Rabbit mathematics: subtraction versus multiplication, and the lessons of history

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The economic consequences of pasture damage by European rabbits in mid 19th century New Zealand were catastrophic, especially for the wool growing industry in the southern South Island. The capital value of 8 million acres (3,237,485 ha) of pastoral land in Otago and Southland declined by 50% between 1873 and 1883, and the annual loss [of income from reductions in lambing percentages and wool clip] reached £1,700,000 a year. The official response was to search for more and better ways to kill rabbits, including the importation, breeding and release of upwards of 75,000 ferrets between 1870 and 1920, and the importation and distribution of at least 5,000 stoats and weasels in at least 20 shipments from England between 1883 and 1892. But predators failed to control rabbits well enough to save the pastoral runs unless (or even if) backed by other strategies. Multiplication beat subtraction; stoats and weasels certainly killed a lot of rabbits, but not fast enough to beat the replacement rate of the remainder; ferrets could do so only under restricted conditions and with human help. In our day we are searching for more and better ways to control mustelids well enough to save what is left of our native fauna. There is a strong contemporary emphasis on searching for more and better ways to kill mustelids, which provide some interesting parallels with history.