

caribou has disappeared from the northeastern United States, and the moose has repopulated northern and central New England and are newly reestablished in the Adirondacks of northern New York. Changes in prey base may trigger accompanying changes in the primary predator, because smaller canids and smaller canid social groups are able to subsist on deer, but are less well suited to preying on caribou and moose. All of these changes have proceeded with surprising rapidity, as has the eastern expansion of the coyote. Clearly, it becomes extremely difficult to determine the genetic identity of the wolf (or wolves) that occurred in the Northeast prior to European settlement. Bounty records, old trapper notes, and discovery of heretofore unknown mounted specimens may hold clues that will be investigated. However, the ranges of specific forms of wolf may have changed over time or intermingled along contact zones, and scientific consensus on one ancestral form of wolf for the Northeast may not be possible.

Currently, the existing molecular genetic and morphological data suggest several plausible identities for the large canid that historically occupied the Northeast. Nowak's morphological data continue to support the contention that *Canis lupus lycaon*, a subspecies of the gray wolf, occupied part of the Northeast and adjacent southeastern Canada; however, his more recent work suggests a smaller United States range (and a possible hybrid origin) for that subspecies and a consequent larger range for the red wolf (Nowak 1995, 2000). The recent molecular genetics studies (Wilson *et al.* 2000) identify this canid as something other than a gray wolf, which they tentatively refer to as *C. lycaon*. Under this scenario the historical northeastern United States wolf could either be the red wolf (*C. rufus*) or a separate subspecies of *C. lycaon*. Due to the extreme uncertainty over wolf taxonomy, at this time we are adopting no final position on the identity of the wolf (or wolves) that historically existed in the northeastern United States. Instead, we are encouraging additional research on that question, and we are maintaining the listing of the gray wolf in the northeastern United States because there are insufficient data showing that listing to be in error.

C. Historical Range of the Gray Wolf

Until the molecular genetics studies of the last few years, the range of the gray wolf prior to European settlement was generally believed to include most of North America. The only areas that were believed to have lacked gray wolf

populations are southern and interior Greenland, the coastal regions of Mexico, all of Central America south of Mexico, coastal and parts of California, the extremely arid deserts and the mountaintops of the western United States, and parts of the eastern and southeastern United States (Young and Goldman 1944, Hall 1981, Mech 1974, and Nowak 1995). (However, some authorities question the reported historical absence of gray wolves from parts of California (Carbyn *in litt.* 2000, Mech *in litt.* 2000)). Authors are inconsistent on their views of the precise boundary of historical gray wolf range in the eastern and southeastern United States. Some use Georgia's southeastern corner as the southern extent of gray wolf range (Young and Goldman 1944, Mech 1974); others believe gray wolves didn't extend into the southeast at all (Hall 1981) or did so to a limited extent, primarily at somewhat higher elevations (Nowak 1995). The southeastern and mid-Atlantic States have generally been recognized as being within the historical range of the red wolf, and it is not known how much range overlap historically occurred between these competing canids. Recent morphological work by Nowak (2000) supports extending the historical range of the red wolf into southern New England or even further northward, indicating that the historical range of the gray wolf in the eastern United States may have been more limited than previously believed. Another possibility is that the respective ranges of several wolf species expanded and contracted in the eastern and northeastern United States, intermingling along contact zones, in post-glacial times.

The results of the recent molecular genetic (Wilson *et al.* 2000) and morphometric studies (Nowak 1995, 2000) may help explain some of the past difficulties in establishing the southern boundary of the gray wolf's range in the eastern United States. It may be shown by additional genetics investigation that the red wolf, or another wolf species, historically populated the entire east coast of the United States, and the gray wolf did not occur there at all. However, until additional data convincingly show that gray wolves did not historically occur in the northeastern States, we will view the historical range of the gray wolf as including those areas north of the Ohio River, the southern borders of Pennsylvania and New Jersey, and southern Missouri; and west from central Texas and Oklahoma. This boundary is a reasonable compromise of several published accounts, being

somewhat south of that shown by Nowak (2000) and north of the range boundary shown by Young and Goldman (1944) and Mech (1974). The historical range boundary we are using most closely approximates that given in Hall (1981).

D. Previous Federal Action

The eastern timber wolf (*Canis lupus lycaon*) was listed as endangered in Minnesota and Michigan, and the northern Rocky Mountain wolf (*C. l. irremotus*) was listed as endangered in Montana and Wyoming in the first list of species that were protected under the 1973 Act, published in May 1974 (USDI 1974). A third gray wolf subspecies, the Mexican wolf (*C. l. baileyi*), was listed as endangered on April 28, 1976, (41 FR 17740) with its known range given as "Mexico, USA (Arizona, New Mexico, Texas)." On June 14, 1976, (41 FR 24064) the subspecies *C. l. monstrabilis* was listed as endangered (using the nonspecific common name "Gray wolf"), and its range was described as "Texas, New Mexico, Mexico."

To eliminate problems with listing separate subspecies of the gray wolf and identifying relatively narrow geographic areas in which those subspecies are protected, on March 9, 1978, we published a rule (43 FR 9607) relisting the gray wolf at the species level (*Canis lupus*) as endangered throughout the conterminous 48 States and Mexico, except for Minnesota, where the gray wolf was reclassified to threatened (refer to Map 1 below, located after the *Changes from the Proposed Rules* section). In addition, critical habitat was designated in that rulemaking. In 50 CFR 17.95(a), we describe Isle Royale National Park, Michigan, and Minnesota wolf management zones 1, 2, and 3 (delineated in 50 CFR 17.40(d)(1)) as critical habitat. We also promulgated special regulations under section 4(d) of the Act for operating a wolf management program in Minnesota at that time. The depredation control portion of the special regulation was later modified (50 FR 50793; December 12, 1985); these special regulations are found in 50 CFR 17.40(d)(2).

On November 22, 1994, we designated areas in Idaho, Montana, and Wyoming as nonessential experimental populations in order to initiate gray wolf reintroduction projects in central Idaho and the Greater Yellowstone Area (59 FR 60252, 59 FR 60266). On January 12, 1998, a nonessential experimental population was established for the Mexican gray wolf in portions of Arizona, New Mexico, and Texas (63 FR 1752). These experimental population designations also contain special