



## Don's Bug Corner

Sugar Land Garden Club member Don Johnson, an occasional contributor to the Greenleaf writing on garden insects, is a member of the Fort Bend County Master Gardeners' Entomology Group and gives talks on insects. He is also a member of the local Coastal Prairie Chapter of the Texas Master Naturalists.

### DECOMPOSERS: THE EARTH'S RECYCLERS

By Don Johnson

Gardeners, proud of the plants in their yard, feed them various nutrients to get the best result. After a time the plants die, but they still contain the nutrients. Some gardeners compost the dead matter, which becomes food for the many decomposers including worms, fungi, bacteria, insects, and other arthropods. Organisms that help break down dead plant and animal materials are called decomposers. They are nature's recyclers. All plant and animal life contain nutrients. When these organisms die, decomposers consume the matter and the nutrients are recycled through the decomposers' droppings.

Dung Beetle, photo by David Temple



Dung Beetle Larva

Ranch lands would be inundated with dung, if it were not in part for the actions of some of the 75 species of North American dung beetles. Dung beetles search out the dung of herbivores because it contains more value than that of carnivores. Apparently, the herbivores are not able to extract all of the nutrient value from their diet. Some beetles will make the dung into small balls and roll them to their underground nest where the female will lay her eggs in the dung ball, which serves as a food source for the emerging larvae. Not only is the dung a food source for the beetle larvae, it also helps to fertilize the soil. In fertilizing the soil, the dung beetle has recycled the nutrients in the meal that the original "donor" has eaten.

Forests would contain many dead and fallen trees if decomposers were not present. Fungi, bacteria, beetles and termites all have a role in recycling the nutrients in dead trees. Even the lowly cockroach helps recycle the nutrients in fallen leaves.

**Worm bin.** For several years, we have raised worms and used their castings on both indoor and outdoor plants. We wondered if the castings were good for plants, so we had them analyzed for nutritional value. The results showed that some of the castings were high in potassium and calcium. The results of two other worm bins were completely different, apparently due to differences in the diets of the worms.

Whenever we turn our compost pile, we find a number of organisms. The larvae of crane flies and beetles are usually present. Earwigs and millipedes are also common, but the most common is the isopod, the roly-poly. They all play the



Millipede



Sow bug and pill bugs - isopod



Earwig

same role - recycling nutrients. They consume the organic materials and through their droppings, they are creating the nutrients for the next generation of plants. In fact, some nutrients are recycled through several decomposers. The new soil then continues the cycle for the gardener's next project.