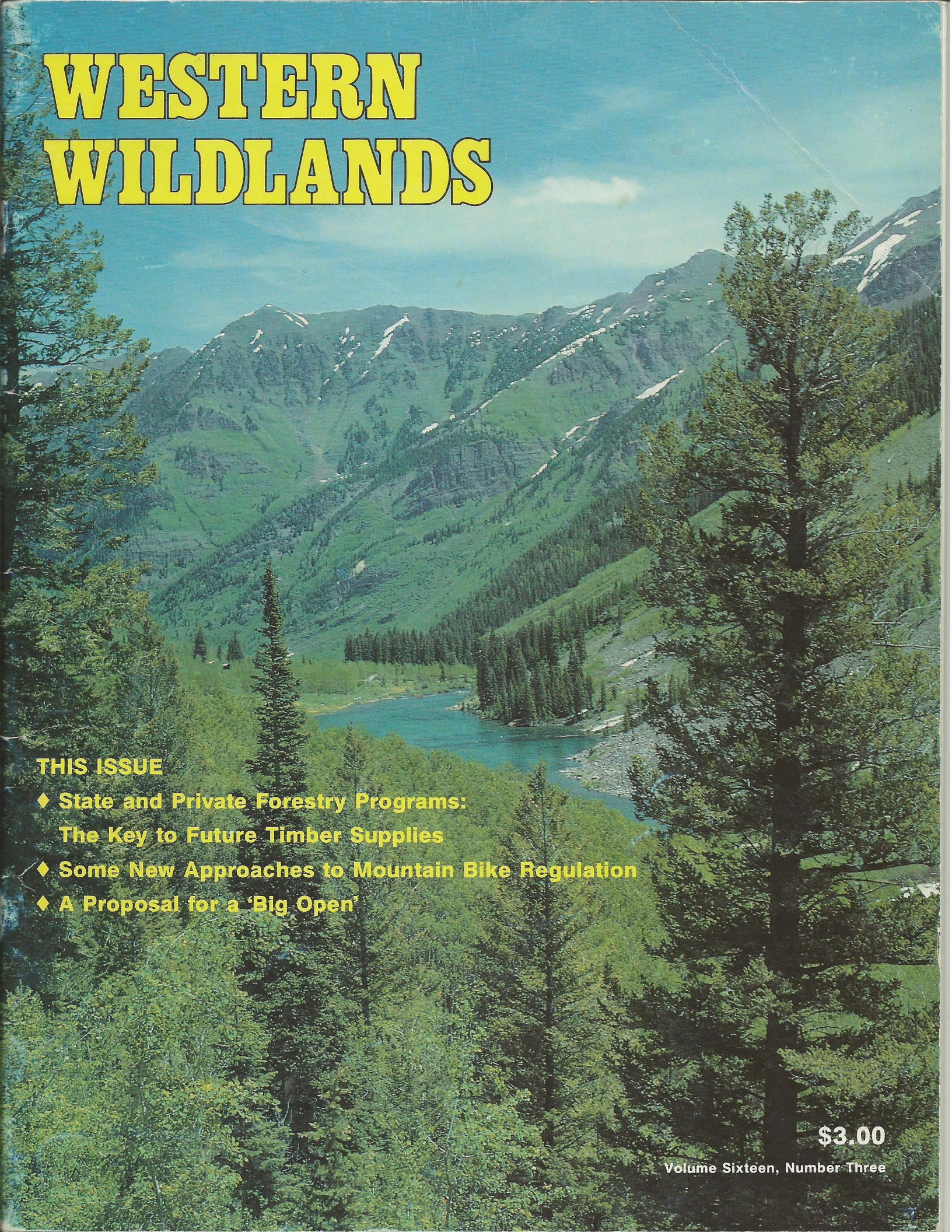


# WESTERN WILDLANDS



## THIS ISSUE

- ◆ State and Private Forestry Programs:  
The Key to Future Timber Supplies
- ◆ Some New Approaches to Mountain Bike Regulation
- ◆ A Proposal for a 'Big Open'

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COVER PHOTO  
Maroon Bells  
Snowmass Wilderness, Colorado  
Photo/Larry Ridenhour

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Sidney S. Frissell, Station Director

The Montana Forest and Conservation Experiment Station was established by the Montana State Legislature in 1937 as a nonprofit organization devoted to scientific investigation of natural resource problems. The station serves as the research unit of the University of Montana School of Forestry with the Dean functioning as station director. The station seeks, through this magazine and other publications, to enhance public understanding of forestry and conservation and contribute to wise use of our nation's forest, water, range, wildlife and recreation resources.

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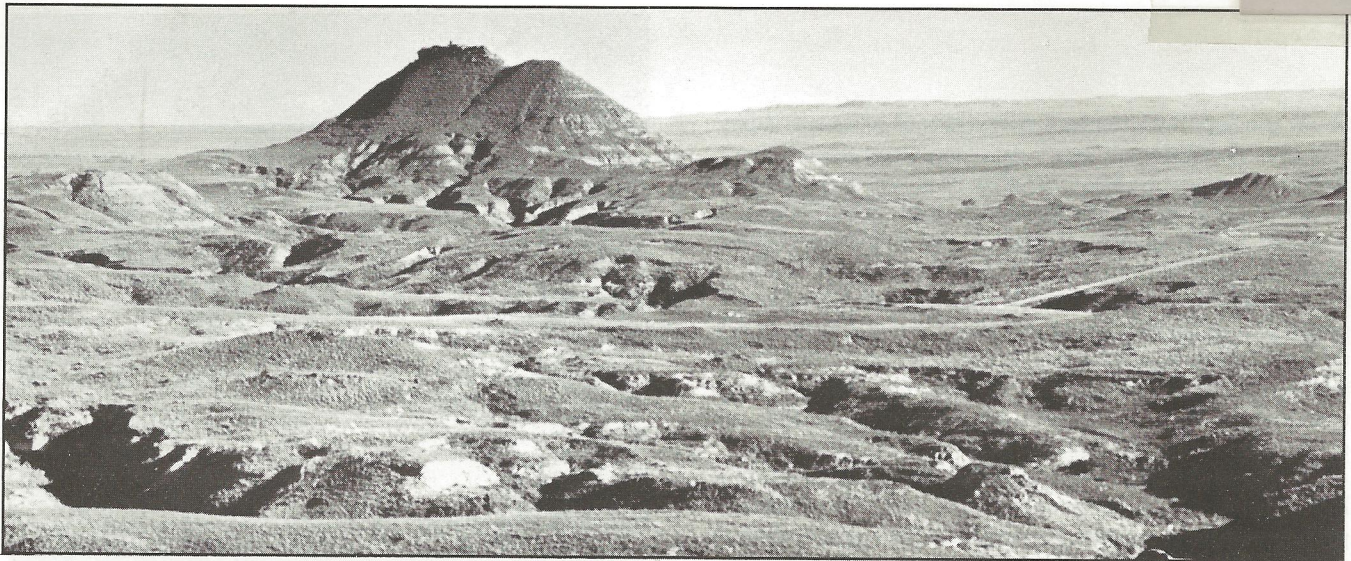
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McGinnis Butte near Jordan, Montana, in the Big Open

Photo/Paul Carter

## The Big Open: A Return to Grazers of the Past

Doug Coffman  
Charles Jonkel  
Robert Scott

North America's Big Open — a vast, mysterious realm encompassing almost one-tenth of the state of Montana — stretches from north of the Fort Peck Reservoir on the Missouri River to the Yellowstone River. Within its 15,000 square miles lives a human population of less than 3,000. In contrast, Belgium — an area about the same size as the Big Open — has 10 million people. And although the Big Open is mostly rangeland, Belgium produces more than five times as much beef (Kelly 1985, U.S. Department of Agriculture). One major reason for this inequity is water . . . or lack of it.

The Big Open is the driest of Montana's drylands. Located in the geographic and continental center of a long arc of high grasslands extending from Oklahoma to Saskatchewan and Alberta, the Big Open is part of North America's steppes. These grasslands are far from the rainfall sources of the Gulf of Mexico and the Pacific Northwest; they are instead dominated for part of the year by dry air currents from the arctic tundra of northern Canada. In addition to its extremes of summer heat and winter cold, the Big Open is an area often ruled by drought; it is "next-year country."

Given its geographic remoteness and propensity toward climatic extremes, the Big Open has always presented certain obstacles to our civilized comprehension of it. Perhaps the most misunderstood, yet the most obvious biological

fact about the area is that it — like much of the Great Plains — was created through the co-evolution of native plant and animal species over millennia of geologic time. The result of this long interaction is a complex mix of vegetative types, including blue grama grass, June grass, needlegrasses, silver and big sage, buffaloberry, sagewort, chokecherry, pine, cottonwood, etc. These are adapted to the pressures of a host of dependent animal species, such as the sharp-tailed and sage grouse, prairie dog, jack rabbit, pronghorn antelope, bighorn sheep, deer, elk and the primary high-plains grazer and indicator species — the bison. These herbivores, in turn, are adapted through long association to the needs of native carnivores and omnivores — wolves, bears, lion, shrews, ferrets, foxes and aboriginal humans.

Among the remarkable adaptive capabilities of native grazers in the Big Open are three that are crucial to survival in this often harsh environment: low water consumption, opportunistic grazing patterns and winter foraging abilities. The plains herbivores' domestic counterparts — cattle and sheep — evolved on sod-forming grasses under the cool, moist conditions of Europe and parts of Asia (Zeuner 1962). Without artificial water sources, supplementary feeding and other special attentions, domestic cattle and sheep are ill-equipped to survive on the high, arid plains of the Big Open.



## The Big Open

The same holds true for introduced, "exotic" food plants. Wheat, for example, is the main food crop grown in the Big Open, but yields in this area are among the lowest in the world (Kelly 1985, World Resources Institute 1987). Furthermore, the continual tilling, planting and spraying necessary to wheat production have created a host of environmental problems, including weeds, soil erosion and loss of soil fertility.

Admittedly the Big Open has produced large amounts of both meat and grain. But it has done so only after relentless exploitation of both the land and the people. Agricultural cash supports in the area are estimated at more than \$10 million a year. In spite of the subsidies, most Big Open counties are considered economically depressed, and there has been a net outflow of population for more than 50 years. It is perhaps not surprising that agriculture on the dry Great Plains has been called "the longest running agricultural and environmental miscalculation in American history" (Popper and Popper 1987).

What is now being called the Big Open proposal is a recognition that the area is much better suited to native wildlife than it will ever be to domestic livestock or grain production. The proposal calls for a gradual phasing in of native grazers and a gradual phasing out of domestic stock and domestic grain production. By emphasizing the wildlife resource, ranches could remain intact; people would be able to keep their land, make more money, work less and save both the land and the wildlife.

Resistance to the Big Open proposal, and there definitely is resistance, seems due to a persistent mythology surrounding the area's present and past. Among the prevalent misconceptions are the beliefs that there were never any bison in the Big Open during the winter and that the area generally supported few native grazers because of the scarcity of water. Our research into the history, ethnohistory and archaeology of the area gives a different picture.

‡

Before 1850, travelers to the Big Open traversed the Yellowstone and Missouri Rivers, as did Lewis and Clark. These travelers reported wild game in untold abundance. Lewis, for example, stopped mentioning the grazing herds in his journals due to their omnipresence. But it is not until the latter half of the 19th century that we begin to find comprehensive historical accounts of the unknown interior between the two big rivers - the mysterious heart of the Big Open.

---

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*Charles Jonkel is director of the International Wildlife Film Festival in Missoula, Montana and conducts research on grizzly bears and their habitat in northwestern Montana and adjacent British Columbia.*

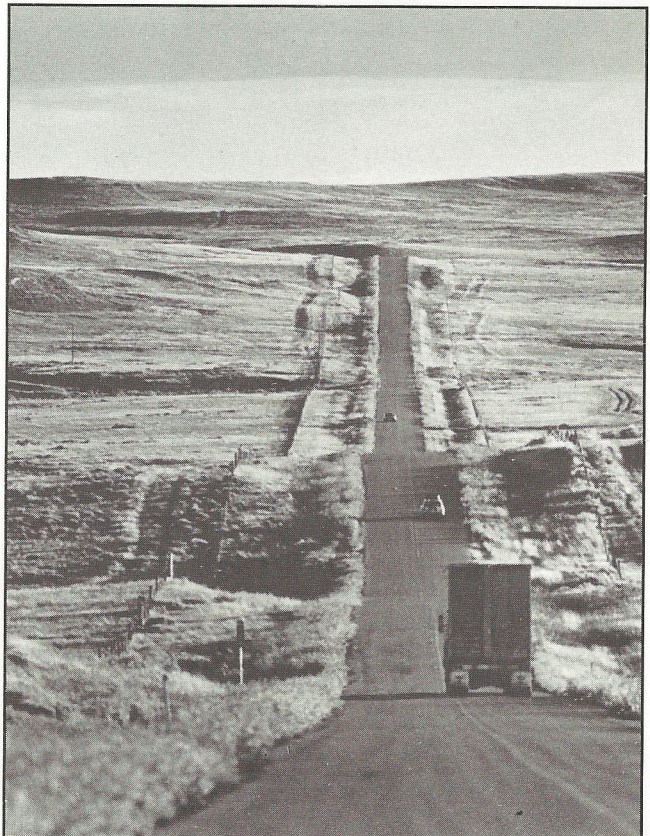
*Robert Scott is a fourth generation Montanan, an engineer, a former rancher in the Big Open area and an environmentalist.*

In August 1851, Catholic missionary Father Pierre-Jean deSmet crossed the remote area of the Big Open between Fort Union on the Missouri and Fort Alexander on the Yellowstone. His writings provide some of the earliest observations of the character of the land, and, as the following passage indicates, he also focused his attention on the local fauna:

*On the fourth day of our march, we descried thousands of bison; the whole space between the Missouri and the Yellowstone was covered as far as the eye could reach. During a whole week we heard their bellowings like the noise of distant thunder. It may be said that it is the country in which the buffalo and herds of deer are generally found in the greatest abundance (de Smet 1851).*

DeSmet's journey across what he called the "unoccupied waste" was probably made possible by the Big Open's plentiful wildlife:

*A good hunter might easily kill here, in the course of a day, several [bison] cows, deer, a mountain [sheep], a red-tailed and a black-tailed buck, an antelope, hares and rabbits. He might fire twice upon a grizzly bear, and perhaps meet a gray and a silver fox. To this list of animals we may add the beaver, otter, badger, prairie-dog and several kinds of wild fowl, principally . . . grouse. It is easy to see that our hunters possess the power of selecting a repast.*



Highway 200 through the Big Open

Photo/Paul Carter



## The Big Open



Above: cattle grazing in the Big Open, circa 1880. Photo/L.A. Huffman; below: buffalo roundup on the National Bison Range, Montana. Photo/Travel Montana.



Nine years later, another exploration into the arid triangle further established its character as a rich wildlife area and hunting ground. In 1860, an exploring expedition under the command of Captain W.F. Reynolds entered the valley of the Yellowstone. That summer, Reynolds sent a detachment commanded by Lieutenant John Mullins overland from Fort Benton; the group traveled eastward through the heart of the Big Open, along the Missouri-Yellowstone divide to Fort Union at the confluence of the two rivers. Even at this late date, Reynolds wrote, "The whole country between the Missouri and Yellowstone Rivers is unknown."

From the time the Mullins detachment neared the Musselshell River until it approached Fort Union, bison were encountered almost daily. On July 31, for example, Mullins recorded the following in his journal:

*Left camp this morning on a northeast course . . . to the valley of the Porcupine [Creek] . . . Large herds of buffalo were visible in the different valleys. The three forks of the Porcupine were seen almost to their source . . . all the valley, being filled with buffalo, presented a striking variety in natural scenery (Mullins 1860).*

Mullins was less interested in the flora and fauna of the Big Open than its agricultural potential. His bias toward the comparatively lush lands along the valley of the Yellowstone River is obvious in another entry about the Big Open: "The country passed over on my route . . . is worthless."

Less than two decades after Mullins encountered the arid triangle, interest began to shift toward the region's wildlife opportunities. The interest was commercial, and it centered on the bison. By the late 1870s, Miles City, Montana, was becoming the hub of the commercial bison trade on the northern plains. New tanning methods were opening markets for leather made from the summer hides of bison, and winter robes were in even heavier demand.

Historians have chronicled the increasing decimation of the bison herds as white hunters moved out of the southern plains into eastern Montana and adjacent sections of the Dakota and Wyoming Territories. Burdick (1939), for example, told the following story of George Newton, a typical commercial bison hunter operating in the divide country of the Big Open:

*During the season there were usually two hunts. One started in June and ended in August . . . but the real buffalo hunt which took on the proportions of a gigantic enterprise did not start before the latter part of September. By traveling along the great divide, herds of buffalo could be located feeding along the streams on either side, and Mr. Newton states that when these herds were located the animals were so numerous that they took on the appearance of bees around a hive.*

*Newton was employed by Frazier Brothers during the winters of 1878 and 1879. . . In the winter of 1878-79 the firm killed five thousand buffalo and these were skinned by a crew of six men.*

*In the winter of 1880-81 George Newton went to work for himself . . . this new firm killed thirteen hundred buffalo. In the winter of 1881-82 they killed nine hundred, and in the winter of 1882-83 they killed thirty seven.*

Burdick (1940) also chronicled the exploits of another commercial bison hunter, Frederick "Doc" Zahl, who found "thousands upon thousands of buffalo" between the Yellowstone and the Missouri. Zahl found the winter hunting profitable in the Big Open and worked there from 1878 until the bison played out in 1883. Routinely downing about 100 bison a day — and occasionally downing "stands" of more than 100 in an hour — Zahl earned dubious honor as the greatest buffalo hunter in the West.

Altogether more than 5,000 white and Indian hunters competed on the northern plains at the peak of bison hunting in 1881-82. According to Gard (1959), most of these hunters operated in the arid lands of the Big Open. Such a massive commercial frenzy could have been sustained only by huge numbers of bison. Historical accounts consistently report thousands of bison along the various upland creeks between the Yellowstone and Missouri Rivers.



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The only photographic record of the commercial bison hunting in the area was made by Miles City resident L.A. Huffman (Brown 1955). As post photographer at Fort Keogh during the late 1870s and early 1880s, Huffman recorded scenes of the hunt in what he called the Big Open. In an unpublished description of his bison photos, Huffman wrote, "During the late seventies and early eighties it was still possible to see bands of thousands of American Bison along the high ridges and smaller valleys between the Yellowstone and Big Missouri Rivers"

In the years leading up to 1883, Huffman witnessed the decline and eventual disappearance of bison from the Big Open ranges. While making a photographic record of what he felt was a tragic and destructive period, Huffman became concerned about the survival of the wild animals he had formerly hunted.

Crossing the divide between the Yellowstone and Missouri basins one winter in the early 1880s, Huffman was overtaken by a blizzard. For two days and nights, he huddled in a washout with his horse Crackers, both clinging to life. His account reveals the depth of his conviction that the Big Open was an ample grazing land for the native wild ungulates:

*When not busy melting snow in an army cup and toasting bits of bacon over my tiny fire I talked to Crackers of my scheme to make a great pasture of the "Flat Iron" [i.e., the Big Open], to fence it with a great woven wire to banish forever the skin hunters, maybe enlist them in the army of wardens. How and where the great park gates should be guarded, how tame wild things would get — bison, antelope and elk — and too how splendid t'would be when the yellow-green carpet of spring had come, to see it all teeming with life. (Brown 1955)*

‡

By 1886, only occasional small bands of bison were sighted between the Yellowstone and Missouri Rivers. In the fall of that year, the Smithsonian Institution sent an expedition to Montana to obtain specimens of bison for its Washington, D.C. museum. After exhaustive written inquiries and a spring scouting trip, William T. Hornaday, the museum's chief taxidermist, concluded that the Big Open was the only area of Montana, outside of Yellowstone National Park, that still contained bison.

Hornaday also witnessed the aftermath of the great slaughter. His accounts are particularly valuable because he was a skilled observer, with both scientific and historical interest in bison:

*We toiled northward [from Miles City] through the badlands up the Sunday Creek Trail. We were thirty-five miles from Miles City when we saw our first antelope, and forty when we came to the first bleaching bones of a buffalo. The former had been exterminated up to that point, and the buffalo bones all picked up and sold for fertilizer.*

*From the Red Buttes onward you see where the millions have gone . . . and now the bleaching skeletons lie scattered thickly all along the trail. In 1886, we found between the Little Dry*

*and Sand Creek thousands of decaying carcasses, lying intact just as the buffalo skinners left them (Hornaday 1887, 1925).*

The historical accounts generally agree on the season during which most commercial hunting took place in the Big Open. Citing reports of commercial hunters and news items from the *Yellowstone Journal*, a Miles City newspaper, historian Mark H. Brown (1961) established winter as the primary bison hunting season. Although there was limited hide hunting during the summer months, most hunters returned to Miles City in the fall for outfitting. The big hunts were conducted from late fall until early spring, when the hides were prime and brought the highest market prices.

A similar pattern of late fall/early winter hunting prevailed among the Indian groups that had historically used the Big Open as a sort of "buffalo commons." At various times after 1800, bands of Crow, Assiniboine, Gros Ventre, Arikara, Sioux, Blackfeet and even Nez Perce entered the region in the waning months of each year to hunt bison. The fat content of the carcasses was highest late in the year, and the wooly hides from the winter hunts made the warmest robes.

Bison kill sites discovered recently on Big Dry and Frazier Creeks, near Jordan, Montana, tell us that the fall/winter hunting cycle extended far back into prehistory (Taylor 1990). Archaeological investigation of these bison pounds (corrals) and jump sites show a use pattern dating from at least 1,700 years ago to about 200 years ago. Associated with these ancient bison kills are the remains of hearths and, in one case, a base camp where bison meat, fat, marrow and hides were processed. The skeletal remains of the more than 100 bison found at the site included juvenile animals, indicating late fall/early winter kills.

Archaeological and ethnohistorical evidence indicates that few Indians chose to inhabit the rich hunting grounds of the Big Open year-round; their wood and water requirements were more easily satisfied elsewhere (Wedel 1961, 1963). Winds sweeping across the bleak level of the divide would have made permanent residence especially difficult in winter.

Yet the same physical, climatic and biotic conditions that made human occupation marginal in the Big Open made it optimal for wildlife (Wedel 1961, Whiteside 1980, Ruebelmann 1982, Deaver and Deaver 1988). Conditions were ideal for large ungulates such as bison: Grass was rich and abundant in spring and summer; numerous springs, as well as standing pools in the beds of intermittent streams, were available to the game herds. In winter, the ceaseless winds cleared vast ranges of snow, making the sun-cured grasses more accessible for feeding. And, due to the low moisture content of the atmosphere, snowfall tended to be lighter in the area, making winters generally less arduous for native grazing animals.

The combined evidence from archaeological, ethnohistorical and historical sources confirms the idea that the Big Open was, until the dawn of the 20th century, a highly productive area for wildlife. The same conditions and



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processes that shaped past occupation of the Big Open will certainly limit future patterns of human activity. For this broad reason, the richest potential of the Big Open country lies in its continuing ability to produce vast quantities of grass and sustain multitudes of wild ungulates.

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The humans and the animals that took the bison's place in the Big Open have suffered considerable hardship. The open-range cattle industry was all but destroyed in the early 1890s through a combination of overgrazing and hard winters. Settlers who came by the thousands between 1910 and 1920 were driven out by drought in the 1920s. By the 1930s, dust storms, erosion and invader weeds had caused a further exodus of disillusioned farmers.

Federal and state conservation programs in the 1960s and '70s promoted a slow healing of the land, but the range is now stocked with more cattle than it held immediately before the disastrous losses of the 1880s. The droughts of recent years and the possibility of a new dust storm era in the 1990s do not bode well for the Big Open's current inhabitants. The sad fact is that most beef raised in the area is produced at a net loss: Foreclosures and family debt have increased steadily. Sod-busting in the 1980s added enormously to the problem by encouraging corporate ownership of the land; these corporate entities are often vulnerable to foreign buyers who have little commitment to the land and would probably continue or exacerbate range exploitation.

Because of the land's inherent resistance to domestication, and because of the inevitable specter of drought in eastern Montana, the Big Open concept could become a reality simply by default. But recent and recurrent suggestions that Montana's sparsely inhabited land be used for nuclear or toxic waste dumps, landfills for urban garbage or bombing ranges are a reminder that complacency can lead to disaster.

What is urgently needed is a *planned* transition to a wildlife-based economy. Ranches all over the West are already capitalizing on some of the burgeoning interest in wildlife by offering access to their lands for a fee, paid viewing, horse rides, film and photo opportunities. Low-impact tourism is a real alternative for the Big Open, and its potential would increase with the enhancement of wildlife populations.

About a century ago, a great debate raged about the proper method of developing the natural resources of the Great Plains and of settling the arid regions of the West (Stegner 1962). We are now dealing with the results of unfortunate 19th century choices. After a century of reaping the ecological consequences, the debate over the fate and future of the America West has begun again.

Without positive changes, the Big Open faces continuing economic decline, which could lead to desertification, leaving the area useless even for wildlife. The alternative is to establish the Big Open as the counterpart of the African Serengeti: a crown jewel of North America's natural heritage.

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Photo/T. Jenkins