LIFE CYCLE OF *NEOERASTRIA CADUCA* (LEPIDOPTERA: NOCTUIDAE)[1]

DALE H. HABECK

Department of Entomology and Nematology,
University of Florida, Gainesville 32611

ABSTRACT

In laboratory rearings, larvae of *Neoerastria caduca* (Grote) completed development to the adult stage on spatterdock, *Nuphar luteum* (L.) Sibth and Smith, but larvae would not accept water hyacinth, *Eichhornia crassipes* (Mart.) Solms, or water lettuce, *Pistia stratiotes* L., as food. The egg stage lasted 4-5 days and the larval-pupal stage averaged 26 days at 25°C. Larvae had 5 instars. Moths lived up to 13 days, averaging 6. Most females mated once, some twice, and averaged 424 eggs per mated female. The maximum number of eggs laid by a female was 886.

Of the 2 noctuid species whose larvae are usually associated with spatterdock, *Nuphar luteum* (L.) Sibth & Smith, in Florida *Neoerastria caduca* (Grote) larvae feed on the leaves while larvae of *Bellura gortynoides* Walker bore into the petioles, often below the waterline.

The immature stages of *N. caduca* have been described by Kellicott (1890, 1891). Dyar (1909) described the egg and larva, and Crumb (1956) also described the larva.

Neoerastria caduca was reared to obtain further information on its life history and reproductive potential since such knowledge would be essential in any attempt to use this insect as a biological control agent against spatterdock which can be a serious weed in certain aquatic situations.

METHODS AND MATERIALS

Larvae were reared in the laboratory in 1 × 6 cm plastic disposable petri dishes. A small piece of paper toweling, moistened as needed to keep high humidity, was placed in the bottom. A small section of spatterdock leaf was provided as food. Newly eclosed larvae were placed individually into the dishes and observed daily for evidence of moulting, and to replace food, remove excrement, and moisten toweling as needed. The temperature of the room was approximately 25°C. Relative humidity was not controlled. Pupae were sexed, and as adults emerged, virgin males and females were placed together 1 pair to a 1/2 pint ice-cream carton. Each carton was covered with a glass petri-dish bottom. Longevity of adults and egg production of each female was noted from 22 pairs of moths. After death, female moths were dissected and examined for spermatophores.

RESULTS

Sixty-nine of the 100 *N. caduca* larvae reared reached the adult stage, while 4 others pupated but adults did not emerge. Eggs hatched on the 4th or

[1]Florida Agricultural Experiment Station Journal Series No. 6029.

5th day. Newly eclosed larvae fed readily on spatterdock leaves but not on water hyacinth, *Eichhornia crassipes* (Mart.) Solms, or water lettuce, *Pistia stratiotes* L. The combined larval and pupal stages required 24-31 days (average 26.06) for completion (Table 1). All larvae had 5 instars. Head capsule measurements increased from 0.29 mm for first larval instars to 2.17 mm for fifth instars.

Most females (14) mated once, while 3 mated twice and 5 did not mate. The number of eggs ranged from 0-277 (average 121) for unmated females and 0-886 (average 424) for mated females. Oviposition began on the second or third night after emergence. The average number of eggs laid was greatest on the second night and then gradually declined. The maximum number of eggs laid by a female in 1 night was 306. Oviposition continued until the twelfth night in 1 case. Moths lived an average of 6 days with a range of 1-13 days.

TABLE 1.—DURATION OF LARVAL AND PUPAL STAGES AND WIDTH OF HEAD CAPSULES OF LARVAE OF *Neoerastria caduca* (GROTE) REARED ON SPATTERDOCK. GAINESVILLE, 1972.

Stage	Days			Width Head Capsules		
	No. specimens	Range	Average	No. specimens	Range mm	Average mm
Larval						
1	92	2-6	3.22	76	.27- .30	.29
2	77	2-5	2.31	69	.44- .68	.51
3	74	2-4	2.39	72	.73-1.24	.86
4	72	2-4	2.97	73	1.28-1.64	1.41
5	72	5-8	6.13	25*	1.96-2.41	2.17
Pupal	68	8-11	9.09	--	--------	----
Larval + Pupal	68	24-31	26.06	--	--------	----

*Field-collected larvae.

ACKNOWLEDGMENTS

This research was made possible through the financial support of the Florida Department of Natural Resources and the assistance of Ms. Pat Travis.

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