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Notas / *Notes*

First records of *Eupompha imperialis* (Wellman, 1912) (Coleoptera: Meloidae) in Mexico

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ABSTRACT

Three populations of *Eupompha imperialis* (Wellman, 1912) were located in the Mexican states of Baja California and Sonora, in close proximity to the Mexico-USA border. These populations represent the first records for *E. imperialis* in Mexico. The specimens were observed in sandy areas of the Sonoran Desert, associated with flowering *Tiquilia palmeri* (Boraginaceae). These new records suggest that, despite the rarity of some species of Eupomphini, further exploration of the northernmost areas of Sonora and Baja California may increase the number of species of Eupomphini and other tribes of Meloidae present in Mexico.

Key words: Geographic distribution; desert; Mexico; USA; Meloidae; Eupomphini; *Eupompha*.

RESUMEN

Primeros registros de *Eupompha imperialis* (Wellman, 1912) (Coleoptera: Meloidae) en México

Se localizaron tres poblaciones de *Eupompha imperialis* (Wellman, 1912) en los estados mexicanos de Baja California y Sonora, en las proximidades de la frontera México-Estados Unidos. Estas poblaciones representan los primeros registros de *E. imperialis* en México. Los ejemplares de *E. imperialis* se observaron en zonas arenosas del desierto de Sonora, asociados a ejemplares en flor de *Tiquilia palmeri* (Boraginaceae). Estos nuevos registros sugieren que, a pesar de la rareza de algunas especies de Eupomphini, el desarrollo de nuevas exploraciones en las áreas más septentrionales de Sonora y Baja California permitiría incrementar el número de especies de Eupomphini y de otras tribus de Meloidae presentes en México.

Palabras clave: Distribución geográfica; desierto; México; USA; Meloidae; Eupomphini; *Eupompha*.

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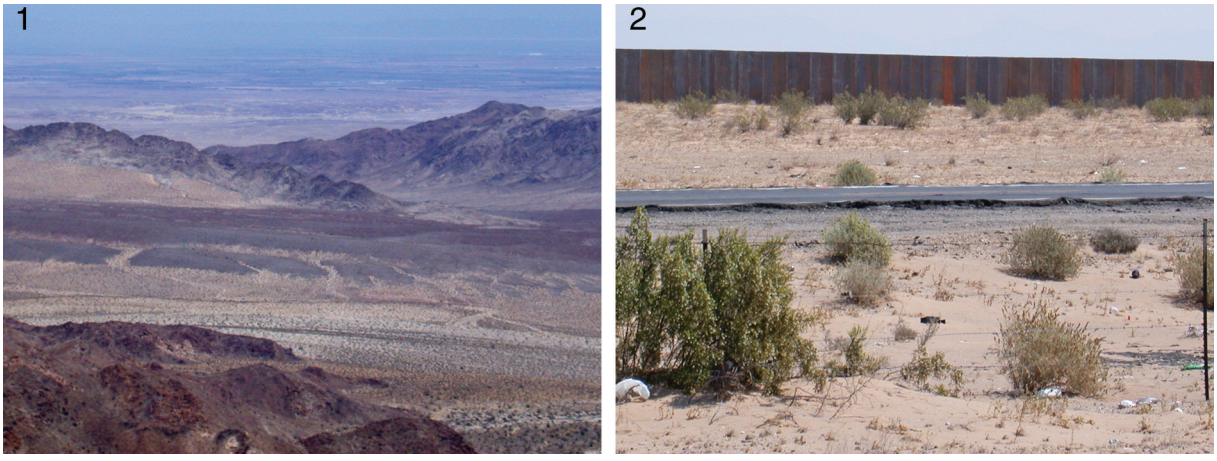
Recent studies of the family Meloidae (Coleoptera) provided a framework for the study of the Mexican fauna. The identification keys of genera for the American continent (Pinto & Bologna, 1999), phylogenetic hypotheses for the group (Bologna & Pinto, 2001; Bologna *et al*., 2008), and the Catalogue of Mexican Meloidae (García-París *et al*., 2007), fostered the study of this family in Mexico. As a consequence, various works dealing with Mexican fauna have appeared recently, including taxonomic revisions

(Pinto, 2009; García-París & Ruiz, 2013), addition of new species for the Mexican fauna (García-París *et al*., 2008, 2009; García-París & Ruiz, 2009), revision of local faunas (García-París *et al*., 2009), description of new species (Pinto, 2010; García-París & Ruiz, 2013), resolution of taxonomic problems (García-París *et al*., 2013a), and rediscovery of species unseen for decades (García-París *et al*., 2013b).

Despite these works, the Mexican fauna of Meloidae is still far from adequately known. Taxonomic revisions of most groups are still lacking, geographic distributions are not properly known, and large areas of the country are still insufficiently explored. An example of this situation is represented by the difference of knowledge along the Mexico-US border. A large number of species that could be present in Mexican territory are only known north of the border (García-París *et al*., 2007). This artificial border crosses the territory, in an almost straight line, splitting typical habitat favourable for Meloid beetles at both sides (as the Sonoran and Chihuahuan deserts in the west) (Cohen & Pinto, 1977). This deficit of records on the Mexican side is particularly relevant for the tribes Epicautini, Lyttini and Eupomphini (Selander, 1960; Pinto, 1979, 1984, 1991).

The tribe Eupomphini includes 26 species restricted to arid and semiarid zones of south-western North America, in Mexico and USA (Pinto, 1984). Eighteen of these species have been reported from Mexico (4 endemics), but several other species are only known from the US side of the Mexico-USA border (García-París *et al*., 2007). Three of these species are included in the genus *Eupompha* LeConte 1858. *Eupompha*, is the largest genus of the tribe, with 12 species distributed over much of arid and semiarid southwestern North America, from Guerrero to Nevada (Pinto, 1979, 1983, 1984). *Eupompha terminalis* Selander, 1957, and *E. sulcifrons* (Champion, 1892) are endemic to western Mexico (Michoacán and Guerrero); *E. vizcaina* and *E. decolorata* are endemic to the peninsula of Baja California (Mexico); *E. fissiceps* LeConte, 1858, *E. elegans* (LeConte, 1851), *E. wenzeli* (Skinner, 1904), and *E. viridis* (Horn, 1883), occur both in Mexico and USA; *E. edmunsi* Selander, 1953, is endemic to Utah and northern Arizona (USA); and *E. imperialis* (Wellman, 1912), *E. schwarzi* (Wellman, 1909), and *E. histrionica* (Horn, 1891) are so far restricted to south-western USA (Pinto, 1979, 1983; García-París *et al*., 2007).

Eupompha imperialis is a small and delicate species included in the *E. elegans* species group (*sensu* Pinto, 1979). The species was described from "Meloland" in the Imperial Valley of California (Wellman, 1912). Since then, it has been located in arid regions of the Sonoran Desert in south-eastern California and south-western Arizona, usually found feeding on flowers of *Tiquilia palmeri* (A. Gray) A. Richardson (Boraginaceae) and *Sphaeralcea* (Malvaceae) (Pinto, 1979). It is characterized by a typical color pattern: rufous with pale, bone-coloured, elytra (Figs. 3 & 4) (Wellman, 1912; Pinto, 1979), and by the presence of a tuft of cinereous setae along the midline of the metasternum in males. Other features of males of *E. imperialis* are: presence of a shallow median sulcus on the head, running from the base of clypeus to the vertex (Fig. 3), and swollen tarsal segments, particularly the basal one (Pinto, 1979). The courtship (Pinto, 1977) and the larval morphology (Pinto, 1975) of *E. imperialis* is similar to that of *E. elegans* and *E. decolorata*.



Figs. 1-2.— 1) General habitat occupied by *Eupompha imperialis*, west of Mexicali (Baja California, Mexico). Specimens were detected a few km east of the photographed landscape at the edge of the valley (Photograph MG-P). 2) Area located east of San Luis del Río Colorado (Sonora, Mexico) where *Eupompha imperialis* was observed. Note the wall splitting the desert ecosystem between Mexico and the USA (Photograph MG-P).

Figs. 1-2.— 1) Aspecto del hábitat general ocupado por *Eupompha imperialis* al oeste de Mexicali (Baja California, México). Los ejemplares se detectaron unos pocos km al este del paisaje fotografiado, en el borde del valle (Fotografía MG-P). 2) Área localizada el este de San Luis del Río Colorado (Sonora, México) donde se observó *Eupompha imperialis*. Nótese el muro que parte el ecosistema del desierto entre México y los Estados Unidos (Fotografía MG-P).

Figs. 3-4.— 3) Specimens of *Eupompha imperialis* on *Tiquilia palmeri*, 12 km WSW of Mexicali (Baja California, México). Male and female are involved in courtship after being caged. Note differences on ventral coloration, from almost orange (female) to dark brown (male) (Photograph MG-P). 4) Male specimen of *Eupompha imperialis*, about 8 km SW Los Algodones (Baja California, México). Note the sulcus on the head and the characteristic coloration pattern of the species (Photograph MG-P).

Figs. 3-4.— 3) Ejemplares de *Eupompha imperialis* sobre *Tiquilia palmeri*, 12 km al O-SO de Mexicali (Baja California, México). El macho y la hembra, se encuentran en cortejo, tras pasar un periodo de cautividad. Nótense las diferencias en la coloración ventral de los ejemplares, desde casi anaranjado (hembra), a pardo oscuro (macho) (Fotografía MG-P). 4) Ejemplar macho de *Eupompha imperialis*, localizado unos 8 km al SO de Los Algodones (Baja California, México). Nótese el surco en la parte media de la cabeza y el patrón de coloración, característico de la especie (Fotografía MG-P).

In recent years, we visited the north-western regions of Mexico to study the meloid fauna of the area. As a result, we discovered some populations of *E. imperialis*, which represent the first records of the species in the country. Here we report these new records, make comments on the habitat of *E. imperialis* and show the first photographs of live specimens of this unconspicuous species of *Eupompha*.

Specimens of *E. imperialis* were observed at the following localities in north-western Mexico: **Baja California**: 12 km WSW of Mexicali, 9 m altitude, 32°35′24″N-115°38′56″W: 23-IV-2008, 11 specimens (C. Settanni & M. García-París) (Fig. 1); 2 km NE Ejido Mérida, about 8 km SW Los Algodones (Vicente Guerrero), 28 m altitude, 32°40′07″N-114°53′20″W: 22-IV-2008, 15 specimens (C. Settanni & M. García-París). **Sonora**: 3 km E San Luis del Río Colorado, 49 m altitude, 32°26′29″N-114°38′42″W, 22-IV-2008, 2 specimens (C. Settanni & M. García-París) (Fig. 2).

Populations of *E. imperialis* in Mexico were located in large patches of sandy soil with sparse vegetation, similar to the habitat described for California (Pinto, 1979) (Figs. 1 & 2). All three Mexican localities were detected close to large denuded sand areas (Algodones and La Salada dunes in Baja California, and El Altar dunes in Sonora), near the Mexico-US border (Fig. 2). Adult specimens of *E. imperialis* were always located in the interior parts of flowering *Tiquilia palmeri* (Fig. 3), non-visible from above. The specimens run outside the plant when disturbed (Fig. 4). Courtship (Fig. 3) was observed after some period of reclusion in plastic boxes, and it did not differ from the pattern described by Pinto (1977). Population density was relatively high in Baja California, but low in Sonora. The specimens observed fit with the description provided by Pinto (1977) showing a large variation in the coloration of ventral sternites, from pale orange to almost dark brown (Fig. 3).

Most species of *Eupompha* are poorly represented in collections (Pinto, 1979). This is the case for the Mexican species, represented by only a few specimens at the Colección Nacional de Insectos (Instituto de Biología, UNAM). Pinto (1979) suggested that this paucity of specimens in collections is due to the restricted geographic distribution range and low population densities of most species, and perhaps due to the failure of adults to emerge on all years. We also believe that the scarcity of data on the Mexican side of the Sonoran and Chihuahuan deserts is a consequence of inadequate sampling. Records of Eupomphini in Mexico are scattered and poor, even for showy and colourful species (as those of *Tegrodera* and *Megetra*) (García-París *et al*., 2007).

With the inclusion of *E. imperialis*, the representation of the tribe Eupomphini in Mexico reaches 19 species. However, in our oppinion, adequate collection in Mexico adjacent to the northern frontier would substantially increase the number of species of Meloidae for this country, particularly of tribes Epicautini and Lyttini, by adding species that are currently known as inhabitants of the northern side of the Mexico-US border, as was the case of *E. imperialis* and *Lytta mirifica* Werner, 1951 (García-París & Ruiz, 2009).

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