

rimmed with black. Ventrad of lateral line a number of small whitish tubercles and dots. On each of abdominal segments 1-8 a short, dark, somewhat indistinct longitudinal line in a narrow groove.

Head held more at a right angle to body axis than parallel to it (as in *Gluphisia*), but not as pronouncedly at a right angle as in *Nadata gibbosa* (J. E. Smith). Skin very smooth and waxy looking, but definitely not shiny as in larva of *Pheosia rimosa* Packard. Setæ and hairs very fine and short, whitish. No enlarged warts except a pair of small ones on dorsum of abdominal segment 8 which nearly touch mid-dorsally; these are bright orange and surrounded by a narrow, slightly irregular, bright yellow area. Anal prolegs definitely smaller than the others, but fully used and not carried up in the air.

Described from a larva found at Putnam on *Quercus rubra* L. when fully grown. This larva entered the soil to pupate on 18 July 1956; the adult emerged on 1 or 2 August 1956. The larval and pupal exuviae and the adult are in the collection of the American Museum of Natural History. This and the other two larvæ, which were also on *Q. rubra*, fed chiefly along the midribs of mature leaves, progressively eating away one side of the leaf outward from the base. They fed and rested along the midrib with their dorsal surfaces down. In this position they were not easily discerned even when in plain sight, largely due to their reversed countershading.

In FORBES' key (*loc. cit.*, p. 209) this larva would probably run to couplet 9, since its markings other than the lateral stripe are inconspicuous. In couplet 10, however, it would agree with neither of the alternatives. In any event it would not run to the Riley-Packard *Hyperæschra*.

References

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EUREMA DAIRA DAIRA IN MISSISSIPPI

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The name, *Eurema daira daira* Latreille, is used here, as it was by KLOTS (1951), to include the material previously referred to as two species: *E. jucunda* Boisduval & Leconte and *E. delia* Cramer (= *E. daira*), following his view that "there is little doubt that "jucunda" is the summer form and "daira" the winter one of a single species."

Both published lists of Mississippi butterflies included *E. jucunda*. WEED (1894) commented that it is rarer than *lisa* or *nicippe*; HUTCHINS (1933) listed it as common in late summer. Neither list mentioned *E. daira* or *E. delia*.

HOLLAND (1931) stated that both *E. jucunda* and *E. delia* are found in the "Gulf States." KLOTS (1951) gave the range of *E. दौरा दौरा* as "Florida n. to North Carolina w. to Mississippi, Arkansas, Louisiana, and Texas." In his 1948 paper he said that northern records were needed both in the eastern coastal plain and the interior. KLOTS (1951) reported that in Winter Park, Florida, he found "jucunda" regularly throughout the summer; then, in September, it became very scarce, and in October "daira" appeared and flew nearly throughout the winter. Occasional intermediate forms occurred, mostly in the fall and spring broods. GROSSBECK (1917) gave Florida records for "daira" ("*delia*") in September, October, and January; and for "jucunda" in May, September, and October. HARRIS (1950) gave Georgia records for "daira" ("*delia*") in late summer and fall, especially September and October, and also April; for "jucunda" all summer, most abundant from mid-July to mid-September. LAMBREMONT (1954) reported 26 specimens (15 ♂♂, 11 ♀♀) from Louisiana; all but three taken between 6 and 8 September 1950, the others on 5 June 1950 and 25 September 1936. He noted that the species had not previously been recorded from Louisiana but did not indicate which forms were represented.

From these accounts it might be expected that, under favorable conditions, forms of *E. दौरा दौरा* could be taken in Mississippi in every month of the year, form "jucunda" appearing in the late spring and continuing until fall, form "daira" appearing in the late summer and continuing into the spring, with intermediate forms appearing principally in spring and fall. Except for KLOT'S report of his observations at Winter Park, Florida, the reports from any one state include only scattered records through the year.

I have taken specimens at 27 localities throughout the state of Mississippi, from the Gulf Coast to the Tennessee border, thus representing a north-south cross section of most of the range of the species in this region. These specimens were taken in every month except December and January. The summer form "jucunda" has been taken from 7 April to 13 October; intermediate forms "delioides" from 28 September to 25 October; and the winter form "daira" from 16 September to 21 March. Two or all three forms have been taken flying together on nine different occasions from mid-September to mid-October, in five different years, at widely separated localities in the state including Biloxi (23 Sep. 51) and Ocean Springs (3 Oct. 53) on the Gulf Coast, Waynesboro (19 Sep. 53) in the southeast, Hattiesburg (16 Sep. 55) in the south central, Clinton (1 Oct. 50 and 5 Oct. 52) central, and Plymouth Bluff (13 Oct. 50) in the north. These data tend to confirm the expectation that further collecting should yield "daira" in January (as was found by GROSSBECK in Florida) and evidence of a "daira"-"jucunda" overlap in March-April (as is suggested by HARRIS'S report of April "daira" in Georgia.) The transition from "daira" to "jucunda" and vice versa in Mississippi seems to occur during the period in which the average temperature is changing from greater than to less than the mean annual (65°F.) or vice versa. This tends to agree with KLOTS'S (1948) comment on the work of HASKIN: "strongly suggests the likelihood of "jucunda" being a hot-season form and "daira" a cold-season form of the same species."

The underside of the hindwing of the summer form "jucunda" is white; that of the winter form "daira" is tan to reddish. Males of all forms have clearly defined broad black bars along the inner margin of the forewing above. Females of "daira" entirely lack this black bar and those of "jucunda" either lack it entirely or have it poorly defined. Both sexes of "daira" have a short dark border along the hindwing above; in "jucunda" this border is longer. Intermediate forms "delioides" have intermediate characteristics, the most apparent of which is that the underside of the hindwings is typically whitish flecked with tan.

The forewing lengths of 91 Mississippi specimens were measured and the distribution of results is given below:

forewing length, mm.	"daira"		"delioides"		"jucunda"		total
	♂ ♂	♀ ♀	♂ ♂	♀ ♀	♂ ♂	♀ ♀	
14	.	.	.	.	2	.	2
15	.	.	2	.	11	2	15
16	4	1	1	1	8	5	20
17	10	9	..	1	6	8	34
18	2	11	..	..	2	2	17
19	1	2	.	..	..	..	3
total no.:	17	23	3	2	29	17	91
average, mm.	17.0	17.6	15.3	16.5	15.9	16.6	16.6
range, mm.	16-19		15-17		14-18		14-19

HOLLAND (1931) indicated that "jucunda" is appreciably larger than "daira" and that there is no overlap in size. The data given above indicate the reverse. Since these data are derived from specimens representing successive seasonal manifestations of a single population, the relationships suggested by them are regarded as probably more accurate.

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