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Robert J. Kiesling
The University of Montana

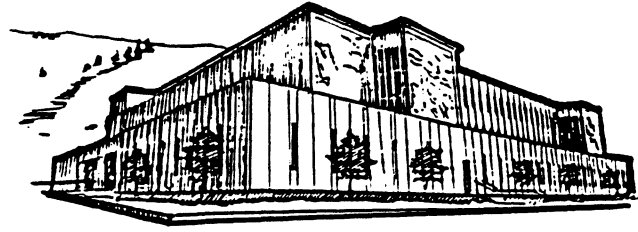
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University of
Montana

STRATEGIES FOR PRESERVING THE
BIOLOGICAL DIVERSITY OF THE ROCKY
MOUNTAIN FRONT

by
Robert J. Kiesling
B.A., University of Chicago, 1970

Presented in partial fulfillment of the requirements
for the degree of
Master of Science
University of Montana
1991

Approved by

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Date

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Montanans have long referred to the spectacular walls of stone looming above the great plains in west-central Montana as the Rocky Mountain Front (RMF), or more simply, the Front. From the grandeur of Glacier Park at the north end running some hundred miles southward (Figure 1), the towering peaks and massive, layered sedimentary limestone reefs present an imposing visage. Although plains and mountains also fuse to the north and south of this stretch, their comingling is gentler, less abrupt a collision than the country known as the Front.

In a narrow sense, the Front refers to that razor's edge of mountains that form the eastern face of the Rockies, but for purposes of this discussion, it includes the greater transition zone between mountains and prairies, extending some twenty miles eastward across foothills and prairie and an equal distance westward to the continental divide. The western reaches of the Front rub mountainous shoulders with Glacier Park and include parts of the Great Bear, Bob Marshall, and Scapegoat wilderness areas.

In the aggregate, all these areas comprise the Northern Continental Divide Ecosystem (NCDE) (Figure 2), a complex of wildlands and habitats whose size, diversity, and largely intact character justify the ecosystem label.

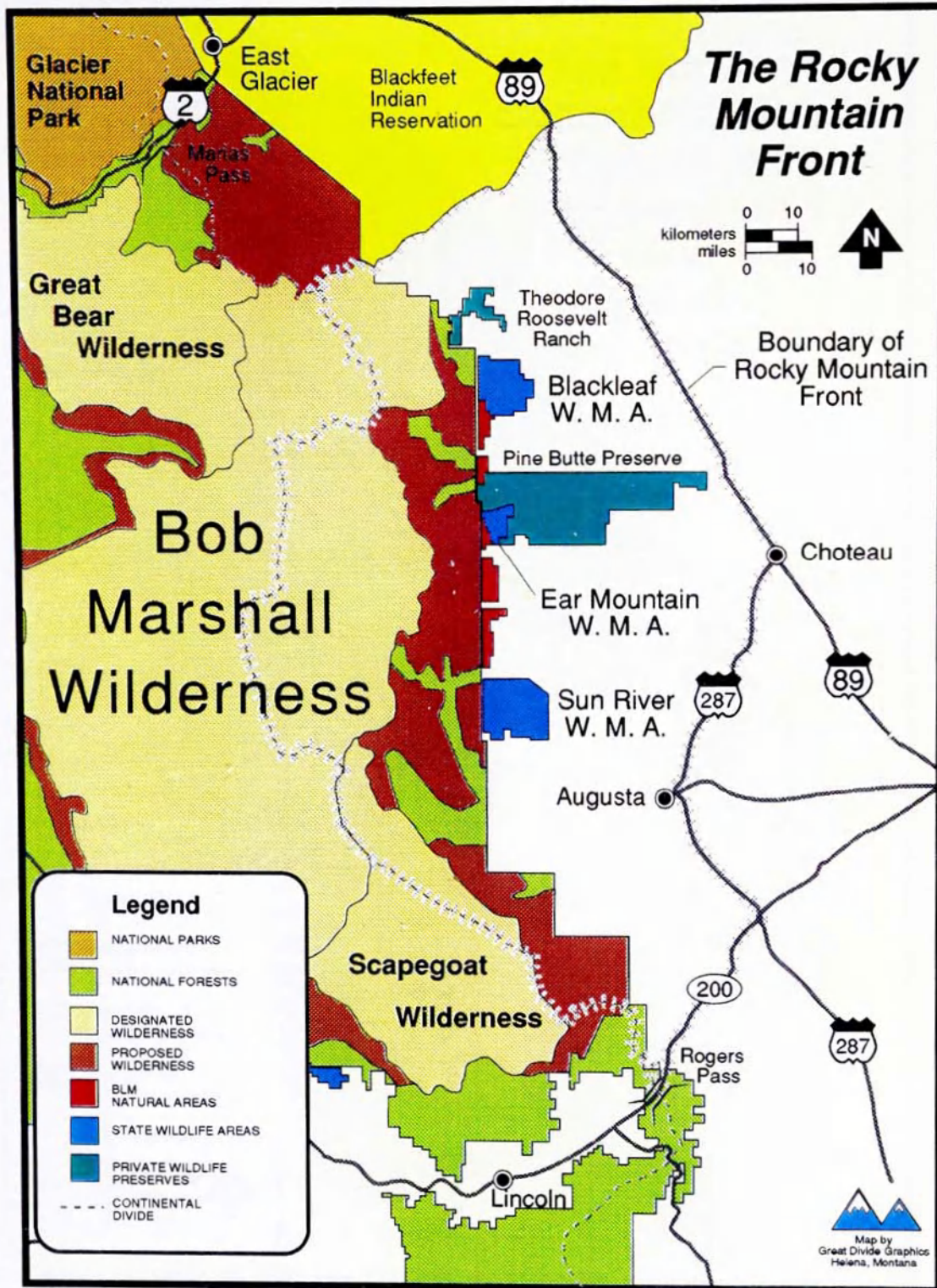


FIGURE 1

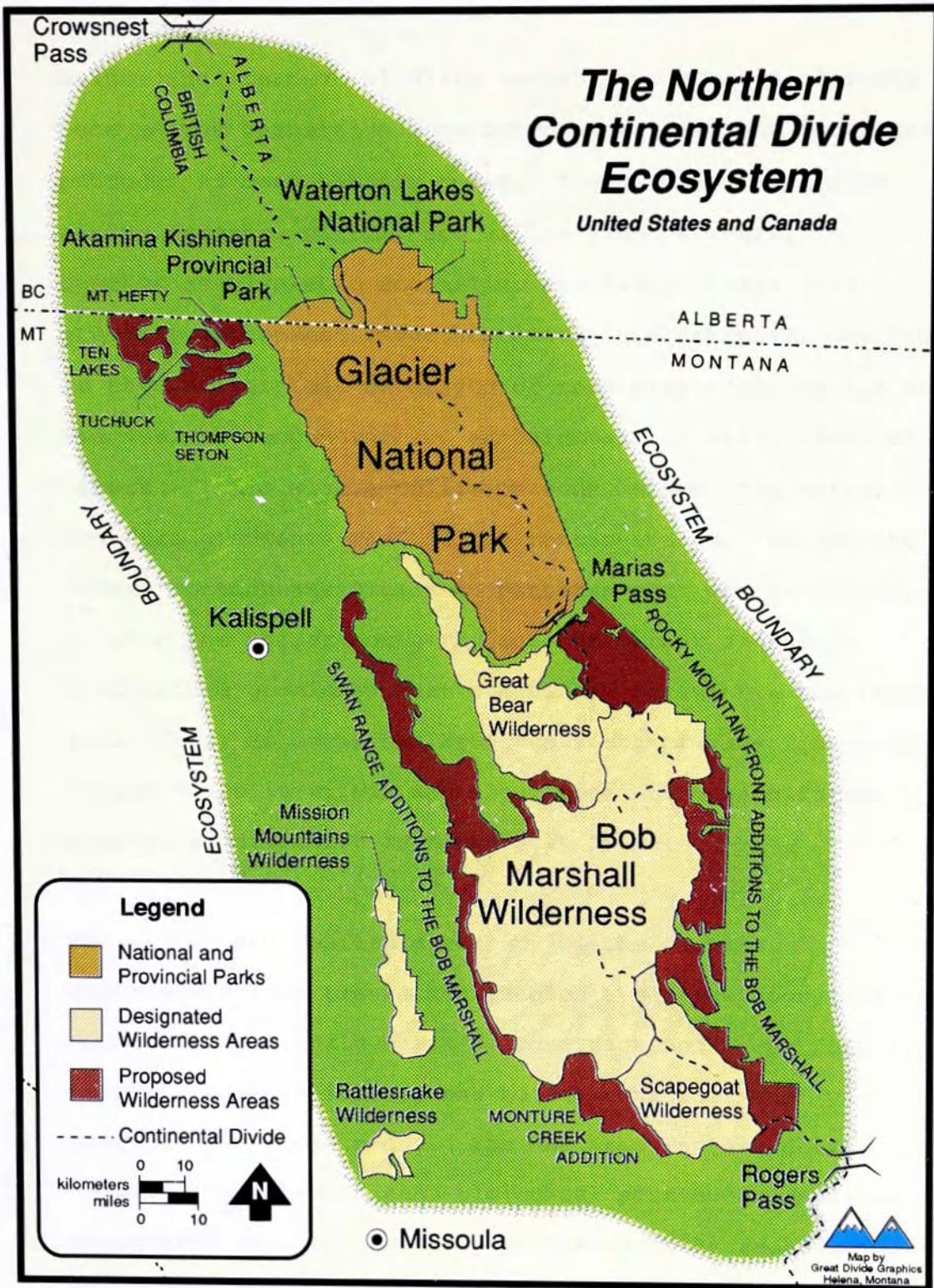


FIGURE 2

boasts the greatest wildlife variety and numbers, largely because the transition zone between prairies and mountains produces so many habitat types. These types range from alpine forests, cliffs, and willow lined streams, to bunchgrass-blanketed foothills, prairie potholes, and gravelly cottonwood river bottoms. Interestingly, the Front is the northernmost extension of some plant communities and species, the southernmost, easternmost, or westernmost of others. It is also a collision zone between the wetter moisture gradients west of the continental divide and the drier "continental" climate patterns east of the divide, and between the colder northerly and the warmer southerly temperature gradients that frequently mix within the Front's latitudes. As such, the Front consists of many life zone "edges." It is within and along edges that significant biological diversity is frequently found.

The biotic and habitat diversity of the Front's mountains/plains transition enables the large ungulates and wide-ranging grizzly bears to move back and forth from alpine to prairie zones in response to seasonal food and reproductive cycle needs. The RMF area is thus defined by a mosaic of geophysical and biological attributes whose many components are only recently acknowledged by federal and state land and wildlife agencies to be interdependent. It is with the idea that these interdependent components can be

adequately protected, linked, and successfully managed for the preservation of their great reservoirs of biological diversity that this paper is written.

Think of assembling a large, complicated jigsaw puzzle. No sense of pattern, of overall unity begins to emerge until a certain number and configuration of pieces are fitted together. Even then the puzzle might not assemble any more easily or quickly, but at the very least, an intimation of the big picture reveals what is possible and revitalizes the will to stick with the assemblage until completed.

So it is with the conservation of Montana's Rocky Mountain Front. This 1.5-million-acre complex of prairies, streams, foothills, forests, and mountain wilderness is a treasure trove of biological diversity. Its mosaic of habitats supports a rich variety of life forms from endangered grizzly bears, Rocky Mountain wolves, and glacial relict plants to large herds of wide-ranging deer, elk, bighorn sheep, mountain goats, and high-quality native bunch grass communities.

Figuring out the interrelationships of the many habitats, the species that depend on them, and the most likely means of preserving the various parts and life processes within the RMF is akin to assembling an ecological jigsaw puzzle of

major dimensions.

The jigsaw puzzle analogy seems particularly apt in the sense of adding to and perhaps completing a series of habitat protection efforts that began about the turn of the century in this area we now call the Front. Yet it also implies that the area was in a state of biological disorder when the assembling began.

To a considerable degree, the area was indeed in disorder. Merely seventy years after Lewis and Clark noted, in 1805, the abundant wildlife of the upper Missouri plains and Rocky Mountain foothills, shipment of buffalo hides down the Missouri River from Fort Benton peaked at 80,000 hides. Hide shipments then declined to zero by 1884 (1). Indians were largely "under control" by the 1870s--if not by military efforts alone then by smallpox epidemics and the elimination of the great buffalo herds that sustained them.

In the 1860s cattle herds were introduced into Montana, with their numbers increasing rapidly until the winter of 1886-87 when most big cattle outfits lost fifty to seventy percent of their cattle. (2) Once the cattle and sheep overgrazed the foothills areas, ranchers moved them into mountain pastures. This further pressured wildlife herds that were also hunted to supply meat for Helena and the growing communities of

Great Falls and Augusta.

Declines in wildlife populations meant that grizzly bears and wolves turned to livestock for food and were in turn eliminated by ranchers and bounty hunters. The forested lands of the Front and its major river drainages were harvested for railroad ties, firewood, and lumber for building expanding communities.

By the turn of the century, the once-great wildlife resources that had characterized the RMF had been reduced to remnant levels.

Perhaps spurred by the exploitive excesses of the times, a growing number of citizens began to push for protection of Montana's fish and wildlife resources. The pulse of conservation could be detected as early as 1864, when Montana pioneer rancher/pro prospector James Stuart introduced territorial legislation to protect fisheries from netting and dynamite exploitation. His brother, Granville Stuart, secured passage of a Montana territorial law to protect wildlife and particularly to stop the slaughter of buffalo by making it illegal to kill an animal for its hide alone.

Unfortunately, wildlife and resource exploitation continued largely unchecked; the conservation ethic had not yet become

deeply rooted. In addition, there were no real mechanisms to enforce the few well-intentioned laws that were passed.

However, as the exploitation of resources ran the course to depletion, and as the 19th Century closed out, the conservation pulse became stronger. A number of measures were taken to protect land and wildlife resources formerly subject to wide open abuse. The imposing mountain front and interior reaches of the Rocky Mountains were designated a Forest Reserve in 1897. This reserve was transferred by the General Land Office to the newly created National Forest Service in 1905. When Theodore Roosevelt became president in 1901, there were forty million acres in the relatively new Forest Reserve System; by the end of his term in 1909, there were 150 million more. Chagrin over the fate of the buffalo led to the establishment of a national bison range in western Montana in 1908. Glacier Park was established in 1910.

During this era squabbles arose over the use of public lands. Along the RMF such disputes often pitted livestock ranchers (who were accustomed to grazing their cattle, horses, and sheep in the valleys and basins of national forest lands) against growing numbers of game protectionists and sportsmen, who argued that there was too little forage left for wildlife. In 1913 the Montana Legislature passed a bill creating a game preserve between the north and south forks of

the Sun River and the continental divide. The bill abolished livestock grazing in the game preserve (3).

Later, in 1947, the Sun River Wildlife Management Area was acquired by the Montana Fish and Game Department to afford big game access to historic foothills winter range. More recently, the department added two wildlife management areas--Ear Mountain and Blackleaf--in the 1970s. Since then, The Nature Conservancy and the Boone and Crockett Club, both private nonprofit conservation organizations, have secured key habitat areas with their Pine Butte Swamp Preserve and Theodore Roosevelt Memorial Ranch projects respectively.

Major wild land designations came also in the wake of the 1964 Wilderness Act. This act statutorily defined the Bob Marshall Wilderness, which had been managed as a primitive area by the Forest Service since 1929. In 1973 the Lincoln-Scapegoat area was added to the wilderness system, and in 1978 the Great Bear was added. Both were added over the objections of the Forest Service.

Twentieth Century contributions to conservation of the RMF and its wildlife certainly were not relegated to land set-asides alone. A series of statutes and regulatory measures complemented efforts to designate secure habitat. Montana hired its first state game warden in 1901. The Montana Fish

and Game Commission won authority to preserve and manage grizzly bears in 1923. More recently, the Endangered Species Act and numerous environmental protection acts and land management acts have lent additional "oomph" to conservation.

Moreover, the birth and growth of a plethora of conservation-minded organizations, from local sportsmen's clubs and groups such as the Badger-Two Medicine Alliance and the Montana Wildlands Coalition to national organizations such as the National Wildlife Federation, Defenders of Wildlife, and the Wilderness Society, meant that the chorus for conservation would become louder and stronger.

To that growing chorus and to the ever-expanding number of conservation actions on behalf of the Front or its component parts, I can add my voice and experience from the past decade.

My personal acquaintance with the Rocky Mountain Front began with hiking and camping excursions in Sun River and Dearborn River backcountry as a youngster. My sense of the Front as a conservation project, however, began some years later in the late 1970s.

During a ten-year period as founder and director of The Nature Conservancy's Montana Field Office, I spent more time

and dollars assembling the Conservancy's Pine Butte Swamp Preserve (see Appendix 1) along the RMF than on any other conservation project.

Often during that period, it seemed that complexity and price tag made the Pine Butte project the tail that wagged the rest of the dog. Sometimes other conservation opportunities of lesser scale were passed up because, being fiscally responsible, we needed to eliminate red ink at Pine Butte before tackling new acquisitions. Nonetheless, I was convinced that the Pine Butte project deserved all the resources we could throw at it and much more. I perceived the preserve as a key component in a vastly larger conservation effort—the protection of the Northern Continental Divide Ecosystem.

Being somewhat leery of the casual use of the term "ecosystem," I recognized that the protected core of the Glacier Park-Great Bear-Bob Marshall-Lincoln Scapegoat wilderness complex and surrounding lands were by and large intact and deserving of the ecosystem label. The Rocky Mountain Front clearly harbored the greatest biological diversity and wildlife abundance within this ecosystem because, as the transition zone between prairies and mountains, it sported the greatest diversity of habitat types and edge effects.

Additionally, no small part of my affection for the RMF and the Pine Butte project was that I considered it typical of the major contribution Montanans could make to the preservation of natural diversity; that is, large landscape, whole *systems* conservation.

At that time the Conservancy was building, state by state, biological diversity data bases (Natural Heritage Programs) to help guide actual protection efforts. However, the sophistication didn't exist in the late '70s and early '80s to make very conclusive statements about the relative importance of large systems. In fact, it took six years of persistent effort by the Conservancy and others just to persuade Montana's state government to establish a Natural Heritage Program in 1985 (see Appendix 2).

Given the Conservancy's institutional emphasis on endangered species and plant communities, the lack of a strong identification system, and the limitations of funding, the case for wider conservation efforts within the Rocky Mountain Front area was not very compelling in the Conservancy's view.

It was frustrating that our identification and ranking methodology wasn't better able to handle ecosystem analysis. On the other hand, it was clear from long-range strategic

plans devised in the early 1980s that preserving biological diversity in a state such as Montana (with a large public land base) would require extensive resources and the cooperation of many other conservationists and institutions. The conservation job was simply too big to tackle alone. Given the circumstances, it made more sense to recruit help than to try to "change city hall" within the Conservancy, despite the fact that the Conservancy was the most logical institution to handle the job on private lands.

Working closely with the Montana Fish, Wildlife and Parks Department, I helped persuade the Boone and Crockett Club, a nonprofit hunting and conservation advocacy organization, in 1985 to acquire 6,000 acres of prime habitat along the Front, now known as the Theodore Roosevelt Memorial Ranch (Appendix 3). More recently, I enlisted the assistance of The Conservation Fund (see Appendix 4) to help shape the case for conserving the Front and to extend the network of advocates, conservation leaders, and financial supporters of Rocky Mountain Front protection. These private sector initiatives have proved successful and have done much to replace the frustration characteristic of the early '80s, when it seemed hard to see the ecosystem for the trees.

Paralleling the private sector experience, efforts in public lands conservation within the RMF area during the 1980s were

a mix of frustration and progress. Most disappointing were the repeated failures to secure wilderness designation for the key Forest Service lands along the Front and elsewhere in the Northern Continental Divide Ecosystem. Yet major progress did occur in the form of growing acceptance (popular, political and scientific) of the Northern Continental Divide lands as an ecosystem and of the Rocky Mountain Front as an area worthy of special management. A pioneering federal/state interagency cooperative project to evaluate and monitor the Front's wildlife populations began in 1980, culminating in the development of management guidelines designed to assist the public land and wildlife agencies in handling proposed human activities concurrently with wildlife and habitat enhancement objectives (see Appendix 5).

Although this cooperative effort was essentially a public agency project, I raised \$50,000 in private sector support of the research and allocated some Nature Conservancy staff time to assist agency personnel with developing guidelines. A few energy companies also contributed time and dollars as a demonstration of support for the cooperative process.

Another laudable public effort came with the Bureau of Land Management's designation of four outstanding natural areas (ONAs) on the Front. The BLM's 1984 Headwaters Resource

Management Plan (4) directed that these areas be managed to protect wildlife habitat, scenery, and other surface resources from disturbance; that is, they were to be managed essentially as wilderness.

By the end of the 1980s, public agencies' regard for the Front had grown substantially. So had their commitment to share information and to manage the area in a more cooperative, integrated fashion. Environmental organizations' interest in the RMF heightened as well, stimulated in large part by periodic grizzly bear controversies and reports of wolves beginning to occupy the Front.

In fits and starts, then, over the course of this century, a series of conservation measures reversed the thoughtless exploitation patterns of the past and began the recovery of a magnificent area that was on the verge of biological bankruptcy at the turn of the century. In the aggregate, these measures--statutes, regulations, land and habitat protection programs, management changes, the growth of conservation institutions and individual advocates, etc.--comprise pieces of the ecological jigsaw puzzle that is the Rocky Mountain Front.

It was not through any great deliberation or collusion that

these conservation efforts occurred. Rather, they were the result of needs and opportunities converging, driven by individuals and institutions with widely varied objectives. Yet viewed as part of a conservation continuum, they now give definition to a conservation dream of awesome magnitude: the restoration of the Rocky Mountain Front to nearly pre-European settlement levels of natural biological diversity, abundance, and health. Securing permanent protection for one of America's remaining great wild land complexes and the biodiversity it harbors, and doing so without extensive social and economic upheaval, now seems both possible and perhaps even probable by 2005--two hundred years after Lewis and Clark observed the abundant wildlife that was and can again be the hallmark of the area.

If the puzzle pattern of the Front is now discernible after ninety years of conservation action, so too are the major missing pieces of the ecosystem puzzle becoming more evident. While considerable progress has been made in reassembling some biological components and linking others together, it is not yet possible to say that the larger system or its components can sustain overall biodiversity without securing and managing the major missing habitats. For example, the gains made with the acquisition of the state-owned Wildlife Management Areas, the Pine Butte Preserve and the Theodore Roosevelt Memorial Ranch could be lost in time if habitat

links were not secured between these areas. Likewise, the integrity of these now-protected areas would diminish if the 400,000 acres of multiple use Forest Service land to the west or the ranch lands to the east became excessively fragmented by roads, rural subdivisions, recreation pressures, or other short- or long-term threats.

It is a reasonably safe assumption that as population increases, settlement patterns shift, and landscapes become increasingly fragmented by human encroachment, human desires to locate in areas rich in scenery, recreation, and wildlife such as the RMF will accelerate. Assuming also that the demand for the commodity resources of the Front will merely wax or wane over time but never cease altogether, the potential for RMF preservation depends upon whether the tools of conservation are adequate to the task and whether they can be applied effectively and quickly enough to win the race against the array of threats over time.

In my experience, the recipe for effective biodiversity conservation consists of five main ingredients:

- 1) a strong scientific basis; that is, a rigorous, science-driven rationale for preserving a particular area, species, plant community, etc.;

- 2) a sound identification method; that is, a system for

comparing and ranking the relative importance of the various areas and creatures presumably deserving conservation (this is particularly important given that conservation budgets never adequately cover needs);

3) a diverse set of techniques to actually preserve natural features, such as legislation (as in wilderness designation), private sector acquisition, conservation easements, land exchanges, lease agreements, etc.;

4) the knowledge, capability, and budget to effectively manage the conserved habitat and resources over time; and

5) the active understanding and involvement of the public in the well-being of the whole system.

A look at the relative strengths of these ingredients indicates that long-term preservation of biological diversity within the Rocky Mountain Front can be achieved.

SCIENTIFIC BASIS

The scientific basis for conserving the RMF (and by extension the Northern Continental Divide Ecosystem) derives from the new discipline of conservation biology and the ecological theory called "island biogeography."

The principal lesson of island biogeography for the preservation of biological diversity is that the larger a protected area is, the more likely it will be able to sustain the variety and numbers of organisms within it over time. Although relationships between area and species richness were recognized earlier in the twentieth century, scientists did not begin to understand the principles of the relationship until the 1960s. Consensus within the scientific community that "bigger is better" has only recently developed.

"The primary reason so many creatures are in trouble is that much of their habitat has been lost, and what remains is badly fragmented. For many species, even the largest fragments are proving too small and isolated to sustain them over the long run," writes biologist Doug Chadwick.(5) At national and global levels, the prevailing emphasis in biodiversity preservation has been on individually endangered species and communities. Extinction rates are rapidly accelerating due to habitat loss, and the cost of responding to individual extinction threats is now absurdly out of line with what is actually being spent to fight the problem globally.

In this context, a systems-level approach (that is, saving whole collections of organisms within functioning ecosystems) to preserving biodiversity is both cost-effective and

decidedly more proactive endangered species management than the individual crisis approach. A growing number of scientists (Ehrlich and Ehrlich 1981; Scott et al. 1988; Norton 1988) note that identifying and protecting large areas rich in regional biodiversity is the most practical means of preserving diversity on the global scale required to stem the major biological collapses predicted to occur over the next fifty years. "While endangered species should not be abandoned lightly, the biological and economic superiority of preventive conservation argues that it should receive a substantial portion of the conservation dollar," suggest Scott et al. (6)

We now understand better than ever the need for ecosystem preservation. As Chadwick points out, "an ecosystem is not a collection of plants and animals; it is a seamless swirl of communities and process. If you don't save the processes, you won't save the parts. so if you're going to create a preserve, you had better make it a big one." (7)

As the data accumulate from ongoing empirical studies to understand the causes and consequences of biodiversity losses, the case for preserving entire ecosystems appears all the more compelling. Furthermore, restoration biology (that is, rebuilding biological communities and habitats) is extremely complicated and expensive. And although it must be

done in certain instances, the cost-to-benefit ratios suggest that preserving ecosystems already essentially intact yields a much better return for biodiversity per dollar invested. Without doubt, the Northern Continental Divide Ecosystem represents an extraordinary opportunity for swift and relatively inexpensive in situ conservation.

If the scientific basis for ecosystem preservation is now stronger than ever, corollary "oomph" is developing among the scientists themselves. Consider that the Society for Conservation Biology was recently founded (May 1985) out of concern for the biological diversity crisis expected to reach crescendo during the first half of the twenty-first century.

The society consists of professionals in the biological and social sciences, managers, administrators, students, and others who have organized to help avert "the worst biological disaster in the last 65 million years....through, among other responsibilities, 1) the modeling and analysis of population, community, ecosystem, and planetary processes; 2) basic field work, including inventories and systematics; 3) experimentation to test hypotheses; 4) development and evaluation of technological and management interventions that maintain and restore diversity and function; 5) the communication of results to facilitate their application; and 6) the integration of this knowledge and technology with

complementary human activities.”(8)

The fact that conservation biology is now a discipline and that a professional society now exists to give it voice and spur its development is good news. Of equal importance, however, is the fact that a consensus now exists among professionals of the need to promote both the sciences of conservation and the practice of conservation. Implicit in such purposes is the recognition that scientific knowledge is not enough; it must be applied using a team approach that draws upon many disciplines if there is to be any headway made in preserving biological diversity.

IDENTIFICATION METHODOLOGY

The technology of inventorying biological diversity was not widespread enough nor sufficiently sophisticated to evaluate large ecosystems a decade ago. Now, however, advances in computers, satellite imagery, and other inventory tools combined with advances in the body of knowledge generated by conservation biology make ecosystem analysis and ranking possible. The Nature Conservancy's Natural Heritage Program data base can be used as the principal source of information on sensitive species and plant communities. Then drawing upon remote sensing data such as satellite images, infrared and aerial photographs, and combining all of these data within the digital mapping technology known as Geographic

Information System (GIS), reasonably accurate assessments of biological diversity can be generated.

In addition to the biodiversity mapping improvements, the GIS system can be harnessed to map and display pollution sources, mineral resources, and other commodity value natural resources as well as rare features, animal travel routes, existing protected areas, etc. By overlaying all these data on a map, one begins to see where the crises and the opportunities for conservation lie. Recent efforts to harness these technological capabilities specifically to assist in the protection of biodiversity have been effectively demonstrated by Scott et al. (see Appendix 6). As with all such technological tools, the real advantage lies not just in seeing the world more clearly but in planning for the future.

"Today," says Montana's Natural Heritage Program Director,

David Genter,

"...we have a much better portrait of the state's biodiversity than ever before. We're using some new and effective field techniques like gradsect (inventorying large areas using transects following the maximum environmental gradients) which give us fairly accurate community composition data for large areas in a short amount of time. Improved field techniques, better modeling capabilities, and the use of remote sensing and GIS technology enable us to better inventory biodiversity and to rank protection priorities in ways that we couldn't a short while ago." (9)

Whereas The Nature Conservancy shuddered at the daunting task of ecosystem definition and ranking a decade ago, inventory methods have advanced to the point where the Northern Continental Divide Ecosystem is now identified as one of five ecosystems in Montana most worthy of protection. As such, it might well be included in The Nature Conservancy's recently announced campaign to preserve 150 bioreserves--large, essentially intact areas of rich biodiversity. Even without such status, however, the NCDE is now recognized as an ecosystem by most federal and state land and wildlife managers. This is an important development in terms of future protection and management decisions.

The practical value of anchoring conservation actions with a strong supportable scientific understanding and a rigorous biological inventory methodology should not be underestimated. Preservation of biological diversity is gaining advocates as a worthy, indeed necessary policy goal, yet it is still but one of many competing goals for use of the landscape. As Thomas and Salwaiser point out, "To conservation biologists, biodiversity may be the Holy Grail. To public land managers it is but one grail among many. The degree of attention paid to the preservation of biodiversity will depend on legal requirements, the knowledge and sympathy of agency personnel, the resources available to do the job, the development of knowledge and techniques of application, and the monitoring of results." (10)

The point becomes particularly acute with regard to commodity

use of the natural resource base. For example, because of the large investments and returns involved, economically and politically powerful energy companies are reluctant to abandon or modify their exploration and development agendas. In sensitive areas such as the RMF, they are likely to alter their plans only in the face of extreme and persistent public pressure or hard scientific arguments supported by objective identification of critical biological resources. Put more bluntly, developers of all stripes pay less attention to heart-and-spirit driven pleas for conservation than they do to persuasive scientific arguments.

PROTECTION

With the scientific basis established and inventory work underway and improving steadily, the next logical step in a conservation strategy is to protect the resource. David Hales of the University of Michigan School of Natural Resources notes that "the specific objects of our concern as conservationists are components of larger systems. The management and protection of the biological components are dependent on the effective management of complementary components or subsystems, including the political ones." (11)

Zeroing in on the Rocky Mountain Front as a subsystem of the larger Northern Continental Divide Ecosystem reveals a protection effort only partially completed. Of the 1.5

million-acre RMF area, nearly two-thirds of the land is in public ownership, with about half that amount (500,000 acres) protected by wilderness, wildlife management area, or outstanding natural area designations. The concern, then, is how to adequately protect the half-million acres of undesignated public land and the half-million acres of privately owned land within the area.

The primary strategy for public lands protection is wilderness designation. Fully 350,000 acres of the public lands within the RMF area are unroaded U.S. Forest Service lands potentially deserving of wilderness designation--an effort that the Montana conservation community has pursued and will pursue with justification and vigor (Figure 3). Short of wilderness designation, the 400,00-plus acres of U.S. Forest Service (USFS) lands within the RMF area will likely benefit from some combination of wilderness and/or special management designation by Congress. Although anything less than full wilderness designation of the unroaded USFS lands within the RMF area creates an ongoing concern over whether management of the lands for commodity production would threaten the long-term integrity of the area as a haven for biodiversity, the interagency and public acknowledgement of the RMF as an extraordinary wildlife-rich area will likely preclude any hasty, helter-skelter onslaught of commodity development on USFS lands.

SOURCE: JOINT PUBLICATION OF WILDLANDS & RESOURCES ASSOCIATION, AND MONTANA WILDLANDS COALITION
MARCH-APRIL 1988

THE ROCKY MOUNTAIN FRONT: WHERE EAST MEETS WEST

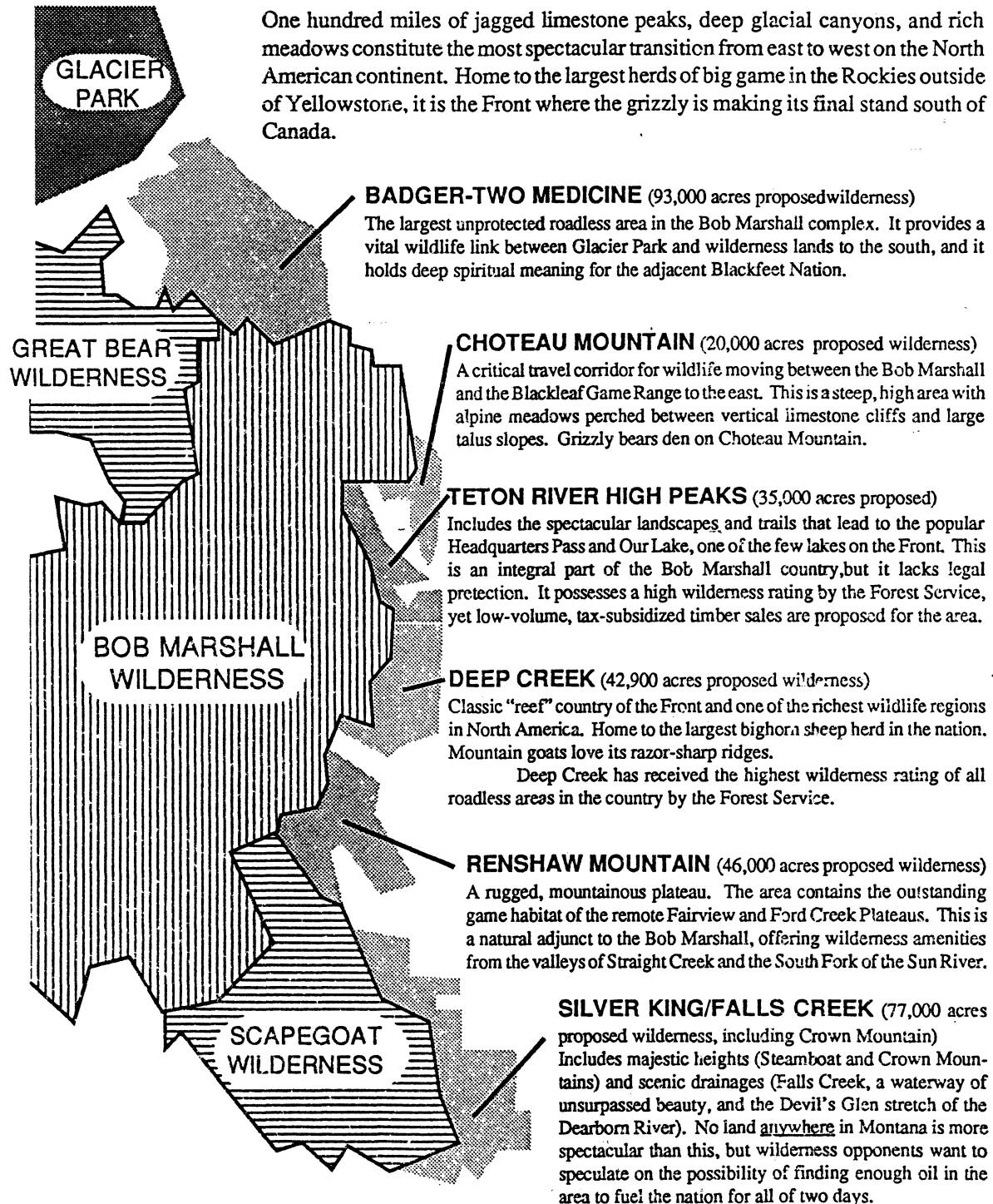


Figure 3

Much has been written about the face-off between a more developed vs. a more protected Rocky Mountain Front. Nowhere do the opposing views come into clearer contrast than in the respective views of Montana's two congressional house delegates. (Eastern district Congressman Marlenee strongly advocates much greater human encroachment, development, and fragmentation of the Front, whereas western district Congressman Williams urges protection of the Front in its current healthy condition--see Appendix 7). To a large extent, these two clashing views will be worked out in the political arenas during the ongoing struggle over Montana wilderness legislation. Advocates for wilderness designation in the RMF are many (both individual and institutional), and the strategies and tactics are generally well known to conservationists who have long worked on public lands issues. Hence the short shrift given wilderness strategy in this paper.

Of equally brief mention among legislative pathways to conservation of the RMF is the notion that there will be significant appropriations made in the foreseeable future for buying key private lands to add to the public domain. Current political wisdom within the Montana Fish, Wildlife and Parks Department holds that with three state-owned wildlife management areas in place along the Front, it's not

likely that major additional acquisitions would compete well with project proposals elsewhere in the state, or that they would fare well with budget conscious legislators who must approve such purchases. (12)

Interestingly, the Montana Fish, Wildlife and Parks Department tentatively explored the prospect of securing U.S. Fish and Wildlife Service involvement through the purchase of the 25,000-deeded-acre Salmond Ranch in 1987, ostensibly on the basis of grizzly bear and northern Rocky Mountain wolf endangered species values. The Salmond family was not favorably inclined to the idea, however.

There are, of course, possibilities that state or federal agencies could secure appropriations for key tracts on a case-by-case basis in the future, but such proposals would likely face stiff political opposition at the local level, where the suspicion of "government land grab" intentions is a recurrent discussion topic over coffee or ditchwaters.

Yet another governmental protection strategy is now being quietly explored: rather than deal with future acquisition opportunities on a piecemeal basis, why not designate the RMF as a national wildlife area, establishing a long-term protection strategy supported by appropriations as necessary and at the very least ensuring a greater degree of unified

interagency cooperative management of the area as one of America's great remaining wildlife-wildland resources. Variations on this theme are in their infancy, according to William Spencer of the Boone and Crockett Club (13).

Assuming that budget constraints and political hurdles combine to stifle government (state and federal) additions to the public land base of the Front, it is nonetheless possible to secure protection for the RMF via a number of other creative means, among them a thoughtful reconfiguration of land ownership patterns within the Front. This can be achieved through land swaps in which government agencies use portions of the public land base as trade stock for private land with high public values.

For example, the BLM might be able to trade a section of BLM-owned land suitable for haying to the rancher who leases that BLM in return for an equal-valued parcel of key riparian wildlife habitat owned by the rancher.

In another instance, the BLM might dispose of twenty scattered, small parcels (twenty to 160 acres in size) to as many different landowners in order to acquire an equal-valued larger tract of key habitat. This technique is known as land exchange pooling, and it has been used already by the BLM to secure a 1,000-acre parcel of important wildlife habitat

adjacent to the Ear Mountain Wildlife Management Area—a parcel which it subsequently designated an outstanding natural area.

The same process could be used by the Department of State Lands (DSL), which administers roughly 100,000 acres of state-owned land within the RMF area. In the case of state lands, however, revenue generation for School Trust Fund purposes is paramount to habitat considerations, so the land exchanges would be engineered in a fashion that resulted in the DSL relinquishing key habitat areas in return for more economically productive ground. Habitat lands thus exchanged could then be protected with privately granted conservation easements.

Such notions are hardly far-fetched. They are consummately practical and, in many cases, the techniques have been tested already. In the vicinity of Miles City in eastern Montana, for example, the Montana Fish, Wildlife and Parks Department is now exchanging some of the most productive agricultural land it acquired in a recent ranch purchase to adjoining private landowners in return for conservation easements securing wildlife habitat, controlled public access, and certain management stipulations for the private lands.

Continued efforts on the part of public agencies to improve

public ownership patterns via acquisitions and land exchanges must be complemented by private sector initiatives to protect the most important habitat resources within the RMF.

Although it is possible that more acquisitions by conservation organizations such as The Nature Conservancy and the Boone and Crockett Club could materialize in coming years, it is far more likely that key private lands be conserved through purchase by conservation-minded individuals and through the purchase or donation of conservation easements. In the former case, buyers sympathetic to conservation of the Front and its wildlife treasures can be matched with properties as purchase opportunities arise. In the latter case, appropriate government agencies and private organizations can pursue conservation easement gifts or purchases from long-standing key landowners or from the new landowners when properties change hands. Here again, these techniques have been employed with some success already, but better organization of a conservation buyers' pool and more concerted, cooperative efforts by agencies and private organizations to secure conservation easements could greatly increase RMF protection in a timely and cost-effective manner.

Of various methods to protect habitat short of outright ownership by a conservation organization, the conservation easement perhaps holds the greatest promise for the RMF.

(See Appendix 8 for a description of this tool). Properly designed easements can prevent habitat fragmentation, preserve key features, and maintain habitat quality while accommodating compatible economic uses of land. Additionally, easements allow the protected land to remain in private ownership, easily transferable through gift or sale to family members or on the open market. Consequently, they are one of the least socially disruptive and most cost-effective tools for conserving habitat.

Another palatable feature of the conservation easement is its specificity to a particular land ownership; each easement is tailor-made to protect the ecologically important features of a given parcel. A number of key land tracts have already been protected by easements within the RMF and as evidence of their practicality and compatibility with traditional ranching uses of the landscape increases, so too does private landowner interest in easements increase while suspicion wanes. An example of this protection technique applied to a Rocky Mountain Front property can be seen in Appendix 9.

It is not likely that every important private land tract within the RMF can be protected through acquisition or easement given some landowners' suspicions of the permanent nature of these techniques. In such cases, adequate habitat protection might be possible by securing leases or management

agreements from landowners. Moreover, it must be remembered that private ownerships change over time, and a protection method rejected by the present landowner might be embraced by the next.

Because it is not realistic to assume that all habitat within the Front can be acquired and managed by public agencies and private institutions whose primary objectives are the maintenance of biological diversity, effective conservation strategy requires the use of a wide range of protection techniques and the patience and persistence to employ them over rather long time frames.

The central goal of these combined protection strategies is to safeguard the Rocky Mountain Front landscape in a manner that allows the great mix of native species and natural communities within the ecosystem to carry out their life cycles and evolutionary processes over long periods of time. Ultimately, that means securing sufficiently large areas of habitat and key smaller areas in configurations that sustain biological diversity over time and prevent much if any human-caused impoverishment of the biota.

Regardless of the outcome of efforts to further protect the landscape of the RMF with wilderness additions, land exchanges, easements, etc., management of the land and wildlife will continue to be of primary importance in sustaining and improving the area's rich biodiversity over time. Historically, neither public agency personnel nor private land managers have been schooled in biodiversity maintenance as a management goal, and assuming that it won't become the major management goal within the RMF overnight, it is nonetheless essential to make explicit and elevate the relative importance of biodiversity in public and private land management plans alike.

A 1987 Office of Technology Assessment report (14) notes that the federal land managing agencies (U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and National Park Service) collectively manage about thirty percent of the land in the continental United States, but they have not collectively agreed to manage the vast public domain with biodiversity maintenance as a central goal. As

botanist Donald Waller indicates, however,

"These lands must remain the first bulwark for protecting natural diversity within the United States and are natural foci for systematic efforts to conserve diversity due to their large size, centralized management, and the existence of laws providing a legal basis for protecting their diversity. While these agencies usually declare the maintenance of diversity as a goal, their approaches

to meeting this goal have not always been consistent with contemporary scientific understanding within conservation biology, or even consistent within and among the agencies themselves. Perhaps this situation is understandable given their long and independent histories and the competing economic and political interests they face." (15)

Although the situation might be understandable historically, it needs to be cured. As Doug Chadwick points out, "Fragmentation of habitat in this nation has its counterpart--and, I think, part of its cause--in the fragmentation of resource management. Responsibilities are divided among a welter of competing agencies and organizations, each with a different set of goals. Some eighty percent of our national park boundaries adjoin national forest land. While Park Service rangers might be reprimanding a camper for picking a wildflower, Forest Service officials may be supporting oil and gas development just across the border in wildlife habitat of the same or better quality." (16)

Aware of the fragmentation of resource management, the Office of Technology Assessment (OTA) advised Congress in 1987 that a more comprehensive approach with expert scientific direction was needed. The OTA also recommended that passage of a National Biodiversity Act could establish protection of natural diversity as an important national goal requiring better coordination among federal and state agencies. Even without such an act, there appear to be positive changes occurring within land managing agencies, driven in part by growing awareness of the extent and consequences of biodiversity losses. The crisis nature of the problem in many ways is forcing more rational policy balancing between resource production and biodiversity protection. Witness the

degree of cooperation required to produce and implement the interagency management guidelines that attempt to balance proposed human activities with wildlife enhancement efforts along the Rocky Mountain Front (see Appendix 5).

Assuming that there probably won't be much land added to the public domain, at least in park or nature reserve status, some veteran agency professionals argue strongly that public domain lands managed under some concept of multiple use are the arena in which goals for biodiversity will be won or lost. In this arena, note forest Service biologists Thomas and Salwasser,

"Frustrations abound and criticisms come from every side as various interest groups (some more politically powerful than others) press their demands for what they want from the land. Land managers must travel a path bounded by law, biology, economics, politics, resources, and professional ethics. There are simply not enough resources to go around....The balance of land management objectives and decisions, including the conservation of biological diversity, depends ultimately on public and political support. Land-use planning has few "free lunches" for land managers. Every decision has consequences—ecological, economic, and social." (17)

The implication is that action is needed at the statutory, political, and on-the-ground planning levels if biodiversity conservation is to become a major goal of multiple use managers.

"Conservation biologists must serve as teachers and providers of knowledge and techniques to agency personnel. This process requires sensitizing and training agency biologists and packaging information

so that it is useful in planning and management. In turn, if they want to make things happen on the ground, conservation biologists must become students of how science and public policy are fused in the messy but intriguing business of land and wildlife management." (18)

It is at this junction of science and public policy that much of the headway is being made. Out of concern for saving grizzly bears in the Yellowstone ecosystem, a federal/state interagency committee was established. Now that committee is examining many other wildlife, management, and policy facets of ecosystem interaction. Corollary action brought many private and nonprofit group interests together to form the Greater Yellowstone Coalition, whose principal objective is to foster holistic management of that ecosystem.

More recently (March 1990), a former state senator, an ecology professor, the Glacier National Park superintendent, and the Flathead National forest supervisor collaborated to propose a Crown of the Continent Project (that is, the Northern Continental Divide Ecosystem) "that interfaces all levels of government and citizenry for the purpose of understanding the intimate relationship between the natural resources that define the ecosystem and the economic processes that determine a balance, or lack thereof, between utilization and conservation of those resources." (19)

There seem to be a growing number of these collaborative

efforts springing up elsewhere around the United States. Their principal contribution might well lie in reversing the fragmented thinking patterns and management practices that have characterized natural resource management through most of our history.

PUBLIC INVOLVEMENT

In 1927, John D. Rockefeller, Jr. made a pledge to purchase Wyoming's entire Jackson Hole Valley with the idea that it ultimately be turned over to the government. Mr. Rockefeller wanted to preserve the big game habitat and the outstanding scenery by adding the land to Yellowstone National Park. To carry out the purchases, the Snake River Land Company was incorporated--in large part as a means of keeping Rockefeller's involvement secret and selling prices from escalating wildly. Eventually, the strategy worked, and Grand Teton National Park is the result. (20)

However, the revelation in 1930 that Rockefeller and the National Park Service had collaborated behind the scenes to achieve such an end "exacerbated the latent mistrust and suspicion which had been germinating for over two and one half years. In the next three years, charges of wrongdoing would escalate to the point where the conservation purpose of the project would be submerged under a flood of accusations."

(21) As a result, the project nearly failed.

The Grand Teton National Park history is remarkably instructive to the conservation of the Rocky Mountain Front. An almost eerie similarity exists between the extraordinary wildlife and scenic values of these two areas, not to mention the traditional clashes between western agrarian "little guy" landowners and government agencies prevalent in each area. The point is that parochial suspicions of government and eastern establishment wealth cannot be ignored when implementing a conservation strategy on a large scale. Because conservation of the Rocky Mountain Front involves a mix of government and private philanthropic mechanisms, care must be taken to involve the public with key conservation actions at appropriate times.

For example, in 1978 The Nature Conservancy set about acquiring land within the RMF without any early effort to inform the public of its intentions or methods. Hostility toward what was perceived as a new, eastern based, wealthy, mysterious, lock-it-up-and-throw-away-the-key, land-grabbing outfit spread quickly. In the absence of any clear public statements about its role in securing grizzly bear habitat, the Conservancy was suspected of breeding more bears, of using its land to accommodate the problem bears removed from Yellowstone and Glacier parks, and so on. No matter that the

rumors were based largely on ignorance, the fact of the matter is that actual conservation efforts were hampered by negative public opinion. Not until the Conservancy began a counter campaign of appearances at public meetings, outreach to local school systems, neighborhood open house events, and collaboration with the local chamber of commerce did the tide of public opinion begin to turn.

By contrast, the Boone and Crockett Club was well briefed on the pitfalls of excluding the public when it purchased the Theodore Roosevelt Memorial Ranch in 1985. Club members and the club's resident project manager made efforts to acquaint neighbors and the larger community with the club's purposes and its strong interest in working harmoniously to demonstrate the compatibility of enhancing wildlife conservation concurrently with a traditional economic livestock operation. This kind of early outreach has made a major difference in public acceptance of the club and, by extension, its long-term conservation agenda for the Rocky Mountain Front. To maintain the good will and prevent reputational erosion, public outreach efforts must be periodically continued.

Certainly, the strategy of early public disclosure does not guarantee public endorsement of conservation objectives, but lack of any disclosure almost certainly assures widespread

public suspicion at the least and vigorous opposition at the worst.

Having acknowledged the necessity of these responsibilities to the public, it is also to be noted that judicious exercise of timing and information content is necessary in public outreach efforts. While it is essential to inform the public of broad conservation objectives, it is sometimes counterproductive to divulge specific strategies, particularly when working with private landowners. For example, it is sensible for the Montana Fish, Wildlife and Parks Department to let the public know the reasons for a carcass distribution program to help manage grizzly bears within the Rocky Mount Front. However, it would not be sensible to divulge the names of cooperating landowners or specific carcass relocation sites. Similarly, it is good practice to let local governments know of the broad intention to use conservation easements to conserve important RMF habitat, but it is not wise to reveal intentions with specific landowners unless and until the conservation organization and landowner agree the timing is right.

Underlying all public education and outreach efforts is the need for the public to understand the central conservation issues and needs in order to support on-the-ground actions.

Lester Brown of Worldwatch Institute makes the strong point that "the only people who are actively engaged in the race to preserve our rich evolutionary inheritance of plant and animal life are a handful of concerned scientists and environmentalists." (22) Brown urges moving the issue of biological diversity from the scientific journals into the magazines and the popular press.

"It has been in the arena of public awareness and action where the important conservation battles of the past century have been fought and won in this century: laws passed to protect endangered species, to set aside preserve and parks or to cleanup toxic wastes are clearly the outgrowth of effective political organization that targets the sympathies and emotions of an increasingly aware public," suggest Jacobson and Hardesty. (23)

Without strong efforts in public education and outreach to parallel the scientific research and applied management efforts of conservation biologists, these educators argue that there will be little biota left to conserve.

No greater emphasis of the need for public involvement is required than to recall that it was citizens who advocated establishment of the Sun River Game Preserve, citizens who advocated reductions of livestock grazing on the public lands

within the RMF, and citizens who pressed for the Scapegoat and Great Bear additions to the wilderness system over the objections of the Forest Service. Expanding public awareness of the need to preserve biological diversity and of the extraordinary opportunities to do so within the Rocky Mountain Front, and subsequent public activism in support of wilderness designations and other conservation actions are necessary conditions for long-term preservation of the Rocky Mountain Front.

SUMMARY AND CONCLUSIONS

Veteran conservationist Jim Posewitz of Montana's Fish, Wildlife and Parks Department is fond of pointing out that present-day conservation efforts within the Rocky Mountain Front should not be misinterpreted as actions to save a pristine remnant of America's wildlands. Rather, they are part of a history of wildlife conservation by restoration actions that began in the wake of a severe resource depletion.

"As we observe the changing scene along the Front, we must recognize the natural systems that are there today as products of our own history..as we learn what wildlife species need and find ways to provide it they have and will respond," Posewitz says. (24)

Posewitz is correct to a large degree. The abundant wildlife of today's Rocky Mountain Front is testimony to a series of effective recovery efforts on a scale seldom seen in this country. In another sense, however, conservation of the Front is conservation of an essentially pristine landscape. The great natural resource depletions of the exploitive 19th century were of renewable resources. The land itself remained free of much permanent fragmentation by roads, dams, mines, or other abuses that now would make preservation of the Front much more difficult.

It is that relatively modest amount of habitat fragmentation coupled with a historical three-generation pattern of wildlife/habitat protection within the Front that now shapes an appealing case for conserving the whole area. The case is made more appealing in view of lost or rapidly eroding ecosystems and habitats elsewhere in the country. It is leavened by the fact that it is still possible to save an entire ecosystem and its functioning parts here in Montana; it is further strengthened by the knowledge revealed through the emerging science of conservation biology.

A 1990 snapshot view of the Rocky Mountain Front highlights an area geographically large enough and biologically intact enough to deserve ongoing protection. The area has the capacity to sustain its rich biological diversity and health

over time, provided that well-planned, flexible, long-term conservation strategies are implemented in timely fashion by competent professionals with adequate budgets, requisite public support, and concerted activism.

Until recently, conservation efforts on behalf of the biotic resources of the Rocky Mountain Front have been reactions to lost or greatly diminished charismatic mammalian wildlife. Efforts to conserve the Front were focused on restoring elk, bighorn sheep, grizzly bear, Rocky Mountain goat, and the like. These efforts were often driven by concern for particular species, frequently by elk.

Isolation from human population pressures, rugged topography, and climatic extremes combined to insulate the Front from excessive human disturbance, and these very characteristics--so disadvantageous to human settlement and development--now provide the advantage for long-term conservation of the area's natural biological diversity.

The conservation successes of the past three generations--however monoculturally motivated they might have been--provide an excellent head start and the necessary momentum to complete preservation of the Rocky Mountain Front. This tradition of conservation is now boosted by recent advances in the scientific understanding of biological organisms and

processes. Emerging knowledge of biological systems supplies guidance for what to protect, where to protect, and how to manage. Adding to this mix of historical momentum and modern scientifically derived blueprints for conservation is a diversity of proven and pioneering land protection techniques that make the recipe for long-term conservation possible. Given the rich set of ingredients and the expanding interest on the part of many conservationists and institutions, there is every reason to believe the biological diversity of the Rocky Mountain Front can be preserved for future generations.

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**Pine Butte
Swamp Preserve**

Choteau, Montana

The Big Swamp

The Nature Conservancy, an international nonprofit conservation organization, continues an ambitious project to protect Montana's Pine Butte Swamp: the largest wetland complex along the Rocky Mountain Front and the grizzly bear's last stronghold on the plains. Over the last 15 years the Nature Conservancy of Montana has protected nearly 18,000 acres—native foothills prairie, rocky ridges of limber pine and creeping juniper, spruce-fir forests, mountain streams, glacial ponds and spring-fed swamp—providing prime habitat for a number of Montana's rarest native plants and animals.

The Conservancy has taken advantage of an exceptional opportunity: the protection of a large, naturally functioning reserve adjacent to a mountainous wilderness area. As a lush lowland extension of the Bob Marshall Wilderness, the value of Pine Butte Swamp to roving mammals like the grizzly is increased manifold. Here, protected for future generations, wildlife will continue to migrate from mountains to plains and back—a ritual essential to their survival in modern times.

Eagle-Gus Wolfe



Grizzly-Alan Carey

Stronghold of the Grizzly

Abutting the Bob Marshall Wilderness, some 60 miles southeast of Glacier National Park, Pine Butte Swamp is at the heart of the largest wild expanse in the contiguous 48 states. It is a place of stark, primeval beauty. The looming sandstone butte escaped the glaciers that scoured this country, and rises 500 feet above prairie grasses and surrounding wetlands. Beyond the swamp lie the

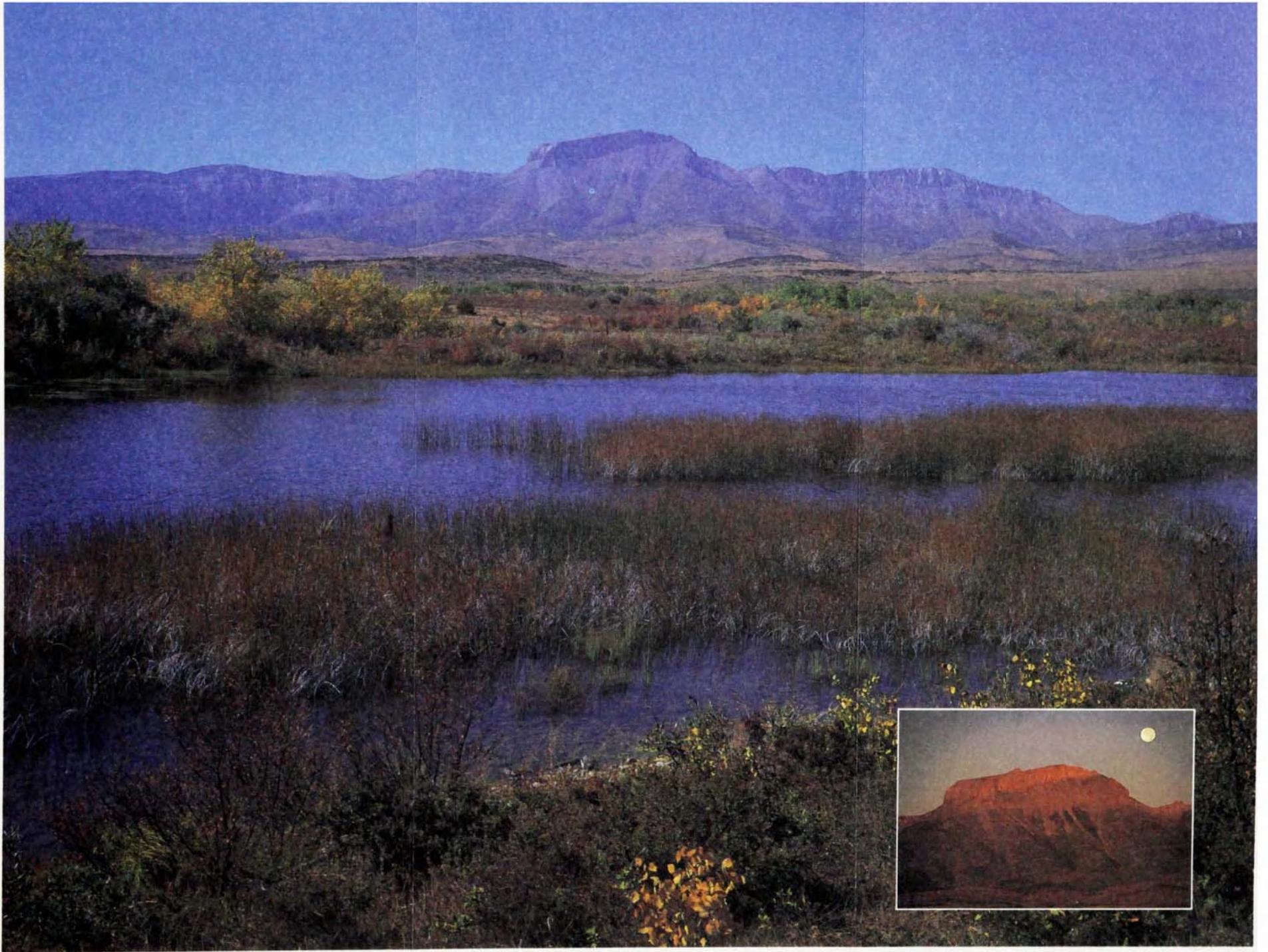
jagged Sawtooth Range and the convergence of the silvery north and south forks of the Teton River.

Each spring the grizzly bear (*Ursus arctos horribilis*) descends from its mountain retreat, while snow still blankets the high country, and follows these watercourses and others on the Rocky Mountain Front, down to the swamp—there to feed and raise its young. Since foraging is easy in the rich wetland environment, the bears can replenish their depleted energy reserves with little risk.

At one time grizzlies roamed prairies, forests, and foothills from the Pacific Coast, east to Minnesota and south to Mexico. But with the settlers' forge westward they retreated into this small portion of the northern Rockies, where only some 500—of an original population of more than 100,000—remain today. Without protective measures this most imposing of North America's creatures, federally designated as a threatened species, may not live into the next century.

Yellow Lady's Slipper-Don Stas





Swamp with Ear Mountain-Harold Malde



A Treasury of Habitats



Pine Butte Swamp (or fen) is an extensive peatland fed by mineral-rich groundwater. It differs from other such fens in its proximity to mountains, foothills, and grasslands. A crazy-quilt of habitats—wetlands and dry ground, flat prairie and steep mountain areas—meet in a geologic sweep ranging from 4,500 to 8,580 feet in elevation. At Pine Butte, the western border of the High Plains grasslands edges up against cliffs and talus slopes, alpine meadows and montane forests.

The result is a remarkably diverse flora. Rare wetland species such as yellow lady's-slipper, Macoun's gentian, cotton grass, and Craw's sedge flourish in proximity to common upland prairie plants such as shrubby cinquefoil, rough fescue and Montana's state grass, bluebunch wheatgrass. To date, 40 distinct plant communities have been identified on the preserve.

This wealth of vegetation provides habitat for an equally diverse fauna. Forty-three species of mammals (beaver, muskrat, mink, elk, moose, mountain lion, bobcat, lynx, black bear, grizzly,

mule deer, and the largest population of bighorn sheep in the continental United States) as well as 150 species of birds (warblers, waterfowl, waders, and raptors) find forage and shelter in Pine Butte's woods, prairies, and labyrinth wetlands. A rare hybrid minnow resides in the wetland waters as well. Sharp-tailed grouse, for example, use the wet meadows on the swamps's periphery for their "dancing grounds." In short, Pine Butte Swamp is a wildlife bonanza.

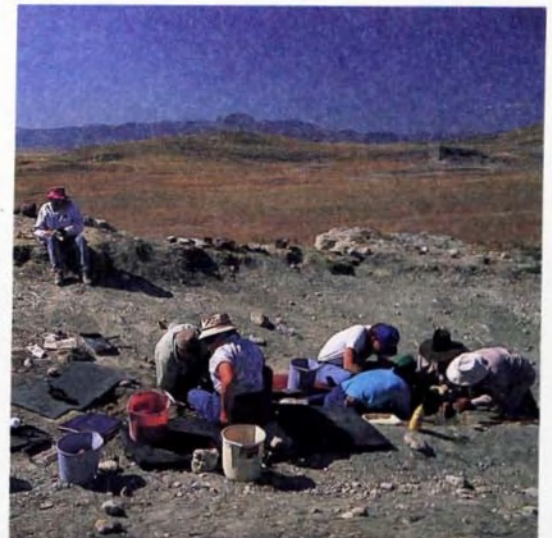


Traces of History

Pine Butte is also rich in history. Drawn by the abundance of prey, pre-Columbian peoples frequently occupied the area. The Great North Trail, trod by Mongols who had migrated across the Bering Sea land bridge, cuts through the preserve. Tipi rings testify to the presence of prehistoric plains dwellers. A buffalo jump, used before the advent of the horse, and drive lanes of a buffalo mire

have been uncovered. Scant remains of homestead structures dot the preserve, while ranching activities continue as they have for the past century.

Much earlier the preserve was home to vast herds of plant-eating dinosaurs. Eighty million years of geologic folding and erosion have brought thousands of these dinosaurs' bones to the surface. This site on the preserve, known as Egg Mountain, harbors one of the richest paleontological finds of our century: *Maiasaura Peeblesorum*, the "good mother lizard" who nested, laid eggs, fed and protected her young. Many nests, eggs, hatchlings and juveniles have been unearthed here. This research has provided more insight into dinosaur behavior than any other site in the world. Through a cooperative agreement between The Nature Conservancy and the Museum of the Rockies, important research and educational efforts continue.



Dig at Egg Mountain-Harold Maide

Yes, I want to help retain the riches of Pine Butte Swamp. A \$25 contribution will entitle me to membership in The Nature Conservancy for one year and every dollar of my contribution will go towards Pine Butte Preserve.

- \$25 \$50 \$100
 Other Enclosed \$_____

Name

Address

City

State

Zip

Please make your check payable to:



**The Nature Conservancy
Pine Butte Swamp Preserve**
HC 58 Box 34B
Choteau, MT 59422
(406) 466-5526

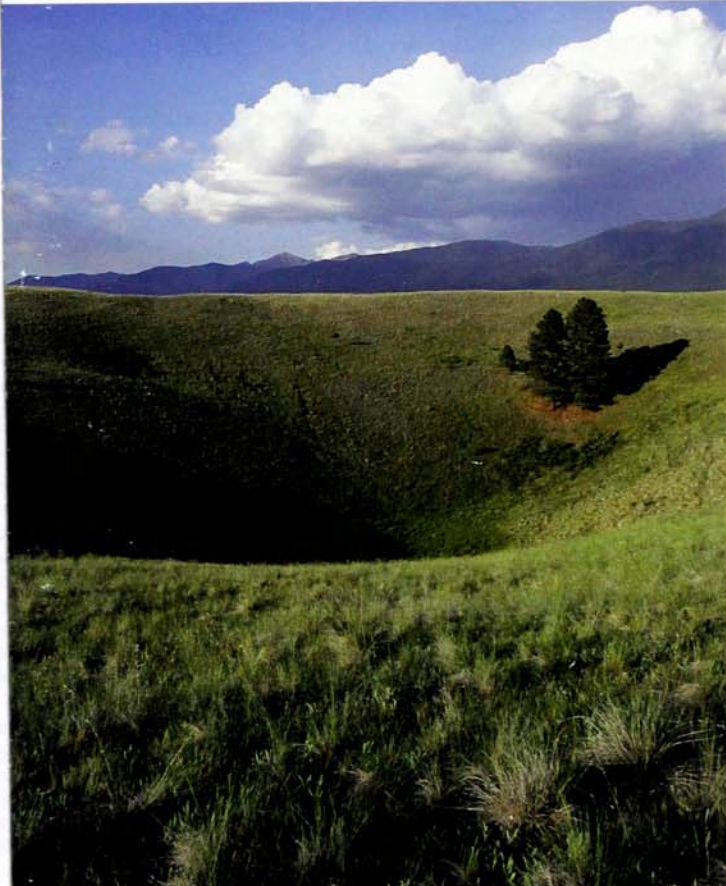
All contributions are
tax deductible.



Porcupine-Don Sias



THE MONTANA NATURAL HERITAGE PROGRAM



*Providing information for
responsible land-use decisions.*

Cover Photo: Dancing Prairie, a remnant palouse grassland. DAVID GENTER

FINDING A BALANCE

Montana's vast and imposing landscape has always been part of the state's history, people, and wealth. This land has provided assets such as timber, minerals, and fertile soil, as well as the invaluable resources of clean water and air, abundant wildlife, and open space.

Montana's well-being and economic health are directly dependent upon responsible stewardship of this land and the life it supports. However, population and land-use pressures continue to increase, placing tremendous demands on our surroundings. We must learn to balance these pressures with the need to protect our natural heritage.

One of the first steps towards achieving a balance is to identify and locate those biological resources which have become most vulnerable. Only then can we plan responsible development which safeguards those resources.

In order to provide a centralized information source on biologically critical areas and species, the State of Montana established the Montana Natural Heritage Program in 1985.



Lemhi beardtongue (*Penstemon lemhiensis*), a regional endemic found in southwestern Montana.
STEVE SHELLY

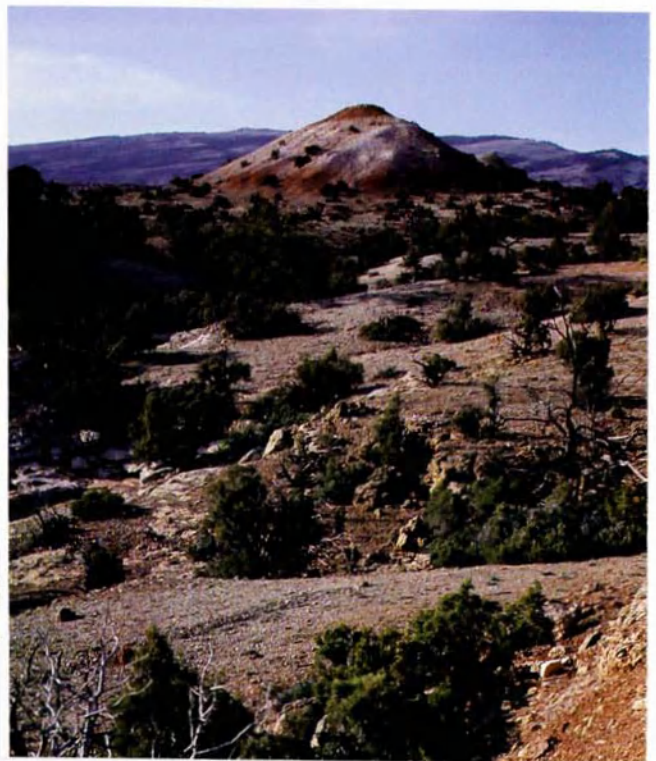


The ferruginous hawk (*Buteo regalis*) is a sensitive indicator species.
JIM BRANDENBERG

THE MONTANA NATURAL HERITAGE PROGRAM

The Montana Natural Heritage Program systematically collects information on Montana's sensitive or threatened biological features. Staff members consolidate natural resource information from diverse sources such as field surveys, resource management agencies, published and unpublished reports, and the academic and scientific community. They research and record facts: the existence, numbers, location, condition, and status of species and biological communities.

The Montana Natural Heritage Program strives to obtain and provide objective data which can serve the broadest possible range of users. Data are managed in an easily-accessible system of topographical maps, computer databases, and manual files.



HOW TO USE THE PROGRAM

Unlike many other biological surveys, the Montana Natural Heritage Program is ongoing—a cumulative inventory designed for continuous updating and refinement. Program information becomes increasingly comprehensive with each year of operation.



Information from this statewide inventory is available to the public and has already proved to be a valuable tool, used by federal, state, and county agencies, industry, consulting firms, universities, conservation organizations, and individuals.

The Montana Natural Heritage Program can respond to data requests based on any number of search criteria, including:

- geographic location (township-range-section, latitude-longitude, county, watershed, USGS quadrangle, etc.);
- species or biological communities;
- areas under special management (national forests, state parks, wildlife refuges, etc.);
- land ownership (federal, state, private, etc.);
- protection status (federally listed, state protected, etc.).

To place a data request, contact the Montana Natural Heritage Program with the following information:

- type of data needed;
- the geographic area of concern, including either a map of the area or a precise description.

For most requests, response time is within one week.

The Montana Natural Heritage Program is a joint venture between the State of Montana and The Nature Conservancy, an international, non-profit, land conservation organization. The program is linked to 55 Natural Heritage Programs currently operating in the United States, as well as 14 international programs. It is administered by the Natural Resource Information System and is housed in the Montana State Library in Helena.

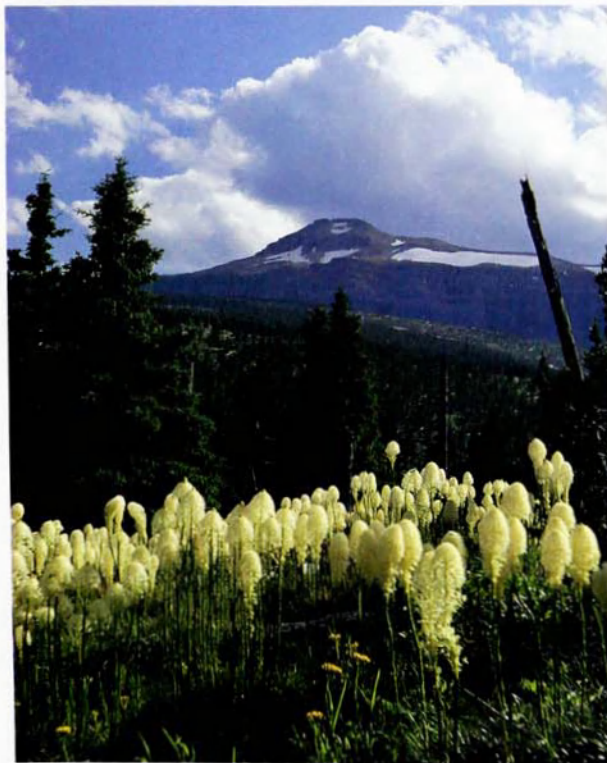
Funding is provided by a variety of sources, including: grants from the Montana Resource Indemnity Trust Fund; the Montana Department of Fish, Wildlife and Parks; federal grant funds through the Montana Department of State Lands (from the Office of Surface Mining Reclamation Enforcement); small contracts with federal agencies (U.S. Fish and Wildlife Service, U.S. Forest Service, etc.); and private funds from consulting contracts and The Nature Conservancy.



Left: In Montana, Utah juniper (*Juniperus osteosperma*) communities occur at the northern limit of the Great Basin shrub-steppe in Carbon and Big Horn counties. ANDREW KRATZ
Above: Natural habitat of Lemhi beardtongue (*Penstemon lemhiensis*) in the Pioneer Mountains. STEVE SHELLY

Small yellow lady's-slipper (*Cypripedium calceolus* var. *parviflorum*), an orchid found in western Montana. STEVE SHELLY

EXAMPLES OF PROGRAM USE INCLUDE:



Top: Fluvial Arctic grayling (*Thymallus arcticus montanus*) make their last stand in the upper Big Hole River. JAN WASSINK
Above: Maintaining representative examples of plant communities helps ensure the preservation of Montana's biological diversity. RICK GRAETZ

- a government agency requested information on all sensitive plant species found within the Bitterroot National Forest;
- a consulting firm preparing an environmental impact statement requested data on sensitive species within a 5-mile radius of a proposed mine site;
- a utility company needed biological data on areas within the path of a proposed transmission line;
- a state agency verified whether road construction would affect a sensitive vertebrate population;
- a conservation organization requested information on the biological significance of several rivers.

By using the Montana Natural Heritage Program, planners, developers, and other decision-makers become aware of the possible biological effects of a project while it is still in the planning stage—before financial commitments have been made. Inadvertent environmental impacts, as well as unexpected delays and expense, can thereby be avoided.



Above: Nesting loons (*Gavia immer*) require special management considerations. MICHAEL QUINTON



Boone and Crockett Foundation

In 1887, Theodore Roosevelt founded the Boone and Crockett Club. Now the oldest conservation organization in North America, the club continues focus on the goals of its founder by supporting legislation and programs designed to conserve our country's natural wildlife resources.

In Roosevelt's 1907 Message to Congress, he challenged the nation to "increase the usefulness" of the land because it was the key to the prosperity of future generations. Yet, nearly a century later, the needs of wildlife and commercial land development continue to compete with each other.

Because there has been no comprehensive research to date to develop ways for wildlife and commercial land use to co-exist with profit to each, Roosevelt's vision of "increasing the usefulness" of our lands has not achieved its full potential.

The Boone and Crockett Club recognizes there has been some limited success in developing mutually co-existent land uses. The Club concludes that continued piecemeal and reactionary programs for the next century cannot cope with the stress that human population growth will place on land use.

The Club further reasons that governments will continue to be protectionists in an attempt to preserve the past, rather than to develop new means of profitable co-existence.

After consultations with recognized experts, it became evident to the Club that a multifaceted, centrally coordinated approach to future land management was necessary to effect desirable changes. Such an approach should be directed by a non-political, noncommercial organization that has the ability to gather experts needed to develop and execute research programs, and educate appropriate audiences. The Boone and Crockett Foundation was established in 1986 to insure this research undertaking would be independent while maintaining continuity with the Boone and Crockett Club.

As the Club's centennial project, the Theodore Roosevelt Memorial Ranch on the east front of the Rocky Mountains was purchased. This 6,000 acre facility lies in the foothills of the east slope of the Rocky Mountains near Dupuyer, Montana.



The property abuts thousands of acres of national forest and wilderness areas and contains critical winter habitat for elk and mule deer. Additionally, whitetailed deer, cougar, and grizzly and black bears regularly use this property and bighorn sheep and mountain goats occur in adjacent national forest lands. This unique environment offers the perfect laboratory to study the co-existence of agricultural land uses and wildlife for research purposes. The facility is called the Theodore Roosevelt Memorial Research Station.

The Foundation established a formal relationship with the University of Montana by committing to endow a chair in wildlife biology. The University is responsible for the academic integrity and excellence of the research conducted under the auspices of the Foundation at the Research Station.

The individual who holds the endowed chair will create, direct and interpret programs at the Research Station. These programs will work to resolve the historic conflict between conservation of wildlife and man's use and development of land. The Foundation has already raised \$2.5 million for the facility's acquisition and initial capital and operating expenditures. It now seeks to raise an additional \$3 million to endow the chair, fund basic capital improvements and equipment required for operations and research and insure that adequate funds are available for the research, demonstration and educational programs at the Station.

Plans for the Theodore Roosevelt Memorial Research Station and its innovative programs are outlined in the following pages. Through the work at the Research Station, the Boone and Crockett Foundation intends to make significant strides toward truly "increasing the usefulness" of the land. Please join us by investing in Roosevelt's vision.

To: Pat Noonan, Conservation Fund
From: Bob Kiesling BK
Re: Rocky Mountain Front
Date: August 17, 1987

Earlier this century the first step was taken to formally protect a portion of the Rocky Mountain East Front in Montana when the State secured the Sun River Game Reserve. In the years since, various public and private institutions independently recognized the extraordinary wildlife and scenic values of the East Front and engaged in selective habitat protection.

These independent actions, in the aggregate, form an ex officio yet de facto preservation pattern which is now, tantalizingly, becoming (pardon the jargon) a megasite preserve. I'm referring to a north-to-south pattern extending from the Blackfeet Indian Reservation to Montana Highway 200 in which significant portions of the high plains, foothills, and watercourses so critical to the region's impressive wildlife populations have been secured. Given your professional planner's penchant for graphic demonstration, I've enclosed a colored map of the region illustrating the point.

You've heard me liken these protection efforts to stringing a series of biological jewels together in necklace form at the base of the Front. With little perceptible fanfare this quiet, essentially unpremeditated jewelers' effort now has become a remarkable conservation phenomenon. I urge your assistance in completing the necklace.

It is arguable that additional jewel stringing could continue at the pace and context of the past fifty years, yet numerous conditions highlight the need for a greatly stepped-up conservation effort, among them:

- 1) No single institution, public or private, has the incentive, authority or human and capital resources to complete the effort alone.
- 2) Existing biological data provide ample evidence for the wisdom of conserving the East Front as a diverse and well-integrated bio-region. A multi-agency cooperative wildlife research project has recently been completed in



APPENDIX 4

August 17, 1987

Page 2

anticipation of increased oil and gas development along the Front. There is no need for expensive and time consuming studies to be conducted; we have enough solid information on which to act.

- 3) While human encroachment waxes and wanes in flux with economic conditions, the long-term trend toward smaller parcel ownerships is inexorable and obviously detrimental to necklace integrity, not to mention the added difficulty and expense of assembly.
- 4) Currently lower land and commodity prices suggest that timely easement and fee simple acquisitions would prove unusually cost effective.
- 5) Several of the key remaining larger tracts in private ownership are for sale now.
- 6) Public agency awareness and use of land exchanges as a means of securing extraordinary habitats is on the upswing and could be harnessed to great advantage in this case.

In short, there's no time like the present to make the vision of a conservation megasite a reality. Given the fact that a megasite assembly involves so much more than purely biological considerations, what we need at this point is an All-Resource Analysis of the Front, i.e. an assessment of the remaining ownerships, the commodity values and development pressures, the local and national socio-political pulse, agency inclination and capability, etc. This assessment need not be expensive nor drawn out; it would consist of reviewing existing information and drawing some helpful conclusions about catalyzing the players and resources necessary to realize the vision. I suspect the task could be done for \$10,000-15,000 and would take less than a year.

Please give the notion some thought. Opportunity to save so magnificent a stretch of America's natural heritage doesn't occur very often. It's time we assembled the necessary talent and resources to get this important job done. I'll look forward to reaction and brainstorming from you and others with whom you might share this notion, although discretion with the concept is advisable at this point.

BK/sb

Attachments

APPENDIX 4

United States
Department of
Agriculture

Forest
Service

Lewis & Clark NF
Box 871, Great Falls, Mt. 59403

REPLY TO: 2600

Date: September 18, 1987

SUBJECT: Rocky Mountain Front Guidelines

TO: Interested Individuals


Enclosed you will find a copy of the Rocky Mountain Front Guidelines. These guidelines are a result of ongoing monitoring and evaluation efforts started in 1980 by the Rocky Mountain Front Area Task Force. They are specific to grizzly bear, elk, mountain goat, bighorn sheep, mule deer, and raptors.

It has taken a considerable amount of coordination between the Forest Service, Bureau of Land Management, Montana Department of Fish, Wildlife and Parks, and Fish and Wildlife Service to develop these guidelines. I feel that the participating agencies have shown a real commitment to good wildlife management. The guidelines are based on the best and most current information available.

The guidelines will assist us in enhancing wildlife and habitat objectives while identifying windows of opportunity where potential human activities can take place. They were not developed with the intent of precluding certain activities. The Task Force feels the guidelines will assist us in providing a balance of land uses while at the same time preserving the unique wildlife and habitat found along the Rocky Mountain Front. Their application should avoid or minimize any adverse effects that human related activities could have on the wildlife species studied.

We will use the guidelines in permits, contracts or other formal authorizations of human activities where applicable. Their application will become part of the interdisciplinary review and NEPA process for specific project proposals.

If you have any questions on this package, contact me or any of the agency managers.



JOHN D. GORMAN
Forest Supervisor and
Chairman of the Executive Committee RMF Task Force

INTRODUCTION

The Interagency Rocky Mountain Front Monitoring and Evaluation Program was initiated in 1980 in response to the collective needs of the participating agencies. These needs involved both the proactive management of the diverse wildlife resource as well as planning and evaluation of a multitude of human use activities and management of other natural resources. The guidelines developed from this coordinated interagency effort are best management practices to maintain or enhance selected wildlife species and their habitats. Application and monitoring of the guidelines will assist land and wildlife managers in meeting their wildlife and habitat objectives, will assist managers in coordinating multiple-use objectives with the biological requirements of these wildlife resources and will provide an analytical tool in evaluating effects of proposed activities.

It is recognized that all potential activities cannot be conducted simultaneously while maximizing outputs from all resource uses. Multiple-use involves both complimentary and competing activities at various times and locations and by definition may involve maximizing benefits from one resource use while precluding all or parts of the benefits of a competing use. The guidelines were not developed with the intent of precluding certain activities, but rather to assist in providing a balance of land uses while at the same time preserving the integrity and diversity of these wildlife resources. It is recognized that application of these guidelines in designing activities may require certain activities to be modified, restricted, or even precluded in order to conserve the diverse wildlife resources of the Rocky Mountain Front. On the other hand, they identify windows of opportunity where little or no competition exists, they identify opportunities for enhancement of these wildlife resources, and finally, they identify those instances where there is competitive overlap so more informed management decisions can be made, resulting in balanced stewardship of the broad array of national resources.

In the event that future efforts or information result in the need for a new guideline or the modification of an existing guideline, it can be submitted at anytime to an appropriately designated interagency committee for review and approval.

The following management guidelines are based on the best information currently available. They are a result of current or recently completed studies on selected wildlife species. Field investigators conducting the studies have completed extensive literature reviews on the various species considered. The guidelines which have been formulated and presented in this document are not only the result of the study findings and literature review, but incorporate the professional judgement of the technical personnel involved.

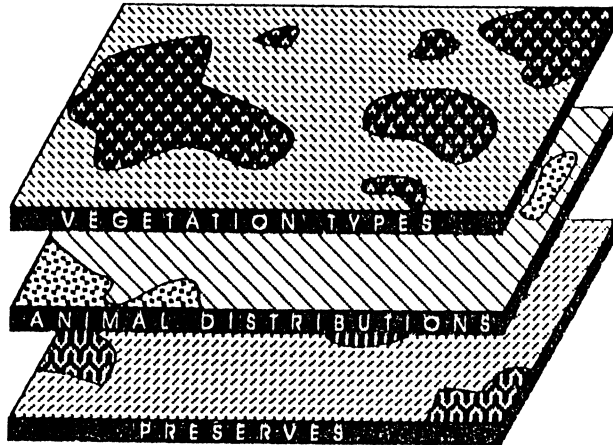
OBJECTIVES

The need for management is predicated on management concerns involving the effects of existing and proposed land uses and human activities upon various wildlife species and their habitat. The objective of the development and application of management guidelines is to avoid or minimize the following effects of human related activities which may adversely impact some or all of the selected wildlife species being considered:

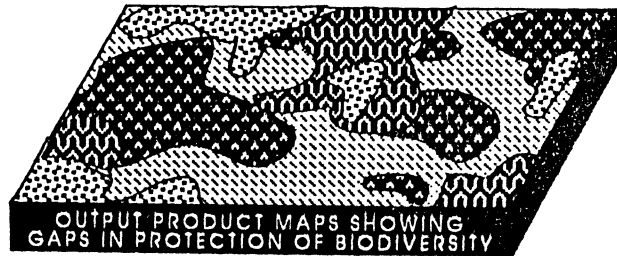
- A. Physical destruction of important wildlife habitat components.
- B. Human disturbance that would displace various wildlife species from important seasonal use areas.
- C. Increased direct human caused mortality.
- D. Increased stress due to higher human activity levels.
- E. Direct mortality or physical impairment resulting from environmental (chemical) contaminates.
- F. Increased wildlife/human interaction resulting from habitat intrusion or displacement.

GAP ANALYSIS:

A WORKSHOP ON PROTECTING BIODIVERSITY USING
GEOGRAPHIC INFORMATION SYSTEMS



APPENDIX 6



October 29 - 31, 1990

Moscow, Idaho

GAP ANALYSIS:

A WORKSHOP ON PROTECTING BIODIVERSITY USING
GEOGRAPHIC INFORMATION SYSTEMS

National and global biodiversity is disappearing, primarily because of human alteration of wildlands. Response to this loss has centered on rescuing endangered species from the brink of extinction. This reactive strategy is risky and inefficient. We offer an alternative, proactive strategy we call Gap Analysis to map and assess the status of biodiversity. We present methods to identify concentrations of unprotected but not yet endangered species and communities whose protective management in the context of viable landscapes would help prevent future additions to the list of endangered species.

WORKSHOP COORDINATOR

J. Michael Scott, Leader, Idaho Cooperative Fish and Wildlife Research Unit, University of Idaho, and Professor, Department of Fish and Wildlife Resources, University of Idaho

ORGANIZING COMMITTEE

Hal Anderson
Blair Csuti
R. Gerald Wright

Patricia Heekin
Sharon Scott

In response to Tribune query Montana congressmen...

G. Falls Tribune
11/15/87

Debate the Front

These mountains options' must include development

By U.S. Rep. Ron Marlenee
R-Eastern District

We all recognize the Rocky Mountain Front west of Choteau and Conrad contains some of the most scenic vistas in the world and is home to a vast array of wildlife.

What a lot of people don't seem to realize is that this narrow sliver of forest is also the last remaining opportunity to provide dispersed non-wilderness recreation to all of the people. We in eastern Montana who desire non-wilderness recreation also deserve scenic and quality areas. These mountains should not be the sole domain of the wilderness activist, who already has 2 million acres in the Bob Marshall, Great Bear, and Scapegoat Wilderness areas which are adjacent to the Front.

We need to preserve some management options to address the non-wilderness needs of Montanans and to meet future recreational opportunities. More and more access to public land by the average recreationalist is being lost every year, to the point where there is less public land access now than there was 10 years ago.

And one thing is certain: once land is designated as wilderness, never again will we have the option for opening a new campground, building a new trail for snowmobiling, or for a new recreational pursuit. Look at the non-motorized mountain bike. It was only recently invented and has proved to be very popular for outdoor recreation. Yet the mountain bike is banned from existing and future wilderness areas. Wilderness forever closes the door to new opportunity.

The passage of the Williams Wilderness Bill will also result in mill closures and lost jobs for Montana. Our kids are not moving to Phoenix, Denver, and Seattle for wilderness opportunities. They are leaving because they are looking for rewarding employment. I oppose Williams' Wilderness Bill because it takes away Montana's options for recreation, hunting, snowmobiling, timber harvest, oil and gas activities, and gives us nothing in exchange but more litigation on areas fraudulently "released" by the bill.

I have attempted to accommodate Montana's needs by offering reasonable amendments to this bill. My amendments would have guaranteed hunter access to wilderness areas; guaranteed the state of Montana's jurisdiction



Ron Marlenee

over water rights in wilderness; and guaranteed wilderness access to the handicapped, senior citizens, and young children. Another amendment would have allowed oil and gas exploration along the Front, only so long as the activity is compatible with the protection and conservation of recreation and wildlife values in the area.

Contrary to claims made by environmental extremists, none of the amendments I offered to the wilderness bill would have permitted oil and gas exploration or development in the Bob Marshall Wilderness. Federal law will not allow such activity in any wilderness, and no one has even suggested that the law be changed.

Another myth created by the wilderness extremists is that only through more wilderness can this land be protected. In truth, numerous laws passed by Congress, such as the National Environmental Policy Act, the Forest Practices Act, the Clean Air Act, the Clean Water Act, and the Soil and Water Conservation Act, require the Forest Service to protect the small sliver of non-wilderness land along the Front even if it is not locked up in wilderness.

I haven't stopped fighting against the Williams Wilderness Bill. I have secured a pledge from the Secretary of Agriculture and the Secretary of the Treasury to aid my request for a Presidential veto of the measure unless Congress accommodates the needs of Montanans by changing the bill.

Wilderness designation will provide protection

By U.S. Rep. Pat Williams
D-Western district

We Montanans are justifiably proud of the Rocky Mountain Front. No stretch of land under our Big Sky surpasses the Front's grandeur or importance.

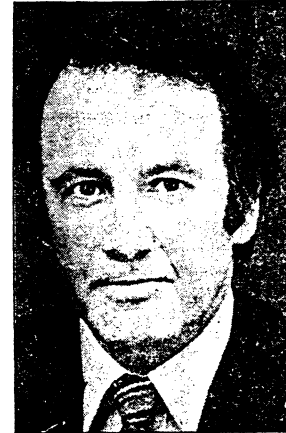
A century ago, early settlers were awed by the Front, that looming obstacle to their passage west. For 110 miles, its massive reefs and enormous plateaus tower skyward from the valley floor. High in the snowfield of the Rockies are the headwaters of several of Montana's great rivers. And here, on the high windswept grasslands and open slopes are the crucial migratory pathways and winter feeding grounds for much of this continent's great game animals. America's largest herd of big-horn sheep and second-largest herd of elk winter on the Front.

The Front is a special place. The question now before the United States Congress is this: How shall the Front be used today and for the generations ahead?

Montanans are, I believe, clear in the answer. Leave it as it is. Let us continue to enjoy it, let it continue to be home to the animals, let us use it sparingly for jobs. In short: Let it be.

My bill directs the federal government to let the Front be. Opportunities for recreation, for young folks as well as our elderly and those with handicaps, now and for years to come, are expanded. The bill assures a 26,000-acre National Recreation Area at the scenic Gibson Reservoir to be certain that the area will retain its current and future recreation pursuits. Although the U.S. Forest Service tells me they see no need for expanded campground facilities along the Front for at least the next 20 years, the bill makes room for campsites to be more than doubled in number whenever necessary.

The bill also recognizes and protects the significant oil and gas potential on the Front. The Blackleaf Canyon in particular and lands to the north are not restricted. Development and production are encouraged. Does the bill make oil and gas production, with major new road construction, the highest priority use for the Front? Of course not. I don't believe Montanans want that. As a nation and as a state, we ought not manage these critical lands on an oil and gas "coin toss" that wagers the great wildlife and recreation resources of the Front



Pat Williams

against the unproven gamble of a longshot natural gas find.

Our Montana winter is on the way now. The great herds of game are descending from the Bob Marshall and onto the Front. The migration is as old as the front itself, and the snow-free winter feeding grounds which draw the herds are vital to their impressive size and numbers.

Working together, the State and Montana private sportsmen and conservation groups have spent millions of dollars to purchase and preserve the critical habitat that is not in federal ownership. Sun River was the first, but it since has been joined by the game preserves at Ear Mountain, Pine Butte Swamp, and Antelope Butte. These state and private efforts comprise the largest and most successful game-recovery program anywhere in this country. Montanans are proud of that.

To date, limited roading, low timber production, and tight narrow canyons have helped protect the annual migration corridors. My bill protects those critical corridors and ranges by joining them to the Bob Marshall Wilderness.

Montanans have made this very clear to each member of our Congressional Delegation: You want the Front for recreation, hunting, fishing, camping, riding. And, yes, you want it for jobs, too — but on your terms. You want it as it is. That's exactly what my bill does. It lets the Front be.

CONSERVATION EASEMENTS



The Nature Conservancy

Introduction

A conservation easement is a legal action in which landowners voluntarily limit certain of their uses of and rights in their property. Generally, landowners agree to conservation easements (also known as conservation restrictions) to preserve the natural values of their land and to protect wildlife habitat.

This booklet is a general guideline for interested landowners. It highlights issues a landowner should consider before deciding to preserve land through a conservation easement. Since this is a highly technical area of the law, landowners should consult an attorney before acting. A conservation easement is usually a perpetual restriction on the land and, in some cases, other methods of preserving land may be more suitable. Landowners should be fully aware of all implications before donating a conservation easement.

What is a conservation easement?

Conservation easements are restrictions landowners voluntarily place on their property that legally bind the present and future owners. Property ownership is a combination of privileges that allows landowners to exercise certain rights. Being allowed to cut timber, explore for minerals, dig a ditch, and build a house are all examples of a landowner's rights. A conservation easement restricts some or all of these rights. It specifically prohibits some activities in order to protect the habitat, flora, or fauna found on the land.

The rights the owner relinquishes are transferred to an organization or body, such as a qualified conservation organization or governmental body, by a legal document called a conservation easement. When the document is properly drawn, signed, and recorded in the land records, the owner and future owners of the property can no longer exercise the rights relinquished in the conservation easement.

What rights does the holder of the conservation easement have?

The conservation easement holder—the qualified conservation organization or governmental body—has the right to enforce the restrictions placed on the land. In addition, the easement holder has a limited right of access for inspection, scientific data collection, or other purposes agreed to by the landowner.

If the land requires active management to preserve or restore its natural values, some management rights may be granted to the easement holder. The conservation easement document does not allow the easement holder to do anything that the landowner is prohibited from doing to the land.

What rights and duties does the landowner retain?

The landowner retains all rights in the property other than the rights specifically relinquished in the conservation easement document. The landowner still owns the land and can use it in any way consistent with the restrictions. For example, the landowner can sell the land, live on it, or give it in his will. The landowner is obligated to pay taxes on the property and ensure that the restrictions are not violated.

What restrictions can a conservation easement include?

A conservation easement can include almost any kind of restriction agreed to by the landowner and the conservation easement holder. For example, it can provide that the land be left completely in its natural state. In other cases, the easement can allow activities such as hunting, fishing, or grazing. Even limited development can be allowed, provided it does not destroy the ecological value of the land. The easement can be applied to the landowner's entire property or to only a portion of it, such as the land along the shore of a lake or stream.

Each conservation easement is specific to the protection needs of the particular piece of land. The terms of the easement must be specific, detailed, and include documentation such as maps, photographs, and biological inventories. This documentation can help avoid future disagreements or uncertainties that may arise after the land changes ownership.

How long does the easement last?

Generally, an easement restricts the land forever—legally stated as “in perpetuity.” In most cases, this is interpreted to be as long as the property remains a viable nature reserve. It is possible to provide that an easement shall be only for a term of years, after which it will cease to have any effect. However, unless a conservation easement is given to a qualified organization in perpetuity, no charitable deduction will be allowed for federal income tax purposes.

Most conservation easements are perpetual in order to permanently preserve the land and allow the landowner the maximum tax benefits.

What are the legal considerations in granting a conservation easement?

The effectiveness, consequences, and legality of a conservation easement are governed by the laws of the state in which the land is located. The Nature Conservancy has drafted easements to comply with the laws of many states, but all prospective grantors of a conservation easement should consult their own attorneys and tax advisors as to the laws of their state and the tax implications of the proposed grant.

While The Nature Conservancy has forms for conservation easements, no form will be applicable in all cases. Conservation easements must be tailored to fit each situation. For example, in some states a conservation easement will not be perpetually enforceable unless the recipient owns adjacent lands that are benefited by the conservation easement. Fortunately, the Conservancy has encouraged several states to pass legislation which eliminates this adjacency problem.

What are the tax consequences of donating an easement?

The amount of a charitable contribution of interests in land is the value of the gift at the time of donation. If an owner gives a parcel of land which has been appraised at \$50,000 by a qualified appraiser, and the Internal Revenue Service accepts this appraisal, the value of the gift is \$50,000.

As with any other gift of real estate, a gift of a conservation easement must also be appraised for tax purposes. The value of a conservation easement is the difference between the value of the land without the conservation easement and the value of the land with perpetual conservation restrictions. For example, if a tract of land is valued at \$50,000 without restrictions and at \$20,000 after the conservation easement has been given, the value of the conservation easement is \$30,000. (The value after the easement has been given is determined by the nature of the restrictions and their impact on present and future land use.)

Caution: Each parcel of land is unique, and there can be no set or average percentage of value attributed to any rights relinquished.

Federal income tax

A gift of a conservation easement will qualify as a charitable deduction under the Internal Revenue Code if it is given in perpetuity to a "qualified organization" for a "conservation purpose." Qualified organization and conservation purpose are defined by the Internal Revenue Code and regulations. The Nature Conservancy is a qualified organization. Examples of a conservation purpose include "the protection of a relatively natural habitat of fish, wildlife, plants, or similar ecosystem," or "the preservation of open space" for specific purposes as defined by the Internal Revenue Code.

If the conservation easement meets federal income tax definitions, the donor generally may deduct the value of the conservation easement from his or her adjusted gross income, provided that the deduction does not exceed 30 percent of adjusted gross income. If the value of the deduction exceeds that percentage in the year of the gift, any excess may be deducted from adjusted gross income over the next five years, subject to the same annual 30 percent limitation.

Federal gift and estate tax

The 1986 tax reform legislation attempted to separate the gift of a conservation easement from the gift and estate tax provisions. A donation of a conservation easement may fail under the tests described in the preceding paragraphs but still qualify as a gift tax deduction. There is presently some uncertainty as to how the Internal Revenue Service will interpret this, and there are attempts underway to clarify the ambiguity.

State income tax

Generally, a contribution of a conservation easement also qualifies as a charitable contribution under state income tax laws. However, each state's law must be examined to determine the nature and extent of the deduction.

Real property taxes

Real property assessments are based on the property's value as determined by a local assessor. State law, local practice, and local tax assessors determine whether a conservation easement causes a reduction in the assessed value of the property. If the assessed value of the property is reduced, then real property taxes will be lowered.

The role of The Nature Conservancy

Many landowners have donated conservation easements to The Nature Conservancy. The Conservancy, however, has specific goals concerning protection of ecologically important natural areas and the preservation of natural diversity. Because the Conservancy's resources are limited, it has established the following guidelines for acceptance of conservation easements:

- ◆ the land's ecological significance must further the Conservancy's stated goals,
- ◆ the land must be located so that the Conservancy has the means to monitor the condition of and observe the restrictions placed on the land,

OR

- ◆ the land must be significant to a Conservancy program to protect a natural area which is to be conveyed to a federal government agency or to a state or county wildlife conservation agency.

In cases where a proposed conservation easement does not meet these criteria, the Conservancy, through its regional or local field offices, may be able to suggest an appropriate conservation organization or government agency that might take the easement.

Since the laws governing conservation easements are complex and technical, there must be a complete understanding between the landowner and the recipient of the conservation easement. Local, state, and federal laws and the physical characteristics of the land make each parcel unique. A conservation easement, since it affects the use of the land, must recognize this uniqueness. Careful research and drafting will decrease the chance of disagreement or differences of interpretation in the future.

While it is impossible to develop a "standard" conservation easement without first researching the land and state and local laws, the following sample includes language mandated by the Internal Revenue Service under laws in effect at the time of publication.

CONSERVATION EASEMENT

THIS INDENTURE, made this day of 19
and between [Grantor Name] (“Grantor”), of
 [Grantor Address] , and THE NATURE
CONSERVANCY (“Conservancy”), a nonprofit
corporation organized and existing under the laws of
the District of Columbia, with an address of 1800
North Kent Street, Arlington, Virginia 22209.

WHEREAS, the Grantor is the owner in fee simple of
certain real property (hereinafter referred to as the
“Protected Property”) which has aesthetic, scientific,
educational, and ecological value in its present state as
a natural area which has not been subject to develop-
ment or exploitation, which property is described as
follows:

WHEREAS, the Protected Property is a natural area
which contains a [list element of value] and
has substantial value as a natural, ecological and
scientific resource; and

WHEREAS, The Nature Conservancy is a nonprofit
corporation whose purpose is to preserve and conserve
natural areas for aesthetic, scientific, charitable and
educational purposes; and

WHEREAS, [Chapter No.] of the
[State] Statutes permits the creation of con-
servation easements for the purposes of, *inter alia*,
retaining land or water areas predominantly in their
natural, scenic, open or wooded condition or as
suitable habitat for fish, plants, or wildlife; and

WHEREAS, Grantor and Conservancy recognize the
natural, scenic, aesthetic, and special character of the
Protected Property, and have the common purpose of
the conservation and protection in perpetuity of the
Protected Property as “a relatively natural habitat of
fish, wildlife, or plants or similar ecosystem” as that
phrase is used in Public Law 96-541, 26 USC 170(h)
(4)(a)(ii) as amended and in regulations promulgated
thereunder by placing voluntary restrictions upon the
use of the Protected Property and by providing for the
transfer from the Grantor to the Conservancy of
affirmative rights for the protection of the Protected
Property; and

WHEREAS, “natural, scientific, educational, aesthetic,
scenic and recreational resource,” as used herein shall,
without limiting the generality of the terms, mean the
condition of the Protected Property at the time of this
grant, evidenced by:

- A) The appropriate survey maps from the United
States Geological Survey, showing the property line
and other contiguous or nearby protected areas;
- B) A map of the area drawn to scale showing all ex-
isting man-made improvements or incursions (such
as roads, buildings, fences, or gravel pits), vegeta-
tion and identification of flora and fauna (including,
for example, rare species locations, animal breeding
and roosting areas, and migration routes), land use
history (including present uses and recent past dis-
turbances), and distinct natural features (such as
large trees and aquatic areas);

C) An aerial photograph of the property at an appropriate scale taken as close as possible to the date the donation is made; and

D) On-site photographs taken at appropriate locations on the property;

and other documentation possessed (at present or in the future) by the Grantor which the Grantor shall make available to the Conservancy, its successors and assigns, which documentation shall be sufficient to establish the condition of the property at the time of the gift.

NOW, THEREFORE, the Grantor, for good and valuable consideration paid by the Conservancy, the receipt of which is hereby acknowledged by the Grantor, and of the covenants, mutual agreements, conditions and promises herein contained, the Grantor does hereby freely give, grant, bargain, sell and convey unto the Conservancy, its successors and assigns, forever, a conservation easement over the Protected Property consisting of the following:

AFFIRMATIVE RIGHTS

1. The right of visual access to and view of the Protected Property in its natural, scenic, open and undisturbed condition.
2. The right of the Conservancy, in a reasonable manner and at reasonable times, to enter the Protected Property for the purposes of inspecting same to determine compliance herewith, to enforce by proceedings at law or in equity the covenants hereinafter set forth including, but not limited to, the right to require the restoration of the Protected Property to its condition at the time of this grant. The Conservancy, or its successors or assigns, does not waive or forfeit the right to take action as may be necessary to insure compliance with the Covenants and purposes of this grant by any prior failure to act. Nothing herein shall be construed to entitle the Conservancy to institute any proceedings against Grantor for any changes to the Protected Property due to causes beyond the Grantor's control such as changes caused by fire, floods, storm or unauthorized wrongful acts of third person.

AND IN FURTHERANCE of the foregoing affirmative rights, the Grantor, on behalf of the Grantor, his heirs, successors and assigns, and with the intent that the same shall run with and bind the Protected Property in perpetuity, does hereby make, with respect to the Protected Property, the following:

COVENANTS

[This is a suggested list of covenants - each easement should be drafted to insure protection of the particular resource.]

1. (Vegetation) There shall be no removal, destruction, cutting, trimming, mowing, alteration or spraying with biocides of any vegetation, nor any disturbance or change in the natural habitat in any manner. There shall be no planting or introduction of any species of vegetation.

2. (Uses) There shall be no agricultural, commercial or industrial activity undertaken or allowed; nor shall any right of passage across or upon the Protected Property be allowed or granted if that right of passage is used in conjunction with agricultural, commercial or industrial activity.

3. (Animals) No dogs, cats, or other animals, domestic or exotic, shall be allowed on the Protected Property.

4. (Topography) There shall be no filling, excavating, dredging, mining or drilling; no removal of topsoil, sand, gravel, rock, minerals or other materials, nor any dumping of ashes, trash, garbage, or of any other material, and no changing of the topography of the land in any manner.

5. (Buildings) There shall be no construction or placing of buildings, mobile homes, advertising signs, billboards, or other advertising material, or other structures.

6. (Roads) There shall be no building of new roads or any other rights of way nor widening of existing roads.

7. (Waters) There shall be no disruption of tidal pattern by damming, dredging or construction in any free-flowing water body, nor construction of any weirs, groins, nor dikes in any marshlands, nor any manipulation or alteration of natural water courses, fresh water lake and pond shores, marshes, or other water bodies nor any activities or uses detrimental to water purity.

8. (Vehicles) There shall be no operation of dune buggies, motorcycles, all-terrain vehicles, or any other types of motorized vehicles.

9. (Prohibited Use) Any use of the Protected Property and any activity thereon, which, in the opinion of Grantee, is or may become inconsistent with this grant, being the preservation of the Protected Property predominantly in its natural condition and the protection of environmental systems, is prohibited.

10. There shall be no hunting or trapping except to the extent specifically approved by the Grantee as necessary to keep the animal population within numbers consistent with the ecological balance of the area.

In the event that a breach of these restrictions by the Grantor or by a third party comes to the attention of the Conservancy, the Conservancy must notify the Grantor in writing of such a breach. The Grantor shall have 30 days after receipt of such notice to undertake actions including restoration of the Premises that are reasonably calculated to correct swiftly the conditions constituting such a breach. If the Grantor fails to take such corrective action, the Conservancy shall at its discretion undertake such actions, including appropriate legal proceedings, as are reasonably necessary to effect such corrections; and the cost of such corrections, including the Conservancy's expenses, court costs and legal fees, shall be paid by the Grantor, provided the Grantor is determined to be responsible for the breach.

NEVERTHELESS, and notwithstanding any of the foregoing provisions to the contrary, the Grantor

reserves for himself, his heirs, successors and assigns the following Reserved Rights, which may be exercised after providing written notice to Conservancy; PROVIDED, however, that the exercise of such rights is not inconsistent with the conservation interests associated with the Protected Property.

Note: These clauses may be changed to meet specific variations and situations such as easements over farm lands where continued agricultural use or grazing is permitted; provision may also be made as appropriate for replacing existing buildings, maintaining access, or limited hunting. This sample is of a "Forever Wild" conservation easement.

RESERVED RIGHTS

[insert here any rights reserved by Grantor]

GENERAL PROVISIONS

The Grantor agrees that the terms, conditions, restrictions, and purposes of this grant will be inserted by it in any subsequent deed or other legal instrument by which the Grantor divests itself of either fee simple, or its possessory interest in, all or portions of the Protected Property and that the Grantor will notify the Conservancy, its successors or assigns, of any such conveyance.

Any notices required in this Conservation Easement shall be sent by registered or certified mail, postage prepaid, to the following addresses or such address as may be hereafter specified by notice in writing:

GRANTOR:	GRANTEE:
_____	The Nature Conservancy
_____	1800 N. Kent Street
_____	Arlington, VA 22209

With copy to:	With copy to:
_____	Regional Attorney
_____	The Nature Conservancy
_____	[Regional Office address]

The Grantor agrees that he and his successors and in title will pay any and all real estate taxes or assessments levied on this property by competent authorities.

In the event any provision of this grant is determined by the appropriate court to be void and unenforceable, all remaining terms shall remain valid and binding.

The burdens of this Conservation Easement shall run with the Protected Property and shall be enforceable against the Grantor and all future owners and tenants in perpetuity. The benefits shall be in gross and assignable but only to an eligible donee as defined in IRC Section 1.170A-14(c)(1) as that section may be amended from time to time. Any assignment of benefits by the Grantee (or successor) must require the transferee to carry out the purposes of this Conservation Easement.

The Grantor hereby warrants and represents that the Grantor is seized of the Protected Property in fee simple and has good right to grant and convey this Conservation Easement, that the Protected Property is free and clear of any and all encumbrances, and that the Conservancy and its successors and assigns shall have the use of and enjoy all of the benefits derived from and arising out of this Conservation Easement.

If a subsequent, unexpected change in the conditions of the Protected Property or the surrounding property make impossible or impractical the continued use of the property for conservation purposes, the restrictions shall be extinguished by judicial proceeding and all of the Conservancy's proceeds from a subsequent sale or exchange of the Protected Property shall be used in a manner consistent with the conservation purposes of this grant.

The Grantor agrees that this donation of a perpetual Conservation Easement gives rise to a property right, immediately vested in the Conservancy, with a fair market value that is at least equal to the proportionate value that the Conservation Easement, at the time of this gift, bears to the value of the Property as a whole at this time.

Whenever all or part of the Premises is taken in exercise of eminent domain by public, corporate, or other authority so as to abrogate the restrictions imposed by this Conservation Easement, the Grantor and the Grantee shall join in appropriate actions at the time of such taking to recover the full value of the taking and all incidental or direct damages resulting from the taking. The net proceeds (including, for purposes of this subparagraph, proceeds from any lawful sale of the property unencumbered by the restrictions hereunder) shall be distributed among the Grantor and the Grantee in shares in proportion to the fair market value of their interests in the Premises on the date of execution of this Conservation Easement. The Grantee shall use its share of the proceeds in a manner consistent with the conservation purposes set forth herein.

The rights hereby granted shall be in addition to, and not in limitation of, any other rights and remedies available to the Conservancy for enforcement of this Conservation Easement.

TO HAVE AND TO HOLD this Conservation Easement together with all and singular the appurtenances and privileges belonging or in any way pertaining thereto, either in law or in equity, either in possession or expectancy, for the proper use and benefit of the Conservancy, its successors and assigns, forever.

IN WITNESS WHEREOF, the Grantor has set his hand and seal the day and year first above written, and the Conservancy has caused these presents to be signed in its name by its Executive Vice President, and its corporate seal to be affixed, attested by its Assistant Secretary the day and year first above written.

[Signatures and notarization as required by state law for recording purposes.]



The Nature Conservancy is an international membership organization committed to the global preservation of natural diversity. Its mission is to find, protect, and maintain the best examples of communities, ecosystems, and endangered species in the natural world. The Nature Conservancy Latin American Program works to help build in-country institutions to accomplish this purpose.

To date the Conservancy and its members have been responsible for the protection of more than three million acres in 50 states, Canada, Latin America, and the Caribbean. While some areas are transferred to other conservation groups, both public and private, the Conservancy owns and manages nearly 1,000 preserves—the largest privately owned nature preserve system in the world.

The Nature Conservancy was incorporated in 1951 for scientific and educational purposes. It is a nonprofit, tax-exempt corporation under Section 501(c)(3) of the Internal Revenue Code and is a publicly supported organization as defined in Sections 170(b)(1)(vi) and 509(a). Contributions are tax-deductible.

Eastern Regional Office
294 Washington Street, Room 740
Boston, MA 02108
(617) 542-1908

Midwest Regional Office
1313 Fifth Street, S.E.
Minneapolis, MN 55414
(612) 379-2207

Southeast Regional Office
P.O. Box 2267
Chapel Hill, NC 27515-2267
(919) 967-5493

Western Regional Office
785 Market Street
San Francisco, CA 94103
(415) 777-0541

DEED OF CONSERVATION EASEMENT

THIS GRANT DEED OF CONSERVATION EASEMENT by George A. Sexton and Helen L. Sexton (hereinafter referred to as "Grantors"), and THE NATURE CONSERVANCY, a District of Columbia non-profit corporation (hereinafter referred to as the "Conservancy"),

WITNESS THAT:

WHEREAS, Grantors are the owners of certain real property in Teton County, Montana, said real property being more particularly described on Exhibit "A" attached hereto and incorporated herein by reference, and hereinafter referred to as "Grantors' Land"; and

WHEREAS, portions of Grantors' Land currently remains in a substantially undisturbed, natural state and have significant ecological, wildlife, scenic and aesthetic values; and

WHEREAS, all of these natural elements and ecological and aesthetic values are of great importance to the Grantors and the Grantee and to the people of the State of Montana, and are worthy of preservation; and

WHEREAS, Grantors, as owners in fee of Grantors' Land, own the affirmative rights to identify, to preserve and protect in perpetuity the plants and animals, the ecosystems, the natural features and processes and the great aesthetic value associated with Grantors' Land; and

WHEREAS, Grantors desire and intend to transfer such rights to the Conservancy; and

WHEREAS, the Conservancy is organized to preserve and conserve natural areas and ecologically significant land for aesthetic, scientific, charitable and educational purposes; and

WHEREAS, the State of Montana has recognized the importance of private efforts towards preservation of natural systems in the state by enactment of Section 76-6-201, et seq., Montana Code Annotated; and

WHEREAS, the Conservancy is a qualified private organization under the terms of Section 76-6-104(5) and Section 76-6-204, Montana Code Annotated;

NOW THEREFORE, in consideration of the mutual covenants contained herein, based upon the Common Law, and further pursuant to Section 76-6-201, et seq., Montana Code Annotated, Grantors do hereby convey to The Nature Conservancy, Grantee, a District of Columbia non-profit corporation, with offices at 1800 North Kent Street, Arlington, Virginia, its successors and assigns, a Conservation Easement consisting of the rights hereinafter enumerated, over and across the Grantors' Land, said land being more particularly described in Exhibit "A" attached hereto and by this reference made a part hereof.

The rights conveyed by the Conservation Easement are the following:

1. To identify, to preserve and protect in perpetuity and to enhance by mutual agreement, the ecological and aesthetic features and the native flora and fauna on the Grantors' Land.
2. To enter upon the Grantor's Land to enforce the

rights herein granted, and to observe, study and make scientific observations of its ecosystems, upon prior written notice to Grantors, their heirs, successors or assigns, and in a manner that will not unreasonably interfere with the agricultural use of the Grantors' property at the time of such entry.

3. To enjoin any activity on, or use of, the Grantors' Land which is inconsistent with the Conservation Easement granted and with the Grantors' intentions and to enforce the restoration of such areas or features of the Grantors' Land as may be damaged by such activities.

The Conservation Easement herein granted shall run with and burden title to the Grantors' Land in perpetuity and shall bind the Grantors, their heirs, successors and assigns.

The Conservation Easement shall confine the use of Grantors' Land to activities such as ecological study and use as the residence for the owners of Grantors' Land and their family. For purposes of this agreement, a family shall be defined as an individual or a group of two or more persons related by blood, marriage, or adoption, together with not more than two additional persons not related by blood, marriage or adoption, living together as a single housekeeping unit.

Pursuant to the terms of Section 76-6-107, Montana Code Annotated, the Grantors' Land preserved hereby as open space and natural land, may not be converted or directed to any uses other than those provided herein.

The following uses and practices, though not an exhaus-

tive recital of consistent uses and practices, are consistent with this Conservation Easement, and these practices are not to be precluded, prevented or limited by this Conservation Easement as interpreted in the context of historical use as above mentioned, except for the requirement of prior approval from the Conservancy as provided herein:

1. To maintain, repair and replace existing fences, buildings, corrals and other improvements on the Grantors' Land.

2. To construct a residence on Grantors' Land, and in the event of destruction of said residence, to replace it with a residential structure of similar function, capacity, situation and building materials. Grantors may also relocate the existing residential structure on another site on Grantors' property if the site is acceptable to the Conservancy, and after first receiving the Conservancy's advance written permission.

3. To continue historical modes and levels of agricultural activity on Grantors' Land, including the pasturing and grazing of livestock, and to maintain those water resources on the Grantors' Land necessary for the ranching and domestic purposes conducted thereon pursuant to the terms hereof.

Any residential structure on Grantors' property shall be limited to use by Grantors' immediate family, and may not be rented or leased, directly or indirectly, to others. Nothing herein contained shall be construed to preclude Grantors from utilizing any residential structure for the lodging of guests on a non-remunerative temporary basis.

The following uses and practices, though not an exhaustive recital of inconsistent uses and practices, are inconsistent with the purpose of this Conservation Easement, and shall be prohibited.

1. The change, disturbance, alteration, or impairment of the natural ecological values within and upon Grantors' Land, except as provided herein.

2. The hunting of any non-game animals.

3. Trapping for any purpose other than to control predatory and problem animals which have caused damage to livestock or other property, and then only by selective control techniques limited in their effectiveness to specific animals which have caused damage to property, Grantor retaining no right to use poison bait, cyanide guns or other non-selective control techniques.

4. The division, subdivision or de facto subdivision of the Grantors' Land.

5. The construction of any structures except as provided herein.

6. The use of off-road vehicles in such a manner as will result in soil disturbance or compaction or in the damage of native vegetation or disturbance of wildlife.

7. The dumping or other disposal of non-compostable refuse on the Grantors' Land.

8. The installation of utility structures or lines upon or within Grantors' Land except in connection with the construction, maintenance, replacement or repair of residential facil-

ities as provided herein.

9. The taking of timber for commercial purposes.

10. The exploration for or extraction of minerals, hydrocarbons, soils or other materials on or below the surface of the Grantors' Land.

11. Conversion of native vegetation to new exotic cover species.

12. Introduction or planting of exotic plant or animal species.

13. The construction of any roads.

14. The collection of firewood other than for Grantors' personal use.

Grantors further intend that should Grantors, their heirs, successors or assigns, undertake any prohibited activity, the Conservancy shall have the right to force the restoration of that portion of the Grantors' Land affected by such activity to the condition that existed prior to the undertaking of such prohibited activity. In such case, the costs of such restoration and the Conservancy's costs of suit, including attorney's fees, shall be borne by Grantors or those of their heirs, successors or assigns against whom a judgment is entered, or in the event that the Conservancy secures redress without a completed judicial proceeding, by Grantors or those of their heirs, successors or assigns who are otherwise determined to be responsible for the unauthorized activity. Nothing herein contained shall be construed to preclude Grantors from exhausting

their legal remedies in determining whether the proposed activity to which the Conservancy has objected is inconsistent with this Conservation Easement. Further, any and all damage caused by acts of God, vandalism, or negligence of third parties shall be restored by Grantors and the Conservancy upon mutual agreement.

Grantors agree to pay any and all real property taxes and assessments levied by competent authority on the Grantors' Land.

Grantors agree to bear all costs of operation, upkeep and maintenance of the Grantors' Land, and do hereby indemnify the Conservancy therefrom.

Nothing contained herein shall be construed as affording the public access to any portion of the land subject to this Conservation Easement.

The parties hereto covenant and agree that the Conservancy may assign its interest in this conservation easement without the prior consent of Grantors.

The parties hereto acknowledge that a collection of base-line data, more particularly described in Exhibit "B" attached hereto and by this reference made a part hereof, has been completed by competent naturalists familiar with the environs, and agreed upon by the Conservancy and the Grantors. The parties acknowledge that said collection of base-line data is designed to establish the condition of the property subject to this Conservation Easement at the time of this grant.

If any provision of this Deed of Conservation Easement or the application thereof to any person or circumstance is found to be invalid, the remainder of the provisions of the Deed of Conservation Easement and the application of such provisions to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

IN WITNESS WHEREOF, the Grantors have hereunto set their hands this _____ day of _____, 1979.

GRANTORS

