

Genus	Vol. 21(1): 89-100	Wrocław, 30 III 2010
-------	--------------------	----------------------

Taxonomical notes on *Leodonta tagaste* (FELDER & FELDER, 1859) (Lepidoptera: Pieridae)

MAURIZIO BOLLINO

Via Rapolla 40, I-73100 Lecce, Italy. E-mail: m.bollino@tin.it

ABSTRACT. Brief notes concerning the taxonomy and distribution of *Leodonta tagaste* (FELDER & FELDER, 1859) are provided, with descriptions of three new subspecies.

Key words: entomology, taxonomy, nomenclature, Bolivia, Colombia, distribution, Ecuador, *Leodonta*, Neotropical Pierinae, Peru.

INTRODUCTION

The Pierid genus *Leodonta* was described in 1870 by BUTLER. It is closely related (VENABLES 1993; LAMAS & BOLLINO 2004; BRABY *et al.* 2007) to *Pereute* HERRICH-SCHÄFFER, 1867 and *Catasticta* BUTLER, 1870 and ranges from Costa Rica to Bolivia, occurring only in montane Andean habitats. The systematics and taxonomy of *Leodonta* are poorly known, resulting in statements such as the following: “The number of species in this genus is a matter of conjecture – some authors claim no more than two or three, others say as much as ten!” (D’ABRERA 1984: 66) or “It is still unknown how many species there are in *Leodonta*” (DEVRIES 1987: 90). The first *Leodonta* list was published by TALBOT in 1932, recognising 3 species: *L. dysoni* (DOUBLEDAY, 1847), *L. tellane* (HEWITSON, 1860), and *L. tagaste* (FELDER & FELDER, 1859), while the most recent one (LAMAS 2004) recognises 5 species: *L. dysoni*, *L. tagaste*, *L. tellane*, *L. zenobia* (FELDER & FELDER, 1865) and *L. zenobina* (HOPPFER, 1869).

The aim of this paper is to start resolving at least some of these problematic issues. It is devoted to *Leodonta tagaste* (FELDER & FELDER, 1859), the only species in the genus characterised by both males and females having the forewing discal cell mostly occupied by white.

MATERIAL, METHODS, ACRONYMS AND ABBREVIATIONS

In preparation for a revision of the genus, a lot of data on *Leodonta* were accumulated during research visits by the author to various institutions, and also thanks to the cooperation of colleagues. Nearly 400 specimens of the species treated here were examined in the following collections: Natural History Museum, London, United Kingdom; Muséum National d'Histoire Naturelle, Paris, France; Museum für Tierkunde, Dresden, Germany; Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru; National Museum of Natural History, Smithsonian Institution, Washington, USA; Zoologisches Museum der Humboldt Universität, Berlin, Germany; Zoologische Staatssammlung, München, Germany; Staatliches Museum für Naturkunde, Stuttgart, Germany; Zoological Museum, Jagellonian University, Krakow, Poland; Pierre BOYER, Le Puy Ste. Réparate, France; Stephane ATTAL, Paris, France; Gabriel RODRIGUEZ, Envigado, Colombia; Jean-François LE CROM, Bogotá, Colombia, plus the private collection of the author.

Acronyms for institutions and private collections holding specimens examined in this revision mostly follow EVENHUIS (2008).

BMNH: The Natural History Museum, London, England;
 CRMC: collection of Gabriel RODRIGUEZ, Medellín, Colombia;
 ICN: Instituto de Ciencias Naturales, Bogotá, Colombia;
 JLBC: collection of Jean-François LE CROM, Bogotá, Colombia;
 MBLI: collection of Maurizio BOLLINO, Lecce, Italy;
 MUSM: Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru;
 MZUJ: Zoological Museum, Jagellonian University, Krakow, Poland;
 PBPf: collection of Pierre BOYER, Le Puy Ste. Réparate, France;
 UNCC: Museo de Historia Natural, Universidad Nacional de Caldas, Manizales, Colombia;
 ZSM: Zoologische Staatssammlung, München, Germany.

Abbreviations

FWD: forewing, dorsal;
 FWV: forewing, ventral;
 HWD: hindwing, dorsal;
 HWV: hindwing, ventral;
 HT: Holotype;
 PT: Paratype;
 LT: Lectotype.

RESULTS AND DISCUSSION

***Leodonta tagaste tagaste* (FELDER & FELDER, 1859)**
(figs. 1-4)

"*Euterpe Tagaste* Nob." FELDER & FELDER, 1859b: 396, Pl. 9: Fig. 1.

TYPE LOCALITY

[North-western] Peru.

TYPE MATERIAL

Lectotype male (BMNH), designated by ABADJIEV (2006: 118), illustrated by ABADJIEV (2006: Figs 89, 90).

Leodonta tagaste was originally described from Peru and, until recently, was considered to be a monotypic species ranging from Colombia to Bolivia. Only a few years ago CONSTANTINO and SALAZAR (in LE CROM et al. 2004) described a new subspecies from Colombia. Apparently, no previous authors have ever examined the type, or if they have, never realised that it is very different from all known eastern Andean specimens of the species. Recently sampled specimens from south-western Ecuador and north-western Peru perfectly match the lectotype (fig. 1), confirming that it was probably collected somewhere in north-western Peru, therefore the nominotypical populations are geographically separated and phenotically differentiated from any eastern Andean representative of the species.

Specimens of *Leodonta tagaste tagaste* (figs. 2-4) are very rare in both public and private collections, and I was able to examine only 8 males and 3 females, plus the type. Specimens are also rarely met with in the field: this partially explains the taxonomic misinterpretation by past authors. As confirmation of its scarcity, I found only one bibliographical quotation (ZELADA, 2004).

EXAMINED MATERIAL (9 males, 3 females)

LT male, Peru / Felder / Coll N, in BMNH; 1 female, Peru – Cajamarca / El Choloque / Via Celendin-Balsas / ~ 6°52'S 78°05'W / m. 1800-2000 – VI-VII.2006 / Lg. local collectors; 2 males, 1 female, Ecuador – Loja / km. 19 Loja-La Toma / ~ 3°59'S 78°18'W / m. 2300 – XI.1999 / lg. Ismael Aldas, all in MBLI; 1 male, Route Loja-Catamayo, 2250 m, km. 19, 7.XI.1996, Ecuador; 5 males, 1 female, no data, all in coll. ATTAL (Paris, France).

DIAGNOSTIC CHARACTERS

HWV yellow discal band large, composed of pale yellow merged spots, with yellow scales also covering the veins. The band is broken only at vein M2. HWV costal black spot short and squared off, clearly crossing vein SC+R₁ and separate from basal dark area in cell SC+R₁.

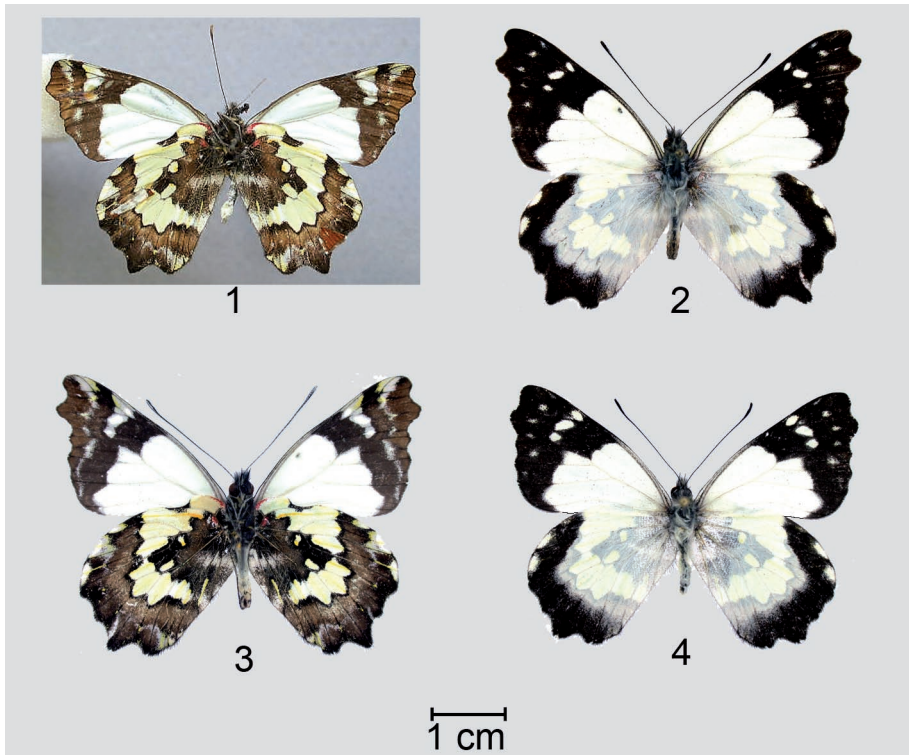
The characters listed above permit an immediate differentiation between the nominotypical subspecies and all eastern Andean populations, which share the following

characters: HWV yellow discal band composed of yellow spots, separated from each other by dark-scaled veins. HWV costal black spot thick and long, and contained inside vein $SC+R_1$ and connected to basal dark area in cell $SC+R_1$ by a dark scaled vein.

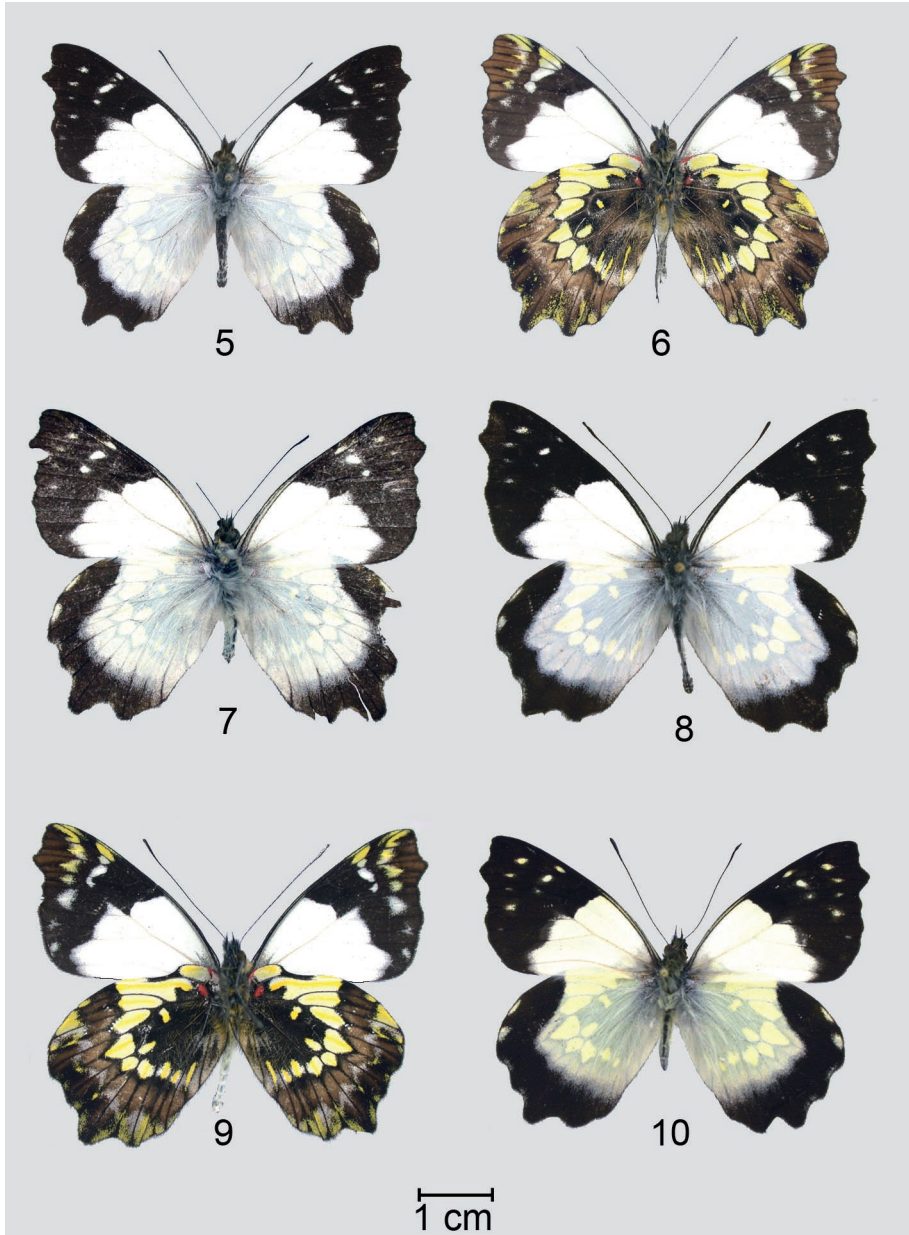
DISTRIBUTION

According to current knowledge, nominotypical populations range from south-western Ecuador (Loja) southward to north-western Peru (Cajamarca).

Eastern Andean specimens, are, on the contrary, much commoner in the field and well-represented in most collections. Their pattern is apparently quite consistent, but examination of long series allowed me to ascertain that they could be separated into four subspecies, including the northernmost ssp. *colombiana*, and one new Peruvian subspecies postulated on by LAMAS (2004). Separation of the various eastern Andean populations is mainly based on the width of the HWD marginal black band in both males and females, and differences found in the HWV discal band.



1-4. *Leodonta tagaste tagaste*: 1 – LT verso; 2 – male dorsal: Ecuador – Loja/ km. 19 Loja-La Toma/ ~ 3°59' S 78°18' W/ m. 2300 – XI.1999/ lg. Ismael Aldas, coll. MBLI; 3 – same, ventral; 4 – same, female dorsal: Peru – Cajamarca/ El Choloque/ Via Celendin-Balsas/ ~ 6°52' S 78°05' W/ m. 1800-2000 – VI-VII.2006/ Lg. local collectors, coll. MBLI



5-7. *Leodonta tagaste colombiana*: 5 – male dorsal: Colombia – Cundinamarca / Chia – La Floresta / ~ 4°52'N 74°04'W / m. 2600-2700 – 26.VII.2007 / Lg. Tomasz Pyrcz, coll. MBLI; 6 – same, ventral; 7 – same, female dorsal: Ecuador – Loja / near Loja / m. 2500 – X.2000, coll. MBLI. 8-10. *Leodonta tagaste calderoni*: 8 – HT dorsal: Peru – Pasco / Cord. Yanachaga / El Pajonal / ~ 10°38'S 75°18'W / m. 2900 – XII.2004 / Lg. José Böttger, presently in coll. MBLI; 9 – same, ventral; 10 – same, female PT dorsal: Peru – Pasco / Mesapata / ~ 10°46'S 75°22'W / m. 1200-1400, IX.2003, lg. local collectors, coll. MBLI

***Leodonta tagaste colombiana* CONSTANTINO & SALAZAR 2004**
(figs. 5-7)

“*Leodonta tagaste colombiana* ssp. nov.” In LE CROM et al., 2004: 86, Pl. Pieridae 37 – Tipos.

TYPE LOCALITY

[Colombia], Caldas, Salamina, San Félix.

TYPE MATERIAL

Holotype male in ICN, originally designated.

EXAMINED MATERIAL (14 males, 6 females)

HT male, Colombia – Caldas / Salamina – San Felix / 3100 m – feb. 1995 / C. Sarmiento leg. / in ICN; AT female, Quindío / Reserva Acaíme, Salento / 2700 m., 11.I.89 / J. Vélez lg., in UNCC; 1 male, Colombia – Antioquia / Amaga / m. 2500; 1 female, Colombia – Antioquia / San Felix / 2700 m. – 10/08/2000, all in CRMC; 1 male, La Bonita/Sucumbios/Ecuador/VI-1996; 1 male, San Andres, 1800 m/Région de Zumba/13-VIII-1998/Zamora-Chinchipec/Ecuador/ Chasses S. Et M. Attal; 1 male, Région de Valladolid/2600 m., 8-IX-2001/Zamora Chinchipec/Ecuador; 1 female, Ancienne route Loja-Zamora/2500 m/8-V-2000/Zamora Chinchipec/Ecuador; 1 male, Ancienne route Loja-Zamora/2500 m/31-V-2000/Zamora Chinchipec/Ecuador, all in coll. ATTAL (Paris, France); 1 female, Colombia – Antioquia / El Retiro / ~ 6°04'N 75°30'W / m. 2800 – 10.VIII.2007 / Lg. Tomasz Pyrcz; 3 males, Colombia – Antioquia / Alto del Padre Amaya / ~ 6°17'N 75°42'W / m. 2800 – 12.VIII.2007 / Lg. Tomasz Pyrcz; 1 male, Ecuador – Loja/ Yangana/ ~ 4°22'S 79°11'W/ m. 2500 – V.2000/ lg. Ismael Aldas; 1 male, Ecuador – Loja/ old road Loja-Zamora/ m. 2600 – November 1999/ lg. I. Aldas; 1 male, Ecuador – Azuay Prov./ Maylas/ ~ 2°58'S 78°42'W/ m. 3200 – 14-I-2004/ lg. Bollino & Vitale; 1 male, Ecuador – Azuay Prov./ Maylas/ ~ 2°58'S 78°42'W/ m. 3200 – XII-2003/ lg. local collectors; 1 male, Ecuador – Azuay Prov./ Maila (16 km ESE Gualaceo)/ ~ 2°58'S 78°42'W/ m. 3200-3350 – I.2003, lg. Euclides Aldaz; 1 female, Ecuador – Loja/ Cenén Alto (Loja)/ m. 2800 – November 1999/ lg. I. Aldas; 1 female, Ecuador – Loja/ near Loja/ m. 2500 – X.2000, all in MBLI

DIAGNOSIS

This subspecies is characterised by both males and females having a black marginal HWD band occupying approximately one-third of the space from the origin of vein M_3 to the edge of the wing. HWD marginal black band is distinctly separated from discal white area, but in the anal portion it is suffused with white scales in cells 2A-1A- Cu_2 and occasionally in cell Cu_1 , thus forming a thick greyish band approximately 1 mm wide. HWV discal band with yellow spots in cells M_2 - M_3 - Cu_1 of nearly the same size, pentagonal, touching each other along a plane of several mm., that in cell M_2 occasionally being slightly smaller than those in cells M_3 - Cu_1 .

NOTE

CONSTANTINO and SALAZAR (in LE CROM et al. 2004), whilst describing their new subspecies, state “[*The new subspecies*] differs from nominotypical subspecies from Ecuador and Peru for wing shape and deep white color of median band, which is light cream yellow in *L. t. tagaste*.” [translated from Spanish text]. From the original description, it is not at all clear whether they consider the western or eastern Ecuadorian and Peruvian populations to be the nominotypical subspecies. Anyway, the “light cream yellow” colour has no diagnostic value, as it occasionally occurs in all eastern Andean populations.

DISTRIBUTION

This subspecies is present from Colombia (Central Cordillera and central-southern portion of Oriental Cordillera) southward to Loja Province (Ecuador).

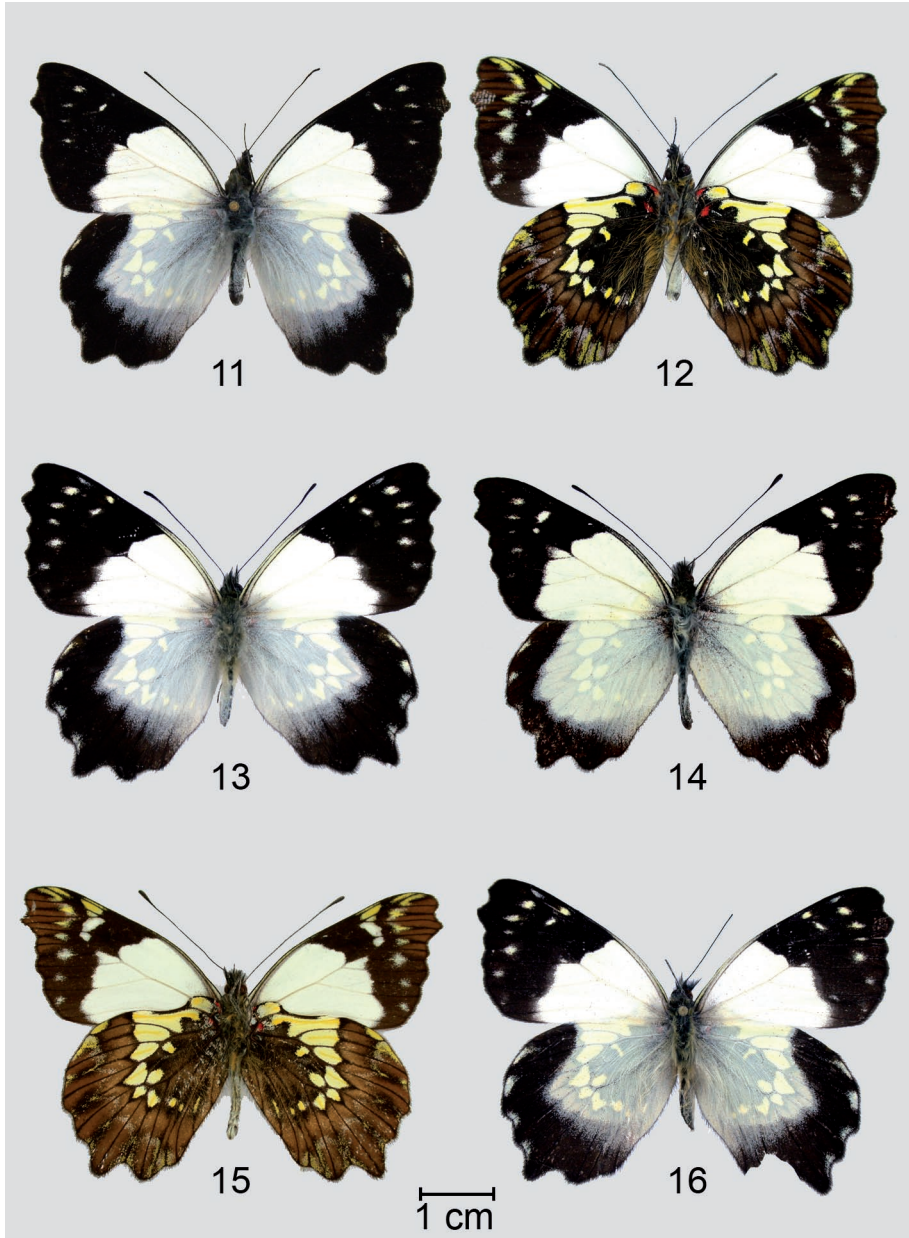
Three more so far undescribed subspecies can be phenetically differentiated. I therefore briefly describe them below.

***Leodonta tagaste calderoni* n. ssp.**

(figs. 8-10)

TYPE SERIES

Holotype: male, Peru – Pasco/ Cord. Yanachaga/ El Pajonal/ ~ 10°38'S 75°18'W/ m. 2900 – XII.2004/ Lg. José Böttger, presently in MBLI, will be deposited in MUSM ; Paratypes (186 males, 10 females): 1 male, Peru – Amazonas / Rio Verde / ~ 6°28'S 77°35'W / m. 1200 – XII.1997 / Lg. Benigno Calderon; 4 males, Peru – San Martin / Puente El Afluente / ~ 5°42'S 77°35'W / m. 1600-1800 – XII-2003 / lg. local collectors; 1 male, Peru – Amazonas / Puente Nieva / ~ 5°41'S 77°47'W / m. 2300 – III.2005 / Lg. Benigno Calderon; 1 male, Peru – Amazonas / San José de Molinopampa / ~ 6°13'S 77°38'W / m. 2300 – I-II.2006 / Lg. Benigno Calderon; 2 males, Peru – Amazonas / Pedro Ruis Gallo / ~ 5° 51' S 77°58'W / m. 1650-1850 – III.2005 / Lg. Benigno Calderon; 22 males, Peru - Depto. Amazonas / Rodriguez de Mendoza / Quebrada de Pirruro / ~ 6°23'S 77°26'W / m. 1700 -1800 / Lg. Benigno Calderon; 27 males, Peru – Amazonas / Above Pedro Ruiz Gallo / ~ 5°53'S 78°13'W / m. 1550-1700 – August 2002 / lg. Benigno Calderon; 32 males, Peru – Amazonas / Pedro Ruiz Gallo / ~ 5°53'S 78°13'W / m. 1600-1700 – VIII 2001 / lg. Benigno Calderon; 2 males, Peru – Amazonas / near Rodriguez de Mendoza / ~ 6°20'S 77°24'W / m. 1700-2000 / lg. Benigno Calderon; 6 males, Peru – Amazonas / Above Pedro Ruiz Gallo / ~ 5°53'S 78°13'W / m. 1800 – 8-15.XII.2001 / lg. Benigno Calderon; 1 male, Peru – Amazonas / Track between / Molinopampa and Granada / m. 3150 -3250 / October 2000 / Lg. Calderon; 2 males, Peru – Huanuco / Carpis Pass / ~ 9°42'S 76°05'W / m. 2800 – III-V-2001/ lg. local collectors; 2 ♂♂, Peru – Huanuco / above Tingo Maria / m. 1800 – X.1998; 5 males, Peru – Huanuco / Huanacuare / ~ 9°46'S 75°54'W / m. 2700-3000 – XII-2006 / Lg. José Boettger; 1 male, Peru – Pasco/ Palcamayo/ Huancabamba Distr./ ~ 10°25'S 75°34'W/ m. 2200 – VIII.2003/ Lg. local collectors; 4 males, Peru – Pasco/ Palcamayo/



11-13. *Leodonta tagaste peruana*: 11 – HT dorsal: Peru – Cuzco / Road Acjanaco-Pillcopata / ~ 13°08'S 71°25'W / m. 2100-2500 – XI-XII.2004/ lg. local collectors, presently in coll. MBLI; 12 – same, ventral; 13 – same, female dorsal: Peru – Cusco / Rio Cosñipata / m. 1500-2000, I.1999, lg. local collectors, coll. MBLI. 14-16. *Leodonta tagaste extrema*: 14 – HT dorsal: Bolivia, Yungas de Corani, 2500 m., 2.X.1953, leg. W.Forster, in ZSMC; 15 – same, ventral; 16 – same, female PT dorsal: Peru – Puno Depto. / Aquele (Sandia) / ~ 14°04'S 69°42'W / m. 2100-2200 – XI.2004 / Lg. José Boettger, coll. MBLI

Huancabamba Distr./ ~ 10°25'S 75°34'W/ m. 2200 – X.2003/ Lg. local collectors; 4 males, Peru – Pasco/ Cueva Blanca/ Huancabamba Distr./ ~ 10°31'S 75°34'W/ m. 2600 – X-XI.2003/ Lg. José Boettger; 4 males, Peru – Pasco/ Cueva Blanca/ Huancabamba Distr./ ~ 10°31'S 75°34'W/ m. 2600 – XI.2003/ Lg. José Boettger; 1 male, 1 female, Peru – Pasco/ Mesapata/ ~ 10°46'S 75°22'W/ m. 1200-1400 – IX.2003/ Lg. local collectors; 1 male, Peru – Pasco / San Antonio de Pucuy / ~ 10°43'S 75°32'W / m. 2000 – I.2005 / Lg. José Böttger; 1 male, Peru – Pasco/ Torrebamba/ Huancabamba Distr./ ~ 10°31'S 75°38'W/ m. 2500 – IX.2003/ Lg. local collectors; 1 male, Peru – Pasco/ San Alberto/ Oxapampa Distr./ ~ 10°36'S 75°20'W/ m. 2000 – IX.2003/ Lg. local collectors; 2 males, 1 female, Peru – Pasco/ Cord. Yanachaga/ El Pajonal/ ~ 10°38'S 75°18'W/ m. 2800 – XI.2004/ Lg. José Böttger; 8 males, 2 females, Peru – Pasco/ Cord. Yanachaga/ El Pajonal/ ~ 10°38'S 75°18'W/ m. 2900 – XII.2004/ Lg. José Böttger; 6 males, Peru – Pasco/ Cord. Yanachaga/ El Pajonal/ ~ 10°38'S 75°18'W/ m. 2800 – XI.2005/ Lg. José Böttger; 9 males, 2 females, Peru – Pasco/ Cord. Yanachaga/ El Pajonal/ ~ 10°38'S 75°18'W/ m. 2800 – IX.2006/ Lg. José Böttger, all in MBLI; 13 male, 1 female, [Peru – Amazonas], Qda. El Chido, Pomacochas / 15.09.1999 / B.Calderon leg. / 2500 m; 3 males, [Peru – Amazonas], Cedro, Mendoza / 02.2002 / B.Calderon leg. / 2000 m; 2 males, 1 female, same data, but 10.2002; 3 males, [Peru – Amazonas], Alto Rio Nieva / 06.2002 / 2200-2500 m / B. Calderon leg.; 1 male, [Peru – Amazonas], Qda. Hingilpata / Mendoza / 25.08.1998 / J.Wojtusiak leg.; 1 male, [Peru – Amazonas], Qda. Pirruro / Mendoza / 1700 m / 28.08.1998 / T.Pyrcz leg.; 1 female, [Peru – Amazonas], Peña Blanca / Pomacochas / 02.07.1999 / 2800 m / B. Calderon leg.; 1 male, [Peru – Amazonas], Qda. Llanohuaico / 14.10.1998 / J.Wojtusiak leg.; 1 male, [Peru – Pasco], Villa Rica / Oxapampa / 2000-2100 m / 06.10.2002 / T.Pyrcz leg.; 1 male, Peru/ Dep. Junín / Chanchamayo / Cachiyacu – Casca / Qda. Malambo / , 2600-2700 m. / leg. T. Pyrcz., all in MZUJ; 1 male, Rodriguez de Mendoza (Amazonas) / 1999 ? or 2000 ? / Benigno Calderon leg.; 1 male, 1 female, La Suiza / 2400/2700m (Pasco) / 31/10/2004 / P.Boyer leg.; 1 male, La Suiza / 2200/2400m / Oxapampa (Pasco) / 28/10/2006 / P.Boyer leg.; 5 males, Route Pachachupan vers Huanacaure km39 / Est de Acomayo / 2600m (Huanuco) / 09 45 412 S, 075 54 844 W / 23/10/2006 / P.Boyer leg.; 3 males, Cueva Blanca / 2300m / Huancabamba, (Pasco) / 6/12/2003 / P.Boyer leg.; 1 male, Shuyhua (Ichco) / au dessus de Milpo 3100/3300m / 10 22 968 S, 075 38 021 W (Pasco) 27/5/2005 / P.Boyer leg.; 1 male, Cueva Blanca / 2500m / Huancabamba (Pasco) / 11/2004 / J.Bottger leg., all in PBPF.

DIAGNOSIS

This subspecies is characterised by both males and females having a black marginal HWD band occupying approximately one-third of the space from the origin of vein M_3 to the edge of the wing. HWD marginal black band is separated from discal white area by a dark band suffused with white scales; this greyish band is approximately 3 mm wide in cell 2A and becomes progressively narrower in cells 1A-Cu₂-Cu₁-M₃. HWV discal band with yellow spots in cells M₂-M₃-Cu₁ progressively smaller, pentagonal, touching each other along a plane of several mm., that in cell M₂ always being the largest.

DISTRIBUTION

This new subspecies is distributed, and locally quite common, from northern Peru (Amazonas) southward to central Junín. Its southern limit is still unknown.

DERIVATIO NOMINIS

This new subspecies is named after Benigno CALDERON NOVOA (Rodríguez de Mendoza, Amazonas, Peru) who has sent me a lot of interesting material. Many of his *Leodonta* were critical for completion of the current research.

***Leodonta tagaste peruana* n. ssp.**

(figs. 11-13)

TYPE SERIES

Holotype: male, Peru – Cuzco/ Road Acjanaco-Pillcopata/ ~ 13°08'S 71°25'W/ m. 2100-2500 – XI-XII.2004/ lg. local collectors, presently in MBLI, will be deposited in MUSM; Paratypes (65 males, 6 females): 2 males, Peru – Depto. Cusco/ Quincemil/ ~ 13°13'S 70°45'W/ m. 1000 – II.1998/ lg. local collectors; 6 males, 1 female, Peru – Cusco/ Rio Cosñipata/ m. 1500-2000, I.1999, lg. local collectors; 7 males, Peru – Cuzco/ Road Acjanaco-Pillcopata/ ~ 13°08'S 71°25'W/ m. 2100-2500 – XI-XII.2004/ lg. local collectors; 15 males, Peru – Cuzco/ Inkatambo/ ~ 13°03'S 72°25'W/ m. 2150-2200 – III.2005/ Lg. José Boettger; 14 males, 4 females, Peru – Cuzco/ Carrizal (Huayupata)/ ~ 13°05'S 72°23'W/ m. 3200-3250 – III.2005/ Lg. José Boettger; 1 male, Peru – Cuzco/ Carrizal (Huayupata)/ ~ 13°05'S 72°23'W/ m. 3000 – III.2006/ Lg. José Boettger; 10 males, Peru – Cuzco/ Amparaes/ ~ 13°17'S 71°56'W/ m. 2800 – III.2005/ Lg. José Boettger, all in MBLI; 1 female, Abra Malaga vers Quillabamba, 3200/3400m (Cuzco) 18/5/2003; 1 male, Quebrada San Luis, via a Quillabamba, 3000/3200m (Cuzco) 14/5/2003; 2 males, Abra Malaga vers Quillabamba km 24 à 26 3000/3100m (Cuzco) 26/2/2005; 2 males, Abra Malaga vers Quillabamba km 27 2900m (Cuzco) 26/2/2005; 3 males, 6km N de Amparaes, Calca vers Quebrada Honda km 62,5, 3100m (Cuzco) 17/5/2005; 2 males, 6km N de Amparaes, via a Quebrada Honda, 3200m (Cuzco) 15/5/2003, all in PBPf

DIAGNOSIS

This new subspecies is characterised by males having a wide black marginal HWD band occupying about half of the space from the origin of vein M_3 to the edge of the wing. HWD marginal black band is separated from discal white area by a dark band suffused with white scales; this greyish band is approximately 5 mm wide in cell 2A and becomes progressively narrower in cells 1A-Cu₂-Cu₁-M₃-M₂-M₁. HWV discal band with yellow spots in cells M₂-M₃-Cu₁ triangular, only touching each other at a point, that in cell M₂ being at least twice the size of those in cells M₃-Cu₁. Females have a wider black band than males.

DISTRIBUTION

Presently, the new subspecies is only known to occur in Cuzco; no specimens from either Ayacucho or southern Junín are known to me which could establish its northern limit.

***Leodonta tagaste extrema* n.ssp.**

(figs. 14-16)

TYPE SERIES

Holotype: male, Bolivia, Yungas de Corani, 2500 m., 2.X.1953, leg. W. Forster, in ZSM; Paratypes (80 males, 9 females): 1 male, Peru–Puno Depto./Near Phara/ ~ 14°09'S 69°39'W/ m. 3400-3600 – XI.2004/Lg. José Boettger; 8 males, Peru – Puno Depto./ Carcel Punco (Sandia)/ ~ 14°03'S 69°39'W/ m. 2700 – V.2005/ Lg. José Boettger; 21 males, 3 females, Peru – Puno Depto./ Carcel Punco (Sandia)/ ~ 14°03'S 69°39'W/ m. 2500-2600 – III.2006/ Lg. José Boettger; 3 males, Peru – Puno Depto./ Pacchani (Sandia)/ ~ 14°04'S 69°41'W/ m. 2200 – X.2004/ Lg. José Boettger; 36 males, 2 females, Peru – Puno Depto./ Aquele (Sandia)/ ~ 14°04'S 69°42'W/ m. 2100-2200 – XI.2004/ Lg. José Boettger; 6 males, 1 female, Bolivia – Cochabamba, near Cristal Mayu, ~ 17°11'S 65°36'W, m. 1000-1500 – VII-VIII.2006, all in MBLI; 1 male, Bolivia, Yungas de Arepucho, Sihuencas, 2200-2500 m., 20.IX.1953, leg. W. Forster; 1 female, Bolivia, Yungas de Palmar, 2000 m., 3.5.50, leg. Zischka; 1 female, Bolivia, Yungas de Palmar, 2000 m., leg. R. Schönfelder, all in ZSM; 1 female, Limbani vers Carcel Punco km4, 3000m (Puno) 16/10/2004; 1 female, Carcel Punco, 2600m (Puno) 3/2006; 1 male, 1 female, Cochabamba vers Villa Tunari km77, 2900m (Cochabamba) Bolivia 18/11/2001, all in PBPF; 1 male, Locotal, via Cochabamba-VillaTunari, Bolivia, 30.08.2000, T.Pyrcz leg., in MZUJ.

DIAGNOSIS

This new subspecies is characterised by males having a black marginal HWD band occupying less than one-third of the space from the origin of vein M_3 to the edge of the wing. HWD marginal black band is separated from discal white area by a dark band suffused with white scales; this greyish band is approximately 4-5 mm wide in cell 2A and becomes much thinner in cells 1A-Cu₂-Cu₁-M₃-M₂-M₁. HWV discal band with yellow spots in cells M₂-M₃-Cu₁ triangular, only touching each other at a point, that in cell M₂ being at least twice the size of those in cells M₃-Cu₁. Females have a wider black band than males.

DISTRIBUTION

The new subspecies is found from Puno (Peru) southward to central Bolivia.

ACKNOWLEDGMENTS

I wish express my sincere thanks to Pierre BOYER (Le Puy Ste. Réparade, France), Tomasz PYRCZ (Warszaw, Poland), Janusz WOJTUSIAK (Muzeum Zoologiczne Uniwer-

sytetu Jagiellońskiego, Kraków, Poland), Philip J. ACKERY and Kim GOODGER (Department of Entomology, The Natural History Museum, London, England), Axel HAUSMANN (Zoologische Sammlung des Bayerischen Staates, Munich, Germany), Wolfram MEY (Zoologisches Museum, Humboldt Universität, Berlin, Germany); Christoph HÄUSER (Staatliches Museum für Naturkunde, Stuttgart, Germany), Gabriel RODRÍGUEZ (Envigado, Colombia), Jean François LE CROM (Bogotá, Colombia), Stéphane ATTAL (Paris, France). Finally I wish to express my gratitude to Bob WORTHY (Surrey, England) for his kind assistance with the English language, and to Stanislav ABADJIEV (Sofia, Bulgaria): we started working together on *Leodonta*, but he was forced to abandon the project due to circumstances beyond his control.

REFERENCES

- ABADJIEV, S. P., 2006. Types of Neotropical Pierinae in the collection of Department of Entomology, Natural History Museum, London (Lepidoptera: Pieridae). *Zootaxa*, **1143**: 1–218.
- BRABY, M. F., PIERCE, N. E., VILA, R., 2007. Phylogeny and historical biogeography of the subtribe Aporiina (Lepidoptera: Pieridae): implications for the origin of Australian butterflies. *Biol. Journ. Linn. Soc.*, **90**: 413–440.
- D'ABRERA, B., 1984. *Butterflies of South America*. Hill House, Ferny Creek, 256 pp.
- DEVRIES, P. J., 1987. *The Butterflies of Costa Rica and their natural history*. Papilionidae, Pieridae, Nymphalidae. Princeton University Press, Princeton, xxii + 328 pp., 50 col. pls.
- EVENHUIS, N. L., 2008. *Insect and Spider Collections of the World*. Available from: "<http://hbs.bishopmuseum.org/codens/codens-r-us.html>"; available now.
- LAMAS, G., 2004. Pieridae. In: LAMAS, G. (Ed.), Checklist: Part 4A. Hesperioidea—Papilionoidea. In: HEPPNER, J.B. (Ed.), *Atlas of Neotropical Lepidoptera*. Volume 5A. Association for Tropical Lepidoptera/Scientific Publishers, Gainesville, 99–117.
- LAMAS, G., BOLLINO, M., 2004. Revisional notes on the “*amastris*” group of *Catasticta* BUTLER, 1870 (Lepidoptera: Pieridae), with descriptions of new species and subspecies. *Zootaxa*, 605:1-19
- LE CROM, J. F., LLORENTE, J. E., CONSTANTINO, L. M., SALAZAR, J. A., 2004. *Mariposas de Colombia*. Tomo 2: Pieride. Bogotá.
- TALBOT, G., 1932. Pieridae. *Lepidopterorum Catalogus*, **53**: 1-320.
- VENABLES, B. A. B., 1993. *Phylogeny of the white and sulphur butterflies (Pieridae)*. Unpublished manuscript. 75 pp.
- ZELADA, W. H., 2004. Las mariposas diurnas (Lepidoptera: Hesperioidea y Papilionoidea) del Bosque de Cuyas, Ayabaca, Piura, Perú. *Revista peruana. Entomol.*, **44**: 37-41, 1 fig., 1 tab.