

## Hare decline suspected in dearth of lynx births

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Colorado biologists are speculating that a natural up-and-down cycle in snowshoe-hare population may be a key factor in the lack of lynx kitten births the past two years. The Colorado Division of Wildlife recently released the results of its annual spring lynx survey. For the second year in a row, researchers did not find any new kittens.

About 200 adult lynx trapped in Canada and Alaska have been released in southwestern Colorado since 1999 in an effort to re-establish a self-sustaining population of the wildcats. According to historic reports from trappers and trading posts, lynx were abundant in Colorado but were hunted to near extinction from the late 1800s through about 1970, when the last known lynx was reported killed near Vail.

The cats are listed as threatened under the federal Endangered Species Act, requiring federal agencies to take steps to conserve and recover the species. Colorado's re-introduction effort is distinct from federal mandates, but state and federal biologists have worked closely on lynx recovery in the state.

This year, wildlife biologists tracked 28 adult females during the late winter and spring mating and breeding season, assuming that number was representative of the state's lynx population. The adult cats exhibited mating behavior, but didn't give birth to any new offspring, said researcher Tanya Shenk. The adult cats being tracked by researchers are in good shape physically, apparently finding enough food to survive.

But if snowshoe hare numbers have dropped, the females may not be finding enough high-quality food to provide nourishment for a successful pregnancy, Shenk said.

The results of one recent study on bobcats suggested that females of that species need to find enough of their primary prey to get needed levels of vitamin A, a nutrient that can't be produced by the cats from any source other than from eating the internal organs of their prey. There's no similar research for lynx at this point, but Shenk said the bobcat study has spurred discussions among the wildlife biologists in the lynx re-introduction program.

There hasn't been much research on snowshoe hare populations in Colorado. In Canada and Alaska, where lynx are plentiful, it's well known that the cat populations cycle in tandem with dramatic spikes and declines in hare numbers.

Early question mark

Before the state launched its lynx program in the late 1990s, biologists raised the question of whether there were enough snowshoe hares to support a self-sustaining lynx population. "We never really knew if we had this cycle in Colorado," said division spokesman Joe Lewandowski.

At the time, biologists speculated that Colorado hare numbers probably do fluctuate, but not to the same degree as in Canada and Alaska.

Now, early results from one small-scale study near Taylor Park suggest that hare numbers have dropped in the past two years. In the study, researchers are looking at snowshoe hare survival and population densities in three different types of forest stands: Young lodgepole pine, middle-aged lodgepoles and mature spruce-fir stands.

“It has shown a pretty noticeable decline in snowshoe hare numbers,” Lewandowski said, adding that the researchers need at least three years of data to establish a trend line that would show clearly whether hare numbers are dropping or not.

The Taylor Park study is looking only at three different stand types in one little spot, Shenk said. More intensive and widespread research could help determine whether there is a significant drop in hare numbers that might be affecting lynx reproduction. “If this is truly a natural cycle, and that's what we're hoping for, then if the lynx manage to ride it out, we feel we'll have passed the crux,” Shenk said. “If snowshoe hare numbers are down permanently, then that's a big concern.”

Shenk said it's also possible that the lynx re-introduction may have affected snowshoe-hare populations in Colorado. Hare numbers may have reached unnaturally high numbers in the long-term absence of predators like lynx. The lynx transplanted from Canada and Alaska may have subsequently put a dent in that population.

In that scenario, Shenk said it's a matter of lynx and hare finding a natural equilibrium between predator and prey. Similar balancing acts have been observed in the relationship between other species, for example wolves and moose, Shenk explained. But until more research is done on hare populations, the reason for the absence of lynx births probably won't be clearly understood.

“It's a waiting game until next July,” Lewandowski said.

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