SHORTER BEAR SEASON NEEDED TO PREVENT OVERKILL

Editor's Note: The following is a letter sent to Mr. Roger Holmes, Minnesota Department of Resources, from Mr. Lynn Rogers, requesting a shorter bear season because of recent indications of overkill. The Governors of the Minn. State Archery Assn. supported the shortening of the season.

Mr. Roger Holmes, Minn. DNR
3rd Floor, Centennial Bldg.
St. Paul, Minn. 55101

Dear Roger:

This letter concerns the desirability of opening the 1979 bear season on or about September 16, rather than earlier because of recent indications of overkill. Overkill might be a little difficult to believe, in view of the number of nuisance bears this year, but the·high visibility of bears this year was due to scarcity of natural food (due to a hard widespread frost in late June) rather than to an increased population.

The kill for at least the last couple years has exceeded recruitment by quite a bit according to data presented below. Reproduction data for adult females and natural mortality data for cubs and yearlings indicate that annual mortality for bears two years old or older should not exceed 12 percent on the average if population levels are to be maintained. This 12 percent allowable mortality includes the hunting kill, the nuisance kill, and natural mortality.

Approximately 90 percent of the deaths of adult bears is from human-related causes, mainly hunting. By contrast, over 90 percent of the mortality among cubs and yearlings is from natural causes, mainly starvation. The lack of human-related mortality among young bears is because cubs are legally protected from hunters, and yearlings use such small areas that they are less vulnerable to hunting than are other bears. Also, when hunters have a choice, yearlings are often spared because they are so small -- usually less than 100 pounds live weight.

Most females without access to garbage do not begin reproducing before five years of age. Approximately 93 percent of them produce their first litter at 5-8 years of age. The age at which reproduction begins and the interval between litters thereafter depends upon food supply, especially berry crops (in the absence of garbage). With berries scarce, as was the case in northeastern Minnesota during 1974-1976, intervals between litters commonly stretch to 3-4 years with onset of breeding delayed in some cases until 8 years. During those three years, the population declined 35 percent. It rebounded somewhat following the excellent berry crops of 1977. However, I was struck by the high hunting losses of tagged and/or radioed bears during 1977 and 1978 and took a closer look at the statistics.

During 1977 and 1978, an average of 30 percent of the mature fe-
males (five years old or older, N=30) were killed per year. Of the
nine killed, seven were killed by hunters. This is a kill rate sev-
eral times higher than could be sustained by recruitment. In addi-
tion, two of our three mature males disappeared from the population,
but their fates are unknown as we did practically no radio-tracking
the last two years and their tags were not turned in.

The kill rate among young bears evidently was lower than for the
others as only ten percent of 29 bears 1-4 years old were killed --
all by hunters. However, most of these were only tagged, not radioed
and reporting rates may have been lower for them. Even so, the ten
percent kill rate is pushing the high side.

Another indication of overkill comes from data that Ron Carlson, a
bowhunter and commercial guide, kindly kept for his hunting camp on
Crooked Lake (T59N, R6W) 13 miles east of Isabella. Ron put out 30
baits in a 324 square mile area and killed 21 bears there during the
special bear season. If there is one bear per two square miles in
that area as is the case in my adjacent study area, there should be
about 162 bears in his hunting area. A kill of 21 bears amounts to
13 percent of that population. Moreover, the 21 bears is a minimum
kill figure as it does not take into account kills by hunters not
staying at Ron's hunting camp, does not take into account any bears
killed there during deer season, and does not take into account any
nuisance kills or natural deaths.

The data for Ron Carlson's camp may not be that different from the
state as a whole if our guess of 6,000 bears in the state is any-
where near the truth. The kill of 701 bears in 1977 (not including
nuisance kills) would represent about 12 percent of the population.
Indications from checking stations and numerous shootings of nui-
sance bears suggest an even higher kill this year.

I think these indications of overkill reflect a growing trend
rather than a temporary aberration. Bear license sales have climbed
steadily from 2,069 in 1972 to 5,659 in 1977, and the hunting kill
has climbed from 178 to 701 during the same period (1972-1977).

The above data on recruitment versus mortality is from the heart of
the bear range in northeastern Minnesota. If data from other areas
differ from these, they probably differ in the direction of an even
larger overkill because of higher human/bear ratios. A possible ex-
ception may be remote areas of the Boundary Waters Canoe Area where
few bears are killed. However, even bears from the BWCA range out-
side it, and two that did so last year disappeared (i.e., their
signals were lost. I don't know whether they were shot and their
radios disposed of or whether their radios simply quit.) By and
large, though, I consider bears from the BWCA to be more or less im-
mune to hunting and have not included data from the BWCA in the above
analysis.

The kill can be reduced by opening the season on September 16 or
thereabouts each year rather than in early September. Bears become
increasingly lethargic through September in northern Minnesota,
making the first weeks of September important control points for
regulating the harvest. Secondarily, a higher proportion of pelts
is prime by mid-September, leading to fuller utilization of the
bears that are killed. Also, bears that den in September include a

disproportionately high number of females which reduces the propor-
tion of females in the kill. In years of scarce natural food, half
the Isabella population is denning by the first of October. In
years of abundance, half of them are denned by the 15th of October.

As a first indication of reactions by sportsmen to a later opening,
the Minnesota State Archery Association is willing to support a
mid-September opening. I mentioned it at their governors' meeting
on November 18, and support was unanimous as far as I could tell.
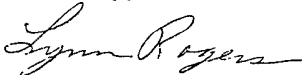
Getting back to the problem of nuisance bears, nuisance activity is
primarily a function of berry scarcity. The number of complaints
should have some relation to bear density, but nuisance bears will
show up in years of scarce natural food whether bear populations are
high or low. Bears are quick to exploit sources of garbage in their
ranges when natural foods are inadequate. Social constraints among
bears keep many bears from moving out of their usual ranges though.

There is one additional factor that has a major influence on nuisance
activity and that is the number of 2- and 3-year-old males in the
population. Males disperse from their birth places at two or three
years of age and usually settle by four. During dispersal, young
males commonly travel distances of 30 to 125 miles or more and often
spend quite a bit of time around sources of garbage they encounter,
especially if the large adult males in those areas have been killed.
There should be quite a bit of nuisance activity in 1980 and 1981
when cubs born this year disperse. The cub crop this year was unus-
ually large because of the abundant natural food of 1977 and because
of a previous stacking up of nonreproductive females in the popula-
tion during the three preceding years of scarce food.

I have recently talked to Karl Siderits of the Superior National
Forest. The SNF is interested in working with the Minnesota DNR to-
ward arriving at an optimal bear density and a practical nuisance
bear management plan for the Superior National Forest.

We probably should talk more about this on the phone. Please call
me at Kawishiwi (Box 150, Ely, Minnesota 55731). My phone number
there is (218) 365-4138.

Sincerely,

Lynn Rogers
Wildlife Biologist