



**UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ENDANGERED SPECIES PROGRAM**

TELEPHONIC INTERVIEW TIME (06:41)

CANADA LYNX (HOST – SARAH LEON WITH JOHN ORGAN)

This transcript was produced from audio provided by FWS Endangered Species Program

P R O C E E D I N G S

(Music plays.)

MS. LEON: Rising temperatures and declining snow fall could spell trouble for the Canada lynx, a rare cat that was federally listed as a threatened species in 2000.

Hello there. This is Sarah Leon for the U.S. Fish and Wildlife Service and today we have John Organ, Chief of Wildlife and Sport Fish Restoration in our Northeast Region, on the phone to tell us more.

John, before we get into climate impacts, can you get us started by telling us a little about this species?

MR. ORGAN: Certainly. The Canada lynx is a cat species in the genus lynx, and within that genus there are four species. In North America we have the Canada lynx and the bobcat. In Europe, we have the Eurasian lynx, and we have the Iberian lynx in Spain.

Canada lynx and bobcat are very closely related. They separated probably sometime beyond 10 thousand years ago during the Pleistocene [Era]. The lynx is adapted to the northern parts of North America, and they are uniquely adapted to hunt snowshoe hare in deep snow environments. They have morphological characteristics such as very large feet that look odd for their size—they look like they have saucers for feet—that allow them to move easily in deep snow conditions and hunt snowshoe hare, which are also adapted to snow. It's a classic case of co-evolution, where predator and prey have co-evolved with each other over many millennia. They feed primarily on the snowshoe hare almost exclusively, and they're known for population cycles. This was documented

in the 1940s by a biologist, Charles Elton, who looked at historic records of snowshoe hare and Canada lynx and observed that roughly every 10 years across the northern part of the continent, you have these cycles where snowshoe hare will increase and then their populations will crash and Canada lynx will do the same with about a two year lag period. So essentially, Canada lynx are so tied to snowshoe hare ecology that their population will grow with the snowshoe hare. When Canada lynx reach their peak population, the snowshoe hare have already declined, which then causes a rapid decline in Canada lynx. This is in the heart of their range from Alaska to northern Canada to Labrador, Canada. In the southern part of their range, which would be the very northern parts of the continental United States, much less is known about their populations.

MS. LEON: There's a variety of factors that have really contributed to the lynx's decline, most notably land use changes and human expansion. But now biologists are concerned about a warmer climate. Can you tell us about this?

MR. ORGAN: Yes. Changes in climate could affect snow patterns. And one of the primary factors through habitat modeling that's been identified for the occurrence of lynx is snow depth. What you would expect to see is Canada lynx range decline as annual average snow depth declines.

Some modeling that was done by Chris Hoving, in his graduate work at the University of Maine, showed some dramatic changes by decade from the 1960s through the 1990s where patterns of deep snow have receded northward. Obviously it's going to affect snowshoe hare abundance, but it's also going to affect the ability of other predators to utilize these areas and take compete for snowshoe hare. Many of these species, such as bobcat, fisher, coyote, or fox, may be better competitors than lynx because they aren't just tied to that one species.

Canada lynx are a specialist—one of the more specialized cat species—in that they really are tied to snowshoe hare. When they have to switch to alternative prey, research has shown that their productivity declines dramatically.

MS. LEON: Well, I understand that you have been involved in an ongoing study with the Maine Department of Inland Fisheries and Wildlife to research, track and identify conservation strategies for the lynx. Can you tell us about this?

MR. ORGAN: Yes. We started our field work in 1999, where we capture lynx in northern Maine and instrumented them with radio collars and GPS collars and we've looked at their population characteristics as well as their habitat use. What we've found is that Canada lynx in northern Maine are tied to mid-successional stage spruce fur that support strong populations of snowshoe hare. The rule of thumb that seems to operate is that where you get densities of snowshoe hare of one hare per hectare or more, then that is suitable to support Canada lynx populations. When those densities decline, then we can expect Canada lynx to decline and their persistence as a population may be in question.

What we've also noticed is other competitors in that area—fisher in particular—have caused some significant predation on Canada lynx. And fisher, from other research, do not like deep snow conditions. So if snow conditions decline, then it will become more suitable for fisher and other carnivores that could compete with lynx. So we would expect that that's going to have a potentially additive affect in terms of decline of lynx populations.

We've had this study ongoing for almost 12 years now, and we've noticed some years where snowshoe hare numbers were high, that litters of five kittens were not unusual. And we've also noticed that with the decline of snowshoe hare, then reproduction would almost cease in lynx. So what we're observing in northern Maine could potentially suggest that they may cycle as they do in the heart of their range in the Boreal forest in the north.

MS. LEON: Thank you so much, John, for taking the time to tell us about this species. It was a real pleasure having you on.

MR. ORGAN: Thank you, Sarah.

MS. LEON: For the U.S. Fish and Wildlife Service, this is Sarah Leon.