

***Oeneis alberta* in New Mexico, a new subspecies
(Lepidoptera: Satyridae)**

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Abstract: A new subspecies, *Oeneis alberta capulinensis*, has been found in the grassy patches at the crater rim of Capulin Mountain, New Mexico. The butterfly is on the wing in mid-May and the flight is over in early June. This is essentially the same flight period as that of *O. a. oslari* Skinner, although the locality is about 1,000 feet lower and well over a hundred miles southeast of the nearest known *oslari* colony. The Capulin subspecies is quite variable but seems to approach *alberta alberta* closer than it does any other subspecies. The types and type series are deposited in the American Museum of Natural History.

While engaged in a general natural history survey of Capulin Mountain National Monument we started to accumulate a lepidoptera collection in the spring of 1968. This year the first collections were made on May 17 and 18, 1969. A few hibernators were seen. The very early *Erynnis*, probably *icelus*, and *Mitoura siva*, were flying around the oaks and junipers respectively. While making a circuit of the crater rim on May 17 a small, brown butterfly was flushed from a patch of grass on the outer north side of the rim. It proved to be an *Oeneis*.

Conditions were anything but favorable for collecting butterflies. The temperature was about 45°F; there was a 20-knot wind from the north; the slope was at critical angle, 37°; the grass-and-cinder footing was insecure and slippery. The next morning conditions were better. The wind was still out of the north but had dropped to about 5 knots. The temperature was in the low 70's. The slope and footing were unchanged. On both days collecting was done between 9:30 and 11:30 in the morning. The altitude ranged from 8,200 to 8,300 feet above sea level.

As is the case with *O. alberta oslari*, this strain of *alberta* rarely flies until it is kicked out of the grass clumps. On both days the insects went down wind, which was up hill on the cinder cone. Chase was out of the question. The flight was erratic, rapid and low, very often under 12 inches above the grass tops. Captures were made by stalking specimens seen to settle and trapping them under a net. Only males appeared to be flying. The one female taken was gravid and crawled along the ground among the grass clumps. Two others were seen but disappeared into the grass or into crevasses among the cinders.

The area occupied by the species is several acres in extent and is covered with bunch grass, *Festuca*(?). The leaf buds on the oaks were just beginning



FIG. 1. Left, upper and lower sides of holotype male; Right, upper and lower sides of allotype female. Two-thirds natural size.

to swell. *Mertensia* was at the peak of its blooming and *Thermopsis*—a low-growing, erect, yellow-flowered “mountain pea”—was just coming into bloom. A similar situation exists on the inner side of the south rim of the crater. No butterflies were seen in that area although the bunch grass patch there is much larger.**

On May 30th a co-worker, Mr. James Mariner, visited the volcano for me and collected 16 additional specimens, six of them females. He found the butterflies at the same station I had worked and also a few yards higher on the cone. Unfortunately press of other work prevented either of us from exploring the high mesas some ten to fifteen miles to the north where it is quite possible other colonies of *alberta* will be found.

In 1953 I presented a detailed study of the variation found in *Oeneis alberta* and questioned the need for the subspecific name *oslari* Skinner. Dr. dos Passos, who has specialized in study of this difficult genus, differed with me and considers *oslari* a useful subspecific name. I bow to his superior knowledge.

The insect that flies on the slopes of Capulin crater differs from each of the three accepted subspecies of *alberta*. It is about the size of *oslari* Edwards, a

TABLE 1. Mean radius of the left forewing, in mm.*

Subspecies	Males				Females			
	N.	rad.	S.D.	V.	N.	rad.	S.D.	V.
<i>daura</i>	19	22.74	1.59	7.0	9	24.16	0.85	3.5
<i>oslari</i>	25	20.53	0.81	3.9	14	21.92	0.67	3.1
capulinensis	42	20.51	0.94	4.5	7	22.54	0.70	3.1
<i>alberta</i>	11	19.38	0.71	3.6	11	20.71	1.64	7.9

* Data for named subspecies from Brown (1953), Table 2.
** Captures were made on the south rim in May, 1970.

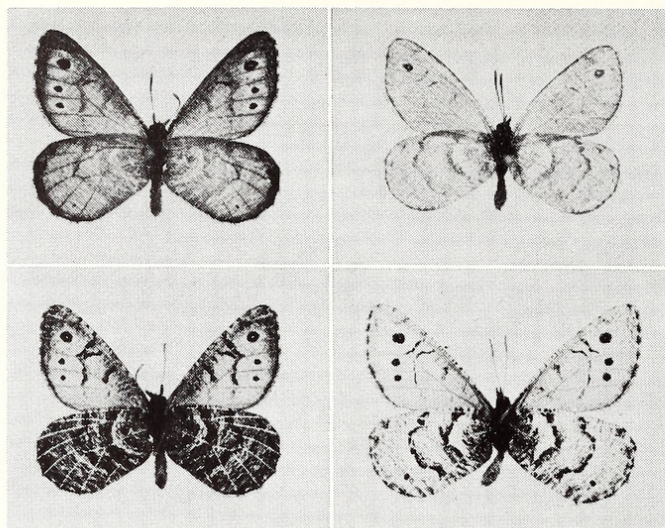


FIG. 2. Extremes in coloration of male *Oeneis alberta capulinensis*. Left, male paratype No. 17 upper and lower sides. This specimen suggests a miniature *chryxus*. Upper right, upper side male paratype No. 12. Lower right, lower side of male paratype No. 16. Two-thirds natural size.

little larger than *alberta* Elwes, and noticeably smaller than *daura* Strecker. The submarginal maculation on the upperside is more like that on *alberta* than on either *oslari* or *daura*, as can be seen from Table 2. The variations in the vadium and limbal band of the upper forewing of the males are like none of the named subspecies but on the females are like *alberta*. On the under side the situation is different. There the Capulin material is very like *alberta* in the development of the limbal line on the forewing and mesial band on the hind wing. These features are summarized in Table 3.

The variation observed in the short series studied suggests that the Capulin

TABLE 2. Frequency with which spots or ocelli occur on upperside.*

Subspecies	Forewing			Hindwing		Total
	M ₁ -M ₂	M ₃ -Cu ₁	Cu ₁ -Cu ₂	M ₃ -Cu ₁	Cu ₁ -Cu ₂	
Males						
<i>daura</i>	1.000	.316	.798	.000	.798	.579
<i>oslari</i>	1.000	.240	.720	.040	.720	.544
capulinensis	1.000	.333	.524	.000	.596	.491
<i>alberta</i>	1.000	.273	.637	.000	.637	.509
Females						
<i>daura</i>	1.000	.778	1.000	.333	.889	.800
<i>oslari</i>	0.928	.572	.856	.000	.643	.600
capulinensis	1.000	.857	.857	.000	.572	.686
<i>alberta</i>	1.000	.728	1.000	.000	.637	.673

* Data for named subspecies from Brown (1953), Table 4.

TABLE 3. Frequencies for certain pattern features.*

Subspecies	Upperside forewing		Under side	
	Vadum present	limbal band present	fw limbal line absent	hw mesial band "absent"
Males				
<i>daura</i>	.798	.798	.673	.263
<i>oslari</i>	.640	.960	.360	.080
capulinensis	.905	.905	.000	.000
<i>alberta</i>	.546	.273	.091	.000
Females				
<i>daura</i>	1.000	.889	.111	.111
<i>oslari</i>	1.000	.856	.214	.000
capulinensis	1.000	1.000	.000	.000
<i>alberta</i>	.819	1.000	.000	.000

* Data for named subspecies from Brown (1953), Tables 5-8.

population is far more variable than any other studied population. The degree and kinds of variation suggest a limited population where isolation has allowed many recessive traits to appear phenotypically. Some of the specimens are quite like the average *daura* in color and patterning, others cannot be separated from *oslari* or *alberta*. One suggests a miniature member of the *chryxus* complex. There are some that suggest *uhleri*. It is possible that the Capulin Crater population represents the sort of *alberta* stock that took refuge in the southern plains during the Wisconsin glaciation.

The Capulin Crater population is not a relic stranded as the Wisconsin ice-sheet retreated. This colony cannot be more than 7,000 years old, the greatest age that has been assigned to the cinder cone as it stands. On geological grounds I am inclined to think that Capulin Crater became inactive more recently, possibly not more than 4,000 years ago. This poses an interesting question. What was the source of the pioneers? As yet the high mesas to the west, northwest and northeast of the mountain have not been explored for butterflies. Search of the grasslands on the Raton Mesa-Mesa de Mayo system in mid May should be done.

Oeneis alberta capulinensis n. ssp.

HOLOTYPE MALE. Radius of the left forewing is 21.1 mm. Upper side: Warm, light, greyish brown somewhat greyer at the base of the forewing. The pattern of the under side shows through faintly. On the forewing there is a white-pupiled ocellus in M₁-M₂ and a smaller blind one in Cu₁-Cu₂. The area immediately surrounding these ocelli and in small patches between the other pairs of veins the ground color is a little clearer, less grey. Close to the margin of the wing there are five inconspicuous dark points between the veins beginning in the apex and extending to M₃-Cu₁. For the same area the fringe is checkered.

On the hind wing there is a small dark point in Cu₁-Cu₂ and smaller light points anteriorly between the veins. The vadum is about 1½ mm. wide and alternately dark and light brown.

The fringe is checkered. The mesial band is prominent, partly through translucence of the wing.

Under side: Generally much paler than the upper side. The forewing is lightly irrorate with darker lines in the cell and along the costa and in the apex. There is a bar across the cell and a dark line at its extremity. Beyond this the limbal line parallels the cell-end line and at M_3 makes a sharp "V" outward along that vein. From there to the anal vein the limbal line is rather straight. The ocelli are as above.

On the hind wing the irroration is uniform over the entire surface. The base of the wing, the margins of the mesial band and in the apex near the margin there is marked darkening. The veins are lined with pale cream scales and stand out clearly. The ocellus is as above.

DATA. Outer slope of north rim of the crater, Capulin Mountain, Union County, New Mexico, 8,200 feet above sea level, 18 May 1969, collected by F. M. Brown.

ALLOTYPE FEMALE. Radius of the left forewing is 22.2 mm. Upper side: Very much like that of the male but a little less grey and therefore brighter colored. The vadium and limbal band of the forewing are well defined and there are blind ocelli in M_1 - M_2 , M_3 - Cu_1 and Cu_1 - Cu_2 . The hind wing is little different from that of the holotype male.

Under side: Essentially the same as on the holotype male except for the number of ocelli on the forewing. The limbal line does not form a "V" on M_3 .

DATA. The same as for the holotype except collected on 17 May 1969.

PARATYPES. 41 males, thirteen of these collected on 17 May and eighteen on 18 May 1969, by F. M. Brown. James Mariner collected ten on 30 May. Six female paratypes were collected by Mariner on 30 May. The entire type series has been deposited in the American Museum of Natural History, New York, N. Y. This is done to preserve it intact as evidence of the great variation found among specimens of this subspecies of *albertaina*.

Literature Cited

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