

American Museum Novitates

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79TH STREET, NEW YORK 24, N.Y.

NUMBER 2018

SEPTEMBER 26, 1960

A Badlands Subspecies of *Limenitis weidemeyeri* Edwards (Lepidoptera, Nymphalidae)

BY F. MARTIN BROWN¹

One of the species of butterflies that William H. Edwards described from the "Rocky Mountains" is *Limenitis weidemeyeri*. He received the type material from his friend J. W. Wiedermeyer sometime prior to September, 1861. The most likely source of Weidemeyer's specimens was either William S. Wood, Jr., or Winslow J. Howard. Both of these men were active collecting butterflies and other natural history material in the Rocky Mountains west of Denver, Colorado, at this time. Wood was a founding member of the Entomological Society of Philadelphia and collected (for the Collections Committee of the Society?) in the region around Denver in 1859. Howard joined the Society in 1862. He was in the Denver region at least as early as the summer of 1860 and stayed until late in 1865 (see Brown, 1957). He supplied members of the Society with material from the region around and west of Denver.

I suggested in an editorial footnote to one of Edwards' letters that the type of *weidemeyeri* had been collected by Howard (Brown, 1958, p. 208). Continued study since that footnote was written suggests that I may be wrong and that Wood was the collector of the type of *weidemeyeri*. Undoubted Wood material is labeled "Rocky Mountains," while undoubted Howard material is labeled "Pike's Peak." It must not be assumed that Howard's designation "Pike's Peak" means that he collected the material so labeled on that mountain. There is

¹ Research Associate, Department of Insects and Spiders, the American Museum of Natural History.

no evidence that he ever visited Pikes Peak. Students of Colorado history concur that the term "Pike's Peak" was rather loosely applied to the Front Range of Colorado from the mountain itself to some distance northwest of Denver. The "Pike's Peak or Bust" slogan of the gold seekers of 1859 referred to the diggings west of Denver in the vicinity of the present towns of Idaho Springs and Central City.

Wood certainly, and Howard probably, did not stray far from the region west of Denver. We know that Wood collected his specimens on the plains, in the foothills, and in the mountains just west of Denver. It is very doubtful that he collected material south of where the South Platte River emerges from the Front Range. Howard collected in the vicinity of Denver, Golden, Boulder, and Central City. Thus the type locality of *weidemeyeri* can be localized in the Front Range west of Denver. As the species is common there, wherever willows grow along the streams, we may assume that a series of specimens from the region truly represents Edwards' taxon.

Material that has been sent to me recently for determination by James Oberfoell of Bowman, North Dakota, contained a series of *weidemeyeri* that he had collected in the Badlands of Slope County, North Dakota. At a glance it is evident that this is somewhat different from topotypical *weidemeyeri*. The habitat is markedly different from that of the Front Range of Colorado. Oberfoell has described to me the region in which he collected the material: dry grasslands cut by abrupt gulleys, in some of which there are springs and semi-permanent streams edged with willows.

Although the North Dakota material is most certainly *weidemeyeri* and not a variant of *arthemis*, it is recognizably distinct from Colorado material. In view of this I take great pleasure in naming it for its discoverer.

***Limenitis weidemeyeri oberfoelli*, new subspecies**

MALES: The greatest radius of the left forewing ranges from 30 to 35 mm. This is within the range of the same dimension for a series of 15 males from the Front Range of Colorado. Statistically the North Dakota material is a little smaller than the Colorado series. The difference has no biological significance.

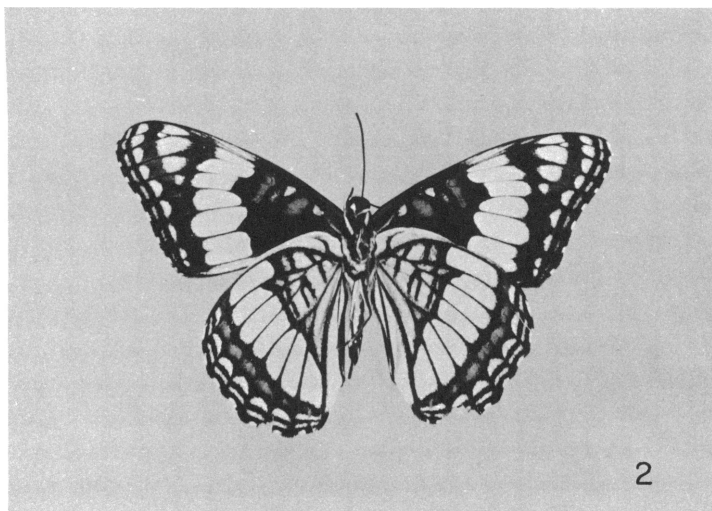
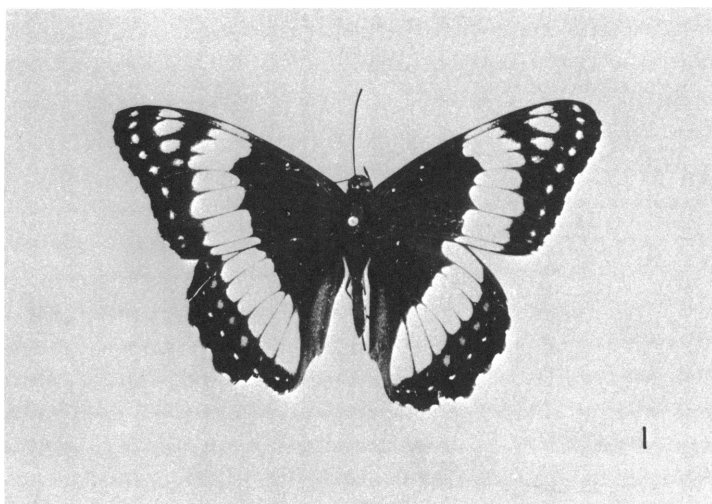
On the upper side of the forewing the submarginal row of white lunes tends to be more prominent on *oberfoelli* than on *weidemeyeri*, especially towards the tornus. The triangular white patch in the cell is more frequently present on the North Dakota material than on that from Colorado. On the hind wing also the white submarginal lunes

are more frequent and more prominent on *oberfoelli* than on *weidemeyeri*. On seven of the nine North Dakota specimens before me there is a well-developed row of reddish spots between the white submarginal lunes and the white band across the disc. None of the Colorado males before me presents these so boldly as does the average northern specimen. About half of the Colorado specimens show traces of these spots, duller and less noticeable than on any North Dakota specimens. The white marginal lunes on both series appear to be equally well developed.

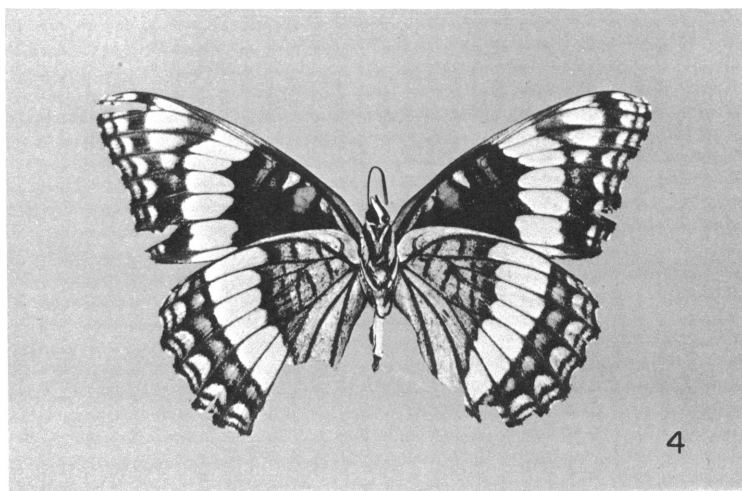
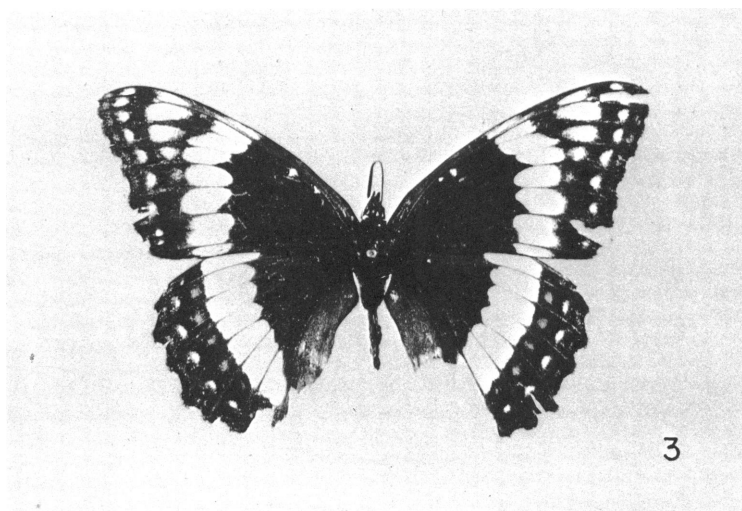
On the under sides of the forewings the two series are alike in markings. The differences are a matter of degree. The marginal marks consist of three parallel rows: thin marginal lunes; slender outer submarginal lines parallel to the margin; and lunate to caret-shaped inner submarginal marks. All of these are white or whitish. The three series are well developed and clear on *oberfoelli*, while on *weidemeyeri* the outer submarginal lines are dull and bluish, less prominent than the marginal lunes. The red transverse marks within the cell of *oberfoelli* tend to be larger and redder and are more prominent than those of *weidemeyeri*.

On the hind wings the differences are of similar character. The light markings of *oberfoelli* are broader and brighter than those of *weidemeyeri*, and the submarginal red is less suffused with dark scales. At the base of the wing, the black lines on the veins and those extended from $Sc+R_1$ across the cell are more slender and better defined on *oberfoelli* than on *weidemeyeri*. The basal half of the wing is less often heavily dusted with dark scales on the North Dakota material than on that from Colorado. On the whole the under side of the hind wings of *oberfoelli* is the brighter and more delicately marked of the two.

FEMALES: The two females from North Dakota that are before me measure 37.5 and 39 mm. as the greatest radii of the forewings. The two Colorado females measure almost 40 mm. for the same dimension. The upper side of the forewings of the female *oberfoelli* that I have differs from that of my female *weidemeyeri* in the same manner as does the upper side of the forewings of the males. On the hind wings the white submarginal marks are quite evident on the North Dakota material. On that from Colorado these marks are almost obliterated by dark scales. The reddish submarginal spots are brighter on the northern specimens. The transverse white bands are narrower on both forewings and hind wings of *weidemeyeri* than they are on those of *oberfoelli*. The spot between the cubital veins on the forewing measures 6.3 and 6.7 mm. on the two specimens of *oberfoelli* and only 5.1 and



FIGS. 1, 2. *Limenitis weidemeyeri oberfoelli*, new subspecies, holotype male.
1. Upper surface. 2. Under surface. Both natural size.



FIGS. 3, 4. *Limenitis weidemeyeri oberfoelli*, new subspecies, allotype female.
3. Upper surface. 4. Under surface. Both natural size.

5.2 mm. on the slightly larger females of *weidemeyeri*. The spot between M_3 and Cu_1 on the hind wings of *oberfoelli* measures 6.1 mm. on both specimens. This spot measures only 5.0 and 5.1 mm. on the two specimens of *weidemeyeri*.

On the under side the females of the two subspecies differ in essentially the same manner as do the males.

TYPES: Holotype, a male, Badlands, Slope County, North Dakota, June 8, 1958. Allotype, a female, Badlands, Slope County, North Dakota, June 28, 1958. Paratypes: Two males, Badlands, Slope County, North Dakota, July 5, 1953; two males, Badlands, Slope County, North Dakota, June 8, 1958; a male, Badlands, Slope County, North Dakota, July 4, 1953; a male, Amidon, Slope County, North Dakota, July 4, 1953; a male, Cave Hills, South Dakota, no date; a female, Cave Hills, South Dakota, no date. All the type material was collected by Oberfoell. He has allowed me to deposit the North Dakota material in the collections of the American Museum of Natural History. I have returned the two South Dakota paratypes to him. In addition to the above material there are two paratypes, males, in the collection of the Agricultural Experiment Station, North Dakota Agricultural College, Fargo, North Dakota. These were collected in the Badlands of Slope County, North Dakota by Oberfoell on June 28, 1958, and July 5, 1953.

All the New Mexico, Colorado, and Wyoming material before me is *weidemeyeri weidemeyeri*. A female collected by me at Custer, South Dakota, is best referred to *weidemeyeri oberfoelli*.

BIBLIOGRAPHY

BROWN, F. MARTIN

1957. Two early entomological collectors in Colorado. Ent. News, vol. 68, pp. 41-47.

1958. The correspondence between William Henry Edwards and Spencer Fullerton Baird, Part I. Jour. New York Ent. Soc., vol. 66, pp. 191-222.

EDWARDS, WILLIAM H.

1861. Description of certain species of diurnal Lepidoptera found within the limits of the United States and of British America. Proc. Acad. Nat. Sci. Philadelphia, pp. 160-164.