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A new species of *Dactylopius* Costa (*Dactylopius gracilipilus* sp. nov.) (Hemiptera: Coccoidea: Dactylopiidae) from the Chihuahuan Desert, Texas, U.S.A.

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Abstract

A new species of *Dactylopius* Costa (*Dactylopius gracilipilus* Van Dam & May) is described and illustrated. It is morphologically similar to *Dactylopius tomentosus* (Lamarck), but has more gracile truncate setae, abundant simple pores dorsally, and appears to be host-restricted to *Corynopuntia* Knuth (Cactaceae: Opuntioidea).

Key words: cochineal, Dactylopiidae, taxonomy, Chihuahuan Desert, host-restricted

Introduction

The scale insects (Hemiptera: Coccoidea) are a diverse group of mainly sap-sucking insects with at least 30 families and around 8000 species. Female scale insects have a simplified morphology and lack all trace of wings whereas the males are minute, have a single pair of wings (mesothoracic) and completely lack mouthparts. Within the Coccoidea, the Dactylopiidae Costa is a small monogeneric family of nine species (De Lotto 1974). *Dactylopius* spp. are of significant economic and biological importance for three reasons: 1, carminic acid is extracted from dried pulverized bodies of *D. coccus* Costa and then used as a red dye globally, primarily as food coloring (Perez Guerra & Kosztarab 1992; FAO 2003; Rodriguez & Pascual 2004; Portillo & Zimmermann 2008; Chávez-Moreno *et al.* 2009); 2, five of the nine *Dactylopius* species have been used successfully as biological control agents of invasive cacti (Hosking *et al.* 1994; Githure *et al.* 1999; Singh 2004; Zimmermann *et al.* 2004; Mathenge *et al.* 2009); and 3, *Dactylopius* spp. can be invasive, threatening native cacti and cochineal production in areas where they are non-native (Portillo & Zimmermann 2008; Lopes *et al.* 2009; Chávez-Moreno *et al.* 2011; Santos *et al.* 2011).

Dactylopius has a disjunct, amphitropic distribution, with four endemic species in North America (including Mexico) and five endemic species in South America from Peru southwards, particularly in northern Argentina (De Lotto 1974; Perez Guerra & Kosztarab 1992; Ben-Dov & Marotta 2001; Claps & de Haro 2001). Dactylopiidae only infest members of Cactaceae, including both Cactoidea and Opuntioidea (De Lotto 1974; Perez Guerra & Kosztarab 1992; Claps & de Haro 2001). A new species has been found on the *Corynopuntia schottii* (Engelmann) Knuth species complex (Benson 1982; Ralston & Hilsenbeck 1992; Griffith 2002), in Chihuahuan Desert of Big Bend National Park, Texas, and is described below.

Material and Methods

All specimens were collected by the first author under Big Bend National Park permit BIBE-2008-SCI-0034. Slide mounting procedures follow protocols of the United States Department of Agriculture Systematic Entomology Laboratory (USDA 2011).

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