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The benefits of mutualism

One of the most interesting areas of ecology is the study of relationships between plants and insects.

The study of relationships between living organisms is called symbiosis. If both benefit from the relationship, it is called mutualism. If one benefits and the other is unaffected, it is called commensalism. If one benefits and the other is hurt, it is called parasitism.

An interesting symbiotic association occurs in my backyard and in local fields each summer. Passion flowers (*Passiflora incarnata*) in one's yard are both a blessing and a curse. The blessing is that they have beautiful flowers and attract fritillary butterflies. The curse is that, like most vines, they constantly spread about, popping up everywhere.

One of the fun things about passion flowers is that they have little raised pores near the base of each leaf that exudes nectar.

Nectar is a sweet liquid that attract birds and insects to their flowers so these animals will spread pollen from plant to plant.

Since these nectar pots of the passion flower are not in the

vine's flowers, they are called "extrafloral nectaries."

One rarely finds a useless structure in nature, and extrafloral nectaries are no exception. Their sweet fluid is an attractive food source for certain species of ants. While visiting the plant for a sweet sip (the invertebrate equivalent of a drive-in daiquiri shop), the ants cleanse the vine of fungal spores, grazing insects, and other artifacts of nature that might inhibit the plant's growth.

This is a classic example of mutualism — the plant is protected and the ant obtains sustenance.

Extrafloral nectaries also are found on the common Partridge Pea (*Cassia fasciculata*), and they serve the same function to the plant.

These structures are common in the tropics, with classic examples such as Bullhorn Acacia (*Acacia cornigera*), in which the ants live in expanded bases of thorns and swarm out when anything moves the plant. Their bites and stings are effective in defending their symbiotic homes.

Do yourself a favor and look closely at plants. You will certainly see adaptations that give them protection or make them better adapted for their habitats.

— **Bob Thomas**



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Passion flowers attract butterflies, but they also can grow uncontrollably.