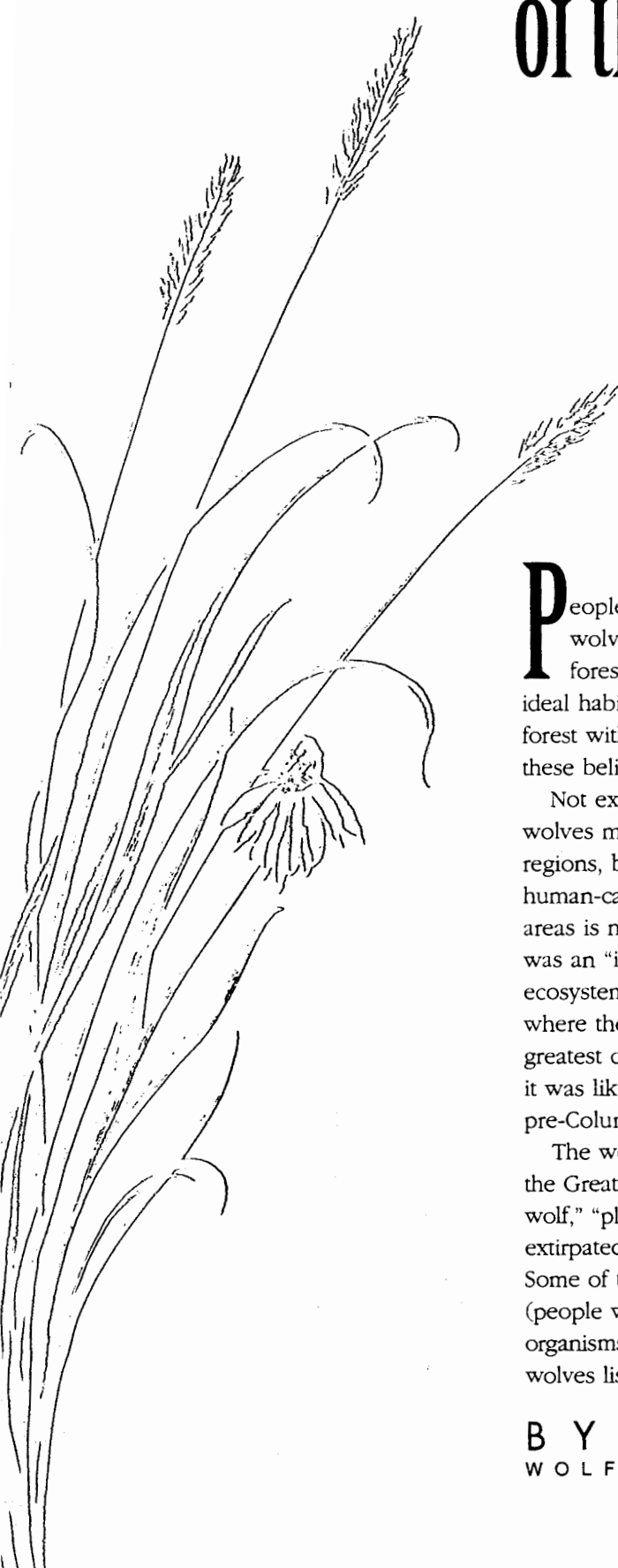


The Vanished Wolves of the Great Plains



People frequently believe that wolves prefer the northern forests and tundra or that the ideal habitat for wolves is a large forest with deer and moose. Are these beliefs correct?

Not exactly. Granted, gray wolves may live primarily in those regions, but that's mainly because human-caused mortality in such areas is negligible. But if ever there was an "ideal" or "preferred" ecosystem for wolves, an area where the species reached its greatest densities and prominence, it was likely the vast grasslands of pre-Columbus North America.

The wolf that originally resided in the Great Plains—known as "buffalo wolf," "plains wolf" or "lobo"—was extirpated in the 1920s and 1930s. Some of the first taxonomists (people who scientifically classify organisms) to study Great Plains wolves listed as many as three

indigenous species, based mainly on pelage (type of coat). Later taxonomists reduced the Great Plains wolf to a single subspecies, *Canis lupus nubilus*. More recent work by taxonomist Ron Nowak suggests, however, that the wolves of the Great Plains were part of the subspecies that extended from northeastern Canada to the western United States. (Nowak also argues that wolves that historically occupied the Canadian plains were part of another subspecies, *Canis lupus occidentalis*, that extends to Alaska.)

No matter how the Great Plains wolf is classified, other questions concerning this animal and its life on the grasslands of pre-Columbus North America are much more interesting: (1) how abundant were these wolves, (2) how did they behave, and (3) how did they influence the Great Plains' ecosystem?

BY DANIEL S. LICHT
WOLF PHOTOGRAPH BY LAYNE KENNEDY

If ever there was an "ideal" or "preferred" ecosystem for wolves,

Government biologist Vernon Bailey reported in 1926 that the wolf was historically found in almost every habitat in North America, but "nowhere more numerous than over the Plains in the days of the great buffalo herds." John James Audubon made a similar observation from the Missouri River region of western North Dakota and eastern Montana: "[I]f ever there was a country where Wolves are surpassingly abundant, it is the one we now are in."

Although these statements offer useful information, they give only a qualitative feel for wolf densities on the Great Plains. Audubon provided more quantitative information when he wrote: "When you shoot an [prey] animal and hide yourself, you may see, in less than half an hour, from ten to thirty of these hungry rascals [wolves] around the carcass." Additional information comes from the buffalo hunter and wolf trapper James Mead, who worked the present day region of Kansas in the mid-1800s. Mead, traveling on horseback, reported picking up 82 dead wolves in one day that had been killed in two nights with strychnine-laced bison carcasses. At another site, Mead and two of his hunters, each

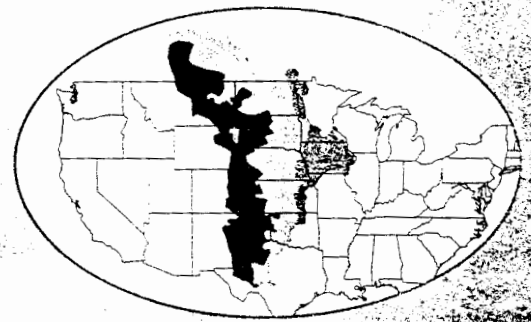
separated by a couple of miles, shot several bison for bait which they laced with strychnine. The following day they collected 72 dead wolves, and the next day, another 20 to 30. At yet another site, Mead reported recovering 50 dead wolves from a single poisoned bison carcass. (Mead made many distinctions between "big gray wolves" and "coyotes," so it doesn't appear that he included coyotes with his wolf kills.) So many wolves from such small areas challenges many of the current assumptions about wolf densities.

So how many wolves were there on the historic Great Plains? The painter and explorer George Catlin implied that 1.5 million wolves lived in the region. Catlin, of course, did not have the benefit of modern science. We can now come up with much more defensible estimates using estimates of the prey density that may have existed at the time based on the literature and on current prey densities.

Assuming that the .8 million square miles (2.05 million square kilometers) of grasslands supported 30 million bison, plus another 10 million antelope, 2 million deer, 1 million elk, and 20,000 bighorn sheep, then there was theoretically



Wolves had been almost extirpated from the Great Plains by the time this wolf was killed in the early 1940s near Beach, North Dakota. M. Worcester



- Tallgrass prairie
- ▨ Mixed-grass prairie
- ▩ Shortgrass prairie

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enough prey biomass to support 360,000 wolves (assuming 1 wolf to every 75,000 pounds, or 35,000 kilograms, of large prey biomass). Using the above prey estimates and information provided by Todd Fuller in the International Wolf Center publication *Guidelines for Gray Wolf Management in the Northern Great Lakes Region*, as many as 750,000 wolves may have occupied the region. These densities (1 wolf to every 1 to 2 square miles, or 1 to every 2.6 to 5.2 square kilometers) greatly exceed any reported wolf densities. Of course, there is no way the prey density estimates can be confirmed, so any figures based on them must be regarded as mere guesses.

Furthermore, at high prey densities, wolf populations may be influenced by social factors as well as prey availability. Even in the presence of abundant prey, the highest long-term wolf densities known are around 1 animal per 10 square miles (26 square kilometers), and the highest short-term densities are 1 wolf to 5 square miles (13 square kilometers). Also, it's possible that bison, because of their formidable size, were not "accessible" prey in the same sense as the other

species and therefore are not suitable for these simple predator/prey biomass formulas. As a result, the most one can say is that the grassland biome probably supported 80,000 to 750,000 wolves.

Behaviorally, the wolves of the Great Plains probably had much in common with the caribou-hunting wolves of the Arctic tundra. Catlin reported that Great Plains wolves could be found in "gangs or families of fifty or sixty in numbers" (perhaps an embellishment) while Mead counted 40 wolves in one "string." Similarly, wolves preying on moose or caribou may travel in packs of 15 to 30.

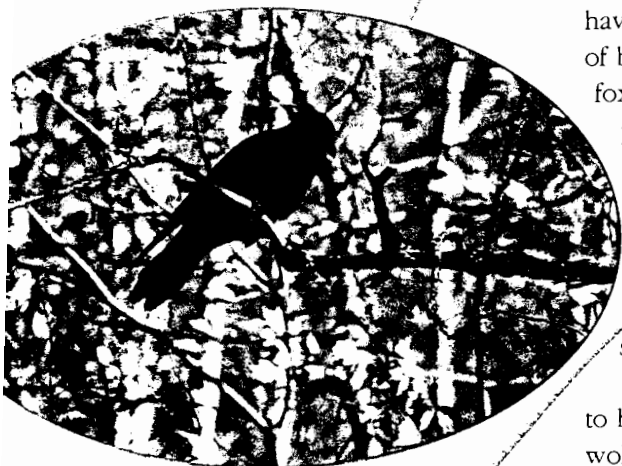
Like wolves that depend primarily on migratory caribou, the wolves of the pre-Columbus Great Plains relied mainly on the great nomadic herds of bison. It appears that where the bison went, the wolf packs often followed. Consider once again the journals of Audubon: "These rascals are never abundant where game is scarce, but where game is, there too are the Wolves." The explorers Lewis and Clark noted that the innumerable herds of buffalo were typically "seen attended by their shepherds the wolves." Edwin James, the compiler of the 1819–20 Stephen Long

expedition, which traveled up the Missouri River to the Platte, west to the Rocky Mountains, and then back east down the Canadian River, made the following notation while camped in the southcentral plains: "We have now passed the boundary of the summer bison range; and the wolves, those invariable attendants on that animal, are now rarely seen." Mead made a notable observation when he wrote of "killing the big gray wolves which lived with the buffalo and traveled with them, also the coyotes, which were numerous and seemed to live in the vicinity, not following the buffalo in their migrations as the gray wolves did."

It would be a serious oversight to discuss wolves in the pre-Columbus Great Plains without at least briefly discussing their effects on the grassland ecosystem. For example, historical evidence suggests that coyotes, although present in the southern and central plains, were rare or absent throughout much of the northern plains. Modern science has found evidence that the presence of wolves may limit the number of coyotes in an area. The relationship could be especially acute in an open landscape with high visibility and limited winter

The raven was once a common sight on the Great Plains.

J. Templeton



food, such as exists in the northern plains. Consequently, species that are hunted by coyotes, such as the black-footed ferret, the ground-nesting ferruginous hawk and the swift fox would prosper under the wolf's protective umbrella.

The swift fox warrants further discussion because the wolf may have provided an abundant source of bison carrion, critical for the fox's overwinter survival. Bailey provided circumstantial evidence of this when he cited a turn-of-the-century North Dakota fur-trader who stated that "although once common, none [of the swift fox] had been seen since the buffalo disappeared."

The raven, a species known to have a close relationship with wolves, is also absent today from almost all of the plains, having been replaced by the common crow. Yet the raven was once a common sight on the Great Plains. Edwin James, for instance, noted in the savanna country of eastern Oklahoma that "ravens, common in all the open plains, began to give place to crows, now first noticed." Did the demise of the wolf and the bison also lead to the demise of the plains raven? The trapper Mead provided a poetic eulogy for the raven and the species it shared the plains with: "The buffalo, the gray wolves, and the ravens—companions in life—mingled their bones when swift destruction overtook them."

The extermination of the wolf from the Great Plains was one of the saddest chapters in America's often-contentious relationship with its wildlife. One could argue that when the Great Plains wolf disappeared, so did the vast prairie wilderness. Even the old wolf hunter and trapper Mead seemed to lament the inevitable extirpation of the wolf when he wrote "the most thrilling as well as—to me—the most soul-stirring music I

ever heard was the clear deep bass voice of a big gray wolf on a clear cold winter night rolling out over the ice-covered prairie."

Walt Whitman called the Great Plains "America's characteristic landscape." Will viable populations of the gray wolf ever return to this uniquely American ecosystem? At present, it seems unlikely. Yet bison are being restored throughout the Great Plains for economic, aesthetic, ecologic and spiritual reasons. Can the wolf—that "shepherd" of the buffalo—be far behind?

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