ANNALES HISTORICO-NATURALES MUSEI NATIONALIS HUNGARICI
Volume 104 Budapest, 2012 pp. 299–310

Description of an Ocaria species from the Venezuelan Pantepuy (Lepidoptera: Lycaenidae: Theclinae)

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Abstract – *Ocaria elisa* sp. n. (Lycaenidae: Theclinae: Eumaeini) is described from the Guyana Shield in Venezuela. It is unique amongst congeners having the combination of the following external characters, (1) relatively large size compared with congeners, (2) black male dorsal forewing surface, (3) a dorsal forewing androconial cluster in the apical part of the discal cell, and (4) patternless ventral hindwing submedial area. A key for the species groups, notes on the diversity of the genus, discussion on the external characters of the species, and a checklist of the species are given. With 16 figures.

Key words – Eumaeini, *Ocaria*, new species, species groups, Pantepuy, Venezuela.

INTRODUCTION

Compared to the Andes the diversity of the lepidopteran fauna in the Pantepuy region of Venezuela is not so high, but remarkable because of its high degree of endemism. This is especially well demonstrated in the case of Nymphalidae. The knowledge of the Pantepuy fauna is rather poor compared to the montane regions of Venezuela and Guyana (Pyrcz & Fratello 2005, Neild 2008, Zubek & Pyrcz 2011).

The Pantepuy Lycaenidae fauna is even less explored, as we have only scattered records and very few reports on the occurrence of species and about taxa that could be considered as real Pantepuy endemics (Johnson & Smith 1993, Fratello 2004), therefore any such data bear significance.

The purpose of this paper is to describe a hitherto unknown hairstreak species in the eumaeine genus *Ocaria*. This taxon seems to be endemic to the Venezuelan Pantepuy region. We present a key for its identification and establish species-groups within the genus, with a list of species placed in them with indications of their type material and range.

Abbreviations of specimen depositories – BMNH = Natural History Museum, London, United Kingdom; HNHM = Hungarian Natural History Museum, Budapest, Hungary; MCZ = Museum of Comparative Zoology, Harvard University, Massachusetts, USA; MIZA = Museo del Instituto de Zoología Agricola, Facultad de Agronomia, Maracay, Venezuela; USNM = National Museum of Natural History, Smithsonian Institution, Washington DC, USA; ZMHV = Zoologisches Museum, Humboldt-Universität zu Berlin, Germany; [//] = line break in the label.

KEY TO *OCARIA* SPECIES GROUPS AND SPECIES OF *O. ARPOXAIS* GROUP BASED ON MALE CHARACTERS

1. Dorsal forewing without discal androconial cluster (Fig. 1) *O. calesia* species group

– Dorsal forewing with discal androconial cluster 2

2. Dorsal forewing androconial cluster attached to vein Radius in center of discal cell (Fig. 2) *O. thales* species group

– Dorsal forewing androconial cluster filling completely, half or smaller part of discal cell area between veins Radius and Cubitus 3

3. Dorsal forewing androconial cluster filling entire discal cell area 4

– Dorsal forewing with androconial cluster filling distal half of discal cell area *O. arpoxais* species group (Fig. 4) 5

4. Dorsal forewing with scent pad filling almost entire discal cell area (Fig. 3) *O. ocrisia* species group

– Dorsal forewing with scent patch filling almost entire discal cell area (Fig. 1) *O. aholiba* species group

5. Dorsal forewing surface with extensive gleaming blue structural colour, ventral hindwing surface with gleaming blue basal spot near costa (Fig. 5) 6

– Dorsal forewing without extensive violet blue structural colour and ventral hindwing surface gleaming blue basal spot near costa (Fig. 6) **Ocaria elisa** sp. n.

6. Dorsal forewing blue patch with undulate or wedge-shaped distal margin 7

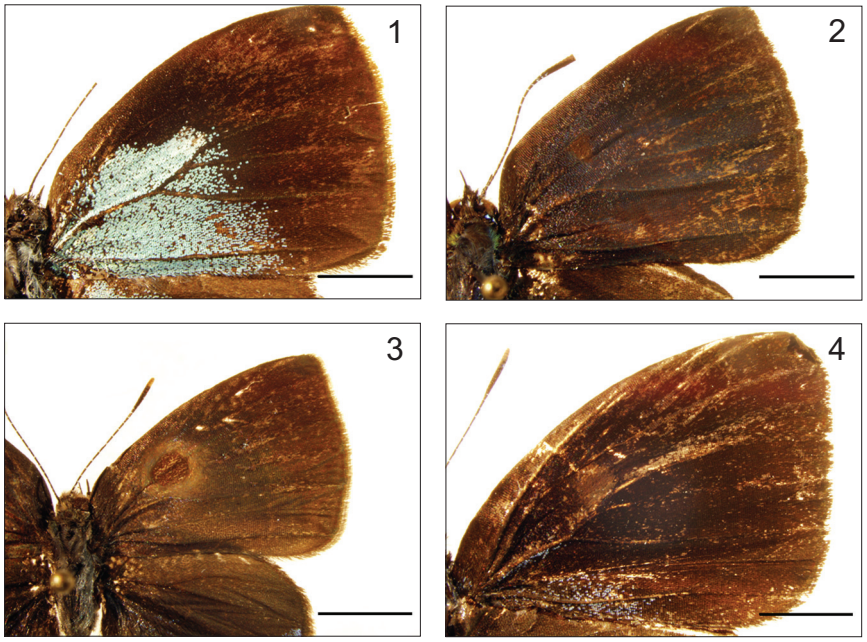
– Dorsal forewing blue patch with distally slightly bent margin *O. clepsydra* (DRUCE, 1907)

7. Ventral forewing postmedian markings comprised by regular row of gleaming tittles *O. cinerea* (LATHY, 1936)

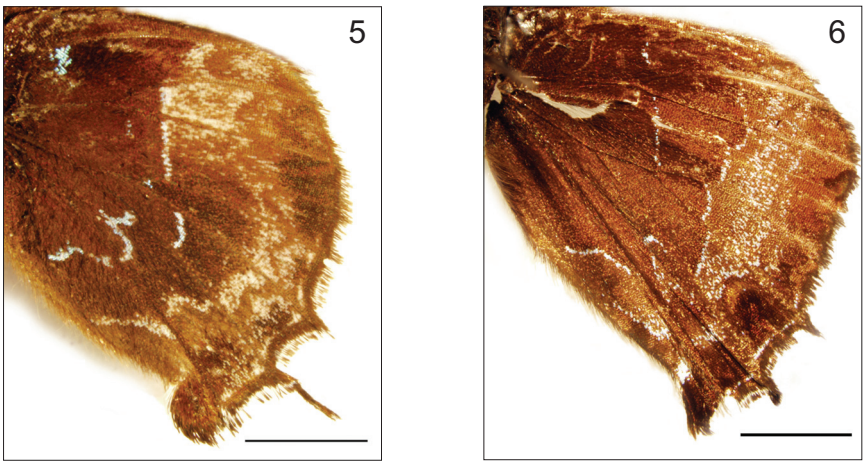
– Dorsal forewing postmedian markings comprised by irregular row of gleaming tittles *O. arpoxais* (GODMAN et SALVIN, 1887)

Ocaria elisa sp. n.
(Figs 7–12)

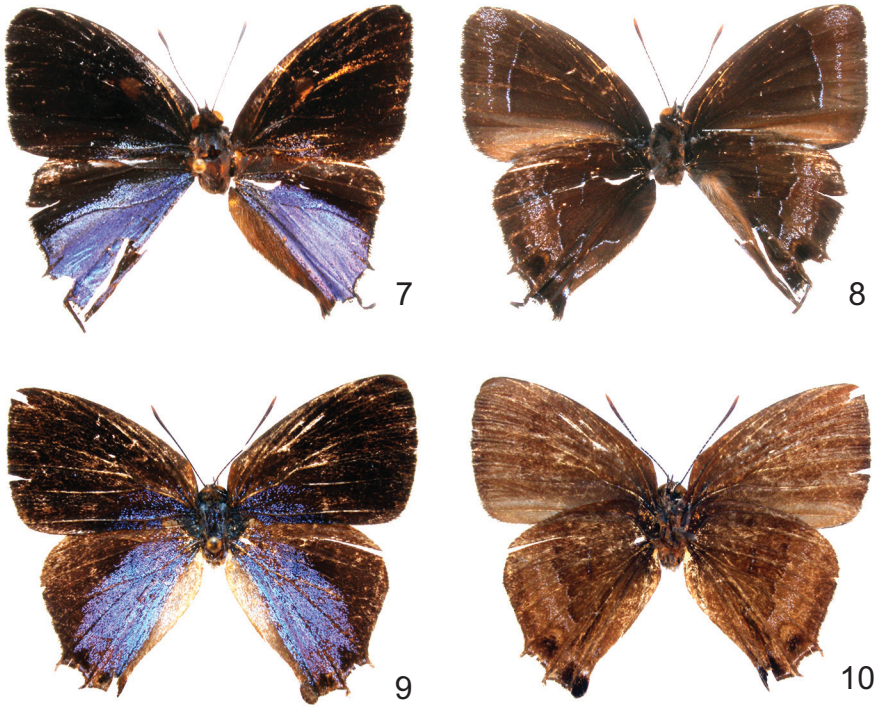
Type material – Holotype male in moderate condition (Figs 7–8), hindwings broken and glued, abdomen missing (dissected), placed and pinned in microvial under the specimen, labelled as "VENEZUELA, Edo Bolivar [//] La Escalara, 16. IV. 1981 [//] Leg. Mauro Costa" [white paper, printed]; "La Escalera [//] Edo Bolivar VENEZUELA [//], 16-IV-1981" [wax paper, handwritten]; "gen. prep. [//] no. 1428 Zs. Bálint" [white paper, handwritten and printed]. Paratype female in good condition (Figs 9–10), wings somewhat worn, abdomen missing (dissected), placed and pinned in microvial under the specimen, labelled as "VENEZUELA, Edo Bolivar [//], La Escalara, 1400 m [//] Km 124 South El Dorado [//] 26.XII.1994, Leg. Mauro Costa [white paper, printed], "Edo BOLIVAR [//] VENEZUELA [//] 26-XII-1994 [//], Col. Mauro Costa [//] Lyc. ??? [//] ♀" [wax paper, handwritten]; "La Escalara, 1400 mt [//] Km 124 South El Dorado" [wax paper, handwritten]; "gen. prep. [//] no. 1429 Zs. Bálint" [white paper, handwritten and printed]. The specimens are deposited in MIZA.



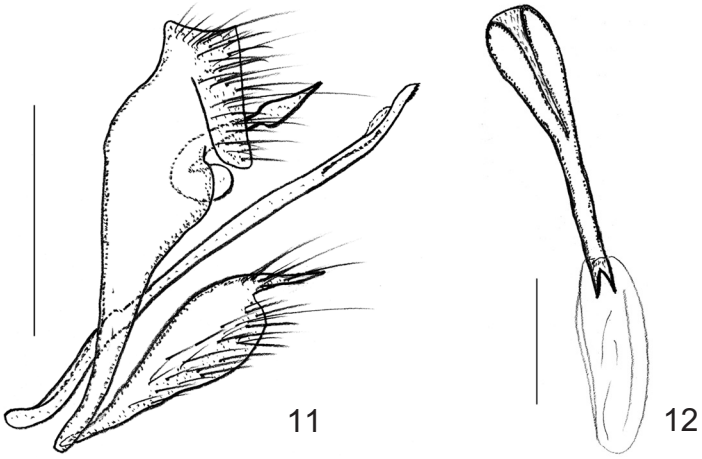
Figs 1–4. *Ocaria* male dorsal forewing discal regions: 1 = *O. calesia* (HEWITSON, 1870) without androconia, 2 = *O. thales* (FABRICIUS, 1973) with scent patch attached to the radial vein; 3 = *O. ocrisia* (HEWITSON, 1868) with scent pad; 4 = *O. elisa* sp. n. with scent patch in the discalis apex (scale bar = 4 mm)



Figs 5–6. Ventral hindwing traits in the *Ocaria arpoxais* species group: 5 = *O. clepsydra* (DRUCE, 1907) with subtmedial pattern in the costal region, 6 = *O. elisa* sp. n. without submedial pattern in the costal region (scale bar = 6 mm)



Figs 7–10. *Ocaria elisa* sp. n. type material: 7 = holotype male in dorsal view, 8 = ditto, in ventral view, 9 = paratype female in dorsal view, 10 = ditto, in ventral view (same magnification, holotype forewing costa length 16 mm)



Figs 11–12. *Ocaria elisa* sp. n. genitalia: 11 = male in lateral view; 12 = female in ventral view (scale bar = 1 mm)

Generic placement – Antennal base adjacent to the margin of the compound eye: Lycaenidae; male prothoracic leg not greatly modified and foreleg coxa not arched upward distally: Theclinae; male fore tarsus stubby-tipped and wings only with three radial vein termini and three medial veins: Eumaeini; aedeagus ventral keel serrate and distal valve tips with microtrichia: Satyriumina (type genus: *Satyrium* SCUDDER, 1876); aedeagus ventral distal keel flat, projecting and triangular shaped: genus *Ocaria* CLENCH, 1970; dorsal forewing with androconial cluster filling distal half of discal cell: *O. arpoxais* species group.

Diagnosis – It is as large as *Ocaria cinerea* (LATHY, 1936), but forewing dorsal surface is black with only a few violet blue scalings along veins Vannal 2 and Cubitus (basal and submedial areas gleaming blue in *O. cinerea*); ventral hindwing submarginal area uniformly dark from costa to tornus (tornal area is lighter in *O. cinerea*) and being unique in the species group without having a gleaming costal spot in postbasal area of ventral hindwing surface (all the other three species of the *O. arpoxais* species group with this pattern).

Description – Male. Body: head: vertex and frontoclypeus covered by black hair-like scales, labial palpus with middle segment black haired in its lower part with some white scales mixed, terminal segment short and pointed, eyes large and hairy; antennal flagellum and club dorsally black with white ventral scalings in each segment, club reddish brown; thorax and legs: covered by dark hair-like scales, excluding tibia and tarsus with normal scalings; abdomen: dorsally and laterally gleaming bluish, ventrally brown; genitalia (Fig. 11): commonplace eumaeine structures without brush organ, capsule flat and bullet shaped in lateral view, bullet shaped with valval and tegumenal anterior sensory hairs, tegumen with a large pair of long and slender gnathos curved with spearhead-shaped and pointed termini, posterior tegumen sclerotized, vinculum membraneous but upper and lover borders sclerotized, saccus subquadrate in ventral view, relatively short, valva streched and oval shaped in lateral view with a conspicuous apical project, lover part sclerotized, aedeagus longer than valva, internal and external part more or less equal in length, posterior end upwardly open and upturned with a slightly sclerotized anterior keel dentated proximad, vesica with a pair of cornutus serrated cephalas and large bluntly acuminate distally caudad.

Wings: Forewing costal and distal margins sligthly convex, anal margin straight, distal and anal margin with same length, costal margin longer, apex and tornus rounded, dorsal ground colour black but deep violet in a shallow angle (indicating UV reflection), basal and postbasal area along cubital and vannal veins with scattered blue scalings, scent patch present in discal cell apex comprised by large light brown scales, fringes brown and short, ventral ground colour deep brown in shallow angle with pink glance, postmedian area with delicate postmedian transverse line comprised by gleamig blue scales running from costa to vein Cubitus 1 parallel with distal margin, apex and upper submarginal area with light blue scalings; hindwing costal margin convex, distal margin slightly undulate with filamentous tails at vein termini Cubitus-Vannal 1 (shorter than 1 mm) and Cubitus-Vannal 2 (longer than 1mm), tornus with small lobe; dorsal ground colour black between costa and vein Radius, gleaming blue between veins Radius and Vannal 3, anal lobe grey, wing surface from vein Radius to anal margin covered by delicate minute hairs, tails at vein termini Cubitus 1–2 with blue scalings; ventral ground colour somewhat darker than in forewing with

delicate continuous transverse line from costa to vein Cubitus in medial area comprised by gleaming blue scales, postmedial area with an interrupted pattern of delicate intervenial lines from costa to anal margin, submargin with elegant light blue scalings, antemargin with darker intervenial areas appearing as spots, in cell Cubitus 1 and Cubitus 2 with "*Thecla* spot", tails with reddish scales.

Measurements of holotype (in mm). Forewing: vein Radius length measured from erection to terminus vein Radius 3 = 16, vein Media 1 length from erection to terminus = 10; vein Cubitus length from base to Cubitus 1 erection = 5; vein Vannal 2 measured from erection to terminus = 14; genitalia: valve length = 1.3; saccus length = 0.3; internal aedeagus length = 1.3; external aedeagus length = 1.2; tegumen length = 1.3.

Female. In appearance and size as male, but hindwing dorsal black colouration more extended reaching vein Cubitus 1, intervenial areas in Cubitus 1-Cubitus 2 and Cubitus 2-Vannal 2 with black triangular shaped antemarginal spot without structural coloration; genitalia (Fig. 12) with a simple sclerotized ductus and membraneous lamella postvaginalis.

Measurements of paratype female (in mm). Forewing: vein Radius length measured from erection to vein terminus Radius 3 = 16.5, vein Media 1 length from erection to terminus = 10; vein Cubitus length from base to Cu1 erection = 6; vein Vannal 2 measured from erection to terminus = 14.5; genitalia: ductus length = 2 mm, ductus width at anterior terminus = 0.15 mm, width at posterior terminus = 0.5 mm.

General distribution – Geographical: known only from the Venezuelan state Bolivár, mountains Gran Sabana. Temporal: specimens were collected in April (male) and in December (female). Spatial: elevation 1400 m.

Etymology – Noun, gender feminine, dedicated to the eldest daughter of the junior author, Miss ELISA COSTA.

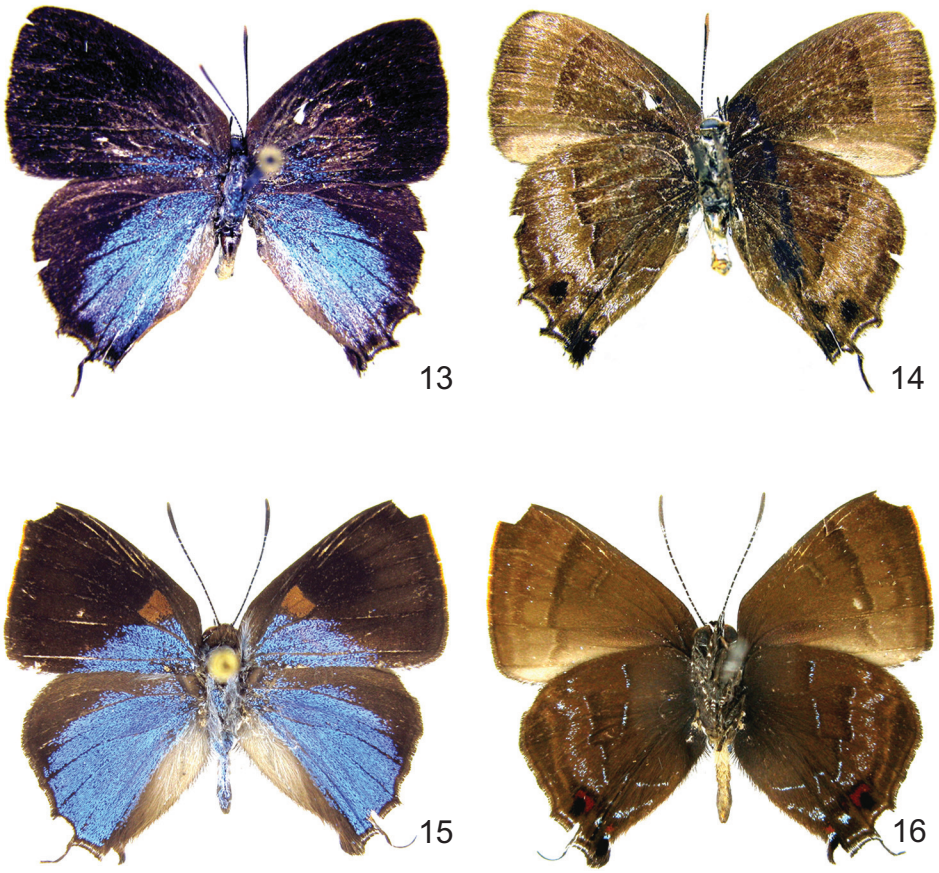
Notes – The genus *Ocaria* was established for *Thecla ocrisia* by CLENCH (1970). At the time of its description the genus included only the type species but it was remarked that one or two other species occurring in South America may belong to *Ocaria*. Indeed, D'ABRERA (1995: 1168–1170) subsequently transferred seven South American species from "*Thecla*" to *Ocaria*. A decade later ROBBINS (2004*a*) listed 16 species under this name. In this checklist four genus-group names (*Arases* JOHNSON 1993, type species: *Arases clenchi* JOHNSON, 1992, *Galba* JOHNSON, 1992, type species: *Galba elvira* JOHNSON, 1992, *Lamasa* JOHNSON, 1992, type species: *Thecla calesia* HEWITSON, 1870; and *Variegatta* JOHNSON, 1992, type species: *Thecla elongata* HEWITSON, 1870) were plainly synonymized with the indication that "four genera... whose type species have both of the distinguishing genital characters of *Ocaria*" are regarded as junior synonyms (ROBBINS 2004*b*: xxvii). In this paper we do not concur with this broad concept of *Ocaria*,

just mention that some of the generic names proposed by JOHNSON could be applied, when we have a better knowledge of Satyriumina as it happened in the case of Calycopidina (see DUARTE & ROBBINS 2010).

In the checklist compiled by ROBBINS (2004*a*: 124) three *Ocaria* species are listed as still being unnamed. The provenances of these were indicated to be as "Panama" (species no. 359), "Brazil (SP)" (SP = São Paulo state) (species no. 361) and "Guayana" (species no. 365). According to the compiler of the checklist the "undescribed species are systematically placed" (ROBBINS 2004*b*: xxix). Therefore the Panamanian species is probably related to *A. clenchi* and *A. aholiba* as it is placed between them. These species of the genus are patterned only by white, brown or reddish submedial line in the ventral hindwing surface (cf. D'ABRERA 1995: 1208; HNHM collection). The Brazilian species also belongs to this group (coll. ALFRED MOSER). In our opinion the "Guayana" taxon does not match with our *O. elisa*. It is known by two specimens collected in Roraima (Venezuela) (MIZA) and in the Mt Wokomong (Guyana) (USNM); and a third specimen was collected recently, also on Mt Wokomong by STEVE FRATELLO, who considers this new female to be identical with the previously known two specimens (FRATELLO, *pers. comm.*). We were able to examine the Roraima female specimen (Figs 13–14). Although the paratype female *O. elisa* is slightly worn, it is obvious that they do not represent the same taxon because they have different wing shape and ventral wing pattern. At the same site where this female was caught a male *Ocaria* specimen was collected on 29 March 2007 at an elevation of 1900 m, which also markedly differs from the holotype of *O. elisa*: it is smaller, distinctively shaped forewing and dorsal androconia, and the ventral wing pattern is also different (Figs 15–16). We regard this unnamed Pantepuy species also to be the representative of the *O. aholiba* species group.

Almost all the species listed under as *Ocaria* at the moment have forewing costa shorter than 14 mm. The only larger species which is similar in size to *O. elisa* is *O. cinerea*, which has a different type of dorsal blue colouration and ventral wing pattern (D'ABRERA 1995: 1169). In the genus there are some species (*O. arcula*, *O. ocaria*, *O. thales*) with almost entirely black dorsal forewing surface but all of them possess different androconia and ventral wing pattern; moreover all of these species are smaller as has been mentioned previously. The forewing androconia of *O. elisa* appears as a scent

patch (FAYNEL & BÁLINT 2012) composed of deep brown scales smaller than the ordinary cover scales in the end of the discal cell, which is characteristic of all the taxa placed in the *O. aproxais* species group, and the lack of any pattern in the postmedial area of the hindwing ventral surface, which is unique in the genus. On the basis of these characters *O. elisa* can easily be identified.



Figs 13–16. *Ocaria* specimens from Mt Roraima, Venezuela: 13 = female, in dorsal view; 14 = ditto, in ventral view, 15 = male, in dorsal view; 16 = ditto, in ventral view (same magnification, male forewing costa length 12 mm)

CHECKLIST

O. aholiba species group

Ocaria aholiba (HEWITSON, 1867) – BMNH male syntype *Thecla aholiba*, Colombia (no precise locality); distribution: Mesoamerica; Venezuela, Colombia to Peru in the Andes.

Ocaria clenchi (JOHNSON, 1992) – USNM holotype male *Thecla sesara*, Mexico: "Las Vigas in Vera Cruz"; distribution: Mesoamerica, Colombia and Venezuela. Note: the name *Arases clenchi* JOHNSON, 1992 was proposed as a replacement for *Thecla sesara* GODMAN, 1901 which is the junior homonym of *Thecla sesara* GODMAN et SALVIN, 1887 (Lycaenidae : Theclinae: Eumaeini: "*Tmolus* section")

sp. n. – [Panama]

sp. n. – [Brasil]

sp. n. – [Guyana]

O. arpoxais species group

Ocaria arpoxais (GODMAN et SALVIN, 1887) – BMNH holotype male *Thecla arpoxais*, Panama: "Chitra"; distribution: Mesoamerica.

Ocaria cinerea (LATHY, 1936) – MNHN holotype male *Thecla cinerea*, Brasil: "Rio Grande do Sul"; distribution: South-East Brazil.

Ocaria clepsydra (DRUCE, 1907) – BMNH holotype male *Thecla clepsydra*, Colombia: "Bogota"; distribution: Colombia to Bolivia in the Andes.

Ocaria elisa sp. n. – MZUJ holotype male, Venezuela: "Estado Bolivar, La Escalara"; distribution: Venezuela (Pantepuy).

O. calesia species group

Ocaria calesia (HEWITSON, 1870) – BMNH lectotype male *Thecla calesia* (designated by JOHNSON 1992: 184), Bolivia: "Cururay"; distribution: Mesoamarica, Venezuela, Colombia to Bolivia and to South-East Brazil via the Andes, the Guyanas and the Amazon Basin.

Ocaria petelina (HEWITSON, 1877) – ZMHU syntype female *Thecla petelina*, Panama: "Chiriqui"; distribution: Mesoamerica.

Ocaria sadiei (WEEKS, 1901) – MCZ holotype male *Thecla sadiei*, Bolivia: "Coroico district"; distribution: Colombia to Bolivia in the Andes.

O. ocrisia species group

Ocaria arcula (DRUCE, 1907) – BMNH holotype male *Thecla arcula*, Argentina: "Tucuman"; distribution: North-West Argentina, Uruguay, Paraguay.

Ocaria ocrisia (HEWITSON, 1868) – BMNH syntype male *Thecla ocrisia*; Ecuador (no precise locality); distribution: Mexico to Bolivia and to South-East Brasil via the Amazon Basin, the Andes, and the Guyanas. Note: under this name most likely several species are lumped, therefore certain names listed as synonyms in ROBBINS (2004*a*: 124) can be applied for real taxa (*cf.* BRIDGES 1994: VIII.337; WARREN *et al.* 2012: *Ocaria ocrisia*).

O. thales species group

Ocaria elvira (JOHNSON, 1992) – BMNH holotype male *Galba elvira*, Peru: "Carohas"; distribution: Ecuador, Peru (western cordilleras).

Ocaria thales (FABRICIUS, 1793) – Coll. DRURY, holotype male *Hesperia thales*: "Indiis"; distribution: Mesoamerica, Venezuela, Colombia to Bolivia and to South-East Brazil in the Andes, the Guayanas, and the Amazon Basin. Note: the type is not extant as it is based on JONES figures (*cf.* VANE-WRIGHT 2010), type locality erroneous, most likely it comes from Surinam.

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