

Table 1. Egg hatch and development in *Culex tarsalis* after various intervals of egg storage at 45° F prior to placing eggs in 72° F.

Age of eggs prior to storage	Storage in 45° F (days)	% egg hatch *	% of hatched larvae reaching adulthood
5-10 hrs	0	96	81
	1	97	64
	2	93	70
	3	95	65
	4	90**	25
	5	82**	2
6	0	0	
29-34 hrs	0	99	79
	1	90	70
	2	93	41
	3	36**	26
	4	51**	31
	5	0	0
6	0	0	
53-58 hrs	0	100	72
	1	96	43
	2	60	32
	3	63	35
	4	15**	9
	5	17**	23
6	0	0	

* Average of 3 egg rafts.

** Many died after hatching.

1st-instar larvae—usually 150 unless low hatch made this impossible—were reared in the normal manner. Emerging adults were counted to ascertain any evidence of adverse effects in continued development due to cold and/or the interruption in embryonation. The complete test was repeated twice using the UCB line which is a composite strain that holds some of the genotype of other laboratory colonies and consequently shows considerable hybrid vigor. Since the results were similar in the two trials, only one set of data is shown in Table 1. The percent emerged did not appear to favor 1 sex, so the adult number is not separated by sex.

From the data it appears that eggs of *C. tarsalis* may be stored at 45° F for 1 to 3 days and still give approximately 80 to 30% adults depending on several factors. The shorter the embryonation time prior to cold storage, the greater seems to be the chance for 1st-instar larvae to develop nor-

mally once a favorable temperature is restored. Similarly the length of time in a cold environment not only affects percent egg hatch but also interferes with continued development to the adult stage. There appeared to be no appreciable delay in time of egg hatch or time of development to adults once the eggs were returned to normal rearing temperature. Among the progeny surviving the hatching process, the greatest amount of mortality was seen in the late pupae stage and during emergence to the adult stage.

Adverse effects on viability and vigor of emerged adults were not determined. The holding of *C. tarsalis* eggs could possibly result with less mortality during embryonation and continued development at a slightly higher temperature than that utilized in this experiment. Changes in temperature and other variables will be considered in future tests of this kind.

THE LARVAL HABITAT OF *ECHINOHELEA LANEI* WIRTH (DIPTERA: CERATOPOGONIDAE) ¹

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Wirth (1951) described *Echinohelea lanei* from Virginia, and although it has since been collected in many eastern states, nothing is known of its breeding habitat. A single male of this species was reared from under the pupa collected by Paul G. Bystrak from under the bark of a rotting tulip poplar (*Liriodendron tulipifera*) at Odenton, Anne Arundel County, Maryland. This specimen was taken on 8 March 1970 and emerged 11 March, but the pupal exuviae was not recovered. This pupa was found in association with the larvae and pupae of *Forcipomyia* (*F.*) *simulata* Walley, on which it may possibly prey. This habitat is somewhat unusual as most of the other members of its subfamily (Ceratopogoninae) are aquatic.

Literature Cited

- Wirth, W. W. 1951. New species and records of Virginia Heleidae (Diptera). Proc. Entomol. Soc. Wash. 55:313-325.

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