AUSTRALIA

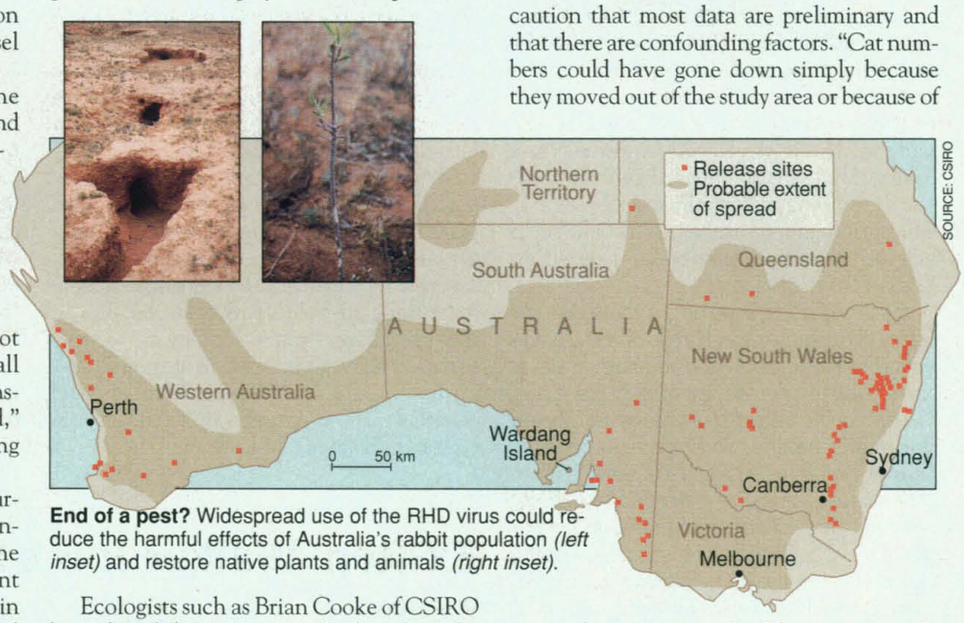
Wide Use of Rabbit Virus Is Good News for Native Species

CANBERRA, AUSTRALIA—It kills, it doesn't appear to jump species, and, best of all, it is already clearing the way for a return of native plants and animals. In other words, rabbit hemorrhagic disease (RHD) virus—so far—is working exactly as Australian animal-control and health officials hoped when they released the deadly agent last year in a controversial effort to combat a plague of European rabbits. In the past few months, ecologists have begun to document a rejuvenation of species ranging from the showy groundsel shrub to the western gray kangaroo.

"We're seeing plant species in the Flinders Ranges that have not been around for 70 years," says Nicholas Newland, recently retired head of the nationwide rabbit eradication test program. Ecologist Greg Mutze, in the midst of a 4-year study for the Animal and Plant Control Commission of South Australia of the impact of rabbits on the Flinders park, agrees that the environmental changes are impressive, if not always elegant. "It used to be that 85% of all dung came from rabbits, which roughly translates into 85% of all vegetation consumed," he says. "Now, 60% of all dung is coming from kangaroos."

The virus is aimed at eliminating a current scourge of 300 million rabbits, descendants of a dozen that were brought to the continent in the 1840s. (The government scored a temporary victory over the rabbits in the 1950s using another biological control agent, myxomatosis virus, which lost its punch over time.) In the fall of 1995, a controlled experiment of the potency and safety of the RHD virus went awry when something—most likely mosquitoes and bush flies, say government investigators—spread the virus beyond an uninhabited island off the country's southern coast. The incident evoked fears that it might spread to other species, including humans (*Science*, 12 April 1996, p. 191). After additional tests failed to find any evidence of such a threat, the government sanctioned controlled release of the virus in Wagga Wagga, New South Wales, on 9 October. Since then, the virus has been released in hundreds of locations across the country.

The control program has turned out to be a continentwide ecological experiment in what happens to interconnected species when one major population abruptly changes. Tony Robinson, senior virologist at the Commonwealth Scientific and Industrial Research Organization (CSIRO) and chair of the organization's science subcommittee on RHD, says surveys indicate that Australia's wild rabbit population has dropped by 95% in some regions without a single reported case of its having infected humans or other species. As their number declines, preliminary data from a nationwide monitoring system show that native fauna and flora are already staging a comeback, with plants such as the showy groundsel increasing by 30% in the park.



End of a pest? Widespread use of the RHD virus could reduce the harmful effects of Australia's rabbit population *(left inset)* and restore native plants and animals *(right inset)*.

Ecologists such as Brian Cooke of CSIRO have found that even animals thought to be largely unaffected by the presence of rabbits, such as western gray kangaroos, have increased their population sixfold after RHD swept in. "Most people don't consider rabbits to be competing for food with grays on this scale," he says. "We knew there would be an effect, but we expected it to be subtle."

Most of the preliminary data come from South Australia, the first place hit by RHD after it escaped quarantine 16 months ago. But the changes are no less profound in parts of the country that have been only recently exposed: Alice Springs–based rabbit program officer Will Dobbie, for example, reports seeing 10 rabbits every 10 kilometers in the Northern Territory, a 95% reduction from prerelease levels. RHD is now in every state except Tasmania (see map), and widespread releases will continue for the next 6 months under the auspices of state authorities.

Although most scientists do not see any drawbacks to the use of RHD, Hugh Wirth of the Royal Society for the Prevention of Cruelty to Animals remains dubious. "We still have lingering doubts. We just tell the scientists, 'We hope you're bloody well right about it just affecting European rabbits.'" Craig Darlington, director of the 47,000-member Conservation Council of the South-East Region and Canberra, takes a wait-and-see attitude: "Crossing species is still an issue, but it's more of an unknown. We're more concerned with the immediate practical impact."

One such impact, notes Cooke, is an apparent 90% decline in the number of feral cats after the loss of their prey. "The massive and quick disappearance of cats from the scene was one of the more surprising effects of RHD," he says. But wildlife ecologist Peter Alexander of the South Australia Division of Wildlife and Natural Resources and others caution that most data are preliminary and that there are confounding factors. "Cat numbers could have gone down simply because they moved out of the study area or because of seasonal population cycles," he points out. At the same time, fears that predators might switch to eating endangered species have so far proven unwarranted. But the evidence to date suggests that fear is not warranted: In one study, the stomachs of feral cats revealed that insects now comprise the bulk of their diet.

Whatever the impact of the RHD program, there is consensus that traditional measures are still needed to control rabbits. "RHD is not a magic bullet," warns Darlington of the Conservation Council. CSIRO's Cooke hopes that—funds permitting—RHD will be released strategically at targeted trouble spots in tandem with fumigation, hunting, and destroying rabbit warrens. Flinders's Newland agrees that a coordinated follow-up is needed: "Otherwise, we'll just get a temporary reduction in rabbits until they develop resistance, just like happened 50 years ago with myxomatosis."

–Dan Drollette

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