Rocky Mountain Research Station
Science You Can Use *(in 5 minutes)*

Fishers and Martens and Lynx, Oh My! Multiregional, Goal Efficient Monitoring of Mesocarnivores

A Need for Knowledge

North American mesocarnivores don't all get the recognition you might expect. If a typical American had to describe a fisher, a marten or a wolverine, the responses might include an angler, a civil rights leader or a superhero with retractable claws. People are unlikely to know much about these often elusive creatures, such as the fact that fishers (forest-dwelling members of the weasel family) are one of the few animals that will actually go to the trouble of hunting a porcupine.

Land managers and biologists are keenly aware that they also lack knowledge about these mesocarnivores, especially about where they live and how they're affected by changes to their environment. This lack of knowledge can cause problems, especially with species that have legal or management designations such as "threatened" under the Endangered Species Act (such as lynx) or "Regional Forester Sensitive Species" (such as fisher and wolverine).

How Multiregional Monitoring Can Help

Jessie Golding, a carnivore research associate with the Rocky Mountain Research Station in Missoula, Montana, is one of several scientists who are developing innovative approaches to combat this lack of knowledge with a standardized, multiregional monitoring program that leverages sophisticated statistics. Their work is described in a recently published USDA general technical report entitled "Multispecies Mesocarnivore Monitoring: USDA Forest Service Multiregional Monitoring Approach."

The mesocarnivore monitoring program involves collecting data on a tiered set of questions and using complex statistical modeling that help to characterize the population, including

Scientists are developing methods to better monitor lynxes and other mesocarnivores across the Rocky Mountain region and beyond. (Photo: Rocky Mountain Research Station, Northern Rockies Lynx Study.)

KEY FINDINGS

- Mesocarnivores, fisher, marten, lynx, wolverine and others, are an important part of forest ecosystems, but they are often difficult to detect, occur in low densities, and have large home ranges. This makes it difficult for biologists to estimate the number of individuals in a specific species in a particular ecosystem.

- Although many forest mesocarnivores have designations that warrant consideration in decisions about planning, projects or restoration, there's a lack of standardized data about mesocarnivore populations and how they're affected by environmental change.

- By focusing on "conservation states," land management agencies may be able to use goal efficient monitoring and the USFS Multispecies Mesocarnivore Multiregional Monitoring Approach to better understand trends in mesocarnivores and to develop more effective local and regional management strategies.
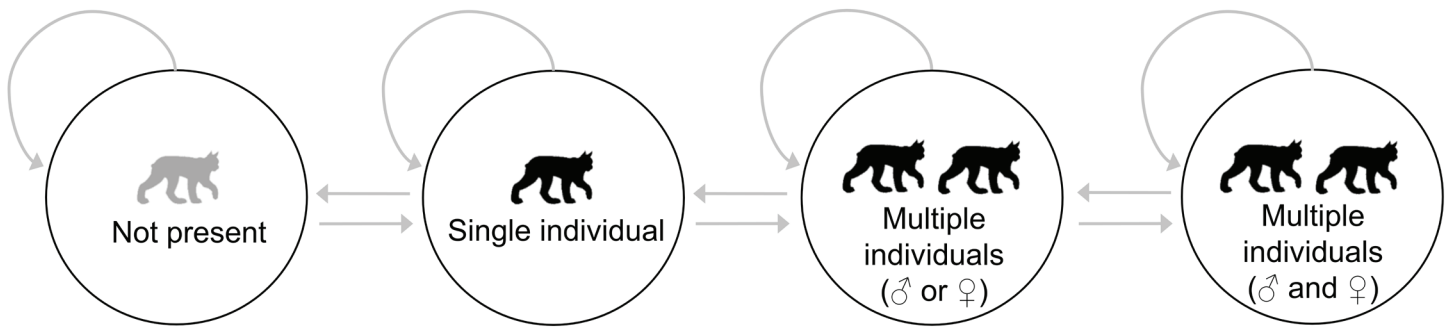
A new monitoring approach focuses on four "conservation states" related to rare species populations. (Image: U.S. Forest Service.)

key data such as whether specific mesocarnivore species are present or not, whether there are multiple individuals present, or whether a population is likely to persist based on various factors, such as the presence of both males and females. Depending on how these basic questions are resolved, other questions are introduced. Golding explains, "Many National Forests have to manage for lynx; in a lot of cases, it's not even known if the animals are present in that landscape." Detection methods, which include hair-snaring devices, field cameras, and scat-detecting dogs, can be used to monitor at least five species: fisher, lynx, wolverine, marten (American and Pacific) and montane red fox.

Golding believes that this approach, called "goal efficient monitoring," will help develop a long-term, landscape-scale understanding of these species' viability so that public land managers can effectively refine forest plans and other guidelines related to mesocarnivore management. Goal efficient monitoring is a long-term monitoring framework that allows local flexibility and the ability to aggregate data from seemingly disparate

targeted local efforts. It's a cost-effective and more efficient approach to "abundance monitoring," which estimates the number of individuals of a specific species in a particular ecosystem; abundance monitoring can be prohibitively costly and difficult for rare species. Using goal efficient monitoring, biologists can define one of four "conservation states" related to a rare species population. This information is analyzed over time and used to estimate the probability that a population is likely to remain in one of these four states or transition to a different state.

The Next Step: Widespread Implementation

Golding and her colleagues are working to implement this framework on a landscape-wide scale, with four National Forests already participating and at least three more expected to join this winter. According to Golding, "We're still working out some of the specifics and generating support from various land management agencies, but by getting different land management agencies to do this and to work together, we should be able to develop a better understanding of mesocarnivores and their role in ecosystems, and also to help land managers direct resources in a more efficient and appropriate way."

Additional information can be obtained by contacting Jessie Golding at jgolding@fs.fed.us.