

A NEW *EUCHLOE* (PIERIDAE) FROM NORTHWESTERN MEXICO

PAUL A. OPLER

1025 Pennock Place,
Fort Collins, Colorado 80524

ABSTRACT. A new species of *Euchloe* related to *Euchloe ausonides* was discovered at a mountainous desert scrub locality in Sonora, Mexico. This butterfly is described from four males and compared with *Euchloe ausonides*, its close relative; no females are known. Its habitat and evolutionary significance are treated.

Before the discovery reported here, four species of *Euchloe* Hübner were known from the Americas—the most recently described being *E. hyantis* and *E. olympia*, both described by William Henry Edwards in 1871. More recent study has elucidated the systematic position, distribution, early stages, and biological features of these four species (Opler, 1966a, b, c, d, 1970, 1971, 1974, Opler & Clench 1983).

The discovery of a new *Euchloe* species by Richard Holland of Albuquerque, N.M. in northwestern Mexico was quite unexpected. The species is a member of *Ausonides* Species Group.

Euchloe guaymasensis Opler, new species

Male. Forewing length 19.0 mm (range 17.4–19.4 mm, N = 5). *Head.* Labial palpi covered with white appressed scales, long stiff white and black hairlike setae directed laterally and ventrally; frons with long white and black setae; vertex with mixture of yellow and a few black appressed scales; antennae 0.07 cm long, white-tipped, otherwise covered with a mixture of white and black scales, predominantly the former, inner surface of shaft and nudum naked.

Thorax. Clothed dorsally with quadrate black appressed scales and fine long white hairlike setae; laterally and ventrally clothed with yellow appressed scales together with long white hairlike scales; legs covered mainly with white and a few black scattered scales. *Forewing.* Apex rounded with stem R4+5 much shorter than R5; dorsal surface ground pale lemon yellow, with white along costal margin from base to apex; white diffusely along inner margin; very fine white hairlike scales especially at base and along inner margin; black patch at end of discal cell concave outwardly, 9 scale rows in width with 12–14 included scattered white scales; black patch at apex dense with few included yellow scales; oblong patch (rounded in several paratypes) of pale yellow scales on costal margin between R1 and R3; fringe at apex black except for three areas with long yellow hairlike setae; few scattered appressed black scales at base; ventral surface pale yellow; small greenish patches (composed of appressed yellow and black scales) where R1 meets costal margin and where M2 and M3 meet outer margin; patch at end of discal cell of black scales with included gray white scales. *Hindwing.* Dorsal surface ground pale lemon yellow, some white along inner margin, a few appressed black scales at base; long fine pale hairlike scales especially on base and along inner margin; a few (5–15) scattered black appressed scales at endings of veins (except SC and Anals); fringe of long fine yellow hairlike scales except for a few long black scales at vein endings as above. Ventral surface ground white; marbling pattern similar to that of *E. ausonides* but with fewer connections between patches of yellow and black scales; very long (0.6 cm) “green” patch within and parallel to interior margin of discal cell. *Abdomen.* Covered dorsally and laterally with black appressed scales, a few scattered yellow or white scales inter-

- URQUHART, F. A. 1960. The monarch butterfly. University of Toronto Press, Toronto, Canada. 361 pp.
- 1976. Found at last: The monarch's winter home. Nat. Geogr. 150:160-173.
- URQUHART, F. A. & N. R. URQUHART. 1978. Autumnal migration routes of the eastern population of the monarch butterfly (*Danaus p. plexippus* L.; Danaidae: Lepidoptera) in North America to the overwintering site in the Neovolcanic Plateau of Mexico. Can. J. Zool. 56:1754-1764.
- WEST, R. C. 1964. Handbook of the Middle American Indians, Vol. 1. University of Texas Press, Austin. 570 pp.
- YAMAGUCHI, H. 1980. TV Production on the Monarch Butterfly, Nippon TV Corporation, Tokyo, Japan, 28 February 1980.
- ZEPEDA, T. 1941. La Republica Mexicana Geografia y Atlas. Editorial Progreso Mexico, D.F. 152 pp.

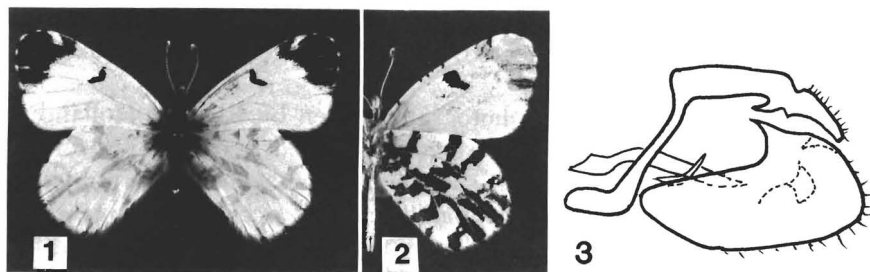


FIG. 1. Holotype male *Euchloe guaymasensis*, dorsal view.

FIG. 2. Paratype male *E. guaymasensis*, ventral view.

FIG. 3. *Euchloe guaymasensis* male genitalia, lateral view.

mixed; ventrally with mixture of quadrate white and yellow appressed scales, covered with medium length white hairlike scales. *Genitalia*. As in *Euchloe ausonides* except saccus more regular in outline; cucullus areas of valvae only slightly produced after distal teeth; juxta only weakly chitinous, only dorsal arms visible.

Types. Holotype ♂, Mexico, Estado de Sonora, Las Avispas microwave relay, 2000' (655 m), 40 mi (64 km) N Guaymas, 24 March 1983, leg. Richard Holland; genitalia preparation PAO 354 (P. A. Opler). Paratypes. Same locality, 4 ♂♂; 12 March 1974, 23 March 1983 (2), 5 March 1984; all leg. Richard Holland (the 1974 paratype with G. S. Forbes). Holotype deposited in National Museum of Natural History, Smithsonian Institution, Washington, D.C. One paratype each in collections of American Museum of Natural History, New York; Allyn Museum of Entomology, University of Florida; Los Angeles County Museum; Instituto de Biología, Universidad Nacional Autónoma de México.

The name is masculine and refers to Guaymas, the nearest city to the type locality.

COMPARATIVE ANALYSIS

Among the four previously described *Euchloe*, *E. guaymasensis* is most closely allied to *E. ausonides* (Lucas); the two species share the following characters: (1) antennae with black and white scales, (2) white scattered scales within forewing dorsal discal cell black patch, (3) lack of opalescent white scales on ventral hindwing, (4) marbling pattern on ventral hindwing neither heavy and fractured nor strongly reduced, (5) cucullus extending slightly beyond distal tooth, (6) juxta V-shaped, and (7) sterigma evenly curved in lateral view. Opler (1971) illustrated these character states, some of which—but not all—are also shared by either *E. creusa* (Doubleday) or *E. olympia* (Edwards) or both. Compared to *Euchloe ausonides*, *E. guaymasensis* differs in the following features: (1) antennae with a greater proportion of white scaling, (2) forewing more rounded at apex, (3) black patch at apex darker, without intermixed white scales, (4) forewing costal margin without black scaling, (5) ground color of both dorsal wing surfaces pale lemon yellow (usually cream white in *E. ausonides*), (6) forewing stem R4+5 much shorter than R5, (7) black scaling areas at bases of

both wings much more restricted, (8) green marbling patches on ventral hindwing less interconnected, and (9) male genitalia with juxta less chitinous.

Habitat at type locality: photographs taken by Richard Holland at the type locality show rocky, extremely rugged, mountainous terrain with a mixture of subshrubs, succulents, and woody microphyllous deciduous vegetation. Specific plants include ocotillo (*Fourquieria*), *Acacia*, and possibly *Encelia*. The type locality is clearly within the Lower Sonoran life zone.

Surprisingly, the closest nearctic relative of *Euchloe guaymasensis* is *E. ausonides*, a species of much more temperate climes, not *E. hyantis*, a butterfly of more austral habitats, including northern Sonora, Mexico. The closest localities to the *E. guaymasensis* type locality where *E. ausonides* occurs are the Kaibab Plateau, Coconino Co., Arizona, 975 km to the north, and the Sangre de Cristo Mountains, San Miguel Co., New Mexico, 965 km to the northeast.

Likely it will be found elsewhere in the coastal ranges of Sonora when someone penetrates this physically intimidating habitat.

Euchloe guaymasensis differs in sufficient characters from *E. ausonides* to indicate that it has been long isolated, probably since at least the middle Pleistocene. The nature of the larval and pupal characters, when discovered, should help confirm this hypothesis.

ACKNOWLEDGMENTS

I thank Richard Holland for allowing me to describe this new species. The U.S. Fish and Wildlife Service, Denver Wildlife Research Center, Branch of Ecology provided laboratory facilities. John Buffington, Colorado State University, exhibited skill and patience in providing the photographs. Robert K. Robbins and an anonymous reviewer provided suggestions that improved the manuscript.

LITERATURE CITED

- OPLER, P. A. 1966a. Studies on the Nearctic *Euchloe*. Part 1. Introduction. Jour. Res. Lepid. 5:39-40.
- 1966b. Studies on the Nearctic *Euchloe*. Part 2. Chronological review of the literature and bibliography. Jour. Res. Lepid. 5:41-50.
- 1966c. Studies on the Nearctic *Euchloe*. Part 3. Complete synonymical treatment. Jour. Res. Lepid. 5:185-190.
- 1966d. Studies on the Nearctic *Euchloe*. Part 4. Type data and type locality restrictions. Jour. Res. Lepid. 5:190-195.
- 1970. Studies on the Nearctic *Euchloe*. Part 5. Distribution. Jour. Res. Lepid. 7:65-86.
- 1971. Studies on the Nearctic *Euchloe*. Part 6. Systematics of adults. Jour. Res. Lepid. 8:153-168.
- 1974. Studies on the Nearctic *Euchloe*. Part 7. Comparative life histories, hosts and the morphology of immature stages. Jour. Res. Lepid. 13:1-20.
- OPLER, P. A. & H. K. CLENCH. 1983. Studies on the Nearctic *Euchloe*. 8. *Euchloe olympia*. Ann. Carnegie Mus. 52:41-54.