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## Wombats in the Dust

**Author:** Walker, Faith

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**Abstract (Abstract):** The worries of wombats are not theirs alone; an extinction wave is sweeping the Australian continent. This is largely due to habitat alteration. When Europeans arrived 200 years ago, ten percent of Australia was forested and 23 percent wooded. Now 75 percent of rainforests and 35 percent of woodlands have been cleared. Tax incentives for clearing were removed only in 1983. In addition to English ideas of land-use, Europeans sailed with alien flora and fauna on their ark. Mammalian exotics include pig, buffalo, goat, horse, camel, rabbit, fox, cat, dog, and the ubiquitous sheep and cow. Grazing is the main land use for over 60 percent of Australia, amounting to approximately 50 million sheep and 15 million cattle (twice the number of humans). Two-thirds of Australia is arid and semi-arid; half of this is grazed.

The results of land-use practices in arid Australia are particularly dramatic because of a suite of environmental characteristics. The Australian continent is ancient (around 500 million years old) and very poor in nutrients. Sporadic heavy rains lead to a high degree of soil sorting. Phosphorous and nitrogen levels are less than half of that of other deserts around the globe and tend to be in the upper five to ten centimeters of soil. This contrasts with that of the much younger North American deserts where nutrients are deeper and thus more protected against erosion. The result in arid Australia is abrupt changes in soil type. Run-on areas are high and runoff areas low in nutrients and soil moisture content. The flatness of the landscape, which appears strikingly homogenous to human observers, actually contributes to the fine mosaic of differentiated soil and, in turn, vegetation type. Thus, soils are more prone to erosion and the spatially complex habitats are more vulnerable to disruption from land-use than we would think.

**Links:** [Get it at Duke](#)

**Full text:** "Ashes to ashes, dust to dust," our proverbial blessing, our invocation of species death, rings loudly in the ears of Australia's bushland marsupials. For the northern hairy-nosed wombat (*Lasiorhinus krefftii*), as for many marsupials, the combination of a fragile, arid ecosystem, land alterations by Europeans, ignorance of basic biology, and a lack of conservation efforts, has led the species towards extinction.

The northern hairy-nosed wombat is one of the most endangered mammals in the world, with approximately seventy individuals comprising a single population in Epping Forest, Queensland. This population increased from its 1981 size of 20-30 individuals as a result of cattle exclusion. An underfunded project is underway to monitor the population by running genetic profiles on hairs left at burrow entrances, and to understand feeding ecology and population biology. Conservation efforts, however, are hampered by a slow, rain-dependent reproductive rate, and increased extinction risk due to genetic bottleneck.

The southern hairy-nosed wombat *Lasiorhinus latifrons* inhabits southern Australia. Although this species suffers from severe habitat loss, it is not yet endangered. The common wombat *Vombatus ursinus*, has a wide distribution across eastern Australia and Tasmania.

Wombats, 40 pound marsupials whose closest relative is the koala, are unique in that they form clusters of burrows, called warrens, despite active avoidance of each other (kinda like you city folk). Study of the behavioral and evolutionary basis of this as well as other key conservation parameters is difficult because, like typical marsupials, they are nocturnal. And mysterious. The only humans lucky enough to see them are Aborigines who hunt them for food and farmers/ranchers who knock them off to placate wombat nightmares. Wombats allegedly bulldoze their way through fences and build leg-breaking booby traps for cattle. (All this is hearsay. Each wombat acts individually, is not responsible for the actions of others, and is not affiliated with any

environmental group.)

The worries of wombats are not theirs alone; an extinction wave is sweeping the Australian continent. This is largely due to habitat alteration. When Europeans arrived 200 years ago, ten percent of Australia was forested and 23 percent wooded. Now 75 percent of rainforests and 35 percent of woodlands have been cleared. Tax incentives for clearing were removed only in 1983. In addition to English ideas of land-use, Europeans sailed with alien flora and fauna on their ark. Mammalian exotics include pig, buffalo, goat, horse, camel, rabbit, fox, cat, dog, and the ubiquitous sheep and cow. Grazing is the main land use for over 60 percent of Australia, amounting to approximately 50 million sheep and 15 million cattle (twice the number of humans). Two-thirds of Australia is arid and semi-arid; half of this is grazed.

Rabbits are some of the Marsupial herbivores' most serious competitors. Despite a nationwide, non-native rabbit and domestic cat eradication program including "Bilbies Not Bunnies" groups and public education with chocolate "Easter Bilbies," the rabbits keep multiplying like, well, rabbits. [Bilbie is the colloquial term for wombats.] Introduced carnivores, such as domestic cats, have had a field day munching native species because marsupials have evolved with few predators. "Best Cat is a Flat Cat" is a popular local slogan. Land-use practices over the last 200 years have resulted in habitat loss and habitat alteration such as changes in soil salinity, topsoil loss through wind erosion, nutrient depletion, acidification, and soil structural decline. One-fifth of Australia suffers from human-induced soil salinity which in some areas is forcing farmers and ranchers to abandon their land and leases. Other alterations are changes in plant and animal communities due to the invasion of exotics. A third type of alteration is a function of different fire regimes. The small burns that were employed by Aborigines have been replaced by large and infrequent lightning-caused fires. This, supplemented by grazing, has made the fine mosaic of plant communities that comprise arid and semi-arid areas more homogenous because ephemeral plant establishment and nutrient-cycling are inhibited; perennial vegetation predominates until the next rare fire.

The results of land-use practices in arid Australia are particularly dramatic because of a suite of environmental characteristics. The Australian continent is ancient (around 500 million years old) and very poor in nutrients. Sporadic heavy rains lead to a high degree of soil sorting. Phosphorous and nitrogen levels are less than half of that of other deserts around the globe and tend to be in the upper five to ten centimeters of soil. This contrasts with that of the much younger North American deserts where nutrients are deeper and thus more protected against erosion. The result in arid Australia is abrupt changes in soil type. Run-on areas are high and runoff areas low in nutrients and soil moisture content. The flatness of the landscape, which appears strikingly homogenous to human observers, actually contributes to the fine mosaic of differentiated soil and, in turn, vegetation type. Thus, soils are more prone to erosion and the spatially complex habitats are more vulnerable to disruption from land-use than we would think.

Even in pre-European times, extinction of native mammal populations was likely due to characteristic severe droughts. Presently, suitable habitats for marsupials are few due to human land use, and what habitat does remain is recolonized by stock and rabbits en masse following drought. Therefore, there are increasingly fewer habitat patches with native species after each severe drought because the distance between patches is greater than dispersal capabilities and because suitable patches are overrun by invaders.

Diane Fossey provided much of the early behavioral data on primates. Such non-invasive study is needed for many of Australia's bushland marsupials. May the wombat remain dweller of Castles-in-the-Earth and with secretive devilry be the one marsupial species to undoubtedly outlast the human primate.

Wombat Combat:

Native Forest Network, c/o 112 Emu Bay Rd., Deloraine, Tasmania 7304

Rainforest Action Center, PO Box 368, Lismore, NSW 2480

Friends of the Earth, 222 Brunswick St., Melbourne 3001

Australian Mammal Society, Dr. K. Sanderson, Secretary, Biological Sciences, Flinders University, Bedford

Park, South Australia 5042

Australian Conservation Foundation, 340 Gore St., Fitzroy, Victoria 3065

The Wilderness Society, c/o 97 Albert St., Brisbane City, Queensland 4000

Faith Walker, wombiologist, has dedicated her life to the "furry little bulldozers."

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