THREE *CULEX SALINARIUS* GYNANDROMORPHS

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Gynandromorphs have been reported from at least 37 species of mosquitoes representing 11 genera (Hall 1987, Campbell and Service 1987). The mechanism of production of mosquito gynandromorphs and their possible research utility were recently reviewed by Hall (1987). Gynandromorphs are always of infrequent occurrence. Incidence data from light trap collections almost certainly underestimate true frequencies since only individuals with female heads are commonly attracted. VandeHey and Craig (1961) observed a gynandromorph frequency of about 1:7000 in most colony strains of *Aedes aegypti* (Linnaeus).

Mosquito gynandromorphs are not true sexual mosaics in the classic sense but are usually divided approximately half and half and categorized as either polar (anterior/posterior) or bilateral gynandromorphs. Seven *Culex salinarius* Coquillett gynandromorphs have been reported (Davis 1957, Meadows 1966, Roth 1948, Taylor et al. 1966). Four of these were from bait traps or light traps and as would be expected had female antennae and palps and male terminalia. The other three were from truck traps or resting stations which are considered to be non-attractive trapping methods. Two of these from resting stations had male antennae and palps and female abdomens; one had a foretarsal claw with both male and female characteristics. The specimen from the truck trap had one female antenna, one male antenna, female palps and male terminalia. A review of the literature reveals that when mosquito gynandromorphs are examined in detail most have the head of one sex, the abdomen of the other sex, and the thorax divided either bilaterally or obliquely.

This paper describes three gynandromorphs from a colony of microsporidian (*Amblyospora* sp.)-infected *Cx. salinarius*. A total of 51,000 mosquitoes were examined. The *Amblyospora* parasite produces large numbers of spores in male-host fat body and therefore selectively kills many males as fourth instars. Since approximately one half of the tissues in the gynandromorphs is genotypically male, it is reasonable to assume that some of these individuals die before reaching the adult stage. Consequently, the actual rate of gynandromorph production is probably higher.

All three gynandromorphs are basically polar with the head and abdomens of opposite sexes and the thorax split bilaterally or diagonally. One specimen has a male head with male antennae and palps and female abdomen (Fig. 1). Spermathecae are present and examination of histological sections revealed normal ovaries with development of follicles to Christophers' Stage II (Detinova 1964). In male *Culex* mosquitoes, claws of the fore- and midtarsi have a subbasal tooth while those of females are simple. In this specimen the left and right front and right midtarsal claws were typically male, and the left midtarsal claw was typically female. The left wing was slightly longer than the right suggesting that it was also female. The presumptive composition of this individual is indicated in the inset in Figure 1.

The other two gynandromorphs appear to be identical in composition. Each has a female head with female antennae and palps and a typical male abdomen with male genitalia (Fig. 2). Histological examination revealed normal testes in each individual. On the basis of the tarsal claws and wings the thoraces appeared to be split bilaterally with the left sides female and the right sides male. The presumptive composition of these individuals is indicated in the inset in Figure 2.

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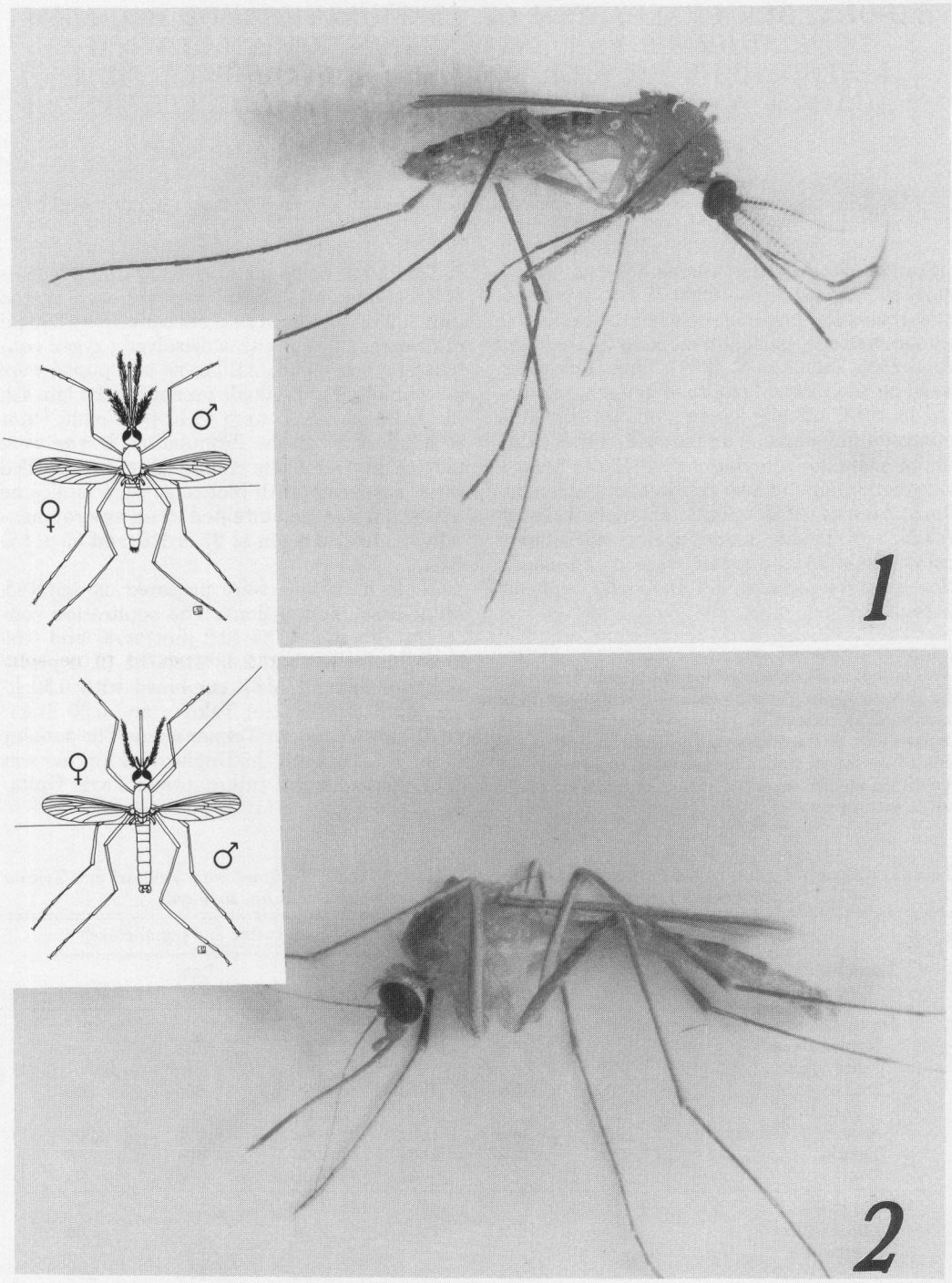

Fig. 1. Photograph and diagram (inset) of anterior male/posterior female *Culex salinarius* gynandromorph.
Fig. 2. Photograph and diagram (inset) of anterior female/posterior male *Culex salinarius* gynandromorph.