

RABBIT VIRAL DISEASES: RECOMBINANT VACCINES OR NATURAL RECOVERY?

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Abstract

The additive effect of myxomatosis and rabbit haemorrhagic disease (RHD) reduced European wild rabbit (*Oryctolagus cuniculus*) numbers in most of its historical range, specially in the ecologically less-favourable habitats. This had adverse effects both on rural economy and on conservation throughout Spain, where the rabbit is important for the survival of a high number of endangered carnivores and birds of prey, but also a relevant game species. Thus, the decline in rabbit numbers had direct consequences on the reproductive effort of predators, and may even have caused an increase of illegal predator persecution.

In an effort to improve rabbit populations, several management tools have been applied in the last decade. These include the recent development of a recombinant Myxoma-virus (MV) that expresses the RHDV major capsid protein VP60. Concern about the field use of such horizontal transmissible recombinant virus for wild rabbit management, sometimes with opposing goals, has already been expressed (Angulo 2001). Nevertheless, little is known on the current status of Spanish wild rabbit populations. Here we use a large-scale monitoring scheme to state that rabbit abundances are already increasing, and to discuss whether tools such as recombinant vaccines are really needed.

In order to monitorize the abundance of game species, the Government of Aragon (northeastern Spain) set up in 1992 a large-scale survey based on spotlight counts at 17 sites. Rabbit relative abundances increased from 20 rabbits per 100 km seen in 1992, to 66 in 2001. If we group those localities with an average of 20 or more rabbits detected per 100 km in the first three years of monitoring ("rabbit-rich" localities), and compare them with the remaining ones ("rabbit poor"), it comes out that interannual differences are important, that the differences in abundance between "rich" and "poor" sites are also significant, and that an interaction between both factors exists.

These data suggest that wild rabbit populations are recovering naturally, and that their recovery is more evident in sites with higher densities. Most probably, the "rabbit-rich" areas are those where the lagomorph is most important as a hunting species and as a prey. Now, if the rabbit is recovering by itself in those "good" areas, some costly and risky management actions, such as the use of transgenic vaccines, may not be justified. Moreover, the success of a horizontal transmissible recombinant MV depends on a certain

host density. If the new vaccine is not effective in low-density rabbit populations it will be of little use, and the risks may outweigh its eventual benefits to economy and conservation.

Zusammenfassung

Myxomatose und Haemorrhagische Kaninchenkrankheit (Rabbit haemorrhagic disease RHD) haben die Europäischen Wildkaninchenpopulationen (*Oryctolagus cuniculus*) reduziert. Dies hat, besonders in Spanien, starke sozioökonomische und ökologische Folgen.

Eine der Massnahmen, die der Kaninchenkrise entgegenkommen soll, ist ein rekombinanter Impfstoff. Es handelt sich um ein Myxoma-virus (MV), welches das RHDV-capsid Protein VP60 **ausspricht?#expresar**. Obwohl zur Zeit weit über die benutzung rekombinierter Viren diskutiert wird, ist zudem noch wenig über die Entwicklung der Kaninchenbestände nach der RHD bekannt. Wir zeigen, dass die Kaninchennummern sich in Spanien zum Teil bereits natürlich erholen, und fragen ob rekombinante Impfstoffe wirklich notwendig sind.

Nächtliche Scheinwerferzählungen wurden an 17 Orten der Region Aragón (Nordostspanien) seit 1992 durchgeführt. Die relative Häufigkeit stieg von 1992 bis 2001 von 20 bis 100 Kaninchen pro 100 Km. Orte an denen man zwischen 1992 und 1994 bereits über 20 Kaninchen per 100 Km zählte, zeigen eine starke Erholung der Kaninchenbestände, während Orte an denen weniger als 20 Kaninchen pro 100 Km angetroffen werden konnten, keinerlei Bestandserholung zeigen.

Wenn aber die Wirksamkeit des neuen rekombinanten Impfstoffs von der Kaninchendichte abhängt, dann nützt er nur an den Orten wo bereits eine natürliche Erholung der Wildkaninchen beobachtet wird. Orte dagegen, in denen die Kaninchen sehr niedrige Bestände haben, können von der neuen Vaccine wenig erwarten. Eventuell könnten dann die Risiken des neuen Impfstoffs seine Vorteile auswiegen.

Résumé (??)

Key words: European wild rabbit, Monitoring, Rabbit haemorrhagic disease, Recombinant vaccine

References

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