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Description of two new mimetic species of *Ateleute* Förster, 1869 and *Tamaulipeca* Kasparyan, 2001 (Hymenoptera, Ichneumonidae, Ateleutinae), with keys to New World species

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Couverture / *Cover* :
Ateleute pollux n. sp., female (holotype): habitus, lateral view.

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Description of two new mimetic species of *Ateleute* Förster, 1869 and *Tamaulipeca* Kasparyan, 2001 (Hymenoptera, Ichneumonidae, Ateleutinae), with keys to New World species

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KEY WORDS
Parasitoids,
Darwin wasps,
Costa Rica,
species key,
new species.

ABSTRACT
In this paper, two mimetic new species of the Ateleutinae Townes, 1970 genera *Ateleute* Förster, 1869 and *Tamaulipeca* Kasparyan, 2001 from Costa Rica, are described and illustrated: *Ateleute pollux* n. sp. and *Tamaulipeca castor* n. sp. Keys to New World species of *Ateleute* and *Tamaulipeca* are provided.

MOTS CLÉS
Parasitoïdes,
guêpes de Darwin,
Costa Rica,
clé des espèces,
espèces nouvelles.

RÉSUMÉ
*Description de deux nouvelles espèces mimétiques d'*Ateleute *Förster, 1869 et* Tamaulipeca *Kasparyan, 2001 (Hymenoptera, Ichneumonidae, Ateleutinae), avec des clés pour les espèces du Nouveau Monde.*
Dans ce manuscrit, deux nouvelles espèces mimétiques des genres *Ateleute* Förster, 1869 et *Tamaulipeca* Kasparyan, 2001 (sous-famille des Ateleutinae Townes, 1970) originaires du Costa Rica, sont décrites et illustrées : *Ateleute pollux* n. sp. et *Tamaulipeca castor* n. sp. Des clés pour les espèces du Nouveau Monde *d'Ateleute* et de *Tamaulipeca* sont fournies.

INTRODUCTION

Ateleutinae Townes, 1970 is a small subfamily of Ichneumonidae Latreille, 1802, recently erected from Cryptinae Kirby, 1837 (Santos 2017). The subfamily includes currently three genera, *Ateleute* Förster, 1869, *Tamaulipeca* Kasparyan, 2001, and *Duwalia* Santos, 2018 (Santos *et al.* 2018). The former is a cosmopolitan genus with 44 described species in the world (Dal Pos *et al.* 2026), of these, nine species are known from the New World (Townes 1967; Kasparyan & Hernández 2001; Bordera & Sääksjärvi 2012; Santos *et al.* 2018; Kasparyan 2022), *Tamaulipeca* is represented by five described species, restricted to the Neotropics (Kasparyan & Hernández 2001; Bordera & Sääksjärvi 2012), and *Duwalia* is only known by one described species from the Australasian region (Santos *et al.* 2018). Molecular studies suggest that *Ateleute* could be a paraphyletic genus by including species of *Tamaulipeca* (Santos *et al.* 2018). However, while the Old World species of *Ateleute* exhibit consistent characteristics and form a solid monophyletic clade, the Neotropical species of *Ateleute*, as well as *Tamaulipeca*, are morphologically highly variable (Santos *et al.* 2018). Therefore, in the absence of further studies that could better define the molecular and morphological limits between both genera, we will, for the time being, regard both genera as valid. Taking into account this phenotypic diversity, the definitions of both genera can be reduced only to the following characters: the genus *Tamaulipeca* has clypeal margin distinctly pointed medially, cross-vein 2rs-m short and veins RS and M distinctly divergent. The genus *Ateleute* presents the clypeal margin distinctly truncate or emarginate medially or evenly rounded, fore wing with cross-vein 3rs-m almost always present, even if spectral, and veins RS and M largely parallel or almost so. *Ateleute* and *Tamaulipeca* can be distinguished from *Duwalia* by epicnemial carina ventrally absent (vs present), ovipositor moderately long, with sheath at least 0.50 × as long as hind tibia (vs 0.35 ×) and hind tibia of male covered with stout bristles (vs sparse small bristles) (Santos *et al.* 2018). The presence of ridge-like teeth on the dorsal valve, indicated by Santos *et al.* (2018) as a diagnostic character of *Duwalia*, is not exclusive to this genus, since several species, from both *Ateleute* and *Tamaulipeca*, have small teeth on the dorsal valve of the ovipositor, especially in the neotropical ones.

The biology of Ateleutinae is poorly known, but at least some *Ateleute* species are known to be idiobiont ectoparasitoids of Psychidae Boisduval, 1828 larvae (Lepidoptera) (Uchida 1955; Townes 1967; Momoi 1977). The biology of the genera *Tamaulipeca* and *Duwalia* is still unknown.

Within Ichneumonidae, and especially in the tropics, some morphological and color patterns have been found very similar in different taxa, even related to specific geographic regions (Porter 1978; Quicke 2015). Some authors have suggested this might be related to some kind of local mimicry rings, potentially linked to Batesian mimics of aculeate wasps to avoid predation from birds and bats (Österman *et al.* 2026).

In this study, two mimetic new species belonging to two genera, both from Costa Rica, are described and illustrated, and identification keys of New World species of *Ateleute*, and *Tamaulipeca* are provided.

MATERIAL AND METHODS

Specimens were collected in Costa Rica and are deposited at Museo Nacional de Costa Rica (MNCR, INBio Collection). In studied material section, locations are transcribed as they appear in the labels, with the interpretations from authors between brackets. Morphological terminology follows Broad *et al.* (2018). Terminology for describing body surface sculpturing is based on Eady (1968). Distributions of species are based on Yu *et al.* (2016) and subsequent references. Keys are partly adapted from Bordera & Sääksjärvi (2012) and Kasparyan (2022); the original descriptions of the species not included in those keys (Townes 1967; Santos *et al.* 2018) were also revised. Layer photos were taken using a Canon EOS 70D digital camera with a Canon MP-E 65 mm Macro Lens attached to a StackShot Macro Rail system, controlled by Helicon Remote 3.8.4M and Helicon Focus 6.7.1.

RESULTS

Family ICHNEUMONIDAE Latreille, 1802
Subfamily ATELEUTINAE Townes, 1970
Genus *Ateleute* Förster, 1869

Ateleute pollux n. sp.
(Fig. 1)

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TYPE MATERIAL. — **Holotype**. **Costa Rica** • ♀; Prov. Limón [Provincia Limón], Sector Cerro Cocorí, Finca de El Rojas, alt. 150 m; 13.VI-13.VIII.1994; E. Rojas; Malaise; L N 286000_567500 # 3249; MNCR.

DIAGNOSIS. — *Ateleute pollux* n. sp. can be distinguished from all other species of *Ateleute* by the following combination of characters: Antenna with 26 flagellomeres (Fig. 1A); head not dorsoventrally elongate (Fig. 1B); clypeus strongly convex, not elongate, finely granulate without punctures, ventral margin rounded (Fig. 1B); area between notauli transversely strigose (Fig. 1D, E); metanotal sulcus medially widened with weak longitudinal wrinkles (Fig. 1F); epicnemial carina present laterally (Fig. 1C); tergite I slightly granulate (Fig. 1F); head and mesosoma light orange, clypeus creamy yellow, hind coxa and trochantellus orange; metasomal tergites dark brown with broad white posterior bands on tergites I-II, tergite V posteriorly and remaining tergites white (Fig. 1G).

DISTRIBUTION. — Costa Rica.

ETYMOLOGY. — The species name refers to Pollux, the twin brother of Castor, who, according to Greek mythology, were born to Leda but had different fathers: Pollux was the son of Zeus. The name comes from its morphological similarity with *T. castor* n. sp. Noun in apposition.

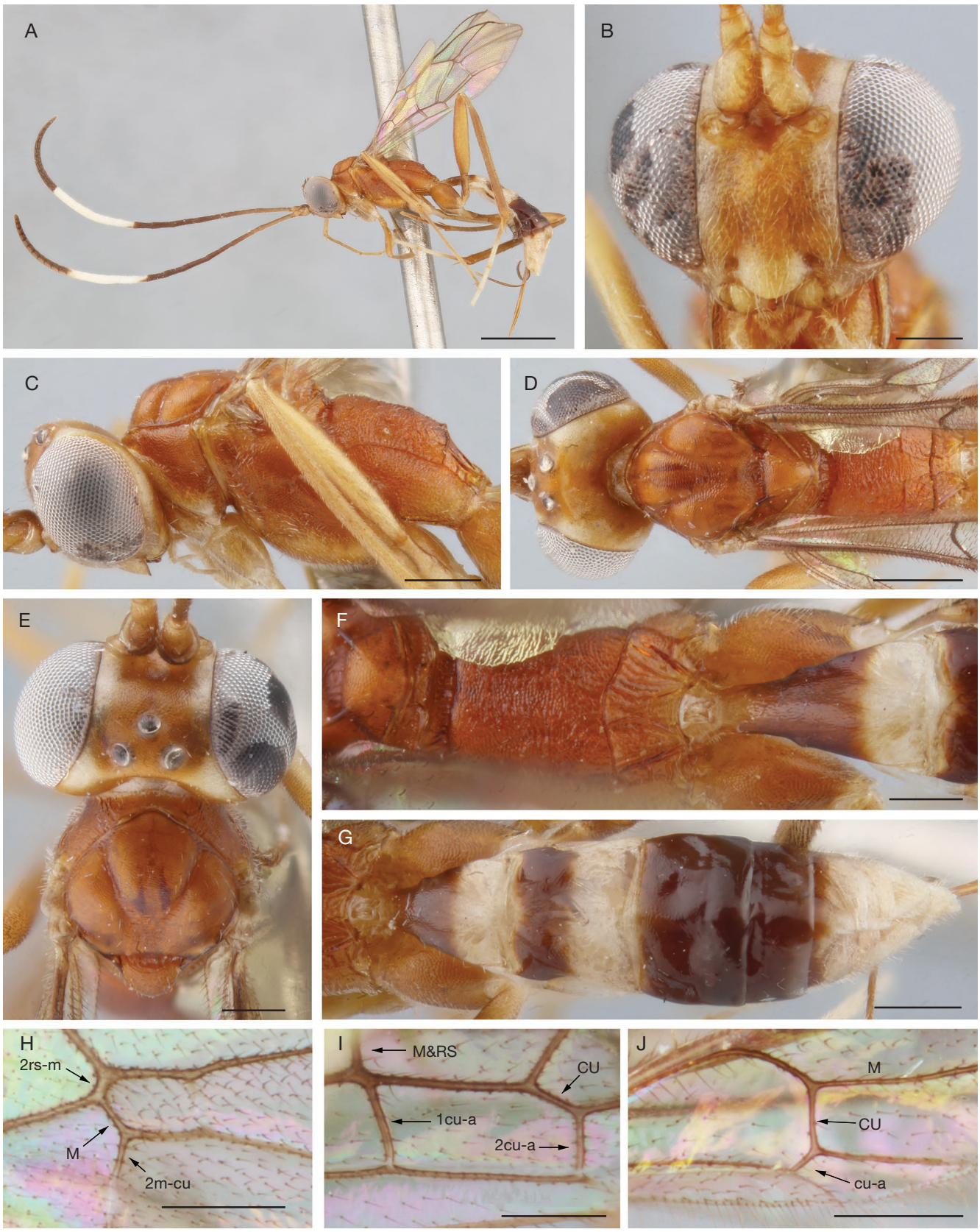

FIG. 1. — Morphology of *Ateleute pollux* n. sp., female (holotype): **A**, habitus, lateral view; **B**, head, front view; **C**, head and mesosoma, lateral view; **D**, head and mesosoma, dorsal view; **E**, head and mesoscutum, dorsal view; **F**, propodeum and tergite 1, dorsal view; **G**, metasoma, dorsal view; **H**, fore wing, areolet; **I**, fore wing, first sub-discal cell; **J**, hind wing vein cu-a+abscissa of CU between M and cu-a. Scale bars: A, 1 mm; C, D, G, 0.3 mm; B, E, F, H, J, 0.2 mm.

Description

Female

Measurements. Body length about 11.5 mm. Fore wing length about 8.2 mm.

Head. Granulate and shiny, transverse dorsally, about 0.55 × as long as wide, strongly constricted behind eyes, gena slightly rounded in dorsal view (Fig. 1E); occiput centrally concave (Fig. 1E). Antenna with 26 flagellomeres; flagellum about 1.6 × as long as fore wing; its segments 1, 4, 7 and 12 about 7.1, 4.9, 2.3 and 1.2 × as long as wide, respectively; segments from 8-9 to the apex flat ventrally, with very short pubescence. Clypeus strongly convex, not elongate, finely granulate without punctures, ventral margin rounded; the distance between clypeal foveae about 1.68 × the height of the clypeus (Fig. 1B). Mandible short, about 1.25 × as long as wide at the middle. Malar space about 0.55 × as long as basal width of mandible (Fig. 1B). Occipital carina absent dorsally (Fig. 1D), ventrally joining hypostomal carina at mandible base. Ocellar-ocular distance and distance between hind ocelli about 1.0 × maximum diameter of lateral ocellus in both cases (Fig. 1E).

Mesosoma. Epomia absent (Fig. 1C). Pronotum granulate (Fig. 1C). Mesoscutum granulate, shiny, transversely strigose in the depressed mid area between notauli (Fig. 1D, E). Notauli convergent, strongly impressed, reaching about half the length of mesoscutum, strigose area extending up near the posterior end of mesoscutum but not reaching the scuto-scutellar groove (Fig. 1D, E). Scuto-scutellar groove with longitudinal rugae posteriorly (Fig. 1D). Scutellum coarsely granulate, with very short lateral carinae at anterior part, not reaching the middle of scutellum (Fig. 1D, F). Mesopleuron granulate, with short silvery setae in ventral and posterior part; epicnemial carina present laterally, reaching about half the height of propleuron (Fig. 1C); mesopleural fovea present in the middle; sternaulus weakly present and reaching approximately half the length of mesopleuron. Metapleuron granulate, submetapleural carina strong (Fig. 1C), forming an acute angle anteriorly. Metanotal sulcus medially widened with weak longitudinal wrinkles (Fig. 1D, F). Propodeum (Fig. 1C, D, F) relatively long, slightly and evenly convex in lateral view, coarsely granulate, strongly strigose in anterolateral part, with very short sparse setae, its spiracle round and very small, distance from propodeal spiracle to pleural carina about 5.0 × its inner diameter; anterior transverse carina present but incomplete, absent in central part of area superomedia and vanishing towards pleural carina; area superomedia absent; posterior transverse carina complete; lateromedian longitudinal carina weakly present; pleural carina complete; posterior area behind posterior transverse carina with longitudinal wrinkles. Fore wing with vein 1cu-a slightly postfurcal to M&RS (Fig. 1I); vein 2rs-m about 0.7 × as long as abscissa of M between 2rs-m and 2m-cu (Fig. 1H); abscissa of CU between 1m-cu&M and 2cu-a about 0.9 × as long as 2cu-a (Fig. 1I). Hind wing with five hamuli, vein cu-a clearly shorter than abscissa of CU between M and cu-a (Fig. 1J); distal abscissa of AA short. Hind coxa stout, hind femur about 5.2 × longer than high. Tibiae and tarsi with sparse bristles, stouter on hind leg.

Metasoma. Tergite I (Fig. 1F, G) smooth and shiny, very slightly granulate and about 1.7 × as long as maximum width; its maximum width at apex about 2.9 × minimum width (at base); median dorsal carinae absent, dorsolateral carinae barely discernible; spiracle at mid length of tergite. Tergites II-VIII smooth and shiny (Fig. 1G), very slightly granulate. Tergite IV with short and sparse setae laterally, tergites V-VIII rather densely pubescent. Thyridium weak, rounded and granulate. Ovipositor sheath about 0.5 × as long as hind tibia. Ovipositor straight, its tip elongate and lanceolate, nodus weak, dorsal valve with three moderately marked dorsal teeth.

Coloration. Head (Fig. 1B-E) light orange with mandibles (except darkened teeth), palpi, clypeus, gena and inner orbits creamy yellow. Antenna brown to dark brown, with scape, pedicel, annellus and flagellar segments 1-2 ventrally light orange, broad white band on flagellar segments 7-14. Mesosoma (Fig. 1A, C-F) light orange with creamy whitish marks on anterolateral edge of pronotum. Legs (Fig. 1A) pale orange, all distal tarsomeres of mid and hind leg creamy whitish. Metasoma (Fig. 1A, F-G) dark brown with broad white posterior bands on tergites I-II, tergite V posteriorly and remaining tergites white. Ovipositor sheath (Fig. 1A) brownish, ovipositor light brown.

Male

Unknown.

Host

Unknown.

Remarks

Ateleute pollux n. sp. could be confused with *A. multicolor* Kasparyan, 2022 by the similar pattern of coloration in mesosoma and metasoma, the finely granulate sculpturation of the mesosoma, and the similar shape of clypeus, but differs in the sculpture of the area between notauli, coarsely granulate in *A. multicolor* vs transversely strigose in *A. pollux* n. sp. (Fig. 1D). Additionally, the best morphological character to distinguish both species is the metanotal sulcus, deep and narrow, with dense and strong longitudinal wrinkles in *A. multicolor* vs medially widened with weak longitudinal wrinkles in *A. pollux* n. sp. (Fig. 1D). Other distinguishing characters are the number of flagellar segments (23 in *A. multicolor* vs 26 in *A. pollux* n. sp.) and the sculpture of tergite I, densely longitudinally strigose in *A. multicolor* vs weakly granulate in *A. pollux* n. sp. (Fig. 1F). Also, they differ in coloration of metasoma: tergites VI-VIII with white apical band in *A. multicolor* vs tergite V posteriorly and remaining tergites white in *A. pollux* n. sp.

Genus *Tamaulipeca* Kasparyan, 2001

Tamaulipeca castor n. sp.
(Figs 2; 3)

urn:lsid:zoobank.org:act:EB06E2E7-18DB-47F4-B4A7-129A245B0D0F

TYPE MATERIAL. — **Holotype. Costa Rica** • ♀; Puntarenas, Estación Sirena, Sendero Ollas; alt. 1-100 m; 20.III-20.VI.1991; J. C. Saborio, G. Fonseca; L_S_270500_508300 #6903; MNCR.
Paratype. **Costa Rica** • ♂; Prov. Punt., Est. Queb. Bonita, Res. Biol. Carara [Provincia Puntarenas, Estación Quebrada Bonita, Reserva Biológica Carara]; alt. 50 m; V.1993; J. C. Saborío; L-N-194500. 469850; MNCR.

DIAGNOSIS. — The female of *Tamaulipeca castor* n. sp. can be distinguished from females of other species of *Tamaulipeca* by the following combination of characters: flagellar segment 1 about 6.6 × as long as wide, flagellar segment 4 about 5.0 × as long as wide. Malar space 0.45 × as long as basal width of mandible (Fig. 2B). Head orange, with facial orbits creamy white (Fig. 2B). Metasoma (Fig. 2A, G) brownish with broad white posterior bands on tergites I-II, tergite V posteriorly and remaining tergites white. Hind wing vein cu-a clearly shorter than abscissa of CU between M and cu-a (Fig. 2J). Male (Fig. 3) with head black, pronotum and mesoscutum brownish, mesopleuron and metapleuron orange, legs mostly pale yellowish with weak and sparse bristles in hind tibiae; parameres rounded ventrally, with apex triangular (Fig. 3G).

DISTRIBUTION. — Costa Rica.

ETYMOLOGY. — The species name refers to Castor, the twin brother of Pollux, who, according to Greek mythology, were born to Leda, but had different fathers: Castor was the son of Tyndareus, king of Sparta and Leda's husband. The name comes from the morphological similarity with *A. pollux* n. sp. Noun in apposition.

DESCRIPTION

Female (Fig. 2)

Measurements. Body length about 10 mm. Fore wing length about 7.6 mm.

Head. Granulate and shiny, transverse in dorsal view, about 0.55 × as long as wide, strongly constricted behind eyes, gena slightly rounded in dorsal view, occiput centrally concave (Fig. 2C, F). Antenna broken, with at least 21 flagellomeres; flagellum about 1.4 × as long as fore wing; flagellar segments 1, 4, 7 and 12 about 6.6, 5.0, 2.1 and 1.2 × as long as wide, respectively; segments from 8-9 to the apex flat ventrally, with very short pubescence. Clypeus convex, almost triangular, with apex produced into a weak acute point (Fig. 2B); the distance between clypeal foveae about 1.7 × the height of the clypeus (Fig. 2B). Mandible short, about 1.3 × as long as wide at the middle. Malar space about 0.45 × as long as basal width of mandible (Fig. 2B). Occipital carina absent dorsally (Fig. 2F), ventrally joining hypostomal carina at mandible base. Ocellar-ocular distance and distance between hind ocelli about 1.00 × maximum diameter of lateral ocellus in both cases (Fig. 2C).

Mesosoma. Epomia absent (Fig. 2D). Pronotum granulate (Fig. 2D). Mesoscutum granulate, shiny, area between notauli not strigose (Fig. 2F). Notauli convergent, strongly impressed, reaching slightly beyond half the length of mesoscutum (Fig. 2F). Scuto-scutellar groove with very weak longitudinal rugae in the middle (Fig. 2F). Scutellum finely granulate, with weak lateral carinae at anterior part, almost reaching the middle of scutellum. Mesopleuron granulate, with short silvery setae in ventral and posterior part; epicnemial carina present laterally, reaching about half the height of propleuron (Fig. 2D); mesopleural fovea present in the middle; sternaulus weakly present and reaching approximately half the length of mesopleuron. Metapleuron granulate, submetapleural carina strong, forming a blunt angle anteriorly (Fig. 2D). Propodeum (Fig. 2D-F) relatively short and convex in lateral view, shallowly granulate, weakly but continuously strigose at its anterior part, with very short sparse setae, its spiracle rounded and very small, distance from propodeal spiracle to pleural carina about 2.5 × its inner diameter; anterior transverse carina present but incomplete, absent in central part of area superomedia and vanishing towards pleural carina; area superomedia absent; posterior transverse carina complete; lateromedian longitudinal carina barely discernible; pleural carina complete; posterior area behind posterior transverse carina without longitudinal wrinkles. Fore wing with vein 1cu-a slightly postfurcal to M&RS (Fig. 2I); vein 2rs-m about 0.6 × as long as abscissa of M between 2rs-m and 2m-cu (Fig. 2H); abscissa of CU between 1m-cu&M and 2cu-a about 0.8 × as long as 2cu-a (Fig. 2I). Hind wing with five hamuli, vein cu-a clearly shorter than abscissa of CU between M and cu-a (Fig. 2J); distal abscissa of AA short. Hind coxa slender, hind femur about 4.8 × longer than high. Tibiae and tarsi with sparse bristles, stouter on hind leg.

Metasoma. Tergite I (Fig. 2G) smooth and shiny, very slightly granulate and about 1.6 × as long as maximum width; its maximum width at apex about 2.9 × minimum width (at base); median dorsal carinae absent, dorsolateral carinae barely discernible; spiracle at mid length of tergite. Tergites II-VIII smooth and shiny, very slightly granulate. Tergite IV with short and sparse setae laterally, tergites V-VIII rather densely pubescent. Thyridium weak, rounded and granulate. Ovipositor sheath about 0.6 × as long as hind tibia. Ovipositor straight, its tip elongate and lanceolate, nodus weak, dorsal valve with three moderately marked dorsal teeth.

Coloration. Head (Fig. 2B-D, F) orange with mandibles (except darkened teeth), palpi, clypeus, gena and facial orbits creamy yellow. Antenna brown to dark brown, with scape, pedicel, annellus and flagellar segments 1-2 ventrally light orange, broad white band on flagellar segments 7-14. Mesosoma (Fig. 2A, 2D-F) light orange with creamy whitish marks on anterolateral edge of pronotum. Legs (Fig. 2A) pale orange, all distal tarsomeres of mid and hind leg creamy whitish. Metasoma (Fig. 2A, G) pale brownish with broad white posterior bands on tergites I-II, tergite V posteriorly and remaining tergites white. Ovipositor sheath brownish, ovipositor light brown.

Male (Fig. 3)

Measurements. Body length about 8.8 mm. Fore wing length about 6.3 mm.

FIG. 2. — Morphology of *Tamaulipeca castor* n. sp., female (holotype): **A**, habitus, lateral view; **B**, head, front view; **C**, head, dorsal view; **D**, head and mesosoma, lateral view; **E**, propodeum, dorsal view; **F**, head and mesosoma, dorsal view; **G**, metasoma, tergites I-II; **H**, fore wing, areolet; **I**, fore wing, first sub-discal cell; **J**, hind wing vein cu-a+abscissa of CU between M and cu-a; **K**, hind tibia. Scale bars: A, 1 mm; D, F, G 0.3 mm; B, C, E, H, I, K 0.2 mm; J, 0.1 mm.

FIG. 3. — Morphology of *Tamaulipeca castor* n. sp., male (paratype): **A**, habitus, lateral view; **B**, head, front view; **C**, head, dorsal view; **D**, head and mesosoma, lateral view; **E**, propodeum, dorso-lateral view; **F**, head and mesoscutum, dorsal view; **G**, parameres; **H**, fore wing, areolet; **I**, metasoma, lateral view; **J**, hind wing vein cu-a+abscissa of CU between M and cu-a; **K**, hind tibia. Scale bars: A, 1 mm; D, I, 0.3 mm; B, C, E, G, K, 0.2 mm; H, J, 0.1 mm; G, 0.05 mm.

Head. Transverse dorsally, about 0.56 × as long as wide, gena less constricted behind eyes, slightly rounded in dorsal view (Fig. 3C). Antenna with 22 flagellomeres; flagellum 1.63 × as long as fore wing; flagellar segments 1, 4, 7 and 12 about 8.0, 5.8, 3.75 and 2.8 × as long as wide, respectively; antenna filiform. Clypeus convex, almost triangular, with apex produced into a weak acute point (Fig. 3B), the distance between clypeal foveae about 1.6 × the height of the clypeus (Fig. 3B). Mandible short, about 1.5 × as long as wide at the middle. Malar space about 0.5 × as long as basal width of mandible (Fig. 3B).

Mesosoma. Mesoscutum uniformly granulate, shiny (Fig. 3F). Notauli convergent, strongly impressed, reaching far beyond half the length of mesoscutum (Fig. 3F). Scuto-scutellar groove without longitudinal wrinkles (Fig. 3F). Sternaulus barely discernible. Metapleuron and propodeum granulate and shiny (Fig. 3E). Propodeal spiracle joining pleural carina, bigger than in female (Fig. 3E); propodeum without carina, only apical transverse carina, pleural carina and lateromedian longitudinal carina after apical transverse carina (delimiting area petiolaris) present. Tibiae and tarsi with longer sparse bristles (Fig. 3K).

Metasoma. Tergite I about 1.7 × as long as maximum width; its maximum width at apex about 2.3 × minimum width (at base); dorsolateral carinae of tergite I shallowly marked at base. Tergites II-VIII smooth and polished, with short and sparse setae (Fig. 3I). Thyridium as a transverse depression. Parameres rounded ventrally, with apex triangular (Fig. 3G).

Coloration. Head (Fig. 3B-D, F) black with mandibles (except darkened teeth), palpi, malar space and clypeus creamy yellow. Antenna with scape, pedicel, annellus and flagellar segment 1 light brown, remaining flagellar segments brown. Mesosoma (Fig. 3D-F) orange, pronotum and mesoscutum dark orange. Legs (Fig. 3A) mostly pale yellowish. Metasoma brownish black (Fig. 3I).
Other features as in female.

HOST
Unknown.

REMARKS
The female of *T. castor* n. sp. could be distinguished from all other species of *Tamaulipeca* by the orange head. It resembles to *T. matses* Bordera & Sääksjärvi, 2012 and *T. bora* Bordera & Sääksjärvi, 2012 by the orange coloration of mesosoma but differs from *T. matses* by having the fourth flagellar segment about 5 × as long as wide, malar space 0.45 × as long as basal width of mandible (Fig. 2B), and metasoma with tergite V posteriorly and remaining tergites white (Fig. 2A). *Tamaulipeca matses* has fourth flagellar segment about 6.6 × as long as wide, malar space 0.8 × as long as basal width of mandible, and metasoma with a very narrow whitish posterior band on tergites IV-VI. *Tamaulipeca castor* n. sp. can be distinguished from *T. bora* by having the first flagellar segment about 6 × as long as wide (vs 9 × in *T. bora*) and tergite VII entirely white (Fig. 2A) (vs brown or yellowish in *T. bora*). In the paper on the Western Amazonian Ateleutina Townes, 1970, Bordera & Sääksjärvi (2012) found that in hind wing, the relative length of vein cu-a and the inclination of cu-a+abscissa of CU between M and cu-a were distinctive characters in separating the females of *Tamaulipeca*. The female of *T. castor* n. sp. has the cu-a vein of hind wing shorter than abscissa of CU between M and cu-a, as it occurs in *T. bora* and *T. matses*; however, the cu-a+abscissa of CU between M and cu-a is almost vertical in *T. castor* n. sp. (Fig. 2J), unlike *T. bora* and *T. matses* (see Bordera & Sääksjärvi 2012). The male here described as *T. castor* n. sp., has these veins similar to those in the female (Fig. 3J). Furthermore, the orange coloration of mesopleuron and metapleuron (Figs 2D; 3D), the relatively short and scattered yellow bristles of the hind tibia (Figs 2K; 3K), the collecting dates (March-June), and the collecting localities below 100 m above sea level, both in the province of Puntarenas, very close to the west coast of Costa Rica, allow us to consistently suggest that this male belongs to the same species as the described female.

On the other hand, the species *T. dorsator* Kasparyan, 2001, described by Kasparyan & Hernández (2001), also from Costa Rica, differs from our species in the length of fourth flagellomere (2.5 × as long as wide vs 5.8 × in *T. castor* n. sp.), tergite I 2.1 × as long as wide (vs 1.7 × in *T. castor* n. sp.), the strong, dense, and dark bristles on hind tibia (shorter, sparser and yellowish in *T. castor* n. sp., Fig. 3K), the parameres with a ventral tooth and narrowly pointed and downcurved at apex (fig. 5, in Kasparyan & Hernández (2001)), very different from parameres of *T. castor* n. sp. (Fig. 3G), the entirely black mesoscutum (vs dark orange in *T. castor* n. sp., Fig. 3F), and the collecting dates (August-November vs March-June in *T. castor* n. sp.).

The male described by Bordera & Sääksjärvi (2012), collected from Ecuador, is entirely black and has strong and long black bristles on the posterior tibia, and the parameres are different from those of *T. castor* n. sp. and *T. dorsator*, belonging undoubtedly to another species.

KEY TO NEW WORLD SPECIES OF *ATELEUTE* FÖRSTER, 1869 FEMALES

1. Head dorsoventrally elongate. Clypeus not convex, elongate, with the apical margin abruptly truncate, strongly angulate in the middle, sharp and lamellate. Unusually large and stout bodied species (fore wing 6.0-10.0 mm) 2
— Head not dorsoventrally elongate (Fig. 1B). Clypeus strongly convex, not elongate, with the apical margin sometimes truncate, if truncate then the angulation in the middle weak or indistinct, or the apex of clypeus straight, rounded (Fig. 1B) or nearly triangular, but never strongly angulate in the middle, sharp and lamellate, or ended into acute point. Median to small species (fore wing 2.2-6.1 mm) 3

2. Mesosoma and propodeum generally dark orange, never with ovoid blackish marks in anterior portion of propodeum. Propodeum with coarse longitudinal wrinkles behind posterior transverse carina. Bolivia, Brazil, and Argentina ..... *A. boitata* Santos, 2018
— Mesosoma pale orange, propodeum with ovoid blackish marks on anterior part. Propodeum finely reticulate. Costa Rica and Mexico ..... *A. grossa* Kasparyan & Hernández, 2001

3. Head and mesoscutum reddish or orange, never black (Fig. 1A-E). Metasomal tergites black or brownish with white posterior band on tergites I-II (Fig. 1G) 4
— Head black, mesoscutum completely black or black with white marks. Metasomal tergites predominantly yellowish, completely orange or reddish-brown, or black with extensive white pattern 5

4. Antenna with 23 flagellomeres. Clypeus reddish, matt, finely granulate with sparse punctures; ventral margin truncate, with weak angulation at middle. Area between notauli coarsely granulate. Metanotal sulcus deep and narrow, not medially widened, with dense longitudinal wrinkles. Propodeum relatively short. Hind coxa and trochanter blackish (trochanter basally whitish). Tergite I with dense longitudinal striae. Tergites VI-VIII with white apical band. Mexico ..... *A. multicolor* Kasparyan, 2022
— Antenna with 26 flagellomeres (Fig. 1A). Clypeus creamy yellow, finely granulate without punctures; ventral margin not truncate, rounded, without acute angulation (Fig. 1B). Area between notauli transversely strigose (Fig. 1D). Metanotal sulcus medially widened with weak longitudinal wrinkles (Fig. 1F). Propodeum relatively longer (Fig. 1C, F). Hind coxa and trochantellus orange. Tergite I granulate (Fig. 1F). Tergite V posteriorly and remaining tergites white (Fig. 1G) ..... *A. pollux* n. sp.

5. Head and mesosoma entirely black to dark brown 6
— Head black, mesoscutum black with white marks, mesopleuron and propodeum with white or pale yellowish rufous marks 10

6. Ovipositor sheath black, widely truncate at apex. Head transverse, 0.43 × as long as wide. Metasoma and hind femur vividly red. Antenna (except for the white band) black, with 34-35 flagellomeres. Large species, body length 7.4-7.5 mm, fore wing length 5.9-6.1 mm. Peru ..... *A. ashaninka* Bordera & Sääksjärvi, 2012
— Ovipositor sheath brown to light brown, moderately truncate or nearly pointed at apex. Head less transverse, 0.48-0.51 × as long as wide. Metasoma and hind femur from yellow to orange or reddish brown. Antenna (except for the white band) light brown to brown, with 28-32 flagellomeres. Smaller species, body length 3.8-5.9 mm, fore wing length 3.0-4.2 mm 7

7. Tergite I long, narrow, 2.16 × as long as wide posteriorly. Fore wing with abscissa of CU, between 1m-cu&M and 2cu-a strongly inclivous, 0.90 × the length of 2cu-a. Ecuador.....*A. huaorani* Bordera & Sääksjärvi, 2012.
— Tergite I wider and shorter, 1.50-1.77 × as long as wide posteriorly. Fore wing with abscissa of CU between 1m-cu&M and 2cu-a moderately inclivous, 1.10-1.25 × the length of 2cu-a 8

8. Vein 2rs-m obliterated or 0.10 × length of abscissa of M between 2rs-m and 2m-cu. Vein 2m-cu vertical. Malar space about 0.65 × as long as basal width of mandible. Ecuador ..... *A. kichua* Bordera & Sääksjärvi, 2012.
— Vein 2rs-m conspicuous, 0.40-0.55 × the length of abscissa of M between 2rs-m and 2m-cu. Vein 2m-cu inclivous. Malar space about 0.80-0.86 × as long as basal width of mandible 9

9. Hind wing with distal abscissa of CU weak and unpigmented, CU & cu-a fairly curved. Ovipositor sheath truncate at apex. Tergite I about 1.50 × as long as maximum width. Small species, body length 3.8 mm, fore wing length 3 mm. Peru ..... *A. amarakaeri* Bordera & Sääksjärvi, 2012
— Hind wing with distal abscissa of CU strong and pigmented, CU & cu-a strongly angled below the middle. Ovipositor sheath very slightly truncate at apex, nearly pointed. Tergite I about 1.70-1.77 × as long as maximum width. Body length 5.2-5.6 mm, fore wing length 3.7-4.1 mm. Ecuador ..... *A. shuar* Bordera & Sääksjärvi, 2012

10. Metasomal tergites I-IV (sometimes also V-VII) black anteriorly and white posteriorly; tergite VIII (usually also V-VII) yellowish rufous. Clypeus entirely white; propleuron, mesopleuron, metapleuron, propodeum and dorsal part of hind coxa predominantly white with black marks. Mexico ..... *A. tinctoria* Kasparyan & Hernández, 2001
— Metasoma pale yellowish rufous, with brown or blackish marks dorsally. Clypeus and propleuron blackish; mesosoma (except pronotum), mesopleuron (except blackish prepectus), metapleuron and propodeum (except when T-shaped median blackish spot is present) pale yellowish rufous ..... *A. carolina* Townes, 1967..... 11

11. Propodeum entirely fulvous. USA ..... *A. carolina carolina* Townes, 1967
— Propodeum fulvous with T-shaped median blackish spot at base, or sometimes from base to apex. Mexico and Costa Rica ..... *A. carolina maculator* Kasparyan & Hernández, 2001

KEY TO *TAMAULIPECA* KASPARYAN, 2001
(females of *T. dorsator* and males of *T. candoshi*, *T. clypeator*, *T. bora* and *T. matses* are unknown)

Females

1. Mesoscutum and scutellum brown, with white V-shaped marks. Hind wing vein cu-a about as long as abscissa of CU between M and cu-a. Ecuador ..... *T. candoshi* Bordera & Sääksjärvi, 2012
— Mesoscutum and scutellum without white V-shaped marks (Fig. 2E, F). Hind wing vein cu-a clearly shorter than abscissa of CU between M and cu-a (Fig. 2J) 2

2. Flagellar segment 1 about 9.0 × as long as wide. Tergite VII brown or yellowish, but never white 3
— Flagellar segment 1 about 6.0-7.7 × as long as wide. Tergite VII entirely white (Fig. 2A, G) 4

3. Malar space 0.6 × as long as basal width of mandible. Mesoscutum black with white anterolateral margins and two wide laterodorsal white stripes. Metasoma with tergites I-VI fulvous. Tergites VII-VIII yellowish. Mexico ..... *T. clypeator* Kasparyan & Hernández, 2001
— Malar space 0.8-0.9 × as long as basal width of mandible. Mesoscutum reddish. Metasomal tergites dark brown with broad whitish posterior bands on tergites I-II and with a very narrow posterior whitish band on tergites IV-VI. Ecuador and Peru ..... *T. bora* Bordera & Sääksjärvi, 2012

4. Flagellar segment 4 about 6.6 × as long as wide. Malar space 0.8 × as long as basal width of mandible. Face without white orbits, head dark brown. Metasoma with a very narrow whitish posterior band on tergites IV-VI. Peru ..... *T. matses* Bordera & Sääksjärvi, 2012
— Flagellar segment 4 about 5 × as long as wide. Malar space 0.45 × as long as basal width of mandible (Fig. 2B). Face with creamy white orbits, head orange (Fig. 2B-C). Metasoma with tergite V posteriorly and remaining tergites white (Fig. 2A, G). Costa Rica ..... *T. castor* n. sp.

Males

1. Pronotum whitish fulvous laterally on front margin. Parameres narrowly pointed and downcurved at apex, with a median ventral tooth. Costa Rica ..... *T. dorsator* Kasparyan & Hernández, 2001
— Pronotum never whitish fulvous, always brownish or black (Fig. 3D). Parameres not narrowly pointed, without median ventral tooth (Fig. 3G) 2

2. Pronotum and mesoscutum brownish (Fig. 3D, F). Mesopleuron and metapleuron orange (Fig. 3D-E). Legs mostly pale yellowish (Fig. 3A), with weak and sparse bristles in hind tibiae (Fig. 3K). Parameres rounded ventrally, with apex triangular, (Fig. 3G). Costa Rica ..... *T. castor* n. sp.
— Pronotum and mesoscutum black. Mesopleuron and metapleuron black. Legs mostly orange with stronger and denser bristles in hind tibiae. Parameres widely pointed at apex (Male described by Bordera & Sääksjärvi (2012), cannot currently be associated with any known female) ..... *Tamaulipeca* sp.

DISCUSSION

Females of *Ateleute pollux* n. sp. and *Tamaulipeca castor* n. sp. are remarkably similar in color pattern and structure (Figs 1; 2). In addition to the generic differences, both species can be distinguished as follows: *Ateleute pollux* n. sp. presents face in frontal view more transverse (Fig. 1B); mesosoma orange (Fig. 1C, D); area between notauli transversely strigose (Fig. 1D); scuto-scutellar groove with longitudinal rugae posteriorly (Fig. 1D), scutellum coarsely granulate, with very short lateral carinae present at anterior part, not reaching the middle of scutellum (Fig. 1D, F); propodeum relatively long and slightly convex dorsally in lateral profile (Fig. 1C), coarsely granulate, strongly but discontinuously strigose in anterolateral part (Fig. 1F); hind coxa stout, and metasoma from tergite I to anterior part of tergite V (except white stripes) dark brown (Fig. 1G). *Tamaulipeca castor* n. sp. has face in frontal view less transverse (Fig. 2B); mesosoma light orange (Fig. 2D-F); area between notauli granulate (Fig. 2F); scuto-scutellar groove, with very weak longitudinal rugae in the middle (Fig. 2F); scutellum finely granulate, with weak lateral carinae at anterior part, almost reaching the middle of scutellum (Fig. 2F); propodeum relatively short and more convex dorsally, in lateral profile (Fig. 2D), shallowly granulate, weakly but continuously strigose at anterior part (Fig. 2E); hind coxa comparatively slender; metasoma from tergite I to anterior part of tergite V (except white bands) pale brownish (Fig. 2A).

Although there is some degree of similarity in the coloration pattern between some species of *Ateleute* and *Tamaulipeca* (Bordera & Sääksjärvi 2012; Kasparyan 2022), the striking resemblance found between *A. pollux* n. sp. and *T. castor* n. sp., not only in the color pattern but also in the morphology and surface sculpturing, may be attributable to mimicry between both species, which is more common in Darwin wasps in the tropics than in temperate areas (Quicke 2015). The evolutionary drivers behind mimicry between species are not clear (Bickford *et al.* 2007), however, it could well be

more related to sharing an ecological niche (Rodríguez *et al.* 2014) than to the biology or host range of these species. In fact, some mimetic Ichneumonidae species from Costa Rica have been found to have different host ranges (Sääksjärvi *et al.* 2022). This is also the case of some species of *Brachymeria* Westwood, 1829 (Hymenoptera, Chalcididae Latreille, 1817) and *Pimpla* Fabricius, 1804 (Hymenoptera, Ichneumonidae, Pimplinae Wesmael, 1845) with the same coloration but different host range (Zwakhals 2005; Delvare & Shaw 2022). If we consider the ecological niche as a determining factor in this mimicry, it is possible that the coloration of species is more closely related to the pressure exerted by predators and how predators perceive the colorations of their prey (Stevens 2007). Tropical insects are subjected to a higher predator pressure (Roslin *et al.* 2017), and this might be leading to more similar coloration patterns. However, it is possible that phenological convergence in parasitoids might be also the result of different conflicting selection pressures, such as having multiple antagonists or being, at the same time, a predator and a prey (Postema *et al.* 2023), which have not been explored enough in these groups.

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