

Total reproductive failure in an undisturbed population of stoats

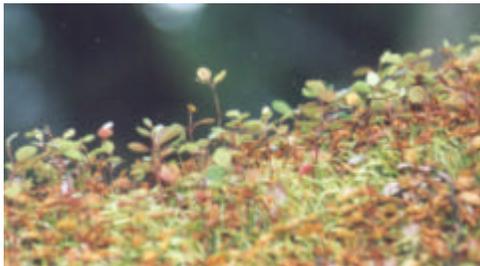
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1. **Autumn 1999:** heavy seedfall



2. **Summer 1999/00:** mice very abundant. **Spring 2000:** mice virtually absent

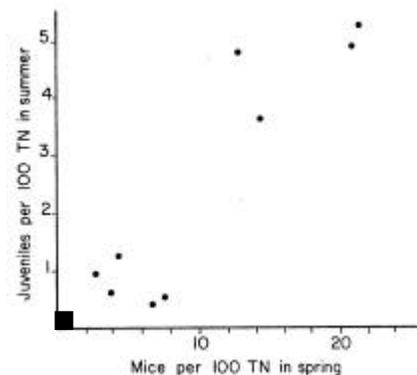
	Mice per 100 TN	
	Grebe	Borland
November 1999	88	62
February 2000	33	32
December 2000	<1	0

3. **December 2000:** live trapping (306 TN):
January 2001: Fenn trapping (1303 TN)



25 live stoats tagged, all adults, plus 63 stoats killed, all adults (including 13 of the 25 tagged ones): total 75 (4.7 C/100TN)

4. These results (■) extend a previously published correlation between November mouse density and stoat productivity (King 1981)



$r_s = 0.88$, $p = 0.0005$, $n = 11$. Productivity was estimated from capture rate of young in summer, not the age ratio in the catch, to avoid assuming equal catchability of all ages and to minimise the effect of previous trapping history



Study area: Grebe and Borland Valleys, southern Fiordland

Conclusions

1. The total absence of any young stoats in this large sample suggests that none of the large seedyear cohort born in 1999 achieved any reproductive success as one-year-olds in 2000/01.
2. The close fit of these data within a correlation previously derived from cropped populations in northern Fiordland suggests that the density index of young stoats in a summer sample is determined more by the breeding success of the previous season than by trapping history.
3. On the other hand, the density index of adults we record here was much higher than in the two northern populations during the crash year of 1977/8 (0.43, 0.51 C/100TN: King 1983), which had been trapped year-round since 1974. Hence, the age structure and density indices of adults from cropped and uncropped populations cannot be compared. Modellers using removal data need to allow for this difference.

King CM. 1981. The reproductive tactics of the stoat (*Mustela erminea*) in New Zealand forests. In *Worldwide Furbearer Conference*, ed. JA Chapman, D Pursley, pp. 443-68. Frostburg, Maryland, USA: Worldwide Furbearer Conference Inc.

King CM. 1983. The relationships between beech (*Nothofagus* sp.) seedfall and populations of mice (*Mus musculus*), and the demographic and dietary responses of stoats (*Mustela erminea*), in three New Zealand forests. *Journal of Animal Ecology* 52: 141-66.