruelis, which occurs from central Brazil and southern Peru to Argentina. So, it is unlikely that viridescens is a subspecies of humilis (= patruelis). There are several species of Thyanta occurring in northwestern South America that can be reliably identified only by an examination of the male and female genitalia. Thyanta humilis viridescens should be considered a nomen dubium.

Incertae sedis

Thyanta vitrea (Westwood)

Pentatoma vitrea Westwood, 1837:36; Lethierry and Severin, 1893:199.


Westwood (1837) described Pentatoma vitrea from "Brasilia?." The description is very short and not adequate for accurate placement of this species. The type specimen, which is conserved in the Hope Entomological Collections, Oxford University, England, was examined. It lacks the abdomen, and its condition is too poor to properly place this species within Thyanta. In fact, it may actually be a species of the closely related genus Cyptocephala.
DISTRIBUTION MAPS

Map 1. T. calceata, (●).
Map 2. T. custator custator, (●).
Map 3. T. custator accerra, (●).
Map 4. T. pallidovirens, (●).
Map 5. T. pseudocasta, (●).
Map 6. T. planifrons, (○); T. spectabilis, (●).
Map 7. T. maculata, (●).
Map 8. T. perditor, (●).
Map 9. T. cubensis, (■); T. obsoleta, (★); T. testacea, (●).
Map 10. T. aeruginosa, (■); T. convexa, (○); T. curvata, (●); T. perditor, (●); T. rubicunda, (○).
Map 11. T. acuminata, (○); T. infuscata, (○); T. patruelis, (●); T. sinuata, (○); T. straminea, (★); T. testacea, (■); T. xerotica, (●).
Map 12. T. boliviensis, (○); T. brasiliensis, (●); T. emarginata, (★); T. excavata, (●); T. hamulata, (○); T. obtusa, (■); T. vadosa, (●).
Map 13. T. acuta, (○); T. acutangula, (○); T. cornuta, (■); T. fimbriata, (●); T. juvenca, (●); T. robusta, (★).
LITERATURE CITED


Ainslee, C. N. 1938. Swarms of the common pentatomid, Thyanta custator (F), in Iowa. J. Econ. Entomol. 31:130.


Bliven, B. P. 1956. New Hemiptera from the western states with illustrations of previously described species and new synonymy in the Psyllidae. B. P. Bliven, P.O. Box 98, Eureka, Calif. 27 pp.


Ocorrência de *Thyanta perditor* (Fabricius, 1794) (Heteroptera,
Pentatomidae) danificando sorgo em Jaboticabal, Sao Paulo, Brasil.


Chittenden, F. H. 1898. Some miscellaneous results of the work of the
Division of Entomology, on insects that affect asparagus. USDA,
Div. of Entomol., Bull. 10 (N.S.):54-62.

Dallas, W. S. 1851. List of the specimens of hemipterous insects in


DeCoursey, R. M. and C. O. Esselbaugh. 1962. Descriptions of the
nymphal stages of some North American Pentatomidae (Hemiptera-

Dickerson, E. L. and H. B. Weiss. 1920. The insects of the evening


INDEX TO SPECIES NAMES IN THYANTA

accerra 68, 74
cacuminata 177
acuta 272
acutangula 261
adjunctor 112
aeruginosa 52
antiguensis 5
bimini 7
boliviensis 187
brasieliensis 193
brevis 6
calceata 59
casta 68, 145, 150, 157, 162, 167
chilensis 279
collaris 112
coloradensis 7
convexa 246
cornuta 276
crinita 261
cubensis 128
curvata 213
custator 59, 67, 75, 99
dimidius 112
elegans 6
elegantula 7
emarginata 199
euchlorum 52
excavata 203
fasciatus 112
fascifera 112
fimbriata 252
hamulata 182
humeralis 193
humilis 172, 281
immemor 280
inconspicua 280
infuscata 234
jugosa 6
juvenca 257
maculata 150
mendozana 261
nigropunctata 5

315
nitidula 172
obsolete 162
obtusa 222
pallidovirens 75, 99
panda 6
parvula 5
patagiata 5
patruelis 172
perditor 75, 112, 122, 134
picturata 7
pilosus 257
planifrons 145
pseudocasta 157
punctiventris 6
robusta 267
rubicunda 138
rubiginosa 117
rugulosa 4
serratulata 131
setigera 134
setosa 99
signoreti 167
similis 242
sinuata 218
spectabilis 122
spinosa 75
straminea 238
taeniola 5
testacea 167
transversalis 112
vadosa 207
viridescens 281
vitrea 282
xerotica 227
yerma 7
VITA

David Allen Rider, the son of Darrell E. and Jule C. (Jenkins) Rider, was born in Kokomo, Indiana on 2 July 1957. He has one younger sister. He attended school in Kokomo and in Howard County, Indiana, and graduated from Northwestern High School in 1975.

In September 1975, he entered Purdue University, receiving the degree of Bachelor of Science (Biology) in June 1979. He began graduate studies in the Department of Zoology-Entomology at Auburn University in September 1979. He was awarded the Master of Science degree in Entomology in August, 1982. His thesis, directed by Dr. R. S. Berger, was entitled Electroantennogram and Wind Tunnel Studies of Male Trichoplusia ni (Lepidoptera: Noctuidae) Exposed to Analogs of Their Sex Pheromone.

David entered the Ph.D. program in the Department of Entomology at Louisiana State University in August 1982 under the direction of Dr. J. B. Chapin. He married Jayma Ann Moore of Huntsville, Alabama on 25 July 1987.
Candidate: David Allen Rider

Major Field: Entomology

Title of Dissertation: The Systematics of the Genus Thyanta Stål
(Hemiptera: Heteroptera: Pentatomidae

Approved:

[Signatures]

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

A. Bruce Williamson

[Signatures]

Matt Deering

[Signatures]

Lawrence F. Kibota

[Signatures]

Date of Examination:

December 1, 1988