

Observations on Sphingidae (Lepidoptera) from Talara, North coastal Perú

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SUMMARY

COCK MJW, BOOS JO. 2006. *Observations on Sphingidae (Lepidoptera) from Talara, North coastal Perú. Rev. per. Entomol. 45*- Thirteen species of Sphingidae (*Agrius cingulata* [Fabricius], *Cocytius duponchel* [Poey], *Manduca sexta paphus* [Cramer], *M. rustica* [Fabricius], *Erinnyis alope* [Drury], *E. ello* [Linnaeus], *E. obscura* [Fabricius], *Pachylioides resumens* [Walker], *Callionima falcifera* [Gehlen], *Aellopos titán* [Cramer], *Enyo lugubris* [Linnaeus], *Xylophanes pluto* [Fabricius], and *Hyles annei* [Guérin-Méneville]) are recorded from Talara, North coastal Perú. Their phenology and distribution are discussed.

Key words: dry habitats, migratory species, phenology.

RESUMEN

COCK MJW, BOOS JO. 2006. *Observaciones sobre Sphingidae (Lepidoptera) de Talara, costa norte de Perú. Rev. per. Entomol. 45* - Trece especies de Sphingidae (*Agrius cingulata* [Fabricius], *Cocytius duponchel* [Poey], *Manduca sexta paphus* [Cramer], *M. rustica* [Fabricius], *Erinnyis alope* [Drury], *E. ello* [Linnaeus], *E. obscura* [Fabricius], *Pachylioides resumens* [Walker], *Callionima falcifera* [Gehlen], *Aellopos titán* [Cramer], *Enyo lugubris* [Linnaeus], *Xylophanes pluto* [Fabricius], e *Hyles annei* [Guérin-Méneville]) son registradas de Talara, costa norte de Perú. Se discute su fenología y distribución.

Palabras clave: especies migratorias, fenología, hábitats secos.

Introduction

Very little has been recorded concerning the Sphingidae of the North coastal región of Perú, although LAMAS & MEDINA (1991) report four species of Sphingidae captured at sea, 40 nautical miles (i.e. ca. 74 km) west of Paita, Department of Piura. Hence, these records of Sphingidae collected at light in Talara (04°34'S, 81°15'W) over a period of ten months during 1980-1981 are of interest. Talara is a coastal port in the Department of Piura; it is the most westerly town of any size on the continent of South America, and about 140 km north of Paita. Talara is surrounded by desert in a región of very low rainfall. The average annual rainfall for Talara over the last 48 years is 4cm (WEATHERBASE 2005), most of which probably falls during El Niño events. There were no El Niño or La Niña events 1979-1981 (GLOBE 2005), so the área was more or less completely dry during the time of this study.

Talara lies at the south border of the Transition Zone of the Tumbes Reserved Zone,

a dry forest Biosphere Reserve to the north-east, adjoining the border with Ecuador. In the recent classification of global ecoregions (OLSON *et al.* 2001, NATIONAL GEOGRAPHIC & WORLD WILDLIFE FUND 2005), Talara is mapped within Tumbes-Piura dry forests (NT0232), but it probably fits better with the Sechura desert región (NT1315), which runs south along the coast into Chile. The flora of the latter región (ANDEAN BOTANICAL INFORMATION SYSTEM 2005) is mostly confined to lomas (hills up to 1,000m) where sea fog provides moisture (DILLON *in* DAVIS *et al.* 1997). Talara, and the surrounding área within a radius of 10km is less than 200m in altitude, so would not benefit from the sea fogs, and most of the plants recorded from the lomas would not be found in the vicinity of Talara.

Given that the surrounding is desert, it is not surprising that the sphingid fauna is depauperate and that many of the species recorded here are known to have migratory tendencies, and are unlikely to be breeding in the área. Sphingidae breeding in the área are most likely to be feeding on economic or ornamental plants, or weeds of artificially watered áreas. Around Lima, further south in the Sechura desert ecoregion, A. Miles Moss recorded 18 species from the surrounding área, during his stay (1907-1910) (Table 1) of which 12 are probably resident and six are non-resident migrants (Moss 1912). At least some of

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the species which Moss considered resident, he only found on crop and ornamental plants, so they may be relatively recent colonists. LAMAS (1981) published more recently on the Sphingidae of Lima, but added no species to those recorded by Moss. LAMAS (1981) illustrates the adults of 16 of the 18 species from Lima, while Moss's (1912) plates include the larvae of 12 of these species.

Methods

The great majority of specimens were collected at the external building lights and lighted windows of the offices of Bidas S.A. Co. which are situated near the edge of a plateau approximately 50m above and 1km inland from the town of Talara. JOB regularly inspected these lights on most mornings between October 1980 and July 1981 with no significant periods of absence. Accordingly, the data give a reliable sample of the phenology of the species concerned during this period. In addition to these captures, a single specimen of *Aellopos titán* (Cramer) was taken by net at flowers near Talara.

Voucher specimens are currently in the collection of the senior author, and will be deposited in the Museo de Historia Natural, Universidad Nacional Mayor de San Marcos (MUSM). Some duplicates are in the collection of CABI Bioscience, Curepe, Trinidad and Tobago.

Results

A total of 44 specimens were collected at light as detailed in Table 2. One further species, a *Eumorpha* sp. (probably *iritis* [Linnaeus], but possibly *fasciatus* [Sulzer]) was observed at the lights, but too high for capture.

Discussion

The months of capture are shown in Table 2. A surge in numbers in June 1981 is very pronounced, although the reasons are not obvious. While it could have been in response to one of the very infrequent showers, it most probably represents an influx of individuals from further North, over the border with Ecuador, which receives substantial seasonal rains. Comparing our list with that of Moss (1912) in Table 1, we record five species not found by Moss around Lima: *Cocytius duponchel*, *Erinnyis alope*, *Callionima falcifera*, *Enyo lugubris*, and *Xylophanes pluto*. As indicated in Table 2, seven of the species found at Talara have not previously been reported from the Department of Piura (G. LAMAS unpubl.).

Based on the known food plants and vagility we suggest that the species recorded from Talara can be split into resident and non-resident species as set out in Table 1. We consider that further collecting is unlikely to greatly extend the number of resident species, although further migrants are likely to turn up. Details of the species covered by LAMAS (1981) are as follows:

Cocytius duponchel (Poey)

The larva of this species feeds upon *Annona* spp. and other Annonaceae and the life history has been illustrated from Belém, Brazil (Moss 1920) and Costa Rica (JANZEN & HALLWACHS 2005). If this species were breeding locally it would be on planted *Annona* spp., and it seems likely that the two specimens taken are vagrants. The single record from the USA (HODGES 1971) suggests this species has migratory tendencies. HODGES (1971) distinguishes *C. duponchel* from *C. antiaqui* (Drury) by the translucent areas of the hind wing being rounded on the outer margin, rather than indented with a dark streak.

Erinnyis alope (Drury)

This species was not recorded from Peru (SCHREIBER 1978), but was included by Moss (1912) as a species of the interior. The recorded larval food plants include Caricaceae (papaya, *Carica papaya*), Euphorbiaceae (rubber, *Hevea brasiliensis*; cassia, *Manihot* spp.; *Jatropha* sp. etc.) and Apocynaceae (*Allamanda* sp.) (Moss 1912, 1920, HODGES 1971, JANZEN & HALLWACHS 2005). The flora of the Peruvian and Atacama deserts includes possible hosts, *Carica candicans* and *Skytanthus aculeatus* (Apocynaceae) (ANDEANBOTANICALINFORMATION SYSTEM 2005), but the fact that Moss (1912) did find this species in Lima suggests that the single specimen recorded is more likely to be a vagrant. *Erinnyis alope* is generally quite common elsewhere in South America.

Callionima falcifera (Gehlen)

Larvae of this species feed on Apocynaceae especially *Stemmadenia obovata* (JANZEN & HALLWACHS 2005). The adult specimens from Talara are smaller and paler than what we regard as typical (e.g. D'ABRERA 1986), so MJWC dissected one male and confirmed the identification (reference to SoARES (1993) and KRICHING & CADIZ (2000)). JOB has taken specimens of this species from an oil rig in the sea between Venezuela and the island of Trinidad, suggesting migratory tendencies.

Enyo lugubris (Linnaeus)

Moss (1912) does not cover this species but he subsequently found and illustrated the larva from Belém where it feeds on *Cissus* sp. (Vitaceae) (Moss 1920). JANZEN & HALLWACHS (2005) also recorded it from Talara.

TABLE 1.- Resident and migratory Sphingidae recorded from Lima (Moss 1912) and Talara.

Species	Resident at Lima	Migratory at Lima	Migratory at Talara	Resident at Talara
<i>Agrius cingulata</i> (Fabricius)	x		x	
<i>Cocytius antaeus</i> (Drury)	x			
<i>C. duponchel</i> (Poey)				x
<i>C. lucifer</i> Rothschild & Jordan		x		
<i>Pseudosphinx tetrio</i> (Linnaeus)		x		
<i>Manduca sexta paphus</i> (Cramer)	x		x	
<i>M. mossi</i> (Jordan)	x			
<i>M. rustica</i> (Fabricius)	x		x	
<i>Erinnyis ello</i> (Linnaeus)	x		x	
<i>E. obscura</i> (Fabricius)		x		x
<i>E. alope</i> (Drury)				x
<i>E. lassauxii</i> (Boisduval)		x		
<i>E. crameri</i> (Schaus)		x		
<i>Pachylia ficus</i> (Linnaeus)	x			
<i>Pachylioides resumens</i> (Walker)				x
<i>Aellopos titan</i> (Cramer)				?x
<i>Callionima falcifera</i> (Gehlen)				x
<i>Enyo lugubris</i> (Linnaeus)				x
<i>Eumorpha vitis</i> (Linnaeus)	x		?	
<i>E. labruscae</i> (Linnaeus)		x		
<i>E. fasciatus</i> (Sulzer)	x			
<i>Xylophanes pluto pluto</i> (Fabricius)				?x
<i>X. tersa</i> (Linnaeus)	x			
<i>Hyles annei</i> (Guérin-Méneville)	x		x	
<i>H. lineata</i> (Fabricius)	x			
TOTAL	12	6	8	6

? = may not have been this species; ?x = correct species but migratory status not certain.

(2005) record food plants amongst the Vitaceae and Dilleniaceae. Neither family is represented in the flora of the Sechura desert (ANDEAN BOTANICAL INFORMATION SYSTEM 2005). It strays quite widely in the USA (HODGES 1971), and JOB has taken specimens at sea between Venezuela and Trinidad (cf. *C. falcifera* above) suggesting migratory tendencies.

Pachylioides resumens (Walker)

Moss (1920) illustrates the larvae from Belém, where they feed upon Apocynaceae (*Zschokkea* sp., *Iechites* sp.). In Costa Rica, *Forsteronia spicata* (Apocynaceae) is the dominant food plant recorded by JANZEN & HALLWACHS (2005). There are no obvious local food plants, so the specimen recorded is probably a vagrant.

Aellopos titan (Cramer)

Moss (1920) found the larvae, which he illustrates, feeding upon Rubiaceae (*Randia formosa* and *Genipa americana*). JANZEN & HALLWACHS (2005) list species of several genera

of Rubiaceae as food plants in Costa Rica, notably *Guettarda* and *Randia*. Seven genera of Rubiaceae occur in the Peruvian and Atacama deserts, including one species of *Randia* (ANDEAN BOTANICAL INFORMATION SYSTEM 2005), so it is not impossible that this species breeds in the área. However, HODGES (1971) comments on the strong flight and scattered records of this species, and LAMAS & MEDINA (1991) recorded it at sea off the Piura coast, which suggests it too has migratory tendencies.

Xylophanes pluto (Fabricius)

In Perú, this species is only hitherto recorded East of the Andes (Moss 1912), although G. LAMAS (unpubl.) has a record from Tumbes. HODGES (1971) records the larval food plants as *Erythroxylon* sp. (Erythroxylaceae) and *Chiococca* sp. (Rubiaceae). In Costa Rica, species of *Lindenia* and *Psychotria* (Rubiaceae) are commonly used (JANZEN & HALLWACHS 2005). The single specimen from Talara is likely to have strayed from further north to the foothills of the Andes to the east.

TABLE 2.- Phenology of Sphingidae captured at Talara, 1980-1981.

Species	1980			1981							Total
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
<i>Agrius cingulata</i> (Fabricius)	1m					1m			2m		4
<i>C. duponchel</i> (Poey) ²									1f	1f	2
<i>Manduca sexta paphus</i> (Cramer) ²			1f								1
<i>M. rustica</i> (Fabricius) ²									1f		1
<i>Erinnyis ello</i> (Linnaeus)			2f	1m	2f			1f	1m 3f		10
<i>E. obscura</i> (Fabricius) ²						1f		1f	1m 2f		5
<i>E. alope</i> (Drury) ²									1m		1
<i>Pachylioides resumens</i> (Walker) ^{1,2}											1
<i>Callionima fulcifera</i> (Gehlen)									1m	1m	2
<i>Enyo lugubris</i> (Linnaeus) ²									3m 5f		8
<i>Xylophanes pluto</i> (Fabricius)									1m		1
<i>Hyles annei</i> (Guérin-Méneville)		1m		2m					3m 2f		8
TOTAL	1	1	3	3	2	2	0	2	27	2	44

¹ One male taken between April and July 1980, before regular sampling started.

² Species not previously recorded from Department of Piura (G. Lamas unpubl.)

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