

Dung Beetles - waste not, want not!

by Sharon Roberts

The beginning of last summer was a pleasant time in our rural community. Outdoor pursuits and BBQ's were enjoyed aplenty, and then it happened. In February, bush flies descended on the valley in droves. Residents were forced to retreat behind their fly screens and forays outside were punctuated with rhythmic slapping and swatting.

One observant farmer remarked, "Did anyone else notice there were no dung beetles active in February?"

Bush flies lay their eggs in manure and when a dung beetle happens along, it scoops up these eggs in a load of dung and buries them deep underground, effectively breaking the life cycle of the fly.

Since the CSIRO imported and released beetles in Australia from Africa and Europe (1966 to 1986), dung beetles have had such a huge impact on fly populations, that al-fresco dining is now possible in southern Australian cities.

As well as this, the activities of the dung beetle have made horse riding more pleasant, thanks to less flies. They have also improved the health of our livestock as the bush fly is a vector for pink-eye (conjunctivitis) in cattle and sheep. The eggs of internal parasites are passed from the horse in manure however, their life cycle is interrupted when dung

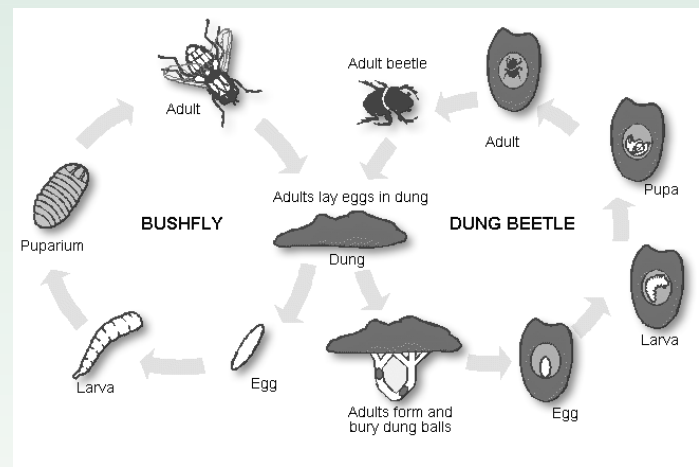
beetles are active, leading to lower worm burdens in our horses.

The benefit of dung beetles to soil structure and pasture production is monumental. Manure lying on the ground surface causes pasture pollution as horses won't eat the grass surrounding these dung pats. Even though the grasses are lush and green, they contain excess nitrates, which are toxic. Excess nutrients also wash into waterways and dams causing algae blooms, some of which are highly poisonous to stock and humans, like blue-green algae. Environmental beetles, such as the dung beetle, incorporates manure into the soil where earthworms and microbes stabilise these nutrients and make them available to plants.

Research has shown that 80 percent of the nitrogen can be saved if fresh manure is buried within four days. Dried, unburied dung, only returns 10 to 15 percent of nitrogen to the soil.

Phosphorus is another important element recycled by dung beetles. It is estimated that for every 100 head of cattle there is a potential loss of 108 kilograms of phosphorus per annum, which equates to 1.2 tonnes of superphosphate.

Dung beetles make a labyrinth of tunnels under each pile of manure as they break it down. This aerates the soil, allowing it to breath and host a



The lifecycle of the bush fly is diminished greatly by the dung beetle.

tribe of beneficial micro-organisms that further improve soil structure. To loosen up compacted soil in the short term - when dung beetles are absent - involves mechanical aeration using a tractor or dozer. For a small horse property, dung beetles are a far more economical alternative.

Another benefit is increased water penetration, especially since we live on the driest continent in the world! Try this experiment yourself. Turn over one dung pile where beetles have been active and another where they haven't. Slowly tip a bucket of water on each exposed patch of ground and time how long it takes

for the water to soak in. Unless you have a sandy soil, there will be a marked difference. The water will disappear very quickly into the beetle tunnels, but if your soil is heavily compacted, it will probably just run off the untouched ground.

If you keep horses in a paddock, there are many benefits to be gained from dung beetles. The next article in this series will look at how to encourage dung beetles to take up permanent residency on your property so that you can make the most of nature's little workers. 🌱