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New species and new records of species of *Macrodactylus* Dejean (Coleoptera: Scarabaeidae: Melolonthinae: Macrodactyini) from Honduras and Nicaragua

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Abstract

The species of *Macrodactylus* from Honduras and Nicaragua are reviewed. Two new species are described and illustrated: *Macrodactylus tibialis* sp. nov. from Honduras (Olancho and El Paraíso) and Nicaragua (Jinotega, Madriz, and Matagalpa) and *M. hondurensis* sp. nov. from Honduras (Cortés). *Macrodactylus dimidiatus* Guérin-Méneville, *M. costulatus* Bates, and *M. montanus* Arce-Pérez and Morón are recorded for the first time from Honduras (Lempira, El Paraíso, Santa Bárbara, and Ocotepeque). *Macrodactylus sericeicollis* Bates is recorded by the first time from Honduras (Morazán) and Nicaragua (Matagalpa). A key to the nine known species of *Macrodactylus* from Honduras and Nicaragua is included.

Key words: Coleoptera: Macrodactylini, *Macrodactylus*, taxonomy, key, Honduras, Nicaragua

Introduction

Evans (2003) listed 107 species of *Macrodactylus* distributed from Canada to Argentina and Chile, including two fossil species from the United States. The species from Honduras and Nicaragua are poorly known. Bates (1887) described *M. costulatus, M. sericinus, M. suavis*, and *M. sylphis* from Chontales, Nicaragua. None of the species in this genus have been previously recorded from Honduras. During a recent study of the specimens deposited in several collections in Canada, the United States, Mexico, Guatemala, and Nicaragua we found 518 specimens that represent two new species, one new country record for Nicaragua, and four new country records for Honduras. Technical terms and characters used in the species descriptions are those of Arce-Pérez and Morón (2000). Drawings were made with the aid of a camera lucida and stereomicroscope, and measurements were obtained using caliper or ocular micrometer. Studied specimens are deposited in the fol-

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lowing collections: American Museum of Natural History, New York (AMNH); Bruce D. Gill, Ottawa, Canada (BDGC); Canadian National Collection, Ottawa (CNC); Canadian Museum of Nature, Ottawa (CMNC); Escuela Agrícola Panamericana El Zamorano, Honduras (EAPZ); Henry and Anne Howden, Ottawa (HAHC); Instituto de Ecología, Xalapa, México (IEXA); Museo Entomológico de León, Nicaragua (MELN); Miguel A. Morón, Xalapa, México (MXAL); Paul Schoolmeesters, Herent, Belgium (PSPC), and Universidad del Valle, Guatemala (UVGC).

Key to the species of *Macrodactylus* from Honduras and Nicaragua

In the genus *Macrodactylus*, males and females can be separated using the following characters: male with pygidium longer than wide, last abdominal sternites slightly concave; female with pygidium as long as wide, last abdominal sternites convex.

1.- Pronotum and elytra glabrous 2
1' Pronotum with scale-like setae at least on the borders. Elytra more or less covered with scale-like setae or short slender setae..... 3
2.- Pronotum and elytra orange-yellow (Figs. 7, 10). Male protibia with acute spine in the middle of inner border..... *M. tibialis* Arce-Pérez and Morón
2' Pronotum and basal third of elytra orange-yellow, distal two thirds of elytra iridescent black or dark blue (Fig. 5). Male protibia without acute spine in the middle of inner border ..... *M. dimidiatus* Guérin-Méneville
3.- Elytra with scale-like setae uniformly distributed or arranged in longitudinal rows 4
3 Elytra without scale-like setae or with scattered minute slender setae 7
4.- Tarsal segments with numerous white, long setae. Elytra completely covered with mustard yellow scale-like setae (Fig. 8). Male pronotum completely covered with yellow scale-like setae, female pronotum with scale-like setae only near the borders (Fig. 11). Parameres with lateral setae..... *M. hondurensis* Arce-Pérez and Morón
4' Tarsal segments with sparse, white, short setae or glabrous. Elytra with more or less glabrous longitudinal stripes. Vestiture of pronotum variable. Parameres without lateral setae..... 5
5.- Elytra with two well defined longitudinal stripes of scale-like setae on interstriae 1 and 3; interstriae 2 and 4 costate, glabrous. Pronotum black or dark brown with scarce scale-like setae (Fig. 1) ..... *M. costulatus* Bates
5' Elytra with one wide longitudinal stripe of scale-like setae along the inner half of disc. Interstriae 2 and 4 not costate. Pronotum black, dark brown, or dark green with dense vestiture of scale-like setae 6
6.- Elytra uniformly reddish-brown (Fig. 2). External half of the elytral disc with irregularly distributed small, scale-like setae. Scutellum with scattered setae.....

..... *M. sericeicollis* Bates

6' Elytra dark brown or black on the posterior half and reddish-brown on the anterior half (Fig. 4). External half of elytral disc with small scale-like setae arranged in two irregular stripes. Scutellum densely covered with scale-like setae..... *M. suavis* Bates

7.- Elytra orange-yellow with iridescent sericeus shine. Base of each elytron with 5-6 erect, black, long, thick setae. Pronotum iridescent dark green with stripe of yellow scale-like setae along the midline and scattered setae near the borders (Fig. 6). First segment of male protarsus 1.4 times longer than segments 2 and 3 combined..... ..... *M. sylphis* Bates

7' Elytra yellow or bicolored. Base of each elytron with or without setae. Pronotum black or dark green. First segment of male protarsus as long as segments 2 and 3 combined8

8.- Elytra orange-yellow with slight sericeus shine (Fig. 9). Pronotum black with small setae near the margins. Scutellum with scarce, small setae. Parameres with lateral setae ..... *M. montanus* Arce-Pérez and Morón

8' Elytra orange-yellow in the basal half and black in the apical half with a strong iridescent metallic shine (Fig. 3). Pronotum iridescent dark green with a row of scale-like setae on the basal third of midline and scattered setae near the borders. Scutellum densely covered with yellow scale-like setae. Parameres without lateral setae .... *M. sericinus* Bates

Eight species of *Macrodactylus* recorded from Honduras and Nicaragua are included in the following groups of species defined by Arce-Pérez and Morón (2000): group I "*M. lineatus*", group II "*M. dimidiatus*", and group IV "*M. subspinosus."* One species represents a group of species we will call group V "*M. sylphis*," which will be fully defined in a future publication.

GROUP I "*M. lineatus*" (*sensu* Arce-Pérez and Morón, 2000)

Macrodactylus costulatus Bates, 1887

Diagnosis. This species is distinguished by the following combination of characters: antennal club reddish-brown with the apex darkened; pronotum black with scattered scale-like yellow setae; elytra with two well-defined longitudinal stripes of scale-like setae on the interstriae 1 and 3, interstriae 2 and 4 costate, glabrous (Fig. 1); pygidium with scattered, scale-like, light yellow setae; abdomen black; femora and tibiae reddish-brown; tarsi without white setae; apex of the parameres lanceolate, without setae on the external borders; vestiture and color of female similar to male.

Material examined (143 males, 108 females). **NEW COUNTRY RECORDS**: HONDURAS: El Paraiso 11.1 km S. Zamorano & 10 km E. Galeras, 1700 m, oak / cloud forest, 11 June 1994, Col. R. S. Anderson, 1 male, 1 female (CMNC); Paraíso Yuscarán

1030 m, 8 June 1994, on *Pouteria sapota*, Cols. H & A Howden, 131 males, 96 females (BDGC, EAPZ, HAHC, IEXA, MXAL); Cerro Monserrat, 7 km SW, Yuscarán, 24 May 1994, 1800 m, Cols. H & A Howden,10 males, 11 females; same data except 15 May 1994, 1 male (HAHC).

Biology. This species inhabits tropical rain forest, tropical plantations, cloud forest, and oak forest located at altitudes from 100 to 1800 m. Months of collection in Honduras: May (22), June (229). Many specimens were collected on *Pouteria sapota* L. (Sapotaceae) at Yuscarán. Another species of *Macrodactylus* (*M. tibialis*) was collected in the same place, time, and host.

Distribution. Southeastern México to southeastern Honduras (13 ° 30'–15° 10' N, 86° 10' –92° 30' W).

Remarks. This species was originally described with a large series of specimens from Sarstoon -River (Belize); Dueñas, Coban (Guatemala); Chontales (Nicaragua); and Volcan de Irazu (Costa Rica). Arce-Pérez and Morón (2000) added records from Tapachula, Chiapas, (México) and Palmar Viejo, Quetzaltenango (Guatemala). The variation in the 251 specimens studied from Honduras was within the parameters of the specimens studied previously. The new records aid to link the distribution of this species between Chontales and Guatemala, across the chain of mountains in southeastern Honduras.

Macrodactylus sericeicollis Bates, 1887

Diagnosis. This species is distinguished by the following combination of characters: antennal club reddish-brown with distal half darkened; pronotum black with numerous scale-like setae uniformly distributed on the disc; elytra reddish-brown with numerous scale-like setae along the inner half and scattered, short setae irregularly distributed along the outer half (Fig. 2); pygidium black or dark brown with scattered scale-like setae; abdomen black; femora and tibiae reddish-brown, apex of tibiae noticeably darkened; tarsi black with scattered white setae; parameres with lanceolate apex, without setae on the external borders; female vestiture and color similar to male.

Material examined (32 males, 30 females) **NEW COUNTRY RECORDS:** HONDURAS: Siguatepec, 1 September 1957, Col. Baires, 1 male (AMNH); Francisco Morazán, El Zamorano, Mt. Uyuca, cloud forest 2000 m, 24 December 1965, Cols. P. H. Freytag & H. J. Harlan, 23 males, 21 females (HAHC, IEXA, MXAL). NICARAGUA: Matagalpa, Fuerte Pura 28 December 1994, Cols. J.Maes, J Hernández and L. R. Hernández 5 males, 4 females (MELN, MXAL); km 147 carr. Matagalpa- Jinotega, 20 November 1994, Cols. Maes, Tellez y Johnson, 3 males, 5 females (MELN, MXAL).

Biology. This species inhabits cloud forests and coffee plantations located at altitudes from 1800 to 2000 m. Months of collection: September (1), November (8), December (53). The adults of this species fly during late autumn, which is notable because other Central American species are usually active during spring and summer.

Distribution. Central Guatemala to northwestern Nicaragua (13° 00'–15° 24' N, 85° 50'–91° 10' W).

Remarks. This species was originally described using a large series from San Gerónimo, Purula, Coban, and Cubilguitz from Vera Paz, Guatemala. The specimens studied from Honduras and Nicaragua do not exhibit any major differences when compared to the Guatemalan specimens. The new records in Nicaragua extend the distribution 260 km to the southeast of Coban, Guatemala across several chains of mountains in Guatemala and Honduras.

Macrodactylus sericinus Bates, 1887

Diagnosis. This species is distinguished by the following combination of characters: antennal club entirely reddish-brown; pronotum black with sparse, scale-like setae near the borders of disc; scutellum with abundant, yellow, scale-like setae; elytra glabrous with strong sericeous shine, basal half reddish-brown and apical half black or dark brown (Fig. 3); pygidium black or dark brown with scattered scale-like setae near the center of disc; abdomen black; femora reddish-brown, tibiae and tarsi black, without white setae; parameres with lanceolate apex, without setae on the external borders; female vestiture and color similar to male.

Material examined (12 males, 10 females) NICARAGUA: Granada, Volcán Mombacho, El Progreso, malaise trap, 2 June 1998, Col. J. M. Maes, 7 males, 4 females (MELN, MXAL); Volcán Mombacho, Santa Ana, 30 June 1998, Cols. J. M. Maes, 5 males, 6 females (MELN, MXAL).

Biology. This species inhabits cloud forests and coffee plantations located at altitudes from 800 to 1500 m. Month of collection: June (22).

Distribution. Southern Nicaragua (12° 10'–13° 05' N, 84° 40' –86° 10' W).

Remarks. This species was originally described with specimens from "Nicaragua" and Chontales, Nicaragua. The specimens studied do not present major differences with the description of Bates. We predict that this species occurs in northwestern Costa Rica.

Macrodactylus suavis Bates, 1887

Diagnosis. This species is distinguished by the following combination of characters: antennal club reddish-brown with the apex darkened; pronotum black with scattered scale-like setae mainly toward the borders of disc; scutellum with abundant, yellow, scale-like setae; elytra with numerous scale-like setae along the inner half and short setae distributed in two irregular stripes along the outer half, basal half reddish-brown and apical half black (Fig. 4); pygidium black, dark brown or reddish-yellow with scattered scale-like setae near the center of disc; abdomen black; femora and tibiae reddish-brown, apex of tibiae

darkened; tarsi black without white setae; parameres with lanceolate apex, without setae on the external borders; female vestiture and color similar to male.

Material examined (2 males, 1 female) NICARAGUA: Chontales, Belt, male syntype (CNC). COSTA RICA: San José province, San Antonio, Quebrada Londres, 1700 m, 17 May 1997, Col. F. A. Quezada, 1 male, 1 female (MXAL).

Biology. This species inhabits wet montane forests located at altitudes from 800 to 1700 m. Month of collection: May (2).

Distribution. Southern Nicaragua to central Panama (8° 50'–12° 10' N, 79° 30'–85° 20' W).

Remarks. This species was originally described with specimens from "Costa Rica;" Volcán de Irazú, Cache, Costa Rica; Bugaba, Panama; and Chontales, Nicaragua. Bates noted the variation of large body size (11 mm) and dark color of the middle and hind tibiae in the specimens from Chontales. Worn specimens are difficult to identify without the examination of male genitalia, because the distribution of setae on the elytra is an important diagnostic character.

GROUP II "*M. dimidiatus*" (*sensu* Arce-Pérez and Morón, 2000)

Macrodactylus dimidiatus Guérin-Méneville, 1844

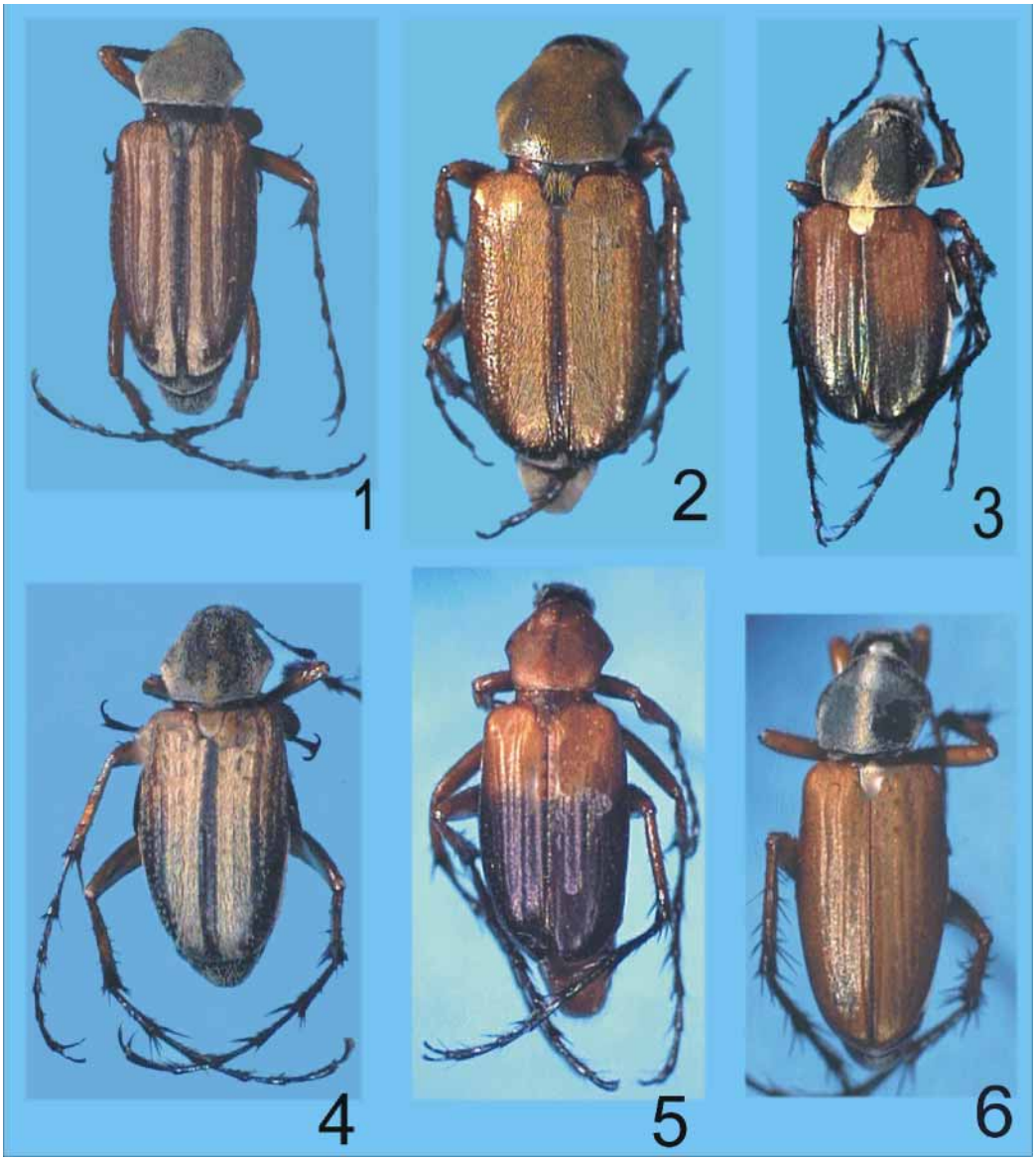
Diagnosis. This species is distinguished by the following combination of characters: entire antennal club reddish-yellow; pronotum glabrous, orange-yellow; elytra glabrous, orange-yellow with distal two-thirds iridescent black or dark blue (Fig. 5); pygidium orange-yellow with scattered scale-like light yellow setae; abdomen black; femora and tibiae reddish-yellow; tarsi black without white, short setae; parameres strongly curved before apex, without setae on the external borders; vestiture and color of female similar to male.

Material examined (5 females). **NEW COUNTRY RECORD**: HONDURAS, Sta. Bárbara, 5 km NW. Peña Blanca 820m , 1 June 1994, Col. H & A Howden 1 female (HAHC); same data except Col. B. Gill col. 4 females (BDGC).

Biology. This species inhabits tropical rain forest, deciduous tropical forest, tropical plantations, and cloud forest located at altitudes from 20 to 2250 m. Month of collection in Honduras: June (5).

Distribution. Eastern México to western Honduras (14° 10'–21° 40' N, 88° 10'–99° 20' W).

Remarks. Bates (1887) and Arce-Pérez and Morón (2000) recorded specimens from numerous localities in southern Mexico and Guatemala. The new record in Honduras extends the distribution of this species 120 km east of Coban, Guatemala.



FIGURES 1–6. 1--- *Macrodactylus costulatus* Bates, male; 2--- *M. sericeicollis* Bates, male; 3--- *M. sericinus* Bates, male; 4--- *M. suavis* Bates, male; 5--- *M. dimidiatus* Guérin-Méneville, male; 6--- *M. sylphis* Bates, male.

Macrodactylus tibialis Arce-Pérez and Morón, new species

(Figs. 7,10, 13–15)

Diagnosis. This species is distinguished by the following combination of characters: antennal club unicolored; pronotum, elytra, and pygidium glabrous, orange; tarsi without

rings of white setae; male with a strong, acute spine near the middle of the inner border of each protibia; parameres are stout without setae on the external borders.

Description. Holotype. Male: Body length 12.5 mm; humeral width 3.5 mm. *Color* (Fig. 7): clypeus, antennae, mouthparts, pronotum, elytra, pygidium, last sternite, femora, and tibiae orange; frons, scutellum, pterothorax, abdomen, and tarsi black. *Surface*: dorsally glabrous with iridescent silky shine when viewed without magnification, coarsely punctate or finely rugose with magnification; ventrally with short, fine, yellow setae. *Head:* clypeus trapezoidal, anterior border nearly straight; antennal club yellow; mentum elongate, longitudinally furrowed, anterior border straight, anterolateral emargination exposing basal segment of labial palpus. *Thorax*: pronotum hexagonal, convex, 3.1 mm length, 2.8 mm width; prosternal process small, subtriangular, slightly depressed, hidden in frontal view; scutellum elongate with rounded apex; elytra with punctate striae. Metasternum with two longitudinal rows of short, red setae between meso- and metacoxae. Procoxa conical, prominent. Protibia with two rounded teeth at the apex of external border and one strong, acute spine near the middle of inner border (Fig. 1). Protibial articulated spur absent. Protarsus shortened, with spine-like setae at the apex of each segment, without rings of white setae. Meso- and metafemur with short, spine-like setae scattered on ventral surface. Mesotibia widened toward the apex with two long, narrow, straight, acute spurs and long spine-like setae around the apex. Metatibia widened toward the apex with some preapical long, black setae on the inner surface, and long, spine-like setae around the apex. Meso- and metatarsi enlarged with short, spine-like setae on the surface and long spine-like setae around the apex of each segment, without rings of white setae. All tarsal claws narrowly cleft. *Abdomen*: sternites 2–4 moderately concave at middle with two spine-like, erect, reddish, short setae at the sides of midline; length of sternite 5 twice the length of sternite 4 with numerous spine-like, erect, long setae near the posterior border; sternite 6 ovate, with numerous spine-like, red setae on the surface and long, black setae on the apical border. Pygidium elongate, strongly convex, with scattered spine-like setae. *Genitalia*: total length 3.75 mm; parameres stout, glabrous, completely fused dorsobasally, widely curved toward the apex, forming an oval in distal view with 1.50 mm length and 1.24 mm width; each apex weakly lanceolate (Figs. 13–14).

Allotype. Female: Body length 12.0 mm; humeral width 3.9 mm (Fig. 10). Similar to male except as follows: pronotum 3.05 mm length, 3.10 mm width; protibia without acute spine near the middle of inner border with preapical articulated spur; abdominal sternites 2–4 convex at middle without erect, long setae; pygidium short, weakly convex, nearly triangular. Genital plates large, external border widely curved (Fig. 15).

Variation (131 paratypes). Body length 12.0–13.5 mm; humeral width 3.0–3.6 mm; prosternal process slightly elongate in some specimens; pronotum completely dark green or orange with a dark green stripe along the midline or a dark brown spot at the middle of pronotal disc in some specimens from Nicaragua. Posterior half of the elytra iridescent dark brown in some specimens from Honduras.

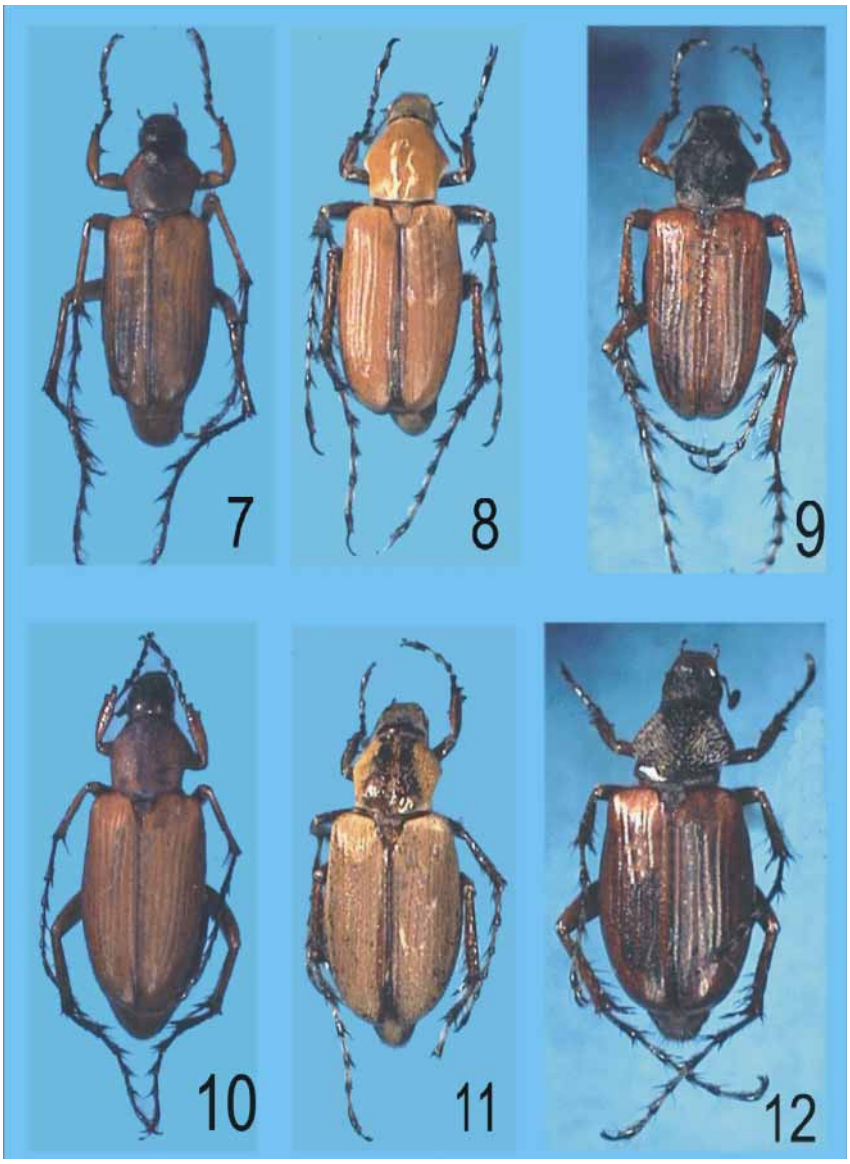
Material examined (79 males, 57 females). Holotype male: NICARAGUA. Km 137 carretera Matagalpa-Jinotega, 1000 m, 1 July 1984, on weeds along the road, Col. J. M. Maes (IEXA). Allotype female: NICARAGUA. Matagalpa department, Fuente Pura, 1500 m, 9 July 1995, on *Zea mays*, Cols. J. M. Maes & P. Jolivet (IEXA). Paratypes: same data as holotype (1 male) (MXAL); same data as allotype (2 males) (MELN); same data except: 12 June 1994, Cols. J, M. Maes, J. Téllez & J. Hernández (1 male) (MXAL) (1 female) (MELN); 26 June 1994 (1 male, 1 female); 6 July 1994, Cols. J. M. Maes & J. Hernández (1 male) (MELN); NICARAGUA. Matagalpa department, Selva Negra, 1300 m, 8 May 1995, Cols. J. M. Maes, J. Téllez & J. Hernández (1 male, 7 females) (MELN); Matagalpa, Selva Negra (hotel) 25–29 June 2004, Col. P. Schoolmeesters (2 males, 1 female) (PSPC) Madriz department, Somoto, San Lucas, 1370 m, 29 July 2000, Cols. J. M. Maes & B. Téllez (1 male, 1 female) (MELN); Jinotega department, Cerro Kilambe, Camp. 2, 1550 m, 10/17 May 1998, Cols. J. M. Maes & B. Hernández (3 males, 1 female) (MELN); 9 km E Jinotega, Finca Santa Enriqueta, 1250 m, 24/30 May 2003, Col. D. Roiz (6 males, 3 females) (MELN); 5 km S Jinotega, Los Pinares, 1500 m, 29 May 1992, Cols. J. M. Maes & C. Pineda (1 male) (MELN). HONDURAS. El Paraiso department, Yuscarán, 1030 m, 8 June 1994, on *Pouteria sapota*, Cols. H. & A. Howden & B. Gill (53 males, 31 females) (HAHC, BDGC, EAPZ, IEXA, MXAL); Cerro Monserrat, 7 km SW Yuscarán, 1800 m, 8 June 1994, Cols. H. & A. Howden & B. Gill (3 males, 10 females) (HAHC, BDGC). Olancho department, La Muralla, 24 May 1995, Col. R. Morris (1 male) (HAHC); P. N. La Muralla, 24/27 May 1995, Col. J. E. Wappes (1 male) (HAHC).

Biology. This species inhabits montane moist forests located at altitudes from 1000 to 1800 m. Months of collection: May (24), June (101), July (8). Specimens were collected on *Pouteria sapota* L. (Sapotaceae) in El Paraiso department, Honduras and on *Zea mays* L. (Poaceae) and unidentified weeds at Matagalpa department, Nicaragua.

Geographical distribution. Mountains in the southeast of Honduras and northwest of Nicaragua, Central America (13°–15° N, 86°–87° W).

Taxonomic comments. *Macrodactylus tibialis* is the only known species in this genus with an acute spine on the inner border of the male protibia. It is included in the "*M. dimidiatus*" group (*sensu* Arce-Pérez and Morón, 2000) because the dorsal surface and pygidium are glabrous and lack the scale-like setae typical of other groups of species, the tarsal segments do not have rings of white setae, the parameres are stout and are without setae on the external borders, and the genital plates of the females are large with the lateral borders widely expanded.

Etymology. The Latinized name refers to the sexually dimorphic structure of the protibia in this species.



FIGURES 7–12. 7--- *Macrodactylus tibialis* Arce-Pérez and Morón, sp. nov. male; 8--- *M. hondurensis* Arce-Pérez and Morón, sp. nov. male; 9--- *M. montanus* Arce-Pérez and Morón, male; 10--- *M. tibialis*, female; 11---*M. hondurensis*, female; 12--- *M. montanus*, female.

GROUP IV *"M. subspinosus"* (*sensu* Arce-Pérez and Morón, 2000)

Macrodactylus hondurensis Arce-Pérez and Morón, new species

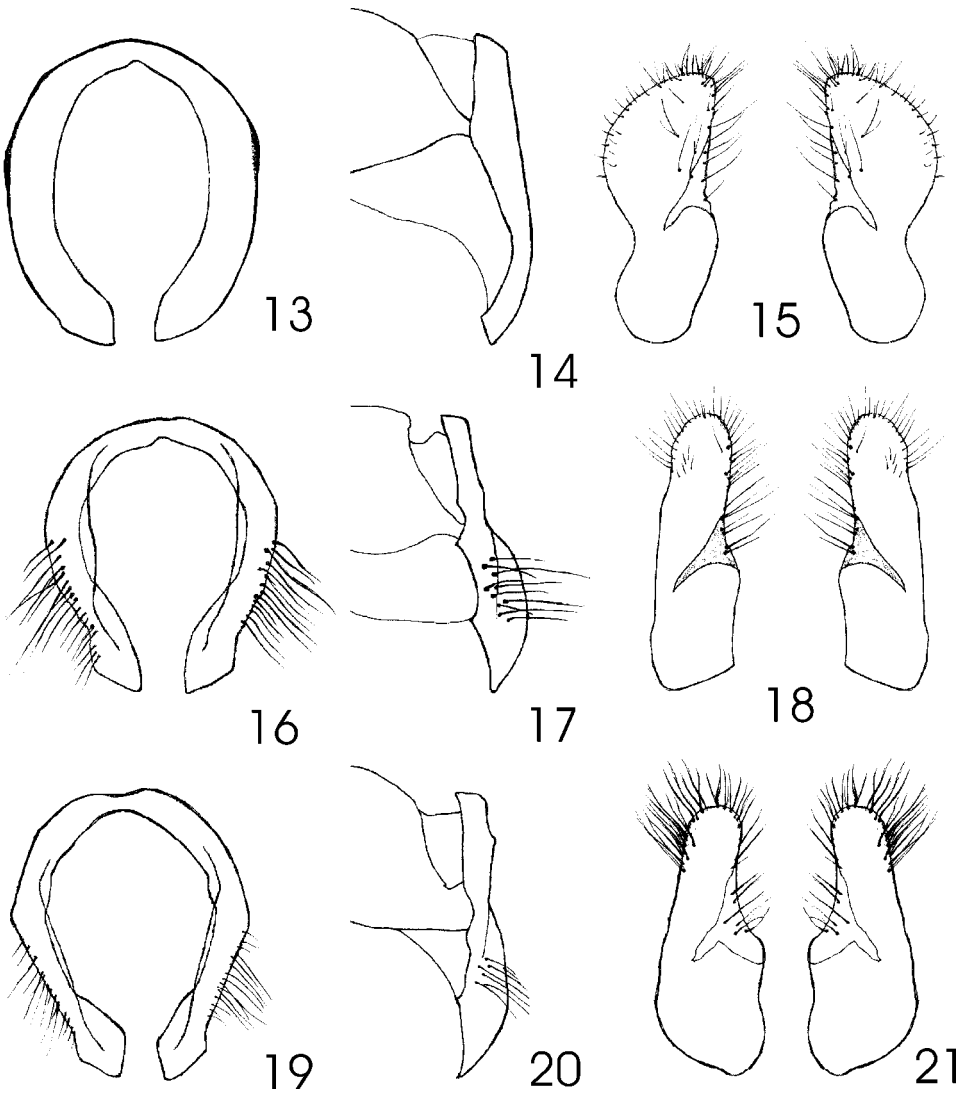
(Figs. 8, 11, 16–18)

Diagnosis. This species is distinguished by the following combination of characters: antennal club bicolored; pronotum, elytra, and pygidium with dense vestiture of scale-like,

mustard yellow setae; abdomen and legs black; tarsi with rings of white setae; parameres with lanceolate apex and long setae on the external borders; female with scale-like, mustard yellow setae only at the sides of the pronotum.

Description. Holotype. Male: Body length 10.0 mm; humeral width 3.5 mm. *Color* (Fig. 8): clypeus, most of antennae, mouthparts, elytra, pygidium, last sternite, femora, and most of tibiae reddish-yellow; head, distal half of antennal club, pronotum, scutellum, pterothorax, abdomen, apex of tibiae, and tarsi black. *Surface*: clypeus and frons with scattered scale-like, yellow setae; pronotum with dense vestiture of scale-like, yellow, short setae that cover most of integument; elytra weakly striated without scale-like setae along sutural and lateral borders; elytral disc with recumbent scale-like, yellow, short setae that do not completely cover the integument; ventrally with short, white setae. Disc of pygidium with scale-like, yellow setae, surrounded by glabrous, wide margins. *Head:* clypeus trapezoidal, anterior border nearly straight; antennal club yellow with apical half black; mentum elongate with scattered, longitudinally furrowed setae; anterior border straight; anterolateral emargination exposing basal segment of labial palpus. *Thorax*: pronotum hexagonal, convex, 3.2 mm length, 2.9 mm width; prosternal process short, narrowed, slightly depressed, with acute apex hidden in frontal view; scutellum elongate with rounded apex. Metasternum with two longitudinal, irregular rows of long, yellow setae between meso- and metacoxae. Procoxa conical, prominent. Protibia with two rounded teeth at the apex of external border. Protibial articulated spur absent. Protarsus shortened with spine-like setae at the apex of each segment and rings of white setae. Meso- and metafemur with short, spine-like setae scattered on ventral surface. Mesotibia widened toward the apex with two long, narrow, weakly curved, acute spurs, and long spine-like setae around the apex. Metatibia widened toward the apex with numerous preapical long, black setae on the inner surface and long, spine-like setae around the apex. Meso- and metatarsi enlarged, each segment with rings of white setae on basal half and long spine-like setae around the apex. All tarsal claws narrowly cleft. *Abdomen*: sternites 2-5 moderately concave at middle, each with 4–5 spine-like, erect, reddish, short setae at the sides of midline; length of sternite 5 twice the length of sternite 4, without setae near the posterior border; sternite 6 ovate with scattered white setae on the surface and numerous long, black setae on the apical border. Pygidium elongate, strongly convex. *Genitalia*: total length 2.95 mm; parameres stout with long setae on the distal half of lateral borders, completely fused dorsobasally, widely curved toward the apex, horse-shoe shape in distal view with 1.14 mm length and 0.96 mm width; each apex clearly lanceolate (Figs. 16-17).

Allotype. Female: Body length 11 mm; humeral width 4 mm (Fig. 11). Similar to male except as follows: pronotum 2.8 mm in length, 2.9 mm in width with scale-like dark yellow setae only at the sides of the pronotum; protibia with preapical articulated spur; abdominal sternites 2–4 convex at middle without erect, long setae; pygidium short, nearly triangular, weakly convex, slightly projected before the apex. Genital plates narrowed, apex rounded and external border briefly sinuate (Fig. 18).



FIGURES 13–21. Diagnostic structures of species of *Macrodactylus*: *M. tibialis*, 13---Parameres, distal view; 14---Parameres, lateral view; 15---Female genital plates, ventral view; *M. hondurensis*, 16---Parameres, distal view; 17---Parameres, lateral view; 18---Female genital plates, ventral view; *M. montanus*, 19---Parameres, distal view; 20---Parameres, lateral view; 21---Female genital plates, ventral view.

Variation (6 paratypes). Body length 9.8-11.5 mm; humeral width 3.4–4.1 mm; antennal club dark and abdominal sternites reddish-yellow to dark yellow in some specimens.

Material examined (2 males, 6 females). Holotype male: HONDURAS. Cortes department, San Pedro Sula, Parque Nacional Cusuco, Danto Trail, 2 March 1995, Col. R. Cordero (CMNC). Allotype female (CMNC), 1 male and 5 females paratypes (CMNC, MXAL) with same data as holotype.

Biology. This species inhabits secondary montane moist forest of *Pinus*, *Liquidambar*, *Trema*, and *Quercus* species located at 1800 m in altitude. Month of collection: March (8).

Geographical distribution. Mountains in western Honduras (15° 30' N, 88° 05' W).

Taxonomic comments. *Macrodactylus hondurensis* is included in the "*M. subspinosus*" group (*sensu* Arce-Pérez and Morón, 2000) because the dorsal surface and pygidium have scale-like setae, the metasternum has rows of long setae between meso- and metacoxae, the largest mesotibial apical spur is curved, the tarsal segments have rings of white setae, the parameres have setae on the external borders, and the genital plates of the females are narrowed with the lateral borders not expanded.

Etymology. Latinized name of the country where the species was collected.

Macrodactylus montanus Arce-Pérez and Morón, 2000

Diagnosis. This species is distinguished by the following combination of characters: antennal club reddish-brown with the apex darkened; pronotum black with scattered setae on the borders; elytra orange-yellow with sericeous shine (Fig. 9); pygidium glabrous, orange-yellow; abdomen black; femora and tibiae reddish-brown; tarsi nearly black with scattered white setae; parameres with apex lanceolate and setae on the external borders; female with scattered erect setae on the pronotum (Figs. 12).

Material examined (11 males, 16 females). MEXICO. Chiapas state, San Cristobal de Las Casas municipality, Reserva Huitepec, 2250m, 30 May 1996, Col. O. Gómez (holotype and allotype) (IEXA). **NEW COUNTRY RECORDS**: HONDURAS. Ocotepeque department, Guisayote, 20.5 km Ocotepeque, 2170 m, 16 June 1994, Col. R. Anderson, 7 males, 6 females (CMNC, MXAL). Lempira department, Corquin, Cerro de Celaque, 1800 m, 17 July 1999, Col. J. Monzón, 3 males, 9 females (UVGC, IEXA).

Biology. This species inhabits cloud forests and pine oak forests located at altitudes from 1800 to 2250 m. Months of collection: May (2), June (13), July (12). The type series was collected on an unidentified Styracaceae.

Distribution. Northeastern Chiapas, México to western Honduras (14° 05'–16° 44' N, 88° 40'–92° 38' W).

Remarks. This species was originally described with one pair of specimens from "Reserva Huitepec", Chiapas, México. The large series of specimens collected in Honduras have some differences from the types as follows: body length 12–13 mm, humeral width 3.5–4.0 mm; clypeus, antennal funicle, elytra, pygidium, and legs reddish-brown (Fig. 11); abdominal sternites 2–5 each with 6–8 spine-like, erect, reddish-brown, long setae at the sides of midline; apex of meso- and metatibia and tarsal segments darkened; parameres slightly larger with the crest on the inner border more developed (Figs. 19–20). Female pronotum with scattered mixture of short and long erect setae (Fig. 12); genital plates (Fig. 21) slightly longer and narrower than in the allotype. The new records in Honduras extend the distribution 250 km to southeast of San Cristobal Las Casas, Chiapas

across the high mountain ranges in Chiapas, Guatemala, and Honduras. It is likely that this species will be found in Guatemalan humid forests located above 2000 m in altitude.

GROUP V "*M. sylphis*" (*sensu* Arce-Pérez and Morón, in prep.)

Macrodactylus sylphis Bates, 1887

Diagnosis. This species is distinguished by the following combination of characters: antennal club entirely yellowish-brown; pronotum iridescent black or dark green with scattered scale-like setae along the midline and on the borders of disc; scutellum with abundant, yellow, scale-like setae; elytra orange-yellow with sericeous shine, glabrous except for 5–6 stout, long black setae near scutellum (Fig. 6); pygidium dark brown or reddish-yellow, with scattered scale-like setae along the center of disc; abdomen black; femora and tibiae reddish-brown, apex of tibiae darkened; tarsi black without white setae; parameres widened, stout, with acute apex, and without setae on the external borders; female vestiture and color similar to male.

Material examined (2 males, 2 females) NICARAGUA: Chontales, Belt, male syntype (CNC). COSTA RICA: Guanacaste province, Arenal, Tilaran A.C., Tierras Morenas, 685 m, June 1994, Col. G. Rodríguez, 1 male, 1 female (MXAL); Alajuela province, San Ramón de Dos Rios, 620 m, 26 June 1995, Col. F. A. Quezada, 1 female (IEXA).

Biology. This species inhabits wet montane forests located at altitudes from 620 to 800 m. Month of collection: June (3).

Distribution. Southern Nicaragua to central Panama (8° 50'–12° 10' N, 79° 30'–85° 20' W).

Remarks. This species was originally described with specimens from Chontales, Nicaragua and Bugaba, Panama. Bates noted the variation of color in the pygidium, which is dark brassy in the specimens from Chontales and yellow in the specimens from Bugaba. The form of the parameres is clearly different to the other species from Mexico to Nicaragua and in combination with other set of characters support the diagnosis of the fifth group of species in the genus. This group will be diagnosed and defined in a future publication.

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