

Dr Cathy Car (WA Museum) – Leaf Litter Critters

Cathy came to Western Australia 25 years ago after studying in Cape Town.

She said that the role of leaf litter was to:

- Prevent the earth from baking;
- Help to retain moisture;
- Prevent erosion and
- Improve soil structure.

There are literally bucket loads of creatures in the leaf litter which help to break it down. Leaf litter starts out as sticks, leaves, seed pods and the remains of dead annuals which are eaten by the leaf litter critters who turn it into fine humus and then to soil. In turn, the plants which grow in it are eaten by the herbivores who are eaten by the predators who when they die will be eaten by the decomposers or detritivores which produce soil nutrients. The bacteria and fungi finish off the process which in turn feeds the plants providing a complete cycle which benefits everything that is part of it.

Leaf litter critters can be separated into the following groups:

- No legs – worms take decomposing matter into the soil from the surface aerating the soil with their bodies as they make their way through it;
- 1 leg – snails and there are heaps of native snails which are hermaphrodites which means that any two snails of the same type can mate;

- 6 legs – springtails – these facilitate decomposition in the leaf litter turning it into fine particles. This category also includes weevils, ants, beetles and earwigs which eat detritus and webspinners which spin silk to make the tunnels in which they live and all aerate the soil;
- 8 legs – cockroaches and there are approximately 200 species which break down leaves etc. Termites also fall into this category and have an enzyme in their mouth for breaking down cellulose hence the reason that we don't appreciate them in and around our houses. The other big category of 8-legged critters in the leaf litter are spiders such as the huntsman and wolf spiders which help keep the numbers of other creatures in the leaf litter down. There are also trapdoor and mouse spiders which makes holes in the soil and can live for up to 40 years, scorpions which use their tails to subdue their prey, mites and pseudo-scorpions in this category;
- 10 legs – include sandfleas and slaters which compost and churn leaf litter;
- Many legs - there are literally hundreds of unnamed species and Cathy has just received a grant to start the process of naming some of them. Millipedes bury down as much as 2 metres into the soil where it is damp. Native millipedes have no tails and they eat leaf litter and come in many different colours. In the Pilbara, there are 45 species of millipede which spend 11 months underground and come up to the surface for one month during the rainy season. Millipedes are widespread in Australia and many have cyanide-producing glands to deter predators. There are also centipedes in this category and they are mean predators which are flat, fast and furious.

An assortment of the above different groups means healthy leaf litter and healthy bushland. There is also a term known as Short Range Endemism which means that some species of leaf litter critters have a naturally small range of less than 10,000 km². These critters are confined to discontinuous habitats and have poor powers of dispersal which make them very vulnerable to disturbance. Because of the clearing, mining and any other activities which disturb their habitat, it puts many of these creatures into extinction or near extinction. In fact, in Pennawonica an arachnid stopped iron ore from being dug up as this would have led to its possible extinction.

So, what can you do to protect your leaf litter critters?

- Retain trees;
- Use pesticides wisely;
- Do not burn;
- Avoid trampling unnecessarily;
- Do not tidy up too much and
- Retain rocks, logs and plants that protect the leaf critters that live underneath them.