



Media Release

25 September 2013

Southland to Host First Release of Dung Beetles

Some 500 Dung Beetles will be released onto an organic dairy farm near Gore this week (Thursday 26 September).

The release is the first one for the Dung Beetle Release Strategy Group (DBRSG), which has plans for more releases onto farms in other parts of the country.

It is estimated that animal dung covers 700,000ha of pastoral land in New Zealand. Dung beetles use the faeces of animals for food and reproduction, eventually breaking it down into a sawdust-like material. The process not only gets rid of the dung, it also improves soil health and pasture productivity, reduces water and nutrient runoff, and has been shown to reduce parasitic infection in livestock.

Environment Southland was one of only a few regional councils to invest in the DBRSG project from the outset. Environment Southland Biosecurity Manager Richard Bowman said Environment Southland already had a lot of experience with the biological control of weeds so it was a logical step to use a biological method to help improve soil and water quality. "While this is new, the principle is well established," he said.

The DBRSG gained permission to import and release the 11 species of beetles from the Environmental Risk Management Authority (now EPA) in February 2011. The beetles were initially held in containment at Landcare Research where they underwent a comprehensive approval process, which included disease clearance by the Ministry for Primary Industries. Since then they have been mass reared at both Landcare Researches campuses in Lincoln and Tamaki. Some caged field trials have also been undertaken and a technical advisory group oversaw additional research, which also supported the introduction of the dung beetles.

DBRSG Project Manager Andrew Barber said the release will mark the end of a long process to get the beetles introduced. It is an extremely exciting step in improving New Zealand's agricultural performance.

"I truly believe that dung beetles have the potential to transform New Zealand's pastoral-based agricultural system. More production at a lower environmental cost, it is a terrific story. I foresee a time when our grandchildren will not believe that paddocks were once covered with dung."

Representatives from the DBRSG, Landcare Research and Environment Southland will release two species of dung beetle onto the Southland farm: *Onthophagus taurus* and *Onthophagus binodius*.

What Dung Beetles Do

Dung beetles search out the faeces of animals which they use for food and reproduction. The species being introduced to New Zealand make tunnels in the soil beneath the faeces which they then bury to lay eggs in. As the eggs hatch the grubs feed on the dung so they

break it down and eventually turn it into a sawdust-like material that adds to the fertility of the soil structure while all the time getting rid of dung sitting on top of the ground.

Remaining dung is utilised by earthworms and microorganisms in the soil that make the nutrients available for uptake by grass roots. Buried dung has been shown to increase earthworm numbers, increase soil fertility, improved soil structure, and increase the depth at which grass roots grow. Consequently grass becomes more drought tolerant. At the same time dung beetles get rid of dung sitting on top of the pasture reducing forage foul and forage avoidance around repugnant dung.

While dung decomposes naturally, intensive farming means large amounts of dung are dropped, which can lead to environmental problems such as leaching of nutrients into waterways and reduced pasture production because of increased forage fouling.

Dung beetles have many environmental and economic benefits:

- Improved soil health and reduced runoff. Increased aeration and water penetration into the soil through beetle tunnels reduces urine and liquid dung runoff, reducing microbial contamination, leachate pollution, and eutrophication of waterways;
- Greater pasture productivity. Stock will not graze around dung pats, reducing pasture productivity and burial of nutritious manure by dung beetles enhances grass growth, reducing reliance on fertiliser inputs. Solid fertiliser is one of the biggest working expenses on most livestock farms;
- Reduced fly pests and human disease. Nuisance flies breed in dung but are outcompeted for resources by fast dung burying beetles.
- Reduced infection by parasitic worms of livestock. Dung burial, feeding and manipulation by dung beetles can reduce the infective stages of parasitic worms of livestock. This would reduce the reliance on drenching stock in the longer term as dung beetle populations grow.

New Zealand has some native dung beetles but they are not adapted to living in open modified habitats such as livestock pastures. A tropical species *Copris insertus* was introduced to New Zealand in 1956, but is restricted to the north of the country due to climate limitations. Two accidentally introduced Australian *Onthophagus* species are widespread, but have limited impact, because they are small beetles that bury less dung and do not build up high population densities.

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- For more information please visit the DBRSG's website www.dungbeetle.org.nz
- Images available on request

RELEASE DETAILS

WHERE: 651 Wyndham Road, Gore

WHEN: Thursday 26 September 2013 at noon

REASON: First Release of Dung Beetles

PRESENT: Landowners: Robin and Lois Greer; DBRSG: Chairman, John Pearce; Landcare Research: Scientist, Shaun Forgie, Lynley Hayes; Environment Southland: Senior Biosecurity Officer, Randall Milne.

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