



Revision of the North American Genus *Bistanta* Anderson, 2018

Kris Anderson

Abstract. 1. Historical literature review of all nomenclature associated with *Bistanta* Anderson, 2018 is charted. 2. Present status of all *Bistanta* type specimens is documented. 3. Biogeographical influences upon *Bistanta* distribution are discussed. 4. The synonymy of *B. tolteca* with *B. mexicana* is rejected and three new species are proposed. 5. *Bistanta* is redescribed with inclusion of a dichotomous key to species. 6. All five species are diagnosed and treated.

Bistanta has been regarded as a monotypic genus since its conception in 2018. The sole species, *mexicana* Saussure & Zehntner, 1894, has been historically understood to have a massive distribution range over many different ecoregions that spans from the Sonoran Desert of Arizona to the tropical mountains of Guerrero and into the southern plains of Texas. With further investigation into sampled material from these various regions, it is now evidenced that *Bistanta* is composed of five distinct species that have been taxonomically confused under various names over the past century. The exceedingly complicated and intertwined taxonomy of the nomenclature associated with this genus is herein charted and critically analyzed.

Historical Literature Review.

Oligonyx mexicanus Saussure & Zehntner, 1894

-Saussure & Zehntner (1894: 172) describe *Oligonyx mexicanus* from two male specimens that derived from significantly different locations. One syntype was collected by Forrer in Presidio of Mazatlan, Sinaloa, Mexico. The other syntype was collected by Champion in Cubulco, Alta Verapaz, Guatemala.

-Kirby (1904: 278) confirms that the Mexican syntype of *mexicanus* is deposited within the British Museum of Natural History (now the Natural History Museum). He lists the distribution range of this species as Mexico and Guatemala, based upon the collection locales of the two syntypes.

-Rehn (1904: 514) refers a specimen from Guadalajara, Jalisco, Mexico to *mexicanus*, noting doubts in this association due to morphological discrepancies between it and the measurements that were provided in the original description by Saussure & Zehntner.

-Hebard (1922: 184) moves *mexicanus* out of *Oligonyx* and places this species under *Oligonicella* Giglio-Tos, 1915 without detailing a rationale for this action or making any note of the move. The -us suffix was altered to -a to reflect the appropriate gender usage of the Latin name.

-Giglio-Tos (1927: 267) moves *mexicana* out of *Oligonicella* and places this species under *Bactromantis* Scudder, 1896. He acknowledges his awareness of Rehn & Hebard's suggested synonymy of *Bactromantis virga* Scudder, 1896 with *Stagmomantis carolina* (Linné, 1763) from 1916, which invalidated *Bactromantis*, but he includes *mexicana* in this genus regardless.

-Hebard (1931: 128) documents within a footnote of *Oligonyx scudderi* Saussure, 1870 his belief that "Glover's figure 11 on plate XVI, represents a female, probably of *Oligonicella mexicana* (Saussure and Zehntner)". He further notes that he has examined specimens from southern Texas in addition to a larger series from central and southern Arizona that he determined to be *mexicana*. Hebard states that these same specimens were first documented by Caudell as *Bactromantis virga* Scudder, 1896.

-Hebard (1932: 211) returns *mexicana* back to *Oligonicella* and references Giglio-Tos' mistake in the earlier move, stating that *mexicana* had been "incorrectly referred to *Bactromantis*, a synonym of *Stagmomantis*". Hebard cites three specimens of *mexicana* that were collected in Nayarit, Mexico.

-Hebard (1935: 277) asserts, in regard to *mexicana*, that "all Arizona records in past literature of *Bactromantis virga* Scudder are referable to this species."

-Ball, et al. (1942: 270) document natural history data for the Arizona population of *mexicana*. The distribution range of this population is detailed for the state, while the authors list *mexicana* as also occurring in Mexico and Guatemala after Saussure & Zehntner.

-Helfer (1957: 30) reiterates the natural history and distribution range data from Ball, et al. Habitus and foreleg illustrations are provided.

-Terra (1995: 48) entirely ignores the previous decades of literature and reverts back to Giglio-Tos' combination of *Bactromantis mexicana* from 1927 without detailing any reason for doing so.

-Ehrmann (2002: 74) replicates Terra's listing of *mexicana* under *Bactromantis* and documents a distribution range of North America to Guatemala for this species, as was first indicated in the original description.

-Otte & Spearman (2005: 368) document *Bactromantis* as a valid genus that includes *mexicana*.

-Agudelo, et al. (2007: 116) list *Bactromantis* as a valid genus and *mexicana* as a constituent species that ranges from Guatemala to Mexico and the United States.

-Patel, et al. (2016: 798) list *Bactromantis* as a valid genus that includes *mexicana*. The authors of this global checklist document *mexicana* as only occurring from Guatemala to Mexico.

-Hernandez-Baltazar & Gomez (2017: 177) further list *Bactromantis* as a valid genus and document *mexicana* as occurring in the Guerrero, Jalisco, Puebla, San Luis Potosí, Sinaloa, Tamaulipas, and Veracruz provinces of Mexico.

-Vasquez (2017: 46): lists *Bactromantis* as a valid genus and documents *mexicana* as occurring in the mountainous regions of eastern Sinaloa.

-Anderson (2018: 250) endorses Giglio-Tos' 1927 action in removing *mexicana* out from *Oligonicella* but argues that it would have been more appropriate for him to have formulated a new genus in which to place *mexicana* rather than including the species under *Bactromantis*. Since this action was still needed, Anderson introduces *Bistanta* to accommodate *mexicana*.

-Schwarz & Roy (2019: 126) uphold *Bistanta* as a valid genus to accommodate *mexicana*.

-Rivera & Svenson (2020: 50) conclude that Anderson's formulation of *Bistanta* is well justified and list this genus as containing just one species, *mexicana*, which ranges from Texas and Arizona to Mexico. The authors provide pronotum illustrations of both male and female *Bistanta* specimens.

-Luna & Hernandez-Baltazar (2020: 161) list *Bistanta mexicana* as occurring from the United States to Mexico. Guanajuato is added to the distribution range of provinces that Hernandez-Baltazar & Gomez had documented in 2017 concerning the occurrence of this species in Mexico.

-Reyes-Ibarra (2020: 10) lists *mexicana* as occurring in Nuevo León, Mexico.

-Varela-Hernandez, et al. (2022: 35) provide a detailed list of collection locations for *mexicana* within Morelos, Mexico in addition to color photographs of male and female voucher specimens that were used for the study.

Remarks.

re: Hebard 1922: Hebard recorded that the large series of *mexicana* that he had analyzed from Sinaloa had been collected in "Venvidio". In 1974, Cohn & Cantrall determined that Venvidio, as recorded by Hebard, is a misspelled transliteration of El Venadillo, a small village located 6 miles north of Mazatlan, which is the type locality of *mexicana*.

re: Hebard 1931: The first and most common edition of Glover's "Illustrations of North American Entomology, Orthoptera" was published in 1872 and contains just fifteen plates. As we learn from Dodge (1888), Glover expanded this work for a second edition to include five additional plates in 1878. This second edition was never officially published for public access

and only twelve copies were created and distributed. Hebard evidently had access to one of these rare copies of the second edition, insofar that he was able to determine a specimen that was depicted on plate XVI as *mexicana*. The current locations of the twelve copies of this second edition are unknown so the figure in question cannot be presently analyzed. However, Dodge notes that Scudder had access to the newly added plates in 1874, prior to their limited distribution, and he corresponded with Glover about the identifications of his depicted specimens. In 1896, Scudder wrote an “explanation of the figures of Mantidae” that were illustrated in the totality of Glover’s plates, wherein he noted that figure 11 on plate XVI was listed by Glover as a female *Oligonyx scudderi* Saussure, 1870.

re: Otte & Spearman 2005: The authors list the second syntype of *mexicanus* from Guatemala as deposited in MHNG Geneva. However, according to Roy & Cuche (2008) and Pfauti & Hollier (2012), no type specimen of *mexicanus* is found within the museum’s holdings. Thus, the syntype from Alta Verapaz, Guatemala is currently deemed lost and is unavailable for comparison with the Mexican syntype.

re: Patel, et al. 2016: The authors of this global checklist incorrectly cite Kirby, 1904 as the author of *Bactromantis*.

re: Hernandez-Baltazar & Gomez 2017: These authors evidently replicated Patel, et al. to also incorrectly cite Kirby, 1904 as the author of *Bactromantis*.

re: Rivera & Svenson 2020: The authors provide photographs of the male syntype of *mexicanus* and the female holotype of *toltecus* within Figure 25, page 183, of their monograph. The figure legend to these imaged type specimens reads: “(a) *Oligonyx mexicanus* [now *Oligonicella mexicana*], male syntype. (b) *Oligonyx toltecus* [now *Oligonicella mexicana*], female holotype”. Further, within the Examined Material listing within the Appendix of this monograph, collection records of *mexicana* are listed under *Oligonicella*. Given the authors’ previous discussion concerning the appropriate generic placement of these species into *Bistanta* on page 51, along with including *mexicana* under *Bistanta* earlier in Figure 7 on page 165, it is evident that the inclusion of these species under *Oligonicella* within the legend and appendix are clerical mistakes rather than a suggestion of taxonomic action.

re: Luna & Hernandez-Baltazar 2020: These authors erroneously list *Oligonicella mexicana* (Hebard, 1922) as a separate species under *Oligonicella*, apart from *Bistanta*. Hebard did not describe *mexicana* in 1922 but rather referred to the *mexicana* of Saussure & Zehntner, as he clearly indicated by citing the original description of this species in his treatment.

re: Varela-Hernandez, et al. 2022: The pictured voucher specimens that Varela-Hernandez, et al. provide are indicative of *tolteca* and not *mexicana*. Although the terminalia of the male abdomen are missing, the forewing length is over 2.4 times longer than the pronotal length, which is a character possessed by *tolteca*; in *mexicana* this value would be less than 2.1. The pictured female is more difficult to decipher due to the laterally twisted nature of the pronotum but we can determine that the metazonal length is shortened in comparison to the prozona and the supraanal plate is at least 1.5 times longer than its basal width. Such characters are diagnosable as *tolteca*. It should be noted that these images are mislabeled in reverse within the figure legend. Figure 3C (which depicts a male) is labeled female while Figure 3D (which depicts a female) is labeled male. Lastly, these authors write that: “the genus *Bistanta* was resurrected by Anderson (2018). As other taxa in Mantodea, the genus has been subject to change in classification”. This is entirely incorrect. *Bistanta* was established in 2018 not resurrected, as this nomenclature was not attributed to any Mantodea prior to that date. Since

2018, the taxon has remained stable with the constituents of the genus only being revised as of this writing.

Oligonyx toltecus Saussure & Zehntner, 1894

-Saussure & Zehntner (1894: 172) describe *Oligonyx toltecus* from a single female specimen that was collected by Smith in Chilpancingo, Guerrero, Mexico. The authors introduce with doubt the possibility that this specimen may be the conspecific female of *mexicanus*, detailing that “the proportions of the coxae and prothorax being about the same”.

-Kirby (1904: 278) moves *toltecus* out of *Oligonyx* and into *Bactromantis* Scudder, 1896 without providing any rationale for doing so. He confirms that the *toltecus* type is deposited within the British Museum of Natural History (now the Natural History Museum) and lists the distribution range of this species as Mexico, just as the original authors had documented.

-Hebard (1922: 184) lists *toltecus* as a synonym of *mexicana*, citing Saussure & Zehntner’s earlier speculation regarding the potential conspecificity between the type specimens and positing that some of the character descriptors that the original authors used were unreliable.

-Giglio-Tos (1927: 267) ignores Hebard’s suggested synonymy with *mexicana* and lists *tolteca* as a valid species within *Bactromantis* after Kirby. The -us suffix of the name was altered to -a to reflect the appropriate gender usage of the Latin nomenclature.

-Hebard (1932: 211) reverts back to the original suffix of the name and notes that Giglio-Tos incorrectly referred *toltecus* to *Bactromantis*, a synonym of *Stagmomantis* Saussure, 1869, and upholds his previously introduced synonymy between *toltecus* and *mexicana* as correct.

-Beier (1935: 13) tacitly rejects Hebard and reaffirms Kirby’s and Giglio-Tos’ conceptualization of *Bactromantis tolteca* as a valid species from Mexico.

-Marshall (1975: 325) confirms that the holotype of *toltecus* is deposited within the Natural History Museum.

-Terra (1995: 48) further ignores Hebard’s opinion of synonymy and endorses *tolteca* as a valid species under *Bactromantis*.

-Ehrmann (2002: 74) replicates the predominant listing of *tolteca* as a valid species under *Bactromantis* and documents a distribution range of Mexico for this species.

-Battiston, et al. (2005: 202) continue to include *tolteca* as a valid species within *Bactromantis*. The authors describe a series of adults and nymphs that were collected from Tamaulipas, San Luis Potosi, and Puebla, Mexico. An image of the genitalia that was taken from an adult male from San Luis Potosi is provided.

-Otte & Spearman (2005: 368) document *Bactromantis* as a valid genus that includes *toltecus* as a synonym of *mexicana*, referencing back to Hebard's suggested equation from 1922.

-Agudelo, et al. (2007: 116) list *Bactromantis* as a valid genus and *tolteca* as a constituent species that occurs in Mexico.

-Rivera & Svenson (2020: 50) examine the type material of *mexicana* and *toltecus* and opt to retain Hebard's synonymy.

Remarks.

re: Rivera & Svenson 2020: When considering the synonymy that was retained by Rivera & Svenson based on their analysis of the type specimens, it is important to note that the *mexicana* type is male and the *tolteca* type is female. Additional material that was analyzed by these authors was documented to include male samples from within the respective distribution ranges of each species but only females from the highlands of central Mexico were analyzed—no females from the coastal plain region of western Mexico were assessed. For this reason, we can attribute the female pronotum illustration “i” in Figure 7, page 165 of their monograph to *tolteca*. It is less clear which population of *Bistanta* the authors sourced to create their male pronotum illustration “e” within the same Figure, given that their cited voucher material came from different Mexican provinces. However, the general proportions of the illustration suggest that it is attributable to *mexicana*—one of the three Sinaloa/Nayarit voucher specimens that the authors analyzed and not their single specimen from San Luis Potosi.

Bactromantis virga Scudder, 1896

-Saussure (1869: 71) establishes *Oligonyx* as a new genus within his Thespites subtribe.

-Stal (1877: 67) divides the North American members of *Oligonyx* into two informal groups based upon head capsule size, pronotal ratios, and forecoxal length. The first division contains one known and one newly described species from the United States, whereas the second division contains an undescribed species from Mexico.

-Scudder (1896: 213) elevates Stal's second division of *Oligonyx* to its own genus, *Bactromantis*. He describes *virga* as the type species of *Bactromantis* from a small series of “female” specimens collected in Florida.

-Kirby (1904: 278) notes that the British Museum of Natural History in London (now the Natural History Museum) has a specimen representative of *virga* among their holdings. He lists the distribution range of this species as Florida.

-Caudell (1904: 107) examines two male Thespids from the Brownsville, Texas region and determines them to be *virga*, thereby artificially extending the distribution range of this species away from Florida and into southern Texas.

-Caudell (1905: 464) examines nine male Thespids that were collected from central and southern Arizona and determines them all to be *virga*, once more artificially extending the distribution range of this species, now into the desert southwest.

-Rehn (1907: 29) examines a conspecific pair of Thespids from southern Arizona and determines them to be of *virga*. He notes that the original description of this species is “unsatisfactory” and that no confident identification can be made of *virga* outside of Florida without examination of the type or topotypic material.

-Rehn (1911: 300) cites a female specimen that was collected in southern Arizona as *virga* despite his previous caution in using this name for specimens found outside of Florida.

-Rehn & Hebard (1916: 121) finally examine the type material used by Scudder and conclude that the type series used to describe *Bactromantis virga* are not female Thespids but rather male nymphs of *Stagmomantis carolina* (Linné, 1763), thereby equating *virga* with *carolina* and rendering *Bactromantis* a junior synonym of *Stagmomantis* Saussure, 1869.

-Giglio-Tos (1919: 63) seemingly rejects (or is unaware of) Rehn & Hebard’s discovery regarding Scudder’s confusion over the *carolina* nymphs and lists *Bactromantis* as a valid genus that contains four species from tropical America.

-Blatchley (1920: 119) confirms Rehn & Hebard’s synonymies.

-Giglio-Tos (1927: 267) notes Rehn & Hebard’s suggested synonymy but again lists *Bactromantis* as a valid genus and *virga* as a valid species therein. He cites the distribution of *virga* as including Florida and Arizona, seemingly after Caudell 1905, but omits Caudell’s records from Texas, even though he references this author’s paper from 1904 that details such.

-Hebard (1931: 128) notes that he has re-examined Caudell’s 1904/1905 *virga* specimens from Texas and Arizona and assigns both of these disparate populations to *mexicana* without advancing any argument to support his claim.

-Beier (1935: 13) provides an illustration of *virga* and lists this species as being valid under *Bactromantis* with a range from Florida to Arizona.

-Hebard (1935: 277) asserts that “all Arizona records in past literature of *Bactromantis virga* Scudder are referable to [*Oligonicella mexicana* (Saussure & Zehntner)].”

-Beier (1964: 945) continues to ignore Hebard and lists *Bactromantis* as a valid genus within Oligonychini.

-Beier (1968: 9) lists *Bactromantis* as a valid genus once more within Oligonychinae.

-Terra (1995: 48) also neglects Rehn & Hebard’s synonymy and lists *virga* as a valid species.

-Ehrmann (2002: 74) further lists *virga* under *Bactromantis* and documents a North American distribution for this species as including AZ, FL, TX and KS, in addition to Mexico.

-Otte & Spearman (2005: 368) include *Bactromantis* as a valid genus that incorporates *virga* as a valid species.

-Agudelo, et al. (2007: 116) list *Bactromantis* as a valid genus.

-Patel, et al. (2016: 798) include *Bactromantis virga* as a valid species that occurs in Mexico and the United States, replicating the inaccurate distribution range that was previously documented by Ehrmann.

-Rivera & Svenson (2016: 635) examine the type series of *virga* and reconfirm that the specimens are indeed nymphs of *carolina*.

-Hernandez-Baltazar & Gomez (2017: 177) replicate Patel and list *Bactromantis* as a valid genus and include *virga* as a valid species therein.

-Vasquez (2017: 46) lists *Bactromantis virga* as occurring in Sinaloa, Mexico.

-Anderson (2018: 250) reaffirms that *Bactromantis virga* should resume to be treated as a synonym of *Stagmomantis carolina*, as was originally determined by Rehn & Hebard in 1916.

-Rivera & Svenson (2020: 50) endorse Anderson's conclusions to settle the synonymy between *virga* and *carolina*.

Remarks.

re: Stal 1877: Given the diagnosis provided by Stal for his second generic division, it is possible that the undescribed species from Mexico is a member of *Bistanta*. Alternatively, it could just as well be a true member of *Oligonyx*.

re: Scudder 1896: Although Saussure's original diagnosis of *Oligonyx* is very brief and wanting, the first generic division suggested by Stal is clearly divergent. Indeed, this first division went on to become its own genus, *Oligonicella* Giglio-Tos, 1915. However, given the two divisions of *Oligonyx* that were suggested by Stal, Scudder chose the second to elevate to a new genus, *Bactromantis*, even though this division was seemingly much more aligned with Saussure's concept of *Oligonyx*.

re: Caudell 1904: Caudell was the first author to suggest an association of Scudder's *virga* from Florida with true Thespids from Texas. One year later, he further associated an Arizona population of Thespids with *virga*. This distorted association set in motion a cascade of taxonomic problems and distribution range misconceptions for *Bistanta* that has endured for well over a century with numerous repetitions of falsehoods, largely due to succeeding workers failing to conduct due diligence with the historical literature.

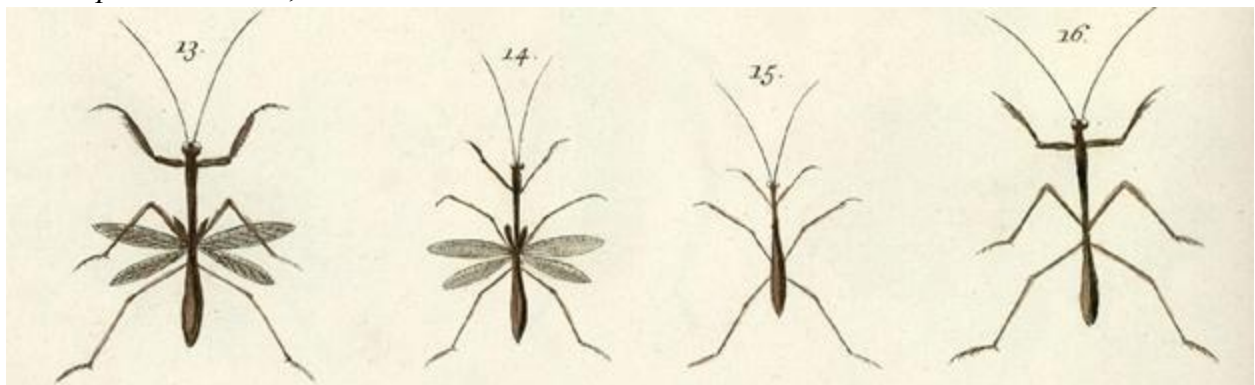
re: Ehrmann 2002: Ehrmann notes that the female holotype of *virga* is deposited within the Museum of Comparative Zoology at Harvard University and that a paratype, possibly female, is deposited at the Academy of Natural Sciences in Philadelphia. The entire type series (which

consists of four juvenile male *carolina*) is presently housed within the ANSP, one of which has been digitized and is available online for study. Ehrmann here documents the type locality of *virga* as Mexico. This is incorrect, as Scudder cited this species from Florida in the original description. Lastly, the distribution range of *virga* was here documented by Ehrmann to include Kansas. It is unknown where this data derived from. However, Hebard's 1931 paper is entitled "The Orthoptera of Kansas," wherein *virga* is mentioned.

re: Patel, et al. (2016): The unvetted replication of data from preceding publications, as exhibited here, is not isolated to Patel or to this particular taxonomic problem involving *Bistanta*. This is a ubiquitous and troubling pattern that has permeated into nearly every list and catalog of modern Mantodea research, creating taxonomic problems that would otherwise not exist if present authors were to invest proper time to review the historical record.

re: Vasquez 2017: Vasquez cites Terra's 1995 work as the only reference for his listing of *virga* in Sinaloa. This is an incorrect attribution, as on pages 48-49 of Terra's 1995 monograph, the author lists *virga* as occurring in the United States and *mexicana* as occurring in Sinaloa.

Mantis parvula Goeze, 1778



-Seba (1765) has his fourth engraved-plate volume published posthumously. Figures 13-16 of plate 68 show a series of four Mantodea specimens, of which the two macropterous individuals are depicted as having three pairs of wings.

-Goeze (1778: 34) names the four specimens depicted on plate 68 of Seba's fourth volume as *Mantis parvula* – or “the little grasshopper with two excess wing ceilings.”

-Olivier (1792: 642) lists *Mantis parvula* as a “dubious species reported by Seba in his fourth volume,” citing only figures 13 and 16 from plate 68.

-Kirby (1904: 278) places *parvula* into *Bactromantis* Scudder, 1896 with noted uncertainty. No habitat is listed and no firsthand observation of a specimen was undertaken. Kirby offers no rationale for the generic placement. The entire series of Seba's figures 13-16 are cited as one.

-Giglio-Tos (1927: 267) lists *Bactromantis parvula* as a “doubtful species” and cites only figures 13 and 16 of Seba's figures, as Olivier had done 135 years earlier.

-Ehrmann (2002: 74) continues to maintain *Bactromantis* as a legitimate genus and cautiously lists *parvula* as a distinct species therein. He cites only figures 13 and 16 of Seba's figures, as both Olivier and Giglio-Tos had done before him.

-Otte & Spearman (2005: 368) lists *parvula* as a synonym of *virga* with no justification for the synonymy and no reference to its dubious origin.

-Agudelo, et al. (2007: 116) list *parvula* as a valid species with an unknown locality.

-Otte, et al. (2022: URL) cite *parvula* as a synonym of *Stagmomantis carolina*.

Remarks.

re: Seba 1765: The plates from Seba's 1765 volume were created by commissioned artisans who were tasked with illustrating the specimens from Seba's personal collection while the collector was still alive. Seba died in 1736 and his collection was dispersed all over Europe after being auctioned in 1752, thereby rendering lost the actual specimens that his engravings were based upon. Seba concisely described the two individuals depicted in figures 13-14 on plate 68 (presumably males) as "small traveling leaf, having in some way double cases on the wings" and the two apterous individuals depicted in figures 15-16 (presumably females) as "small walking leaf without wings, & thus probably imperfect." Seba did not use Linné's binomial system, as it was not made available until a year prior to his death. The editors of this posthumous volume noted that the particular species depicted by these four illustrations was seemingly not mentioned within the Linnaean system and was, therefore, believed to be new to science. Nevertheless, the editors did not name the species but attributed it to *Gryllus (Mantis)* Linné, 1758 (the only designated genus/subgenus of Mantodea at the time). The origin of the referent specimens and the precise means of Seba's acquisition of them is unknown.

re: Olivier 1792: The two figures in the middle of the series, 14 and 15, are excluded by Olivier (and some subsequent authors) in his reference to Seba. These two particular figures demonstrate significant size differences in comparison to the others, thus they could very well represent a distinct species or, at least in the case of figure 15, represent a nymph. Although this exception is implied by Olivier's exclusion of the two differing figures, there was no mention of it.

re: Otte & Spearman 2005: Given the lack of any designated type series or any meaningful diagnosis of the name, in addition to the unspecified type locality and the clearly inaccurate depiction of the morphology of the referent specimens, *parvula* cannot confidently be associated with any other species and is therefore rendered *nomen dubium*.

re: Otte, et al. 2022: Rehn & Hebard synonymized *virga* with *carolina* in 1916. Since *parvula* had been incorrectly deemed a synonym of *virga* by Otte in 2005, *parvula* also became a junior synonym of *carolina*. As mentioned, *parvula* cannot be reliably associated with any valid species and thus should not be listed as a synonym of *carolina*, nor can it be confidently moved from its originally assigned genus for the same reason. Given the lost state of Seba's specimens from which his engravings were fashioned, the true identity of this species will likely never be resolved.

Thesprotia baculina Westwood, 1889

-Westwood (1889: 5) lists three species of *Thesprotia* on page 5 of his Synopsis. Of the species documented, *baculina* is the only newly introduced name with a notation of “Bates MS” as the (unpublished) author.

-Scudder (1896: 213) establishes *Bactromantis* and offers a brief and rather ambiguous description of the type species, *virga*. He speculates that *virga* is “possibly the species given in Westwood’s Synopsis as *Thesprotia baculina* Bates MS., from Eastern Florida”.

-Beier (1935: 13) cautiously includes *baculina* as a synonym of *virga* while noting that this name is *nomen nudum*.

-Terra (1995: 48) omits any reference to the invalid status of *baculina* and lists this name as a legitimate synonym of *virga*.

-Erhmann (2002: 74) acknowledges *baculina* as a *nomen nudum*, but again lists this species as a synonym of *virga*.

-Otte & Spearman (2005: 368) include *baculina* as a junior synonym of *virga* with no reference to its status as a *nomen nudum*.

-Otte, et al. (2022: URL) cite *baculina* as a synonym of *Stagmomantis carolina*.

Remarks.

re: Westwood 1889: Westwood directly used the unpublished manuscript(s) of Henry Walter Bates as source material for his 1889 text, wherein he attributes these contributions as “Bates MS” where appropriate. The only information provided about *baculina* is the location of where the specimen was found: “St. John’s Bluff, East Florida”. There is no accompanying description of the species, no figure provided, and no known type specimen designated, thus making *baculina* a *nomen nudum* and consequently an unavailable scientific name.

re: Scudder 1896: It is most likely the case that *Thesprotia baculina* actually represents *Thesprotia graminis* Scudder, 1878, which also has a type locality from Florida, and that Scudder’s initial speculation of this species having relation to *virga* is entirely unfounded.

re: Otte, et al. 2022: As was the case with *parvula*, *baculina* was incorrectly determined to be a synonym of *virga* and so this name also became a junior synonym of *carolina* once *virga* and *carolina* were equated. However, as a *nomen nudum*, *baculina* cannot be reliably associated with any valid species and thus should not have been listed as a synonym of *virga* in the past and this name cannot be equated with *carolina* at present.

Discussion. Hebard created a great deal of taxonomic confusion regarding the generic placement of *mexicana* beginning in 1922, when he first moved this species out of *Oligonyx* and into *Oligonicella*. Hebard did not advance an argument for this action, which is rather curious due to true species of *Oligonyx* having much more obvious morphological similarity to *mexicana* than do those of *Oligonicella*. Five years following this generic transfer, Giglio-Tos moved *mexicana* into *Bactromantis*. He too offered no explicit argument for this action but the brief redescription

that Giglio-Tos provided for *mexicana* more aligned with the diagnosis for *Bactromantis* than it did with *Oligonicella*. In 1932, Hebard returned *mexicana* back to *Oligonicella* once more, citing Giglio-Tos' error in referring this species to a genus that had been synonymized with *Stagmomantis* twelve years prior. Although Giglio-Tos was correct in dissociating *mexicana* from *Oligonicella*, he should not have placed this species into an invalid genus to remedy the problem. In this regard, Hebard's critique of Giglio-Tos was correct. However, Hebard, who co-authored the synonymy of *Bactromantis*, failed to see the nomenclatural consequences of his previous action, which necessitated the need for *mexicana* to have a new genus altogether, and he instead placed the species back into *Oligonicella* where it clearly did not belong. This action was short-lived, however, as only Ball, et al. (1942) and Helfer (1957) recognized Hebard's placement of *mexicana* under *Oligonicella*. Thereafter, beginning in 1995 with Terra, subsequent authors ignored this generic placement and resumed listing *mexicana* under *Bactromantis*. All literature following Terra utilized this combination until Anderson correctly formulated *Bistanta* to properly house *mexicana* in 2018.

Saussure & Zehntner described both *mexicanus* and *tolteca* within their respective volume of the *Biologia Centrali Americana* works of 1894. At the time, the authors had analyzed just two males and one female specimen between these two taxa, each hailing from vastly different localities. The male from Sinaloa, Mexico was considered the same species as the male from Alta Verapaz, Guatemala, despite the great disparity between these localities. The lone female, which derived from Guerrero, Mexico (a tropical mountainous region between the two male type localities) was deemed to be a separate species. These two species were both placed within *Oligonyx* by the original authors but were later found to constitute their own genus, *Bistanta*. Our present understanding is that *Bistanta* does not occur in the Gulf of Mexico coastal plain region of Veracruz or the Yucatan Peninsula and this genus is entirely absent from Central America, where it is replaced by true *Oligonyx*. As such, it is believed that the missing male syntype of *mexicana* from Alta Verapaz, Guatemala actually represents a member of *Oligonyx* and not *Bistanta*. However, this suspicion cannot be confirmed without physical analysis of the type specimen, which is now lost.

Hebard first introduced the synonymy between *tolteca* and *mexicana* in 1922, providing only Saussure & Zehntner's speculation that *tolteca* may be the conspecific female of *mexicana* as justification. Hebard further noted that the recorded length of the *tolteca* holotype's supraanal plate is significantly longer than that of female congeners from Sinaloa— a trait that has been confirmed by the present study. However, rather than considering the possibility that *tolteca* may represent a distinct species from the highlands of central Mexico with its supraanal plate length accurately recorded by the original authors, Hebard suggested that the documentation of this character was “either in error or very decided individual variation”. Giglio-Tos ignored Hebard's suggested synonymy and listed *tolteca* as a valid species within *Bactromantis* in 1927, followed by Beier in 1935, Terra in 1995, Ehrmann in 2002, and Battiston, et al. in 2005. Otte & Spearman were the first authors in 83 years to recognize Hebard's suggested synonymy, followed by Rivera & Svenson in 2020. However, none of these modern authors have provided any argument that supports Hebard's initial action, which as mentioned, was unsupported from the onset and remains unfounded to this day.

Recent morphometric analysis of female specimens from near the type locality in Guerrero and the surrounding mountainous regions to the north have demonstrated consistency with having an especially elongated supraanal plate. Female *Bistanta* from the central Mexican mountains also have a proportionally thinner pronotum with a longer prozona in comparison to those from the Sinaloan coastal region. Further, the type localities of the two species in question (Mazatlan, Sinaloa and Chilpancingo, Guerrero) lie approximately 835 miles apart within entirely different ecoregions, separated by the Madrean Archipelago, Southern Sierra Madre, and Balsas Depression. For these reasons, the tenuous synonymy suggested by Hebard between *tolteca* and *mexicana* is rejected and *tolteca* is to be reinstated as a valid name. Thus, Rehn's 1904 male specimen from Jalisco that he designated as *mexicanus* should be regarded as *tolteca*, given its shorter pronotum, longer forewings, and derivation from the interior plains of the Mexican high plateau region— an area that is separated from the western pacific coastal plain type locality of *mexicana* by the Sierra Madre Occidental.

Bistanta is absent from the Chihuahuan Desert, which, together with the Sierra Madre Occidental range, create massive geological barriers between the Sonoran Desert and the Tamaulipas-Texas plain populations on either side. Despite this, both of these populations have been historically assumed to represent *mexicana*. According to present knowledge, *mexicana* is precinctive to the pacific coastal plain region of western Mexico. It is a coastal lowland species that is absent from the Sierra Madre Occidental in eastern Sinaloa and, likewise, does not occur in the more xeric habitats of northern Sonora. The two geographically isolated populations from the United States demonstrate significant morphological differences that are both divergent from each other and distinct from *mexicana*. Therefore, *mexicana* does not occur in the United States and is replaced by *herema* **n. sp.** in Arizona and *campestris* **n. sp.** in Texas— both populations of which are separated by the Chihuahuan Desert where *Bistanta* is not found. Additionally, a fifth species, *addenda* **n. sp.**, has been discovered in the temperate mountains of western Mexico.

The *Bistanta* population of the Tamaulipas-Texas plain was first referenced by Caudell in 1904 under the name of *virga*. In 1931, within a footnote of *Oligonyx scudder*, Hebard wrote that he had re-examined Caudell's specimens from southern Texas and, with no justification provided for his claim, asserted that this population represented *mexicana*— a species that was previously only known from western Mexico/Guatemala. Thus, without any rationale or demonstrated evidence, *mexicana* was assigned a distribution range by Hebard that seemingly extended from the pacific coastal plain region of western Sinaloa, over the Sierra Madre Occidental, across the Chihuahuan Desert and into Texas. This claim has gone unchallenged for nearly a century, as it has been generally accepted, based on Hebard's unsupported assertion, that *mexicana* is a species that has a disjointed distribution in the United States and ranges well into tropical Mexico. It is now known that the geographically and ecologically isolated population of the Tamaulipas-Texas plain represents a distinct species, *campestris*. Given the province's biogeographical location within the Tamaulipas-Texas plain, the collection record of *mexicana* from Nuevo León that is listed by Reyes-Ibarra as a state record in 2020 refers to *campestris*.

The Sonoran Desert population of *Bistanta* was first referenced by Caudell in 1905 under the name of *virga*, as was the case with the Texas population and with the same abandon. Rehn tentatively accepted this association and cautiously assigned several Thespid specimens from

southern Arizona to *virga* in 1907 and again in 1911. In 1931, Hebard re-examined Caudell's specimens and, just as he had done with the Tamaulipas-Texas plain population, lumped the Sonoran Desert population together with *mexicana*. Along with the claim that *mexicana* occurs in Texas, the claim that this species also occurs in Arizona has likewise gone unchallenged for many decades. As we now understand, *mexicana* is not found in the xeric ecoregion of the Sonoran Desert, where it is replaced by *herema*. Thus, the Arizona population referenced by Ball, et al. in 1942 refers to this new species. For the same reason, the Arizona population that was referenced by Helfer in 1957 represents *herema* as well.

In 2016, Vasquez, et al. documented the presence of *Bactromantis*, *Macromusonia* Hebard, 1922 and *Thesprotia* Stal, 1877 in the eastern mountainous region of Surutato, Sinaloa. Vasquez reassessed this material in 2017 and reported that two of the previous generic assignments were in error and that these specimens all represent *mexicana*. He further documented that additional *mexicana* specimens were sampled from the mountainous regions of San Ignacio and Aguacaliente de los Yurari in eastern Sinaloa. Vasquez provided to the present author his specimens from Surutato and San Ignacio and it was determined that they represent an undescribed species from the western Mexican mountains that is proportionally quite different from *mexicana* as well as the other two newly described species from Texas and Arizona.

For the past 128 years since the original descriptions of *mexicana* and *tolteca* were published, members of *Bistanta* have received very scant documentation of their natural history. Anderson offered the first significant summary of biological data concerning constituent members of this genus in 2018. Aside from this account and the brief works of Ball, et al. and Helfer, while the nomenclature of *mexicana* and *tolteca* has been tossed around various taxonomic placements and included in numerous lists and catalogs for well over a century, the actual biology of the insects associated with these names has gone entirely neglected. This would lead one to believe that historical entomologists were more concerned with naming mantises and merely charting these names rather than exploring how these insects actually behave, what ecological niches they exploit, how their life cycles correspond to environmental pressures and predation, mating sequences, etc. It is the present author's hope that once the business of naming mantises is settled (or at least accepted as a ground work) that future workers can renew their efforts into exploring the natural histories of these unique creatures.

Taxonomic Summary. It is the present understanding that *Bistanta* is comprised of five distinct species, of which three are new:

Bistanta addenda **n. sp.**

Bistanta campestris **n. sp.**

= *Bactromantis virga* Scudder, 1896 *sensu* Caudell, 1904

= *Bistanta mexicana* (Saussure & Zehntner, 1894) *sensu* Reyes-Ibarra, 2020

Bistanta herema **n. sp.**

= *Bactromantis virga* Scudder, 1896 *sensu* Caudell, 1905

= *Bactromantis virga* Scudder, 1896 *sensu* Rehn, 1907

= *Bactromantis virga* Scudder, 1896 *sensu* Rehn, 1911

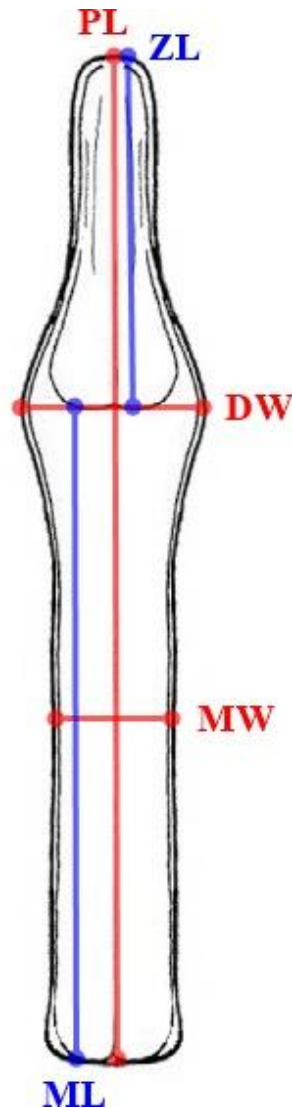
= *Bactromantis virga* Scudder, 1896 *sensu* Beier, 1935

= *Oligonicella mexicana* (Saussure & Zehntner, 1894) *sensu* Ball, et al., 1942
= *Oligonicella mexicana* (Saussure & Zehntner, 1894) *sensu* Helfer, 1957
Bistanta mexicana (Saussure & Zehntner, 1894)
Bistanta tolteca (Saussure & Zehntner, 1894) **stat. rev.**
= *Oligonyx mexicanus* Saussure & Zehntner, 1894 *sensu* Rehn, 1904
= *Bistanta mexicana* (Saussure & Zehntner, 1894) *sensu* Varela-Hernandez, et al.,
2022

Stagmomantis carolina (Linné, 1763)
= *Bactromantis virga* Scudder, 1896

Mantis parvula Goeze, 1778 **nomen dubium**

Thesprotia baculina Bates **ex** Westwood, 1889 **nomen nudum**



Pronotum Morphometry. PL = pronotum length, measured from posterior to anterior margin. DW = supracoxal dilation width, measured from the outermost margins of the expansion. MW = minimal metazonal width, measuring from the narrowest constriction of the metazona. ZL = prozona length, measured from anterior margin of pronotum to supracoxal sulcus. ML = metazona length, measured from supracoxal sulcus to posterior margin of pronotum. The pronotal length value (PL) divided by the supracoxal dilation width value (DW) will generate the PL:DW ratio. The pronotal length value (PL) divided by the minimal metazonal width value (MW) will generate the PL:MW ratio. The metazona length value (ML) divided by the prozona length value (ZL) will generate the ML:ZL ratio. The supracoxal dilation width value (DW) divided by the minimal metazonal width value (MW) will generate the DW:MW ratio. Note that all morphometrics presented herein are mean values that have been derived through careful measurement of many multiples of voucher specimens for as near accurate metric as possible. All measurements are expressed to the nearest one hundredth.

Description. Habitus elongated, very slender. Body length measuring 32-45 mm. General body color of both sexes dark brown to brownish-tan, occasionally grayish, punctated throughout, mottled, or striped with variegated shades of darker brown.

Head capsule relatively small in relation to body. Compound eyes elliptical, banded with white and shades of brown. Ocelli very small with only slight elevation in female, significantly larger and much more salient in male with lateral ocelli ovoid and unpaired median ocellus spherical. Vertex relatively straight, level with dorsal surface of compound eyes in male or slightly elevated above in female. Juxtaocular lobes produced slightly higher above vertex into blunted protuberances. Crest of vertex often bordered by thin, whitish band that extends into dorsal surface of compound eyes. Male head capsule adorned with a dark brown to blackish maculation near interior base of antennae that extends onto vertex and blackens all three ocelli in dark phase individuals, much reduced in light phase individuals. Antennae filiform, very long in male, surpassing pronotum, reaching beyond base of forewings. Antennae much shorter in female, barely reaching prozona.

Pronotum narrow, elongated, medial keel faint, supracoxal dilation slight, more pronounced in male. Metazona twice as long as prozona in both sexes, margins parallel. Prozona significantly narrower than metazona, elongated, margins parallel. Lateral margins of female pronotum with fine denticulation; male pronotal margins minutely ciliate. Pronotum typically has darker brown submarginal shading with paler tan, longitudinal stripe extending down central region, margins edged with lighter base color. Less commonly, pronotum is variably blotched with darker brownish-black. Pronotum occasionally devoid of contrasting shading and becoming more unicolorous with metazona being primarily brownish throughout and prozona turning more gray with a variable degree of light tan edging.

Prothoracic legs slender. Forecoxae reaching base of prosternum in repose, bearing broad, salient tubercle at apices of anteroventral margin. Forefemora narrower than forecoxae, scarcely longer than metazona, posteroventral margin sinuate, becoming tapered toward distal apex. Forefemora armed in distal half with 4 posteroventral, 9 anteroventral, and 4 discoidal spines; proximal half lined with series of small, blunted tubercles. Tibial spur groove placed in distal half of forefemora. Foretibiae with 1 posteroventral, 3-5 anteroventral, and 1 dorsal spine, all black-tipped. Anteroventral series has 2 salient spines, one placed medially and one distally, with 1-3 very reduced, much smaller spines placed proximally. Tibial spur elongated, measuring at least half as long as foretibiae. Prothoracic legs generally pigmented same color as body, occasionally with faint cross bands of darker brown or with longitudinal streaks of blackish.

Meso/metathoracic legs long and thin, pigmented dark to light brown, occasionally mottled blackish in females. Metathoracic basitarsi nearly twice as long as remaining tarsomeres combined.

Wings. Male forewings measuring at least twice as long as pronotum, reaching between abdominal tergites V-VII, subhyaline, apices narrowly rounded, veins yellow-brown to dark brown. Costal area edged with thin, white line; costal ridge marked by brownish-black line that may be bordered by an additional white line. Male hindwings surpassing forewings and extending into next abdominal tergite, hyaline to infumate. Female apterous, bearing salient wing buds that are same color as body, often with paler lateral margins.

Abdomen. Supraanal plate trigonal with salient medial keelt. Cerci elongated, subcompressed. Female abdomen typically pigmented with darker brown longitudinal stripes extending down margins of tergites. Two thin, dark brown, nearly blackish stripes begin at base of metazona and extend down dorsal surface of abdomen. These stripes become lighter and fade out between tergites IV and V. Female abdominal stripes occasionally very faint. Male abdomen generally unicolorous, uncommonly with blackish median band that extends entire length.

Biological Notes. *Oothecae* are ovoid-shaped, measuring approximately 6 mm wide, 6 mm tall, and roughly 12 mm long. Distal end truncated, slightly slanted; proximal end flattened, extending into a tapered point of residual material near apex of emergence area. Lateral surface saliently ribbed, delimiting approximately 7-9 egg chambers. External wall colored light golden brown with darker furrows on either side of emergence area. Emergence area consists of 12-14 wide operculi lining down center of dorsal surface in a slightly raised seam that is sealed by dried froth. *Oothecae* are attached along the ventral surface so that they sit with the dorsal surface parallel to the substrate. Oviposition sites include woody plant stems and thick twigs of low shrubbery.

Development. Nymphs resemble adults in form and behavior.

Adulthood. Members of this genus are multivoltine with broods overlapping in various stages of development throughout the year. Adult females and nymphs are typically found perched on the ground among leaf litter or low-lying plants, where they mimic dried foliage or fallen twigs. They are occasionally encountered low on tree trunks. Adult males are more often found scrambling among foliage that is significantly higher off the ground from where the females lurk below.

Ethology. Both adults and nymphs often rest with their forelegs outstretched in front of their bodies. Adults do not demonstrate a deimatic display in response to threats. Males will typically take to flight in the presence of danger, whereas females may engage in thanatosis. Adult males are attracted to lights at night and are more commonly encountered than females.

Type Species: *Oligonyx mexicanus* Saussure & Zehntner, 1894

Species Checklist:

- *Bistanta addenda* n. sp.
- *Bistanta campestris* n. sp.
- *Bistanta herema* n. sp.
- *Bistanta mexicana* (Saussure & Zehntner, 1894)
- *Bistanta tolteca* (Saussure & Zehntner, 1894) **stat. rev.**

Key to *Bistanta* Males:

- | | | |
|----|---|--------------------|
| 1 | Pronotal length to supracoxal dilation width <6.00, pronotal length to minimal metazonal width <8.00, metazona length to prozona length <2.00 | 2 |
| 1' | Pronotal length to supracoxal dilation width >6.00, pronotal length to minimal metazonal width >8.00, metazona length to prozona length >2.00 | 3 |
| 2 | Forewings measuring 2.0-2.1 times longer than pronotal length. Supraanal plate measuring 1.26 times longer than basal width. Occurs within the pacific coastal plain region of western Mexico | <i>B. mexicana</i> |
| 2' | Forewings measuring 2.4-2.7 times longer than pronotal length. Supraanal plate measuring 1.48 times longer than basal width. Occurs within the interior plains and high | |

- plateaus of central Mexico *B. tolteca*
- 3 Pronotal length to supracoxal dilation width >6.50, pronotal length to minimal metazonal width <8.25, metazona length to prozona length >2.05, supracoxal dilation width to minimal metazonal width <1.25. Metazonal margins parallel. Occurs within temperate mountains of western Mexico *B. addenda*
- 3' Pronotal length to supracoxal dilation width <6.50, pronotal length to minimal metazonal width >8.25, metazona length to prozona length <2.05, supracoxal dilation width to minimal metazonal width >1.25. Metazonal margins somewhat constricted before supracoxal dilation. Occurs either in Sonoran Desert or Tamaulipas-Texas plain4
- 4 Forewings measuring 2.3-2.4 times longer than pronotal length, entirely hyaline, apices clear. Supraanal plate measuring 1.24 times longer than basal width. Occurs in the Sonoran Desert *B. herema*
- 4' Forewings measuring 2.0-2.1 times longer than pronotal length, lightly to moderately tessellate with light brown, apices darkened. Supraanal plate measuring 1.55 times longer than basal width. Occurs in Tamaulipas-Texas plain *B. campestris*

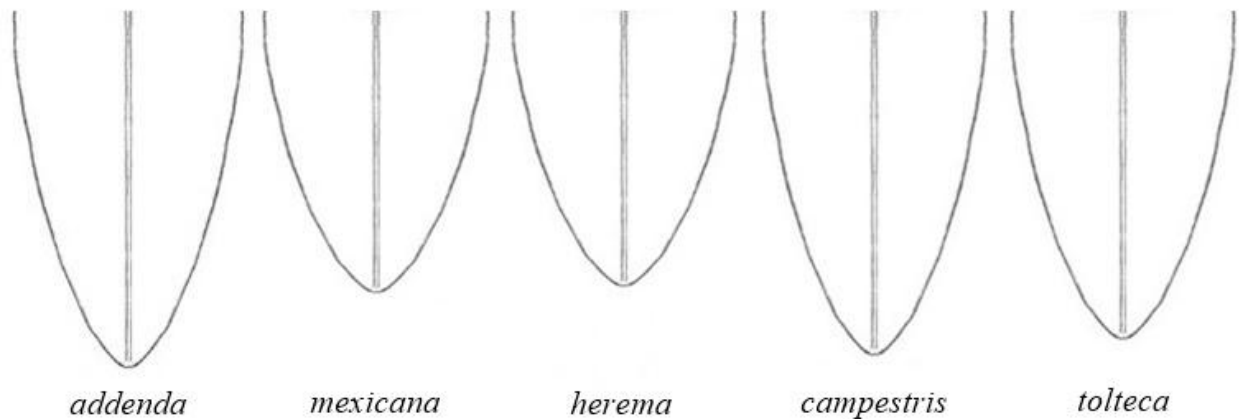


Figure Plate 1. Dorsal view of male *Bistanta* supraanal plates, demonstrating length to width dimensions.

Key to *Bistanta* Females:

- 1 Pronotal length to supracoxal dilation width <6.00, pronotal length to minimal metazonal width <7.00, metazona length to prozona length <1.90. Supraanal plate measuring >2.00 times longer than basal width *B. addenda*
- 1' Pronotal length to supracoxal dilation width >6.00, pronotal length to minimal metazonal width >7.00, metazona length to prozona length >1.90. Supraanal plate measuring <2.00 times longer than basal width 2
- 2 Pronotal length to supracoxal dilation width >7.00, pronotal length to minimal metazonal width >9.00, supracoxal dilation width to minimal metazonal width <1.20 . *B. campestris*

- 2' Pronotal length to supracoxal dilation width <7.00, pronotal length to minimal metazonal width <9.00, supracoxal dilation width to minimal metazonal width >1.20 3
- 3 Body length measuring 44-49 mm. Pronotal length to supracoxal dilation width >6.20, pronotal length to minimal metazonal width >8.60, supracoxal dilation width to minimal metazonal width >1.35 *B. herema*
- 3' Body length measuring 37-45 mm. Pronotal length to supracoxal dilation width <6.20, pronotal length to minimal metazonal width <8.10, supracoxal dilation width to minimal metazonal width <1.35 4
- 4 Pronotal length to minimal metazonal width <7.50, metazona length to prozona length >2.50. Supraanal plate measuring 1.39 times longer than basal width *B. mexicana*
- 4' Pronotal length to minimal metazonal width >7.90, metazona length to prozona length <2.00. Supraanal plate measuring 1.99 times longer than basal width *B. tolteca*

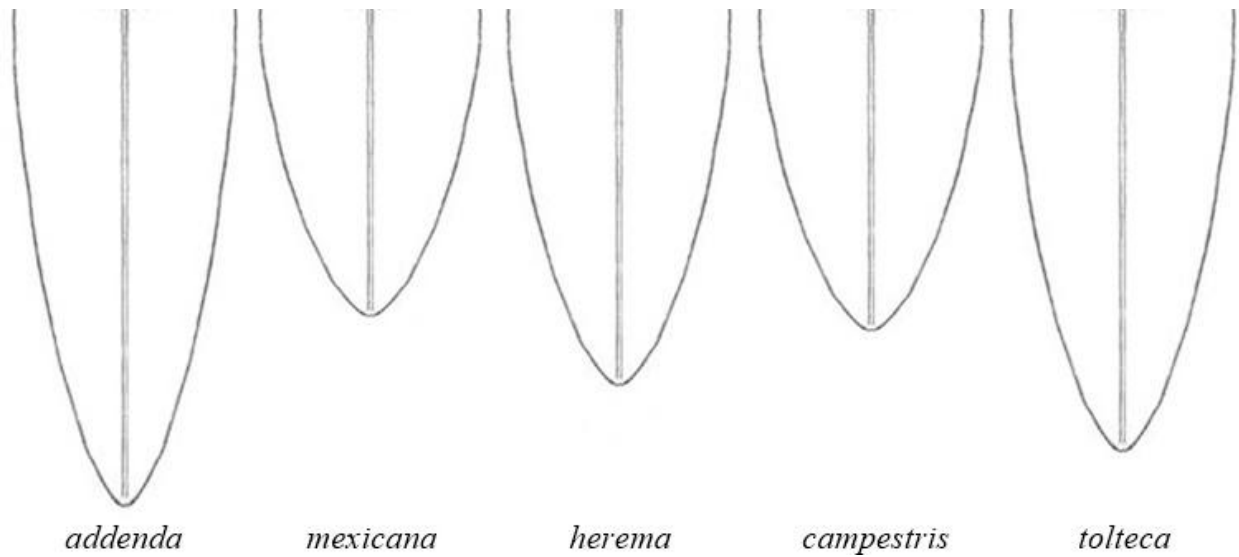


Figure Plate 2. Dorsal view of female *Bistanta* supraanal plates, demonstrating length to width dimensions.

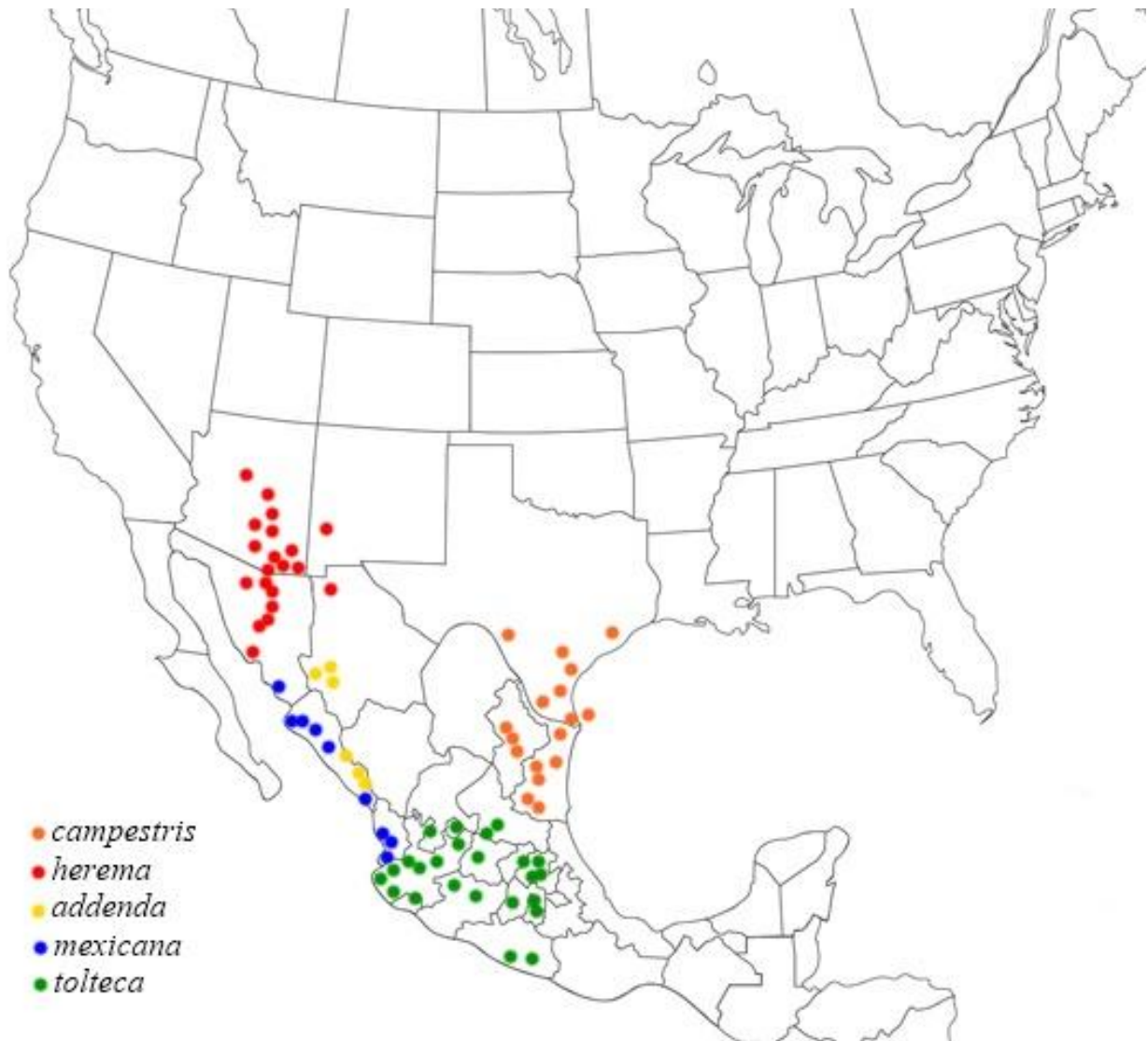


Figure Plate 3. Distribution range map of *Bistanta*

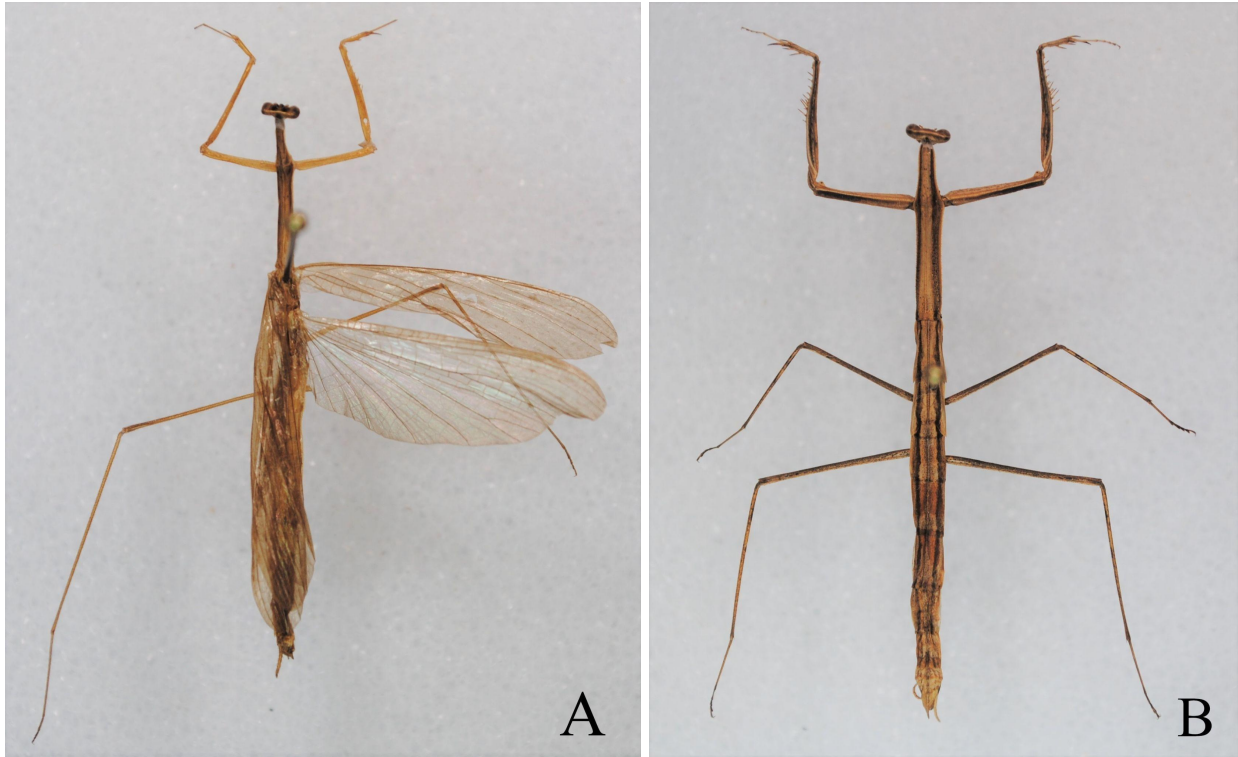
	<i>B. addenda</i>	<i>B. campestris</i>	<i>B. herema</i>	<i>B. mexicana</i>	<i>B. tolteca</i>
MEXICO					
Aguascalientes					X
Baja California					
Baja California Sur					
Campeche					
Chiapas					
Chihuahua	X		X		
Coahuila					
Colima					X
Durango					
Guanajuato					X
Guerrero					X
Hidalgo					X
Jalisco					X
Mexico					X
Mexico City					X
Michoacan					X
Morelos					X
Nayarit				X	
Nuevo Leon		X			
Oaxaca					
Puebla					
Queretaro					X
Quintana Roo					
San Luis Potosi					X
Sinaloa	X			X	
Sonora			X	X	
Tabasco					
Tamaulipas		X			
Tlaxcala					
Veracruz					
Yucatan					
Zacatecas					X

Figure Plate 4. Occurrence of different *Bistanta* species in the provinces of Mexico.

	<i>B. addenda</i>	<i>B. campestris</i>	<i>B. herema</i>	<i>B. mexicana</i>	<i>B. tolteca</i>
UNITED STATES					
Alabama					
Alaska					
Arizona			X		
Arkansas					
California					
Colorado					
Connecticut					
Delaware					
Florida					
Georgia					
Hawaii					
Idaho					
Illinois					
Indiana					
Iowa					
Kansas					
Kentucky					
Louisiana					
Maine					
Maryland					
Massachusetts					
Michigan					
Minnesota					
Mississippi					
Missouri					
Montana					
Nebraska					
Nevada					
New Hampshire					
New Jersey					
New Mexico			X		
New York					
North Carolina					
North Dakota					
Ohio					
Oklahoma					
Oregon					
Pennsylvania					
Rhode Island					

	<i>B. addenda</i>	<i>B. campestris</i>	<i>B. herema</i>	<i>B. mexicana</i>	<i>B. tolteca</i>
UNITED STATES					
South Carolina					
South Dakota					
Tennessee					
Texas		X			
Utah					
Vermont					
Virginia					
Washington					
West Virginia					
Wisconsin					
Wyoming					

Figure Plate 5. Occurrence of different *Bistanta* species in the United States of America according to state.



Voucher Specimen Photographs. *Bistanta addenda*: A, male holotype dorsal habitus. San Ignacio, Sinaloa, MEXICO 10.17; B, female allotype dorsal habitus. Surutato, Sinaloa, MEXICO 10.17

Bistanta addenda n. sp.

Description. Male pronotal length to supracoaxal dilation width 6.81, pronotal length to minimal metazonal width 8.23, metazona length to prozona length 2.13, supracoaxal dilation width to minimal metazonal width 1.21. Supraanal plate 1.57 times longer than basal width. Wings tinted light tan to amber brown, apices clear. Female pronotal length to supracoaxal dilation width 5.55, pronotal length to minimal metazonal width 6.98, metazona length to prozona length 1.81, supracoaxal dilation width to minimal metazonal width 1.26. Supraanal plate 2.24 times longer than basal width. According to present knowledge, this species is precinctive to the temperate sierras of western Mexico.

Measurements. (All measurements are in millimeters and rounded to nearest 0.5) *Male*. Body length 44; pronotum length 10; forewing length 24; prothoracic coxa length 6; prothoracic femur length 7.5; metathoracic femur length 12. *Female*. Body length 41-43; pronotum length 12; prothoracic coxa length 7.5; prothoracic femur length 8.5; metathoracic femur length 11-11.5.

Etymology. “addenda” is a derivative of the Latin term “addendum” – something to be added, which references the modern inclusion of this species to a genus that has been previously regarded as monotypical.



01, *Bistanta addenda* adult male. San Ignacio, Sinaloa, Mexico 05.17.20 (Photo: Patricia Samperio)



02, *Bistanta addenda* adult female. Urique, Chihuahua, Mexico 11.21.14 (Photo: Juan Magaña)

Material Examined.

Type Specimens: Holotype. 1 ♂ San Ignacio, Sinaloa, Mexico 10.17, AVasquez. Allotype. 1 ♀ Surutato, Sinaloa, Mexico 10.17, AVasquez. Paratype. 1 ♀ Surutato, Sinaloa, Mexico 10.17, AVasquez. Anderson Collection Las Vegas.

Live Habitus Observations: For those specimens that were photographed *in situ*, the hyperlink to the image begins with “inaturalist.org/observations/”, followed by the unique number string identifier noted in parentheses after the date of the listed observation. MEXICO: ♂ San Ignacio, Sinaloa 04.09.20 (42237916); ♂ San Ignacio, Sinaloa 05.17.20 (46682361); ♂ San Ignacio, Sinaloa 07.29.20 (55565253); ♂ San Ignacio, Sinaloa 08.15.20 (56816020); ♂ San Ignacio, Sinaloa 08.16.20 (56816284); ♂ San Ignacio, Sinaloa 10.07.19 (34098232); ♂ San Ignacio, Sinaloa 11.16.20 (65263333); ♂ Cosala, Sinaloa 11.07.21 (100551335); ♂ Concordia, Sinaloa 11.29.21 (102209197); ♂ Concordia, Sinaloa 11.02.21 (100241007); ♂ Cosala, Sinaloa 12.18.21 (103280127); ♀ Bocoyna, Chihuahua 11.25.21 (102120238); ♀ Chinipas, Chihuahua 09.10.21 (94434888); ♀ Urique, Chihuahua 11.21.14 (1846859); ♀ San Ignacio, Sinaloa 10.27.19 (35064475); ♀ Concordia, Sinaloa 11.02.21 (100123502)



Voucher Specimen Photographs. *Bistanta campestris*: A, male holotype dorsal habitus. Progresso, Hidalgo Co, TX 07.09.71

Bistanta campestris **n. sp.**

Description. Male pronotal length to supracoxal dilation width 6.16, pronotal length to minimal metazonal width 8.52, metazona length to prozona length 2.02, supracoxal dilation width to minimal metazonal width 1.38. Supraanal plate 1.55 times longer than basal width. Wings lightly to moderately tessellate with light brown, apices darkened. Female pronotal length to supracoxal dilation width 7.71, pronotal length to minimal metazonal width 9.04, metazona length to prozona length 2.06, supracoxal dilation width to minimal metazonal width 1.17. Supraanal plate measuring 1.44 times longer than basal width. This species is precinctive to the Tamaulipas-Texas plain of northeastern Mexico and southern Texas.

Measurements. (All measurements are in millimeters and rounded to nearest 0.5) *Male*. Body length 33-45; pronotum length 8.5-11; forewing length 17.5-22.5; prothoracic coxa length 5.5-7; prothoracic femur length 6-7.5; metathoracic femur length 10-13.5.

Etymology. “campestris” is a derivative of the Latin term “campester” – a level or flat field or plain, which references the Tamaulipas-Texas plain region where this species inhabits.



01, *Bistanta campestris* adult male. Brownsville, Cameron Co, Texas 06.24.20 (Photo: Dingo Octavious)



02, *Bistanta campestris* adult female. Mission, Hidalgo Co, Texas 09.28.19 (Photo: Sam Kieschnick)



03, *Bistanta campestris* adult female. South Padre Island, Cameron Co, Texas 04.04.09 (Photo: Josh Rosford photos@rosford.com)



04, *Bistanta campestris* nymph. McAllen, Hidalgo Co, Texas 11.07.18 (Photo: Jessica Tanguma)

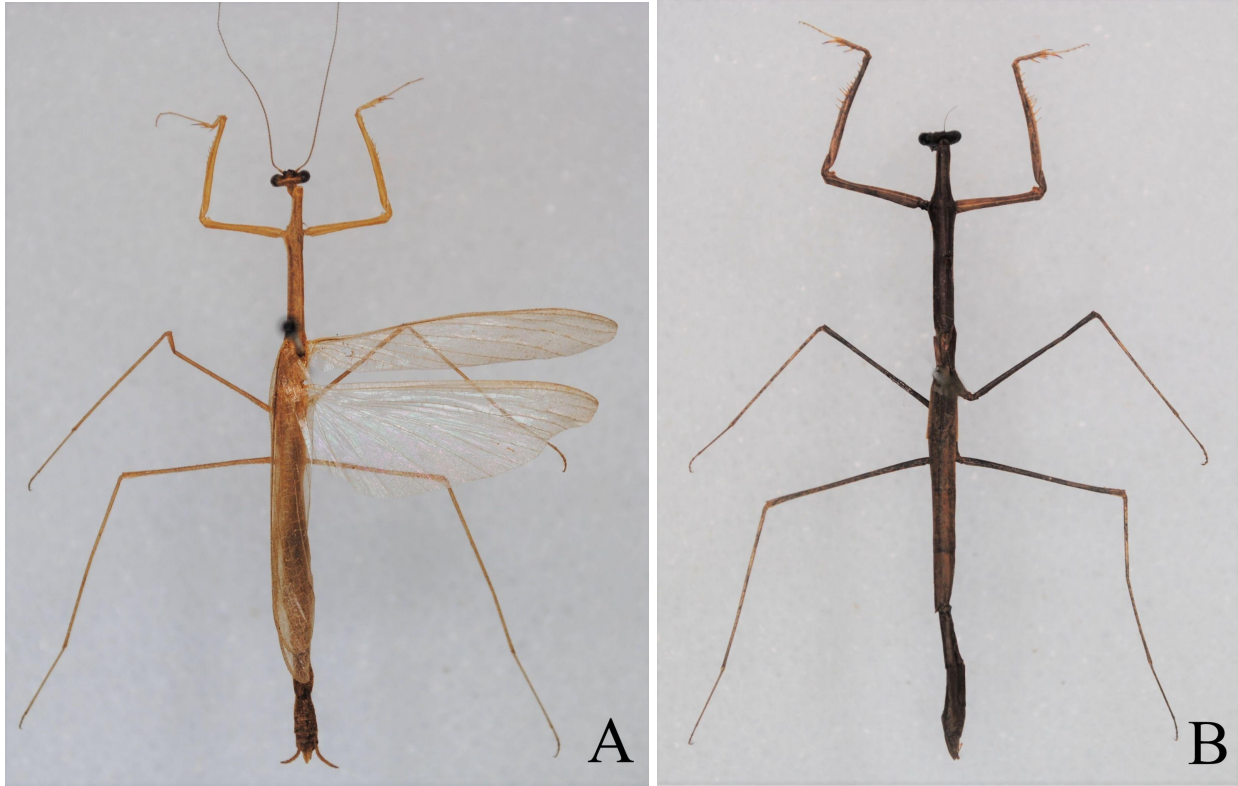
Material Examined.

Type Specimens: Holotype. 1 ♂ Progresso, Hidalgo Co, TX 07.09.71, PTRiherd. Paratypes. 2 ♂ San Ygnacio, Zapata Co, TX 10.10.99, WFChamberlain; 4 ♂ Bentsen-Rio Grande Valley State Park, Hidalgo Co, TX 10.15.88, EGRiley; 1 ♂ Falcon Heights, Starr Co, TX 10.09.93, SMClark.

The male holotype, one male paratype from Zapata County, and three male paratypes from Hidalgo County are deposited at Texas A&M University in College Station, TX. All other type material is deposited within the author's private collection in Las Vegas, NV.

Pinned Specimens: UNITED STATES: 1 ♂ Brownsville, Cameron Co, TX 10.19.02; 3 ♂♂ Sabal Palm Grove, Cameron Co, TX 10.31.91-10.16.93. MEXICO: 1 ♂ Ciudad Mante, Tamaulipas 08.26.67 Texas A&M University in College Station, TX.

Live Habitus Observations: For those specimens that were photographed *in situ*, the hyperlink to the image begins with "inaturalist.org/observations/", followed by the unique number string identifier noted in parentheses after the date of the listed observation. UNITED STATES: ♂ Alton, Hidalgo Co, TX 05.30.19 (26133104); ♂ Alton, Hidalgo Co, TX 10.15.18 (17540148); ♂ Corpus Christi, Nueces Co, TX 09.30.18 (19048088); ♂ Hidalgo, Hidalgo Co, TX 07.25.19 (29599268); ♂ Mission, Hidalgo Co, TX 08.17.19 (31102337); ♂ Brownsville, Cameron Co, TX 06.04.20 (48490074); ♂ Houston, Harris Co, TX 10.20.20 (63147703); ♂ Llano Grande, Hidalgo Co, TX 10.30.20 (68472096); ♂ Riviera, Kleberg Co, TX 11.12.17 (8783152); ♂ San Manuel-Linn, Hidalgo Co, TX 10.10.17 (8415861); ♂ Edinburg, Hidalgo Co, TX 03.13.16 (2821008); ♀ Mission, Hidalgo Co, TX 09.28.19 (33932882); ♀ Hidalgo, Hidalgo Co, TX 11.21.21 (101678431); ♀ Hidalgo, Hidalgo Co, TX 07.21.20 (53932056); ♀ McAllen, Hidalgo Co, TX 11.10.20 (64625262); ♀ Del Rio, Val Verde Co, TX 08.08.18 (49399015); ♀ South Padre Island, Cameron Co, TX 04.04.09 (109286899). MEXICO: ♂ Victoria, Tamaulipas 12.04.18 (18820642); ♂ Tula, Tamaulipas 11.02.21 (100349111); ♂ Guemez, Tamaulipas 10.18.20 (63043123); ♂ Lineres, Nuevo Leon 01.26.17 (5010309); ♂ Lineres, Nuevo Leon 08.08.14 (1475564); ♂ Monterrey, Nuevo Leon 08.16.20 (56701066); ♂ Ocampo, Tamaulipas 08.23.15 (106645915); ♂ Santiago, Nuevo Leon 04.24.17 (6031078); ♀ Lineres, Nuevo Leon 11.16.15 (2408811); ♀ Montemorelos, Nuevo Leon 07.15.20 (53207706); ♀ Monterrey, Nuevo Leon 10.06.20 (61872153); ♀ Santiago, Nuevo Leon 10.06.19 (34100816); ♀ San Fernando, Tamaulipas 10.18.21 (99666806); ♀ Tula, Tamaulipas 07.26.17 (7321699); ♀ Valle Hermoso, Tamaulipas 04.23.21 (74994254); ♀ Victoria, Tamaulipas 11.04.17 (16361400).



Voucher Specimen Photographs. *Bistanta herema*: A, male holotype dorsal habitus. Phoenix, Maricopa Co, AZ 08.09.70; B, female allotype dorsal habitus. Montezuma Pass, Cochise Co, AZ 07.22.63

Bistanta herema **n. sp.**

Description. Male pronotal length to supracoaxal dilation width 6.41, pronotal length to minimal metazonal width 8.27, metazona length to prozona length 2.02, supracoaxal dilation width to minimal metazonal width 1.29. Supraanal plate 1.24 times longer than basal width. Wings hyaline, apices clear. Female pronotal length to supracoaxal dilation width 6.27, pronotal length to minimal metazonal width 8.80, metazona length to prozona length 1.98, supracoaxal dilation width to minimal metazonal width 1.40. Supraanal plate measuring 1.71 times longer than basal width. This species is precinctive to the Sonoran Desert, Madrean Archipelago, and western reaches of the Arizona/New Mexico mountains.

Measurements. (All measurements are in millimeters and rounded to nearest 0.5) *Male.* Body length 32-45; pronotum length 9-11; forewing length 21-26; prothoracic coxa length 5.5-6.5; prothoracic femur length 7-8.5; metathoracic femur length 10-11. *Female.* Body length 44-49; pronotum length 13-14; prothoracic coxa length 7.5; prothoracic femur length 9-11; metathoracic femur length 12.

Etymology. “herema” is a derivative of the Latin term “heremus” – waste or desert, which references the Sonoran Desert region where this species inhabits.



01, *Bistanta herema* adult male. Nogales, Santa Cruz Co, Arizona 07.26.11 (Photo: Aaron G.)



02, *Bistanta herema* adult male. Vail, Pima Co, Arizona 06.17.05 (Photo: Jillian Cowles)



03, *Bistanta herema* adult female. Santa Rita Experimental Range, Santa Cruz Co, Arizona 10.29.16 (Photo: Jeff Gruber)



04, *Bistanta herema* adult female. Estrella Village, Maricopa Co, Arizona 04.30.22 (Photo: Andrew Meeds)



05, *Bistanta herema* adult female. Tucson, Pima Co, Arizona 06.05.19 (Photo: Luke Hetherington)



06, *Bistanta herema* nymph. Saguaro National Park, Pima Co, Arizona 04.19.16

Material Examined.

Type Specimens: Holotype. 1 ♂ Phoenix, Maricopa Co, AZ 08.09.70, AHBarnum. Allotype. 1 ♀ Montezuma Pass, Cochise Co, AZ 07.22.63, AHBarnum. Paratypes. 1 ♂ Madera Canyon, Santa Cruz Co, AZ 09.05.70, EAKane; 1 ♂ Congress, Yavapai Co, AZ 08.06.12; 1 ♂ Benson, Cochise Co, AZ 08.07.80, WHTyson. Anderson Collection Las Vegas.

Pinned Specimens: UNITED STATES: 1 ♂ Benson, Cochise Co, AZ 08.07.80. Anderson Collection Las Vegas.

Live Habitus Observations: For those specimens that were photographed *in situ*, the hyperlink to the image begins with “inaturalist.org/observations/”, followed by the unique number string identifier noted in parentheses after the date of the listed observation. UNITED STATES: ♂ Payson, Gila Co, AZ 06.18.21 (83599922); ♀ Pena Blanca Lake, Santa Cruz Co, AZ 08.24.17 (10147361); ♀ Madera Canyon, Santa Cruz Co, AZ 07.03.19 (28215987); ♀ Tucson, Pima Co, AZ 06.05.19 (26445555); ♀ Cliff Gila, Grant Co, NM 07.05.19 (28407136); ♀ Sycamore Canyon, Santa Cruz Co, AZ 09.04.21 (94244227); ♀ Willcox, Cochise Co, AZ 07.18.19 (29207855). MEXICO: ♂ Guaymas, Sonora 06.04.19 (26416851); ♂ Hermosillo, Sonora 09.20.16 (4341393); ♂ Ures, Sonora 09.27.21 (98541544); ♀ Janos, Chihuahua 07.04.19 (29007899); ♀ Banamichi, Sonora 11.14.17 (8852682); ♀ Guaymas, Sonora 05.25.20 (47377734); ♀ Hermosillo, Sonora 04.29.19 (24205020); ♀ Imuris, Sonora 09.18.19 (60541966); ♀ Nogales, Sonora 05.18.19 (25365045); ♀ Tubutama, Sonora 09.18.21 (95314657).

Bistanta mexicana (Saussure & Zehntner, 1894)

Diagnosis. Male pronotal length to supracoxal dilation width 5.95, pronotal length to minimal metazonal width 7.81, metazona length to prozona length 1.94, supracoxal dilation width to minimal metazonal width 1.31. Supraanal plate 1.26 times longer than basal width. Wings slightly infumate with light gray. Female pronotal length to supracoxal dilation width 6.10, pronotal length to minimal metazonal width 7.48, metazona length to prozona length 2.64, supracoxal dilation width to minimal metazonal width 1.23. Supraanal plate 1.39 times longer than basal width. According to present knowledge, this species is precinctive to the pacific coastal plain region of western Sinaloa, Nayarit, and southern Sonora

Measurements. (All measurements are in millimeters and rounded to nearest 0.5) *Male.* Body length 36-43; pronotum length 9-11; forewing length 19-22; prothoracic femur length 6-8. *Female.* Body length 37-45; pronotum length 11.5-14; prothoracic femur length 8-9.5.



01, *Bistanta mexicana* adult male. Mazatlan, Sinaloa, Mexico 04.29.19 (Photo: Ricardo Arredondo T.)



02, *Bistanta mexicana* adult female. Mazatlan, Sinaloa, Mexico 07.31.21 (Photo: Francisco Sarabia)



03, *Bistanta mexicana* adult female. Mazatlan, Sinaloa, Mexico 12.02.19 (Photo: Francisco Sarabia)



04, *Bistanta mexicana* nymph. Compostela, Nayarit, Mexico 08.02.18 (Photo: David Amador)



05, *Bistanta mexicana* ootheca. Mazatlan, Sinaloa, Mexico 12.17.19 (Photo: Francisco Sarabia)

Material Examined.

Type Specimen: The syntype male of *mexicana* from Sinaloa, Mexico is deposited at the Natural History Museum in London. This specimen has been digitized by Svenson and is available online for analysis: <https://specimens.mantodearesearch.com/specimen/50>

Live Habitus Observations: For those specimens that were photographed *in situ*, the hyperlink to the image begins with “inaturalist.org/observations/”, followed by the unique number string identifier noted in parentheses after the date of the listed observation. MEXICO: ♂ Bahia de

Bandares. Nayarit 06.09.20 (49285634); ♂ Compostela, Nayarit 07.08.18 (14729043); ♂ San Blas, Nayarit 06.07.20 (48906715); ♂ Guasava, Sinaloa 09.07.17 (7824772); ♂ Mazatlan, Sinaloa 11.12.19 3 (35933258); ♂ Ahome, Sinaloa 07.14.17 (9454668); ♂ Culiacan, Sinaloa 01.19.21 (68375017); ♀ Mazatlan, Sinaloa 01.05.20 (37314637); ♀ Bahia de Bandares. Nayarit 11.24.16 (4661613); ♀ San Blas, Nayarit 11.27.19 (58197917); ♀ Culiacan, Sinaloa 01.05.22 (104891311); ♀ Banito Juarez, Sonora 12.23.21 (103587306); ♀ Los Mochis, Sinaloa 01.11.19 (19635431).

Bistanta tolteca (Saussure & Zehntner, 1894) **stat. rev.**

Diagnosis. Male pronotal length to supracoxal dilation width 5.96, pronotal length to minimal metazonal width 7.64, metazona length to prozona length 1.76, supracoxal dilation width to minimal metazonal width 1.28. Supraanal plate 1.48 times longer than basal width. Wings tinted amber brown in dark phase individuals, beige-colored in light phase individuals. Female pronotal length to supracoxal dilation width 6.05, pronotal length to minimal metazonal width 8.03, metazona length to prozona length 1.91, supracoxal dilation width to minimal metazonal width 1.33. Supraanal plate 1.99 times longer than basal width. According to present knowledge, this species is precinctive to the interior plains and high plateaus of central Mexico.

Measurements. (All measurements are in millimeters and rounded to nearest 0.5) *Male.* Body length 38; pronotum length 9; forewing length 24; prothoracic femur length 7-9. *Female.* Body length 42-43; pronotum length 12.5; prothoracic femur length 9.



01, *Bistanta tolteca* adult male. Jacona, Michoacan, Mexico 09.26.19 (Photo: Ricardo Arredondo T.)



02, *Bistanta toteca* adult male. Temixco, Morelos, Mexico 01.12.22 (Photo: Alberto Lz)



03, *Bistanta toteca* adult female. El Llano, Aguascalientes, Mexico 07.13.20 (Photo: Pedro Quezada)



04, *Bistanta toteca* adult female. Cabo Corrientes, Jalisco, Mexico 05.25.15 (Photo: Cheryl Harleston Lopez Espino)



05, *Bistanta toteca* nymph. Villa de Reyes, San Luis Potosi, Mexico 03.29.20 (Photo: Luis Stevens)



06, *Bistanta tolteca* ootheca. Lagos de Moreno, Jalisco, Mexico 03.05.18 (Photo: Jair Gonzalez)

Material Examined.

Type Specimens: The holotype female of *tolteca* from Guerrero, Mexico is deposited at the Natural History Museum in London. This specimen has been digitized by Svenson and is available online for analysis: <https://specimens.mantodearesearch.com/specimen/51>

Live Habitus Observations: For those specimens that were photographed *in situ*, the hyperlink to the image begins with “inaturalist.org/observations/”, followed by the unique number string identifier noted in parentheses after the date of the listed observation. MEXICO: ♂ Yautepec, Morelos 08.28.21 (103041508); ♂ Xochitepec, Morelos 05.19.18 (12787983); ♂ Tepatitlan de Morelos, Jalisco 04.06.17 (5794878); ♂ Temixco, Morelos 01.12.22 (104848868); ♂ Jacona, Michoacan 09.26.19 (33718691); ♂ Jojutla, Morelos 07.25.19 (29687452); ♂ Cabo Corrientes, Jalisco 06.23.20 (50825098); ♂ Iztapalapa, Distrito Federal 09.20.19 (33099646); ♂ Chapala, Jalisco 12.29.21 (103900434); ♂ Acapulco de Juarez, Guerrero 09.12.21 (94626045); ♂ Nocupetaro, Michoacan 08.21.21 (96183712); ♂ Ixmiquilpan, Hidalgo 07.17.21 (87474547); ♂ Zimapan, Hidalgo 03.25.19 (22983836); ♂ Iranpuato, Guanajuato 12.06.21 (102625042); ♂ Ahualulco de Mercado, Jalisco 09.26.20 (61070867); ♂ La Huerta, Jalisco 01.24.22 (105505213); ♀ El Llano, Aguascalientes 07.13.20 (60260017); ♀ Cuauhtemoc, Colima 11.05.20 (64258163); ♀ Zaragoza, San Luis Potosi 10.04.20 (83709783); ♀ Ayala, Morelos 07.12.20 (52900723); ♀ Yautepec, Morelos 02.14.21 (69585250); ♀ Ayutla de los Libres, Guerrero 09.25.18 (19701732); Mascota, Jalisco 11.12.21 (107635323); ♀ Atotonilco de Tula, Hidalgo 07.01.07 (3085872); ♀ Tejupilco, Mexico 05.22.18 (12722920); ♀ Metztlitlan, Hidalgo 03.15.20 (40238075); ♀ Cabo Corrientes, Jalisco 05.25.15 (1546782); ♀ Tlaltenango de Sanchez Roman, Zacatecas 10.08.20 (62170680).

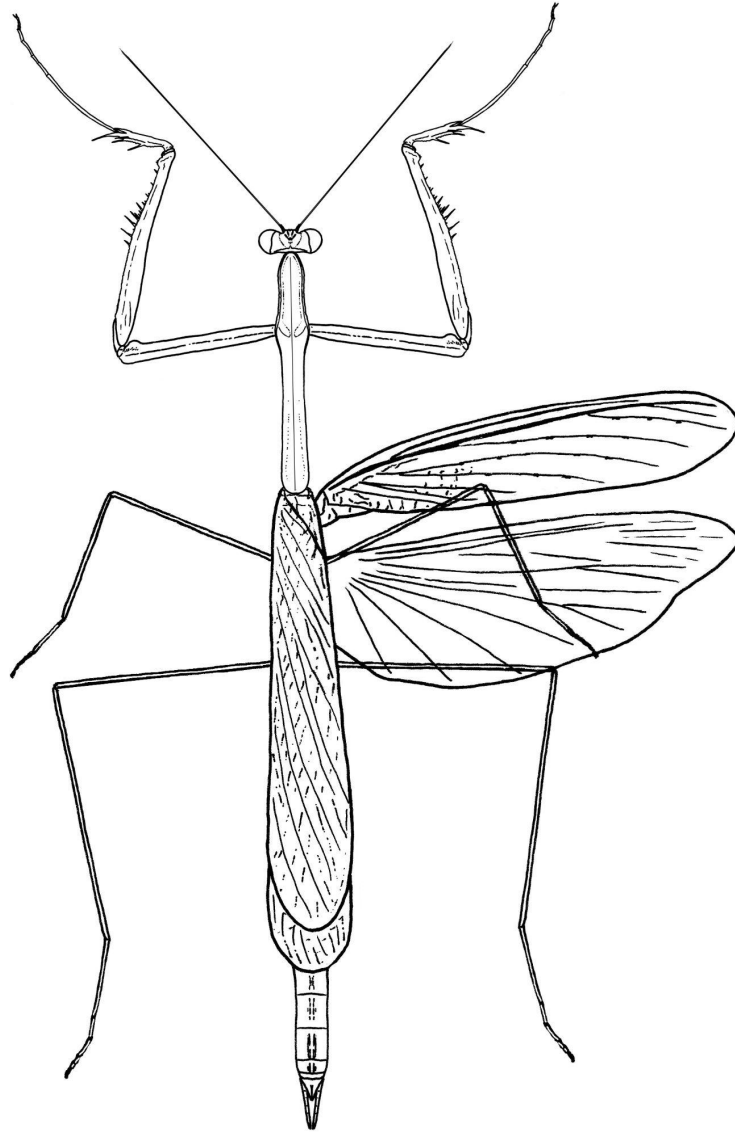
Acknowledgements. I wish to thank Karen Wright of Texas A&M University and Aaron Vasquez for supplying many of the voucher specimens that were used for this study. Special appreciation and gratitude goes out to the many photographers and citizen scientists who provided images for usage of this documentation.

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To cite this article: Anderson, K. (2022): Revision of the North American Genus *Bistanta* Anderson, 2018. *Soothsayer, Journal of Mantodea Research*. 3 (1): 1-47.