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**Assessment of Non-target Insect Attraction to Fruit Fly (Tephritidae) Male Lures on Hawai'i and Maui Islands.** Successful integrated pest management emphasizes the use of environmentally less toxic control methods for agricultural pests. However, it is possible that some of these more desirable methods may have unanticipated non-target impacts. Field investigations were conducted to assess the possible attraction to fruit fly (Tephritidae) male lures along ecological gradients ranging from native, mixed and secondary forests to agricultural farmlands and residential areas. Traps baited with male lures (cue-lure and methyl eugenol) were maintained and emptied weekly at 35 sites along three transects on Hawai'i Island and 46 sites in native forest and in persimmon and coffee orchards on Maui Island, during the 2005 and 2006 summer seasons, respectively. Trap catches were compared to catches by unbaited control traps. Male lures failed to attract insects other than target fruit flies, except for a weak honeybee and syrphid fly attraction and fungus gnat (Sciaridae) attraction to methyl eugenol. Non-targets were abundant only in male lure traps with large accumulations of dead trapped fruit flies, giving a false impression of lure attraction. Numerous native species were collected at traps artificially baited with decaying fruit flies in native and adjacent mixed forest, but only non-native species were attracted to traps set up in invasive forest, orchards, farmlands and backyards. Traps did not attract beneficial predatory or parasitoid insects. Fruit fly lures are therefore environmentally safe when used in orchards, and their registration process is underway to make them available to fruit growers.