

DIGITAL APPENDIX 1

Summary of knowledge about Central American Onychophorans

Central American onychophorans were reviewed by Peck (1975) and more recent literature has dealt with taxonomy, behavior, ecology, taphonomy and cultural products. Based on skin morphology as seen through the Scanning Electron Microscope, Read (1988) stated that the number scale ranks justifies the separation *Peripatus* from *Epiperipatus*, but that *Macroperipatus* is not a natural group. Costa (2016) supported that view and, based on DNA and morphology, concluded that while the genus *Epiperipatus* is valid in Central America, *Principallipatus* and *Cerradopatus* should be considered junior synonyms *Epiperipatus*.

Sampaio-Costa et al. (2009) identified the three main obstacles in the proper identification of Neotropical species: traditional morphological characters are insufficient and become distorted in preservation; and population densities are so low that it is impossible to distinguish inter-species variation from intra-species variability. Furthermore, experiments with Central American specimens had shown that taphonomic conditions can produce false absence, and even false presence, of some morphological characters (Monge & Hou, 2002).

Monge-Nájera & Morera-Brenes (2016) found that Costa Rica is the second country worldwide in the production of art, folkloric beliefs and other cultural expressions inspired by velvet worms. The corrected geographic distribution all formally described Costa Rican species was published by Barquero-González et al. (2016b), but no equivalent work has been done elsewhere in Central America (Morera-Brenes, 2012).

DIGITAL APPENDIX 2: Figures

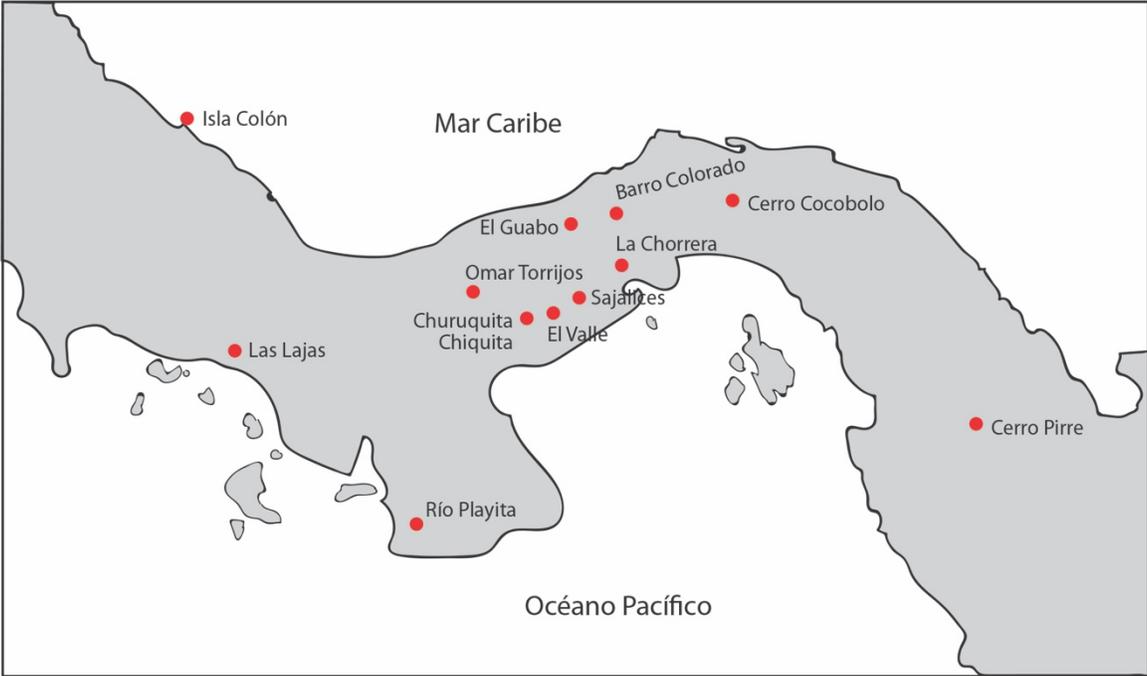


Fig. 1. Geographic distribution undescribed onychophorans in Panama (details in Digital Appendix).



Fig. 2. Photographic guide to undescribed onychophoran species of Panama.



Fig. 3. Biolley Collared Raspberry Onychophoran (Courtesy of Frank González).



Fig. 4. Amak Nicaragua Sandy Brown Onychophoran (Courtesy Aurelio Núñez).



Fig. 5. Castillo Vinous Onychophoran (from a video by Javier Canteros).

DIGITAL APPENDIX 3

Color patterns of undescribed species of Onychophora from Panama

Species Number	Leg pairs	Locality	Coloration (numbers refer to Köhler, 2012).
001	30	Province Bocas del Toro, District Bocas del Toro, Corregimiento Bocas del Toro, Isla Colón, town Boca del Drago.	Body clay-colored (18), with several longitudinal rows of beige spots (254) and a mid-dorsal line. Legs glaucous (289).
002	31	Province Chiriquí, District San Felix, Corregimiento Las Lajas.	Body and legs ferruginous (35), with mid-dorsal line.
003	27	Province Coclé, District Penonomé, Corregimiento Pajonal, town Churuquita Chiquita.	Body cinnamon-rufous (31) with jet black (300) stipples. One spot beige (254) on the body above each leg. Legs beige (254). Mid-dorsal rhomboid pattern with cinnamon edge (21) and center cinnamon-rufous (31). Beige (254) band on head.
004	27	Province Coclé, District Penonomé, Corregimiento Pajonal, town Churuquita Chiquita.	Body cinnamon-rufous (31) with jet black (300) stipples. One spot beige (254) on the body up each leg. Legs beige (254). Mid-dorsal rhomboid pattern with cinnamon edge (21) and center cinnamon-rufous (31). <i>Without</i> band on the head.
005	33	Province Coclé, District Antón, Corregimiento El Valle, town El Valle de Antón.	Body suffusion mauve (206), mikado brown (42) and mid-dorsal line. Legs dark pinkish rose (220). Wide white band on head.
006	32	Province Colón, District Chagres, Corregimiento El Guabo, town El Guabo.	Body and legs with suffusion mauve (206) and mikado brown (42). Mid-dorsal line.
007	34	Province Darién, District Chepigana, Darién National Park, Corregimiento Tucutí, Cerro Pirre, adjacent to sede administrativa Rancho Frío Ministerio de Ambiente.	Body and legs pale horn colored (11). Mid-dorsal rhomboid pattern with edge cinnamon-drab (50) and center pale horn colored (11).
008	33	Province Panamá Oeste, District La Chorrera, Corregimiento Barrio Colón.	Body suffusion pale purple (223) and dark bluish purple; and mid-dorsal line. Legs dark pinkish rose (220). Wide white band on head.
009	Unknown	Province Panamá Oeste, District Chame, Corregimiento Sajalices, Sajalices river.	Body suffusion mauve (206), mikado brown (42) and mid-dorsal line. Legs dark pinkish rose (220). Thin white band on head.

010	Unknown	Province Panamá Oeste, District La Chorrera, Corregimiento Amador, Isla Barro Colorado.	Body suffusion mauve (206), mikado brown (42) and mid-dorsal line. Legs dark pinkish rose (220).
011	30	Province Panamá, District Chepo, Reserva Natural Cerro Cocobolo.	Body pale cinnamon (55) and legs cream (12). Dorsal mid-line overlapping spots, medium neutral gray (298).
012	Unknown	Province Coclé, District La Pintada, Corregimiento El Copé, Omar Torrijos National Park, near sede administrativa, Ministerio de Ambiente.	Body drab (19) and legs olive horn (16) with mid-dorsal line.
013	Unknown	Province Veraguas, District Mariato, Corregimiento Arenas, near Playita river.	Body and legs deep vinaceous (248) with several longitudinal rows of beige spots (254) on dorsum. Mid-dorsal dashed line.