What can the inverse relationship between sex ratios and calf:cow ratios, tell us about compensatory responses to hunting, in moose populations exposed to wolf predation?

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ABSTRACT

Moose populations with low hunting pressure tend to have high sex ratios and low calf:cow ratios and hunted ones have low sex ratios and high calf:cow ratios. What causes this inverse relationship? I suggest that when hunting is male-biased, which it is in almost all populations; 1) the number of 10 year old or older moose and the overall sex ratio is reduced, 2) the number of wolves declines because old moose are more vulnerable to predation by wolves than prime age animals and wolf numbers are linearly related to the number of old moose, and 3) the fraction of moose calves in the population and the calf:cow ratio increases because with fewer wolves, calf survival increases. This process could partially or completely compensate for moose hunting mortality in moose-wolf ecosystems.