Survey of *Chrysocharis* Förster and *Neochrysocharis* Kurdjumov (Hymenoptera, Eulophidae) from Mexico, including eight new species

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Survey of Chrysocharis *Förster and* Neochrysocharis *Kurdjumov (Hymenoptera, Eulophidae) from Mexico, including eight new species.*– The Mexican species of *Chrysocharis* Förster (17 species) and *Neochrysocharis* Kurdjumov (eight species) are discussed. Eight species are described: *C. absentia* (♀), *C. longinerva* (♀), *C. maya* (♀ ♂), *C. parma* (♀ ♂), *C. purpurascens* (♀ ♂), *N. aversiflexa* (♂), *N. convexa* (♀), *N. tumidiscapus* (♂). Five species are recorded as new to Mexico: *C. ainsliei* Crawford, *C. paradoxa* Hansson, *N. epimeralis* Hansson, *N. formosa* (Westwood), *N. hyphantriae* (Yoshimoto). *Chrysocharis* is divided into two subgenera, *Chrysocharis* and *Zaommomyia* Ashmead, by reviving the latter from synonymy with *Chrysocharis*. The names *Phytomyzophaga albipes* Brèthes and *Chrysocharis brethesi* Schauff & Salvo are regarded as new synonyms of *Chrysocharis vonones* (Walker).

Key words: Taxonomy, *Chrysocharis*, *Neochrysocharis,* Mexico, Hymenoptera, Eulophidae.

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Introduction

The Nearctic species of *Chrysocharis* and *Neochrysocharis* have recently been discussed by HANSSON (1995a, 1995b) and the concept of the genera used in these papers is followed here.

Little is known about the fauna of Neotropical eulophids (HANSSON 1996, 1997), specifically that of Mexico. The fauna of this region is particularly interesting since Mexico is a pathway between two major zoogeographical regions: the Nearctics and Neotropics. The biodiversity in Mexico is expected to be high also due to the great habitat variation, complex topography, heterogeneity of soils and climate, geological history and location (MCNEELY et al., 1990).

The aims of this paper are to further our knowledge of Mexican eulophids and also of the two genera included here.

Material and methods

The terminology used here follows GOULET & HUBER (1993). The term gaster refers to metasoma excluding petiole. The description of each species includes the bulk of specimens examined, not just the primary type, and the observed variation is included in the descriptive text. For descriptions of previously described species see HANSSON (1985, 1986, 1987, 1995b).

Results

Abbreviations of terms used in the text are: HE. Height of eye; LG. Length of gaster; LM. Length of marginal vein; LP. Length of postmarginal vein; LS. Length of stigmal vein; MM. Length of mesosoma; MS. Malar space; OOL. Shortest distance between one hind ocellus and adjacent eye; POL. Distance between hind ocelli; POO. Distance between occipital margin and hind ocelli; WH. Width of head; WM. Width of mouth opening; WT. Maximum width of thorax, measured across mesoscutum.

Acronyms of museums and private collections: CNC. Canadian National Collections of Insects and Arachnids, Ottawa; LUZM. Lund University Zoological Museum; TAMU. Texas A&M University, College Station; USNM. United States National Museum of Natural History, Washington, D.C.

Genus *Chrysocharis*

Chrysocharis Förster, 1856: 79. Type species: *C. femoralis* Förster, 1861 [= *C. pubicornis* (Zetterstedt)], designated by ASHMEAD 1904: 370.

A complete list of genera synonymized with *Chrysocharis* is given by HANSSON (1987).

Diagnosis

Antennal flagellum with two apical flagellomeres fused, or with all flagellomeres free; postmarginal vein longer than stigmal vein (usually about twice as long); clypeus not delimited; without a sulcus surrounding ocellar triangle. *Chrysocharis* can be distinguished from other genera of Entedoninae using HANSSON (1995a) and keys in BOUČEK (1988), or GIBSON et al. (in press.).

Literature

HANSSON [1985 (Palearctic species), 1986 (*Zaommomyia*), 1987 (Nearctic & Neotropical species), 1995a (revised key to Nearctic species, including descriptions of new species].

Remarks

The monophyly of *Chrysocharis* has not yet been firmly established. HANSSON (1986) suggested the antennal scrobes that join below frontal cross-groove in females might be a possible synapomorphy for *Chrysocharis*. However, the inclusion of *Zaommomyia* in *Chrysocharis*, by SCHAUFF (1991), weakens this argument since in females of *Zaommomyia* scrobes join at frontal cross-groove, as in the majority of entedonines. *Zaommomyia* is so different from *Chrysocharis* that it deserves at least subgeneric status. In this paper *Chrysocharis* is therefore divided in two subgenera, *Chrysocharis* s. str. and *Zaommomyia*. Species of *Zaommomyia* are found only in the Americas, with the majority of species in the Neotropical region.

SCHAUFF & SALVO (1993) synonymized the genus *Phytomyzophaga* Brèthes with *Chrysocharis* and gave the type species for that genus (*P. albipes* Brèthes) a new name (*brethesi*) since the original name was al-

ready being used. However, material of *C. brethesi* identified by Schauff & Salvo is identical to *Chrysocharis vonones* (Walker). Therefore both *Phytomyzophaga albipes* Brèthes and *Chrysocharis brethesi* Schauff & Salvo are regarded as new synonyms of *C. vonones* in this paper.

Subgenus *Chrysocharis* Förster

Diagnosis
Antennal scrobes of female join below frontal cross-groove (fig. 4), or frontal cross-groove missing; male flagellomeres with scattered setae (fig. 11); frons above frontal cross-groove more or less uniform, no part substantially different or delimited from other parts.

Chrysocharis absentia n. sp. (fig. 10)

Type material
Holotype: ♀, "Mexico: Puebla, 4.7 miles SW La Cumbre, 23.vii.1987, 5100', R. Wharton" (USNM). Paratypes: 1♀ "Mexico: Oaxaca, 1.4 miles NE La Cumbre, 18.vii.1985, J.B. Woolley & G. Zolnerowich, 85/075" (TAMU); 4♀♀ "Mexico: Guerrero, 6.6 miles SW Filo de Caballo, 12.vii.1985, J.B. Woolley, 85/051" (2♀♀ in LUZM, 2♀♀ in TAMU).

Etymology
Absentia is Latin for missing, referring to the missing frontal cross-groove.

Diagnosis
Petiole 1.0-1.2x as long as wide at base, without dorsal shield anteriorly; frontal cross-groove missing.

Description (female)
Length of body, 1.8-2.3 mm.

Colour: scape pale with dorsal edge infuscate, remaining antenna dark. Frons golden-red or golden-green. Vertex metallic bluish-green. Mesoscutum and propodeum golden-green; scutellum purple or golden-green. Coxae dark and metallic; femora dark to pale; tibiae pale; tarsi pale with apical segment infuscate. Wings hyaline, forewing occasionally with a weak infuscate spot in median part. Petiole dark and metallic. Gaster with tergites 1 and 2 metallic bluish-green, remaining tergites golden-purple.

Head: antenna as in fig. 10. HE/MS/WM: 6.2/1.0/3.1. Frons and vertex with strong small-meshed reticulation. Frontal cross-groove missing. Inner orbit of eye with one row of setae. POL/OOL/POO: 3.8/2.6/1.0. Occipital margin with an edge behind ocellar triangle, otherwise rounded. WH/WT= 1.2.

Mesosoma: pronotum with weak transverse carina. Mesoscutum and scutellum with strong reticulation. Dorsellum flat, smooth and shiny, anterolaterally with two pits. Borderline between lower and upper mesepimeron straight. Forewing rounded with speculum closed below; LM/LP/LS: 8.8/2.0/1.0. Propodeum with weak reticulation and with strong complete median carina and plicae; propodeal callus with 5-7 setae. Petiolar foramen quadrangular with upper border curved.

Metasoma: petiole 1.0-1.2x as long as wide at base; surface with strong sculpture. Gaster slightly elongate with apex acuminate; MM/LG= 0.8-1.0.

Remarks
Chrysocharis absentia belongs in species-group *walleyi* (sensu HANSSON, 1987).

Chrysocharis ainsliei Crawford

Distribution
Michoacan, Puebla, 3 ♀♀ 4♂♂. New record for Mexico.

Chrysocharis clarkae Yoshimoto

Distribution
Baja California (HANSSON, 1987).

Chrysocharis crassiscapus (Thomson)

Distribution
Michoacan, 1♀ (HANSSON, 1987) 1♂

Chrysocharis flacilla (Walker)

Distribution
Chiapas, Guerrero, Mexico (D. F.) (HANSSON,

Key of Mexican species of Chrysocharis.
Clave de las especies mejicanas de Chrysocharis.

1.	Antennal scrobes of female reach frontal cross-groove separately or join on cross groove (fig. 3); male flagellomeres with verticillate setae, i.e. with a basal whorl of setae on each segment (fig. 8) (subgenus *Zaommomyia*)	2
	Antennal scrobes of female join below frontal cross-groove (fig. 4), or frontal cross-groove missing (fig. 1); male flagellomeres with scat tered setae (fig. 6) (subgenus *Chrysocharis*)	4
2	Petiole pale	*C. beckeri* Yoshimoto (♀ ♂)
	Petiole dark, at least on dorsal surface	3
3.	Forewing with speculum open below (fig. 15) *C. vonones* (Walker) (♀ ♂)	
	Forewing with speculum closed below	*C. maya* n. sp. (♀ ♂)
4.	Pronotal collar with transverse carina at least on median pronotum	5
	Pronotal collar without transverse carina	11
5.	Frontal cross-groove missing (figs. 1, 2); propodeum with strong and complete median carina and plicae (fig. 14)	6
	Frontal cross-groove present (fig. 4); propodeum never with plicae or a complete median carina	9
6.	Petiole 2.5x as long as wide at base, with dorsal shield anteriorly (fig. 14) that covers petiolar foramen	*C. parma* n. sp. (♀ ♂)
	Petiole shorter and never with dorsal shield	7
7.	Flagellum yellow	*C. walleyi* Yoshimoto (♂)
	Flagellum brown	8
8.	Petiole distinctly wider than long	*C. walleyi* Yoshimoto (♀)
	Petiole 1.0-1.2x as long as wide at base	*C. absentia* n. sp. (♀)
9.	Petiole at least 1.5x as long as wide	*C. prodice* (Walker) (♀ ♂)
	Petiole at most as long as wide	10
10.	Stigmal vein long and slender (fig. 13); malar space distinctly wider than width of scape	*C. longinerva* n. sp. (♀)
	Stigmal vein shorter; malar space narrower than width of scape	*C. paradoxa* Hansson (♀ ♂)
11.	Petiole at least 1.4x as long as wide	12
	Petiole at most as long as wide	15
12.	Frontal cross-groove present (fig. 4)	13
	Frontal cross-groove absent (as in fig. 1)	14
13.	Frontal cross-groove down-curved (fig. 4)	*C. tristis* Hansson (♀ ♂)
	Frontal cross-groove curved upwards (as in fig. 3)	*C. ignota* Hansson (♀ ♂)

14. Petiole 1.5-2.0x as long as wide, ratio length of propodeum/length of petiole= 0.7-1.0; malar space 2x as wide as width of scape in female, 1.5x in male	*C. perditor* Hansson (♀♂)
Petiole longer, ratio length of propodeum/ length of petiole= 0.5-0.6; malar space as wide as width of scape in both sexes	*C. flacilla* (Walker) (♀ ♂)
15. Anteromedian part of propodeum with raised carinae; with a fine median groove on posterior part of midlobe of mesoscutum and anterior scutellum	*C. crassiscapus* (Thomson) (♀♂)
Anteromedian part of propodeum with a pit; without median groove on mesoscutum and scutellum	16
16. Borderline between lower and upper mesepimeron straight (as in fig. 20); petiolar foramen with a large membrane in upper part	*C. ainsliei* Crawford (♀ ♂)
Borderline between lower and upper mesepimeron curved (as in fig. 19); petiolar foramen with a very small membrane in upper part, or without membrane	17
17. Petiole transverse and smooth; propodeal callus with two setae	*C. purpurascens* n. sp. (♀ ♂)
Petiole as long as wide with very strong sculpture; propodeal callus with 3 (4-5) setae	*C. clarkae* Yoshimoto (♀ ♂)

1987), Michoacan, Oaxaca, Puebla, Tamaulipas, 65♀♀ 53♂♂.

Chrysocharis ignota Hansson

Distribution
Mexico (D. F.) (Hansson, 1987), Michoacan, Morelos (Hansson, 1987), Oaxaca, Veracruz (Hansson, 1987), 1♀ 1♂.

Chrysocharis longinerva n. sp. (figs. 12, 13)

Type material
Holotype ♀ "Mexico: Oaxaca, 1.4 miles NE La Cumbre, 18.vii.1985 J.B. Woolley & G. Zolnerowich, 85/075" (USNM). Paratypes: 1♀ with same label data as holotype (TAMU); 1♀ "Mexico: Guerrero, 2.1 miles NE Cacahuamilpa, 4.vii.1987, 5250', J. B. Woolley, 87/011" (LUZM); 2♀♀ "Mexico: Puebla, 3.7 miles S Zacapoaxtla, 23.vii.1985, J. B. Woolley, 85/085" (LUZM, TAMU); 1♀ "Mexico: Puebla, 4.7 miles SW La Cumbre, 23.vii.1987, 5100', R. Wharton" (TAMU); 1♀ "Mexico: Michoacan, 6 miles N Cheran, 8.vii.1985, J. B. Woolley, 85/034" (LUZM); 1♀ "Mexico: Chiapas, San Cristobal Reserva Huitepec, 7300-7500', 3.viii.1990, J. B. Woolley, 90/051A" (TAMU); 1♀ "Mexico: Tamaulipas, Altas Cumbre, 12 miles SW Victoria, 19.iii.1986, G. Zolnerowich" (LUZM).

Etymology
Longinerva is Latin for 'long vein', referring to elongate stigmal vein.

Diagnosis
Scape wide (fig. 12); stigmal vein long and slender (fig. 13); pronotal collar carinate; anteromedian propodeum with rounded pit.

Description (female)
Length of body, 1.2-1.9 mm.

Colour: scape completely pale to completely dark, remaining antenna dark. Frons golden-red or golden-green. Vertex metallic bluish-purple or bluish-green. Mesoscutum metallic bluish-green; scutellum golden-green; propodeum metallic bluish-green. Coxae dark and metallic, fore coxa sometimes pale; femora pale; tibiae pale, fore tibia sometimes infuscate; tarsi pale with apical segment infuscate. Wings hyaline, forewing sometimes with a large infuscate spot below stigmal vein. Petiole dark and metallic. Gaster with first tergite metallic bluish-green, remaining tergites golden-purple.

Head: antenna as in fig. 12. HE/MS/WM: 3.2/1.0/1.9. Frons with strong smallmeshed reticulation. Vertex with strong to weak smallmeshed reticulation. Frontal cross-groove almost straight, only slightly V-shaped. Inner orbit of eye with one row of setae. POL/OOL/POO: 1.8/1.0/1.0. Occipital margin with a weak edge behind ocelli, otherwise rounded. WH/WT= 1.1.

Mesosoma: pronotum with transverse carina. Mesoscutum with strong smallmeshed reticulation. Scutellum with strong to weak smallmeshed reticulation. Dorsellum slightly convex with strong reticulation. Borderline between lower and upper mesepimeron straight. Forewing rounded with speculum closed below; LM/LP/LS: 4.3/1.0/1.0, stigmal vein long and narrow. Propodeum smooth and shiny; propodeal callus with two setae. Petiolar foramen semicircular.

Metasoma: petiole as long as wide, dorsally with weak sculpture. Gaster ovalshaped; MM/LG= 0.9-1.1.

Remarks

Chrysocharis longinerva belongs in species-group assis (sensu HANSSON, 1987).

Chrysocharis paradoxa Hansson

Distribution

Michoacan, Oaxaca, 3♀♀ 1♂. New record for Mexico.

Chrysocharis parma n. sp. (figs. 1, 2, 6, 7, 14)

Type material.

Holotype ♀, "Mexico: Guerrero, 6.6 miles SW Filo de Caballo, 12.vii.1985, J. B. Woolley, 85/051" (USNM). Paratypes: 1♀ 1♂ with same label data as holotype (TAMU).

Etymology

Parma is Latin for shield, referring to anterior dorsal shield of petiolus.

Diagnosis

Clypeus pale nonmetallic; pronotal collar with strong transverse carina; propodeum with strong and complete median carina and plicae (fig. 14); petiole 2.5x as long as wide at base, with anterior dorsal shield that covers petiolar foramen (fig. 14).

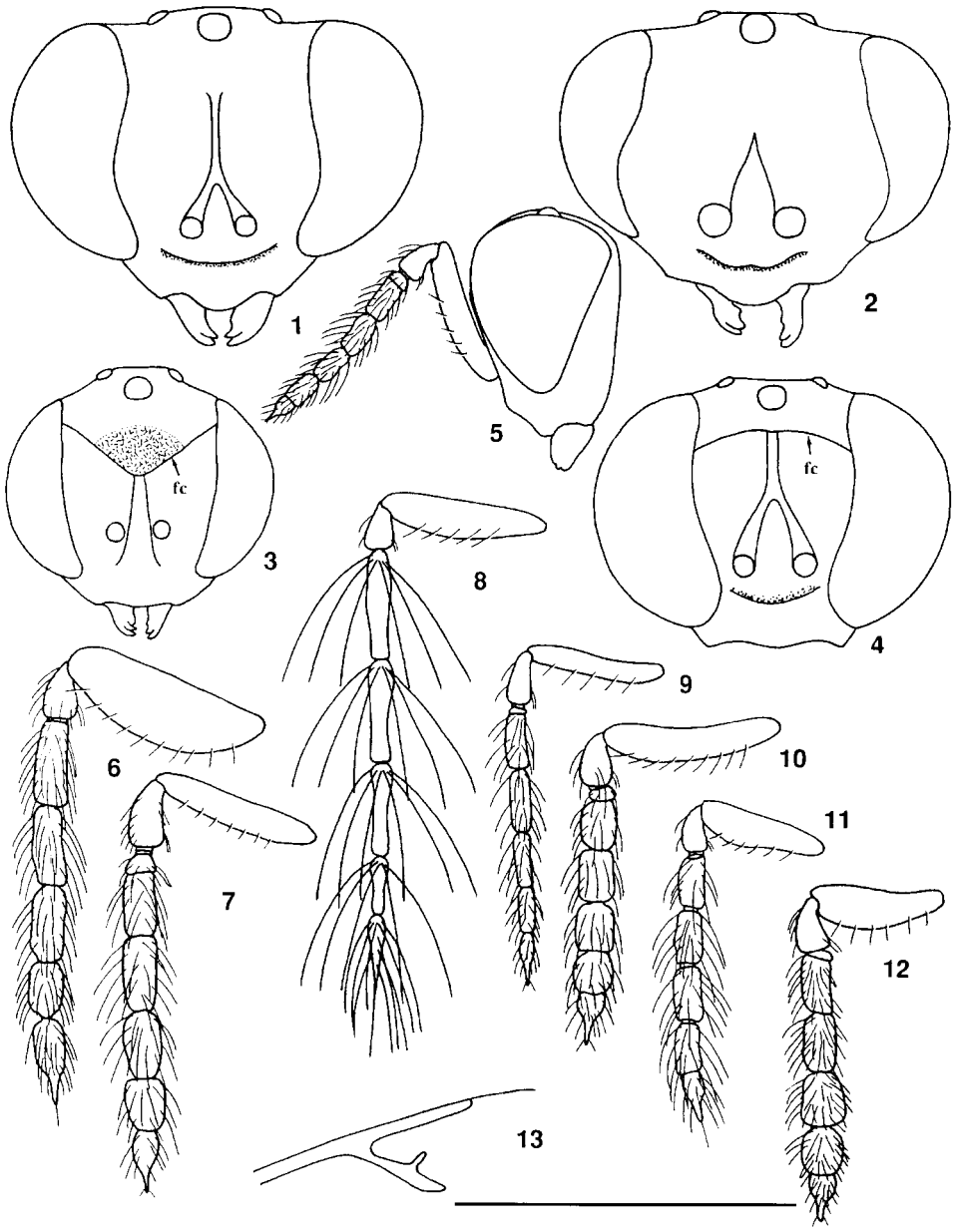
Description

Length of body: ♀= 2.2-2.3 mm, ♂= 2.3 mm.

Colour: scape pale with dorsoapical part infuscate, remaining antenna dark. Clypeus pale nonmetallic. Female frons golden, male frons golden-green. Vertex metallic bluish-green, in male partly purple. Mesoscutum metallic bluish-green; scutellum golden-purple; propodeum golden-green. Coxae dark and metallic, except pale fore coxa in male; remaining legs pale, apical tarsal segment infuscate. Wings hyaline. Petiole dark and metallic. Gaster weak golden-purple.

Head: antennae as in figs. 6, 7, i.e female with two-segmented clava on flage-

Figs. 1-13. *Chrysocharis* spp.: 1-4. Head, frontal view: 1. *C. parma* n. sp. ♀; 2. *C. parma* n. sp. ♂; 3. *C. maya* n. sp. ♀; 4. *C. tristis* Hansson ♀. 5. Head+antenna, lateral view, *C. purpurascens* n. sp. ♀. 6-12. Antenna, lateral view: 6. *C. parma*, ♂; 7. *C. parma* ♀ ; 8. *C. maya* ♂; 9. *C. maya* ♀; 10. *C. absentia* n. sp. ♀; 11. *C. purpurascens* ♂; 12. *C. longinerva* n. sp. ♀ ; 13. Stigmal vein of *C. longinerva*. fc. Frontal cross-groove. (Scale 0.5 mm.)



Chrysocharis *spp.: 1-4. Cabeza, visión frontal: 1.* C. parma *sp. n.* ♀*; 2.* C. parma *sp. n.* ♂*; 3.* C. maya *sp. n.* ♀*; 4.* C. tristis *Hansson* ♀*. 5. Cabeza y antena, visión lateral,* C. purpurascens *sp. n.* ♀*. 6-12. Antenna, visión lateral: 6.* C. parma ♂*; 7.* C. parma ♀*; 8.* C. maya ♂*; 9.* C. maya ♀*; 10.* C. absentia *sp. n.* ♀*; 11.* C. purpurascens ♂*; 12.* C. longinerva *sp. n.* ♀*; 13. Stigmal vein de* C. longinerva*. fc. Surco frontal. (Escala 0,5 mm.)*

llomere and male with all flagellomeres free. HE/MS/WM ♀: 5.8/1.0/3.2, ♂: 3.2/1.0/1.9. Frons and vertex with weak reticulation. Frontal cross-groove missing. Inner orbit of eye with one row of setae. POL/OOL/POO: 3.3/2.0/1.0. Occipital margin with a carina behind ocelli. WH/WT= 1.1.

Mesosoma: pronotum with strong transverse carina. Mesoscutum and scutellum with strong reticulation. Dorsellum slightly concave, smooth and shiny, anterolaterally with two pits. Borderline between lower and upper mesepimeron straight. Forewing rounded with speculum closed below; LM/LP/LS: 10.8/2.6/1.0. Propodeum with weak reticulation and with a strong complete median carina and plicae; propodeal callus with 4-6 setae. Petiolar foramen quadrangular with upper border curved.

Metasoma: petiole long, 2.5x as long as wide at base, apically with dorsal shield that covers petiolar foramen, with complete lateral carinae; surface with weak sculpture. Female gaster ovalshaped; MM/LG ♀=1.0-1.2, ♂= 1.0.

Remarks
Chrysocharis parma belongs in species-group *walleyi* (sensu Hansson, 1987).

Chrysocharis perditor Hansson

Distribution
Mexico (D. F.) (Hansson, 1987), Morelos (Hansson, 1987).

Chrysocharis prodice (Walker)

Distribution
Chiapas, Guerrero, Oaxaca (Hansson, 1987), Puebla, Tamaulipas, 20♀♀ 12♂♂.

Chrysocharis purpurascens n. sp. (figs. 5, 11)

Type material
Holotype ♀, "Mexico: Michoacan, 6 miles N Cheran, 8.vii.1985, J. B. Woolley 85/034" (USNM). Paratypes: 2♀♀ 3♂♂ with same label data as holotype (1♀ 1♂ LUZM, 1♀ 2♂♂ TAMU).

Etymology
Purpurascens is Latin for purple, referring to colour of scutellum.

Diagnosis
Female with all coxae pale. Both sexes: scutellum purple and mesoscutum golden-green; costal cell narrow (11.2x as long as wide at apex); anteromedian part of propodeum with small pit.

Description
Length of body: ♀ = 1.6-1.7 mm, ♂ = 1.3-1.5 mm.

Colour: antenna completely dark, female with ventral half of scape paler than dorsal half. Frons and scutellum purple; vertex, mesoscutum and propodeum golden-green. Female coxae pale, male coxae infuscate; female femora pale with apical 1/3-2/3 infuscate to dark, male femora predominantly dark with base and apex pale; tibiae infuscate except pale hind tibia in female; all tarsi infuscate to dark. Female wings hyaline, male wings weakly infuscate. Petiole dark. Female gaster golden-green, male gaster dark with weak metallic tinges.

Head: antennae as in figs. 5, 11. HE/MS/WM: 3.6/1.0/2.4. Frons and vertex with fine and smallmeshed reticulation. Frontal cross-groove almost straight. Inner orbit of eye with one row of setae. POL/OOL/POO: 2.0/1.0/1.0. Occipital margin rounded. WH/WT = 1.2.

Mesosoma: pronotum without transverse carina. Mesoscutum and scutellum with fine and smallmeshed reticulation. Dorsellum convex and smooth, anterolaterally with two pits. Borderline between lower and upper mesepimeron weakly curved. Forewing rounded with speculum closed below; costal cell narrow, 11.2x as long as wide at apex; LM/LP/LS: 7.3/1.9/1.0. Propodeum smooth, antero-medially with small pit; propodeal callus with two setae. Petiolar foramen triangular.

Metasoma: petiole transverse. Female gaster ovalshaped; MM/LG ♀ = 0.8-0.9, ♂ = 0.8.

Remarks
Chrysocharis purpurascens belongs in species-group *mediana* (sensu Hansson, 1987).

Chrysocharis tristis Hansson (fig. 4)

Distribution
Guerrero, Mexico (D. F.) (Hansson, 1987), Michoacan, Morelos (Hansson, 1987), Oaxaca, Tamaulipas, 7♀♀ 6♂♂.

Chrysocharis walleyi Yoshimoto

Distribution
Chihuahua, Guerrero, Michoacan, Morelos (Hansson, 1987), Oaxaca, Puebla, Veracruz (Hansson, 1987), 14♀♀ 9♂♂.

Subgenus *Zaommomyia* Ashmead

Diagnosis
Antennal scrobes of female reach frontal cross-groove separately or join on cross-groove; flagellomeres in male with setae arranged in a single basal whorl (fig. 8); lower part of frons above frontal cross-groove flattened and differing from upper part of frons (fig. 3), having different reticulation and/or colour, lower and upper part frequently separated through a rounded edge.

Chrysocharis beckeri (Yoshimoto)

Distribution
Chiapas, Oaxaca, Quintana Roo, Veracruz, 3♀♀ 2♂♂. New record for Mexico.

Chrysocharis maya n. sp. (figs. 3, 8, 9)

Type material
Holotype ♀, "Mexico: Guerrero, 2 miles N Cacahuamilpa, 19.vii.1984, 5000', J. B. Woolley, 84/043" (USNM). Paratypes: 1♀ "Mexico: Guerrero, 6.2 miles SW Xochipala, 6.vii.1987, 5670', J. B. Woolley, 87/017"(TAMU); 1♀ "Mexico: Guerrero, 6 miles E Xochipala, 5.vii.1987, 3500', J. B. Woolley, 87/014" (LUZM); 1♀ "Mexico: Guerrero, 5.6 miles NW El Ocotito, 7.vii.1987, 3100', J. B. Woolley, 87/019" (TAMU); 4♂♂ "Mexico: Guerrero, 2.1 miles NE Cacahuamilpa, 4.vii.1987, 5250', J. B. Woolley, 87/011" (2♂♂ LUZM, 2♂♂ TAMU); 1♀ "Mexico: Oaxaca, 6.8 miles N Candelaria Loxicha, 3250', 12.vii1987, J. B. Woolley & G. Zolnerowich, 87/035" (LUZM); 2♂♂ "Mexico: Oaxaca, 3.9 miles NE San Gabriel Mixtepec, 16.vii.1985, J. B. Woolley, 85/067" (LUZM, TAMU); 1♀ "Mexico: Veracruz, 3 miles NE Huatusco, 22.vii.1985, J. B. Woolley, 85/084" (TAMU); 1♂ "Mexico: Tamaulipas, Reserva El Cielo Alta Cimas, 3100', 30.vii.1993, J. B. Woolley & K. Wikse, 93/035" (TAMU); 1♂ "Mexico: Puebla, 2 km N Xicotepec de Juarez, 17.vi.1983, 1070 m, M. Kaulbars" (CNC); 1♂ "Mexico: Chiapas, 4 km W San Cristobal Reserva Huitepec, 7800', 25.ix-25.x.1990, R. Jones" (TAMU); 1♀ "Mexico: Quintana Roo, Kohunlich Ruins, 30 miles E Cheturnal, 15.viii.1983, R. Anderson" (CNC).

Etymology
No specific deduction.

Diagnosis
Petiole dark; forewing with speculum closed below.

Description
Length of body: ♀= 0.9-1.6 mm, ♂= 1.0-1.3 mm.

Colour: scape pale with dorsal edge infuscate, remaining antenna dark. Frons with weak metallic purple tinges in female, golden-green in male. Vertex with weak metallic bluish-purple tinges in female, metallic bluish-green in male. Mesoscutum and propodeum golden-green. Scutellum purple. Fore coxa dark, mid and hind coxae pale; femora infuscate; tibiae pale; fore tarsus infuscate, mid and hind tarsi pale with apical segment infuscate. Female wings hyaline, male forewing sometimes with an infuscate spot below stigmal vein. Petiole dark to infuscate. Female gaster golden-green, male gaster dark with weak metallic tinges.

Head: antennae as in figs. 8, 9. HE/MS/WM ♀: 6.1/1.0/3.3, ♂: 4.2/1.0/2.2. Frons and vertex with weak smallmeshed reticulation, stronger on frons just above frontal cross-groove. Frontal cross-groove V-shaped. Inner orbit of eye with one row of setae. POL/OOL/POO: 2.8/1.0/1.6. Occipital margin rounded. WH/WT = 1.2.

Mesosoma: pronotum without trans-

Key to Mexican species of *Neochrysocharis*.
Clave de las especies mejicanas de Neochrysocharis.

1. All coxae pale (males occasionally with base of coxae infuscate)	*N. epimeralis* Hansson (♀, ♂)
At least hind coxa dark and metallic, usually also fore and mid coxae dark	2
2. Borderline between lower and upper mesepimeron (tps) directed backwards from base of mid coxa (fig. 19)	*N. aversiflexa* n. sp. (♂)
Tps directed forwards from base of mid coxa(fig. 20)	3
3. Male scape strongly swollen (fig. 22)	*N. tumidiscapus* n. sp. (♂)
Male scape not strongly swollen	4
4. Occipital margin with sharp carina; scutellum reticulate with elongate meshes	*N. convexa* n. sp. (♀)
Occipital margin rounded; scutellum reticulate with more or less isodiametric meshes	5
5. First flagellomere only slightly wider than pedicel (fig. 24)	6
First flagellomere distinctly wider than pedicel (fig. 25), entire flagellum stout	7
6. Thoracic dorsum with strong and dense reticulation (figs. 6, 9, 13 in Yoshimoto (1978)), and dorsum slightly flattened; mesoscutum with notaular depressions narrow and distinct	*N. formosa* (Westwood) (♀, ♂)
Thoracic dorsum with finer reticulation, and dorsum more convex; notaular depressions not clearly delimited	*N. diastatae* (Howard) (♀, ♂)
7. Forewing wide and truncate apically, length/width of wing = 1.5 (fig. 27); scape completely pale; male pedicel with apical parts pale	*N. hyphantriae* (Yoshimoto) (♀, ♂)
Forewing narrower, length/width of wing = 1.6-1.7; scape with at least apex infuscate; male pedicel completely dark	*N. arizonensis* (Crawford) (♀, ♂)

verse carina. Mesoscutum and scutellum with strong smallmeshed reticulation, in some specimens with weak reticulation. Dorsellum convex with weak reticulation, anterolaterally with two pits. Borderline between lower and upper mesepimeron curved. Forewing rounded, speculum closed below; costal cell narrow, 22x as long as wide at apex; LM/LP/LS: 9.4/2.2/1.0. Propodeum with strong sculpture, with a narrow groove along anterior border; propodeal callus with two setae. Petiolar foramen semicircular.

Metasoma: petiole as long as wide to transverse. Female gaster slightly elongate; MM/LG ♀=0.7-0.8, ♂= 0.8-1.1.

Chrysocharis vonones (Walker) (fig. 15)
Phytomyzophaga albipes Brèthes, 1923:154. New synonym.
Chrysocharis brethesi Schauff & Salvo, 1993: 587. New

synonym.

Distribution
Jalisco, Guerrero, Tamaulipas, 5♀♀. New record for Mexico.

Genus *Neochrysocharis*

Neochrysocharis Kurdjumov, 1912: 234. Type species: *N. immaculata* Kurdjumov (= *N. aratus* (Walker)), by original designation.

A complete list of genera synonymized with *Neochrysocharis* is given by Hansson (1995b).

Diagnosis
Flagellum with a three-segmented clava (figs. 21-25); antennal scrobes join on frontal cross-groove (fig. 18); clypeus not delimited; borderline between lower and upper mesepimeron straight or weakly curved (figs. 19, 20); postmarginal vein usually about half as long as stigmal vein (occasionally shorter or longer, 0.2-1.6x as long).

Neochrysocharis can be distinguished from other genera of Entedoninae using Hansson (1995b). Using keys prior to this publication (e.g. Bouček (1988), Schauff (1991)), *Neochrysocharis* species will lead to *Chrysonotomyia* Ashmead, a genus separated from *Neochrysocharis* by Hansson (1995b).

Literature
Hansson [1990 (Palearctic species), 1995b (Nearctic species)].

Neochrysocharis arizonensis (Crawford) (fig. 25)

Distribution
Chiapas, Oaxaca, 3♀♀. Recorded from Mexico by De Santis (1979).

Neochrysocharis aversiflexa n. sp. (figs. 17, 19, 21)

Type material
Holotype ♂, "Mexico: Oaxaca, 10 miles E Totolapan, 20.vii.1987, 4000', J. B. Woolley, 87/052" (USNM). Paratypes: 1♂ "Mexico: Oaxaca, 9 miles W Tehuantepec, 13.vii.1987, G. Zolnerowich, 87/039" (LUZM); 1♂ "Mexico: Guerrero, 4.5 miles NW El Ocotito, 7.vii.1987, 2800', J. B. Woolley, 87/018" (TAMU).

Etymology
Aversiflexa is latin for 'curved backwards', referring to borderline between lower and upper mesepimeron which is curved backwards.

Diagnosis
Fore and mid coxae pale; pronotum large (fig. 17); borderline between lower and upper mesepimeron directed backwards from base of mid coxa (fig. 19); male antenna distinctly clavate (fig. 21).

Description (male)
Length of body = 0.9-1.0 mm.

Colour: scape pale with apical tip infuscate, to completely infuscate, remaining antenna dark. Frons metallic bluish-green. Vertex, mesoscutum, scutellum and propodeum golden-red, mesoscutum and scutellum golden-green in specimen from Guerrero. Fore and mid coxae pale, hind coxa dark and metallic; remaining parts of legs pale except infuscate 4th tarsal segment on all legs; all femora, tibiae and tarsi infuscate in specimen from Guerrero. Wings hyaline. Petiole dark. Gaster golden-red.

Head: antenna as in fig. 21. HE/MS/WM: 3.9/1.0/2.4. Frons and vertex with weak small-meshed reticulation. Frontal cross-groove V-shaped. POL/OOL/POO: 4.7/1.0/2.0. Occipital margin rounded. WH/WT= 1.2.

Mesosoma: pronotum large. Mesoscutum and scutellum with weak smallmeshed reticulation, scutellum with elongate meshes. Dorsellum small, convex and smooth, anterolaterally with two pits. Borderline between lower and upper mesepimeron directed backwards from base of mid coxae. Forewing rounded, speculum closed below; LM/LP/LS: 7.0/1.0/1.3. Propodeum smooth; propodeal callus with two setae.

Metasoma: petiole transverse, short and smooth. MM/LG = 0.8-0.9.

Remarks
N. aversiflexa is similar to the Nearctic species *N. chalybea* Hansson, *N. epimeralis* Hansson and *N. texensis* Hansson, all of which have a backwards directed borderline between

lower and upper mesepimeron. *N. aversiflexa* differ from the two latter in having a distinct clavate flagellum in male (fig. 21); from *N. chalybea* in having thoracic dorsum reticulate (smooth in *chalybea*).

Neochrysocharis convexa n. sp. (figs. 16, 18, 23, 26)

Type material
Holotype ♀, "Mexico: Oaxaca, 10 miles E Totolapan, 20.vii.1987, 4000', J. B. Woolley, 87/052" (USNM). Paratype: 1♀ "Mexico: Michoacan, 2 miles S Carapan, 6.vii.1985, J. B. Woolley, 85/031" (TAMU).

Etymology
Referring to conspicuously convex scutellum.

Diagnosis
Temples large (fig. 16); scutellum conspicuously convex (fig. 16); eyes large (figs. 16, 18); stigmal vein elongate, 2.6x as long as postmarginal vein; occipital margin with sharp carina.

Description (female)
Length of body = 1.4-1.5 mm.

Colour: scape pale with dorsal edge dark, to completely dark, remaining antenna dark. Frons, vertex, mesoscutum, scutellum and propodeum with weak golden-blue tinges. Coxae dark and metallic; femora dark; tibiae and tarsi pale. Wings hyaline. Petiole dark. Gaster with weak golden-purple tinges.

Head: antenna as in fig. 23. HE/MS/WM: 3.5/1.0/1.4. Frons and vertex with weak smallmeshed reticulation. Frontal cross-groove V-shaped. POL/OOL/POO: 5.5/2.0/1.0. Occipital margin with sharp carina. WH/WT = 1.2.

Mesosoma: mesoscutum and scutellum with strong reticulation, scutellum with elongate meshes; scutellum conspicuously convex. Dorsellum concave and smooth, anterolaterally with two pits. Forewing rounded, speculum closed below; LM/LP/LS: 11.8/1.0/2.6. Propodeum smooth; propodeal callus with three setae.

Metasoma: petiole very short, in dorsal view visible as transverse narrow strip. Gaster ovalshaped; MM/LG = 0.8-0.9.

Neochrysocharis diastatae (Howard) (figs. 20, 24)

Distribution
Chihuahua (Hansson 1995), Guanajuato, Mexico (D.F.), Oaxaca, 3♀♀.

Neochrysocharis epimeralis Hansson

Distribution
San Luis Potosi, 1♀. New record for Mexico.

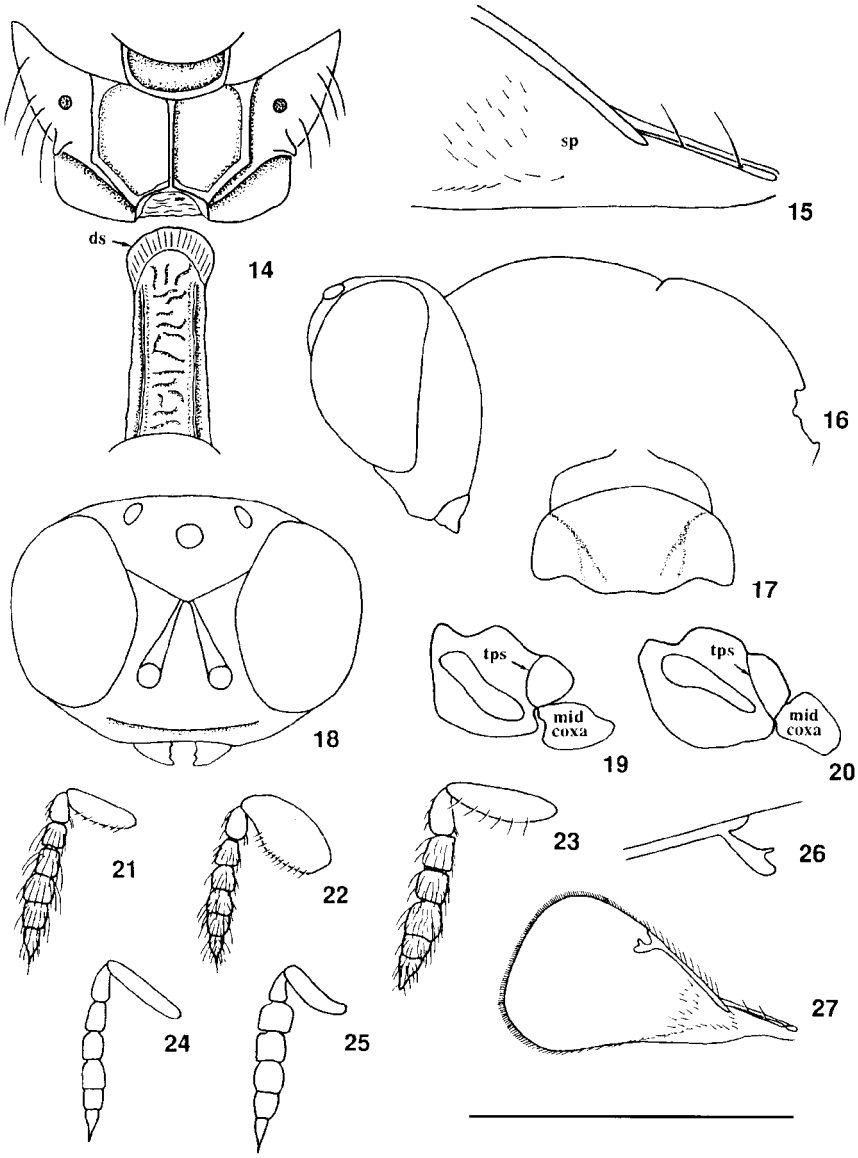
Neochrysocharis formosa (Westwood)

Distribution
Oaxaca, 1♀. New record for Mexico.

Neochrysocharis hyphantriae (Yoshimoto) (fig. 27)

Distribution
Tamaulipas, 3♀♀. New record for Mexico.

Figs. 14-27. 14. Propodeum+petiolus,dorsal view, *Chrysocharis parma* n. sp. ♀. 15. Base of forewing, *C. vonones* (Walker). 16-27. *Neochrysocharis* spp: 16. Head+upper mesosoma, lateral view, *N. convexa* n. sp; 17. Pronotum+mesoscutum, dorsal view, *N. aversiflexa* n. sp; 18. Head, frontal view, *N. convexa* ♀. 19-20. Pleurae+mid coxa, lateral view: 19. *N. aversiflexa*; 20. *N. diastatae* (Howard). 21-25. Antenna, lateral view: 21. *N. aversiflexa*, ♂; 22. *N. tumidiscapus* n.sp. ♂; 23. *N. convexa*, ♀; 24. *N. diastatae*, ♀; 25. *N. arizonensis* (Crawford) ♀; 26. Stigmal vein, *N. convexa*. 27. Forewing, *N. hyphantriae* (Yoshimoto). ds. Dorsal shield; sp. Speculum; tps. Borderline between lower and upper mesepimeron. (Scales: fig. 27 0.85 mm, remaining figures 0.5 mm.)



14. Propodeo+peciolo, vista dorsal, Chrysocharis parma *sp. n.* ♀. *15. Base del borde alar,* C. vonones *(Walker). 16-27.* Neochrysocharis *spp: 16. Cabeza y parte superior del mesosoma, visión lateral,* N. convexa *sp. n. ; 17. Pronoto y mesoescudo, visión dorsal;* N. aversiflexa *sp. n.; 18. Cabeza, visión frontal,* N. convexa ♀. *19-20. Pleuras y coxa media, visión lateral: 19.* N. aversiflexa*; 20.* N. diastatae *(Howard). 21-25. Antena, visión lateral: 21.* N. aversiflexa, ♂*; 22.* N. tumidiscapus *sp. n.* ♂*; 23.* N. convexa, ♀*; 24.* N. diastatae, ♀*; 25.* N. arizonensis *(Crawford)* ♀*; 26. Vena estigmal,* N. convexa. *27. Borde alar,* N. hyphantriae *(Yoshimoto). ds. Escudo dorsal; sp. Speculum; tps. Separación entre las mesepímeras inferior y superior. (Escalas: fig. 27 0,85 mm, resto de figuras 0,5 mm.)*

Neochrysocharis tumidiscapus n. sp. (fig. 22)

Type material
Holotype ♂, "Mexico: Chiapas, San Cristobal Reserva Huitepec, 7700-7850', 3.viii.1990, J. B. Woolley, 90/051B" (USNM).

Etymology
Tumidiscapus is Latin for 'swollen scape', referring to male scape.

Diagnosis
Male scape strongly swollen (fig. 22); all femora dark (differentiates *tumidiscapus* from *N. pictipes* (Crawford), a Nearctic species with strongly swollen male scape but with fore and hind femora dark and mid femur pale).

Description (male)
Length of body = 0.9 mm.

Colour: antenna dark. Frons, mesoscutum, scutellum and propodeum metallic bluish-green. Vertex golden-green. Coxae dark and metallic; femora dark; tibiae pale; tarsi dark. Wings hyaline. Petiole dark. Gaster with weak golden-purple tinges.

Head: antenna as in fig. 22. HE/MS = 2.4 (MO not measurable). Frons and vertex with weak smallmeshed reticulation. Frontal crossgroove V-shaped. POL/OOL/POO: 2.0/1.0/1.0. Occipital margin rounded. WH/WT = 1.2.

Mesosoma: mesoscutum and scutellum with weak smallmeshed reticulation. Dorsellum convex with weak reticulation, anterolaterally with two pits. Borderline between lower and upper mesepimeron weakly curved. Forewing rounded, speculum closed below; LM/LP/LS: 6.2/1.0/1.3. Propodeum with weak reticulation; propodeal callus with two setae.

Metasoma: petiole transverse, short and smooth. MM/LG = 0.9.

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Resumen

Revisión de los géneros Chrysocharis *Förster y* Neochrysocharis *Kurdjumov (Hymenoptera, Eulophidae) de México, con descripción de ocho nuevas especies*

Se revisan las especies mexicanas de *Chrysocharis* Förster (17 especies) y *Neochrysocharis* Kurdjumov (ocho especies). Ocho de las especies son descritas como nuevas: *C. absentia* (♀), *C. longinerva* (♀), *C. maya* (♀, ♂), *C. parma* (♀, ♂), *C. purpurascens* (♀, ♂), *N. aversiflexa* (♂), *N. convexa* (♀), *N. tumidiscapus* (♂). Cinco especies han sido registradas como nuevas para México: *C. ainsliei* Crawford, *C. paradoxa* Hansson, *N. epimeralis* Hansson, *N. formosa* (Westwood), *N. hyphantriae* (Yoshimoto). Las *Chrysocharis* han sido clasificadas en dos subgéneros, *Chrysocharis* s. str. y *Zaommomyia* Ashmead, de los cuales el último es de reciente creación. Los términos *Phytomyzophaga albipes* Brèthes y *Chrysocharis brethesi* Schauff & Salvo son señalados como nuevos sinónimos de *Chrysocharis vonones* (Walker).

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