

There are two ways to establish a new dung beetle species:

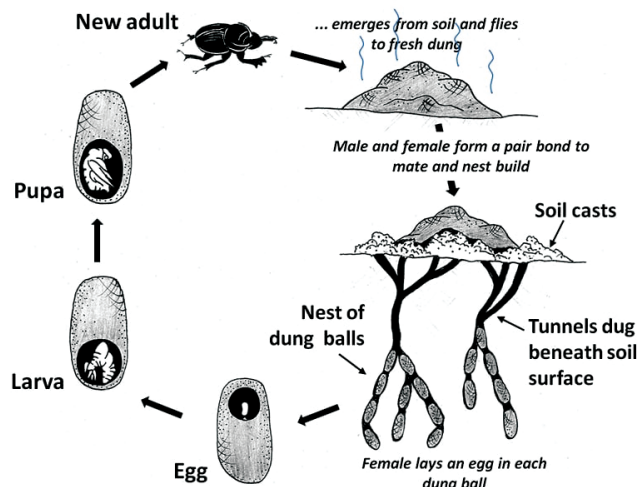
Paddock Release Involves collecting at least 1000 beetles for each release site and dropping them onto fresh dung in a stocked paddock. There are enough beetles to breed and start a new population. If the beetles are successful, they should increase in numbers over the next few years. Farmers can sit back and relax while the beetles get busy!

Establishing a Beetle Nursery Uses fewer beetles (generally 100 per nursery). The beetles are held in a small, covered area, and fed fresh dung every 5-7 days while the first generation of beetles lay eggs in the soil below the enclosure. The following year, feeding starts again at the beginning of that species' activity period and continues for several weeks until there are likely some new eggs laid in the enclosure for the following year. Adult beetles are then released to begin establishing a population on the farm or trapped for re-location to another nursery. The process is repeated the next year. More work for farmers – but a great way to make a few beetles go a long way.



Dung beetles are fed in nurseries until there are enough beetles to release.

Lifecycle of a dung beetle



Scan for more information on Dung Beetles
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A collaborative effort to maximise the benefits of dung beetles for livestock producers.



DUNG BEETLE BASICS

DUNG BEETLES Dung beetles can improve our soils, pastures and livestock health – not to mention keeping nutrients on farms and out of waterways; and reducing numbers of the dreaded flies!

By rapidly burying dung, beetles can boost nutrient incorporation into the rhizosphere. Dung also contains a whole pile of goodies naturally intended to sustain pasture production: fungal spores, enzymes, seeds and plant growth promoting hormones, to name a few. Tunnelling can improve both soil fertility and structure – aerating the soil, improving water infiltration, and helping roots penetrate deeper.



Farmer Ryan Binks releasing dung beetles in his sheep paddock

BEETLE BASICS Dung beetles come in many shapes, sizes, colours and behaviours. There are over 5000 species of dung beetle worldwide. In Australia, our native beetles are adapted to dry marsupial dung, and can't deal with the millions of tonnes of dung produced by Australian cattle and sheep each year. Since the 1960s, imported dung beetles have been working to bury livestock dung – improving our soils and waterways in the process.

In south west WA, we have several well established dung beetle species that are active in different seasons. In summer, we have beetles like *Onthophagus taurus* – this species flies during the day, breeds rapidly and produce multiple generations in a summer. They tunnel up to 25cm deep. In winter, we have larger beetles like *Bubas bison* which fly at dusk and dawn, tunnel much deeper (up to 60cm) and have only one generation per year.



Photos courtesy Russell Barrow

We are working towards having dung beetles working on our farms all year round – to achieve this, we need more beetle species. In recent years, we have worked with farmers to release colonies and establish nurseries of several new dung beetle species including *Bubas bubalus*, *Copris hispanus*, *Digitonthophagus gazella* and *Sisyphus rubrus*.

These beetles have been placed in strategic locations across south west WA. If these new species survive and reproduce at the selected sites, we can be confident they are suited to local conditions. We can then work towards releasing further colonies to boost beetle activity on more farms. There are many reasons why a species may not succeed in becoming locally established – soil type, climate, pesticides and predators are a few possibilities.



WICC'S Kylie Cook releasing winter beetles with Matilda and William Taylor on their farm.

PROTECT YOUR BEETLES Dung beetles are great little helpers to have on your farm – you probably already have some improving your soil and pastures. Did you know they can also benefit your livestock's health directly? Removing dung from the soil's surface interrupts parasites' life cycle and reduces the need to drench and backline.

Some drench, backline and tick treatments are known to harm beetles. Changing product, or timing applications to avoid the dung beetles' feeding frenzy when they first emerge for the season, could help beetle thrive on your farm.

BEETLE FRIENDLY PRODUCTS Some products have been tested to prove they are dung beetle friendly. Most haven't, but we have information about how the ingredient is used in the animal's body which gives us a best guess for whether beetles will be affected. Some active ingredients are removed from the animal's body in the urine, some in the dung. Those found in the dung are much more likely to affect dung beetles.

Scan here for more information on managing beetles on your farm, and how various products can affect beetles:

SCAN HERE



WHAT ABOUT INSECTICIDE PASTURE SPRAYS? Insecticide sprays applied to pastures can also harm dung beetles, but their exposure can be minimised by considering the beetles' life cycles before spraying. Keeping livestock out of treated paddocks both before and after insecticide application may help reduce dung beetle exposure. Currently, there is no research indicating when it is safe for dung beetles to return to paddocks after insecticide use.



Copris hispanus:
active autumn to late spring



Geotrupes spiniger:
active early spring to early winter

HOW DO I GET MORE BEETLES? Firstly consider beetle-friendly farming practices to boost existing beetle numbers on your farm. New species also need to be suited to your local area. If other farmers near you have a dung beetle that's doing well, it will most likely be suited to your farm too. Beetles can fly well, so they will spread on their own, but we can speed up this process by moving them around. For species that are completely new to your area, we recommend talking to your local landcare group.



Bev and Roger Seeney release winter beetles on their cattle farm