Occurrence of the Lime Swallowtail *Papilio demoleus* Linnaeus, 1758 (Lepidoptera: Papilionidae) in Western Cuba

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The Asian butterfly *Papilio demoleus* Linnaeus, 1758 (Lepidoptera: Papilionidae) was recorded for the first time to the New World from several localities of eastern Dominican Republic, in the Greater Antillean island of Hispaniola (Guerrero et al., 2004). Soon thereafter, it was recorded from Puerto Rico by Homziak & Homziak (2006).

The first mention for this species from Cuba was introduced by Núñez (2007) from Baracoa, in Guantánamo Province. Later, Lauranzón et al. (2011) observed this species in two southern coast localities of Santiago de Cuba Province. Bermúdez (2011) cited it from Gibara, in Holguín Province. Last, Fernández & Minno (2015) recorded its occurrence in several sites of Las Tunas and Camagüey Provinces.

During recent years, we have been observing scattered but constant occurrences of *P. demoleus* in all provinces of the western region of the country, which still remained unpublished. We also gathered additional information on its distribution in eastern Cuba, together with data on its natural history. All this information is presented in this paper.

The new western Cuba records are listed as follows (localities have been ordered from west to east):

- **Pinar de Río Province** (new record): Los Palacios Municipality: San Diego de los Baños: Las Yeguas (19°53'34"N - 83°22'06"W, 100 m a.s.l.); May–August/2017. Los Palacios (22°35'08"N - 83°15'00"W, 35 m a.s.l.); May–August/2017.
- **Artemisa Province** (new record): Bauta Municipality: La Margarita (22°56'10"N - 82°29'31"W, 60 m a.s.l.); 31/December/2016. San Antonio de los Baños Municipality: San Antonio de los Baños: La Quintica (22°53'42"N - 82°30'16"W, 70 m a.s.l.); 24/December/2017.
- **La Habana Province** (new record): La Lisa Municipality: Reparto Versalles (23°03'56"N - 82°27'12"W, 30 m a.s.l.); January/2017. Plaza de la Revolución Municipality: El Vedado: Colina Universitaria, along G Street (23°07'53"N - 82°23'03"W, 50 m a.s.l.); 25/January/2018. Habana del Este Municipality: Tarará (23°10'14"N - 82°12'51"W, 15 m a.s.l.); 19/January/2018.
- **Mayabeque Province** (new record): Tapaste Municipality: Escaleras de Jaruco: surrounding of Cueva del Indio (23°01'09"N - 82°05'26"W, 200 m a.s.l.); 5/January/2018.
- **Matanzas Province** (new record): Ciénaga de Zapata Municipality: Playa Girón: El Brinco (22°05'18"N - 81°03'13"W, 2 m a.s.l.); 23/January/2018.

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• ISLA DE LA JUVENTUD Special Municipality (**new record**): Isla de Pinos: Nueva Gerona: Las Tumbitas (21°48'00''N - 82°44'46''W, 10 m a.s.l.); August/2017.

Fig. 1. Adult *Papilio demoleus* from Reparto Versalles, La Lisa Municipality, Havana, photographed alive in nature.

As voucher, we collected on January 3rd, 2016 an adult specimen of *P. demoleus* from Reparto Versalles (Havana), which is deposited in the personal collection of the first author (SY). It was spotted while flying fast between trees in a forested backyard; after a few minutes it alighted in a low bush, where it was immediately photographed and captured (fig. 1).

At Pinar del Río Province, *P. demoleus* was observed abundant during May–August, 2017 in the surrounding of Los Palacios town and in gardens of Las Yeguas, while sucking flowers of *Morinda citrifolia* Linn. (Rubiaceae, locally called ”Noni”), *Citrus x aurantium* Linn. (Rutaceae, locally called ”Naranja agria”) and *Zinnia elegans* Jacq. (Asteraceae).

At Las Tumbitas, south of Nueva Gerona (Isla de Pinos), we observed *P. demoleus* on August 2017, sucking flowers of *Ixora coccinea* (Rubiaceae) and again *M. citrifolia*.

The new records listed above confirm the predictions of Guerrero et al. (2004) and Núñez (2007) about its expected colonization of the entire Cuban archipelago. Moreover, according to the personal observation of the present authors, 11 years after its first finding in Cuba, this butterfly has become extremely common and widespread across its four easternmost Provinces (Holguín, Granma, Santiago de Cuba and Guantánamo); see fig. 2 herein. There it occurs from the sea coast through the highest mountains and in all vegetation types, regardless being pristine or highly anthropized; even high densities were observed in October–November/2017 along the southern slopes of Nipe High Plateau, Sierra del Cristal and Cordillera de La Gran Piedra (Santiago de Cuba Province).

It must be noted here that *P. demoleus* was present in Cuba actually more than one year before its first published record by Núñez (2007). On February 18, 2006, we observed a single adult of this species
flying in circles over a flowered plant of *Foeniculum vulgare* Mill. (Apiaceae, locally called "Hinojo") at a garden in La Socapa, a small coastal town of Santiago de Cuba Bay, in the surroundings of the homonymous city. It was not possible to define if the butterfly was trying to feed or lay eggs on the plant, and all attempts to capture it failed in absence of an entomological net.

Last, but not least, *P. demoleus* is considered one of the biggest pests of the citrus in the Asian continent, by annually causing significant economic losses to agriculture (Eastwood *et al.*, 2006; Guerrero *et al.*, 2004; Homziak & Homziak, 2006). Nevertheless, its occurrence in Cuba has not proven so far to cause any such impact, despite its successful and relatively fast colonization of the entire archipelago.

Fig. 2. Geographical distribution of *Papilio demoleus* in Cuba: previous records (red symbols) and new records (yellow symbols). Image frame = 1,200 x 400 km. New eastern records reduced to selected but actual representative occurrences, in order to avoid an overloaded figure.

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