

Figs and Their Wasps

Cloudbridge Nature Reserve - Nature Notes No. 19

A False Fruit

Many people familiar with edible figs would recognize the picture at right as being that of the fig fruit, but technically it is not a fruit but a container, called a syconium, which is -- oddly -- an inside-out flower cluster. There can be up to several hundred of the tiny flowers in one syconium and the amazing thing is, we seldom get to see them. The fig may be green, purple, pink, yellow or dark brown in colour when ripe and up to 7cm in length.



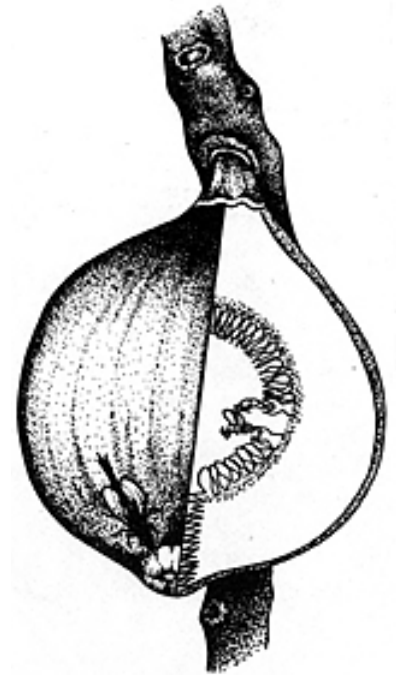
The Special Relationship

In another of these Nature Notes, we talked about the creepy way in which strangler fig trees grow. Another remarkable thing about the ficus (fig tree) is the special relationship they have with the insects that pollinate them.

Each species of fig has its own particular species of small wasp ("fig wasps," or chalcid) that pushes its way into the fig when it is still green and hard and pollinates the tree. It is only the female that does this and when she squeezes herself inside, her wings are torn off.

She then makes her way past the male flowers that are not yet mature and have no pollen. She moves further into the hollow down to the female flowers and dusts them with the pollen that she bought with her from the fig in which she grew up. The flowers can now develop. (Figs have three kinds of flowers: male, short female and long female. Female fig wasps can reach the ovaries of only the short female flowers with their ovipositors. Thus the short flowers nurture wasps, while the long flowers become seeds.)

Female wasp entering a figShe then lays her eggs in the small female flower and dies soon after. The eggs hatch and the larvae develop rapidly. The fig tree chemically detects the presence of the egg and surrounds it with plant tissue. This provides the larva, which hatches inside the fig, with enough food to grow and restart the cycle.



Until Death Do Us Part

The male wasps are born first, and emerge looking nothing like a wasp: no eyes and no wings! Yet they are soon able to detect the baby females and mate with them. Then they die. Before perishing, though, they perform one other duty – to enlarge the original entrance to a wider tunnel so that the females can exit without losing their wings. While the larvae grow inside the fig, the male flowers develop and now carry their pollen. As the female wasps squeeze past to exit the fig, they are dusted with this pollen enabling them to carry it to another green fig, where they in turn will lay their eggs.



Once the wasps have left or died, the figs ripen. The "fruit" takes on a bright color and becomes soft and succulent. The fig tree now fulfills its role as a dinner table for many fruit-eating birds and mammals. (As an added bonus, fig trees fruit all year round.) In return for providing a home and nourishment for the wasps, fig trees get pollination of their flowers, and free transport for their seeds, complete with fertilizer. Without the figs, which are rich in carbohydrates and calcium, many forest animals could not survive. Without their tiny symbiotic wasps, the figs would not ripen and the tree could not procreate, and would eventually become extinct.