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**Autor:** Landry, Bernard / Neunzig, H.H.

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Additions to the Phycitinae (Lepidoptera, Pyralidae) of the  
Galapagos Islands, Ecuador, with description of a new species  
of *Caudellia* Dyar

BERNARD LANDRY<sup>1,3</sup> & H. H. NEUNZIG<sup>2</sup>

<sup>1</sup> Muséum d'histoire naturelle, C. P. 6434, CH-1211, Geneva, Switzerland.

E-mail: bernard.landry@mhn.ville-ge.ch

<sup>2</sup> Department of Entomology, North Carolina State University, Raleigh, North Carolina, 27695-7613,  
U.S.A. E-mail: h.neunzig@gte.net

<sup>3</sup> Corresponding author

The new species *Caudellia galapagosensis* (Pyralidae, Phycitinae) is described from the Galapagos Islands (Santa Cruz Island). A habitus figure of the holotype and line drawings of the male and female genitalia are included. *Unadilla maturella* (Zeller) is reported for the first time from the archipelago (Santa Cruz Island). New distribution records for 6 other species are also mentioned. The Galapagos fauna of Phycitinae now stands at 16 species although one, known from a single female here illustrated, hasn't yet been identified.

Key words: Lepidoptera, Pyralidae, Phycitinae, *Unadilla*, *Caudellia*, new species, Galapagos Islands, new distribution records

#### INTRODUCTION

Since the publication of Landry & Neunzig (1997) much effort has been made to document the lepidopteran fauna of the Galapagos Islands, notably by Lazaro Roque-Albelo and his colleagues at the Charles Darwin Research Station, Santa Cruz Island, Galapagos. These efforts and three 1-month collecting trips in the Galapagos by BL since 2002 have resulted in the new records of Phycitinae presented below, including the discovery of a new species of the genus *Caudellia* Dyar, described here.

The first Galapagos occurrence of *Cadra cautella* (Walker) and several new island records of Phycitinae were documented by Causton *et al.* (2006). In addition, 15 new host plant records for Galapagos Phycitinae will be presented elsewhere (Roque-Albelo *et al.*, unpublished). Tab. 1 summarizes the distribution of all Phycitinae in the Galapagos.

The following acronyms are used: BL for Bernard Landry; BMNH for The Natural History Museum (London, England); CDRS for Charles Darwin Research Station; HHN for Herb H. Neunzig; MHNG for Muséum d'histoire naturelle de Genève, Geneva, Switzerland; and RMCA for Royal Museum for Central Africa, Tervuren, Belgium.

Tab. 1. Status and distribution of the Phycitinae in the Galapagos Islands with new records in bold. N: native, E: endemic; I: introduced. Islands: Bal: Baltra, Esp: Española, Fer: Fernandina, Flo: Floreana, Gen: Genovesa, Isa: Isabela, Mar: Marchena, Pon: Pinzon, Pta: Pinta; Rab: Rabida, SCl: San Cristobal, SCz: Santa Cruz, Sey: Seymour Norte, SFe: Santa Fe, Sgo: Santiago, Wol: Wolf.

\*The island records for this species in Landry & Neunzig (1997) were partly wrong.

Species	Status	Islands														
		Bal	Esp	Fer	Flo	Gen	Isa	Mar	Pon	Pta	Rab	SCl	SCz	Sey	SFe	Sgo
<i>Ancylostomia stercorea</i> (Zeller)	I				X	X	X			X			X			X
<i>Cadra cautella</i> (Walker)	I												X			
<i>Caudellia galapagosensis</i> n. sp.	E												X			
<i>Coptarthria dasypyga</i> (Zeller)	N				X		X			X			X			X
<i>Etiella zinckenella</i> (Treitschke)	I			X		X	X			X	X	X	X	X	X	X
<i>Fulrada carpasella</i> (Schaus)	E		X		X		X		X		X	X	X	X	X	X
<i>Fundella argentina</i> Dyar	I			X	X		X	X				X	X	X		X
<i>Hypsipyra grandella</i> (Zeller)	I											X	X			
<i>Macrorrhinia pinta</i> * Land. & Neun.	E		X	X	X		X			X	X	X	X	X	X	X
<i>Nicetiodus apianellus</i> Schaus	E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Oryctometopia fossulatella</i> Rag.	N	X	X	X	X		X				X	X	X	X		X
<i>Shafferiessa pumila</i> Land. & Neun.	E		X	X	X	X	X	X	X	X		X	X		X	X
<i>S. galapagoensis</i> Land. & Neun.	E			X	X		X		X	X		X	X		X	X
<i>Tota galdinella</i> Schaus	E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>Unadilla maturella</i> (Zeller)	I												X			
Genus sp.	?			X												

#### DIAGNOSIS AND DESCRIPTION OF NEW SPECIES

### *Caudellia galapagosensis* n. sp.

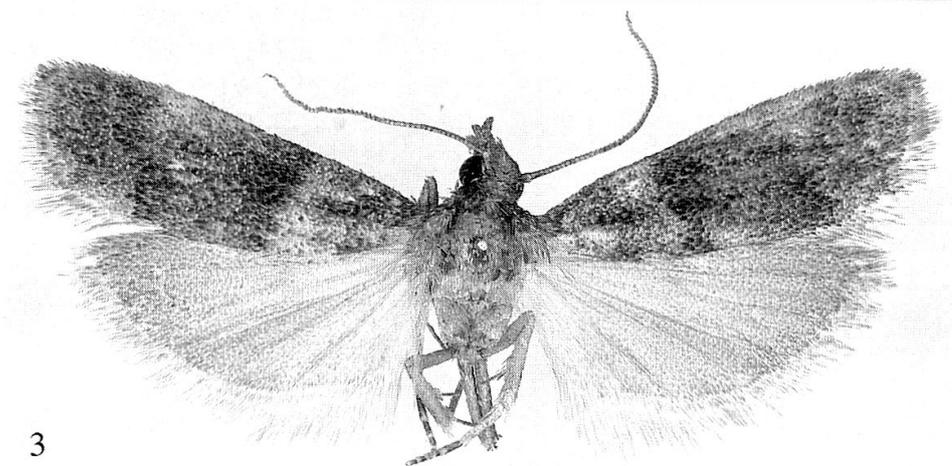
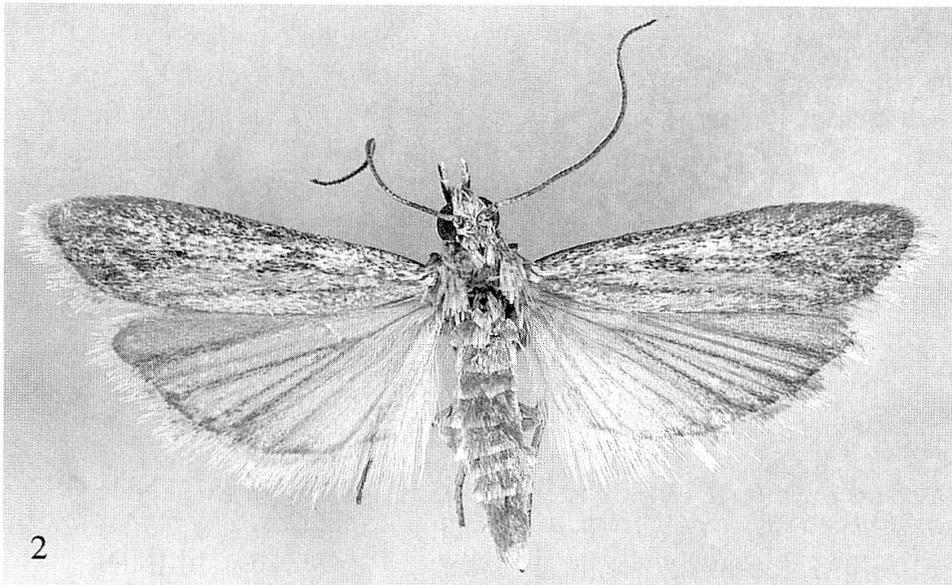
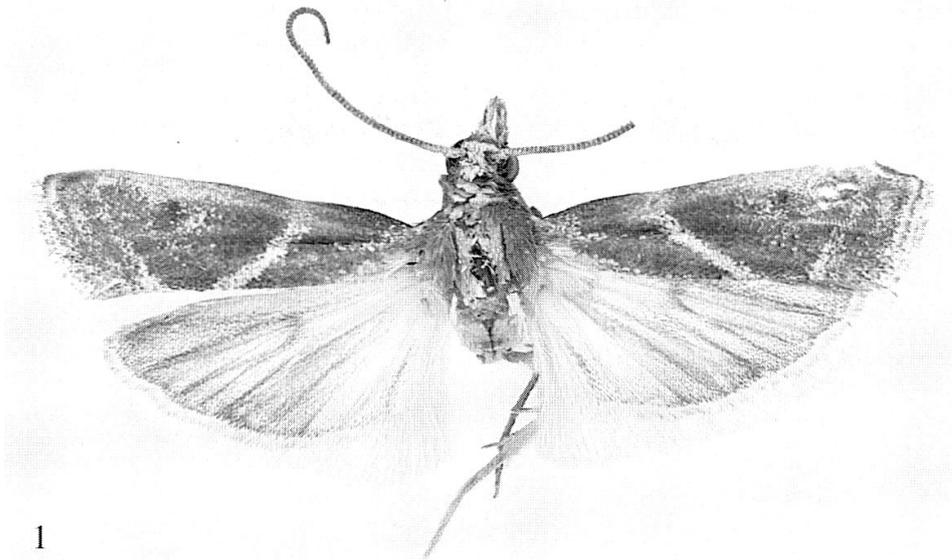
(Figs 1, 4–6)

*Material examined.* Holotype: ♂. 1- «GALAPAGOS ISLANDS:/ Santa Cruz (Indefatigable)/ Feb. 1970/ R. Perry & Tj. de Vries/ B.M. 1970-172/ Ref. No. L.133». 2- «B.M. Pyralidae/ Genitalia slide/ ♂ No. 21117» [BMNH].

Paratypes: 4 ♂♂, 3 ♀♀ from Santa Cruz Island, Galapagos. 1 ♂ with same collection information as holotype, without abdomen [BMNH]; 2 ♀♀, Station Darwin, (lumière), X/XI-1964, J. & N. Leleup [MHNG, RMCA]; 1 ♀♀ (genitalia slide 6433 HHN), Barranco, E[stacion]. C[ientifica]. C[harles]. D[arwin]., En M[ercury]. V[apor]. L[ight]., 16 IX 1999, L. Roque [CDRS]; 2 ♂♂ (one with genitalia slide 6432 HHN), C[harles]. D[arwin]. R[esearch]. S[tation]., Barranco, M.V.L., 17 XI 1991, L. Roque [CDRS]; 1 ♂, Barranco, CDRS, 23 X 2001, UVL, L. Roque [CDRS].

*Etymology.* The name *galapagosensis* is a combination of the type locality (Galapagos) and the Latin *-ensis*, a suffix denoting place or locality.

*Diagnosis.* The pair of large, crescentic lobes located at the apex of the gnathos (Fig. 4) are diagnostic for the species. In addition to this unique characteristic, *C. galapagosensis* differs from other species of *Caudellia* in having the forewing mostly pale brown or pale reddish brown, rather than mostly dark brown or black. Also, the shaft of the antenna of *C. galapagosensis* is more extensively covered with scales than in other species of the genus.



Figs 1–3. Galapagos Phycitinae: 1, *Caudellia galapagosensis*, holotype ♂; 2, *Unadilla maturella*, ♀; 3, Unidentified Phycitinae species.

*Description.* Forewing length 7.0 – 9.0 mm. Head: frons white, lightly washed with pale brown; scales of frons projecting anteromesially; vertex white, lightly washed with pale brown; labial palpus outwardly pale brown, lightly dusted with white, oblique, reaching slightly above vertex, third segment shorter than second segment; maxillary palpus outwardly pale brown, lightly dusted with white, short-scaled; antenna of male broader throughout than in female, with very shallow, basal sinus; antenna of female without sinus; antenna of both sexes with every other band of scales on shaft completely encircling shaft. Thorax dorsum mostly pale brown, mesially brownish white. Forewing mostly pale brown to pale reddish brown; with short, white patch at base; antemedial line white, oblique; postmedial line white, weakly developed medially; large white and pale brown patch on anterior half of wing between antemedial and postmedial lines and small patch of white scales following postmedial line; discal spots pale brown, indistinct, visible because of slight contrast between spots and large white and pale brown patch between antemedial and postmedial lines; male with costal fold, and scale tuft at basal half of wing. Hindwing mostly brownish white, brown near margins. Male genitalia (Figs 4, 5): uncus broad, rounded distally; gnathos with distal process developed as two large, crescentic lobes; transtilla strongly fused to gnathos; juxta a slender, curved band; valva well developed, broadened distally with slight costal prominence at about two-thirds distance from base of valva, and with rounded, more strongly developed costal projection apically; aedeagus simple; vesica unarmed; vinculum about as long as greatest width. Female genitalia (Fig. 6): ostium bursae sclerotized, strongly wrinkled with posteriorly flared lamella postvaginalis; ductus bursae sclerotized for about  $\frac{1}{2}$  its length; corpus bursae elongate-oval with signum developed as a few, oval sclerotized discs; ductus bursae attached to corpus bursae adjacent to signum.

*Remarks.* *Caudellia* is a small New World group of eight species that are chiefly found in the Neotropics (Schaffer 1995; Neunzig 1990, 1996; Neunzig & Dow 1993). The genus has been treated in detail by Heinrich (1956) and Neunzig (1990). The male genitalia are unusual in that the basal elements of the transtilla are, with a few exceptions, very broad and fused to the basal parts of the gnathos. The apical part of the gnathos has either a short medial hook or a pair of enlarged lateral processes. Females have the ductus bursae heavily sclerotized for a third or more of its length from the ostium bursae, and have the ductus seminalis joined to the corpus bursae close to the signum of the corpus bursae.

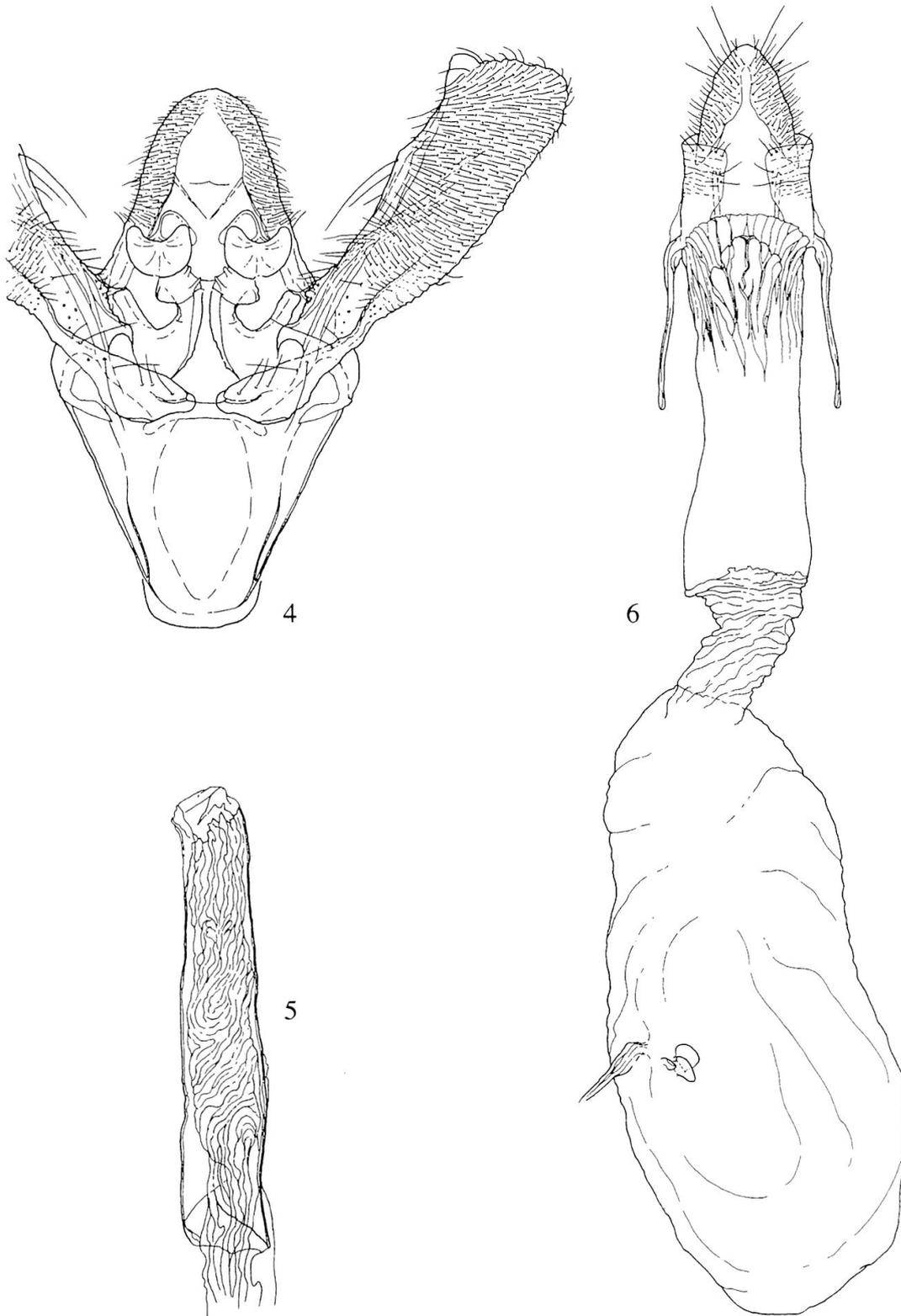
#### OTHER NEW RECORDS

#### *Unadilla maturella* (Zeller)

(Fig. 2)

This is a new species record for the Galapagos. Only two specimens have been collected so far, both on Santa Cruz Island: 1 ♂, low agriculture zone, GPS: S 00° 42.132', W 90° 19.156', 13.iii.2004, ultra-violet light (B. Landry, P. Schmitz); 1 ♀, casa L. Roque-Albelo & V. Cruz, GPS: 137 m elev., S 00° 42.595', W 90° 19.196', 27.ii.2005, ultra-violet light (B. Landry).

The female is represented on Fig. 2. The male collected has more contrasting black forewing markings in the form of a pair of short longitudinal dashes at  $\frac{1}{3}$  wing length, along midline and below, another short dash along midline at about  $\frac{2}{3}$  wing



Figs 4–6. Genitalia of *Caudellia galapagosensis*. 4, ♂, aedeagus omitted; 5, aedeagus; 6, ♀.

length, and a narrow line on the costa from the base to about  $\frac{1}{3}$  wing length. The species was treated in detail and illustrated by Heinrich (1956) and Neunzig (1997).

The species is found in the southern United States (Florida), Mexico, the Caribbean, and Central and northern South America. Larvae have been reared from flowers and seeds of *Pluchea odorata* Cassini and *Melanthera parvifolia* Small (Asteraceae). Neither of these species occur in the Galapagos (Chris Buddenhagen, CDRS botanist, pers. comm.) so *U. maturella* must develop on other Asteraceae, for which the Galapagos are rich in endemics.

### Genus, sp.

(Fig. 3)

One ♀ of this unidentified species was taken at light at Cabo Douglas on the coast of Fernandina on 15 February 2005 (B. Landry, P. Schmitz). Its wingspan is 13 mm. A male of this species would be necessary for identification.

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