

Tachinid Flies: Butterfly Terminators

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Question:

How many queen butterfly caterpillars are infected by tachinid fly parasitoids?

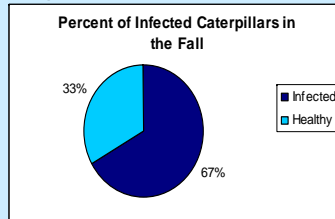
Methods:

I collected 4th and 5th instar queen butterfly (*Danaus gillippus*) larvae in November, 2004, and kept them in a plastic box. I fed them milkweed and provided other necessary maintenance. Signs of infection include lumpiness, lethargy, and a brownish coloring. If the caterpillars showed any of these symptoms I dissected them and preserved the caterpillar carcass and tachinid larvae in alcohol. I recorded the rate of infection, number of fly larvae per caterpillar, and the percent of infected and healthy caterpillars. I used the one proportion confidence method to analyze the data.



Three tachinid fly pupae.

Figure 1



Results:

More than half of the caterpillars collected were infected with tachinid flies (Figure 1). The infected caterpillars produced an average of 4.5 flies per caterpillar, with equal numbers of the infected larvae containing three or six flies (Figure 2). There is a 30 - 100% chance of a caterpillar collected from this population being infected, based on the one proportion confidence method.

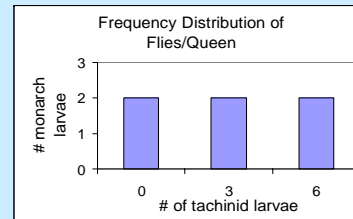


A monarch butterfly larva has been infected with tachinid flies.



A fully developed adult tachinid fly.

Figure 2



Conclusions:

I disproved my null hypothesis that queen butterfly caterpillars are not infected by tachinid flies. My specimens were collected in November of 2004, and cold weather made further collecting impossible. Because the tachinid population has been developing all year by November, the tachinid population may be larger at this time of the year, thus increasing the proportion of infected caterpillars. Two out of every three caterpillars were infected by tachinid flies. A larger sample size, and longer collection period would elucidate changes in the tachinid infection rate over time and also allow a more precise estimate of actual infection rates.

References:

- http://www.mlmp.org/results/DeathMilkweed/results_DeathMilkweedTachnid.asp. Retrieved 11/17/04.
- <http://www.monarchwatch.org/biology/pred3.htm> Retrieved 11/17/04
- <http://www.nadsdiptera.org/index.htm> Retrieved 11/17/04
- <http://www.ento.vt.edu/~sharov/PopEcol/lec10/paras.htm> Retrieved 11/17/04
- Borror and White, Insects, Peterson Field Guides, Houghton Mifflin Company, 1970