New data on Neotropical Carpenter-Moths of Subfamily Hypoptinae
Neumoegen & Dyar, 1894 (Lepidoptera: Cossidae). I. New taxa with bifurcated uncus

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Abstract
The article provides a revision of the subfamily Hypoptinae, characterized by a common feature – a deeply split bifurcated uncus. Six new genera are described: Uretiana Yakovlev, Naydenov & Penco, gen.n. (type species − Givira vicuñensis Ureta, 1957), Dogniniya Yakovlev, Naydenov & Penco, gen.n. (type species − Hypopta sterila Dognin, 1910), Qhichwaruna Yakovlev, Naydenov & Penco, gen.n. (Type species – Qhichwaruna pennata Yakovlev, Naydenov & Penco, sp.n.), Wiraqucha Yakovlev, Naydenov & Penco, gen.n. (type species − Wiraqucha equadorica Yakovlev, Naydenov & Penco, sp.n.), Thonyocossus Yakovlev, Naydenov & Penco, gen.n. (type species – Thonyocossus brasiliensis Yakovlev, Naydenov & Penco, sp.n.), Hastam Yakovlev, Naydenov & Penco, gen.n. (type species – Hastam gracilis Yakovlev, Naydenov & Penco, sp.n.) and eight new species: Uretiana tucumana Yakovlev, Naydenov & Penco, sp.n. (type locality – Argentina, prov. Tucuman), Dogniniya lemoilii Yakovlev, Naydenov & Penco, sp.n. (type locality – Uypiranga, Brasil), D. huanuco Yakovlev, Naydenov & Penco, sp.n. (type locality – Peru, prov. Huánuco, Yayapichis, ACP Panguana, 9°36′S / 74°56′W), Qhichwaruna argentinensis Yakovlev, Naydenov & Penco, sp.n. (type locality – Argentinien, Cafayate, Prov. Catamarca), Wiraqucha huberti Yakovlev, Naydenov & Penco, sp.n. (type locality – Brasilien, Minas Gerais Potê, W. equadorica Yakovlev, Naydenov & Penco, sp.n. (type locality – Ecuador oriente Napo Rte Cosanga-Tena PK 18), Thonyocossus brasiliensis Yakovlev, Naydenov & Penco, sp.n. (type locality – Brasilien, Minas Gerais Potê, Hastam gracilis Yakovlev, Naydenov & Penco, sp.n. (type locality – Brasilien, Esp. Santo, Santa Leopoldina, Boquerao). New combinations are established: Uretiana vicuñensis (Ureta, 1957), comb.n., Uretiana infans (Dyar & Schaus, 1937), comb.n., Dogniniya sterila (Dognin, 1910), comb. n. and Dogniniya beatrix (Schaus, 1921), comb. n.

Key words: entomology, Lepidoptera, Carpenter moths, Hypoptinae, fauna, Neotropical Region.
Introduction


In recent years, we carried out a serious revision of materials from the Neotropics, including the subfamily Hypoptinae. The distribution data on 36 Hypoptinae species in Argentina were reported [Penco & Yakovlev, 2015], a new species *Givira catalina* was described (Penco & Yakovlev 2015), the generic status of *Breyeriana* was confirmed, a new species *Breyeriana patagonica* was described (Penco et al. 2019). Additionally, the genus *Givarbela* was revised, two new species, *Givarbela decolorata* and *G. drechseli* were described (Penco et al. 2019).

In this paper, which opens a series of articles on studying the Hypoptinae, we give a revision of species with a synapomorphic feature — a deeply split bifurcated uncus, that was not observed in the previously known genera of the subfamily.

Material and methods

In the study, the materials have been used from: MLP – Museum La Plata (La Plata, Argentina); MNHN – Muséum National d’Histoire Naturelle (Paris, France); MNHNS – Museo Nacional de Historia Natural (Santiago, Chile); MWM – Museum of Thomas Witt (Munich, Germany); USNM – United States National Museum (now National Museum of Natural History, Smithsonian Institution (Washington, USA). The male genitalia slides were examined with a Zeiss Stemi 2000 C microscope and the images were taken with the Olympus XC 50 camera.

Results

**Uretiana** Yakovlev, Naydenov & Penco, gen.n.

Type species – *Givira vicuñensis* Ureta, 1957.

Description. Antenna equal to ½ of the fore wing costal edge length, bipectinate, crest processes 2.5 times longer than antenna rod diameter. Size medium, fore wing short, apically rounded; with poorly expressed undulated pattern. Hind wing shorter than fore wing, rounded, with poorly expressed undulated pattern. Male genitalia. Uncus long, robust, split into two halves with a deep cut (up to base of uncus); tegumen robust; gnathos reduced; valve basally semicircular, with narrow costal edge and finger-like process in medium third, carved membranous part of valve attached to sclerotized structures; saccus tiny, conical; juxta large, trapezoidal, with pair of rod-shaped lateral processes; phallus shorter than valve, slightly curved, two short tapered processes on distal end, vesica aperture in dorso-apical position, vesica without cornuti.

Diagnosis. *Uretiana* differs from all the genera described below by its short fore wing and specific structure of the valve, namely, the finger-like process in its basal third.

Etymology. The new species is named after the Chilean entomologist E. Ureta, who first revised the fauna of Cossidae in Chile.
Uretiana vicunensis (Ureta, 1957), comb.n. (Figs. 1–3, 15–16, 28)

Givira vicuñensis Ureta, 1957
Type locality: Chile, Vicuña

Material examined. Holotype: ♂ Chile, Vicuña, 606 m., Prov. de Coquimbo, 15-II-1936, E. Ureta coll. (Col. MNHNS n. 2105); 4 ♂ Chile, Elqui, El Bosque - Hurtado, 17 September 1996 (GenPr-Heterocera MWM 28.462; 37.007); 3 ♂ Chile, Elqui prov. Pisco Elqui, 20 October 1997, leg. A. Ugarte P. (MWM); 1 ♂ Chile, Alcohuas Elqui, 2800 m., 21-22. X. 1992, leg. J. Gonzales (GenPr-Heterocera MWM 37.008); 3 ♂ Brasil, Parana Curitiba, Serra Do Mar, Estrada De Castelhanos, March 1998, ca. 500m, leg H. Thöny (GenPr-Heterocera MWM 28.461; 37.006).

Diagnosis. *U. vicunensis* differs from all the other species of the genus in its dark colour, in the hind wing of the same darkness as the fore wing, and in a thin finger-like process in the basal third of the valve.

**Uretiana tucumana** Yakovlev, Naydenov & Penco, **sp.n.**

(Figs. 4, 17, 28)


Description. Antenna equal to ½ of the fore wing costal edge length, bipectinate, crest processes 2,5 times longer than antenna rod diameter. Fore wing 13 mm in length, apically rounded, with poorly expressed pattern of alternating undulated dark grey and brown lines. Hind wing shorter than fore wing, rounded, significantly lighter than fore wing, with poorly expressed undulated pattern.

Male genitalia. Uncus long, very robust, split into two halves with a deep cut (up to base of uncus), both halves of uncus apically thickened; tegumen robust; gnathos reduced; valve basally semicircular, with narrow costal edge and robust finger-like process in medium third, the remaining part of valve membranous; saccus tiny, conical; juxta large, trapezoidal, with pair of rod-like lateral processes; phallus shorter than valve, slightly curved, with two short tapered processes distally, vesica aperture in dorso-apical position, vesica without cornuti.

Diagnosis. *U. tucumana* differs from all the known species of the genus in its dark fore wings and light hind wings, very robust uncus arms with thick clavate apices.

Etymology. The new species is named by its typical habitat – Tucuman Province.

**Uretiana infans** (Dyar & Schaus, 1937), **comb.n.**

(Figs. 5, 18, 28)

**Langsdorfia infans** Dyar & Schaus, 1937

Type locality: S Bernardino, Paraguay.

Material examined. Holotype: ♂ S Bernardino, Paraguay, K. Fiebrig collector, Nov., Type №41717 U.S.N.M. (Genitalia slide by P. Gentili, USNM 85.243).

Diagnosis. The species differs from the known species of the genus in the very light wings colour, in the longest and thinnest sclerotized costal edge of the valve and in the longer saccus.

**Dogniniya** Yakovlev, Naydenov & Penco, **gen.n.**

Type species – *Hypopta sterila* Dognin, 1910.

Description. Antenna equal to 1/4 of the fore wing costal edge length, bipectinate, crest processes twice longer than antenna rod diameter. Size medium, fore wing relatively long, apically rounded, colour light, pattern poorly expressed, undulated, well developed dark semicircular line on fore wing apically, oblique transverse dark stroke basally from costal to hind edge. Hind wing shorter than fore wing, rounded, light, with more or less expressed undulated and reticulated dark pattern.

Male genitalia. Uncus robust, split up to base with a narrow long cut; Tegumen of medium size; gnathos reduced; valve semicircular, with two differently shaped processes on top: long thin crescent process (longer than valve) and small robust process; small semicircular membranous part extending from valve top; juxta triangle, saddle-like, with pair of robust lateral processes diverging to sides, apically with small spikes; saccus trapezoidal, thin, elongated; phallus shorter than valve, curved, apically with conical robust short process; vesica aperture in dorso-apical position, vesica without cornuti.

Diagnosis. *Dogniniya* is well distinguished from the other genera of the group by its pair of differently shaped processes on the valve top – the thin crescent one (longer than valve), and the small robust one. The membranous part of the valve is developed only apically, the juxta structure is also special.

Etymology. The new species is named after the American entomologist P. Dognin who made a great contribution to the study of Cossidae of the New World.

*Dogniniya sterila* (Dognin, 1910), **comb. n.**
(Figs. 6, 19, 28)

*Hypopta sterila* Dognin, 1910
Type locality: Saint-Laurent-du-Maroni, Guyane française.

Material examined. Holotype: ♂ Saint-Laurent-du-Maroni, Guyane française, Dognin Collection, Type №29892 U.S.N.M. (Genitalia slide by P. Gentili, USNM 85.275).
Diagnosis. *D. sterila* is the largest species of the genus, length of the fore wing is 20 mm; the wings are light brown (in *D. lemoulti* and *D. huanuco*, the wings are light grey), hind wing has a clear reticulated pattern; on the valve top there is a long process strongly curved basally (in other species, it is evenly bent).

*Dogniniya beatrix* (Schaus, 1921), **comb. n.**
(Figs. 7, 20, 28)

*Philanglaus beatrix* Schaus, 1921

Type locality: Quirigua, Guatemala.

Material examined. Holotype: ♂ Quirigua, Guatemala, Schaus and Barnos coll., April, Type №23431 U.S.N.M. (Genitalia slide by P. Gentili, USNM 85.213).

Diagnosis. The wings are light brown (in *D. lemoulti* and *D. huanuco*, the wings are pale grey), there is a short robust apically semicircular process on valve top.

*Dogniniya lemoulti* Yakovlev, Naydenov & Penco, **sp.n.**
(Figs. 8, 21, 28)

Material examined. Holotype: ♂ Uypiranga, Bresil, E. Le Moult 1933 (MNHN, Genitalia slide by A.E. Naydenov, №6).

Description. Length of fore wing 13 mm. Fore wing light grey, poorly expressed undulated pattern, well developed thin semicircular line on fore wing apically, oblique transverse dark stroke basally, from costal to hind edge. Blurred brownish spots discally. Hind wing shorter than fore wing, rounded, light, poorly expressed reticulated pattern along outer edge.

Male genitalia. Uncus robust, split up to base with long narrow cut; tegumen of medium size; gnathos reduced; valve semicircular with two processes on top: long thin process, crescent along its length (longer than valve), and small robust semicircular process, small semicircular membranous part extending from valve top; juxta triangle, saddle-like, with pair of robust lateral processes diverging to sides, their tips sharply bent inwards, weapons shaped as tiny spikes on tips; saccus trapezoidal, thin, elongated; phallos shorter than valve, curved in medium third, conical robust short process apically, vesica aperture in dorso-apical position, vesica without cornuti.

Diagnosis. The species has light grey wings (in *D. sterila* and *D. beatrix*, the wings are pale brown), there are blurred brownish fields on fore wing discally, the apices of the lateral processes of the juxta are sharply bent inwards.

Etymology. The new species is named after the prominent French entomologist E. Le Moult, who collected the type specimen of this species, the author of the well-known book “Mes chasses aux papillons” the Russian translation of which was a desk book of the first author of this article.

*Dogniniya huanuco* Yakovlev, Naydenov & Penco, **sp.n.**
(Figs. 9, 22, 28)

Material examined. Holotype: ♂ Peru, prov. Huánuco, Yayapichis, ACP Panguana, 9°36″S / 74°56″W, September 2013, 220 m., leg. Hubert Thöny (GenPr-Heterocera MWM 37.004); Paratype: ♂ same data (GenPr-Heterocera MWM 37.005).

Description. Length of fore wing 11 mm. Fore wing light grey, with poorly expressed undulated pattern, well developed thin dark semicircular line apically and oblique transverse dark stroke basally from costal to hind edge. Hind wing shorter than fore wing, rounded, light, with poorly expressed reticulated pattern along costal edge.

Male genitalia. Uncus robust, split up to base with long narrow cut; tegumen of medium size; gnathos reduced; valve semicircular with two processes on top: long thin process crescent along its length (longer than valve) and robust tapered process, small semicircular membranous part extending from valve top; juxta triangle, saddle-like, with pair of robust lateral processes diverging to sides, processes strongly

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thickened apically, weapons shaped as small spikes on tips; saccus trapezoidal, thin, elongated; phallus shorter than valve, curved in medium third, with conical robust short process apically, vesica aperture in dorso-apical position, vesica without cornuti.

Diagnosis. The wings of the new species are pale grey (while in *D. sterila* and *D. beatrix* the wings are light brown), there is a robust tapered process on the valve top (in the other species, there is a short apically semicircular process on the valve top).

Etymology. The new species is named after its typical habitat – Huánuco Province.

*Qhichwaruna* Yakovlev, Naydenov & Penco, gen.n.

Type species – *Qhichwaruna pennata* Yakovlev, Naydenov & Penco, sp.n.

Description. Size small. Antenna equal to 1/3 of fore wing length, bipectinate, crest processes 1.5 times longer than antenna rod diameter. Fore wing elongated, apically rounded, light brown, with pattern of dark brown fields and round spots more concentrated basally, discally and submarginally. Hind wing grey, without pattern.

Male genitalia. Uncus long, completely split with long deep cut, uncus arms apically uncinate; tegumen robust; gnathos reduced; valve cup-like with tapered tornal angle and long stem-shaped thin straight process on top (as continuation of costal edge), the process apically widened, wit a bundle of long hairs shaped as a feather; juxta large, triangle; saccus small, conical, bent backwards; phallus straight, in length equal to valve, with small tapered process apically; vesica aperture in dorso-apical position, vesica without cornuti.

Diagnosis. The new genus differs well from the other genera of the group by its small size, a very special structure of the valve (reduction of the membranous part), and by the long process on the valve top with a bundle of hairs shaped as a feather.

Etymology. The species is named by the self-designation of Indians Quechua – “Qhichwa runa”.

*Qhichwaruna pennata* Yakovlev, Naydenov & Penco, sp.n.

(Figs. 10, 23, 28)


Description. Length of fore wing 11 mm. The other – see the genus description.

Etymology. Named according to the details of the morphological structure – feathered (lat. pennata).

*Wiraqucha* Yakovlev, Naydenov & Penco, gen.n.

Type species – *Wiraqucha equadorica* Yakovlev, Naydenov & Penco, sp.n.

Description. Size medium. Antenna short, 4 times shorter than fore wing length, bipectinate, crest processes 3 times longer than antenna rod diameter. Fore wing elongated, dark. Hind wing short, dark.

Male genitalia. Uncus long, deep bifurcation shaped as longitudinal cut from top to base of uncus; tegumen robust; gnathos reduced; valve cup-like, with two processes apically: small finger-like process and long crescent process (continuing costal edge of valve), leaf-like membrane passing from dorsal edge of valve (apically) and from base of crescent process; juxta large, basally thin and stem-like, with pair of robust lateral processes; saccus thin, long, cylindrical. Phallus almost straight with two lateral processes at vesica aperture, vesica aperture in dorso-apical position, vesica without cornuti.

Diagnosis. *Wiraqucha* is closest to the genus *Uretiana* Yakovlev, Naydenov & Penco, gen.n. from which it differs well in the position and shape of the membranous part of the valve. In *Uretiana*, the membranous part is more developed and reaches the top of the long crescent process, while in *Wiraqucha* this part is limited between the valve top and the crescent process base. Additionally, there are significant
external features: in the new genus the fore wing is elongated, the relative antenna length is much shorter than in *Uretiana*.

Etymology. *Wiraqucha* (*Quechua* Kon-Tiqsi-Wiraqucha) is a deity-creator of the world in the religion and mythology of several pre-Columbian peoples of the Andean region.

**Wiraqucha huberti** Yakovlev, Naydenov & Penco, sp.n.  
(Figs. 11, 24, 28)

Material examined. Holotype: ♂ Brasilien, Minas Gerais Poté, ca. 500m., 30.03.1996, Leg. Hubert Thöny (GenPr-Heterocera MWM 28.539).

Description. Length of fore wing 16 mm. Fore wing very elongated, almost dark brown, wide black strokes between veins and black portions basally and postdiscally, series of black strokes along costal edge. Hind wing very short, apically sharp, anal angle slightly drawn, pattern the same as of fore wing but less expressed.

Male genitalia. Corresponding to the genus description. Uncus arms thick, apically uncinate; short robust apically semicircular process on top of valve.

Diagnosis. The new species differs from *W. equadorica* in its smaller size, the darker wings, sharp apices of the hind wings, relatively thicker arms of the uncus, a robust short process of the valve top.

Etymology. The species is named after the type material collector, Hubert Thöny.

**Wiraqucha equadorica** Yakovlev, Naydenov & Penco, sp.n.  
(Figs. 12, 25, 28)

Material examined. Holotype: ♂ Ecuador oriente Napo Rte Cosanga-Tena PK 18, 2.000 m., 4-VIII/90, J. Haxaire, D. Herbin, (EC HAX 90 020) (MNHN, Genitalia slide by A.E. Naydenov, MWM №9).

Description. Fore wing length 19 mm. Fore wing grey, thin longitudinal black strokes between veins apically, medially, and also discally closer to wing base; pattern thin, undulated, dark, poorly expressed. Hind wing apically rounded, grey, with undulated poorly expressed dark pattern.

Male genitalia. Corresponding to the genus description. Uncus arms thin; short thin process on valve apically.

Diagnosis. The new species differs from *W. huberti* in its larger size, lighter wings, round apices of the hind wings, comparatively thinner uncus arms, smaller process on the valve top.

Etymology. The species is called by its typical habitat.

**Thonyocossus** Yakovlev, Naydenov & Penco, gen.n.

Type species − *Thonyocossus brasiliensis* Yakovlev, Naydenov & Penco, sp.n.

Description. Size medium. Antenna short, 4 times shorter than fore wing length, bipectinate, crest processes 3 times longer than antenna rod diameter. Fore wing elongated, dark. Hind wing elongated, brown, thin black strokes apically, dark brown portions basally and postdiscally, thin poorly expressed reticulated pattern throughout wing area. Hind wing short, dark, apically sharp, tornal angle round.

Male genitalia. Uncus long, bifurcated, uncus arms curved, apices almost fused; tegumen robust; gnathos reduced; valve narrow, long, lanceolate, without processes and membranous part; juxta large, round, with two wide trapezoidal lateral processes slightly widening apically; saccus relatively long, cylindrical, apically round; phallus shorter than valve, swollen in middle third, vesica aperture in dorso-apical position, vesica without cornuti.

Diagnosis. The new genus is externally similar to specimens of *Hastam* Yakovlev, Naydenov & Penco, gen.n. and *Wiraqucha* Yakovlev, Naydenov & Penco, gen.n. from which it is reliably different in the male genital structure: the uncus arms are curved, almost fused apically; the valve is narrow, long and lanceolate, without processes and membranous part; the phallus has no apical processes.
Etymology. The new genus is named after the prominent entomologist Hubert Thöny, who collected significant materials in Brazil.

Figure 28. Map of distribution species of Hypoptinae.

**Thonyocossus brasiliensis** Yakovlev, Naydenov & Penco, sp.n.  
(Figs. 13, 26, 28)

Material examined. Holotype: ♂ Brasilien, Minas Gerais Poté, ca. 500m., 01.03.1996, Leg. Hubert Thöny (GenPr-Heterocera MWM 28.538).

Description. Length of fore wing 17 mm. The other – see the genus description.

Etymology. The species is named by its typical habitat.

**Hastam** Yakovlev, Naydenov & Penco, gen.n.

Type species − **Hastam gracilis** Yakovlev, Naydenov & Penco, sp.n.

Description. Size medium. Antenna short, 3 times shorter than fore wing length, bipectinate, crest processes 2 times longer than antenna rod diameter. Fore wing elongated, grey, thin black strokes apically, dark brown portions basally and postdiscally. Hind wing short, dark brown, significantly darker than fore wing, apically round, tornal angle round.
Male genitalia. Uncus long, bifurcated, arms strongly diverged to sides, evenly curved throughout length; tegumen robust; gnathos reduced; valve relatively short, outer edge blunt, small membranous zone at outer edge, small bag-like harpe close to valve top; juxta robust, cup-like, with two short triangle lateral processes diverged to sides; saccus small, mastoid; phallus almost straight, equal to valve in length, apically sharp, with pair of sharp processes of different length apically, vesica aperture in dorso-apical position, vesica without cornuti.

Diagnosis. The new genus is externally similar to Thonyocossus Yakovlev, Naydenov & Penco, gen.n. and Wiraqucha Yakovlev, Naydenov & Penco, gen.n. from which it reliably differs in the male genital structure: the uncus arms are strongly diverged to sides and evenly curved throughout their length; the valve is relatively short, with a blunt outer edge, there is a small membranous zone at outer edge and a small bag-like harpe close to the valve top; the phallus is almost straight and equal to valve in length, apically sharp, with a pair of sharp processes of different length apically.

Etymology. The species is named due to the morphological characters: the phallus resembles to a hastate spear.

Hastam gracilis Yakovlev, Naydenov & Penco, sp.n. 
(Figs. 14, 27, 28)


Description. Length of fore wing 12 mm. The other characters – see the genus description.

Etymology. The species is named due to its small size.

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References


