

Mutualism

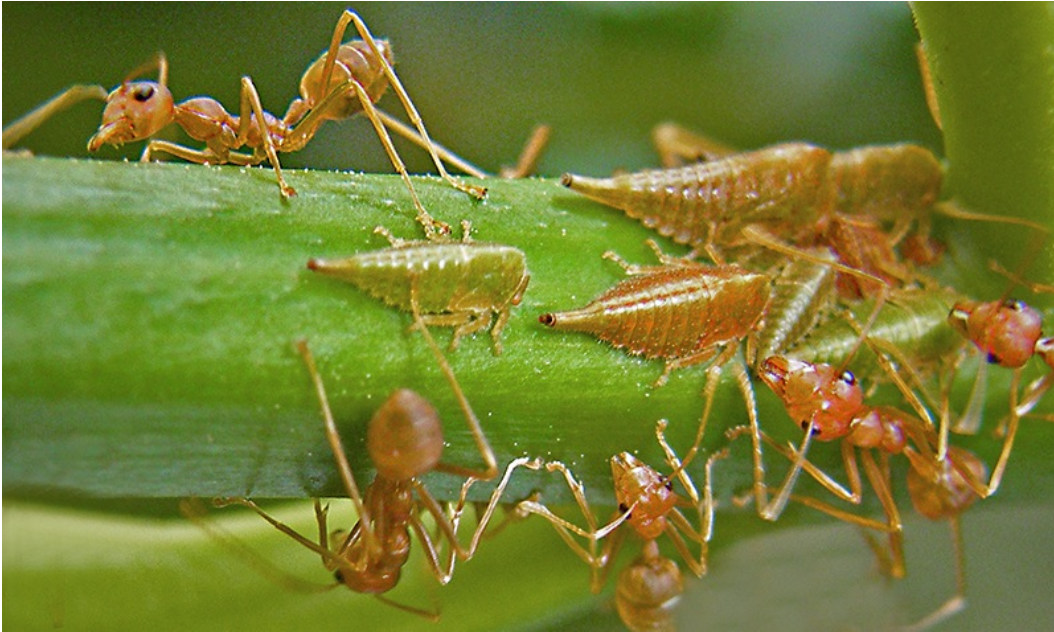
Shannon and Ian Jacobs

A symbiotic relationship links two different species that gain mutual benefit by association. For instance, one species gains resources (food) and the other gains protection from predators. The relationship is a bit like traditional sheep herding. The farmer takes wool from his sheep and the sheep, as a consequence of their value to him, are protected from wolves.

In Thailand red Weaver ants live in trees and make nests by stitching leaves together. A large colony may extend over several trees with a hundred or so individual nests.



Weaver ants are aggressive, they have nasty jaws and they bite. Anyone walking through trees here learns to watch and avoid them, as do insect predators. Most things carefully leave them alone, but there is an exception. One species of tree hopper is commonly found living happily alongside these ants.



Weaver ants (*Oecophylla smaragdina*) tending the nymphs of a tree hopper (above) and the adults (below).



The ants continue their association with the adult tree hoppers. The attraction is honey dew, an excess glucose solution that must be secreted by the insects as a result of their diet of plant sap. The ants are fed and the hoppers are protected.

Since Weaver ants are so common here and all tree hoppers and many other insects secrete honey dew you might expect the ants not to be fussy about the species they exploit but that is not the case. We have not seen these ants with six other species of tree hoppers (*Membracidae*) that we have seen and photographed, neither have we seen them with mealy bugs, lace bugs, and many other species of sap suckers in our garden.

The exception we have, is this species of scale insect that was photographed in Rayong.



Weaver ants harvesting honey dew from scale insects.

There are other sap sucking insects that benefit from this type of relationship with ants of different species.



Unidentified Psyllids in Taton on the northern border of Thailand with Myanmar. A nymph and an adult are tended by small black ants to their mutual benefit.

Like the red ants and the tree hoppers above the association is species specific. This ant is found with his Psyllid. The association has evolved over time, a very long time.