

**ESPECIALLY FOR FIELD COLLECTORS**

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**A LITTLE ABOUT THE LITTLE-KNOWN *PAPILIO INDRA MINORI***

by DONALD EFF

In July of 1937, the Colorado Museum of Natural History published as Volume XVI, Number 1 of their *Proceedings* a small check-list of "Butterflies of Colorado" by FRANK CLAY CROSS. In this check-list Cross listed 241 species, including two new subspecies, one of which he named *Papilio indra minori*.

Inasmuch as this 28 page pamphlet of "Butterflies of Colorado" has long been out of print and few collectors have seen or read the original description of *Papilio indra minori*, I should like first of all to repeat it here.

"Differs widely from typical *indra* in having well-developed tails on the secondaries, and narrower primaries; and from *pergamus* by a great suppression, or total absence in some specimens of the yellow median bands on the wings, as well as by an invariable absence of any yellow at all on the abdomen. Typical *indra* submarginal band on the under side of fore wings.

"This butterfly, which was discovered by Mr. W. C. Minor of Fruita, Colorado is known to occur only in a small area called the "Black Ridge Breaks", in Mesa County. It flies for about two weeks in late April or early May. No second brood.

"Holotype and allotype in the author's collection in the Colorado Museum of Natural History; thirteen paratypes."

The foregoing is not what could be termed a very detailed description. However, since my purpose in writing this article is not to discuss differences or similarities, suffice to say that it is a very distinct subspecies, easily recognizable. What I do want to do is tell a little about the distribution, history, and an unusual characteristic of this rarity.

*Papilio indra minori*, since the date of its description, has always been regarded, and rightfully so, as one of the rarest of all North American butterflies. There are several reasons for this, the most important one being its extremely limited locale. Add to that the inaccessibility of this locality and the fact that there is only one collector in that entire section of the state, and that he is no longer very active in the pursuit of Lepidoptera, and the reason for the scarcity of this butterfly in collections is apparent.

The type locality, referred to in the original description as the "Black Ridge Breaks", would indicate that it was generally found throughout the canyons and cliffs bordering Black Ridge. Actually, until 1959 the only known locality was a place called Coal Mine Point on the northwest side of Black Ridge, and here the butterfly was found only along the Ridge, west from Coal Mine Point for a distance of about one-fourth of a mile. This "home" of *minori* is now isolated! Nature has provided the safeguards on three sides and man has barred the only logical entrance. On the two sides of the mesa closest to the type locality, the edge of the mesa is cut by fantastic, red-walled canyons. Most of the canyon walls are perpendicular and impassable for anything except birds. To the south the mesa, after extending for many miles from the type locality of *minori* drops off more gradually into Glade Park. However, the distance from the south through miles and miles of farm land, and then many miles more across the pinon and sagebrush of Black Ridge precludes the possibility of entrance from that direction.

Black Ridge is used mainly for the grazing of sheep and some farming. One large sheep rancher owns or leases nearly the entire Ridge, and three or four others own out-lying portions and adjacent land. It is interesting to note that in the beginning these ranchers never locked the only gate permitting access to Black Ridge. Then the government moved a radio-sonde beam station to Black Ridge. About the same time the Colorado Highway Patrol built a short wave station there, and now the Denver & Rio Grande Railroad has done the same. The officials decided to lock the gate to discourage visitors, and keys are issued only to persons who have business there. If perchance you are fortunate enough to know someone who can gain you admission, then you are faced with a maze of dirt roads leading in all directions. Nearly all of these are merely tracks through the sagebrush and all, of course, are unmarked. One leads to Coal Mine Point, and another leads to the western edge of the mesa where the old Ute Trail drops from the mesa into the labyrinth of canyons bordering the Colorado River. Here, in 1959 MINOR saw two specimens of *minori*, the first seen out side of the Coal Mine Point area. In mid-May of 1961 DAVID L. BAUER and I spent the second of two days exploring this western edge of the mesa and found that the two specimens seen by MINOR were definitely not strays. To the contrary, the butterfly was more common here than at the Coal Mine Point locality, and we collected it for a distance of about two miles along the rim, south to the last out-cropping of rock before the mesa drops off into Glade Park. So far, these two spots, separated for a distance of about three miles where for some unknown reason the butterfly does not seem to occur although

the terrain is the same, are the only known spots where you can take it. *Papilio indra minori* normally does not stray more than a hundred yards or so from its little corridor along the side of the mesa. However, in 1961 we had a glimpse of what we thought was one as we drove the twisting road along the edge of the cliffs in the Colorado National Monument. MINOR, in a recent letter tells of seeing three strays, one in Glade Park, one in Devils Canyon, and one at the mouth of Pollock Canyon. All three were a considerable distance from "home", which causes him to wonder if it might be extending its range.

After observing its flight habits and the type of terrain to which restricted, and studying the country that can be seen to the south and correlating this with a map of western Colorado, we came to the conclusion that it might be found in suitable locations along the western edge of the Uncompaghere Plateau, from Black Ridge which forms the extreme northwestern tip, clear into southwestern Colorado. There is a specimen in the Mesa Verde Museum which presently represents the southernmost record of this butterfly. But to verify this possible distribution will take a lot of doing, for the western Colorado border area is known only to a few ranchers, sheep herders, and some uranium prospectors. If any transient collectors have penetrated this area, then it apparently has been at the wrong time. It is not a promising land in which to collect, but the early collector may meet with some interesting species and possible new records. To illustrate, one record omitted from *Colorado Butterflies* by BROWN, EFF, and ROTGER in their publication in the spring of 1957 was *Melitæa*, or as it is now known *Chlosyne*, *acastus*. The fact that MINOR had taken this commonly in the 30's and 40's was overlooked until Dr. HUGO RODECK of the University of Colorado Museum captured the species in the Colorado National Monument between Grand Junction and Fruita. Since then I have taken it each time during the last three trips. In addition I have found *Euchloe creusa*, previously recorded only from southern Colorado, added to the few records of *Atlides halesus*, and most interesting of all, captured specimens of *Anthocaris* that seem referable only to *inghami*. The southern areas adjacent to Black Ridge look inviting and I'm hopeful of collecting on Pinon Mesa and in the Gateway areas in the near future to see if *minori* can be located there. The outlook for Pinon Mesa is remote however, for Mr. MINOR spent fifteen summers there without seeing one but agrees that the Gateway area is a possibility. [Since this article was submitted for publication, SCOTT ELLIS, of Hotchkiss, Colorado, took one specimen in Delta County, approximately 80 miles south of Black Ridge.]

Now that I have noted its scarcity, and the reasons why, here is a word or two about the number of specimens known to have been collected. As mentioned in the original description, it was described from fifteen specimens, all supplied by W. C. MINOR, and at the time all in the Colorado Museum of Natural History. Since that time it is estimated that Mr. MINOR has probably put into circulation about two dozen additional specimens. Most of these were taken in the 1940's; since that time he has not collected very actively. In 1947 the two ACKERMAN boys reputedly took 26 specimens, most of which were in very poor condition. Aside from these records, I feel extremely fortunate to have captured 26 specimens, 10 of these this past May when DAVID BAUER also took eight specimens. It is probably safe to say that not over 100 specimens have ever found their way into collections. To take my 26 specimens has required five round trips of approximately 600 miles, which means that I drove about 115 miles for each specimen! In 1952 my trip was fruitless, in 1956 I took one (the only one seen), in 1959 I got nine in two days of collecting, in 1960, six in an afternoon and a morning, and in 1961, ten specimens in two full days, including the first female I've ever seen in the wild. Incidentally, I strongly suspect that when the food plant is determined, it will turn out to be *Lomatium grayi* (C. & R.). This conclusion was arrived at by the process of elimination of the plants found in *minori's* restricted locale. *Papilio minori* never seems to visit any flower other than Service-berry, but seems to prefer to alight in the few rocky areas where water has washed away the soil.

I mentioned that I had captured 26 specimens of *minori*. I've taken close to twice this number, but have released at least half of those captured, and probably should have released more. Actually, I've captured six *good* specimens, and herein lies the clue to the strange characteristic which makes it so difficult to get decent specimens, once you've cleared all the other hurdles. Among the butterflies with which any of you are familiar, are a few that are pugnacious in character . . . but here's one that is actually ferocious! In the beginning MINOR was of the opinion that his inability to ever capture a perfect specimen was caused by the wind that blows almost constantly across the high mountain ridge that is home to this butterfly. He thought that the rubbed and torn wings were the result of the battering by wind. Then one day he found the real reason and tells about "Belligerent Butterflies" for a complete chapter in his delightful and authentic nature book entitled *Footprints In The Trail*. He recounts how one day he had climbed the slopes of Black Ridge and stopped to rest in the shade of a stunted piñon. It was a warm and pleasant day and the air was filled with the singing of birds

and the hum of bees and other insects. He heard a faint clicking sound, but paid little attention until a tiny shower of fine, black dust sifted down through the branches of the tree beneath which he was resting. Then he looked up to see a ferocious life and death struggle going on only a few feet above his head between two butterflies. The faint clicking was made by their wings as they dashed back and forth, circling, flitting up and down, and occasionally crashing full tilt into each other, and the shower of black dust was of course, the tiny scales brushed from their wings during battle. Butterflies are usually associated with gaiety and frivolity, lightheartedness and beauty, and not thought of as ferocious creatures with murder in their heart and a desire to liquidate another of its own kind. Yet it was easy to see that these two were in deadly earnest for they were slugging and hammering away at each other until their wings were battered and torn and the scales worn from their wings. In succeeding years he observed numerous other bouts between these butterflies, and arrived at the same conclusion as anyone else who has observed them, that this is the real reason why it's almost impossible to capture perfect specimens. He recounts in his book in the chapter devoted to this butterfly, how he was offered \$25 each for up to four pairs of perfect specimens, and how he and another collector friend spent a day on Black Ridge pursuing *indra minori*. They had gone earlier in the season than usual to insure getting fresh specimens if any were to be taken. Upon arrival they found two specimens flitting about over a serviceberry patch. The brush was too thick to wade through and so they had to be content to remain along the edges and swing at the specimens anytime they ventured near enough to the edge of the patch to be within reach. Whenever they did alight just beyond reach, and sit for a few minutes so that they could be observed, it was readily apparent that these were freshly emerged, "perfect" specimens, the kind the museum wanted and they had dreamed of finding and capturing. Both collectors were full of enthusiasm but as the hours slipped by and they were unable to capture these two specimens their joy was mixed with first disappointment, and then despair. Then later in the afternoon two more *minori* suddenly appeared over the same berry patch, and almost instantly the battle was on. Now instead of winging lazily about over the patch they dashed furiously back and forth, crashing into each other, and soon a fog of black dust began to settle down, and then pieces of wings, while the two collectors stood helplessly by and watched a hundred dollars worth of butterflies being torn to bits before their eyes. Then all of a sudden the butterflies were gone, but shortly one of them returned and flapped slowly by and was now easily netted.

Examination showed that its wings were so tattered and torn and badly rubbed that they were almost transparent in places. The tips of both forewings were broken, and one wing was torn down its full length. Half of one of the hind wings was gone. It had lost a leg and an antenna. It was worthless. The collector with MINOR had worn a new \$10 hat that day to protect his hairless head from the sun, but by now he was so infuriated that he threw it to the ground, stomped on it in anger, then jammed it on his head, only to change his mind and with a snort of disgust, removed it and sailed it off the edge of the mesa, and headed for home with his bare head gleaming in the afternoon sun.

My own personal observation of the intensity with which this butterfly does battle was not until 1959. In May of that year I spent two full days in the vicinity of Coal Mine Point collecting *minori*. On the second day as I was stalking a specimen, another sailed by and the first instantly arose to do battle. Almost immediately they were locked together, beating and tearing at each other and oblivious to everything else. They fell to the ground and I clamped the net over them, but even this had no effect as they continued to do battle. It was actually necessary to forcefully separate them, and of course both were ruined. That year I took 17 specimens. I released 8, and of the remaining 9, used parts of two of them to patch 5 of the others that they might somewhat resemble whole specimens. Only two specimens were in good shape. Apparently they were the only ones that had not already engaged in battle. In 1960 I was again treated to the same spectacle where two of them engaged in battle, and even after crashing into each other, then locking in combat and falling to the ground, proceeded to roll over and over as they attempted to outdo the other. This time I was fortunate enough to rescue one before he was too badly beaten, while the other was already a wreck. This past May, DAVID BAUER who was a complete stranger to this butterfly and its ways, was fortunate enough to observe this war-like tendency, and commented upon the savageness of an encounter between two specimens. I had not forewarned him of this characteristic, so it was interesting to have his unsolicited corroboration of the fact that this graceful, elusive creature is undoubtedly the pugilistic king of the butterfly world when given an argument by another of its own kind.