FACTSHEET

Dung Beetles

Dung beetles are insects that utilise animal dung for feeding and reproduction. They are broadly categorised into three functional groups based on their nesting behaviour.

- **Tunnelers:** bury dung in tunnels beneath or beside dung pats.
- **Dwellers**: live and breed within the dung pat itself.
- **Rollers:** form dung balls and roll them away for burial (rollers are not found in Victoria).

Dung beetles are capable of travelling significant distances of up to 4 km per day in search of suitable dung sources. Several dung beetle genera are commonly found locally, each with distinct physical characteristics. Native dung beetles, particularly *Onthophagus australis* and *Onthophagus mniszechi*, are incredibly valuable for recycling livestock dung, rapidly burying and breaking it down to improve soil health, reduce pest flies, and return nutrients to the pasture.

Genus found in the Corangamite Catchment

Euoniticellus: Small, elongated beetles (7-13mm) with a light brown, speckled appearance.

Onitis: Large, smooth-bodied beetles (13-25mm) without pronotal projections or horns.

Bubas: Medium-sized, black beetles (13-19mm) with males exhibiting a pronotal projection and two head horns.

Onthophagus: Medium-sized (8-18mm), rounded beetles; some species have pronotal ridges or projections and some possess horns.

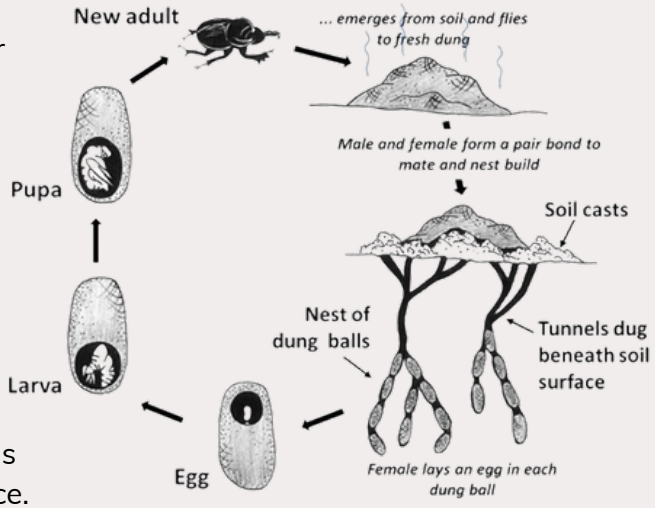
Life Cycle

Egg stage: Females lay eggs within dung balls crafted from fresh dung, providing nourishment and protection for developing larvae.

Larval stage: Larvae feed on the dung ball, growing and moulting over several weeks to months depending on environmental conditions and species.

Pupal stage: Larvae form a hardened pupal cell using soil and dung. Inside this chamber, transformation into the adult beetle occurs.

Adult stage: The adult emerges from the pupa and tunnels through the soil to the surface, ready to feed and reproduce.



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On-farm benefits

Improved nutrient cycling- Research shows dung burial can reduce nitrogen loss from 80% to 20%, delivering nutrients into the root zone and boosting pasture productivity while also moving carbon into the soil to support long-term carbon storage and lower emissions.

Enhanced soil structure- Dung beetles can dig through compact soils allowing plants to send their roots deeper into the soil profile.

Increased microbial activity- By gradually cultivating soil to the depth of their burrows, dung beetles create ideal conditions for beneficial microbial processes.

I**mproved water infiltration-** Dung beetle burrows provide an entryway for increased rain penetration and groundwater retention, therefore helping to reduce run-off of chemicals or organic matter.

Reduced fly populations and parasite loads- Removal of dung from paddocks disrupts breeding sites for pest flies and parasitic nematodes, reducing bush fly populations by up to 99%, as found in a CSIRO study.

More usable grazing area- By removing and burying dung, beetles free up more clean, accessible pasture for livestock.

Factors affecting dung beetle development

Soil disturbance

Movement of livestock

Chemical use & drenching

Best-practice strategies for conserving dung beetles:

- Identify the dung beetle species on your property to understand their activity periods and burrowing depths, and keep soil disturbance above these depths.
- Allow around seven days before undertaking ground-disturbing activities so dung beetles have time to follow livestock when animals are moved between paddocks.
- Avoid drenching all animals at once so clean, residue-free dung remains available; or use a quarantine paddock after drenching to allow chemicals to clear the animals' system; or schedule drenching outside peak dung beetle activity periods to minimise impacts.

***Disclaimer**: These strategies describe best practice for dung beetle conservation only and are not intended as animal husbandry recommendations. Livestock health and practical management needs may not always align with optimal outcomes for dung beetles.*

***Photo credit:** Dung Beetle Ecosystem Engineers*

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