

Genus *Crudaria* Wallengren, 1875 Greys & Gem

Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar. Stockholm **32** (1): 86 (83-137).
Type-species: *Arhopala* (?) *leroma* Wallengren, 1857, by monotypy.

The genus *Crudaria* belongs to the Family Lycaenidae Leach, 1815; Subfamily Aphnaeinae Distant, 1884; Tribe Aphnaeini Distant, 1884. The other genera in the Tribe Aphnaeini in the Afrotropical Region are *Phasis*, *Tylopaedia*, *Argyraspodes*, *Aloeides*, *Eriksonia*, *Trimenia*, *Aphnaeus*, *Chloroselas*, *Lipaphnaeus*, and *Chrysoritis*. The genus *Cesa* Seven, 1997 was made a subgenus of *Crudaria* by Grishin (2023a).

Crudaria (**Greys**) is a purely Afrotropical genus containing four species.

Subgenus *Crudaria* Wallengren, 1875 Greys

Crudaria (Crudaria) capensis van Son, 1956# Cape Grey

Crudaria capensis van Son, 1956. *Annals of the Transvaal Museum* **22**: 505 (503-509).
Crudaria capensis Van Son, 1956. Dickson & Kroon, 1978.
Crudaria capensis Van Son, 1956. Pringle *et al.*, 1994: 227.
Crudaria capensis van Son, 1956. d'Abreu, 2009: 730.
Crudaria (Crudaria) capensis van Son, 1956. Grishin, 2023a.



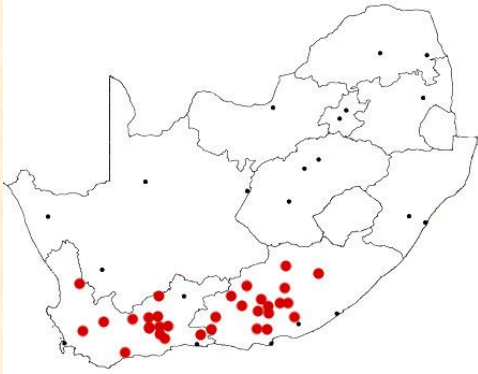
Crudaria (Crudaria) capensis. Male. Left – upperside; right – underside.
Witmos, Eastern Cape Province, South Africa. 14 November 1981. V.L. Pringle.
Images M.C. Williams ex Pringle Collection.



Crudaria (Crudaria) capensis. Female. Left – upperside; right – underside.
Hofmeyer, Eastern Cape Province, South Africa. 10 November 1971. V.L. Pringle.
Images M.C. Williams ex Pringle Collection.

Type locality: South Africa: “Uniondale Road, C.P.”.

Diagnosis: Most closely related to *Crudaria wykehami*, from which it apparently can be separated by differences in the genitalia. Also closely related to *Crudaria leroma*. Distinguished from the latter, on the underside of the forewing, by the oblique row of discal spots (Pringle *et al.*, 1994).



Distribution of *Crudaria capensis*

Eastern Cape Province, Western Cape Province, Northern Cape Province?

Distribution: South Africa (Eastern Cape Province, Western Cape Province, Northern Cape Province?).

Specific localities:

Eastern Cape Province – Uniondale Road (TL); Cookhouse (Walton and Clark); Witmos (V. Pringle); Queenstown (Mecenero *et al.*, 2013).

Western Cape Province – near Calitzdorp (Van Son and Badham); Vanrhynsdorp (Mecenero *et al.*, 2013).

Northern Cape Province – Kenhardt (I. Coetzer) [requires confirmation].

Habits: The flight is fast but usually not quite as rapid as that of *Crudaria leroma*. Specimens settle frequently, mostly on the lower branches of acacia thorn trees. Both sexes feed from the flowers of shrubs (Pringle *et al.*, 1994).

Flight period: October to December (Pringle *et al.*, 1994).

Early stages: Nothing published.

Larval food:

(Probably) *Tetraena retrofracta* (Thunb.) Beier & Thulin (Zygophyllaceae) [Heath, 1997: 15; locality not specified; as *Zygophyllum retrofractum* Thunb.].

Associated ant: Nothing published.

Crudaria (Crudaria) leroma (Wallengren, 1857)#

Silver-spotted Grey



Male Silver-spotted Grey (*Crudaria leroma*).
Image courtesy Steve Woodhall.

Arhopala leroma Wallengren, 1857. *Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar. Stockholm annis 1838-1845. Collecta (n.s.)* 2 (4): 42 (55 pp.).

Amblypodia leroma Wallengren. Trimen, 1866a.

Zeritis leroma (Wallengren, 1857). Trimen & Bowker, 1887b.

Crudaria leroma Wallengren. Swanepoel, 1953a.

Crudaria leroma (Wallengren, 1857). Dickson & Kroon, 1978.

Crudaria leroma (Wallengren, 1857). Pringle *et al.*, 1994: 227.

Crudaria leroma (Wallengren, 1857). d'Abreu, 2009: 730.

Crudaria (Crudaria) leroma (Wallengren, 1857). Grishin, 2023a.



Crudaria leroma. Male (Wingspan 26 mm). Left – upperside; right – underside.
Barberton, Mpumalanga, South Africa. 25 November 2001. M. Williams.
Images M.C. Williams ex Williams Collection.



Crudaria (Crudaria) leroma. Female (Wingspan 28 mm). Left – upperside; right – underside.
Mountain View, Pretoria, Gauteng, South Africa. 29 December 2009. M. Williams.
Images M.C. Williams ex Williams Collection.



Crudaria (Crudaria) leroma. Female (Wingspan 29 mm). Left – upperside; right – underside.
Malelane, Kruger National Park, Mpumalanga, South Africa. 11 November 1998. M. Williams.
Images M.C. Williams ex Williams Collection.

Type locality: [South Africa]: “Caffraria”. Holotype in the Swedish Natural History Museum (images available at www2.nrm.se/en/lep_nrm/l).

Diagnosis: The species is very variable and it is possible that there are one or more undescribed taxa presently subsumed under *leroma* (Pringle *et al.*, 1994).

Distribution: Tanzania, Malawi, Zambia (south), Angola (Mendes *et al.*, 2018), Mozambique,

Zimbabwe, Botswana, South Africa (Limpopo Rovince, Mpumalanga, North West Province, Gauteng, KwaZulu-Natal, Eastern Cape Province, Northern Cape Province), Swaziland (Duke *et al.*, 1999).

Specific localities:

Tanzania – Dar es Salaam (Kielland, 1990d); Morogoro (Kielland, 1990d); Mikumi National Park (Kielland, 1990d); Ulanga District (Kielland, 1990d); Kigonsera west of Songea (Kielland, 1990d).

Malawi – Mt Mulanje (Congdon *et al.*, 2010).

Zambia – Lusaka (Heath *et al.*, 2002); Victoria Falls (Heath *et al.*, 2002); Kafue Flats (Heath *et al.*, 2002); Mazabuka (Heath *et al.*, 2002); lower Chambeshi Valley (Heath *et al.*, 2002).

Mozambique – Delagoa Bay (Sharpe, 1891).

Zimbabwe – Hot Springs (male illustrated above).

Botswana – Tshabong (Larsen, 1991); Serowe (Larsen, 1991).

Limpopo Province – Doorndraai Dam Nature Reserve (Warren, 1990); Lekgalameetse Nature Reserve (Williams, Dec. 2006); Highlands Wilderness (Bode & Bode, unpublished checklist); Soetdoring Farm [-24.561 28.233] (A. Mayer, pers comm. 2015); Bateleur Nature Reserve (Williams & Dobson, unpub., 2015).

Mpumalanga – Mariepskop area (Henning, 1994c); Botshabelo (Williams, unpublished); Khandizwe Mountain, Malelane (female illustrated above).

Gauteng – Magaliesberg, above Mountain View (Williams, unpublished).

Eastern Cape Province – Baviaan's River, in the Bedford district (Pringle *et al.*, 1994); Witmos (Pringle *et al.*, 1994); Embotyi (E. Pringle); East London (Clark); Coffee Bay (I. Coetzer).

Northern Cape Province – Kuruman (Pringle *et al.*, 1994).

Swaziland – Mlawula Nature River (www.sntc.org.sz).

Habitat: Dry savanna and woodland. In Tanzania at altitudes from near sea-level to 1 400 m (Kielland, 1990d).

Habits: Flies low and fast, usually settling on the ground or low vegetation. They are fond of feeding from the flowers of acacia trees (Pringle *et al.*, 1994).

Flight period: All year in warm areas and from October to March in cooler areas (Pringle *et al.*, 1994).

Early stages:

Clark, 1951: 127.

“Egg: Eggs are laid in small clusters on young shoots of Mimosa. They are pure white with a slightly raised netting pattern. This pattern covers the whole surface except the base. The micropyle is small and sunken. The average size of an egg is 0.7 mm. diam. by 0.6 mm. high. Most eggs are covered with abdominal scales from the female but these scales become exhausted toward the end of ovipositing and the last eggs are free from scales.

Larva: First instar: The young larva eats its way out of the top of the egg but does not eat the discarded shell. On emerging it measures 1.5 mm. and is of a yellow ground colour with a dark purple dorsal stripe, a dull yellow lateral and a red subspiracular stripe. The body is fairly flat and the first and final segments have black shields. The head is black with long white setae. On the first segment two white hairs protrude forward from the shield, and on either side of the shield another, but shorter, hair protrudes. Another small hair points outward and forward from the lateral ridge, and just above the claw there are a pair of small spines on minute moles. On the second segment there are two long spines set on moles placed astride the dorsal line. These lie well back, then curve upward and forward. Just above the red lateral ridge there is a single white spine on a small mole on each side. Above the claw there are two small spines on small moles. The third segment is unadorned except for the two spines above the claw and some very minute spines and lenticles over the dorsum. Segments 4 and 5, except for the minute spines have only two ventral spines, one on either side. Segment 10 has a long white spine on each side near the edge, standing well up and curving backward, as well as two ventral spines, one on each side. On segment 11 there are two retractile tubercles, and ventral spines as in the previous segment. The tubercles are placed one on each side and are like truncated pale yellow cones on the rim of which are three flat fan-shaped setae on small dark moles. Out of each cone shoots a white club-shaped hairy tubercle with two very finely barbed spines. The spiracle is at the base of the cone with three small lenticles. There is no trace of a honey gland. The young larva feeds on the young unopened leaf and rests along the rib where it is very difficult to detect. This instar lasts seven days and the larva grows to 2,5 mm. After the moult the discarded skin is eaten.

Second instar: In the 2nd instar the ground colour has darkened slightly and a second dull yellow line has appeared. The hairs on the first segment are the same, but shorter, and the black shield is studded with very small stud-shaped setae. The dorsal hairs have disappeared from the 2nd and 10th segments, but each segment has now a single hair protruding outward from just above the red subspiracular line. Those on segments 1 to 3 bend forward, the remainder bend backward. From the 10th to the final segments the body is sparingly sprinkled with small stud-shaped setae.

The honey gland is present in this instar and is situated on the dorsum between the 10th and 11th segments. The tubercles are encased in blackish truncated cones with a ring of 10 or 12 mushroom-shaped studs round the rim. A few of these studs are at the base. The head is black, but the setae are shorter than in the first instar. The larvae now feed on the soft young thorns as well as on the unopened leaf fronds. At first they strip the surface of the thorns but later bite well into them. This instar lasts about six days and the larvae grow to 4.5 mm. The discarded skin is eaten after the moult.

Third instar: In the third instar the larvae separate into two groups, namely those that will take 5 larval instars before pupating and those that will take 6. Dealing with the six instar larvae, the general ground colour is a very pale dull blue with a dull purple line and a pale yellow subdorsal line. A white space separates this from a brown wavy line lower down. Further down there is a thin reddish line and on the lateral ridge there is a thick red line. The space between the two red lines is lightly mottled with reddish brown. The ventral portions are pale green. Segments 4 to 9 are slightly humped over the dorsum posteriorly and have about ten to twelve mushroom studs over the hump. Segment 5 has a watery yellow indentation surrounded by a neat ring of studs on the dorsal line. This indentation is centrally placed and takes up about half the width of the segment. On this segment are a number of studs scattered over the rest of the upper surface and not only confined to the hump. The first and second segments now have two lateral spines on each side, and the shield on the first segment is liberally studded with white studs. The shield on the final segment is similarly studded. Those larvae that will only take five instars are more developed in that on one or two of the prolegs there might be an additional spine and on one or two segments the lateral ridge may be adorned with two instead of one spine. The head in both types of larvae is black. The final length of the larvae in this instar is 6.5 mm. for six instar and 8 mm. for five instar. The duration of this instar varies considerably but averages about six days for the six instar and eight for the five.

Fourth instar: In the fourth instar the larvae have a darker ground colour but otherwise the colour scheme is much the same. In five instar larvae the dorsal line is interrupted by another dull yellow indentation on the eighth segment as well as the fifth and some show signs of future indentations on segments 6 and 7. There is only one indentation in six instar larvae. The whole upper surface of the larva's body, especially from the fifth segment and more so with the five instar larvae, is liberally sprinkled with mushroom-shaped studs. The 3rd and 10th segments have a single black spine to augment the pale lateral spines which are now generally two in number but may be three in individual segments for five instar larvae. The final segment has dark brown, white tipped spines, and five instar larvae have four additional spines. The shields are now very closely studded and the head is still black. The tubercles are much the same, except that one or two studs on the outer edge have changed to white spines. Five instar larvae in this instar grow to 13 mm. in 8 days and six instar to 11 mm. in 6 days. (Without ants in attendance the honey gland of some larvae exudes its liquid rather freely, and if left, this accumulates and mildew sets in, resulting in the death of the larva. To cure this I washed the gland with a very wet fine paint brush and dried the larva with a point of blotting paper. Later I found it was sufficient to mop the gland with blotting paper to keep it dry.)

Fifth instar: In the fifth instar the five instar larvae are approximately the same as the final instar of the six instar larvae, therefore the description of the fifth instar refers only to the fifth instar of the six instar larvae. The ground colour and general colour scheme is much the same, but has become blurred by the numerous stud-shaped setae, which cover the upper portion of the body. The wavy lateral line is now black and much broader. This black is intensified posteriorly by black studs, while in the centre of the segment the colour is almost obliterated by a dense cluster of studs. The humps have developed into raised ridges over the dorsum and are yellow except for the interruption of the dark purple dorsal line. There is a dark green indentation centrally placed on the dorsum of segments 5, 6, 7 and 8, and this is now seen in some larvae to be moist and if not cleaned, ferments and forms mildew in the same way as the honey gland. The tubercles are black and covered with setae. The upper rim is set with whitish spines, short on the inner side to allow of the functioning of the retractile portion, and long on the outer side to act as a protection for the protruding hairs which, when in the dormant position, project well above the surface. The shield on the final segment is almost obliterated by setae. This instar lasts some six days, and the larvae grow to 14 mm.

Final instar: In the final instar the colour is better defined than in the fifth, though still blurred by setae in parts, but intensified by setae colouration in other parts. The general ground colour dorsally is pale dull blue-green except over the ridged posterior portion which is yellow, shading down to brown on the side. The dorsal line is deep purple, darkened posteriorly by black setae. There is a wavy brown line with a white line below, broad anteriorly and tapering off posteriorly. Below these lines is a deep black line which broadens anteriorly taking up the angle of the wave. This black is intensified posteriorly by black setae, and is almost obliterated in the centre by a dense cluster of setae. Below the black is a white line followed by a red line, then there is a broad white space bearing the lateral spines and ending on the lateral ridge. This white is edged with a broad red line over the ridge. The ventral portions are green. The stud-shaped setae end in the vicinity of the lateral spines which are generally six in number on the central segments. The yellow spiracles are placed anteriorly to the spines and are not very conspicuous. The indentations on segments 5 to 8 are now slightly raised in the centre, and are of a dull reddish colour and usually moist. They are surrounded by dull coloured setae instead of the glass-like setae of previous instars. The honey gland placed between the 10th and 11th segments is clearly visible, and the tubercles with their protruding hairs stand

well above the surface. The head is black with a pale yellow inverted Y. The tubercles consist of a black elongated dome-shaped cylinder, truncated at the top, in which works in and out a fleshy piston which unfolds as it protrudes. On each side of this piston there are three pale yellow, blunt-ended and finely haired spines, the top spine being shorter than the other two. As the piston unfolds, the spines are forced out and, being on the side, sweep sideways and backwards (the short spines sweep downwards), dusting a large surface in the vicinity of the honey gland, the cylinder being swayed to alter the direction of the sweep. In the dormant position the long spines protrude well above the edge of the cylinder. The cylinder is black, topped with a dull red band, the outer facing surface is studded with setae, while the inner facing surface is studded with setae. The final spiracles are placed slightly inward and in front of these cylinders. The tubercles are used to whip away any unwanted insect from the honey gland. The beats are very rapid, the piston being shot out and withdrawn immediately. If the larva is disturbed the tubercles tremble in a peevish fretful manner ending in a few rapid beats. As the larva crawls along to feed, the tubercles are seen to be vibrating half in and out and occasionally shooting full out as if expressing a state of nervousness. The duration of this instar varies. The five instar larvae take about twelve days, but the six instar larvae may hibernate in the larval state. In captivity the larva pupates on the ground unattached; it has no cremastoral hooks, but in its natural state it probably pupates in a nest prepared by ants. The final length of larvae is 18 to 20 mm., but they shrink to about 12 mm. before pupating. Just before settling down to pupate, the larva loses most of its colouring and is of a pale watery green colour.

Pupa: The pupa is at first watery green, but soon turns to nut brown. The wing-cases are generally a shade lighter than the rest of the pupa. The abdominal segments are well defined, and on the spiracular line each has a protuberance just behind the spiracle. There are no cremastoral hooks, the final segment being merely rounded off. The pupal stage lasts about twenty days."

Clark & Dickson, 1971: 160, plate 79 [as *Crudaria leroma*; Eastern Cape].

"Egg: 0.7 mm diam. x 0.6 mm high. Laid singly or in small batches on the stalk of a young shoot. Those laid earliest have abdominal scales adhering to them. The eggs are pure white and hatch after some 7 days. The discarded shell is not eaten. Larva (5-instar group): 1st instar 1.5 mm, growing to 2.5 mm in 6 days; 2nd instar growing to 5 mm in 7 days; 3rd instar growing to 8 mm in 7 days; 4th instar growing to 13 mm in 8 days; 5th instar growing to 20 mm in 14 days. Larva (6-instar group): 1st instar 1.5 mm, growing to 2.5 mm in 7 days; 2nd instar growing to 4.5 mm in 7 days; 3rd instar growing to 6 mm in 7 days; 4th instar growing to 11 mm in 5 days; 5th instar growing to 14 mm in 5 days; 6th instar growing to 20 mm in 20 days. Larvae pass through either 5 or 6 instars. The honey-gland is present in the 2nd and following instars, while the tubercles are present in all the instars. In the 3rd instar there is a circular 'dishing' on the dorsum of the 5th segment. In the 5-instar group this dishing is present on the 5th and 8th segments, but in the 6-instar group only on the 5th segment, in the 4th instar. All subsequent instars have dishings on segments 5 to 8 inclusive. These dishings exude a liquid which is, apparently, akin to that of the honey-gland and it is imbibed by ants. Larvae are gregarious to the 3rd or 4th instars – in small groups. Those of the 6-instar group may hibernate. The tubercles of the larger larvae are able to function independently. Pupa: 10 mm. There are no cremastral hooks and the pupa rest unattached in a small nest-like covering of leaves." "Some people are inclined to place this species close to the *Aloeides*, but the eggs are quite different and the arrangement of the setae of the 7th segment of the 1st larval instar shows no connection, but indicates a not too distant relationship to the *Poecilmitis* [= *Chrysoritis*]. In the later instars larvae develop the 'dishing' in the centre of the segments, dorsally, similar to that of *Spindasis* [= *Cigaritis*]. In cross-section, the 1st-instar larva has a rounded dorsum as in *Poecilmitis*. The *Aloeides* have an hexagonal cross-section." "Recorded from eggs from the eastern Cape Province."

Kielland, 1990d: 186.

Larvae feed on young shoots and thorns [of acacia].

Larval food:

Elephantorrhiza burkei Benth. (Fabaceae) [Woodhall, 2005a].

Vachellia karroo (Hayne) Banfi & Galasso (Fabaceae) [Clark & Dickson, 1971: 160; as sp. of *Acacia*].

Vachellia sieberiana (DC.) Kyal. & Boatwr. (Fabaceae) [Pringle *et al.*, 1994: 227; Zimbabwe; as sp. of *Acacia*].

Associated ant:

Anoplolepis custodiens [Pringle *et al.*, 1994: 227].

Relevant literature:

Balona & Williams, 2018 [Interaction of ants and larva].

Note: The populations occurring in northern Tanzania are not the same species as those in southern Tanzania (*leroma*) (Kielland, 1990d: 186). He states that the taxon is in need of revision.

zorites Hewitson, 1874 (as sp. of *Zeritis*). *Transactions of the Entomological Society of London* **1874:**

354 (343-355). South Africa.

delagoensis Sharpe, 1891 (as sp. of *Cigaritis*). *Annals and Magazine of Natural History* (6) **8**: 240 (240-241). Mozambique: “Delagoa Bay”.

albomaculata Aurivillius, 1923. *In*: Seitz, 1908-25 (as f. of *Crudaria leroma*). *Die Gross-Schmetterlinge der Erde*, Stuttgart (2) **13** *Die Afrikanischen Tagfalter*: 432 (614 pp.). No locality.

***Crudaria (Crudaria) wykehami* Dickson, 1983#
Bedford Grey**

Crudaria wykehami Dickson, 1983. *Entomologist's Record and Journal of Variation* **95**: 1 (1-6).

Crudaria wykehami Dickson, 1983. Pringle *et al.*, 1994: 227.

Crudaria (Crudaria) wykehami Dickson, 1983. Grishin, 2023a.



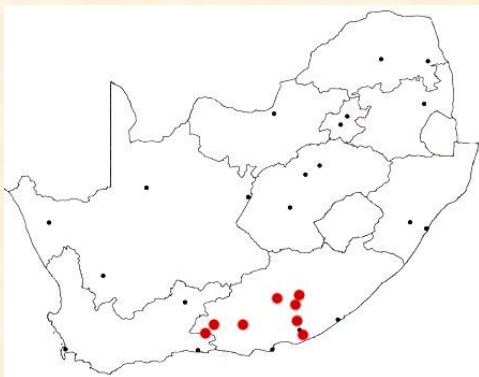
Crudaria (Crudaria) wykehami. Male. Left – upperside. Right – underside.
Huntly Glen, Eastern Cape Province, South Africa. 21 November 1991. D. Edge.
Images H. Edge ex Edge Collection.



Crudaria (Crudaria) wykehami. Female. Left – upperside. Right – underside.
Huntly Glen, Eastern Cape Province, South Africa. 30 December 2002. D. Edge.
Images H. Edge ex Edge Collection.

Type locality: South Africa: “Western Cape Province: Fraserburg”. [False locality (Mecenero *et al.*, 2013)]

Diagnosis: Most closely related to *Crudaria capensis*, from which it apparently can be separated by differences in the genitalia. Compared to *Crudaria leroma* the male is much smaller and darker. In both sexes the hindwing tail is absent (Pringle *et al.*, 1994).



Distribution of *Crudaria wykehami*
Eastern Cape Province.

Distribution: South Africa (Eastern Cape Province).

Known only from the type locality, where it is sympatric with the more abundant *Crudria leroma*.

Specific localities:

Eastern Cape Province – Willowmore (Mecenero *et al.*, 2013); Grahamstown (Mecenero *et al.*, 2013); Bedford (Mecenero *et al.*, 2013); Steytleville ((Mecenero *et al.*, 2013); Somerset East (Mecenero *et al.*, 2013); Pearston (Mecenero *et al.*, 2013).

Habitat: Karoo. In open patches between *Vachellia karroo* trees (Pringle *et al.*, 1994).

Habits: Specimens are particularly active in the early morning and late afternoon, flying vigorously among the trees. During the heat of the day they are less active, spending much time resting on low plants or on the ground (Wykeham, *vide* Pringle *et al.*, 1994).

Flight period: Specimens have been recorded from November to February (Pringle *et al.*, 1994).

Early stages: Nothing published.

Larval food:

Vachellia karroo (Hayne) Banfi & Galasso (Fabaceae) [Botha & Botha, 2006: 187; as sp. of *Acacia* (their reference for this record is erroneous – MCW)].

Associated ant: Nothing published.

Note: D’Abrera (2009: 730) omits *wykehami*.

Subgenus *Cesa* Seven, 1996
Gem

Placed as a subgenus of *Crudaria* by Grishin, in: Zhang *et al.* 2023a, Butterfly classification and species discovery by genomics. *The taxonomic report of the international Lepidoptera survey* **11**(3): 31.

***Crudaria (Cesa) waggae* (Sharpe, 1898)**

Spindasis waggae Sharpe, 1898. *Proceedings of the Zoological Society of London* **1898**: 372 (369-372).

Cesa waggae (Sharpe, 1898). Seven, 1997: 4 **comb. nov.**

Cesa waggae (Sharpe, 1898). d’Abrera, 2009: 706.

Crudaria (Cesa) waggae (Sharpe, 1898), **comb. nov.** Grishin, 2023a.



Cesa waggae. Male. Left – upperside; right – underside.
Galkayo, Mudugh, Somalia. November 1943. T.H.E. Jackson. Gardiner Coll.
Images M.C. Williams ex Gardiner Collection.

Type locality: Somalia: “Wagga Mountain, 6,000 ft.”.

Distribution: Somalia.

Specific localities:

Somalia – Wagga Mountain (TL); Galkayo (image of male above).

Habitat: Nothing published.

Habits: Nothing published.

Early stages: Nothing published.

Larval food: Nothing published.

Associated ant: Nothing published.