

A NEW SUBSPECIES OF *LETHE APPALACHIA*
(SATYRIDAE)

RONALD R. GATRELLE

126 Wells Road, Hanahan, South Carolina 29405

AND

RICHARD T. ARBOGAST

114 Monica Boulevard, Savannah, Georgia 31400

The appalachian eyed brown, *Lethe appalachia* (R. L. Chermock), was first described as a subspecies of *Lethe eurydice* (Johansson) ranging from the mountains of West Virginia southward through the Appalachian Mountains and into northern Florida. It was also mentioned as occurring in the coastal swamps of Virginia and South Carolina (Chermock, 1947).

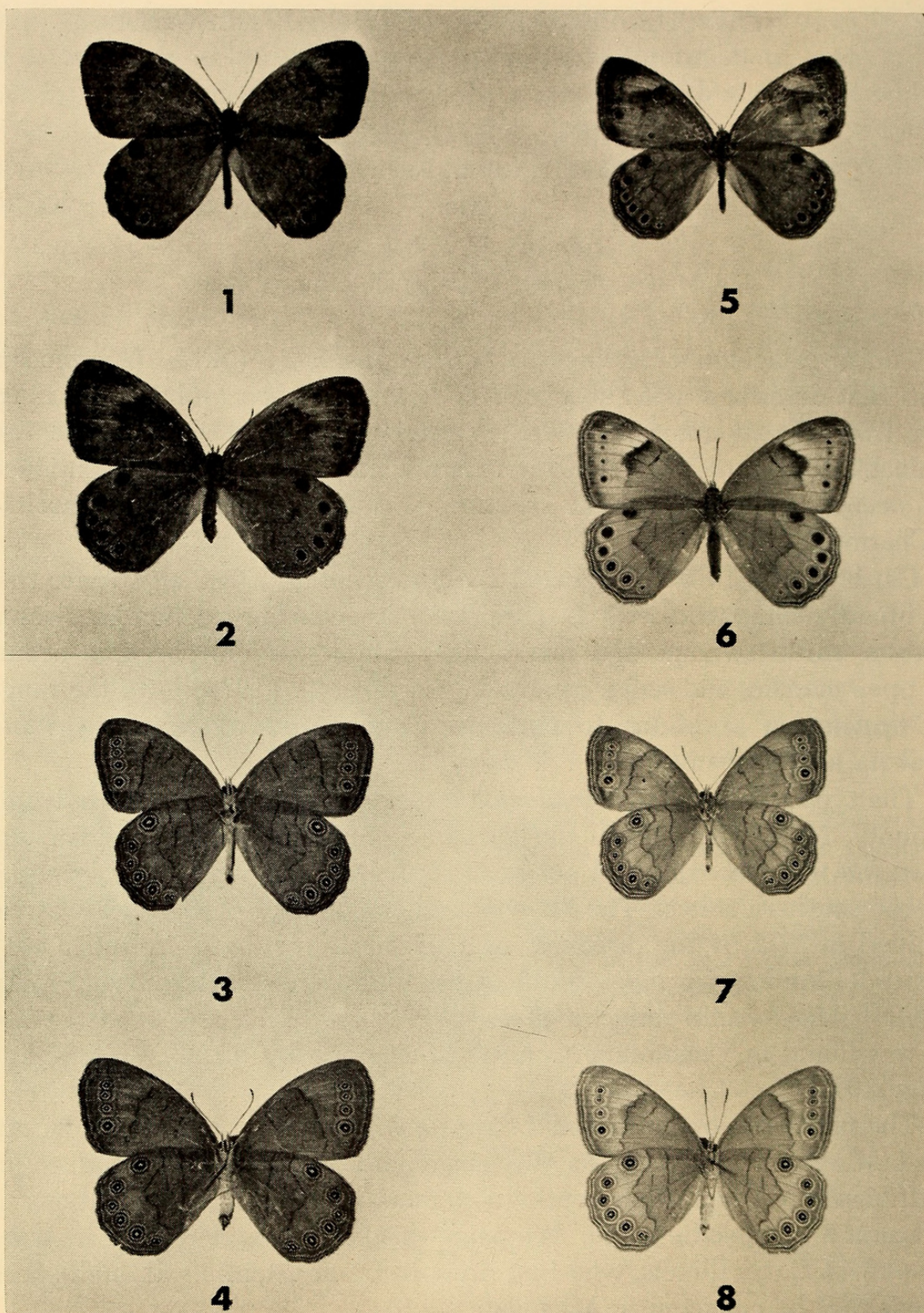
Cardé et al. (1970) recognized *L. appalachia* as a distinct species that is broadly sympatric with *L. eurydice* but occurring mainly in swamp forests, shrub swamps and forest-edge ecotones, while *eurydice* occurs in open marshes and sedge meadows. Cardé et al. (1970) gave the range of *appalachia* as Maine to northern Florida and westward to South Dakota and Alabama.

The type locality of *L. appalachia appalachia* is Brevard, Transylvania County, North Carolina in the area of Connestee Falls. Nominate *appalachia* until recently had not been recorded from very many localities in the southern states. The known southern limit of the species was extended in 1972 by the discovery of a colony in a swampy forest in west central Florida, two miles south of Zephyrhills, Pasco County (Brown, 1973). The western range of *appalachia appalachia* was extended when it was found in Tishomingo County, Mississippi, by Mr. C. T. Bryson in May 1971.

The northern populations of *L. appalachia* ranging from Massachusetts and Maryland westward to Wisconsin and Illinois were found to be sufficiently distinct from southern nominate *appalachia* populations to warrant a subspecific name. We name this new subspecies for Mr. Irwin Leeuw of Cary, Illinois, who first drew it to our attention through specimens that he collected in Michigan.

***Lethe appalachia leeuwi* (Gatrelle and Arbogast), new subspecies**
(Figs. 5–14)

Male: Forewing radius: 21–26 mm, mean 24.2 mm in type series. *Dorsal surface:* ground color of both primaries and secondaries grayish brown as in nominate sub-



Figs. 1-4. *Lethe appalachia appalachia* (R. L. Chermock): 1 & 3, male, Table Rock State Park, Pickens County, South Carolina, 3 July 1972; 2 & 4, female, McClellanville, Charleston County, South Carolina, 30 May 1970.

Figs. 5-8. *Lethe appalachia leeuwi* (Gatrelle & Arbogast), new subspecies: 5 & 7, holotype, male, Wakelee, Cass County, Michigan, 24 July 1972; 6 & 8, allotype female, Wakelee, Cass County, Michigan, 4 July 1957.

species (Figs. 1 & 5), but lighter and with more contrast between the various shades. Apical and marginal areas dark; narrow dark bar at end of cell and dark postmedian band of irregular width extending from R1 to CU1 and CU2. Area between this band and the row of ocelli light. Basal and discal areas an intermediate shade. Contrast between discal and limbal areas of secondaries more pronounced than in nominate *appalachia* and light rings surrounding ocelli usually more conspicuous. *Ventral surface*: ground color lighter and much less uniform than in nominate subspecies (Figs. 3 & 7) and lacking purplish cast. On both primaries and secondaries a broad band of light brown tinged with white extends from near costal margin to second anal vein. This band contrasts markedly with darker basal and discal areas. It is bordered proximally on both wings by the postmedian line, and on the primaries bordered distally by the row of ocelli. On the secondaries it surrounds the first ocellus and is bordered distally by the remaining ocelli. **Female**: Forewing radius: 26–27 mm, mean 26.5 mm. As in male but lighter and with even more contrast between the various shades. Light area on dorsal surface of primaries very prominent, very often nearly white and extending from costal to inner margin (Figs. 2, 4, 6 & 8). Nominat *appalachia* females may in some individuals show markedly lighter subapical areas above and lighter limbal areas below than female figured though never as in *leeuwi* females.

Holotype male: Wakelee, Cass Co., Michigan, 24 July 1972, *leg.* Irwin Leeuw; deposited temporarily in the senior author's collection.

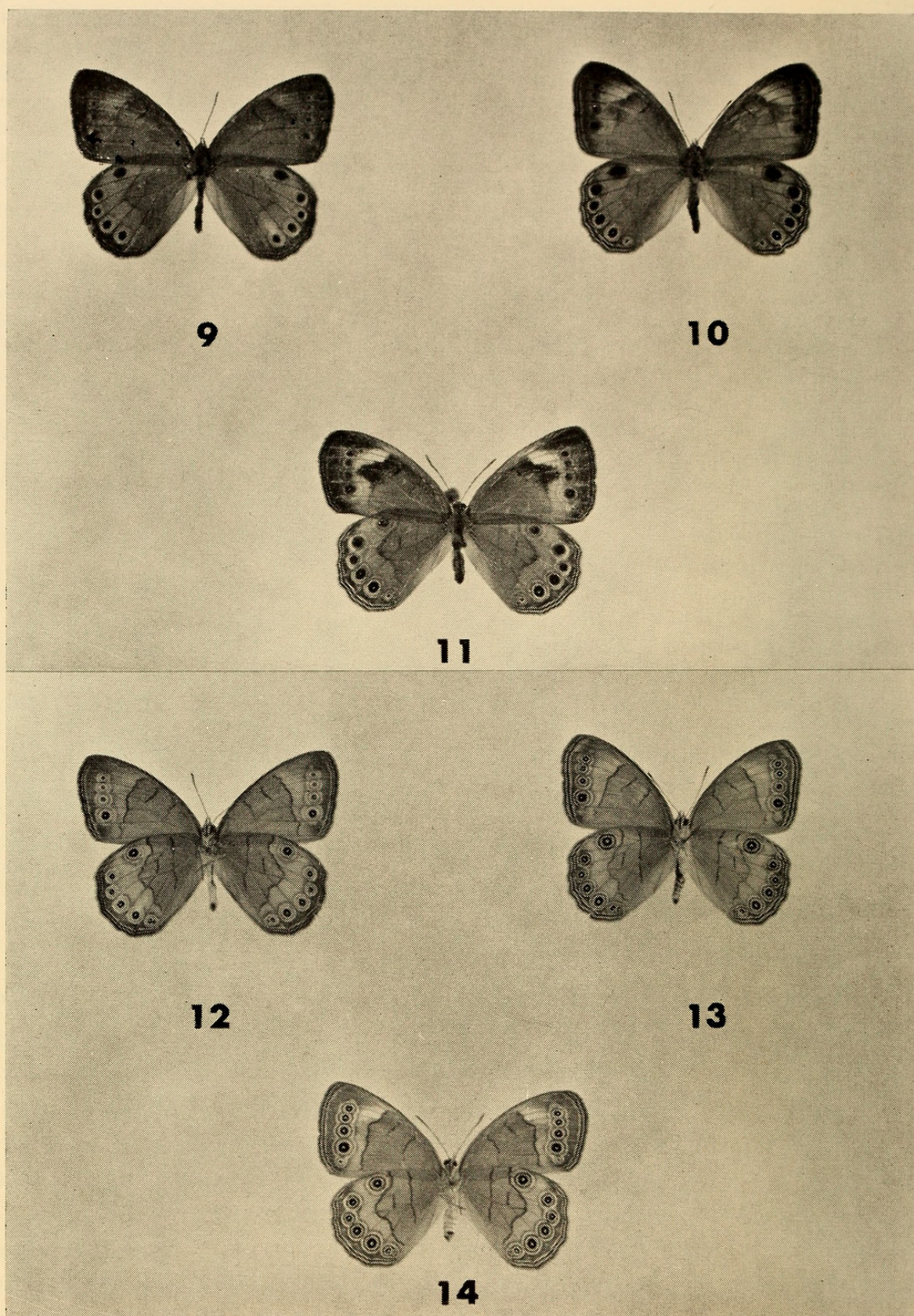
Allotype female: Wakelee, Cass Co., Michigan, 4 July 1957, *leg.* M. C. Nielsen; deposited in the collection of Michigan State University.

Paratypes: Michigan. *Cass County*: 2 males, 30 June 1972; 2 males, 24 July 1972; 3 males, 3 July 1973 (*leg.* Irwin Leeuw); 1 male, 16 July 1967; 1 female, 16 July 1970; 6 males, 15 July 1972 (*leg.* P. J. Conway); 1 male and 1 female, 7 July 1971; 2 males, 9 July 1971 (*leg.* R. R. Irwin); 1 male (abdomen missing), 1 July 1973 (*leg.* M. G. Seaborg). *Clinton County*: 4 males, 16 July 1972 (*leg.* M. C. Nielsen). *Lenawee County*: 1 male, 20 June 1970; 1 male, 15 July 1973; 1 female, 22 July 1973 (*leg.* M. C. Nielsen). *St. Joseph County*: 1 male, 12 July 1972 (*leg.* M. C. Nielsen). *Barry County*: 1 male, 12 July 1956 (*leg.* R. L. Fischer); 1 male, 14 July 1973 (*leg.* M. C. Nielsen). *Montcalm County*: 1 male, 3 July 1952; 1 male, 9 July 1953 (*leg.* M. C. Nielsen). *Wayne County*: 1 male, no date (*leg.* A. W. Andrews); 1 female, 10 July 1943 (*leg.* M. C. Nielsen). *Washtenaw County*: 1 female, 18 July 1964 (collector unknown).

The 31 males and 6 females of the type series are deposited in the following collections: Michigan State University, Illinois Natural History Survey, P. J. Conway, M. C. Nielsen, R. R. Gatrelle, R. T. Arbogast, Irwin Leeuw and M. G. Seaborg.

In addition to the type series, material referable to *leeuwi* was examined from Devil's Lake State Park, Wisconsin; Illinois Beach State Park, Lake County, Illinois; Paulding and Lake Counties in Ohio; Bedford and Reading, Pennsylvania; and Martha's Vineyard, Massachusetts. Five males from Baltimore, Maryland which we examined were darker than typical *leeuwi*, but were still closer to the new subspecies than to nominate *appalachia*.

Eighty specimens were examined in the course of this study of nominate southern *appalachia*. We were not able to examine specimens of *L. appalachia appalachia* from the type locality, Connestee Falls, near



Figs. 9-14. *Lethe appalachia leeuwi* (Gatrelle and Arbogast), new subspecies: 9 & 12, paratype male, Montcalm County, Michigan, 3 July 1952; 10 & 13, paratype male, Lenawee County, Michigan, 20 June 1970; 11 & 14, female, Paulding County, Ohio, 11 July 1971. These three specimens show the variation within the new subspecies.

Brevard, North Carolina, but we did examine material from Table Rock State Park, Pickens County, South Carolina which is just 13 miles south of Brevard. We found these specimens to agree in every respect with Chermock's description of *appalachia*. A note of interest here is that the type locality, Connestee Falls area, is now undergoing drastic change. The area is being turned into a "resort" community and housing development. The drastic changes in the environment may well lead to the extinction of *appalachia* in that area. The specimens from Table Rock, South Carolina are of the same phenotype as those from Brevard and unless a colony is located closer than 13 miles to the type locality, the Table Rock populations may be the closest thing to topotypes available to the taxonomist. The specimens which we examined of nominate *appalachia* were from the following areas. South Carolina: Pickens, Dorchester and Charleston Counties. Georgia: Fannin and Cherokee Counties, and the Atlanta area. Florida: Pasco County. Mississippi: Pontotoc, Lee, Lafayette, Choctaw, Oktibbeha, and Winston Counties. All the specimens from these localities closely resembled the material from Table Rock except that the specimens from Pasco County, Florida averaged somewhat darker.

Our thanks go to the many persons who loaned us material for examination and who helped us with their ideas.

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CHARLES RUDKIN COLLECTION AT THE UNIVERSITY OF CALIFORNIA, IRVINE

The Charles Rudkin collection of Lepidoptera has been acquired by the Museum of Systematic Biology, University of California, Irvine. The collection contains over 10,000 mounted specimens (in modified Riker Mounts), primarily Rhopalocera. The collection is especially rich in California material, but also contains a fair amount of material from southeastern Arizona and the South Pacific. Nearly all specimens were collected from 1930-1945. Rudkin's field notebooks and other memorabilia will accompany the collection.

LARRY J. ORSAK, *Museum of Systematic Biology, School of Biological Sciences, University of California, Irvine, California 92664.*



1974. "A new subspecies of *Lethe appalachia* (Satyridae)." *Journal of the Lepidopterists' Society* 28, 359–363.

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