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A new species of *Neotraginops* Prado (Diptera: Odiniidae) from Mexico and Belize, with additional records for *Odinia coronata* Sabrosky in Mesoamerica

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Abstract

Neotraginops mexicanus n. sp. is described and illustrated based on specimens from Mexico and Belize, representing the second known species for the genus. Additional records for *Odinia coronata* Sabrosky from Mexico and Nicaragua are provided.

Keywords: Schizophora, Opomyzoidea, Neotropical Region

Introduction

The family Odiniidae comprises near 60 described extant species classified into 14 genera of two subfamilies (Odiniinae and Traginopinae), which are distributed in almost all biogeographical regions (Gaimari & Mathis 2011). In the Neotropical Region the presence of 26 species have been recorded, including three genera and five species recently described from Brazil and Costa Rica (Gaimari 2007; Carvalho-Filho *et al.* 2009). This family is represented in Mexico by only two species, *Odinia coronata* Sabrosky, with records from the states of Morelos and Chiapas, and *Schildomyia reticulata* Prado from the state of Veracruz (Gaimari & Mathis 2011).

The genus *Traginops* Coquillett was described for the Nearctic species *T. irroratus* (Coquillett 1900). The genus was later rediagnosed by Hendel (1909) to incorporate a second species, *T. clathratus* Hendel, from Peru and Paraguay. Based on morphological features of the male genitalia observed in *T. orientalis* Meijere (Hennig 1938), and the Nearctic *T. irroratus* and *T. purpurops* Steyskal (Steyskal 1963), the new genus *Neotraginops* was described by Prado (1973) to separate out the single Neotropical species *N. clathratus*. Having been described from Peru (Vilcanota) and Paraguay, additional distributional data were recorded for Brazil (Mato Grosso, Goiás, Minas Gerais, Espírito Santo, Rio de Janeiro, Guanabara, São Paulo, Santa Catarina), and Colombia (Prado 1973; 1975). Gaimari (2010) referred to the presence of three undescribed species from Costa Rica, Belize and Panama; the one from Belize is part of the paratype series for the new species described herein.

In this work a second species of the genus *Neotraginops* is described, on the basis of specimens collected in the states of Guerrero and Veracruz (Mexico), and a male from Belize. Also new data of the distribution of *Odinia coronata* for Mexico and Nicaragua are provided.

Material and methods

The material examined from various collections in the states of Veracruz and Guerrero (Mexico) were mainly obtained through the use of McPhail traps baited with hydrolyzed protein as attractant, but also recovered from Malaise traps and rotten-fruit traps. Specimens were preserved in 75% alcohol, and later dry mounted on insect pins. The analysis of the genitalia of both sexes was performed by removing and placing the abdomens in a 10% NaOH solution and heating for several minutes; thereafter, the structures were rinsed in distilled water and

preserved in microvials with glycerin, mounted on the pin below the corresponding specimen. The wings were mounted on permanent slides in Canada Balsam. Digital micrographs were made using an Olympus C5050 camera adapted to Olympus BX41 and SZX7 microscopes.

The taxonomic nomenclature used in the study follows the work of Gaimari (2007, 2010). Studied specimens were deposited in the entomological collections of the Instituto de Ecología AC—IEXA (Xalapa, Mexico), the National Collection of Insects of the Instituto de Biología UNAM—CNIN (Mexico DF), and one paratype of the new species belongs to the National Museum of Natural History, Smithsonian Institution—USNM (Washington DC, USA).

Neotraginops Prado, 1973

Diagnosis. Head with a large rounded tubercle on the ocellar area (similar to *Traginops* and *Paratraginops* Hendel), covered by dark setulae extending to the inner vertical setae; antenna short with third antennal segment rounded apically, arista pubescent; gena broad; oral vibrissa and subvibrissal setae present; ocellar setae long; 3 pairs of fronto-orbital setae present, the anteriormost seta inclinate and posterior setae reclinate; 1 inner and 1 outer vertical setae. Chaetotaxy of the thorax as follows: 1 postpronotal, usually flanked by two short setae; 2 notopleurals, 1 supra-alar presutural, 2 supra-alar postsuturals (anterior pair weak), 2 postalar, 1 intrapostalar, 4 dorsocentrals (anterior pair presutural and remaining three postsutural), 1 acrostichal, 2 propleurals, 3 katepisternals, 2 scutellars with scutellum setulose on disc. Wing with subcostal vein nearly complete, evanescent distally separated from R_1 ; crossvein r-m located at apical third of discal cell; veins R_{4+5} and M_1 almost straight, subparallel; anal vein long, almost reaching the posterior margin of wing; crossvein dm-cu straight; legs with femora strong; one short preapical dorsal seta present on all tibiae, and an apical ventral seta on mid tibia twice as long as the preapical dorsal seta.

Remarks. The ocellar tubercle being well developed is a feature shared with *Paratraginops* and *Traginops*. The genus *Neotraginops* differs from the related genus *Paratraginops* in that the latter having a plumose arista, and vein M_1 being strongly curved anteriorly towards the apex. In contrast, the pubescent arista and the straight vein M_1 are characters shared with *Traginops*, from which *Neotraginops* can be differentiated by the presence of two propleural setae, besides its distribution being restricted to the Neotropical Region.

Neotraginops mexicanus Hernández-Ortiz & Dzul-Cauich, new species

(Figs. 1–11)

Etymology. The epithet refers to the presence of this species in Mexico.

Material examined. Holotype. Male (IEXA) **MEXICO. Veracruz.** Coatepec, La Orduña, “finca Monges” 1200 m, 19/V/2004, “carpo-trampa”, S Ibañez & F Pech.

Paratypes. BELIZE. Stann Creek District: Cockscomb Basin Wildlife Sanctuary, 16°47'N 88°30'W, 5–6/IV/1993, W Mathis (1 ♂ USNM). **MEXICO. Veracruz:** Coatepec, La Orduña “finca Monges” 1200 m, 19/V/2004, “carpo-trampa”, S Ibañez & F Pech (5 ♂, 1 ♀ IEXA); same data of locality as follows: 28/IV/2004, tr McPhail, V Hernández, C Deloya, F Pech (3 ♀ IEXA); 19/V/2004, tr McPhail, S Ibañez & F Pech (2 ♀ IEXA); 17/VI/2004, tr McPhail, V Hernández, C Deloya & F Pech (2 ♀ CNIN); 08/VII/2004, tr Malaise, S Ibañez & F Pech (1 ♂ IEXA); 14/VII/2004, tr McPhail, S Ibañez & F Pech (8 ♀ CNIN); 19/VIII/2004, tr McPhail, V Hernández, C Deloya, J Dzúl & F Pech (2 ♀ IEXA); 09/IX/2004, tr McPhail, S Ibañez, F Pech & J Dzúl (2 ♀ IEXA). **Guerrero:** Chilpancingo de los Bravo, Acahuizotla, 1250 m, 15/IX/1987, A Ibarra (1 ♀ IEXA); Ayutla de los Libres, Ayutla, 380 m, 26/VII/2008, tr McPhail, S Platero (1 ♀ IEXA).

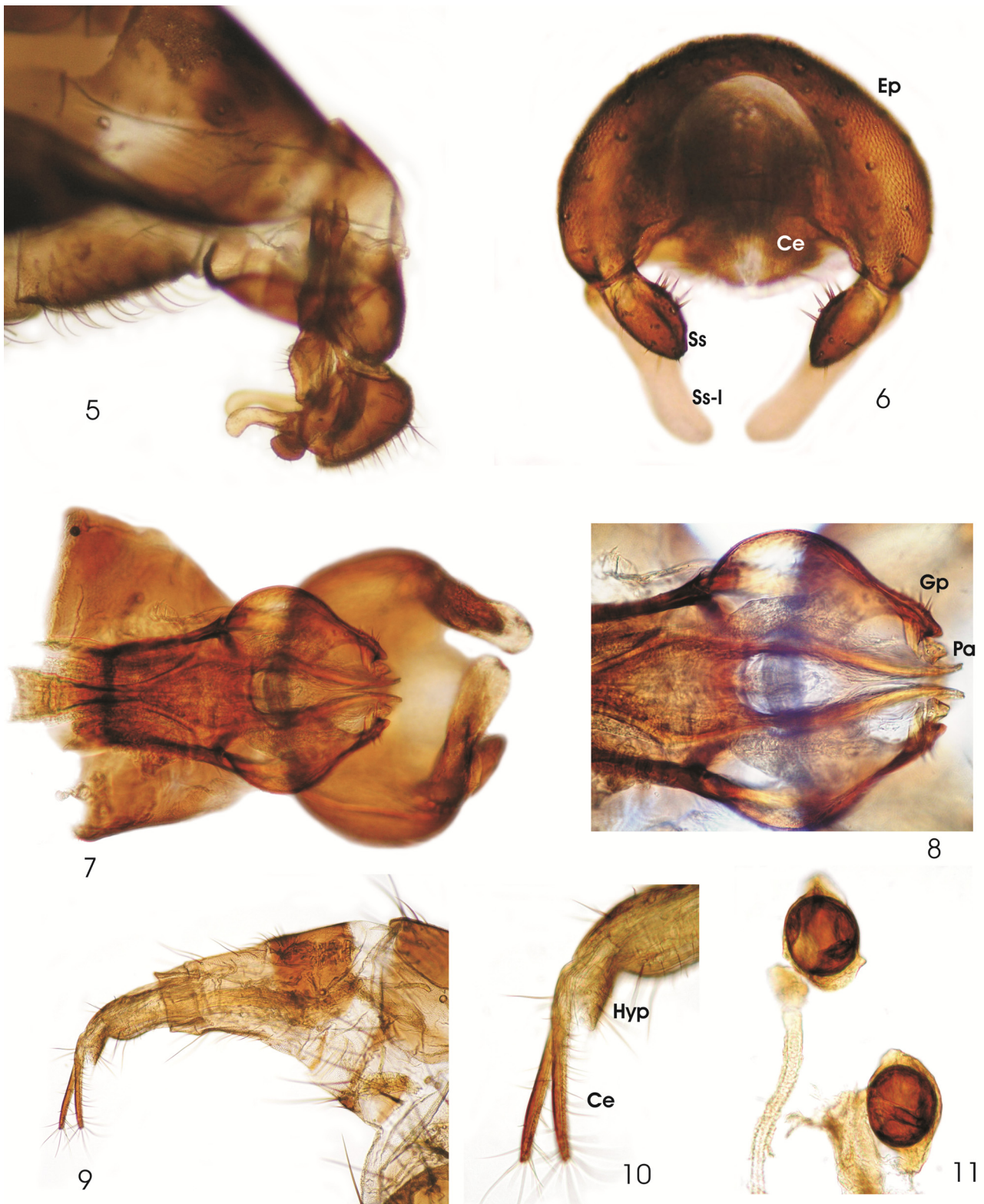
Diagnosis. Ocellar tubercle well developed, black colored; front reddish with a triangle of yellow pollinosity at the top; postocellar setae developed and divergent, lower edge of the eye (at the genal area) with two dark brown spots interconnected, and a few small spots on insertions of setulae; wing pattern reticulated dark brown, with hyaline spots forming X-shaped markings on cells r_1 and r_{2+3} ; cell m_1 with four large marginal spots. Male with epandrium reddish brown, heavily sclerotized, covered with short setulae and rough surface forming a reticle; surstylar lobes elongate with apical extreme curved downward; cerci nearly as long as height of the epandrium in posterior view, and subquadrate at apical margin; surstylus short and robust.

Description (male and female). Body length 3.4 – 4.3 mm.

Head (Fig. 1): width 0.6 – 0.8 mm, 1.0 – 1.2 mm height in lateral view; ocellar triangle situated on a black prominent rounded tubercle covered by black thick setulae on surface; antenna short, mostly pale yellow except dorsal margin of flagellum darkened; arista yellow, short setulose (not plumose); face mostly pale yellow covered by white pollinosity with two brown dark spots near vibrissa; oral margin darkened medially and laterally; palpus dark reddish, distally yellow, with black scattered setulae. Frons yellow with triangular mark of whitish pollinosity just anterior to anterior ocellus, extending to lateral margins of ocellar tubercle and along the posterior margin of eye; occiput with median brown spot to level of postocellars, connected to basal spots surrounding inner vertical setae; in addition, brown dark spots surrounding bases of fronto-orbital and inner vertical setae; two large brown spots below margin of eye weakly connected at middle of gena, with additional small dark spots. Ocellar setae large; postocellars divergent, approximately one half length of ocellars; inner vertical setae convergent, outer vertical setae divergent; anterior pair of fronto-orbital setae inclinate, 2 posterior fronto-orbital setae reclinate, with posteriormost seta located at level of posterior ocellus; oral vibrissa well developed and usually with 2–3 subvibrissal setae; mid gena with 2 upturned black setae.



FIGURES 1–4. *Neotraginops mexicanus* n. sp.: 1) head, lateral view; 2) head and thorax, dorsal view; 3) wing pattern of male; 4) wing pattern of female.



FIGURES 5–11. *Neotraginops mexicanus* n. sp.: 5) male postabdomen, lateral view; 6) epandrium and surstyli, posterior view; 7) male genital capsule showing the gonopods and parameres, ventral view; 8) detail of male genital capsule; 9) female terminalia, lateral view; 10) female cerci; 11) spermathecae. Abbreviations: Ce= cerci; Ep= epandrium; Gp= gonopod; Hyp= hypoproct; Pa= paramere; Ss= surstylus; Ss-l= surstylar lobe.

Thorax (Fig. 2): Mesonotum length 1.6–2.1 mm. Macrosetae black as follows: 3 postpronotals, with middle seta longer than others; anepisternum and anepimeron bare; 2 propleurals, 2 notopleurals, 3 katepisternals arranged in a row surrounded by some small setulae; 1 presutural supra-alar, 2 postsutural supra-alar (anterior one 1/3 shorter than posterior), 1 postalar, 2 intra-alar, 4 dorsocentrals of similar length (1 presutural), 1 prescutellar acrostichal, and 2 scutellars. Scutum brown, covered by whitish pollinosity forming a brown pattern of a longitudinal central strip, frequently connected with four other circular spots surrounding the bases of dorsocentrals; with scattered black setulae. Scutellum yellow matt with few setulae on disk, more abundant on side margins between basal and apical scutellar setae, with two diffuse dark spots covering nearly two thirds of disc, basally connected and distally separated; halter yellow. Pleuron dark brown, covered by whitish pollinosity and showing an irregular pattern of patches.

Legs mostly yellow, with dark brown rings; fore femur mostly dark but with apical extreme yellow, dorsal margin with a row of 4–5 black setae, ventral margin with a row of 3–4 setae; mid and hind femora with dark basal and subapical rings; all tibiae with dark subbasal and subapical rings, and with preapical dorsal seta, but mid tibia also with strong medial spur; tarsi yellow, with basitarsus slightly darker.

Wings (Figs. 3–4) Length 3.4 – 4.1 mm and 1.3 – 1.8 mm width; reticulated dark brown pattern with hyaline spots as follows: Four dark rounded spots occupying the entire width of cell r_1 , in addition of two small spots interspersed forming a pattern of four X-shaped hyaline marks; cell r_{2+3} with similar pattern forming three X-shaped hyaline marks; cell r_{4+5} with small dark spots and a large spot in the middle covering the entire width of cell; discal cell with approximately 3–4 dark spots from its base to level of crossvein r-m, and additional large brown spot on distal margin along crossvein dm-cu. Cells bm and bcu weakly darkened; cell m with 7–8 uneven dark spots, larger along posterior margin of wing; cell cua_1 with 7–8 rounded dark spots; crossvein r-m broadly darkened and located about 2/3 of length of the discal cell; veins R_{2+3} , R_{4+5} and M_1 parallel each to other.

Abdomen: Tergites uniformly brownish yellow, somewhat shiny, covered by dark setulae slightly longer at posterior margin of each one; tergites 2–3 with white spots on lateral margins, extending toward medial portion on tergites 4–6.

Male terminalia (Figs. 5–8). Epandrium sclerotized reddish brown, more or less circular in posterior view, surface reticulated giving a rough appearance with scattered setulae; surstyli short, stout, similarly colored as epandrium, and coated with yellow setulae; cerci nearly as long as height of epandrium in posterior view, apically subquadrate; surstyler lobes yellow, about twice as long as surstyli, apically curved downward; gonopods basally broad and distally narrow to hook-shaped tip.

Female terminalia (Figs. 9–11). Cerci yellow, weakly sclerotized, about twice as long as hypoproct; two spherical spermathecae present, strongly sclerotized and covered by translucent yellow membrane.

Distribution. Belize, Mexico (Veracruz and Guerrero).

Remarks. *Neotraginops mexicanus* n. sp. is easily distinguished by the presence of two dark brown large spots on the lower margin of the eye (at genal area), the wing pattern with hyaline X-shaped markings on cells r_1 and r_{2+3} , the male postabdomen presenting robust and thickened surstyli, with the apices of the surstyler lobes curved downward in lateral view. In *N. clathratus*, the lower margin of the eye has a single brown large spot, the wing pattern shows a series of irregular brown spots on cells r_1 and r_{2+3} (without distinct hyaline X-shaped markings), the male surstyli are short and laminar, and the surstyler lobes are slightly directed upwards in lateral view (Figs. 12–16).

***Odinia coronata* Sabrosky**

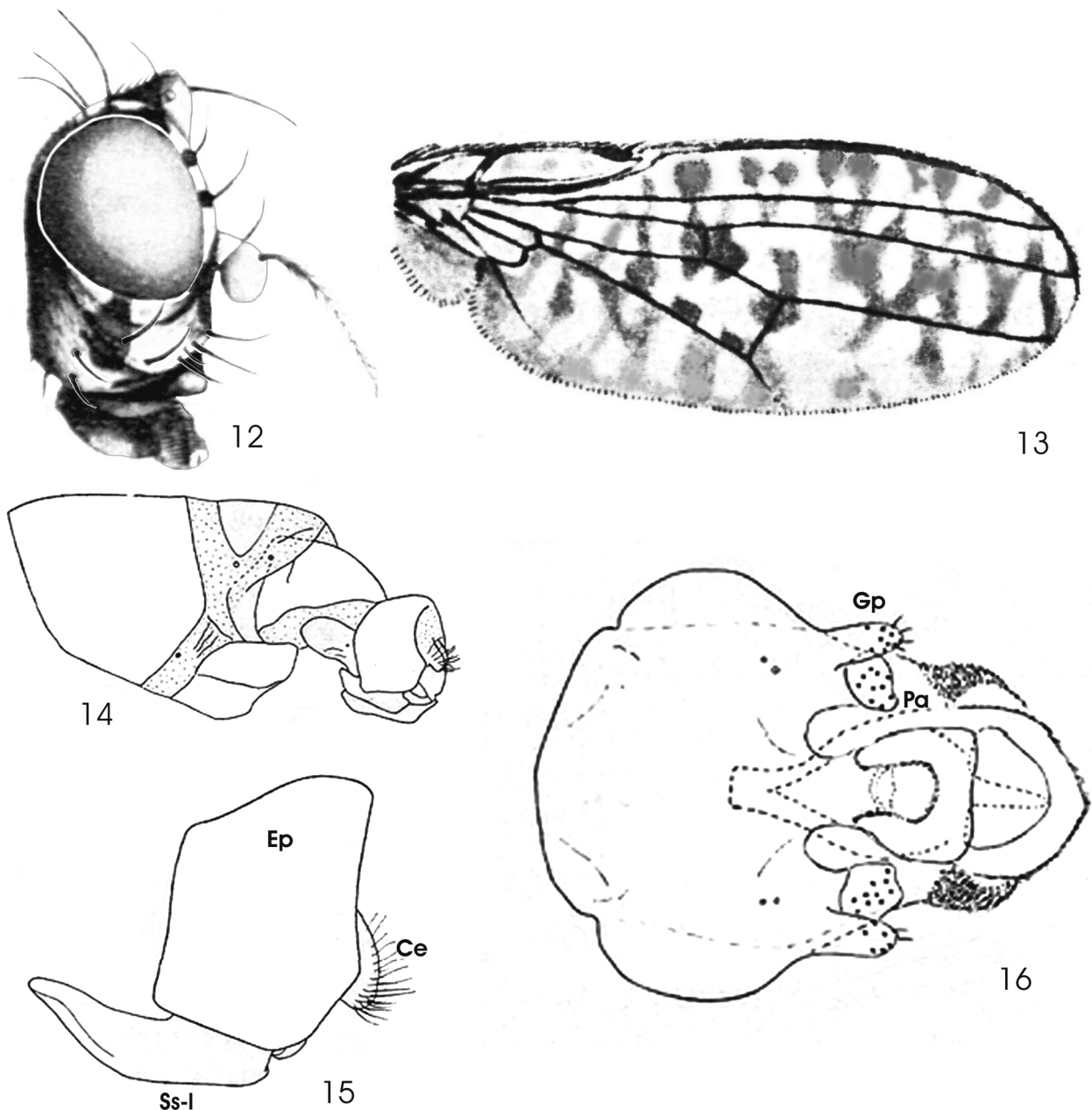
Type specimens (not examined). Holotype ♂ (USNM 64275) and Allotype: **EL SALVADOR:** La Unión, Jan 25-1957, P.A. Berry (no. 807).

Paratypes (all in USNM): Same data as Holotype (2 ♀). **PANAMA:** La Campana, Jan-March 1938, James Zetek (1 ♂); Panama, Palm beach, sept 17-1952, light trap, F.S. Blanton (1 ♂). **USA:** Texas, Harlingen, Aug 8-1931, R.L. Clayton (1 ♀); Texas, Allen, Aug 14-1931, F.O. Swan (1 ♀) (Sabrosky 1959).

Known distribution: USA (Arizona, Texas); Mexico (Morelos, Chiapas); Belize, Colombia, Costa Rica, El Salvador, Guatemala, Panamá, Perú, West Indies (St. Vincent) (Gaimari & Mathis 2011).

New records. **MEXICO:** Veracruz, Apazapan, Apazapan 300 m, 21/III/1991, tr McPhail, V Hernández, L

Quiroz (1 ♂); same data: 03/VI/1991, tr McPhail, G Quintero & L Quiroz (1 ♀); 05/VI/1991 (2 ♀); 12/VI/1991 (2 ♀); 19/VI/1991(1 ♂); 24/VI/1991 (1 ♀); 09/X/1991 (1 ♀); 06/V/1992 (1 ♀). **Guerrero**, Ayutla de los Libres, Ayutla, 380 m, 20/V/2008, tr McPhail, S Platero (1 ♀). **NICARAGUA: Meseta de los Pueblos**, Masaya, Catarina, 27/XII/1994, tr McPhail, M Niklaus-Ruíz (1 ♂). All specimens are deposited in IEXA.



FIGURES 12–16. *Neotraginops clathratus* Hendel: 12) head, lateral view; 13) wing pattern; 14) male postabdomen, lateral view; 15) epandrium and surstylar lobes, lateral view; 16) genital capsule of male, ventral view. Figures 12–13 redrawn from the original description by Hendel (1909); figures 14–16 redrawn from the original description of the genus by Prado (1973). Abbreviations: Ce= cerci; Ep= epandrium; Gp= gonopod; Hyp= hypoproct; Pa= paramere; Ss= surstylus; Ss-l= surstylar lobe.

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References

- Carvalho-Filho, F.S., Esposito, M.C. & Oliveira dos Santos, R.C. (2009) A new species of *Helgreelia* Gaimari (Diptera: Odiniidae) from Brazil, with a key to the Neotropical species of Odiniidae. *Zootaxa*, 2219, 61–68.
- Coquillett, D.W. (1900) Two new genera of Diptera. *Entomological News*, 11, 429–430.
- Gaimari, S.D. (2007) Three new Neotropical genera of Odiniidae (Diptera: Acalyptratae). *Zootaxa*, 1443, 1–16.
- Gaimari, S.D. (2010) Odiniidae. In: Brown, B.V., Borkent, A., Cumming, J.M., Wood, D.M., Woodley, N.E. & Zumbado, M.A. (Eds.), *Manual of Central American Diptera. Vol. 2*. NRC Research Press, Ottawa, Ontario, Canada, pp. 1049–1055.
- Gaimari, S.D. & Mathis, W.N. (2011) World catalog and conspectus on the family Odiniidae (Diptera: Schizophora). *Myia*, 12, 291–339.
- Hendel, F. (1909) Über eine Dipterengattung mit türmartigem Scheitel, *Traginops* Coquillett. *Wiener Entomologische Zeitung*, 28 (2), 49–52.
- Hennig, W. (1938) (1939) Odiniidae. *Die fliegen der Palaarktischen region*, 6, 1–11.
- Prado, A.P. (1973) Contribuição ao conhecimento da família Odiniidae (Diptera, Acaliptratae). *Studia Entomologica*, 16, 481–510.
- Prado, A.P. (1975) Chapter 82 Family Odiniidae. In: Papavero N. (Ed.), *A catalogue of the Diptera of the Americas South of the United States*. Museu de Zoologia Universidade de Sao Paulo, Brazil, pp. 1–4.
- Sabrosky, C.W. (1959) Flies of the genus *Odinia* in the Western Hemisphere (Diptera: Odiniidae). *Proceedings of the United States National Museum*, 109, 223–236.
<http://dx.doi.org/10.5479/si.00963801.109-3414.223>
- Steyskal, G.C. (1963) A second North American species of *Traginops* Coquillett (Diptera, Odiniidae). *Proceedings of the Entomological Society of Washington*, 65, 51–54.