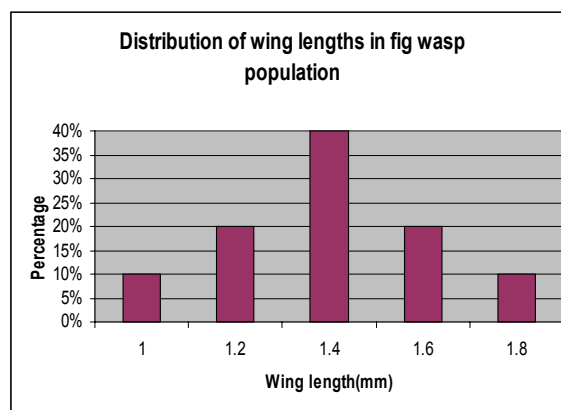


Preview Material for Exam 2 - Spring 2003

Wild figs have an elaborate pollination system involving tiny wasps that mate and lay their eggs inside fig fruits. When newly emerging juvenile wasps leave a mature fruit, they fly to other immature fruits, taking with them pollen from male flowers of one tree to pollinate female flowers from another tree. Certain species of figs cannot reproduce sexually without the appropriate fig wasp, nor can the wasps reproduce without the fig fruit in which to mate and lay eggs.

Smyrna figs, the most popular edible figs, are native to the Mediterranean, where fig wasps also reside. When Smyrna fig trees were brought to America for cultivation, the elaborate pollination system was not understood, so female trees, which actually produce the fruit, were planted without male fig trees or the presence of fig wasps. Naturally, the fig trees failed to produce fruits. Eventually, male trees and fig wasps were imported, and successful American fig cultivation began.

The distribution of wing lengths in the Mediterranean fig wasp population before a hypothetical invasion of a new predator is illustrated by the figure to the right. Smaller wings provide greater maneuverability allowing escape from predation.



Instead of using webs to capture food, jumping spiders capture their prey (various species of flies) by stalking them like a cat and then pouncing on them. Jumping spiders defend their territories against other members of their population by waving their legs, a display that usually causes the trespassing spider to run away. Recently a group of biologists investigated the protective advantage of mimicry in certain fly species that seem to imitate jumping spiders. Spider-mimicking flies have markings on their wings that look like spider legs, and when approached by jumping spiders, the flies wave their wings. The markings and behavior are quite similar to the jumping spider's territorial defense actions.

The experiment consisted of the biologists placing spiders in clear containers with flies. For one group of spiders the biologists used black dye to cover the wing markings (altered group) and the second group was left in their natural state (unaltered group). Each group consisted of 30 fly-spider pairs. Jumping spiders pounced on the altered flies more frequently than they did on unaltered flies with normal wing coloration/patterns.

Even though Wanda's and Louise's spring break trip did not involve planned trips to the beach or ski adventures, they trained for spring break with their friends by attending early morning aerobic workouts, tanning salons, and a Botox party. Botox is a dilute form of a toxin produced by the bacterium *Clostridium botulinum* that is injected into facial muscles to reduce wrinkling around the eyes and nose. Everywhere they went, they had interesting observations to make about what they had learned in BIOL 1114, and how it related to spring break preparations.