Setting time limits for hunting and fishing may help maintain wildlife populations

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Hunting and fishing quotas limit the number of game animals or fish an individual may take based on harvests from the previous year. But according to a new study co-authored by University of Minnesota ecologist Craig Packer, this strategy may jeopardize wildlife populations.

The authors recommend that wildlife managers rethink policies for sustainable utilization. Setting limits on the number of days allowed for hunting and fishing rather than the number of trophies would be a more effective way to ensure continued supply and to prevent extinction.

Results of the study are published in the May 13 issue of *Science*.

"Quotas don't consider population fluctuations caused by disease outbreaks, harsh weather and other variables that affect animal abundance from year to year," Packer explains. "Hunters and fishermen can work harder to make their quotas when desirable species are scarce. The extra pressure can cause populations to collapse." Setting limits on the amount of time spent hunting could better protect fragile populations.

John Fryxell and Kevin McCann, from the University of Guelph in Ontario, Canada, along with colleagues in Norway and the United States, developed a model based on mass action assumptions about human behavior and current hunting and fishing regulations. They tested the model using data from three populations of deer and moose from Canada and Norway over a 20- year period. Packer's work on the impact

of trophy hunting on lion populations in Africa and cougars in the United States, helped to inspire the current study.

The problem is exacerbated by the traditional practice of open access, Fryxell noted. Hunters and fishermen tend to choose spots based on word of mouth, which travels slowly. By the time they are well known, popular sites may already have shrinking populations and visitors may need to work harder and longer to reach quotas, which further endanger the species. Once populations are depleted, restoring them is a challenge.

"It can take decades for large animal populations to recover from collapses, as we know from our disastrous experience with cod stocks off the coast of Newfoundland, Fryxell said. "We need to make strategic long-term changes to make a difference."

Provided by University of Minnesota