Lure Comparison for Capturing Male Culex Mosquitoes

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Avian malaria, which is mainly transmitted by Culex mosquitoes, threatens to wipe out native forest birds in Hawai'i. To prevent this, researchers want to release male mosquitoes that are lab-infected with the bacteria Wolbachia. When they mate with wild females that do not have Wolbachia or possess an incompatible strain of the bacteria, no offspring are produced. But first, a reliable method of capturing males must be found. This experiment tested the effectiveness of three lure treatments– carbon dioxide, human odor, and the two combined– in attracting male Culex mosquitoes. I located a larval mosquito habitat and set four mosquito traps around it: one using human odor, one using carbon dioxide, and two using both lures combined. Every night for seven nights the mosquitoes were collected, identified, counted, and sexed. Data was analyzed using ANOVA and two-tailed t-tests. Out of 2,669 Culex mosquitoes captured, none were male. Odor and carbon dioxide together captured the most female mosquitoes (1,198 total from one of the traps). Carbon dioxide was second (1,124), followed by the other carbon dioxide and odor trap (335), then odor (12). The findings of this experiment suggest that odor and carbon dioxide are ineffective in attracting male Culex mosquitoes. However, this research may be useful for the collection of female mosquitoes to test for the strain of Wolbachia present in the wild population. Further experiments must be conducted to identify what male Culex mosquitoes are attracted to.

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