

GENERAL NOTES

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EUREMA DINA LEUCE (PIERIDAE) FEEDS ON A LACTIFEROUS HOSTPLANT IN EASTERN BRAZIL

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The pantropical genus *Eurema* (Pieridae) includes 37 neotropical species (DeVries 1987) whose larvae feed primarily on plants in the Fabaceae, Caesalpinaceae, and Mimosaceae (Clark & Dickson 1965, DeVries 1985, 1987, Jones & Rienks 1987, Jones et al. 1987). In contrast to most species in the genus, the larvae of *Eurema dina westwoodi* Boisduval utilize two species of *Picramnia* (Simaroubaceae) in Costa Rica (DeVries 1985, 1987), and those of *E. hecabe phoebus* Butler are reported to feed on Euphorbiaceae in Australia (Jones et al. 1987). Brown (1992) also noted that larvae of *E. elathea* Cramer occasionally feed on Apocynaceae, but stressed that this species prefers legumes.

We studied *E. dina leuce* Boisduval in an open area and along a forest edge at the Linhares Forest Reserve (19°8'S, 40°3'W), Espírito Santo, Brazil in July 1995. We observed two females ovipositing on leaves of *Mimosa laticifera* Rizzini and Mattos (Mimosaceae), a species with lactiferous leaves, a rare trait within the Leguminosae. The 2–4 pairs of large (2–3 cm diam.) leaflets of this plant present secondary venation confluent with the marginal nerve and exude droplets of latex when leaf ducts are damaged. *Mimosa laticifera* is distributed throughout eastern Brazil southward from 7°S (Barneby 1985) and occurs as a shrub (0.1–1.0 m tall) at the study site. As far as we know, this is the first documented use of a late-scented plant for a New World *Eurema*.

To test whether *E. dina leuce* showed habitat preference for oviposition, we sampled eggs and larvae on 150 plants of *M. laticifera* in an open area and on 60 additional plants along a neighboring forest edge. Oviposition site preference was evaluated using the proportion of plants with early stages of *E. dina leuce* in each area. To estimate host-plant density, we established 17 plots of 64 m² in each area and counted the number of *M. laticifera* in 5 quadrats of 0.25 m² placed systematically in each plot (one at the center and four at the corners).

We found a total of 39 eggs on the leaves of 23 of the 210 *M. laticifera* plants examined. We also encountered two first instar and two fourth instar larvae on these and two additional plants which lacked eggs. Plants with eggs averaged 17.9 cm tall (SD = 7.1, n = 23) and did not include plants in the larger size categories. Field collected eggs were white and spindle-shaped and eclosed 3.4 days (SD = 0.9, n = 14) after oviposition (data for eggs with known time of oviposition). Sixty percent of the eggs (n = 39) were on new leaves and 40% on mature leaves. Most were found singly on plants (72%) usually on the underside of leaves (87%). Eggs censused in the field showed high mortality rates: 51% of the 39 eggs disappeared before hatching and an additional 13% turned black without hatching, apparently due to parasitism.

Eurema dina leuce strongly preferred plants growing along the forest edge. As stressed by Stanton (1982), selectivity is manifested when certain resource types are utilized more often than their relative abundance would dictate. Although the density of *M. laticifera* was greater in the open area (3.8 individuals/m², SD = 1.4, n = 85) than at the forest edge (0.3 individuals/m², SD = 1.2, n = 85), only 2 of the 150 plants sampled in the open area had early stages whereas 23 of the 60 plants sampled along the forest edge harbored eggs and/or larvae ($\chi^2 = 56.4$, df = 1, P = 0.001).

Although little is known about the mechanisms of oviposition site selection in pierid butterflies, it is envisaged that females first locate appropriate habitats in which to search for host plants (Courtney 1986). Also, Pieridae frequently deposit eggs contagiously and may prefer plants growing at low densities (Root & Kareiva 1984, Courtney 1986). It seems that *E. dina leuce* females use the forest edge or some associated factor as a cue for finding host plants. The adaptive significance of this preference, if any, is unknown.

Early instar larvae of *E. dina leuce* apparently avoid latex ducts by feeding between leaf veins of *M. laticifera*. Fourth and fifth instars observed in the field chewed a notch in the rachis and waited for the latex to drip from the wound prior to feeding on a leaf. Dussourd

(1993) suggested that caterpillars that feed on lactiferous plants sever veins and cut trenches specifically to deactivate the defensive function of pressurized latex.

Although *E. hecabe phoebus*, *E. elathea*, and *E. dina westwoodi* use plants from families that characteristically produce latex (Jones et al. 1987, Brown 1992), the behavior of avoiding latex apparently has not been reported for *Eurema*. Moreover, Dussourd (1993), in a recent revision of caterpillar behavior for circumventing plant defenses, did not report any such case for pierids. This record for *E. dina leuce* suggests that complex behavior specifically directed to circumvent latex defense may evolve relatively easily even in taxa apparently unassociated with lactiferous plants during much of their evolutionary histories.

It is important to note that other legumes occurring in the study area [*Chamaecrista patellaria* Greene (Mimosaceae) and *Stylosanthes viscosa* SW (Fabaceae)] are used as host plants by *E. nise tenella* Boisdual and *E. elathea*. Also *E. albula* Cramer feeds on four species of *Senna* sp. (Caesalpinaceae) at the same locality. Why *E. dina leuce* prefers to use a host plant that produces latex deserves further investigation.

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