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SOME NEW SUBSPECIES OF *INCISALIA* FROM NORTH AMERICA (LEPIDOPTERA, LYCAENIDAE)

BY CYRIL F. DOS PASSOS

While studying the *Incisalia* in the Gundersen collection and incorporating them into the general collection of The American Museum of Natural History, some interesting subspecies were discovered which appear to be unnamed. These, together with some specimens from my own collection, are described in this paper.

INCISALIA SCUDDER

SCUDDER, 1872, A Systematic Revision of some of the American Butterflies, p. 31.

SCUDDER, 1872, Ann. Rept. Peabody Acad. Sci., for the year 1871, IV, p. 52.

The authorship of this genus has been referred to Minot, the references usually given by Scudder (1875, p. 96; 1876, p. 104) being those above cited. Dyar (1902, p. 39) gives the same references. However, it does not appear that Minot ever published the name *Incisalia*. The author of Nomenclator Zoologicus (1939, II, p. 772) apparently came to the same conclusion but gave a slightly different reference, i.e., "*Incisalia* (Minot M.S.) Scudder 1872, Ann. Rept. Trustees Peabody Acad. Sci., 4: 1871, 52.—Lep." Scudder's Systematic Revision was published both separately and also as a part of said Report, the reference in the former being p. 31 and in the latter p. 52. Both publications were in the same year, 1872. It has not been possible to ascertain which was the earlier. Scudder always seems to have referred to the separate while other authors sometimes refer to the Report. The cover of the separate reads "from the report of The Peabody Academy of Sciences for 1871 pages 24 to 82 inclusive." Both separate and Report were published and printed at Salem, Massachusetts, at the Salem Press. The reference in the separate to the pagination of the Report is not entirely correct, as the

latter ends at p. 83 and not 82. In view of Scudder's authorship of the paper and, therefore, personal knowledge as to which was published first, and the very careful student that he is known to have been, I am inclined to follow him and conclude that the separate was, in fact, published before the Report. Hence, the reference to this genus should be *Incisalia* Scudder, 1872, Systematic Revision, p. 31.

Incisalia augustus (Kirby)

Thecla augustus KIRBY, 1837, Faun. Bor. Amer., IV, p. 298, Pl. III, figs. 4 and 5.

This insect was described from "Lat. 54°." On the same page Kirby described *Hipparchia discoidalis* from "Several specimens taken at Cumberland House, Lat. 54°"; hence, it would seem reasonable to assume that *augustus* was taken at, or near, the same place. Therefore, Cumberland House, Saskatchewan, Canada, is hereby fixed as the type locality of *Incisalia augustus* (Kirby).

Kirby's figure shows an insect with distinctly checked fringes and with the wings black basally on the uppersides and ferruginous on the disks. It is quite distinct from eastern specimens usually passing as *augustus*, which are uniformly dark gray on the upperside.

Kirby's type was a female. There is a female specimen in my collection from Fawcett, Alberta, taken May 19-22, 1941, which matches Kirby's figure excellently. Fawcett is north of Edmonton in latitude 54° 30'. Another female from the same place is similar, while three males taken at the same time and place do not show any orange brown on the upperside of the primaries. This series appears to represent typical *augustus*. A similar, but very

worn, female, also in my collection (*ex* collection Thos. E. Bean), probably taken by him at Laggan, Alberta, bearing a label "Det. by W. H. Edwards as *augustus* ♀," confirms this conclusion.

Because the type of *augustus* does not appear to be in existence, the aforementioned female specimen from Fawcett, Alberta, May 19-22, 1941, is hereby designated the neotype of *Incisalia augustus* (Kirby). It will be placed in the type collection of The American Museum of Natural History.

Manitoba specimens from the Riding Mountains (six males, one female), Brokenhead (six males), and Hudson Bay mile post 349 on the railroad to Churchill (one female) are more closely related to the eastern race and must be referred to as *croesioides* Scudder, as that name is hereinafter used. This may appear somewhat strange in view of the fact that the Riding Mountains are much nearer the type locality of *augustus* than Fawcett, but none of these specimens matches Kirby's figure.

Incisalia augustus croesioides Scudder

Incisalia croesioides SCUDDER, 1876, Bull. Buffalo Soc. Nat. Sci., III, p. 104.

This name was proposed for the eastern form but appears to have been placed in the synonymy by the author (1889, p. 842). The examination of a long series of *augustus* (auct.) from New York and New Jersey convinces me that the name *croesioides* Scudder should be removed from the synonymy and given subspecific standing for the eastern race of *augustus*, leaving the latter name to represent the north central race.

In the original description Scudder did not designate any type for the name *croesioides* nor did he fix any type locality, merely stating "[eastern form] Canada and New England, southward along the Appalachians to West Virginia." In the circumstances it would seem appropriate to supply these omissions. The type locality of *Incisalia augustus croesioides* Scudder is therefore fixed as Lakehurst, New Jersey, and a male specimen from that locality in the collection of The American Museum of Natural History, taken April 30, 1932 (C. H. Curran) is designated as the neotype.

Incisalia augustus helenae, new subspecies

Incisalia augustinus, DOS PASSOS, 1936, Canadian Entomologist, LXVIII, p. 98.

In Newfoundland there occurs another race of *augustus* of which a long series has been received from Hugh McIsaacs of Doyles Station. On the upperside these specimens resemble *croesioides* but are more golden brown than grayish. The fringes are uniformly checkered with black and white, whereas in *croesioides* they are sometimes checkered, but more often concolorous with the wings. On both wings the markings of the underside are heavier and more distinct. On the primaries the contrast between the basal and limbal areas is well marked by an irregular dark line outwardly edged with white. In *croesioides* this line is often very faint, broken, or even entirely absent, and the wing is nearly uniform in color. Between the mesial line and the submarginal row of spots is a grayish area. The submarginal spots are large triangular, pointing basally. On the secondaries the basal area is dark reddish brown, almost as dark as in *henrici*. The row of spots in the limbal area is similarly colored, and the spots stand out prominently, as does also the marginal line. These spots are bound inwardly by a pale reddish brown area and outwardly by a dark reddish brown area not quite so dark as the spots.

For this race I propose the name *Incisalia augustus helenae*. It is named for my secretary, Miss Helen G. Young.

TYPE MATERIAL.—Holotype, male, Doyles Station, Newfoundland, May 31, 1938. Allotype, female, same locality, June 1, 1938. Paratypes: thirty-nine males and eleven females from the same locality bearing various dates in May and June. The holotype and allotype as well as one pair of paratypes are in the collection of The American Museum of Natural History. The other paratypes are in the collection of the author. Pairs will be sent to the British Museum (Natural History), the Canadian National Collection, the United States National Museum, the Los Angeles Museum, the Carnegie Museum and the Academy of Natural Sciences of Philadelphia.

Whether or not *augustus* and *iroides* are distinct species is difficult to determine because of the paucity of material from Alberta, where they appear to meet. On the affirmative side of the question is the fact that the outer margin of the hind wings of *augustus augustus* from Fawcett, Alberta, is rounder than in any of the eastern races,

approaching in that respect the structure of the western *iroides*. In a neutral position lies the fact that one of the two specimens of *iroides* from Calgary, Alberta, shows some evidence of checkering on the secondaries. The five specimens of *augustus* from Fawcett are all checkered. Typical *iroides* from California is not checkered. Newfoundland specimens of *augustus* are uniformly checkered, and those from the Atlantic states are partly checkered and partly not. On the negative side of the question are the facts that on the underside of the secondaries the basal area of *augustus* from Fawcett is very dark, like that of the eastern populations, while that of *iroides* from Calgary is much lighter, practically as light as in *iroides* from California. Also the Fawcett specimens have slightly crenulated secondaries. They are not so round as *iroides* from Calgary and farther west. The crenulated secondaries become more pronounced on specimens from eastern and Atlantic states localities. On the whole it would seem better to treat *augustus* and *iroides* as distinct species for the present.

Incisalia iroides (Boisduval)

Thecla iroides BOISDUVAL, 1852, Ann. Soc. Ent. France, (2) X, p. 289.

This insect was described from California, probably the San Francisco Bay region, and was figured by Oberthur (1913, fig. 1924). Four of Boisduval's types of

iroides are in the Barnes collection in the United States National Museum. The female, to which is pinned a black and white print of Oberthur's figure, is hereby designated the lectotype of *Incisalia iroides* (Boisduval), and the type locality is fixed as San Francisco, California.

Incisalia iroides annetteae,
new subspecies

In Arizona and New Mexico there occurs a somewhat larger and paler race of *iroides*. On the upperside of the wings the disk is more golden brown than reddish but resembles that of *iroides*. On the underside the forewings are nearly immaculate, showing but the faintest trace of the irregular mesial line dividing the basal from the limbal areas on the primaries. On the hind wings the basal area is very pale and contrasts very slightly from the rest of the wing. The spots between the basal area and the outer margin are small and indistinct, and the color next to that margin is pale orange brown.

For this race I propose the name *Incisalia iroides annetteae*. It is named for Miss Annette L. Bacon, the efficient secretary of the Department of Insects and Spiders of The American Museum of Natural History.

TYPE MATERIAL.—Holotype, male, and allotype, female, New Mexico, April 13, 1937. Paratypes: male, Arizona Territory, March 23, 1907 (*ex* collection J. D. Gunder); female, Cochise County, Arizona Territory, no date; female, Arizona, no date (*ex* collection J. Doll). All are in the collection of The American Museum of Natural History.

KEY TO THE SUBSPECIES OF *Incisalia augustus* AND *I. iroides*

- 1.—Fringes usually checkered with black and white; outer margin of secondaries crenulate. 2.
Fringes not checkered with black and white; outer margin of secondaries not crenulate. 4.
- 2.—Outer margin of secondaries slightly crenulate; basal area of underside of secondaries very dark, not bounded distadly by a narrow white line; females on upperside orange brown on the disk. Fringes distinctly checkered with black and white. *augustus*.
Outer margin of hind wing strongly crenulate; basal area of hind wing sometimes bounded distadly by a narrow white line; females on upperside generally concolorous with the males but sometimes showing traces of orange brown on the disk. Fringes distinctly checkered with black and white. 3.
- 3.—Fringes checkered with black and white; basal area of underside of secondaries very dark, bounded distadly by a narrow white line; females on upperside showing traces of orange brown on the disk. *helenae*.
Fringes sometimes checkered with black and white, but more often not; basal area of underside of secondaries lighter, sometimes bounded distadly by a narrow white line, usually broken and more prominent at costal margin; females on upperside concolorous with males but occasionally showing traces of orange brown on the disk. *croesioides*.
- 4.—Basal area of the underside of secondaries darker than limbal area. *iroides*.
Basal area of the underside of the secondaries very pale, almost concolorous with the limbal area. *annetteae*.

Incisalia henrici (Grote and Robinson)

Thecla henrici GROTE AND ROBINSON, 1867, Trans. Amer. Ent. Soc., I, p. 174.

This insect was described without mentioning any type locality. The habitat was given as "Atlantic district (Maine! to Pennsylvania!)" and the authors mentioned "a number of specimens from the vicinity of Philadelphia." The type specimen in the collection of The American Museum of Natural History bears a label reading "Phil." Philadelphia, Pennsylvania, is consequently fixed as the type locality of *Incisalia henrici* (Grote and Robinson), and the above-mentioned specimen is designated the lectotype.

Incisalia henrici occurs in scattered localities in eastern North America from Quebec and Ontario to North Carolina. It has also been taken in the central states of Illinois, Nebraska, Missouri and Texas. In the latter state both *henrici henrici* and the race *solatus* Cook and Watson (1909, p. 181) occur. Specimens have also been seen from Arizona, and doubtless the intervening gaps will be filled as more collecting is done.

Incisalia henrici margaretae,
new subspecies

In Florida a very distinct race occurs, which, while having certain characters of *henrici*, is easily differentiated by the length of its tails.

TYPE MATERIAL.—Holotype, male, eight miles east of Deland, Florida, March 3, 1932 (B. Heineman, ex collection E. I. Huntington). Allotype, female, Auburndale, Florida, March 26–April 2, 1926 (J. R. Haskins). Paratypes: male, same data as holotype (genitalia slide No. 89, C. F. dos Passos); female, same data as allotype. All are in the collection of The American Museum of Natural History.

It is interesting to note that the development of the long tails in the Florida race of *henrici* closely parallels a similar situation found in the genus *Strymon* where the Floridian *calanus* (Hubner) and the more northern *falacer* (Godart), very closely related species if indeed not races of the same species, are differentiated in the same way.

No intergrades between the new subspecies and *henrici henrici* have been seen as the American Museum collection contains no specimen of *henrici* from South Carolina or Georgia. However, there are two specimens in that collection from Southern Pines, North Carolina, which suggest that such a link may exist. One of these specimens is without the usual orange brown on the upperside, while the other has only a suggestion of that color on the limbal area of the primaries and a small patch near the anal angle of the secondaries. Both appear to have slightly longer tails than typical specimens.

KEY TO THE SUBSPECIES OF *Incisalia henrici*

- 1.—Tails very short. 2.
Tails very long. *margaretae*.
- 2.—Fringes checkered with black and white, upperside of both wings of both sexes orange brown on the disks, especially in the females; basal area of underside of secondaries very dark, defined distadly by an irregular narrow white line. *henrici*.
- Fringes not checkered with black and white, upperside of both wings of both sexes dark gray; basal area of underside of secondaries not defined by a white line. *solatus*.

These are more than twice as long as in typical *henrici*. It is also somewhat larger, especially the females, and is uniformly dark grayish brown on the upperside. The underside is a more uniform color because the basal area is lighter and the limbal area darker than in *henrici*. The four specimens under consideration do not show the distinctly checkered fringes of *henrici* but this may be due to the fact that they are somewhat worn.

This new race I have named *Incisalia henrici margaretae* in honor of my friend, Mrs. J. McDunnough.

In studying this interesting genus it was tempting to delve deeper into the groups and the other North American species, but I have refrained from doing so because of the fact that Mr. Harry K. Clench of Cambridge, Massachusetts, is writing a revision of the genus. The interrelationship of *Thecla irus* variety *moissi* Henry Edwards (1881, p. 54), *Incisalia polios schryveri* Cross (1937, p. 20), *Incisalia duodoroffi* dos Passos (1940, p. 168) and *Incisalia polios* Cook and

Watson (1907, p. 202) presents a fertile field for inquiry, as does also the restricted habitat of *Polyommatus irus* Godart (1823, p. 674) and *Incisalia lanoraieensis* Sheppard (1934, p. 141). The latter, thus far only

recorded from the type locality, has also been taken in two black spruce bogs near Lincoln, Maine. It is to be hoped that Mr. Clench will throw light upon these, as well as many other problems presented.

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