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con il contributo di
FONDAZIONE CARITRO
CASSA DI RISPARMIO DI TRENTO E ROVERETO

Roberto Battiston, Paolo Fontana (*), Barbara Agabiti,
Patricia Lucero García-García

MANTODEA COLLECTED IN MEXICO DURING AN 8800 KM ORTHOPTEROLOGICAL TRIP (Insecta Mantodea)

Abstract - Battiston R., Fontana P., Agabiti B., Lucero García-García P., 2005 - Mantodea collected in Mexico during an 8800 km orthopterological trip (Insecta Mantodea).

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New data on Mexican *Mantodea* are presented. Data collected during an 8800 km orthopterologic expedition in the central part of Mexico during 2004 have been analyzed. The low number of taxa and specimens found in the 71 visited localities, although collected only during daytime, is remarkable. Besides that, these insects seem to be uncommon in central-northern Mexcio, at least during September and October. The species collected are: *Bactromantis tolteca* (Saussure & Zehntner, 1894), *Litaneutria minor* (Scudder 1872), *Oligonicella bolliana* (Saussure & Zehntner, 1894), *Stagmomantis limbata* (Hahn, 1835) e *Yersinia mexicana* Saussure, 1859. Consideration on the specimens collected, analysis of male genitalia, reflections on the morphological variability in *Yersinia mexicana*, and on its ecology are presented. A preliminary checklist of Mexican *Mantodea* is proposed.

Keywords - *Yersinia mexicana*, *Stagmomantis limbata*, *Oligonicella bolliana*, *Litaneutria minor*, *Bactromantis tolteca*, male genitalia, taxonomy, ecology.

Riassunto - Battiston R., Fontana P., Agabiti B., Lucero García-García P., 2005 - Mantidi raccolte in Messico durante una spedizione ortotterologica lungo un percorso di 8800 km (Insecta Mantodea).

Vengono proposti alcuni dati sui mantodei messicani. In dettaglio vengono analizzati i dati di raccolta ottenuti durante una spedizione ortotterologica di 8800 km nella fascia centrale del Messico svoltasi nel 2004. Risulta interessante come in 71 località visitate sia stato trovato, pur solo con raccolte diurne, un numero limitato di

(*) P. Fontana: Dipartimento di Agronomia Ambientale e Produzioni Vegetali - Entomologia, Università di Padova.

esemplari e di specie. Questi insetti sono dunque risultati poco frequenti negli ambienti del Messico centro-settentrionale, nei mesi di settembre ed ottobre. Sono stati raccolti esemplari appartenenti alle specie: *Bactromantis tolteca* (SAUSSURE & ZEHNTNER, 1894), *Litaneutria minor* (SCUDDER 1872), *Oligonicella bolliana* (SAUSSURE & ZEHNTNER, 1894), *Stagmomantis limbata* (Hahn, 1835) e *Yersinia mexicana* SAUSSURE, 1859. Le specie raccolte sono commentate con una descrizione degli individui catturati, l'analisi dei genitali maschili, riflessioni sulla variabilità morfologica e l'ecologia di *Yersinia mexicana*. Viene proposta una checklist preliminare dei mantodei messicani.

PAROLE CHIAVE - *Yersinia mexicana*, *Stagmomantis limbata*, *Oligonicella bolliana*, *Litaneutria minor*, *Bactromantis tolteca*, genitali maschili, tassonomia, ecologia.

INTRODUCTION

Last year, between September and October, we carried out an entomological expedition in Mexico. The expedition was planned by Theodore J. Cohn (University of Michigan, U.S.A.) and Paolo Fontana (Padua University, Italy), with the cooperation of Zenón Cano Santana (U.N.A.M., Mexico). The main goal was to collect about 30 species of the genus *Dichopetala* Brunner v. W. (Orthoptera: Tettigoniidae) for morphological studies and DNA analysis, but also to collect Orthopteroidea specimens for further taxonomic, biogeographical and ecological studies. The expedition was directed by Paolo Fontana and the other collaboratores were Roberto Battiston (Padua University, Italy), Barbara Agabiti (Istituto Agrario San Michele all'Adige, Italy), and Patricia Lucero García-García (U.N.A.M., Mexico) (Fig. 1). We conducted a month long trip of 8800 km by car, visiting 71 localities in 15 states along Eastern Sierra Madre, Western Sierra Madre and Transverse Volcanic Belt, from 83 to 3712 m (Fig. 2). We collected mostly during daylight in many kinds of vegetation; most of them were xerophytic scrub and secondary vegetation; others were: induced grassland, tropical deciduous forest, pine forest, oak forest, vegetation along rivers, tropical rain forest, desert, and cultivated areas.

From the overall orthopteroid insects found, we collected mostly Orthoptera but also many Phasmatodea, some Demaptera, very few Blattaria and about 60 Mantodea specimens (all adults, except one) in 30% of the visited localities, corresponding to eleven states. These Mantodea belong to five different species from three subfamilies. The mantids were found in long grasses, bushes and thorny plants, and some males of *Stagmomantis limbata* were also found in some walls of lighted buildings at night. The Mantodea specimens were collected between 224 and 2265 m.

Fig. 1. Members of the «Dichopetala expedition» (from left to right: García-García P. L., Fontana P., Battiston R., Agabiti B.), Puebla, 2 Km SE Tepanco, rd. 150, 1787 m, 17/X/2004. Photo by P. Fontana & R. Battiston.

This is the first attempt to actualize the Mexican Mantodea knowledge, based on newly collected specimens and field observations we made during our expedition. Further contributions will be prepared on the different orthopteroid orders or on smaller taxonomic groups as well on ecological and biogeographical topics.

The study on Mexican mantids begins two centuries ago, with the description of *Mantis limbata* (now *limbata* (HAHN, 1835)) in 1835, with a type locality defined between Arizona and Mexico. *Stagmomantis carolina* (JOHANSSON, 1763) was described earlier but with a type locality restricted to North America and Carolina, but later it was collected in Mexico. The first endemic species was described in 1869, as *Acanthops mexicana* (now *Yersinia mexicana* SAUSSURE, 1859), one of the most common Mexican species. The most important contribution to the knowledge of Mexican mantids was given by SAUSSURE in the *Synopsis des Mantides Américains* (1871), where he described half of the total species of known Mexican mantids. Nowadays what we know about Mexican mantids comes mostly from the collecting records of

several Mexican and foreign entomologists that, during the last centuries, have visited this beautiful and rich Country, but almost nothing is known about the ecology and the ethology of these insects. In addition Mexican Mantodea biodiversity is scarcely known and further studies will be surely fruitful and useful also for biogeographical purposes.

Materials and methods

The specimens have been collected and killed on the field, then dried, and mounted in the laboratory. The identification has been possible mostly with the work of Giglio-Tos, 1927, whose collection is preserved in the Museo Regionale di Scienze Naturali in Turin (Italy), Saussure & Zehntner, 1893-1899, Saussure, 1871, Francisco & Cerdà, 1996, and Ortega & Márquez, 1988. After relaxing the dried male genitalia, they were separated from the specimens and clarified in KOH (10%); then dehydrated in alcohol (from 70% to 95%) and at the end submerged in glove oil. Clarified and dehydrated genitalia have been mounted on a slide with Canadian balm (Fontana *et al.*, 2002).

Results

Bactromantis tolteca (Saussure & Zehntner, 1894)

Oygonyx toltecus Saussure & Zehntner, 1894: 175

Examined material: 2 males, 4 females, 1 female nymph and 2 males nymphs.

MEXICO: Tamaulipas, rd. 101, 4 Km SW Ciudad Victoria, 04/X/2004, , 1 male nymph and 2 females, coll. Agabiti; San Luis Potosí, between S. Martín de Abajo and S. Nicolás Tolentino, 27/IX/2004 1 male, coll. Fontana; San Luis Potosí, Escalerías, 12 km E Pozuelos, rd. S.L. Potosí to Guadalajara, 26/IX/2004, 1 male coll. Agabiti; San Luis Potosí, 27/IX/2004, rd. to S.L.Potosí - Río Verde, cross S. Martín de Abajo, 1 nymph male 1 female, coll. Agabiti; Puebla, 20 km NW. 10 km SE Acatlán rd. 190, 16/IX/2004, 1 female, 1 nymph, coll. Fontana.

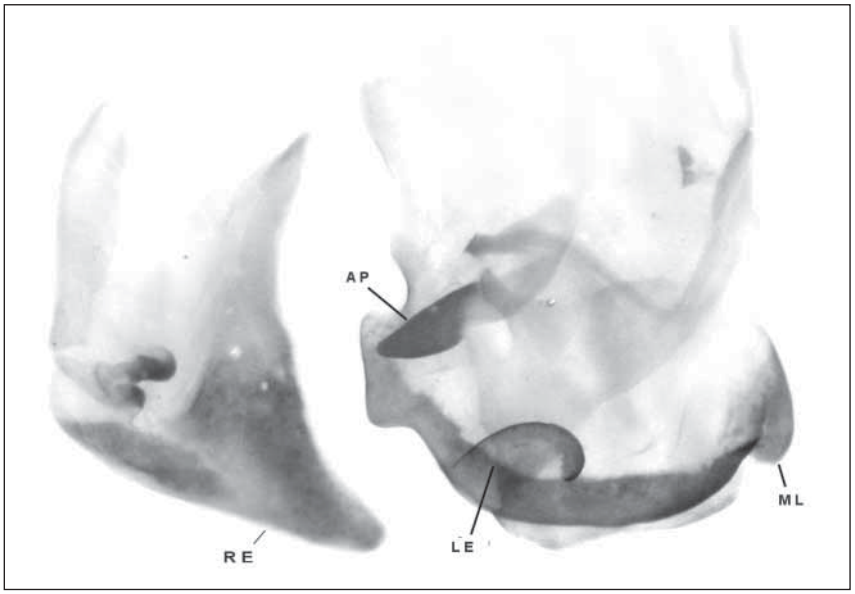


Fig. 2. *Bactromantis tolteca*: male genitalia. AP= Apophysis phalloid, DP= Distal process, HP = Hypophallus (ventral phallomere), DPpt = Distal process, posterior tooth, DPas = Distal process, anterior tooth, LP = Left phallomere (anterior process), ML= Membranous lobe, RP = Right phallomere.

General description

Medium size, colour ochre, body very slender. Male winged, female apterous. Supergenital plate longer than larger, acute. Coxae as long as the metazona. Femora with 4 discoidal spines, tibia with 1 spine on superior side, 1 apical external, 1 apical internal, 1 median internal, three small teeth near the base.

Male Genitalia (Fig. 2).

Ventral phallomere longer than wide; distal edge of the ventral phallomere very rounded and well sclerotized; membranous lobe well developed with a sack-shape, covered with short spines.

The dorsal plate of the left phallomere is long and well sclerificated; the apophysis phalloid is short, strong, well sclerotized and its end is covered with short spines; the anterior process is short and strong with a «c» shape.

Litaneutria minor (Scudder, 1872)

Stagmatoptera minor Scudder, 1872: 251
Litaneutria minor Scudder, 1896: 209

Examined material: 3 females

MEXICO: Coahuila, Monclova NW., rd. 30 13 km E- Sacramento, 523 m., 09/X/2004, , 1 female, coll. Fontana; Coahuila, Rd Saltillo - Monclova betw. Zertuche and Santa Cruz, 1113 m., 08/X/2004, 1 female., coll. Fontana; S.L. POTOSÍ, rd. 57 S.L. Potosí - Saltillo N of cross Guadalcázar, 1450 m, 28/IX/2004, coll. Fontana, 1 female.

General description.

Small size, colour dark grey. Female brachypterous with dark wings with a black spot in the middle.

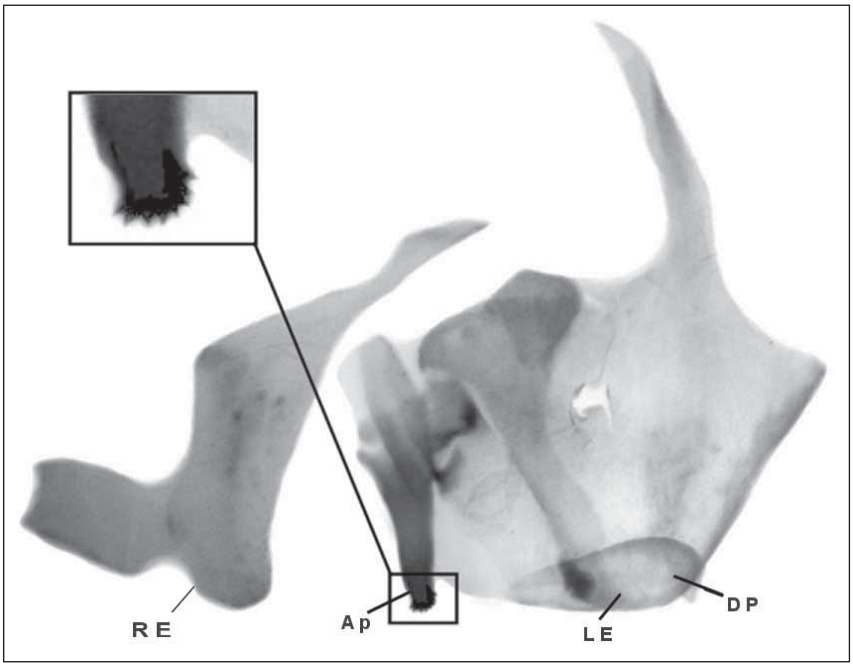


Fig. 3. *Oligonicella bolliana*: male genitalia. AP= Apophysis phalloid, DP= Distal process, HP = Hypophallus (ventral phallomere), DPpt = Distal process, posterior tooth, DPas = Distal process, anterior tooth, LP = Left phallomere (anterior process), ML= Membranous lobe, RP = Right phallomere.

Oligonicella bolliana (SAUSSURE & ZEHNTNER, 1894)

Oligonyx bollianus SAUSSURE & ZEHNTNER, 1894

Examined material: 1 male

MEXICO: N. LEÓN MONTERREY, rd. 40 to S. Catarina, 667 m., 08/X/2004, 1 male, coll. Fontana.

General description

Small size, colour ochre, body very slender. Male winged, Supergenital plate triangular, a bit longer than larger. Coxae longer than the metazona. Femora with 4 discoidal spines, tibia with 1 spine on superior side, 1 apical external, 1 apical internal, 1 median internal, three small teeth near the base.

Male Genitalia (Fig. 3).

Ventral phallomere longer than wide; distal edge of the ventral phallomere is very rounded and well sclerotized; membranous lobe is not well developed.

The dorsal plate of the left phallomere is long and well sclerotized; the apophysis phalloid is short, strong, well sclerotized and its end is covered with short and very strong small spines; the anterior process is short and more or less membranous, there is a bushy group of short hair at its left side.

Stagmomantis limbata (Hahn, 1835)

Mantis limbata Hahn, 1835: 3, Taf. A, Abb.2.
Auromantis limbata (Hahn, 1835). In Giglio-Tos, 1927: 385-386

Examined material: 11 males, 7 females

MEXICO: TAMAULIPAS rd. 101, Ct. Victoria NNE. 9 km road to Matamoros, 224 m. 04/X/2004, 2 females, coll. Fontana; NAYARIT, 14 km E. Ixtlán del Río,1287 m., 13/X/2004, 1 female, coll. Fontana; NAYARIT, Ixtlán del Río,1061 m., 13/X/2004, 2 males, coll. Fontana; JALISCO, Guadalajara S., 1 km NW Jocotepec, rd. 15, 1585 m. 14/X/2004, 2 females coll. Fontana, HIDALGO Ixmiquilpan Panales, Motel El Paraíso 1748 m., 22/IX/2004, 7 males, coll. Fontana, 1 male coll. Agabiti;

HIDALGO Ixmiquilpan Panales, cross Querétaro –Zimapan 1760 m., 23/IX/2004, 1 female, coll. Fontana; QUERÉTARO Querétaro SE between La Cañada and El Milagro, 1907 m., 24/IX/2004, 1 female, coll. Fontana; S. L. POTOSÍ betw. S.Martín de Abajo and S. Nicolás Tolentino, 1487 m., 27/IX/2004, 1 male, coll. Fontana.

General description

Big size, female colour green, males brown sometimes with green legs. Male winged, with a dark spot on the stigma and the costal margin of the tegmina green female winged with yellow spots all over the wing.

Male Genitalia (Fig. 4).

Ventral phallomere with a rhomboidal shape, longer than wide; the distal process is strong and well, its apex is sclerotized swollen and with a long spine at the end; the tip of the spine is turned to the ventral face; the membranous lobe is well developed and covered with small spines.

Dorsal plate of the left phallomere is wide, long and well sclerotized; the apophysis phalloid is long with a «c »shape at the end, it is covered with small and strong spines; the anterior process is more or less membranous and its tip is turned to the ventral face.

Yersinia mexicana Saussure, 1859

Acanthops mexicanus SAUSSURE, 1859:60

Examined material: 20 males, 9 females

MEXICO: NUEVO LEÓN, rd. Santiago to Los Lirios, Cola del Caballo W., 1 male, coll. Agabiti; HIDALGO, Rd. to Querétaro, km 24, 6 Km E Huichapan, 2265 m., 23/IX/2004, 1 male, coll. Fontana;, HIDALGO, Ixmiquilpan Panales, cross Querétaro - Zimapán, 23/IX/2004, 1 female, coll. Agabiti; QUERÉTARO, Querétaro SE between La Cañada and El Milagro, 1907 m., 24/IX/2004, 2 males 1 female, coll. Fontana, 1 male 1 female, coll. Agabiti; QUERÉTARO, Querétaro S, Villa Corregidora, 6 km NW. El Milagro, 1911 m., 24/IX/2004, 3 males 1 female, coll. Fontana, 1 male 1 female, coll. Agabiti; QUERÉTARO N. El Milagro, 2014 m., 24 /IX/ 2004, 2 males, coll. Fontana; Querétaro, Querétaro SE, P. Nal. El Cimatario, 2183 m., 24/IX/2004, 3 males, coll. Fontana, 1 female, coll. Agabiti; QUERÉTARO N of Huimilpan, S of Querétaro, 2150 m., 25/IX/2004, 1 male. coll. Fontana,; NAYARIT, 14 km E. Ixtlán del Río,

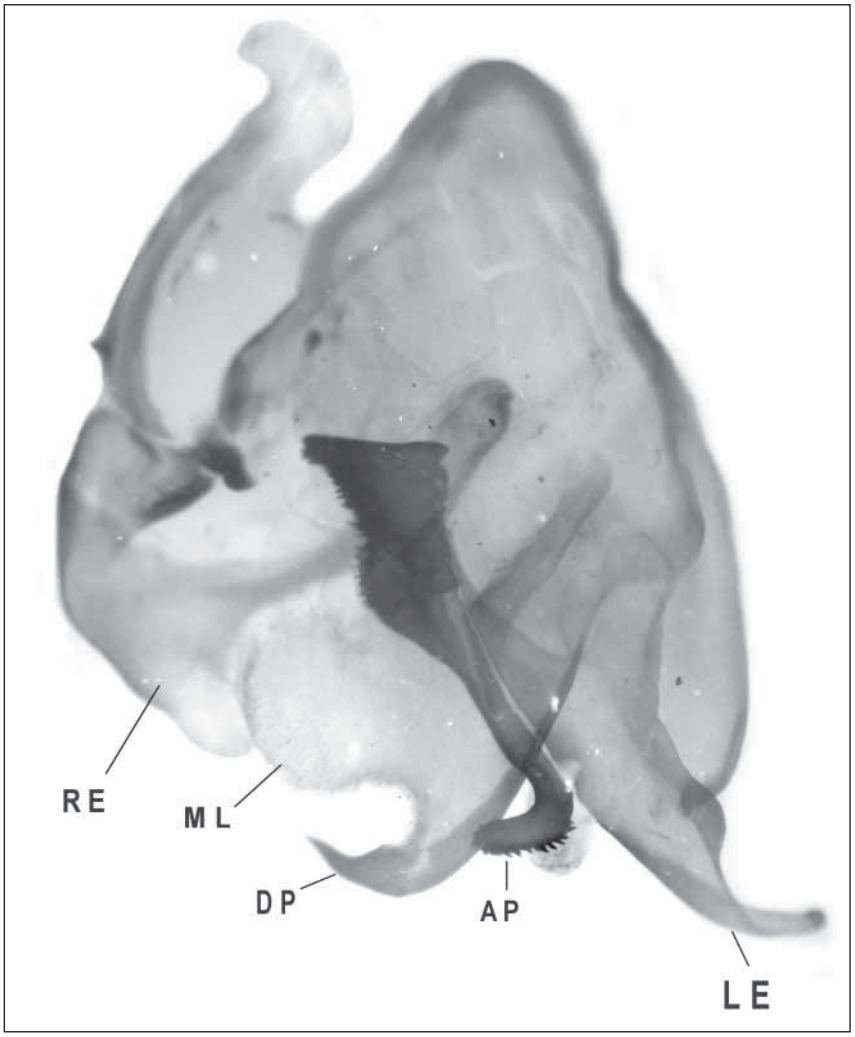


Fig. 4. *Stagmomantis limbata*: male genitalia. AP= Apophysis phalloid, DP= Distal process, HP = Hypophallus (ventral phallomere), DPpt = Distal process, posterior tooth, DPas = Distal process, anterior tooth, LP = Left phallomere (anterior process), ML= Membranous lobe, RP = Right phallomere.

1287 m., 13/X/2004, 1 male 1 female, coll. Fontana; PUEBLA, 11 km SE Izúcar de Matamoros, rd. 190, 1330 m., 16/X/2004, 1 female, coll. Fontana; PUEBLA, 20 km NW. 10 km SE Acatlán rd. 190, 1350 m. 16/X/2004, 1 male, coll. Fontana; PUEBLA 2Km SE Tepanco, rd. 150, 1787 m. 17/X/2004, 1 male, coll. Fontana. 06/X/2004.

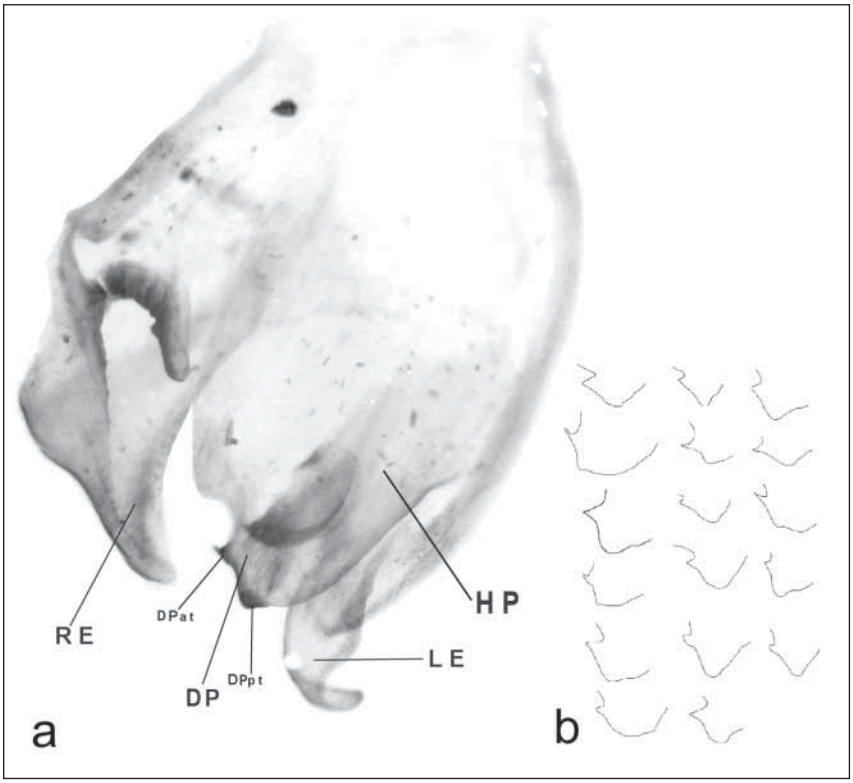
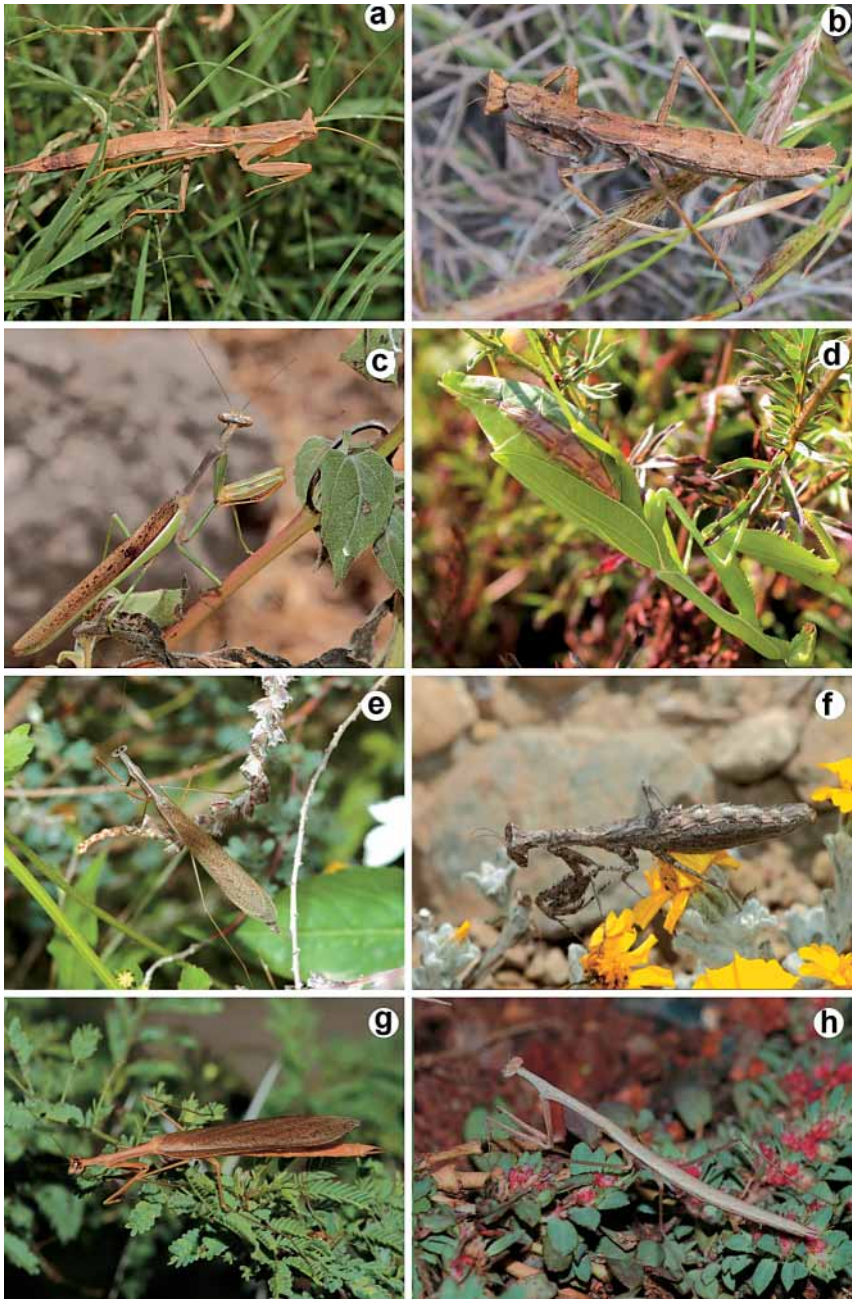


Fig. 5 (a-b). *Yersinia mexicana*: a) male genitalia, NAYARIT, 14 km E. Ixtlán del Río,1287 m., 13/X/2004 [AP= Apophysis phalloid, DP= Distal process, HP = Hypophallus (ventral phallomere), DPpt = Distal process, posterior tooth, DPas = Distal process, anterior tooth, LP = Left phallomere (anterior process), ML= Membranous lobe, RP = Right phallomere]; b) variability of ventral phallomere in males from different Mexican localities.

Fig. 6 (a-h). a)*Yersinia mexicana,* male*,* NAYARIT, 14 km E. Ixtlán del Río, 1287 m., 13/X/2004, photo by P. Fontana & R. Battiston. b)*Yersinia mexicana,* female, QUERÉTARO, Querétaro S, Villa Corregidora, 6 km NW. El Milagro, 1911 m., 24/IX/2004, photo by P. Fontana & R. Battiston. c) *Stagmomantis limbata,* male*,* HIDALGO Ixmiquilpan Panales, Motel El Paraíso 1748 m., 22/IX/2004, photo by P. Fontana & R. Battiston. d) *Stagmomantis limbata,* female*,* TAMAULIPAS, rd. 101, Ct. Victoria NNE. 9 km road to Matamoros, 224 m. 04/X/2004, photo by P. Fontana & R. Battiston. e) *Oligonicella bolliana,* male, SAN LUIS POTOSÍ, Escalerías, 12 km E Pozuelos, rd. S.L. Potosí to Guadalajara, 26/IX/2004, photo by P. Fontana & R. Battiston. f) *Litaneutria minor,* female, S.L. POTOSÍ, rd. 57 S.L. Potosí - Saltillo N of cross Guadalcázar, 1450 m, photo by P. Fontana & R. Battiston. g) *Bactromantis tolteca* male*,* S. L. POTOSÍ betw. S. Martín de Abajo and S. Nicolás Tolentino, 1487m, photo by P. Fontana & R. Battiston. h) *Bactromantis tolteca*, female, PUEBLA, 20 km NW. 10 km SE Acatlán rd. 190, 16/IX/2004. Photo by P. Fontana & R. Battiston.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General description.

Small-medium size, colour ochre to dark grey. Male and female brachypterous, with a dark spot on the discoidal part of the wing. Eyes with a tubercle. First segment of the tarsus shorter or as long as the following taken together.

Male Genitalia (Fig. 5).

Hypophallus (ventral phallomere) with a rhomboidal shape, definitely longer than wide; the distal process is short and forked with the anterior tooth more developed than the posterior one, the two teeth are separated by a cut not very deep; the membranous lobe is not well developed and scarcely covered with short spines.

The dorsal plate of the left phallomere is long and well -sclerotized; the apophysis phalloid is short, strong and well sclerificated; the left phallomere (anterior process) is more or less membranous, it is turned to the height and with a «c» shape.

There is an interesting variability in the collected specimens of *Yersinia mexicana*. First of all is the variation in the size of the body: females from 27,5 mm to 45,0 mm and males from 25,5 mm to 40,5 mm. A second difference is in the coloration: we collected six adult females, and 17 adult males, in most of them the main colour is from ochre-brown to reddish-brown, but two females and three males are noticeably darker. Seven specimens present a dark spot in the inner side of the front femora, where the tibial claw fits. The coloration of the wing changes in some specimens: some have a dark spot in the anal area, in others the spot covers both the anal and discoidal area. Despite their relative size discussed above, all other external characters are nearly identical. We tried to find a correlation for all those characters and the internal shape of the male genitalia (Fig. 5). In male genitalia it seems to be another kind of variability: the shapes of ventral phallomere show different development in the apex, rounded in some specimens, prominent in others with a lobe-like shape, and in the anterior tooth, triangular in some, and very acute in others.

We could not find any correlation between the differences in the genitalia and the differences in the external characters. We plotted the collecting records on a map, showing the position of the two major groups of genitalia shapes: triangular spine and acute spine. The result is a not so marked division from a northern population and a southern population. It is possible that this morphological difference is due to a perspective deformation in the 2D image of the tridimensional organ.

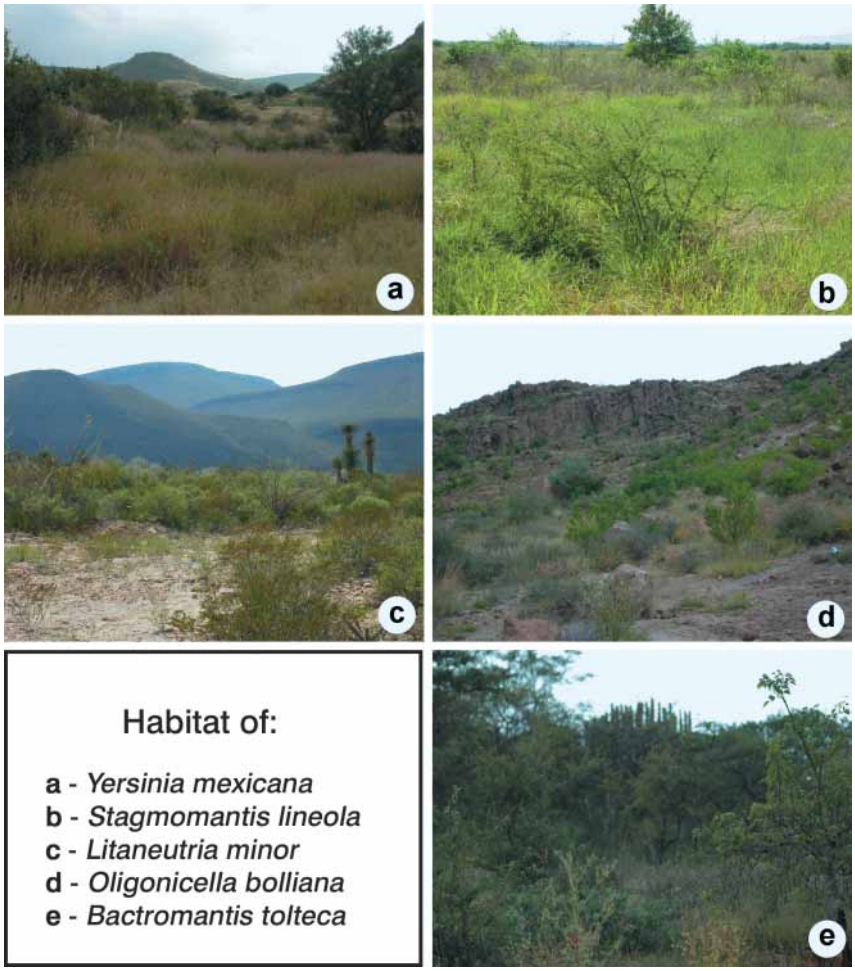

Fig.7(a-e). a) QUERÉTARO, Querétaro S, Villa Corregidora, 6 km NW. El Milagro, 1911 m., 24/IX/2004, photo by P.Fontana & R.Battiston, habitat of *Yersinia mexicana*; b) TAMAULIPAS, rd. 101, Ct. Victoria NNE. 9 km road to Matamoros, 224 m. 04/X/2004, photo by P. Fontana & R. Battiston, habitat of *Stagmomantis limbata*; c) S.L. POTOSÍ, rd. 57 S.L.Potosí - Saltillo N of cross Guadalcázar, 1450 m, photo by P. Fontana & R. Battiston, habitat of *Litaneutria minor*a; d) SAN LUIS POTOSÍ, Escalerías, 12 km E Pozuelos, rd. S.L. Potosí to Guadalajara, 26/IX/2004, photo by P.Fontana & R.Battiston, habitat of *Oligonicella bolliana*; e) PUEBLA, 20 km NW. 10 km SE Acatlán rd. 190, 16/IX/2004, photo by P. Fontana & R. Battiston, habitat of *Bactromantis tolteca*.

The appearance of the male genitalia of *Yersinia mexicana* is stronger than the one of the other similar genus of mantids (i.e. *Ameles*, *Pesudoyersinia*), and often hard to flatten on a microscopic slide, and this could have produced such an optical deformation in the final images.

During our trip we visited different kinds of lands, with different terrains and vegetation. However most of the trip took place across arid or semi-desertic lands, like xerophytic scrub composed by different species of Graminacea, Compositae, Leguminosae (Fig. 7). Some of the mantids were collected in bushes (*Stagmomantis limbata*), some on the sand-rocky ground (*Litaneutria minor*), and others on grass (*Yersinia mexicana*, *Oligonicella bolliana*, *Bactromantis tolteca*). We collected five species of mantids from the 60 known (Fig. 6). Here we suggest a preliminary checklist of Mexican Mantodea with records coming from EHRMANN, 2002; HEBARD, 1932; ORTEGA & MÁRQUEZ, 1988; the National Insect Collection, UNAM, Mexico City; and personal data.

PRELIMINARY CHECKLIST OF MEXICAN MANTODEA

Species	Author, year	Locus Typicus
Acanthops bidens	Hebard,1922	Mexico: Venvidio-Sinaloa
Acanthops falcata	Stal, 1877	Colombia
Acontiothespis championi	(Kirby, 1904)	Guatemala
Acontiothespis cordillerae	(Saussure, 1869)	French Guyana
Acontiothespis inquinata	(Saussure & Zehtner, 1894)	Mexico:Vera Cruz Cordova, Guerrero Acapulco
Acontiothespis mexicana	(Saussure & Zehtner, 1894)	Mexico: Cordova, Atoyac
Acontiothespis vitrea	(Saussure & Zehtner, 1894)	Mexico: Vera Cruz, Atoyac
Angela miranda	Saussure, 1871	Mexico
Bactromantis mexicana	(Saussure & Zehtner, 1894)	Mexico: Presidio
Bactromantis tolteca	(Saussure & Zehtner, 1894)	Mexico: Chilpacingo in Guerriero 1500m
Bactromantis virga	Scudder, 1869	Mexico
Choeradodis rhombicollis	(Latreille, 1833)	Colombia
Choeradodis stalii	Wood-Mason, 1880	Ecuador
Litaneutria minor	(Scudder, 1872)	N America: Nebrasca-City
Litaneutria obscura	Scudder, 1896	N America: South California
Litaneutria ocularis	Saussure, 1892	Mexico
Litaneutria skinneri	Rehn, 1907	N America: Arizona: Carr Canyon, Mt. Huachuca
Liturgusa maya	(Saussure & Zehtner, 1894)	Mexico: Teapa in Tabasco, Temax in Yucantan
Lobovates chopardi	Deelemann-Reinhold, 1957	El (San) Salvador
Mantoida maya	Saussure & Zehtner, 1894	Mexico: Temax in Yucantan
Melliera chorotega	Rehn, 1935	Costa Rica-W: Oricajo Río Jesua Maria, 225m
Melliera major	(Saussure, 1872)	Brasil
Oligonicella bolliana	(Saussure & Zehtner, 1894)	Mexico-N, North America: Dallas, Texas
Oligonicella punctulata	(Saussure & Zehtner, 1894)	Mexico: Dos Arroyos in Guerrero, 300m
Oligonicella scudderi	(Saussure, 1870)	N America
Oligonicella tessellata	(Saussure & Zehtner, 1894)	Mexico: Omilteme in Guerrero, 2700m

Oligonyx bicornis	Saussure, 1869	Mexico
Oligonyx maya	(Saussure & Zehtner, 1894)	Mexico: Yucatan, Temax
Phasmomantis sumichrasti	(Saussure, 1861)	Mexico: Cordova
Phyllovates chlorophaea	(Blanchard, 1836)	America?
Phyllovates cingulata	(Drury, 1773)	unknown
Phyllovates maya	(Saussure & Zehtner, 1894)	Mexico: Tabasco, Yucatan, Temax
Phyllovates parallela	(De Haan, 1842)	Brasil
Pseudacanthops caelebs	(Saussure, 1869)	Mexico: Orizaba
Pseudacanthops spinulosa	(Saussure, 1870)	Frech Guyana: Cayenne
Pseudomiopteryx infuscata	Saussure & Zehtner, 1894	Guatemala, Mexico, Panama, Nicaragua
Pseudovates longicollis	Stal, 1877	Mexico
Pseudovates paraensis	(Saussure, 1871)	Brasil: Para
Pseudovates tolteca	(Saussure, 1859)	Mexico
Pseudovates townsendi	(Rehn, 1901)	Mexico: Cuernavaca Morelos
Stagmatoptera biocellata	Saussure, 1869	Brasil
Stagmomantis californica	Rehn&Hebard, 1909	N America: California, San Bernardini
Stagmomantis carolina	(Johansson, 1763)	N America: Carolina
Stagmomantis centralis	(Giglio-Tos, 1917)	Costa Rica, San Mateo 400m
Stagmomantis colorata	Hebard, 1922	Mexico: Villa Union, Sinaloa, Venvidio
Stagmomantis fraterna	Saussure & Zehtner, 1894	Mexico: Teapa in Tabasco, Belize, Guatemala
Stagmomantis hebardi	Rehn, 1935	Mexico: Sinaloa, Ven Video, los Mochis 25m
Stagmomantis limbata	(Hahn, 1835)	N America: Arizona, Mexico
Stagmomantis m.montana	Saussure & Zehtner, 1894	Mexico: Acapulco, Tepetlapa, Chilpacingo in Guerriero, Guatemala: Vulcan Atitlan 1000m
Stagmomantis m. sinaloae	Rehn, 1935	Mexico: Sinaloa, Ven Vidieo
Stagmomantis nahua	Saussure, 1869	Mexico
Stagmomantis theophila	Rehn, 1904	Costa Rica: Turrialba
Stagmomantis venusta	Saussure & Zehtner, 1894	Guatemala,
Stagmomantis vicina	Saussure, 1870	Belize, El Salvador, Costa Rica, Guatemala, Honduras, N America
Vates pectinata	Piza, 1983	Mexico
Vates festae	Giglio-Tos, 1914	Equador: Gualaquiza
Vates pectinicornis	(Stal, 1877)	Panama
Vates peruviana	Rehn, 1911	Peru: Despoblado
Yersinia mexicana	(Saussure, 1859)	Mexico
Yersiniops newboldi	Hebard, 1931	N America: South California

CONCLUSIONS

Our journey has resulted in some interesting data on Mexican Mantodea. We have crossed most of the States and have visited a wide range of the different habitats that characterize Mexican lands, but out of the total of 60 Mexican species of mantids known, we have collected only six species, and sometimes in large numbers. Although our expedition was not concentrated on Mantodea, we actively collected these insects but only during the day and in places probably more suitable for Orthoptera than for Mantodea. The scarce number of taxa and specimens collected could suggest that Mantodea are uncommon insects (at least

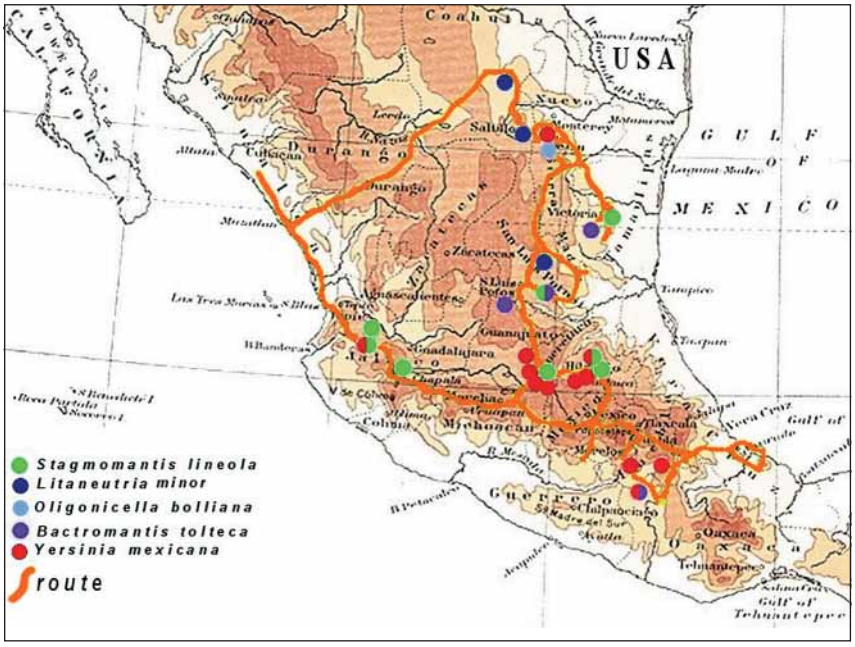

Fig. 8. Distribution map of the species collected during the 2004 trip.

during daytime) in the visited localities of central-northern Mexico during September and October. Our data suggests that as the seasonal occurrance of these insects and their ecological requirements in arid or semiarid areas of Mexico are practically unknown. In any case, after the preliminary checklist presented here from some of our field observations,, we can hypotize that the highest diversity of species is present in the tropical part of Mexico, in the southern and eastern states. It is also interesting to notice how the central part of Mexico is a land of migration, where it is possible to find genera well represented in North America, like the *Stagmantis* or the *Litaneutria*, and others typical of South America, like *Oligonyx*, *Vates* and *Angela*.

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Indirizzo degli autori:
Roberto Battiston, Via Meschinelli, 63 - I-36100 Vicenza, Italia.
e-mail: robobat@infinito.it

Paolo Fontana, Dipartimento Agronomia Ambientale e Produzioni Vegetali, (Entomologia), AGRIPOLIS, Viale dell'Università, 16 - I-35020 Legnaro (PD), Italia.
e-mail: paolo.fontana@unipd.it

Patricia Lucero García-García, Bosque de Bélgica no. 53,Col. Bosques de Aragón Nezahualcóyotl Edo. de México - 57170, México.
e-mail: ladypatablue@hotmail.com

Barbara Agabiti, Ist. Agrario S. Michele a/A, via E. Mach, 2 - I-38010 Trento, Italia.