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## Mole Rats Promote Biodiversity

Mole rats may not be pretty, but their mounds of dirt are crucial for biodiversity

By Anne-Marie Hodge | Friday, December 14, 2012 | 2 comments

See Inside

Mole rats—known for their small eyes, grublike bodies and sometimes naked skin—mostly live underground. Yet they seem to dramatically affect aboveground ecological processes. A recent report in the *Journal of Zoology* showed that the burrowing activity of mole rats strongly influences the composition of plant communities in one of Africa's biodiversity hotspots, the Cape fynbos region in South Africa.

In the process of excavating their burrows, mole rats churn soil together with vegetation, uneaten food, and their own urine and feces. They then eject this blend of organic and inorganic matter from their burrow, forming characteristic mounds.

Scientists at the University of Pretoria found that mound soil was a lush nutrient resource for plants. It had high concentrations of nitrogen, magnesium, potassium, sodium and calcium, relative to control samples. The disturbed soil was also made of finer particles, as if an expert gardener had aerated it and primed it to retain a maximum amount of water.

Plants cannot pass up a good mineral hotspot, and scientists found that mole rats significantly boosted plant diversity on their mounds—perhaps by uprooting or burying common plants and allowing new ones the opportunity to colonize the site. Yet the total amount of plant material—the “plant biomass”—actually *decreased* on mound sites. Both mole rats and cattle prefer to graze in areas with enriched soil, which can limit the biomass of even the lushest carpet of plants. Also, the rodents sometimes bury living vegetation with soil when they eject refuse from their burrows, effectively removing those plants from the biomass tally.

The study is a reminder that animals can affect their environments in unexpected ways and that extinctions could have consequences no one has predicted.

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