Band, H.T. Dept. of Zoology, Michigan State University, E. Lansing, MI 48824. Changes in mating duration in *Chymomyza amoena* stocks over time.

Band (1995) reported that duration of copulation (DC) in *C. amoena* populations was not species specific. Laboratory populations established from flies bred from substrates collected in Virginia (acorns, apples) and from apples collected in E. Lansing, Michigan, had an average DC of 17 to 20.5 minutes. A laboratory population established from flies bred from apples collected at Iron Mountain, MI, had a significantly shorter DC, 14.7 $\pm$ 3.4 minutes. Laboratory populations established from *C. amoena* from the Maggia Valley, Canton Ticino, Switzerland, showed similar heterogeneity in DC. The stock established from flies bred from nuts had a DC of 22.0 $\pm$ 7.1 minutes, but the stock established from flies coming to bait at the same site had a significantly shorter DC, 16.0 $\pm$ 2.8 minutes. Results, however, paralleled the early reports of Wheeler (1947) and Spieth (1952) on mating duration in *C. amoena* of 14 minutes and 21 minutes, respectively.

The fact that DC was significantly shorter in one population from each of two different countries also suggested that a genetic basis for the polymorphism might exist. Data included in Band (1995) had been completed by May, 1994. It was necessary to determine that DC remained significantly more rapid in one or both stocks. Work was undertaken in October 1995 on the Swiss stock and in November and December 1995 on the Iron Mountain, MI, stock. Single pair matings were used.

Table 1. Duration of copulation (DC) observed in laboratory stocks of *Chymomyza amoena* from Iron Mountain, MI, USA and the Maggia Valley, Switzerland in Oct.-Dec. 1995. Time in minutes. Minimax values also given.

Population	N	Duration of copulation Mean $\pm$ SE	Min.	Max.	Pairs not mating
Iron Mountain	8	20.2 $\pm$ 1.9	15	32	16
Maggia Valley-B	13	18.1 $\pm$ 1.4	11	28	4

As shown in Table 1, the average DC increased in both stocks. Minimum and maximum duration has also increased from previously reported values (Band, 1995; Table 2), although only half as many matings have been scored per stock in the current trials.

There were more nonmating than mating pairs among the Iron Mountain, MI, flies. Individually, five females given new males mated; five females given new males still did not mate. Also, whereas termination of copulation and separation had been abrupt in the early work, in the later experiments individual females showed more evidence of restlessness and attempts to dislodge the male before pairs finally separated.

DC has been argued to be controlled by the male. Difficulty in separation would certainly add to the increased length in observed mating duration. Neither laboratory stock now approaches the lower DC found by Wheeler (1947) for this species, but are at or below the mean DC observed by Spieth (1952) and in other *C. amoena* populations (Band, 1995).

References: Band, H.T., 1995, Mitt. Schweiz ent. Ges. 68: 23-33; Spieth, H.T., 1952, Bull. Am. Mus. Nat. Hist. 99: 395-474; Wheeler, M.R., 1947, Univ. Texas Publ. 4720: 78-115.

Amador, A., and E. Juan. Department de Genètica, Universitat de Barcelona, Diagonal 645, 08071 Barcelona, Spain. Morphology of mouth hooks and anterior spiracles during larval development of *D. funebris*.

The characteristics used to stage larvae in *Drosophila* are the morphology of mouth parts and the presence and appearance of anterior spiracles (Bodenstein, 1950). The interspecific variability in these characteristics makes it necessary to describe them for each single species. Studies of temporal gene regulation in *D. funebris* require the exact staging of larvae along development.

Flies were allowed to lay eggs on ethanol-acetic acid agar-medium (1.4%) seeded with live yeast for 6 hours, and 10 drops of a 10% glucose solution were added daily until first instar larvae appeared. Further larval development on this medium is delayed so larvae older than two days were collected from bottles with cornmeal-sugar agar-medium previously seeded with 100 eggs. The development took place at 23°C.

Larvae hatched at about 18 hours after the eggs were laid. The mandibular hooks of first instar larvae usually had 3 teeth of uniform size (Figure 1A), although approximately 20% of individuals presented 4 teeth. The first moult occurred three days later. At this time anterior spiracles were apparent but had no papillae; hooks had doubled in size and showed 3 teeth. The second tooth was longer and sharper than the other two (Figure 1C). Two days later, the second moult took place, the size of hooks had doubled again and two big sharp teeth were observed (Figure 1D). At this time