

population. For example, Washington has had numerous verified lynx records since the 1800s (McKelvey *et al.* 2000b). These records exist in the form of museum specimens (78 specimens), snow tracks, radio-collared study animals, harvest records, remote-camera photographs, and DNA samples. During the period that lynx harvest data were kept (1961–1990) the annual harvest ranged from highs of 39 and 31 animals to lows of 0 in some years. Finally, lynx reproduction has been and continues to be documented numerous times in Washington. As a result of this information, we conclude that Washington has a resident lynx population.

Few and sporadic records, many of which correlate to timeframes when there were cyclic population highs, and no evidence of reproduction are considered evidence of dispersers, rather than resident populations. For example, in Wisconsin only 11 verified records exist from 1870–1961 (McKelvey *et al.* 2000b). There are 16 verified records of lynx from the early 1960s and 1970s that correspond to the extreme cyclic population highs of that period, exceeding the number known for the previous century. Two records from 1992 are the only verified records in the State since the early 1970s, and also correspond to the time period for a cyclic population high. Lynx reproduction has never been documented in Wisconsin. We conclude that Wisconsin has never had a resident lynx population but rather occasional dispersers. We still consider Wisconsin to be in the range of lynx, as discussed in more detail below.

The range of the lynx in the contiguous United States is broadly delineated by the distribution of the southern extensions of boreal forest, which occur in: (1) The Northeast (portions of Maine, New Hampshire, Vermont, New York); (2) the western Great Lakes (portions of Minnesota, Wisconsin, Michigan); (3) the Northern Rocky Mountains/Cascades (portions of Washington, Oregon, Idaho, Montana, northwestern Wyoming, Utah); and (4) the Southern Rocky Mountains (portions of Colorado, southeastern Wyoming) (Agee 2000, Aubry 2000, McKelvey *et al.* 2000). Differences in local climate, primarily precipitation, and effects of elevation have resulted in boreal forest vegetation that differs in the western regions compared to the east (Buskirk *et al.* 2000b); however, spruce and fir are the predominant tree species in both the east and west. Within the borders of the contiguous United States, these regions are separated from each other by vegetation

types that do not support lynx (*e.g.*, prairie, deciduous forest). With the exception of the Southern Rocky Mountain region, each of the regions where lynx are found in the contiguous United States are directly connected to lynx populations in Canada.

As described above, maps that accurately display the distribution of boreal forest (and therefore lynx habitat) are not readily available across the contiguous United States. The only attempt to portray the range of lynx across the contiguous United States with some degree of precision is that of McKelvey *et al.* (2000b). McKelvey *et al.* (2000b) overlaid lynx occurrence records across the contiguous United States with broad vegetation classifications and topography to determine which vegetative cover types and elevations contain most of the lynx occurrences. In the East (Northeast and Great Lakes), Bailey's (1998) ecoregion classification was used to describe vegetation at the broader scale and in the West (Northern Rocky Mountains/Cascades and Southern Rocky Mountains) Küchler's (1964) classification was used (McKelvey *et al.* 2000b). Broad-scale vegetative mapping at a continental scale, such as Bailey (1998) or Küchler (1964), results in generalized descriptions that are expected to have some inconsistencies with vegetation maps at a finer scale (T.B. Wigley, National Council on Air and Stream Improvement, Inc., in litt. 2003). However, these broad-scale maps are useful in generally delimiting and describing vegetation types. McKelvey *et al.* (2000b) put some outer bounds on what can reasonably be delineated as the range of lynx. In this analysis, we rely on McKelvey *et al.* (2000b) as our starting point in more precisely defining the range of the lynx.

In the following we summarize key information from the final rule, new information available since the final rule, and the best scientific information provided during the recent comment period to arrive at our analysis of the range of the lynx.

The amount of boreal forest habitat in the contiguous United States has not changed substantially in the past 100 years. In some local areas there has been encroachment by human development but for the most part these habitats are predominantly still forested. In these forests the changes primarily have been the natural and human-caused disturbance processes (fire, insect infestations, wind, ice, timber harvesting) that alter the successional patterns and, sometimes dominant tree species, within a forest.

In the western United States, boreal forests are located at higher elevations and are predominantly under Federal ownership (U.S. Geological Survey 1998). As a consequence, in the west (Northern Rocky Mountains/Cascades and Southern Rocky Mountains) lynx habitat occurs primarily on a Federally-owned land base. The proportion of Federal land base decreases as one progresses eastward. However, in the Great Lakes region most of the lynx records are from northeast Minnesota where the majority of the boreal forest is federally-owned (Minnesota Department Natural Resources in litt. 2003). In the Northeast, nearly all the lynx habitat is privately-owned, most of which is commercial forest in Maine.

Unfortunately, accurate estimates of the amount of lynx habitat on all land ownerships are not available for all regions. In most cases, private landowners have not mapped lynx habitat on their lands, and private landowners have not shared information about their lands with the Service. In the final rule, we cited estimates of the amount of lynx habitat on all ownerships based on coarse maps of vegetation types provided in a biological assessment (U.S. Forest Service and Bureau of Land Management 1999). We recognized that these calculations overestimated the amount of lynx habitat in many areas and possibly underestimated it in other areas, but they provided a perspective on the amount of lynx habitat overall and in the individual regions (T.B. Wigley, in litt. 2003). The biological assessment estimates the following area of lynx habitat: Northeast—65,337 km² (25,227 mi²); Great Lakes—96,247 km² (37,161 mi²); Southern Rockies—26,673 km² (10,298 mi²); Northern Rockies—138,929 km² (53,641 mi²); Cascades—16,964 km² (6,550 mi²) (U.S. Forest Service and Bureau of Land Management 1999). (These calculations were cited in the final rule but were presented as acres, which we have converted into square kilometers and square miles for this rule.) During the most recent public comment period we were provided approximate estimates of the amount of lynx habitat currently mapped on U.S. Forest Service, BLM, and some National Park Service lands (S. Gniadek, National Park Service, in litt. 2003; E. Johnston, USDA Forest Service, in litt. 2003; J. Whitney, BLM, in litt. 2003). This information also is included in Table 1. These estimates for Federal lands will continue to be refined to reflect data obtained through site-specific analysis, field verification, and new information from research that