

Article XXXVI.—NEW FORMS OF CATOCALA.

BY WILLIAM BEUTENMÜLLER.

The following paper contains a few notes on imperfectly known species and descriptions of some apparently new forms of *Catocala* that for some years have remained unnamed in the Museum and other collections.

***Catocala nevadensis* sp. nov.**

Male and Female.—Head and thorax black mixed with white. Fore wings black, finely powdered with white and blue, and shaded with white. Transverse anterior line broadly geminate, black, filled with white or gray; two subcostal teeth, thence with two strong outwardly oblique, curves or zigzags. Transverse posterior line black, distinct, very strongly dentate, the two teeth opposite the cell subequal and very sharply pointed, thence with smaller, subequal, sharp teeth to the lower inflection which is short and usually filled with black. Subterminal line very broad, almost upright, white, and strongly dentate. Space between the posterior and subterminal lines creamy white dusted with black. Reniform almost obscured by a black shade; when evident it is whitish with a black lunule. It is preceded and followed by a white shade costally. Subreniform white, powdered with black and connected with the posterior line, closed or slightly open. Terminal space dusted with white with a row of small black spots on the margin. Fringes gray or whitish. Hind wings brick red. Median black band broad, and terminating abruptly some distance before the inner margin. Marginal black band not very broad. Fringes white. *Under side*: Fore wings black with a discal, white half-band and a broad white band beyond the middle. This band is distinctly dentate above the inner margin. Hind wings dull brick red. Median band more irregular. Marginal band similar to the above. Expanse, 70–78 mm.

Habitat.—Lake Tahoe, Sierra Nevada, California, August.

Types.—Three males and five females, American Museum Natural History.

This species was received by the late Hy. Edwards some years ago from Mr. McGlashan who bred it from larvæ found on willow in July. It is a very striking species and may be known at once by the black fore wings with white shades and the very prominent dentate, transverse posterior and subterminal lines. The median band of the hind wings is very similar to that of *C. groteana*.

***Catocala nevadensis* var. *montana* var. nov.**

Male and Female.—Head and thorax bluish white mixed with black. Fore wings almost uniform bluish gray and evenly powdered with black atoms making

the creamy white shade and subterminal line less conspicuous than in the type form. Reniform large, black-ringed, in a blackish and bluish shade. Subreniform white dusted with black. Transverse anterior and posterior lines as in the type but less prominently colored. Hind wings the same as in the type. Expanse, 70-78 mm.

Habitat.—Lake Tahoe, Sierra Nevada, California; Sissons, Shasta Co., California; New Westminster, B. C.

Types.—Four males and six females, American Museum of Natural History.

This is apparently a pale form of *C. nevadensis*. It may be known by the broad, pale blue gray fore wings, which are finely powdered with black. It very much resembles *C. pura* but it is a heavier bodied and broader winged insect. It is possible that *C. nevadensis* and its variety may ultimately prove to be nothing more than forms of *C. pura* but in the present status of the case, I am unable to decide.

***Catocala groteana* Bailey.**

Catocala groteana BAILEY, N. Amer. Entomol., Vol. I, 1879, p. 21; SNOW, Trans. Kans. Acad. Sci., Vol. VIII, 1883, p. 38; FRENCH, Can. Ent., Vol. XXXIII, 1901, pp. 12, 206; HOLLAND, Moth Book, 1903, p. 264, pl. xxxii, fig. 4.

Catocala briseis var. *groteana* HULST, Bull. Bk. Ent. Soc., Vol. III, 1880, p. 10; *ibid.*, Vol. VII, 1884, p. 46; SNOW, Trans. Kans. Acad. Sci., Vol. VII, 1881, p. 63; SMITH, Bull. 44, U. S. Nat. Mus., 1893, p. 342; DYAR, Proc. U. S. Nat. Mus., Vol. XXVII, p. 878.

This is a much larger and broader winged species than *C. briseis*, of which it was considered to be a variety by certain writers. I consider it to be a valid species.

***Catocala briseis* var. *albida* var. nov.**

Female.—Head and thorax whitish gray. Fore wings bluish gray, whitish on the costa before and beyond the reniform. Transverse lines distinct, black. Reniform black with a whitish and black annulus. Subreniform whitish, black-ringed. Subterminal line bluish white. Hind wings as in *C. briseis*.

Habitat.—Manitoba, Canada.

Type.—One female. Collection of George J. Keller.

This strange form of *Catocala briseis* may be known at a glance by the bluish gray fore wings and the contrasting, black transverse lines.

***Catocala unijuga* var. *agatha* var. nov.**

Female.—Head and thorax dark brownish black, sparsely mixed with white. Fore wing uniform dark brownish black with whitish atoms. Transverse lines and

spots obscured by the ground color of the wings. Subterminal line white and distinct. Hind wings the same as in *C. unijuga*. Expanse, 84 mm.

Habitat.—Wisconsin.

Type.—One female. Collection United States National Museum.

***Catocala unijuga* var. *semirelict*a Grote.**

A colored figure of the type of *Catocala semirelict*a was kindly sent to me by Sir George F. Hampson with the statement that "it is certainly not *C. briseis*, but may be a variety of *C. unijuga*." It is nearly like the form described by C. E. Worthington as *Catocala lucilla* (Papilio, Vol. III, 1883, p. 39), which is considered to be a variety of *C. unijuga*. The type of *C. semirelict*a is very much faded and very unlike the figure published by Grote (Proc. Buff. Soc. Nat. Sci., Vol. II, 1875, pl. i, fig. 11).

***Catocala diantha* sp. nov.**

Male and Female.—Head and thorax dark grayish brown. Fore wings pinkish brown or pinkish gray, finely dusted with black scales. Transverse anterior line broadly geminate, blackish or brown, with three distinct waves or broad dentations, the upper one sometimes in form of two subcostal teeth. Transverse posterior line distinctly dentate, the two teeth opposite the cell, broad, not long, and subequal, thence with a small tooth, followed by two large teeth, which take in the subreniform; lower inflection broadly open outwardly. Subterminal line grayish or pinkish, preceded by a more or less distinct brown shade. Terminal row of spots black. Reniform subobliterate, and in a brownish or blackish cloud, with two black rings. Subreniform large, pale with brown scales, connected with the posterior line and usually open. Hind wings bright red. Median black band curved, very slightly constricted and terminating some distance before the inner margin. Marginal black band not very broad, with a very narrow creamy white apical patch which is sometimes wanting. Fringes white or somewhat cut with brown. *Under side*: Fore wings black, with a white discal half band and curved, broad, white band beyond the middle. Apex ashen white. Hind wings dull red, whitish beyond the median band, from the costa to the middle. Median band more irregular. Marginal band sometimes narrowly edged with creamy yellow terminally. Fringes wholly white. Expanse 60 to 68 mm.

Habitat.—Glenwood Springs, Colorado, July–Sept., and Huachuca Mts., Arizona (William Barnes); New Mexico (F. H. Snow); Colorado and Arizona (Jacob Doll); Denver, Colorado (E. J. Osler); Las Vegas, New Mexico (Schwarz and Barber).

Types.—Collections, William Barnes, Jacob Doll, American Entomological Society, American Museum of Natural History, and United States National Museum.

A fine series of this singular species is before me and I am unable to associate it with any of the known species of *Catocala*. It belongs in the *faustina* group and it is possible that it may ultimately prove to be a form of *C. verecunda*. It may be recognized by the pinkish brown fore wings.

Catocala euphemia sp. nov.

Head and thorax dark gray brown, somewhat subolivaceous with glaucous hairs. Fore wings almost uniformly colored, gray brown with a subolivaceous tint. Basal half-line black, with a large tooth. Transverse anterior line black, much dilated on the costa, with three large outward curves, and preceded by a subolivaceous shade. Basal dash black, sometimes absent. Transverse posterior line black heavily marked on the two large teeth. The two teeth opposite the cell, strongly produced and very acute, thence with two small teeth and a large blunt one; lower inflection long and broad. Reniform subolivaceous with two black rings. Sub-reniform large, concolorous with the ground color, black-ringed and connected with the posterior line, where it is broadly open. Space beyond the posterior line subolivaceous with the subterminal line grayish and strongly dentate. Hind wings dull orange yellow. Median black band strongly constricted at the middle and narrowly terminating at the inner margin. Marginal band black, edged with yellow, apical patch yellow. Fringes yellow, slightly cut with brown. *Under side*: Fore wings largely pale orange yellow, an oblique, black discal shade band, and a broad black transverse band beyond the middle which is strongly angulated above the inner margin; terminal band black dusted with orange. Hind wings orange yellow. Median band narrow and very strongly constricted. Marginal band narrow, orange terminally and at the costa. Fringes uniform orange yellow. Expanse 80 to 85 mm.

Habitat.—Huachuca Mts., Arizona; Texas.

Types.—American Entomological Society, American Museum of Natural History, and Brooklyn Institute of Art and Science.

Allied to *C. subnata* and *C. neogama* and it appears to be an intermediate species. It may be known by the uniform, evenly colored dark gray brown fore wings with a somewhat subolivaceous tint. The transverse anterior line is curved differently and is less oblique than in *C. subnata*, making the basal space smaller. The transverse posterior line and spots are similar to those of *C. subnata*. It was described from four males and one female. Specimens are also in the collections of Mr. O. C. Poling and Dr. William Barnes.

Catocala volumnia Hy. Edwards.

I consider *C. volumnia* to be a valid species and not a variety of *C. irene*, as it was placed by the late Hy. Edwards and other writers. Mr. O. C. Poling sent me a fine specimen from Los Angeles, California, in which the hind wings are bright carmine and the fore wings more brilliantly colored than the type. A specimen was also received from Cartwright, Canada, by Dr. James Fletcher, which is very similar to the one in Mr. Poling's collection.

***Catocala faustina* var. *lydia* var. nov.**

Male and Female.—Fore wings heavily overlaid with blackish scales so as to almost obscure the ground color and markings. Subterminal line and space between the geminate transverse anterior line bluish white. Hind wings the same as in *C. faustina*.

Habitat.—Provo City, Utah; Lake Tahoe, Sierra Nevada, California; Montana; New Mexico.

Types.—Collections, American Museum of Natural History, United States National Museum, Jacob Doll, and George J. Keller.

An extreme form of *C. faustina*, bearing the same relationship to this species as the variety *somnus* does to *C. luciana*. A fine series of *C. faustina* is in the collection of Mr. George J. Keller showing intergradations between the type form and the variety. Mr. Jacob Doll bred this form from Willow in New Mexico.

***Catocala cærulea* sp. nov.**

Male.—Head and thorax blue gray mixed with black. Fore wings blue or bluish gray mixed with fine black atoms. Transverse anterior line black, geminate, with three prominent dentations. Transverse posterior line black with the two teeth opposite the cell moderate, subequal, lower part of line with a strong inward bend. Beyond this line is a brown shade. Subterminal line black, dentate, and filled with blue gray. Reniform brown mixed with blue, margined with black and containing a black lunule. Subreniform sordid white and connected with the posterior line. Hind wings red with the black median band broad and not reaching the inner margin. Marginal black band broad, excavate before the hind angle. Fringes bluish. Expanse, 55 to 60 mm.

Habitat.—Oregon.

Allied to *C. faustina* and *C. allusa*. It may be known by the bluish fore wings.

***Catocala ophelia* Hy. Edwards.**

This species was made a synonym of *Catocala verrilliana*. I, however, consider it to be a valid species. The fore wings are broader than *verrilliana* and lack the black shades. The transverse anterior line is rather strongly curved in *ophelia* and not even as in *verrilliana*. The outward bend of the transverse posterior line on the inner margin is longer and the hind wings are deeper red with the marginal band much broader than in *verrilliana*.

Catocala ophelia var. **dollii** var. nov.

Male.—Head and thorax dark gray and considerably darker than in *C. ophelia*. Fore wings heavily overlaid with black scales, making the lines and spots less distinct than in *C. ophelia*. Subreniform pale, scaled with brown. Transverse lines the same as *C. ophelia*.

Habitat.—Colorado.

A single specimen of this odd variety is in the collection of Mr. Jacob Doll.

Catocala ultrotonia var. **lucinda** var. nov.

Male and Female.—Head and thorax brown. Fore wings pale ash or greenish gray; a broad longitudinal, rich brown shade covers the lower third of the wings to the inner margin. This dark shade runs from the base below the basal dash to the transverse anterior line or it extends to the subterminal line. The subterminal line is very vague or wanting. Otherwise the same as *C. ultrotonia*.

Habitat.—Same as *C. ultrotonia*.

Described from five males and four females. This variety is generally labeled *C. ultrotonia* in collections. It may be easily recognized by the ashen gray or greenish gray fore wings with the lower part along the inner margin deep brown.

Catocala miranda Hy. Edwards.

Catocala miranda Hy. EDWARDS, Pap., Vol. I, 1881, p. 118; BEUTENMÜLLER, Bull. Am. Mus. Nat. Hist., Vol. IV, 1892, p. 192.

Catabapta judith var. *miranda* HULST, Bull. Bk. Ent. Soc., Vol. VII, 1884, p. 52.

Catocala judith var. *miranda* SMITH, Bull. 44, U. S. Nat. Mus., 1893, p. 351; PACKARD, Fifth Rep. U. S. Ent. Com., 1890, p. 303; FRENCH, Can. Ent., Vol. XXXII, 1900, p. 191.

Very closely allied to *C. judith*, but it is smaller with the lower inflection of the transverse posterior line longer and the outward bend to the inner margin very oblique. In *C. judith* this bend is slightly oblique. The fringes of the hind wings in *miranda* are white and not brown as in *judith*. The under sides of all the wings in *miranda* are wholly smoky brown with traces of a darker transverse bend on each wing. In *judith* the under side of the fore wings are white at the base, with a white discal patch and narrow whitish transverse band beyond the middle. The hind wings are clear white from the base to the broad, black median band, beyond which it is very narrowly whitish. Marginal black band very broad. The types of *C. miranda* and *C. judith* are in the collection of the American Museum.

C. miranda was made a variety of *C. judith* by the late George D. Hulst and in which he is followed by subsequent writers. The type of *C. miranda* is a single male from Washington, D. C. Two examples agreeing with the type are also in the collection of the American Entomological Society.

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