

mortality of lynx that are incidentally captured, we have no information to indicate that the loss of these individuals negatively affects the overall ability of lynx populations to persist.

Introduction to Remand Analysis

In the final rule, we found that “[c]ollectively, the Northeast, Great Lakes and Southern Rockies do not constitute a significant portion of the range of the DPS.” The following reanalysis of that finding is based on the administrative record, information obtained by the Service during the comment period opened to address the issues on remand, and the Court’s opinion in the litigation. As discussed above, we address first whether there were any areas in the range of the lynx outside of the Northern Rockies in which the lynx is in danger of extirpation. Our analysis of whether extirpation will occur is based on the five factors listed in section 4(a)(1) of the Act. For any such areas, we then determine whether they constitute a significant portion of the range of the lynx, based largely on the quantity and quality of the habitat in the portion of the range in question.

Summary of Factors Affecting the Species

Section 4 of the Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to the Canada lynx (*Lynx canadensis*) were discussed in the final rule. Highlighted below are the key points raised in the final rule and the conclusions we made about whether certain activities or conditions threaten Canada lynx to the extent that those points are relevant to the three areas at issue in this remand. If new information changes a statement or conclusion made in the final rule, this point will be made in this analysis. Also discussed below is any new information we received about the five listing factors and their application to lynx during the reopened comment period initiated as a result of the remanded decision. Finally, in this document, we assess the magnitude of the threats to lynx to assist us in determining the status of the species in the areas at issue.

In considering threats to lynx and whether those threats are low, medium, or high, one must consider that lynx have evolved to adapt to an ever-changing boreal forest and require a

mosaic within the boreal forest of appropriate species composition, varying stand ages, and structure to support abundant snowshoe hares and lynx denning habitat. Additionally, one must consider scale. Lynx are naturally highly mobile, moving long distances to find abundant prey, and use a large area on a landscape; the average home range for a male lynx is 151 km² (58 mi²) (Aubry *et al.* 2000). In order to affect the suitability of lynx habitat and, in particular, a local lynx population to the extent of putting the population at risk of extinction, an activity would likely have to occur across a very large area (at a minimum the size of several home ranges) and (1) cumulatively result in the conversion of lynx habitat into non-lynx habitat, (2) result in a homogeneous forest that does not provide the various stand ages, species composition, and structure that are good snowshoe hare and lynx habitat, or (3) effectively preclude dispersal.

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Habitat Quantity and Quality

In assessing habitat quality for lynx, we examine a variety of elements, such as primary prey (snowshoe hare) abundance, forest type, forest structure, snow conditions, denning habitat, inherent habitat patchiness, and connectivity with larger lynx populations and habitat in Canada. We use lynx reproduction and recruitment into the population as additional indicators of habitat quality.

In the following discussions, we describe available information on lynx occurrence, habitat quantity, habitat quality, and other elements that frame our understanding of lynx in the contiguous United States. The complexities of lynx population dynamics and our incomplete understanding of the limited lynx occurrence data, combined with a naturally dynamic and transitional habitat, make it difficult to precisely delineate the historic or current extent of the range of lynx in the contiguous United States. While recognizing these limitations, we use our best professional judgement of the best scientific and commercial data available to make conclusions about the range of the lynx for the purposes of this remand.

Important to understanding the range of lynx in the contiguous United States is the status of the lynx in any given area as a member of a resident, breeding population or as a disperser. While we recognize and agree with McKelvey *et al.*’s (2000b) caution that lynx

occurrence data are too incomplete to infer much beyond simple occurrence, for the purposes of this reevaluation, we feel it necessary to make conclusions about the condition of lynx using our professional assessment of the best scientific and commercial data available. We partially base our conclusions regarding whether lynx in a particular area are resident or dispersers on the record of reliable reports of lynx. We discuss the reliability of records below.

Historic lynx data in the contiguous United States are scarce and exist primarily in the form of trapping records. Many States did not differentiate between bobcats and lynx in trapping records. Therefore, long-term lynx trapping data are not available for most States. Long-term trapping data have been used to understand population trends for various species; however, because trapper effort can change across years, trapping returns may not accurately reflect population trends. Data showing few lynx trapped may be the result of low pelt prices or reduced trapper effort, not necessarily a decreased population. However, despite these difficulties, trapping data are the best information available on historic lynx presence throughout much of its range in the contiguous United States.

In the past, surveys designed specifically for lynx were rarely conducted, and many reports (e.g., visual observations, snow tracks) of lynx were collected incidental to other activities. The reliability of many of these records is unknown. Trapping records may have errors, track identification is extremely difficult, and observations may be wrong because lynx look very similar to bobcat. Data from recent research in Maine and Montana (Hoving 2001; Squires and Ruggiero 2001; Squires *et al.* 2001; Squires *et al.* 2002; Homyack 2003; Maine Department of Inland Fisheries and Wildlife 2003; G. Matula, in litt. 2003; L.S. Mills and P. Griffin, in litt. 2003); recent confirmed records of lynx in Minnesota (Minnesota Department Natural Resources, in litt. 2003); results from the National Lynx Survey (K. McKelvey, Rocky Mountain Research Station, in litt. 2003); and mapping of lynx habitat on Federal lands (E. Johnston, U.S. Forest Service, in litt. 2003; J. Whitney, Bureau of Land Management, in litt. 2003) provide some of the best current information for our analysis.

Numerous reliable lynx records over a period of years (particularly across a cyclic population low) and reliable evidence of reproduction are considered strong evidence of a resident