

Dung beetles for the Doubtless Bay Catchment

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Why introduce dung beetles?

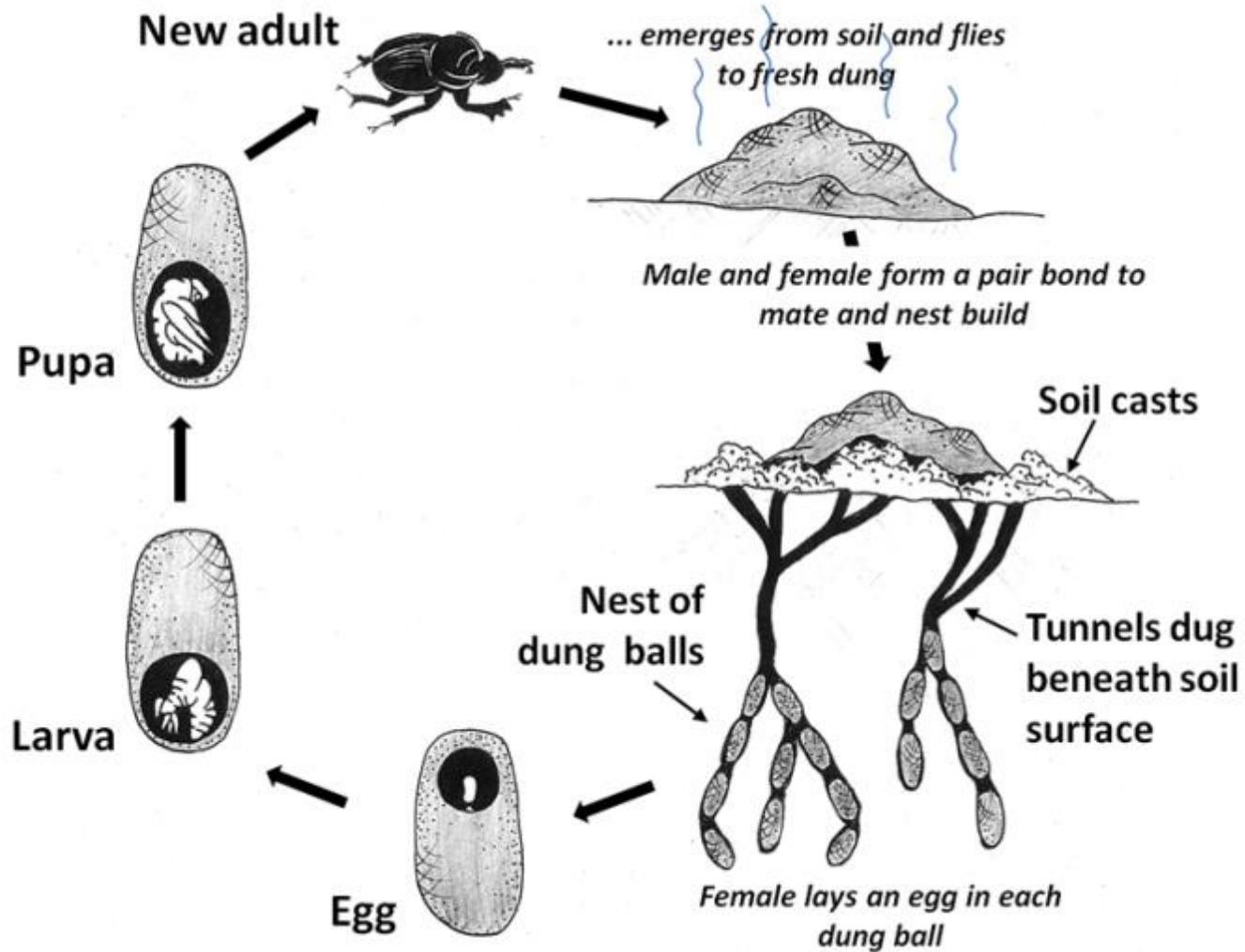
- The amount of excreta produced by grazing animals in New Zealand is calculated to be the equivalent of a human population of 250-300 million.
- Cattle alone produce an estimated 241,250 tonnes of dung each day from 135 million cattle pads.
- Dairy and beef cattle dung pads cover up to 870 ha of pasture each day
- Dung can remain on pasture for 2-4 months and 5% of pasture can be affected at any one time.
- Leaving a cattle dung pad on pasture for 15 days kills 75% of grass tillers under the patch.
- Up to 80% of nitrogen can be lost through evaporation.
- Pasture surrounding dung pads is rejected by stock. After three grazings dung affected herbage is still 2.5 times higher than surrounding pasture.

Dung beetles

- Only feed on dung
- Don't feed on plant roots
- Don't enter the bush where our native dung beetles live
- Increase earthworm numbers by making dung available deep in the soil in the summer months



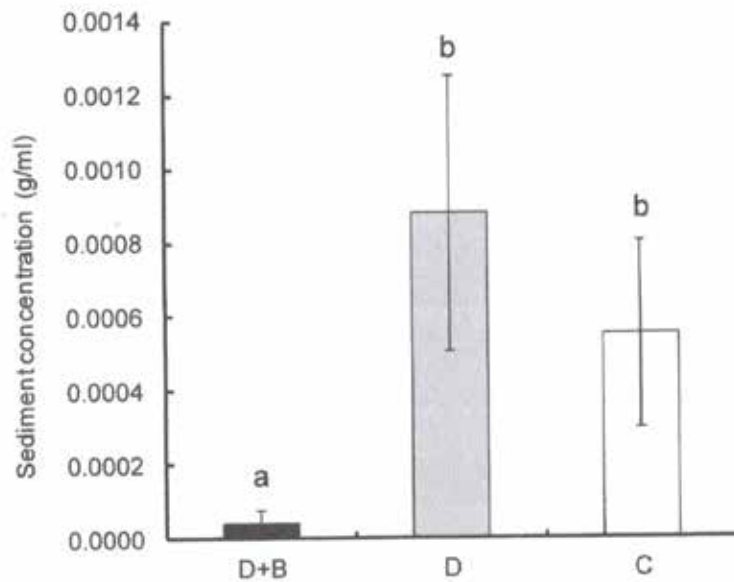
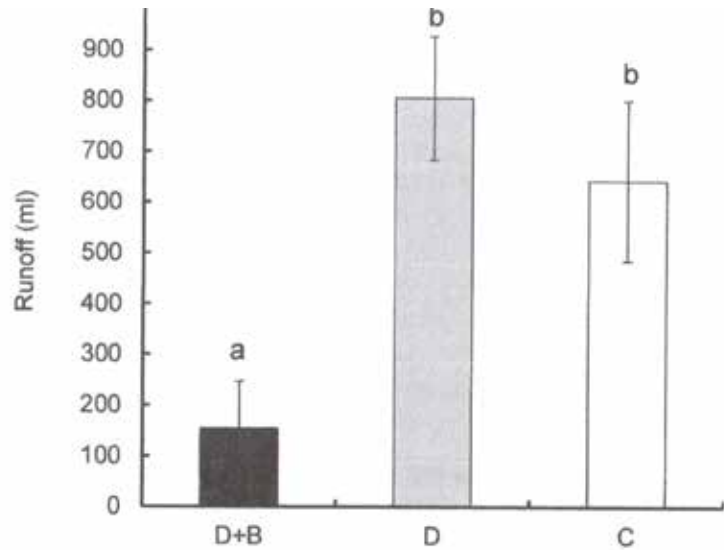
Dung beetle life cycle



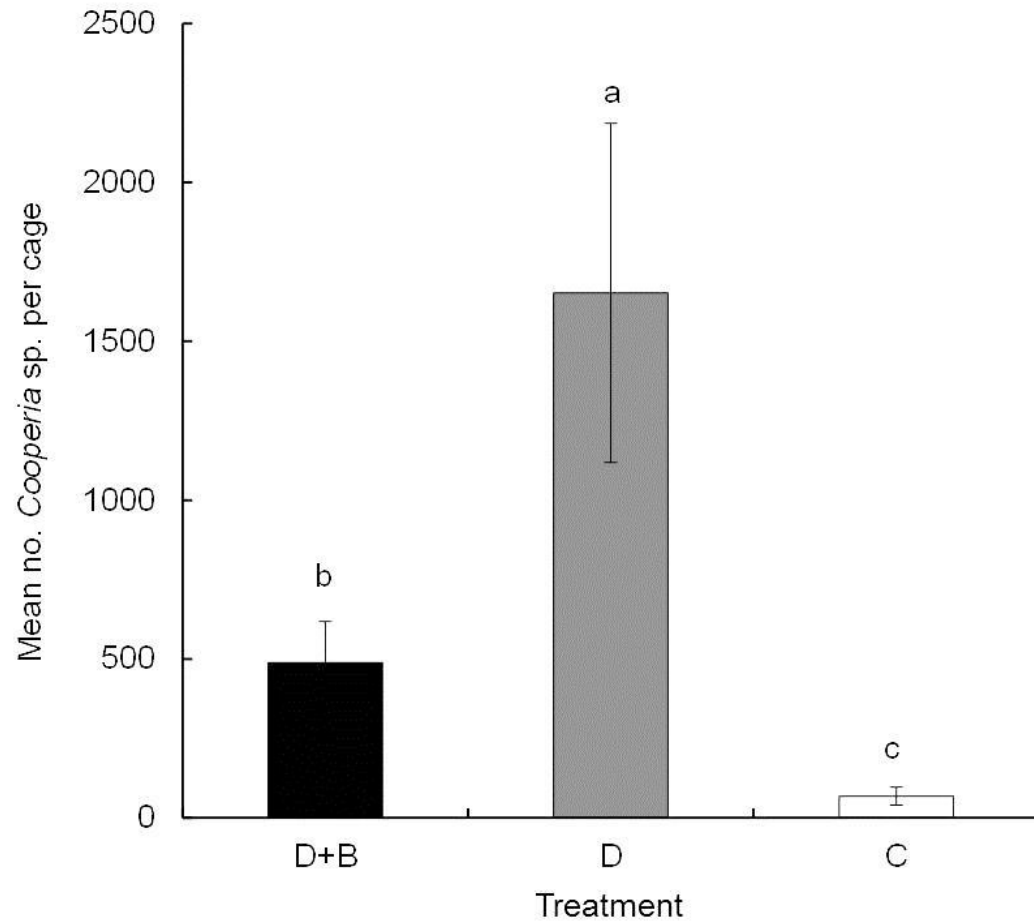
Benefits of dung beetles

- reduction in the area of pasture covered by dung
- decrease in parasitic worm load on pasture by 80-90%
- reduction in parasitic worm ingestion
- increase in nutrient cycling
- reduction in nitrogen loss from dung
- increase in water penetration and retention
- improvement in soil aeration
- reduction in fly numbers
- reduction in faecal contamination of waterways

Reduced water and sediment runoff



Effect on nematodes



3 Releases of dung beetles in Doubtless Bay

1) *Digonthophagus gazella* – Rangiputa Station

100 beetles – 22 Jan 2014

2) *Onthophagus binodis* – Paranui Rd

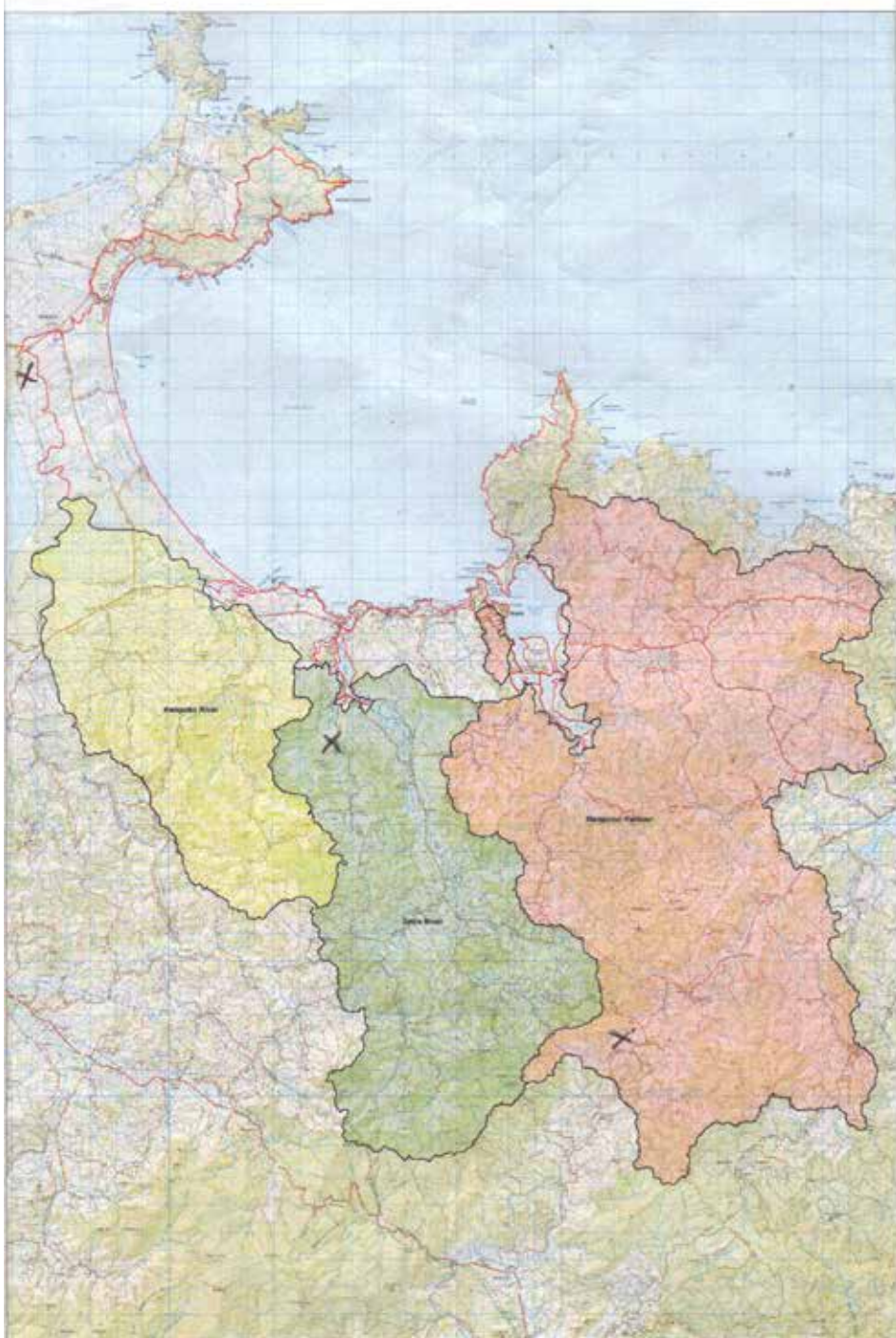
200 beetles – 13 March 2014

3) *Onthophagus binodis* –

Otangaroa 250 beetles

20 March 2014





Frequently asked Questions

- How will DBs affect Native dung beetles?
- How will they affect Earthworms?
- Will they transmit disease? The Ministry of Health commissioned the Institute of Environmental Science and Research (ESR) to undertake a human health risk assessment.

“Essentially our findings agree with the public health adage that it is better to bury faeces than leave them on the surface.” Bury dung out of reach of flies which can spread human diseases

- What drenches are compatible?

Harmful = most macrocyclic lactones (MLs) particularly for the first 1-2 weeks after application. Eg. abamectin, ivermectin

DB friendly = moxidectins, (also part of the ML family), clear drenches (Levamisoles), white drenches (Benzimidazoles).

Plans for Doubtless Bay Catchment

- Top up existing releases with a further releases of at least 200 dung beetles at each of the 3 sites.
- Monitor the 3 release sites by using pitfall traps, soil core sampling, caging dung pads to catch emerging dung beetle
- Establish a rearing colony of dung beetles

WELCOME TO THE DUNG BEETLE CAFÉ. TODAY'S
CATCH OF THE DAY IS - UHH... LOOKS L'KE ZEBRA.

SCOTT
HILGURN

