

usually trump ethics. The Forest Service is a friendly environment for those who think science should be subservient to budgetary imperatives. Forest Service employees whose ethics lead them to think otherwise find that promotions are elusive. But the Forest Service is not unique."

The revolution that Jeff DeBonis started must come from within, and it must be a personal decision embraced by every rank-and-file worker on the public payroll. "Jeff DeBonis demonstrated that public agencies can be pushed off of their command-and-control model through the activism of their employees and by creating an organization that lets the public have access to the expertise of public employees," Ruch says. "Jeff wasn't forced out of the Forest Service, he decided to leave and found another organization. The whole premise of PEER is that with a little outside assistance you can help facilitate change inside the agency. Our goal is to keep people in agencies and avert the situation where people have to fall on their sword."



Postscript: Autumn again. It is some five years after I first met Jeff DeBonis in person. He is in jeans and a flannel shirt, wearing a tool belt around his waist, assessing structural integrity and reform not of the Forest Service but of his own home. Newly married, carried by a light spirit that had been lacking as the battle wore him down, he is trying his hand at carpentry in an old residence that he intends to restore to its former glory. Layer by layer, he removes outer sheetrock and paneling and linoleum and carpet that have covered original moldings and fixtures, high ceilings, and hardwood floors. The interior of this old home, a picture of magnificence, has been shrouded by the changing tastes of its previous inhabitants.

DeBonis left PEER when he felt the symptoms of burnout approaching. He may never work in government service or the public arena again. But he is content because he realizes there is more to life than conflict. As Dave Iverson says, one hundred years from now when the history of the Forest Service is written, there will be a chapter on DeBonis describing his crusading as a freedom fighter.

Ebullient, as the rays of afternoon sun fall through the stained glass into his home, DeBonis feels connected to the people who occupied this space before him.

A Grizzly Future

Only those able to see the pageant of evolution can be expected to value its theater, the wilderness, or its outstanding achievement, the grizzly.

—Aldo Leopold

THE CALLIGRAPHY OF impressions looks almost human. Wide and flat, outlined by a sheen of sparkling, frozen water, the solitary diagonal tracks emerge from a fog of steam rising off the creek bottom and detour up a barren mountain pitch. They cross a glacial moraine, meander around a bramble of juniper, proceed steadily through snowy talus, and dead-end, finally, in the exposed root-tendrils of an ancient, warp-trunked whitebark pine tree.

With the afternoon high temperature in northwest Wyoming hovering at five degrees below zero, it is late in the year for a grizzly bear to be taking a saunter. But food has been scarce. This mama, a pregnant sow with twin cubs growing inside her belly, reaches her den after striking out on a circumnavigation of territory. Hers is a desperate, hyperphagic quest for calories. To the frosty high meadows for yampa root and camas; to the windblown ridgetops for a failed crop of whitebark pine nuts; to the lowland thickets for serviceberries; and through the dangerous riparian corridors of the national forest, where humans carrying loud sticks always leave behind fresh elk and mule-deer meat. Occasionally they leave behind dead bears, too.

Gorging herself instinctively, like an NFL lineman attempting to keep his weight above 320 pounds, she has covered 250 miles in less than a month before reaching the den for ninety days of slumber. Coated in creamy, tawny fur, she will sleep, having no understanding that on this frigid December afternoon in 1993, an alarming message affecting the future of her kind has resounded from a human bureaucratic fiefdom hundreds of miles south in Lakewood, Colorado.

At the annual year-end summit of the Interagency Grizzly Bear Committee, a consortium of state and federal wildlife managers from the northern Rockies, a remarkable decision has been announced. Offering no advance warning, committee members voted unanimously to appease antigrizzly forces in the Greater Yellowstone Ecosystem by resolving to delete *Ursus arctos horribilis* from the federal list of threatened species. The move, on many levels, represented a dramatic shift in how the federal government approaches protection of the most famous population of wild grizzlies in the world. It was only a decade earlier that representatives of many of the same agencies had pronounced, by signing off on a memo, that it appeared the grizzly was doomed to regional extinction in Yellowstone National Park and the surrounding twenty-five thousand square miles of public land.

The sudden reversal to "delisting" the great bear left environmentalists stunned. In layman's terms, what the decision means is that the bear's protected status could be downgraded not long after the next millennium begins so that oil and natural-gas developers, loggers, and livestock grazers can penetrate public lands previously off limits. It could result in a sport hunt of grizzlies in Wyoming, Montana, and Idaho; spawn approval for ranchers to shoot grizzlies on public lands if the predators harass their cows; and afford leniency to poachers now facing the possibility of large fines and time in prison if they put a bruin in their gun sights and pull the trigger. Most important, it gives a green light to continued habitat destruction.

"We were struck speechless and frankly outraged by the Bear Committee's cavalier support for delisting the grizzly," said an incredulous Brian Peck, who attended the meeting on behalf of the National Audubon Society and several other conservation groups. "The committee's own lead scientist, Chris Servheen, said publicly that because of doubts about the status of the bear, delisting wouldn't even be considered for another ten years at the earliest. But by the time he and the other good-old-boy bureaucrats were finished, it became very clear that this meeting had been a political setup from the start. It proves that the whole process of managing bears is built on subterfuge and mistrust. The Bear Committee acted quickly, and it arrogantly skirted public scrutiny because its members knew the science allegedly justifying their position doesn't hold up.

"Of course," Peck added, "they ignored their own best expert."

Conspicuously absent from the meeting was the man regarded as Yellowstone's premier grizzly bear biologist—a field scientist who had been pressured to leave his post studying bears only a few months earlier. For daring to say that bear habitat should be stalwartly protected from invasions by timber and oil companies, logging roads, mines, and human development on public and private lands surrounding Yellowstone National Park, David Mattson was cast into professional exile from the special government team assigned to monitor bears on the ground. His forecasts pertaining to the health of Yellowstone's bear population are far from the sanguine picture politicians and special interest groups resentful of the Endangered Species Act portray in the late 1990s.

Why is a decision announced by the Interagency Grizzly Bear Committee in 1993 important? Because scientists believe that it reveals what the bureaucrats in charge of bear survival are currently thinking, how much they're willing to gamble with the Yellowstone population, and the fact that many of them apparently believe the process of removing federal protection has already begun. To Mattson and his supporters, the gist is that bears are now more vulnerable than ever. At the center of the controversy is what Mattson describes as "the deeply flawed arithmetic" some government biologists employ to determine whether the population of Yellowstone grizzlies is growing or declining, in good shape or bad.

"I do admit that I have little patience with the smoke and illusion that constitutes the so-called science being used to justify the removal of grizzly bears from federal protection in the Yellowstone ecosystem," Mattson says. "If anything, we should be expanding the net of protection, not pulling it in and claiming victory. What victory will we achieve if we have grizzlies here in fifty years but doom them to extinction in one hundred by our unsubstantiated optimism today? If you ask me, that's a false victory."

Before his bizarre indoctrination in the politics of grizzly bear management, Mattson never thought of himself as one who would help lead a new movement in the nascent discipline of conservation biology. Nor did he expect that the differences between short-term preservation of large carnivores and long-term viability of such plans would leave him poignantly in the middle of a national philosophical debate. The outcome has practical scientific consequences as well as spiritual implications in the context of Native Americana. It

was, after all, the aboriginal elders of this continent who said that whenever a decision is reached, its consequences should be considered over the span of seven generations. Figuring roughly twenty-five years per generation, the focus here extends to about the year 2175.

One night during a snowstorm in a western Idaho college town where he resides in exile, Mattson tells me he is collaborating with other prominent scientists, including Craig Pease, a wildlife demography guru at the University of Texas, to develop a new approach to studying—and essentially counting—bears based upon the government's own data. Mattson and Pease's initiative is exactly the kind of stuff that led the government to brand them a threat, though they are not alone in their criticism of current grizzly bear management. No fewer than two dozen other prominent independent scientists in the vanguard of conservation biology, including the modern godfather of conservation biology, Michael Soule, and his protégé Reed Noss, say the Interagency Grizzly Bear Committee is trying to cook numbers and cover up the truth. They not only charge that the government's plan to delist grizzlies is premature, they also assert that the recently completed Grizzly Bear Recovery Plan and its author, Chris Servheen, ignored vital information that Mattson had spent more than ten years publishing in scientific journals. Servheen, a biologist with the U.S. Fish and Wildlife Service and the man considered the government's "grizzly czar," is also said to have been instrumental in forcing Mattson out, an allegation he denies.



Just 150 years ago, perhaps 100,000 grizzlies roamed from central Mexico to the Arctic Ocean. Today the species in the lower forty-eight states occupies less than 2 percent of its former range and maybe one thousand individual animals are clustered primarily into two relic island populations: the Greater Yellowstone Ecosystem and the Northern Continental Divide Ecosystem anchored by Glacier National Park. The reason for the decline is that *Homo sapiens*, the bears' chief rival predator, hasn't done a very good job of coexisting with them. The call of alarm is not new to our generation, though it has grown more desperate as large carnivores disappear around the world in spasms of extinction. The question is, do we value grizzlies enough to modify our own destructive behavior?

"The grizzly needs protection at once, needs your active interest now. He is making his last stand and is surrounded by relentless foes," wrote naturalist Enos Mills in his 1919 book *The Grizzly—Our Greatest Wild Animal*. "Protection only will save him and enable him to perpetuate himself. Without the grizzly the wilds would be dull, the canyon and the crag would lose their eloquent appeal. This wild uncrowned king has won his place in nature which no other animal can fill. We need the grizzly bear."

In the government's Grizzly Bear Recovery Plan, Chris Servheen and his coauthors say that taxpayers will spend an estimated \$26 million trying to restore or sustain bear numbers in the ecosystems mentioned above and four other areas of the West, including the Selway-Bitterroot Wilderness of central Idaho and the North Cascades ecosystem in Washington state. Critics say the government is squandering its financial resources on voodoo science.



Snow is falling in Moscow. The streets are nearly deserted. Nursing a glass of lager as the tape recorder rolls, Mattson sits with me in the dark corner of a hotel bar, lamenting the chain of events that led to his purge. It is easy, perhaps, to draw a Soviet-style analogy to our setting, given the circumstances, but Mattson and I have not rendezvoused in the Russian capital. We are twelve thousand miles to the west in a small Idaho farming community and college town of the same name. Mattson is in academic seclusion, and his supporters want him to return.

Mattson does not fit the profile of a trademark macho grizzly bear biologist. A docile, even-keeled family man with a wife and two kids, this fortysomething naturalist is lean, cerebral, and impressively thoughtful. Serious and pensive, he has a silver stud in his left earlobe, hiking boots on his feet, wire-rimmed glasses, short, thinning hair, and a penchant for reading poetry when he isn't out searching for bear spoor and rotting elk carcasses a day's march from the nearest sign of civilization. Mattson has covered thousands of miles on foot and written more scientific papers on the grizzly than any other person since the bear was placed on the Endangered Species List as a threatened animal two decades ago. He has bridged the art and folklore of the beast with its science. He is both a left- and a right-brained thinker.

Mattson has overt empathy for his subjects, and it stems from his own childhood on the Great Plains. Born in 1954, he grew up in the cow town of Rapid City, South Dakota, but spent considerable time hiking through the Black Hills. "I had in South Dakota about as close as anybody comes to experiencing a sacred place," he says of a family cabin in the wooded mountains. "Most of us have them, inviolate retreats that we hold in our minds and set off limits to certain kinds of development because it is incongruent with the values we hold in our hearts."

When Mattson left South Dakota for the University of Idaho at Moscow in 1972, nothing energized him more than field research, except perhaps a great work of literature. "I didn't realize that the profession of wildlife biologist even existed," he says, telling how he naturally fell into line with people involved in biology and wildlife at the university because they enjoyed the same things he did. It took him seven years to earn an undergraduate degree in forestry and botany because he kept taking jobs in field research, spending sixty days a summer in the bush, mostly in plant studies in the national forests of Idaho. Near the time of his graduation, he heard about a project sponsored by the Yellowstone Interagency Grizzly Bear Study Team that called for conducting radio telemetry work to track the movements of collared bears. His new boss, Richard Knight, was impressed by Mattson's crackerjack mind and agreed to supervise a proposed master's project on wetland vegetation relating to grizzly bear nutrition.

Knight knew immediately that Mattson was different from the other biologists whom he had hired. Mattson had no fetish for "controlling" bears. He wanted the animals to show him the answers. "Most people that go into wildlife biology are focused on the animal. They want to get their fingers on the fur. They want to be trappers. They want to be out trapping and drugging and handling the bears," Mattson says. "I had no interest in that at all. I wanted to come at grizzly bear research from another angle. Dick recognized that and gave me a lot of encouragement. I will always respect him for giving me my start." No one knew it then, but Knight would eventually turn on him in a traumatic encounter that both now regret.

Bert Harting met Mattson in the early 1980s while both were working toward master's degrees and conducting bear research for the Yellowstone Interagency Grizzly Bear Study Team headed by

Knight. "I recognized right off how exceptional an individual Dave was in a number of respects—in addition to being one of the finest botanists you've ever run across, Dave could identify anything," Harting says. "Hand him a weathered toothpick and he could decipher the kind of tree it came from. He didn't fit the usual mold of a wildlife biologist in that he had a gentle, zenful side to him instead of the hard-ass Daniel Boone persona that was generally favored by most large-carnivore biologists."

Harting says that after a few years Mattson was singled out for the task of trying to synthesize years' worth of disparate data that had accumulated since the grizzly bear study team was formed in 1973. "Dave's involvement in building an ecological profile of the Yellowstone grizzly was the first time that somebody took it upon themselves to congeal all of the information the study team had relating to habitat use, food sources, and locations of bear scat," Harting notes. "It was fascinating the level of insights that Dave had, things Dick Knight had never thought of trying. He possesses this incisive perception and ability to divine things from the data that I don't believe anyone else would have been able to do. Patterns emerged in bear behavior that just wouldn't have been revealed through any kind of dry statistical analysis, regardless of how sophisticated the person examining it was."

Mattson pursued several trains of thought that at first appeared somewhat convoluted to those around him, but as he refined his preliminary analysis, his associates took note. He discovered that two completely different types of bear populations exist—those along the front country (roadside areas), where people can see them, and backcountry wilderness bears that are elusive and difficult to track. He concluded that the bruins existing near civilization, in many cases, are younger animals who have been forced out of prime remote habitat by more dominant bears into areas where they are vulnerable. They represent the largest percentage of bruins that die because of run-ins with people. The backcountry bears, meanwhile, are those with the best chance for survival because they make a habit of distancing themselves from people, or at least travel stealthily near civilization.

Mattson meticulously documented what bears were eating, when and where, and how human activities affected their behavior. Charged many times by bears, he developed almost a sixth sense that

allowed him to trek through their space without eliciting hostility. In assembling a complete view of grizzly ecology, he proved that roads and development, previously thought to be largely benign, were actually displacing grizzlies from critical food sources. These hypotheses were tested by tracking radio-collared animals.

"The really impressive thing about Dave is not just his science," says Harting, who wrote a comprehensive document, "The Grizzly Bear Compendium," while working for both the National Wildlife Federation and the Fish and Wildlife Service from 1985 to 1987. "While I can say from my perspective that he has been impeccably attentive to detail, I don't think he's one who clings to a hypothesis out of ego or a favored research agenda either," Harting adds. "Dave is flexible and not closed-minded. When the data runs counter to his hunches, he admits it and readjusts his thinking."

Which is a reputation markedly different from the government's. Some alumni of the Interagency Grizzly Bear Study Team believe that Mattson's acumen is a threat to Chris Servheen's ego.



Grizzly bears have been on a noticeable nomadic prowl in recent years around Yellowstone, wandering into places where they hadn't been seen in decades, prompting locals to believe there are more bears on the prowl out there. Bruins have broken into cabins along the North Fork of the Shoshone River west of Cody, Wyoming. They have left tracks in the muddy river drainages around Jackson Hole and attacked cows in the Gros Ventre mountains. They have ambled within a few miles of urban Bozeman, Montana, and are reportedly colonizing the Crazy Mountains, the Gravelly Range on the west side of the Madison Valley, the Caribou Mountains, the Tobacco Roots, and the Bighorns and making inroads into northern sections of the Wind Rivers. Geographically, those areas are hundreds of miles apart. In the locales where bears are appearing, they are also getting shot. Since the early 1990s alone at least five dozen bears and a fairly high percentage of breeding-age females—the bedrock of the population—are known to have died.

Mattson believes the burgeoning number of grizzly sightings may be due not to a rapidly expanding and healthful population but possibly to a desperate and stressed one striking out in search of food, giving the false impression of ballooning numbers of bears. For him

and his large group of supporters, it is a frightening paradox. Disaster may be imminent if the bear population, instead of growing into stability—as Servheen claims—is actually biologically static or losing ground. Such a miscalculation might not show up for several years, and by that time, when there is even more human population pressure squeezing the ecosystem's edges, there may not be opportunities for reviving the species—particularly when the best bear habitat is less than secure.

The best bear habitat in Greater Yellowstone, after all, is found not in the sixteen million acres of public land but on the two million acres of private land abutting it. All of the major lowland river valleys beyond Yellowstone's borders are dominated by human settlement and livestock ranching. Correspondingly, setting aside for a moment the high number of bears shot by hunters, the most significant black holes for bears—also known as population sink areas—are in developed enclaves that bears cannot avoid and usually cannot escape from without being killed. *Black holes* is a colloquial term for places where bears go but do not come out alive.

A bad omen is that the twenty counties comprising the Greater Yellowstone region are among the fastest growing in the West, with new subdivisions, sprawling dream homes, and recreational resorts being proposed on a weekly basis in areas into which bears are expanding their range. Plenty of estimates are being kicked around these days in the scientific community for how many grizzlies actually inhabit the Yellowstone ecosystem and whether or not the population has stabilized since its downward spiral toward extinction began in the early 1970s. Certainly one way to assess the health of grizzlies in the nation's oldest national park, long synonymous with Yogi and Booboo, is through the establishment of bear numbers. Some say there is a minimum of 229 bears, others insist on at least 270, and still others claim the number is closer to 300, 350, or 400. The problem is that no one knows for sure, yet plans by Servheen to delist the bear are being based on the most optimistic—and possibly frightening—projections.

Under Servheen's guidance, the Interagency Grizzly Bear Committee established the following criteria for a biologically "recovered" bear population: (1) at least 158 bears widely distributed across a core bear-protection zone; (2) human-caused bear deaths cannot exceed a prescribed limit over two consecutive years; (3) deaths of

mature females of reproducing age can not exceed 30 percent of total annual mortality, or three breeding females a year; (4) female grizzlies must inhabit at least sixteen of the region's eighteen established "bear management units."

Mattson says these numbers are not only arbitrary and virtually meaningless but politically capricious. With these criteria, Servheen and other members of the Bear Committee say the goals are already being met. "In terms of numbers of grizzly bears, there are more grizzly bears in the Yellowstone ecosystem today than when John and Frank Craighead were researching in the area in the 1960s," Servheen wrote in a rebuttal to criticism. "The ... total population estimate made by the Craigheads for the late 1960s was 229. The minimum population estimate for the Yellowstone ecosystem as of 1993 is 229." In 1994, Servheen said the minimum estimate had risen to 270 bruins, and he now believes it is probably closer to four hundred.

"Okay," Mattson asks, "so what? Even if it were true, what does that mean? We don't know what that means for the population's long-term prospects because part of the problem with the recovery plan is the people who wrote it haven't made that connection either. There is no long-term strategy."

Mattson uses the analogy of a person driving cross-country from Seattle to Boston without a road map and trying to get there by hunch, relying on signs as they emerge on the highway. Another scientist who still works under Servheen offers a different metaphor: "The Bear Committee has boasted that it is doing chin-ups with bear recovery after lowering the bar down to the chest level." All the while that Fish and Wildlife Service officials speak optimistically of justification for delisting, bears continue to die in disturbing numbers.

Internationally renowned conservation biologist Mark Shaffer, who has written extensively on grizzly bear ecology and served as an adviser to the Fish and Wildlife Service as well as the Wilderness Society and the Nature Conservancy, says the government has egregiously underestimated the population size needed for viability. He believes that two thousand to three thousand grizzlies (equal to double and triple the number currently present in all of the lower forty-eight states, five to six times the current number in Yellowstone) may be required to ensure population stability and genetic health in the Yellowstone region. He also says that setting aside

corridors of habitat to connect Yellowstone to other ecosystems is vital to ensure inward and outward migration of bears. However, Shaffer told me the Grizzly Bear Recovery Plan and Servheen's justification for it are "grossly inadequate" since neither the numbers nor the habitat question is substantively addressed.

"The simple truth is that in the case of the grizzly bear, merely attempting to stabilize existing populations is too little, too late," he wrote in a critique of the plan. "Such a strategy will leave an archipelago of isolated population remnants, none of which is sufficiently large to be viable in its own right." Furthermore, he accused the government of developing a "fortress grizzly strategy" that deflects valid criticism from established experts such as Mattson. Many of Shaffer's colleagues would agree that the government's approach is medieval. The key to maintaining a healthy population of bears, Shaffer asserts, is dependent not on numbers of individual animals per se but on setting aside enough habitat to support the numbers indefinitely. And the only way to protect habitat is to aggressively limit the types of harmful activities that have doomed grizzlies in the past and continue to limit any net gains.

In the Yellowstone ecosystem, grizzlies are managed according to zones fashioned like a round target holding a bull's-eye. In the center, represented by the borders of Yellowstone National Park and areas slightly beyond, bears are supposed to be given primacy over all human uses, even though several prime areas of habitat have been sacrificed to tourist campgrounds and developments. This is called Situation I Habitat. The next layer of the circle, called Situation II, is supposed to represent an area where bears are allowed to colonize as the population grows, but the Interagency Grizzly Bear Committee has routinely moved bears in recent years whenever they wander into this zone and come into contact, or prey upon, domestic livestock. It is a zero-sum strategy.

Yellowstone National Park alone, scientists agree, is insufficient to maintain the numbers of bears necessary for a healthy population, which means that affording bears a safe haven on lands outside the park is vital. Yet in the Grizzly Bear Recovery Plan, and in direct response to pressure exerted by politicians, the boundary lines of Situation II Habitat have not grown significantly outward in accordance with what Servheen and those pressing for delisting claim is an expanding population. Hence, any bear that shows good

biological instincts in trying to establish new territories gets either shot, moved, or euthanized. A perfect example is a grazing allotment straddling Situation I and Situation II used by Jackson Hole cattle rancher Paul Walton. Walton's foreman has killed a couple of bears preying on cattle, which range across public grasslands in the Bridger-Teton National Forest that happen to be exceptional bear habitat. The range also lies in the middle of a major bear migration corridor between Yellowstone National Park and the Gros Ventre mountains. The interests of bears have been viewed as subservient to the interests of cattle.

The recovery plan is a failure because it sacrifices necessary grizzly habitat to traditional land uses, and furthermore it prescribes no limitations on the very human activities that have proven to be lethal for the bear, numerous biologist critics assert. There is also the prickly matter of biological trends inside Yellowstone, which makes Situation II Habitat outside the park all the more crucial. Recently Yellowstone officials discovered that someone had secretly introduced exotic lake trout, known in some parts of the country as "mackinaws," into Yellowstone Lake, one of the world's largest high-elevation tarns. Lake trout, being piscivorous, eat the cutthroat trout that are a primary staple for grizzly bears because in the spring they are available to bears in spawning streams. Fisheries experts predict that over the next few decades cutthroat trout could decline severely, and because lake trout are deep-water fish, the lost grizzly food source will not be replaced. This problem comes on the heels of some other incredible bad news: Researchers say that an epidemic arboreal disease called blister rust is attacking and killing whitebark pine trees. Whitebark nuts, found in cones, are a primary autumn staple for bears before they enter their winter dormancy. Biologists know that in years when there is poor production of nuts, grizzlies disperse over larger areas and wander into human developments in search of food. And that tendency, of course, gets them killed. If blister rust doesn't annihilate Yellowstone's whitebark pine population, global warming will. Whitebark pine grow in cold, hostile, high-elevation settings, and according to global-warming models, high-elevation areas are expected to warm so much that more aggressive lowland trees could overtake whitebark. Yellowstone bear biologist Dan Reinhart, a friend of Mattson, says that if the number of whitebark pine is severely reduced, he believes the grizzly population will not survive. Although fish and blister rust are

beyond the reach of human control, habitat fragmentation is not, which makes the objectives of the recovery plan even more crucial and raises serious doubts about the basis for delisting.



In the behavioral realm of scientists, there exists a premise that humans take on some of the physical characteristics of the animals they study. If this notion is true, then Dick Knight, Mattson's mentor and recent supervisor, is an irascible silver-tip grizzly. Knight's personality is that of a gruff loner who once upon a time paid no attention to the political-science side of managing bears. Those who know him, though, say his hardened exterior is merely a cover for a man who is painfully shy and normally bighearted.

At meetings of grizzly bear experts, Knight often did not talk unless asked a question, and then he may have barked back a terse, politically incorrect response. Of more interest, perhaps, is the fact that throughout the 1980s, when many colleagues were trying to paint a rosy picture of the grizzly's recovery, Knight was always one of the skeptics. Part of this skepticism was based on his own instincts and part on the field data that began pouring in. Mattson helped elaborate Knight's status. For years Knight had been the man in the sky, tracking radio-collared grizzly bears by airplane to pinpoint their location and movements across the Greater Yellowstone Ecosystem. Before his retirement in late 1997 (he still serves as a consultant), he was the first to recognize whether grizzly bears were experiencing a poor natural food year by the places he found bruins in the late summer and autumn as they gorged themselves with enough energy-rich foods to sustain them through winter. The years 1994 through 1997, on average, will go down in the books as abominable years for bear food and the number of bruins killed by run-ins with big-game hunters. The trend shows no indication of abating.

Who better to comprehend the precarious status of grizzlies in the Yellowstone Ecosystem than Knight? After all, he mentored Mattson in the reasons why one should remain skeptical about grizzly bear recovery when politicians and bureaucrats attempt to paint a sanguine picture.

In the early 1980s Knight realized that the government's age-old practice of removing "problem" bears from Yellowstone was wrong. Whenever a grizzly wandered into a conflict with humans, the

management policy usually involved eliminating the bruin rather than trying to modify the human behavior that caused the encounter. So many bears were being “weeded out” that Knight identified this policy as causing a serious drain on the population. He attempted to alert agency managers, who gave him a tepid response.

“We were removing bears inside the park when they got into trouble, because we didn’t know any better,” he said in a recent interview published in the journal *Yellowstone Science*. “It wasn’t until about 1980 that we had a suspicion that we didn’t have as many bears as we’d thought. By 1982, I had the data to show it.”

Confronted by government stonewalling, Knight took matters into his own hands and, it could be argued, set an example for his protégé Dave Mattson. Knight secretly contacted a Park Service biologist in the Washington, D.C., office named Ro Wauer and leaked the data findings to him. Promising not to blow Knight’s cover, Wauer composed a now famous internal memorandum documenting the downward trend in grizzly bear numbers that forced the government to take action.

“I was talking to John Townsley [the Yellowstone superintendent from 1975 to 1982]; he’d been listening to me since 1980, but nobody else really was—it was just like the bear wasn’t listed,” Knight admitted after he retired. “We had enough data to show we had a declining population. And I went to Ro and said, ‘Look, we’re going downhill fast and we’ve got to do something.’ And I gave him all the stuff, and he wrote that memo to the [Grizzly Bear] Steering Committee—the precursor to the Interagency Grizzly Bear Committee [IGBC]—and leaked it to the press, and got transferred to the Virgin Islands for it! ... The upshot was, they created the IGBC, and the land managers started taking grizzly bear management seriously, specifically by targeting adult female mortality, really all mortalities.”

Knight’s concern, however, did not end there, and one could argue that it was inherited by Dave Mattson, who was about to join Knight’s team.

In 1985 Knight collaborated with wildlife population biologist Lee Eberhardt on an article that appeared in the journal *Ecology* and stated, to much attention, that the bear population was sinking. “Clearly the population will decline in the future if our estimates of certain essential parameters are correct,” the authors wrote. “The simulations suggest that extirpation is not likely over a 30-year period, but there is, of course, no way to be sure that present condi-

tions will persist for 30 years. Most likely they will not, in view of the virtual certainty of greatly increased human use of essential parts of the Yellowstone Ecosystem. Nor do we have any way to predict the impact of reduced population size on its viability.” The paper was an admission that habitat conditions for bears were expected to keep deteriorating and that there was too much uncertainty to be optimistic. These points stand in marked contrast to the opinions Knight would express later.

“My sense of Dick Knight was always as somebody who held the welfare of the bear first,” says Bob Ekey, formerly a reporter with the *Billings Gazette* and now the northern Rockies regional director of the Wilderness Society. “Dick either insulated himself from or ignored the political pressure that other people who deal with bears had succumbed to. I always felt I could go to him and get the truth. He was cautious, and even if there was a brief time when he was optimistic, he would say he was cautiously optimistic.”

Ekey remembers when Knight, out of character, called him late one evening in 1989 and “was beside himself.” An outbreak of bear deaths had occurred throughout the ecosystem that autumn. “He was very upset that grizzly bears were getting shot by hunters at the high rate they were,” Ekey explains, suggesting that no one knew then that it would get worse. “He said something needed to be done. I was left with the impression that here is a man whose heart is really with the bear. I don’t know what changed him.”

Something did change in Knight between 1989 and 1993, and the change has direct relevance to how the federal government now justifies its support of delisting. For some reason, Knight began taking the path of least resistance, his workers say. In place of his stalwart caution, Knight suggested that the Yellowstone grizzly population suddenly was on an upward trajectory. During one recent year when fourteen grizzly bears were believed to have been killed in human-bear encounters—an inordinately high number of deaths, Knight no longer was emotional, and he began criticizing Mattson’s passion for bear conservation. People who worked with him said Knight—the closer he came to retirement—took on a more political persona geared to preparing data that would reinforce Servheen’s contention that the grizzly population was bouncing back.

Gary Brown, the former chief ranger in Yellowstone who worked with Knight in managing grizzlies, says if anything, conditions for bears have become more perilous. Brown, author of a popular book

about bears of the world, says the Yellowstone Interagency Grizzly Bear Study Team needs informed dissenters like Mattson to keep Servheen and Knight honest.

"I think deep down Dick still genuinely cares about what happens to bears, but his priorities shifted to sustain himself in a good-paying job where he didn't have to work very hard and he can retreat from things that could jeopardize his comfortable situation," Mattson suggests. "Part of what made him turn on me was I put him in a position that he perceived as holding certain risks, and he felt that he had to protect himself by lashing out."

Over ten years Mattson emerged as the nation's leading authority on grizzly bear behavior in Yellowstone, writing fifty-three peer-reviewed journal articles and technical reports, including seventeen papers delivered to international scientific conferences. "I've talked with a lot of grizzly bear biologists. I've subpoenaed many and put them on a stand under oath in the courtroom over lawsuits. I've also reviewed a substantial amount of the body of scientific literature," says Doug Honnold, a senior attorney with the Sierra Club Legal Defense Fund (which has since taken a new name, EarthJustice Legal Defense Fund). "In my mind Dave Mattson stands head and shoulders above the others. He is admired for the way he attacks a problem and generates a scientific hypothesis, then questions how you can develop information to prove and disprove the hypothesis. Within the scientific community that specializes in grizzly bears, there's a real branch in the road between old-guard biologists and those in the groundbreaking field of conservation biology, which is a look at the processes that cause animals to go extinct. Mattson is a guy who has a solid foot in both of those camps."

Kate Kendall, an alumna of the Yellowstone Interagency Grizzly Bear Study Team and now a top grizzly bear biologist in Glacier National Park (the only other major outpost of grizzlies in the lower forty-eight states), is well acquainted with the caliber of Mattson's work. "He's one of the best scientists I know," says Kendall, who works for the Biological Services Division of the U.S. Geological Survey and was the scientist who documented the outbreak of blister rust in whitebark pine trees. "The amount of work Dave does is staggering. He often has a really fresh approach to getting at a problem that other people have worked on but never got very far toward resolving. There is no doubt that he has made a big contribution to bear conservation. He puts other researchers to shame."

Mattson was nearing the point of synthesizing all the data and putting it into comprehensive papers that described the ecology of the grizzly and threats to its habitat. He called upon his old friend Bert Harting to independently review his conclusions as one veteran scientist to another. Harting had taken a temporary job with a conservation organization, the Greater Yellowstone Coalition, and when word leaked that Mattson had given Harting the paper, Forest Service officials in the region came unglued. Although Harting never shared the document with other environmentalists, Mattson was accused of consorting with the enemy because the Forest Service knew his findings did not support the agency's logging and road-building program in the six national forests that rim Yellowstone National Park. Constructing new roads to facilitate logging not only brings humans deeper into bear habitat and increases instances of poaching but displaces bears into less than optimal habitat. Thus, the end result is increased mortality.

Politicians were pressuring forest managers to keep cutting trees because trees equal jobs, and jobs bring votes for reelection. "In a meeting with some people from the Targhee National Forest, it came out that I had seen those papers," Harting says. "Unbeknownst to me, word got around in the Forest Service, to Dick Knight, and Chris Servheen, and they really began hammering on Dave. They were beside themselves because he had circulated a paper that was highly critical of how the agency did its business, and they didn't like the heat."

The known impact of logging roads on grizzlies is hardly new. In 1986, after years of extensive logging, the U.S. Congressional Research Service compiled a report for Congress on threats to the Greater Yellowstone region. Part of the report focused on grizzly bears, and the findings have relevance for logging operations. The report said that "substantial clearings and sustained human traffic (from roads) could permanently eliminate grizzlies from this habitat. ... Increased (human) access is harmful to grizzly bears, because most bears avoid human contact whenever possible. Since access is necessary for timber harvesting, timber cutting restricts bear habitat and can alter bear behavior."

The Targhee National Forest straddles eastern Idaho, western Wyoming and southwest Montana. Between 1981 and 1992 in the Targhee's Plateau Bear Management Unit alone (one of eighteen such units that the government uses as barometers for gauging the

health of the grizzly population in the Yellowstone region), a thirty-five-thousand-acre area was stripped of 70 percent of its vegetation, mostly through logging and, to a lesser extent, forest fires. In the past twenty-five years the same area has been inundated with one thousand miles of new logging roads to the point that there are now six miles of road per square mile in some areas of the forest, one of the highest logging-road densities in the country and comparable to some suburban grids. The Plateau Bear Management Unit in particular has one of the poorest records for bear production within the core bear protection zone as specified by the Grizzly Bear Recovery Plan, and, conveniently, the Forest Service wanted it exempted from the requirement of having to sustain perpetual, year-round bear occupation. Servheen showed little public resistance.

Timber sales, the construction of logging roads, mining, and other activities come under review as part of Section 7 of the Endangered Species Act, which requires that the Fish and Wildlife Service rule whether proposed activities such as logging in a certain area would jeopardize the bear. But seldom has the agency rendered "jeopardy decisions" precluding harmful land management practices. Wildlife biologists allege that the government is playing a shell game in which Servheen avoids his responsibility to vociferously protect bear habitat from the Forest Service. The Forest Service then says the job of enforcing environmental laws pertaining to habitat for threatened species lies in the jurisdiction of the Fish and Wildlife Service. And ultimately, both agencies refer back to the recovery plan as the arbiter, sidestepping responsibility for habitat destruction.

Bob Ekey of the Wilderness Society says it is morbidly laughable that Servheen "seems bewildered that there are bear black holes in the Targhee." To anyone standing in the blighted panorama of a clearcut and mazes of roads, the explanation is self-evident. "When you lose 70 percent of your cover, you lose the heart of the habitat," adds Ekey. "We know from a battery of studies, including the work done by Dave Mattson, that bears avoid Forest Service roads, and those that don't die." He says Servheen's lack of vigilance in protecting bear habitat shirks accountability by the Fish and Wildlife Service and the Forest Service.

As a result, the Forest Service was sued by the Sierra Club Legal Defense Fund on behalf of ten environmental groups for failing to shut down harmful logging practices in the Targhee, where grizzlies

have virtually disappeared from the Plateau region and another bear management unit. On February 22, 1994, a settlement was reached in which three hundred miles of logging roads were to be closed to provide bear security. For the Targhee, modifying its timber-cutting practices and submitting to road closures was not voluntary but mandated as part of the court agreement. However, a few months later the Targhee's forest supervisor, Jerry Reese, unilaterally stated that he wouldn't close roads in deference to loggers and off-road-vehicle users. This announcement confirmed Reese's reputation as a shill for resource extractionists.

Chuck Lobdell, a Fish and Wildlife Service enforcement specialist in Idaho, who helped broker the agreement, was furious at Reese's obstinacy and vowed to prosecute Forest Service officials for egregiously violating the Endangered Species Act. The Fish and Wildlife Service did not support his vigilance. "The Targhee is the worst case of mismanagement I've ever seen in almost thirty years of wildlife protection. It is a national disgrace," Lobdell tells me. "It isn't just Reese but four out of five of his predecessors. They are violating their own organic statutes relating to grizzly bear habitat, they are being defiant about protecting an endangered species, and I'm going to win this battle for the bear even if it sends some of those people who are responsible for this to jail."

Now retired but a committed conservationist, Lobdell believes it is "ludicrous" that a citizen could be fined and sent to jail for illegally cutting a few trees on a national forest for firewood while agency supervisors and their foresters can orchestrate environmental destruction on a landscape level with no fear of the law. Just as white-collar criminals can be prosecuted on felony charges, he believes that forest supervisors and their staffs who break environmental laws should be held personally accountable. He also says the Grizzly Bear Recovery Plan should require the Forest Service to meet environmental performance standards, which it does not. "The real culprit is not solely Chris Servheen, as some conservationists claim, but rather our western senators and congressmen who are into resource exploitation and have no regard for conservation. They are the ones applying subtle intimidation. It's like the massacre of civilians by the U.S. military in Vietnam. Orders came down from the top, but I know that is no excuse," Lobdell says. "The recovery plan is the result of many compromises and may be inadequate to

assure restoration of the grizzly bear on the Targhee. If we weren't forced to cut deals, nothing would ever be implemented because of defiance by the Forest Service and political interference." He says that compromise has rendered the recovery plan practically useless.

Lobdell came under intense fire for his outspokenness and was reassigned to a desk job after raising concerns about grizzlies and declining bull-trout populations due to logging in Idaho. Warned about his aggressive commitment to uphold federal law, and hassled for it, he suffered a heart attack that his doctors blamed on stress. "I've rocked the boat, and some people who put making money before everything else didn't like it. But the American people hired me to do a job. If you're going to fall on your sword for any issue, you'd better make sure it's worth dying for because if you make a big gaffe, you're done. You can't make one mistake, or the people who have the politicians on a string will try to get rid of you because you're dispensable."

Mattson, he says, fits that profile of the martyr to a cause and represents a threat because he challenges the failed land management practices of the past. Worried that a controversy would erupt if bear managers suggested halting timber sales in order to save the grizzly, Servheen and Knight wanted to rein Mattson in. According to Mattson, this is when Servheen's "smoke-and-mirrors show" began.

To test his biological hypotheses about roads, Mattson started corresponding with Craig Pease at the University of Texas in Austin. Pease was among a reputable group of independent scientists brought together to examine grizzly bear management issues because conservationists were concerned that some agency science was being co-opted by empire-building bureaucrats and regulators who were captive to special interests. Although Knight gave Mattson permission to share information with Pease, he later became irate when he heard that Pease was preparing an independent analysis of the field data and a review of the recovery plan that probably would not be favorable. Until then, the Interagency Grizzly Bear Committee had carefully guarded all the information it generated, making outside scrutiny of its effectiveness next to impossible and raising legitimate questions about its accountability.

The beginning of the end for Dave Mattson's tenure with the Yellowstone Interagency Grizzly Bear Study Team had been brewing for months, but it crescendoed at a meeting in northern Montana

where a group of government and independent scientists gathered to examine the relationships between logging roads and displacement of bears. At one point in a closed-door presentation by Servheen, Mattson pointedly asked a few questions about why the Fish and Wildlife Service planned to continue allowing logging roads to pierce grizzly habitat. Servheen appeared flustered and annoyed at being questioned by someone under his command. Mattson engaged Servheen on these points: Scientific evidence shows conclusively that the rate at which bears die parallels the density of roads that the Forest Service builds to accommodate logging and other industrial uses. The more access provided by roads into grizzly bear habitat, the higher the number of bear deaths. Secure bear populations, no matter the size, require large tracts of undisturbed terrain. So do elk and a number of other peripatetic species. And that means putting more land off limits to logging, mining, and general development.

That night, after the encounter, Servheen and Knight went away by themselves and talked. Mattson knew something was up, but what emerged was beyond his wildest expectations. Acting at Servheen's behest, Knight returned to Bozeman early and acted quickly to halt Mattson's dissent by raiding his office. He deleted data files and confiscated floppy discs from Mattson's computer, tore out pages of research from his notebook binders, and removed field data from office filing cabinets, including information that was critical to Mattson's ongoing job performance. He then put it all under lock and key, off limits to Mattson. Ten years' worth of accumulated data—the result of thousands of hours afield gaining an intimate view of bears—was taken away from the scientist most capable of interpreting it. Stunned, Mattson wrote a memo to Knight asking for an explanation. Storming out of his office, glaring at Mattson, Knight said, "Dave, it is time that I start acting like a real bastard." Knight does not deny this description of the sequence of events and in fact appears to delight in his reputation as a "hardass."

If there are any two people who understand the wrath of government and the move to purge Mattson to prevent him from using data that contradicts the "official position," it is the famous Craighead brothers, John and Frank, who were banished from Yellowstone in the early 1970s because they locked horns with park managers over policies affecting bear management.

Millions of Americans are familiar with the Craigheads' studies because the brothers wrote articles in *National Geographic* magazine and were featured in numerous television nature documentaries. "When people from the outside like Craig Pease or within the organization like Dave Mattson become more concerned with the truth and doing the right thing rather than following the bureaucratic program, they find themselves in trouble," says octogenarian John Craighead, founder of the Craighead Wildlife-Wildlands Institute, who, with his brother Frank, conducted twelve years of groundbreaking research on grizzlies in the Yellowstone ecosystem that began in 1959.

"Bureaucrats try to discredit anyone who challenges their narrow way of thinking," he adds. "I can tell you from personal experience that [the government] will try and destroy your reputation. You can't win because they have you outgunned and it takes all your time to fight those bastards."

Craighead, a pioneer in using satellite telemetry to map wildlife habitat, has documented the toll that intensified logging, mining, recreation, and road building have taken throughout the northern Rockies. It is a legacy of destructive public land management that government agencies are loath to admit. The Craigheads were kicked out of Yellowstone after they stated publicly that abruptly closing open-pit dumps in the park would result in the deaths of many bears who depended on the dumps for food. They didn't think closing the dumps was a bad idea; rather, they endorsed a plan of slowly weaning bears from unnatural human foods and returning the population to a diet based on natural foraging. They warned of dire consequences if bears were cut off too quickly from their dependency on the dumps.

Yellowstone wildlife manager Glen Cole and park superintendent Jack Anderson, however, pushed for abrupt closure. Cole and Anderson's option won out, and within two years a large percentage of the Yellowstone grizzly bear population died or was removed from the ecosystem because the bears' search for new food pushed them into encounters with people. When the Craigheads openly criticized the management tactics, they were censored by their employers—the National Park Service and the Bureau of Sport Fisheries and Wildlife—which demanded that anything they published on Yellowstone bears get prior editing and approval. The Park Service argued that scientists had no business commenting on management.

The Craigheads' contention was, and remains, that good science should be a guiding light to management decisions and the two are not mutually exclusive. If the public pays for science, it ought to be able to scrutinize it.

Today, John Craighead says the logic that forms the foundation of the new Grizzly Bear Recovery Plan is highly suspect in the way that it blindly supports the politically motivated calls for delisting the bear from the Endangered Species Act. "I think delisting is the worst thing they could possibly do," he says. "The Wyoming Game and Fish Department claims that because bears are moving back into their old historic habitat, there are more bears and the population is doing well, but that argument has no basis in fact.

"Bears are moving out of the national park into the national forests because they need secured and multiple sources of food," he adds. "Yellowstone Park is not big enough by itself to support a viable population. The only motivation to delist the bear is so it can be hunted and management of the public lands can go back to business as usual, which is why we came close to losing the bear in the first place."

Craighead says the grizzly is an indicator for dozens of other species. If bear habitat is eroded so much that grizzlies can't survive, he argues that other animals that need an undisturbed environment—such as wolverines, lynx, wolves, raptors, and fish—are not going to survive either.

"The American taxpayers have to decide where they are getting the best investment," Craighead insists. "Some of the agencies are looking at ten to twenty years down the line while those in the independent scientific community like Dave Mattson are looking at how we can have a healthy and self-sustaining bear population in perpetuity."

After the Craigheads involuntarily left Yellowstone in 1971, the scientist hand-picked by the National Park Service to repair any public relations damage and to head up the newly formed Yellowstone Interagency Grizzly Bear Study Team was none other than Dick Knight.



Now, let me offer an aside. As a reporter, I have interviewed Dave Mattson, Dick Knight, and Chris Servheen on dozens of occasions. I have no personal bone to pick, nor do I doubt their capabilities. But

politics makes strange bedfellows. I don't claim to have the answers for what motivates people to act in ways that they normally would not act, probably motivated by forces in their personal lives that we cannot see. Apparently good people—among whom I count Dick Knight and Chris Servheen—can under unusual circumstances be driven to behave in ways they would not like to see in others.

This much I know from writing about Yellowstone grizzlies since the mid-1980s: Unequivocally, information is power. Those who control the dissemination of information are able to ration it to individuals who will confirm their own conclusions. This is not an example of good science. All along, it has been Mattson's contention that because he is a public servant whose salary comes from taxpayers, any information he gathers should be shared with independent scientists who potentially can make a contribution to helping the bear.

After Mattson's office was raided, Knight and Servheen told him that the data collected by government scientists were "proprietary information" and should not be shared with anyone outside government agencies because they might be used to criticize grizzly bear managers. Their added justification was that poachers might use the information to kill wandering bruins, which Mattson says is absurd because he had no interest in publicly revealing the locations of specific bears.

After the raid Knight implemented a system of "mail management" whereby all outgoing mail written by Mattson or incoming mail addressed to him was screened. Knight said Mattson had forced him to perform "damage control" because of growing public suspicion about government statistics. "I am concerned that your actions have been part of a systematic effort to isolate, silence, and intimidate me because of efforts on my part to fulfill my job requirements and facilitate implementation of research results," Mattson wrote to Knight. "You have justified your actions as a means of 'bringing me under control,' and that 'certain managers' [read Servheen] perceived me as a threat. ... Your comments strongly suggest that you think science should be quickly shucked if the indicated direction is uncomfortable to managers or not politically expedient."

Knight told Mattson that Servheen might have to "reconsider" funding for his Yellowstone grizzly bear research projects if Mattson continued to criticize the policy of bear managers. Servheen denies

that he ever threatened to withdraw funding, but Knight added in a written response to Mattson, "To set the record straight, Chris never said that he would cut off funding. I said that he could cut off funding. ... The 'raid on your office' was simply my retrieval of data that I am responsible for before it was used to further criticize the government."

Soon thereafter, Knight also slashed Mattson's travel budget so that it became difficult to confer with other biologists or attend conferences on conservation biology. Mattson found himself stripped of amenities that were necessary to do his job. When he asked Knight for the data that had been confiscated, he was rebuked. Finally, the way the information was returned to Mattson was, ironically, by Honnold at the EarthJustice Legal Defense Fund, which had to file a Freedom of Information Act request that was met coldly by the federal agencies.

"The case they wanted to make was that I was in bed with the environmentalists, which is false," Mattson says, noting that the government routinely uses this argument to neutralize its own biologists. "The only thing I did was provide information to those people who asked for it, and received it with Dick's blessing. It's funny, but I felt that people outside the agency were more sincerely interested in the actual science than those in the agency."

Ultimately it was conservationists, not Mattson's superiors, who gave him back his own data. "Chris Servheen told me, 'Dave, you've got a chip on your shoulder. We deal in political reality. We can't deal with emotion because we're scientists.' It is almost as if the government uses science as a shield to prevent its employees from having anything but a cold, purely analytical relationship with the resources they come in contact with. I think this is a tremendous mistake," Mattson notes. "What it's doing is not only making public servants treat the land with indifference but making them treat people that way too."

Mattson says if you can't become an emotional advocate for saving something as big and mysterious as a grizzly bear, what things in life should you get emotional about? "I think we all have emotions that we bring to bear on any situation, and it is important to recognize what those emotions are and the context in which they are brought into our lives. I know that I recognize that emotional context, and I don't think that it's good or bad. It's a fact of being

human," he says. "What's not so good are the people who deny that they have feelings at all or are forced to suppress them. Chris [Servheen] is the man with whom the American public has entrusted the future of the grizzly bear in the lower forty-eight states, and I think people expect him to be an advocate for the bear, not for loggers or miners or ranchers. He is not getting paid to accommodate them."

To placate Mattson, who collected his paycheck through the National Park Service, then Yellowstone superintendent Bob Barbee and John Varley, chief of the Yellowstone Center for Research, offered him a transfer, ostensibly to keep him from causing a controversy. Varley told him the government would pay for his tuition in a Ph.D. program at the University of Idaho, and it was implied that Mattson should not make a fuss about departing from the bear study team. He was also given a position, in absentia, with the Biological Services Division of the U.S. Geological Survey. Critics say Varley, with Servheen's approval, tried to buy Mattson's silence. "Yes, I took the deal, but really, what were my options? They made it impossible for me to do research and they made it a professional liability to question anything they did. I took the offer as a way to salvage my career," Mattson says. "It didn't make sense that they would go through all this trouble unless they were trying to keep me quiet."

When I ask Varley whether this assessment is true, he replies forcefully, "Absolutely not. Dave had a choice, and I think we gave him a pretty good deal." I say that "choice" implies that Mattson had two options. Could he have remained on the study team? "No," Varley says. "We wanted to give Dave an acceptable way out."

Mattson's motives were not venal. He knew what had happened to the Craigheads. "My situation there became untenable, and they made it real clear there wasn't a place for me doing field research. The Park Service was very much invested in preserving Dick. He was doing for them what they needed, giving them a scientific rationale that the bear population was doing fine so they could wave it as a success of management, as a success of the ESA [Endangered Species Act] not being a deterrent to resource developers and tourism. They offered to pay for my Ph.D. program at the University of Idaho to get me out of the way. I realized that if I didn't take charge and try to cut the best deal I could, I would be destroyed. What's most telling is that despite the vindictiveness of Dick, absolutely nothing was done to discipline him. I think it proves that this is a system of very perverse incentives," Mattson tells me.

The case of Dave Mattson sends a chilling signal, says Louisa Willcox of the Sierra Club Grizzly Bear Ecosystems Project. Willcox herself is considered one of the most knowledgeable conservation leaders on grizzly bear issues in the United States. She is among a group that has asked Secretary of the Interior Bruce Babbitt to oust Chris Servheen. "What the treatment of Dave Mattson says is that the people who are our best hope for bringing strong science and good management and conservation to the fore are unlikely to succeed in the current system."

Servheen, meanwhile, asserts his own view. "Personalities had something to do with it, but it is a personnel matter," he says. "I don't feel very comfortable talking about it."

What kind of biologist was Mattson? I inquire.

"I think he's a good biologist," Servheen acknowledges, "but there is more to life than being a good biologist."

Michael Scott, program director of the Greater Yellowstone Coalition, a regional conservation group based in Bozeman, Montana, says Servheen appears to purposely discredit Mattson's gifts. "Mattson always comes up with fresh ways of looking at questions and problems relating to grizzly bear management that shed new light on innovative approaches," Scott says. "It makes him a very valuable resource within the scientific community, but it also makes him valuable to decisionmakers and policy people because he's able to take fairly arcane and difficult-to-understand science and make it relevant. With that, policymakers can outline their options and know what the real consequences of their actions are. That's a pretty special talent."



Whenever the subject of Dave Mattson's ouster is raised with a member of the Interagency Grizzly Bear Committee, the stock-in-trade rationale is that Mattson is an anomaly: he deserved the punishment he received, his concerns are not widely shared, his problems stemmed from a "personality conflict," and his muzzling was "an isolated incident."

If any of these comments were true, the tale of Mattson's treatment could be dismissed as anecdotal. We could consign him to purgatory under the label of "troublemaker," albeit a brilliant troublemaker. We could safely assume that the grizzly bear is in good hands; we could blithely accept the implied assurance that science has not

been co-opted by political agendas and bureaucrats who appear compelled to skew the actual biological status of the grizzly in a blizzard of distortions.

If this is the answer you desire, then it is prudent to refrain from directing questions to field biologists involved with management of the Yellowstone grizzly. Ask them to provide a candid response, away from their superiors, and they convey the details of a very different picture. I spoke with no fewer than a dozen current or former members of the grizzly bear study team, biologists with the Forest Service, National Park Service, and Fish and Wildlife Service and retired bureaucrats. Is there a conspiracy to silence dissidents?

For several years in the 1990s, Fish and Wildlife Service biologist Jane Roybal was placed in charge of her agency's Section 7 ESA consultation practice; other federal land managers had to run their proposed actions by her for a biological opinion on whether those actions would affect the grizzly. Roybal was praised whenever she determined that a given action would not jeopardize the bears' survival, and she was excoriated for challenging actions—such as timber sales, oil and gas development, or road construction—that she thought might be a problem. A coincidence?

Roybal's first confrontation swirled around a famous location in the center of Yellowstone National Park known as Fishing Bridge, on the northwest corner of Yellowstone Lake. The location is surrounded by several streams whose hundreds of thousands of cut-throat trout spawn every spring and summer. The convergence of the fish attracts substantial numbers of grizzlies, but unfortunately a large campground and a wing of tourist motel rooms have been built right in the middle of prime grizzly bear habitat near the spawning streams. Tourists, no matter how fastidious they are in keeping a clean camp, inevitably dispose improperly of food, which leads to injured people, bears that are destroyed, or both. The development also displaces bears, preventing them from using this valuable food source.

Over the years several dozen bears in the vicinity of Fishing Bridge have been killed, relocated to other sections of the park, or sent to zoos because of continuous encounters with people. A logical action, since trout streams cannot be picked up and moved, would be to remove the worrisome campgrounds and not open the motel units until late in the summer, after the trout spawning season ends.

During the mid- to late 1980s, following exhaustive bear behavioral studies by Mattson, Reinhart, and others, Yellowstone announced that because of the area's irreplaceable importance to the ecosystem's core grizzly population, campgrounds needed to be closed and a later opening date for nearby motels needed to be considered. When details of the proposal reached U.S. Senators Alan Simpson, who hails from the park gateway community, and Malcolm Wallop, of Sheridan, the political response was swift and direct. Simpson told then park superintendent Robert Barbee that there was no way he would tolerate closure of camping spaces and delay of motel openings because the Cody business community deemed them essential to luring tourists through the park's east gate and thus through Cody along the North Fork of the Shoshone Highway. As a trade-off, Simpson said he would endorse closure of tent sites at Fishing Bridge if the Park Service agreed to build new camping facilities at a place called Bridge Bay, also along Yellowstone Lake and in grizzly habitat. Because a recreational vehicle (RV) campground would remain at Fishing Bridge, biologists informed Barbee that the deal might lead to even greater bear habitat disturbance and bear displacement. Eventually a review of the matter was bumped to the Fish and Wildlife Service in Cheyenne, Wyoming, where it fell into Roybal's lap. Senator Simpson let it be known that he intended to take a keen interest in Roybal's conclusion.

Despite a verbal message from the Fish and Wildlife Service's regional office in Denver that it would be in Roybal's best interest to be accommodating, Roybal wrote a biological opinion that concurred with the initial proposal to close the campground and not replace it. She founded her conclusion on the strong likelihood that keeping the campground open—and opening camping spaces at Bridge Bay—would amount to a “taking” of grizzlies either through bear fatalities or bear displacement.

The ESA, Section 7, is very specific in forcing land managers to justify eroding habitat for a protected species, especially in the center of America's mother national park and especially when Yellowstone's wildlife icon is involved. Nonetheless, before an official copy of Roybal's report could be completed and released to the public, Simpson and Wallop protested. Apparently someone had leaked them a copy (no such copy was made available to the environmental groups that also requested it). Roybal's supervisor, Chuck Davis, demanded that Roybal rewrite the document. She refused. It then

was handed over to another Fish and Wildlife Service biologist with no direct knowledge of grizzly bears who delivered a finding representing the position that the senators wanted to hear.

Before he was transferred to a regional director post in Alaska, Superintendent Barbee acknowledged that the Wyoming congressional delegation had applied pressure to get him to change the park position on campground closure and delaying motel openings. At one meeting with park officials during which Barbee announced that Yellowstone managers would "be more flexible," Roybal indicated that she would not change her position. Afterward, she says, Barbee followed her to her car, glaring to demonstrate his disapproval. It was her introduction to the politics involving grizzly bears.

Roybal also wrote a biological opinion that oil and natural-gas development inside the Shoshone National Forest, east of Yellowstone, could jeopardize the grizzly's use of army moth hatching sites, which are an important source of bear nutrition. And she wrote an opinion critical of a proposed Shoshone National Forest timber sale actually inside the grizzly bear recovery zone, where grizzlies are supposed to be given priority over development. How did Roybal know about the high density of bears likely to be displaced by those resource extraction activities? Because a dozen of the bruins had been captured and equipped with radio collars and were being tracked by the Yellowstone Interagency Grizzly Bear Study Team (which was conspicuously mute on the issue). She also received confirmation from a Shoshone National Forest biologist, Carrie Hunt.

Before taking a job as a Forest Service regional grizzly bear specialist, Hunt had crafted an innovative model for ways to redefine the recovery-zone boundaries for grizzlies while working for the Wyoming Game and Fish Department. Her path crossed Roybal's on the Brent Creek timber sale when Hunt was supposed to draft an internal biological evaluation of the effects of logging on the bear population. She got a taste of her agency's antipathy toward honest science when she raised doubts about the sale and how it would degrade bear habitat.

"My district ranger read my report and wrote a message across it that said, 'This is shit!'" Hunt said. "Then the forest supervisor, Barry Davis, and the district ranger ordered me to rewrite it. When I said I wouldn't, they did, and then they ordered me to sign my name to it. I wouldn't do it. Any biologist associated with grizzlies was

constantly being hammered on, and the abuse transcended agency affiliations. There are many of us who have our tales of mismanagement, illegal activities, and personal intimidation."

Hunt said if she ever expressed reservations about a proposed timber sale or oil and gas development, her supervisors would assemble twenty Forest Service staffers who supported development to gather around and, amid taunting, force her to tell them why she thought they were wrong for promoting use of the forest. She empathizes with Jane Roybal.

When Roybal warned in another biological opinion that increased development along the North Fork of the Shoshone River corridor (prime grizzly habitat) between Yellowstone and Cody would degrade more habitat, Chuck Davis intervened by again telling another biologist to write a watered-down review. To give an idea of the tone, it need only be said that the new version pleased Senator Simpson. Meanwhile, Roybal watched her career disintegrate.

"She was a rising star, a long-term employee and a good biologist who ran into the buzz saw of science meeting politics. At best it diminished her career, but I would argue her career has been ruined. She has been permanently tarnished by what they did," says Jackie Taylor, a Denver attorney representing Roybal who works for Public Employees for Environmental Responsibility (PEER). "When you set out to destroy a scientist's professional standing, the objective isn't only to destroy the individual. That is just a means to an end. The objective is that if you can ruin the scientist, you also ruin the science. When the science is gone you no longer have an obstacle."

Roybal's experience, she says, offers a textbook example of dissenters being purged. "First they told Jane to change her conclusions as a means of assuaging the politicians, and when she refused they decided to attack her," Taylor says. "They suddenly gave her bad performance reviews, took away professional responsibilities, gave her deadlines which were unmeetable, and subjected her to continual harassment in the workplace. When that didn't work in driving her out, they began badmouthing her in the scientific community and within management circles. It was designed to erode her credibility and damage her personally."

Roybal's case was brought before the federal Merit Systems Protection Board, which upon reviewing the merits of her complaint urged the Fish and Wildlife Service to agree to a settlement. Part of

the settlement called for her supervisor, Davis, to leave his post. Ironically, he received a promotion.

Roybal's attorney also pursued a parallel grievance with the Equal Employment Opportunity Commission (EEOC), citing discrimination, harassment, and retaliation, relating to an assertion that Roybal suffered abuse in part because she was a woman. As of the summer of 1998, Roybal's EEOC case was still pending without resolution in the Denver federal district court.

Conservationists say the Roybal matter, intentionally kept hidden from public knowledge by Fish and Wildlife Service officials, is symbolic of how the informed science purportedly guiding management of grizzlies has broken down. "Jane Roybal was forced to tackle the most sacred of the sacred-cow issues in northwest Wyoming—tourism, logging, and development," Louisa Willcox of the Sierra Club tells me. "You might consider what she confronted a test of loyalty. Either way, she loses. She could play along with her supervisors and various user groups who wanted the biology swept under the rug, or she could respond truthfully and professionally, which is what she did. The travesty here is that many of her own colleagues watched the abuse unfold and did nothing to intervene. What does that say about the integrity of the Fish and Wildlife Service? Those of us in the conservation community did not even know it was happening at the time because it all happened behind closed doors."

Under Chris Servheen's direction, Willcox says, many decisions pertaining to grizzly bear recovery in this country have been made, deliberately it seems, without public involvement. "Based on that, the public has good reason to be cynical," she says from her office in Bozeman, Montana. "Chris Servheen has established a pattern of sealing himself off from the real debate. By keeping the flow of information controlled internally, he knows that it is difficult to throw Jane Roybal, Dave Mattson, Carrie Hunt, and other biologists a lifeline when they need help. We need to open this whole process up to make it accountable. We have hope that Jamie Clark [the new director of the Fish and Wildlife Service] will seize the opportunity to show the public that she does not condone or tolerate intimidation inside her agency."

Transferred out of the Yellowstone region, Roybal says the Fish and Wildlife Service, with no resistance from Servheen, has demonstrated that any advocates adhering to the letter of the ESA will be

punished. "The agencies try to segregate you and work you over one on one. What they fear most is gathering all of the biologists together in a public forum and letting them air their concerns about Chris Servheen and the direction of grizzly bear management without fear of being punished."

Roybal says the method of attacking strong-willed biologists weeds out those who want to make a difference. "The objective is to isolate you, to prevent you from achieving a forum where your concerns can be corroborated. A stigma is created so that you are a troublemaker. If anyone associates with you, they get attacked with the same label and are ostracized. It makes everyone paranoid about honestly doing their job.

"Everybody has that line they have to draw for themselves and say enough is enough. Unfortunately, the agencies who abuse their power know that for most of us, we need the job to put food on the table and pay the bills, send our kids to college, or get a recommendation if we want to move on. They hold these things over our heads. And as you compromise your personal integrity—the very thing that led you to work as a biologist—you start to doubt yourself and realize you are on your own. The hardest part is having your colleagues, who agree with you in private, be put on the spot to criticize you. You see it eating them alive because they are forced into a position of having to betray you and their work. They have to pay bills, put their kids through school. They can't take the risk of telling the truth."

Sara Johnson and Marynell Oechsner are also proof of a deliberate campaign to silence dissenters. Johnson worked six years in the Targhee and eight years in the adjacent Gallatin National Forest in Montana. "When I went to work on the Targhee, I had no idea what I was getting myself into," Johnson, a biologist, says. "If you disagreed with what they wanted to do, which was cut trees no matter what the ecological cost, they would attack you verbally and start wearing you down. They would take me out to look at a proposed sale, me being the one biologist and they with their twelve machismo foresters in cowboy boots. It would be constant harassment for the whole day. They would do this same routine sale after sale and berate me in a patronizing tone if I said anything about protecting wildlife. If I made any recommendation that interfered with their timber harvest, then the ranger would come in to speak with my supervisor and complain about how I wasn't a team player. The system

is set up as a trap. You're either for the team, which means timber, or you're against the team, which means a poor job-performance review."

Like Hunt, when Johnson ascertained that a timber sale would harm grizzly bears in the Gallatin National Forest her bosses had her replaced with another biologist who told them what they wanted to hear. "It took me fourteen years before I finally gave up," says Johnson, who has been called as an expert witness in lawsuits filed against the Forest Service. "It was like the Stepford wives. It started to drive me crazy. While I worked for the Forest Service, I had a tremendous amount of respect for Dave Mattson on the Yellowstone Interagency Grizzly Bear Study Team. He was one of the best biologists I ever encountered. From my own experience, the Forest Service hates the grizzly bear. I think we can save it, but I'm not sure we will."

Johnson didn't go public about her harassment until the end of her tenure because superiors threatened to permanently assign her to a desk job. Oechsner, meanwhile, brought her case to Capitol Hill and testified before the House Government Operations Subcommittee on Environment, Energy and Natural Resources. After eleven years working as a government biologist, Oechsner took a field position with Montana's Kootenai National Forest in the Three Rivers Ranger District. "In the Forest Service, biologists and hydrologists and other scientists are called ologists," she told members of Congress. "At Three Rivers, ologists were second-class citizens. ... Resources other than timber were viewed as constraints. Ologists were browbeaten and intimidated to follow the leader, and their professional judgment was discredited and discarded when it did not meet with management's approval. For me, 'dissension,' in the form of speaking up for the resources, taking a stand for wildlife, precipitated a threat of removal, reassignment, or demotion."

Oechsner said the Forest Service routinely announced that logging would have no impact on grizzlies after she had explicitly informed the agency the bear would suffer. Only after she complained to an agency environmental officer was the sale against which she was protesting rescinded, though her complaint set her up for a series of confrontations. Although her opinions were reinforced by other biologists, one of her supervisors, who also oversaw timber management, began saying her work was deficient. Finally she was given relief only after filing a lawsuit that allowed her to transfer

without fear of retribution. "I learned that at the Three Rivers District, the timber cut came first, and woe to anyone who gets in the way," Oechsner said. "Basically they just wanted to cut it all. Once they cut a road into an area, they went after every last stick of wood to the point that you didn't find wildlife there anymore."

Roybal says that Servheen was very vocal in characterizing biologists who criticized extractive industries as conspiring with "ecofreaks." "We are taught to heed the opinions of cattlemen and loggers and miners as holding validity, but the other side is regarded as if they are communists," Roybal says. "I used to think good science was made by objective minds hearing all sides and all opinions and brainstorming on those and coming up with foresighted solutions. But that's not what happens. That's not what the leaders of the agencies and the people in charge of protecting endangered species want."

The greatest tragedy, Roybal says, is that the public has been deceived. "I think the public perceives, and I naively perceived, that the U.S. Fish and Wildlife Service, the designated advocate of species like the grizzly bear, is following the law. I think the public assumes that we know the best course of management for the species, that we are the species experts, that we are guarding over them, and if we say it is okay to proclaim a victory, then it is. But that's a fallacy. A lot of us in this arena argue whether we are really doing a bigger disservice to the bear. In fighting these battles and having our careers ruined, with the animal coming out on the short side and losing a little more each time, the impact is almost imperceptible. We are a Band-Aid on a serious internal injury, and that gives the public false assurances. You feel bad about taking your salary, and you think, 'If the public only knew the real story.' There are many of us who think that maybe it isn't worth fighting; maybe we should let the atrocity occur on such a large scale that it cannot be ignored, that the aftermath will make the bad biology and the corrupt politics impossible to deny."

Of Chris Servheen, Roybal says, "I have witnessed situations where I felt Chris was selling the bear out. He plays political games, and a lot of biologists feel he's been the biggest problem. The fact is that Chris Servheen is just a manifestation of a bad system of administering science-based management. Chris Servheen isn't doing anything, no matter how dishonest, that his supervisors don't want

to be done. I'm not sure if he's taken out it will change the management or its philosophies as long as Jamie Clark and her successors pretend there isn't a problem. The only way that change can happen is for the public to take notice and say this is BS."

As early as 1990, John Mumma, a regional Forest Service manager who today is director of Colorado's state wildlife agency, was transferred to a paper-pushing job outside the region after asserting that inflated timber targets were violating the ESA. He quit rather than capitulate.

Late in 1997 two organizations dedicated to representing whistleblowers, PEER and the Government Accountability Project (GAP), published a report titled "Grizzly Science—Grizzly Bear Biology in the Greater Yellowstone." According to both PEER and GAP—which circulated a questionnaire to field biologists in two national parks, seven national forests, three national wildlife refuges, and three state wildlife agencies—manipulation of science is rampant in the Greater Yellowstone area.

Among the examples documented in anonymous responses: The Fish and Wildlife Service issues favorable rulings on whether development will affect grizzly bears even before biological reviews—as mandated in Section 7 of the Endangered Species Act—have been completed. Biologists also said conclusions in environmental documents are routinely falsified, even over the protests of the original biologist, who is then asked to sign off on the doctored information, which allows development in bear habitat to proceed. One biologist who challenged Forest Service management over its cozy relationship with the timber industry was told to see a psychologist. Pressure to acquiesce is most severe at the Forest Service district level, where rural managers are almost always sympathetic to loggers, miners, ranchers, and hunters—rather than their own scientists—when conflicts with bears arise. When one wildlife specialist tried to ensure that logging complied with environmental laws, the employee was asked by the district ranger, "Are you going to yell about every little dicky bird the way the last biologist did?"



If there is any enduring symbol of what is wrong with grizzly bear management in the Yellowstone region, it is the Grizzly Bear Recovery Plan. Although it establishes easy-to-meet criteria for when the bear population should be removed from protection under the

Endangered Species Act, the plan does virtually nothing to stop the kinds of activities that have led to the bear's decline. Worse, it sets so-called recovery goals at levels that prompted federal protection of the bear in 1975. In effect, Mattson says, it dooms the bear and land management agencies to recurring modes of crises.

Servheen, the plan's principal author, defends the plan by suggesting that protection of grizzly bear habitat is required in all of the management plans for national forests surrounding Yellowstone Park. However, most forest plans since the mid-1970s have been driven by timber targets, with forest supervisors rated on their performance by how well they get out the cut. "The recovery plan is not a document designed to manage each national forest," Servheen says. "Each national forest around Yellowstone has its own management plan, which must comply with federal laws, including the Endangered Species Act. The recovery plan is a document that outlines threats and a cookbook of suggestions to make forestry compatible with bears."

Servheen admits that the previous bear recovery plan did nothing to diminish the extent of harmful clearcutting or road building, even though the revised version of the plan states, "Grizzly bear habitat management complements or is often analogous to sound forest management." "I'm not happy with what is happening on the Targhee," Servheen says. "The situation is one that is poor because of erosion of habitat security, and that needs to be rectified. We have informed the Targhee of that in no uncertain terms. Right now it's bad." Has he taken any action? No.

Conservationists say Servheen only made that admission because the extent of the cutting is under public scrutiny. The extent of deforestation is so extreme that satellite photographs are able to delineate the western boundary of Yellowstone because logging extends right up to the park border. Critics point to Servheen for failing to stop, or at least publicly condemn, logging that he knew was harming the bear.

"We're much better off today than in 1975," Servheen insists, "but the bear will only exist with high levels of management. We will never get to the point where we can walk away from the grizzly bear. The role of science is to continually seek the truth. Everything we do with the grizzly bear is to seek the truth. We have an interest in the future of the species, and we believe our decisions are right. Nobody that I know of in the biological community working

on behalf of the grizzly bear is trying to hide something or put something over on the public or anybody else.”

Given the local hostility toward grizzly bears in ranching and logging communities, Mattson and other scientists pleaded with Servheen to err on the side of caution when crafting the new Grizzly Bear Recovery Plan and pressed to give grizzlies more security cover. The best way to separate would-be poachers from bears, Mattson says, is to close logging roads. It is an ecological maxim that the amount of suitable habitat for a species like the grizzly, in particular contiguous suitable habitat, is a primary regulator of a population's size and likelihood of long-term persistence. For the grizzly, if you are dealing with shrinking habitat it is an absolute certainty that apparent growth in bear numbers will not sustain itself.

“The first thing the plan fails to do is protect habitat. Without habitat, you won't have any bears; it's that simple,” says Bob Ekey of the Wilderness Society. Protecting habitat falls through the cracks of jurisdictions, he says. Despite the appearance of the first bear recovery plan in 1982, Targhee managers allowed loggers to continue to cut swaths of trees through bear range in what many say was a violation of the Endangered Species Act, the National Environmental Policy Act, and the National Forest Management Act. As a result, bears have fled the area, resulting in a net loss of habitat.



Conservation biologist Peter Brussard once compared the incremental erosion of grizzly bear habitat to “being nibbled to death by a duck.” The impacts—a single logging clearcut here, a road there, a subdivision here, an oil and gas well there, a grazing allotment or ski resort—are subtle on a piecemeal basis but cumulatively so devastating that a population can slip into irrevocable decline before there is enough time to react. Or the scale can seem overwhelming. During the mid-1990s an area covering fifty square miles of national forest had been logged in the Yellowstone region, nine hundred new miles of logging roads proposed in addition to the ten thousand-plus already existing miles. Energy companies have sought permits to drill exploratory oil and natural-gas wells—and build necessary access roads—in some eighty thousand acres of national forests. Resorts are expanding across formerly productive bear foraging areas, and more people are living at the periphery of the ecosystem,

ensuring that a net gain in bear habitat will not be achieved without intervention to create room for them to wander. Furthermore, large numbers of bears are dying each year in reported and unreported cases.

Researchers know that many bears are killed each year both by humans in accidental encounters and by poachers. At any one time there are an estimated twenty-five to fifty radio-collared grizzlies in the Yellowstone ecosystem enabling researchers to decipher their whereabouts. It is compelling but hardly surprising to note that of the bear deaths recorded by researchers, those wearing radio collars account for between two-thirds and three-fourths of the known mortality rate. Troubling to those who manage bears is the unknown quantity of anonymous, uncollared bruins that die and are never seen. These animals tend to be the ones Mattson classifies as the “backcountry bears.”

Conservation biologist Lance Craighead, an adjunct professor of biology at Montana State University, research director of the Craighead Environmental Research Institute and the son of Frank Craighead, says it is the invisible bears, those not equipped with radio collars, that are important to long-term survival of the grizzly. “A large percentage of uncollared bears are three- to four-year-olds,” observes Craighead, who has extensive field experience tracking grizzlies in the Rockies and Alaska. “When they leave their mothers and strike out on their own, their probability of survival is lowest of any time after their first year. If they die from natural factors or human poaching we often will never know, and their loss to the population will not be felt or noticed for as long as a decade.”

Undercover law-enforcement officers assigned to antipoaching patrols maintain that a lucrative black-market pipeline exists for grizzly gallbladders that are illegally exported to Asian countries and sold as ingredients in herbal teas and as aphrodisiacs. One veteran law-enforcement agent with the U.S. Fish and Wildlife Service told me that for every bear known to have died in Yellowstone, there is probably at least one other bear that has been poached for profit or as an act of protest against the Endangered Species Act. Some grizzly bear researchers believe that they are able to account for only one-fourth of the overall bear losses. This information is important because it shows that it is difficult not only to track and count uncollared backcountry bears but to ascertain how many die, which is

vitaly important to managing a few hundred individuals and correctly evaluating how many actually exist.

The old western saw of "shoot, shovel, and shut up" is alive and well, fueled by politicians who have sent a message to ranchers and resource extraction companies that the Endangered Species Act is something that can be flouted. No example is more poignant than the one set by Steve Symms, a former congressman and U.S. senator from Idaho. Now retired from politics, Symms, while he was still a legislator on Capitol Hill, reportedly walked into the office of a high-ranking U.S. wildlife official in Washington, D.C., placed a spent 30.06 shell casing on the official's desk, and made this pronouncement about a grizzly that had been preying upon sheep in the Two Top Meadows section of Idaho's Targhee National Forest outside Yellowstone: "You needn't worry about that bear on Two Top anymore because it's no longer a problem." Days later, a bruin was found dead from a rifle shot, but no charges were ever brought. The arrogance is illustrative of a pervasive attitude. When I asked Symms about the remark, which he didn't deny making, he said there is tangible angst among livestock producers, who don't believe they should have to move their cows or sheep from public land to accommodate grizzlies—even if the livestock is in prime bear habitat. Symms believes there were good reasons for exterminating the grizzly from areas frequented by humans in the West.

Just as most imperiled species do not tumble toward extinction overnight, the recovery of the grizzly cannot be accomplished quickly, certainly not within the five-year spans that are the scope of the Grizzly Bear Recovery Plan. Those short intervals are meaningless in the minds of conservation biologists who try to plot out whether an organism can make it over the long term. By *long term*, they mean centuries or more.

Conservation biologists do not believe the Yellowstone grizzly will disappear altogether within ten, twenty, or even fifty years. In fact, a century might pass before adverse trends—based upon poor management decisions today—begin to fully manifest themselves. Dan Goodman, an internationally respected population demographer at Montana State University, has studied statistical probability and risk in the natural environment for many years. Goodman, besides being a good scientist, is a numbers cruncher. Although he has never studied grizzlies in the field, he knows enough about the survivability quotients for large peripatetic creatures like grizzlies to

suggest that if they become "islandized" and cut off from other populations of their kind, they vanish.

Goodman cites a study done by Mark Shaffer, formerly a senior scientist with the Fish and Wildlife Service, who collected available data on the Yellowstone grizzly population, ran a computer model, and tried to extrapolate trends that would hint at the bear's long-term fate. His research concluded that although the Yellowstone grizzly has a high chance of persisting for the next one hundred years, it has a high probability of going extinct not long after that. Several of Shaffer's colleagues say that in order to ensure survival, a minimum base population of two thousand bears, more than seven times the current estimates, would be needed.

"From a genetic and demographic point of view, I like to think of 'two thousand bears for two thousand years' as a starting point to maintain a viable population," says Lance Craighead, an authority on grizzly bear genetics who completed his Ph.D. on the subject. "I believe that we can accomplish that with interconnected core reserves and still accommodate the healthy, inevitable growth of human populations in the area. We can have a high quality of life for both grizzlies and people, but we need to begin right now before our options are precluded by continuing poor management decisions. We need to afford the grizzly larger spaces. The Grizzly Bear Recovery Plan should promote that objective."

Goodman has viewed the trends in other ecosystems. "I would guess that as development continues on the national forests and private land surrounding Yellowstone Park, what you do is essentially shrink the boundaries of bear habitat back until they match the park borders. Bears will get forced into a smaller and smaller box of habitat instead of a larger and larger box, which is what they need to establish population viability. Rather than having the perimeter areas of the ecosystem as a source of colonization for bears, they become a sink," Goodman says. "I don't think that any population demographer would tell you that bodes well for the bear over the long term."

In fact, in 1994 Knight, his researcher wife, Bonnie Blanchard, and Eberhardt wrote in the journal *Canadian Zoology* that "if the population is actually increasing, and continues to do so, the limited habitat available will ultimately result in cessation of population growth."

During the 1990s a promising bilateral initiative crafted by Canadian and American scientists has emerged as a model of conservation biology. Called Yukon to Yellowstone, the plan aims to connect

and protect available grizzly habitat stretching from northern Canada to western Wyoming. Without such links to ensure an inward and outward flow of genes, biologists fear that island populations will suffer reproduction problems through inbreeding. More importantly, the initiative identifies the wide-ranging grizzly as an umbrella species that if progressively managed will provide benefits for suites of species that have similar habitat requirements. Contrary to the opinions of the Interagency Grizzly Bear Committee, the proponents of Yukon to Yellowstone make no apologies for pushing scientific advocacy.

In a report titled "Large Carnivores, Science and Conservation from Yellowstone to Yukon," Stephen Herrero, professor emeritus of environmental science at the University of Calgary and an international authority on grizzlies, laid out the principles:

Science is fundamental to conservation in the Yellowstone to Yukon region. Scientifically-based knowledge is significantly objective and, at least in theory, replicable. The public holds scientists in high esteem, and "scientific results" are more often trusted than political or bureaucratic assessments. Scientific data often provide the basis for policy and management decisions affecting large carnivores. Scientific standards and concepts are firmly embedded in scientific paradigms. A paradigm is a conceptual framework for understanding events. This is not a trivial matter; our interpretations of the world, the questions we ask, the levels of significance we ascribe and the levels of confidence we accept are all based on the paradigms we hold. The interrelationship of people's differing values, attitudes and actions toward nature can be defined as their paradigm regarding nature, and in the context of carnivore conservation, people generally hold one or the other of two very different paradigms. In one, a person believes nature exists only for human use and consumption; in the other a person believes human beings are a part of nature and that human use of resources should be carefully regulated not only to conserve the resources, but also because nature has inherent value. Scientists, like all human beings, orient themselves to the world and their work on the basis of their paradigms. In this case, science is not fully objective. Conservation biology can be viewed as an emerging paradigm. With its mission of encouraging science that helps to maintain biological diversity and natural processes, it places significant inherent value on wild nature. Many of the scientists working on Yellowstone to Yukon subscribe to such a view, and out of that

view are asking for longer-term, more protection-oriented planning, and for a conservation interpretation of scientific results so that we do not err and lose populations. This conservative approach, favoring the application of the "precautionary principle," is based both on values and science. With its commitment to maintaining biological diversity and natural systems, conservation biology focuses on different questions and accepts different levels of confidence than do traditional resource utilization oriented paradigms.

In other words, it is an approach to protection squarely at odds with what some might argue are the Pollyannaish, industry-driven objectives promoted by the Interagency Grizzly Bear Committee and the Grizzly Bear Recovery Plan for Yellowstone.

Detractors of Servheen argue that conditions are desperate for the bear, that reasonable solutions were foreclosed on years ago when the Forest Service continued to log and build roads into bear habitat while ignoring compelling evidence that such activities were harmful. "I just don't think their optimism is warranted at all," Pease, a staunch conservation biologist, tells me from his lab at the University of Texas, where he is completing a demographic study of the Yellowstone bear population. "I think it's absurd that they would try to delist the population without having done an adequate analysis of their own data."

One month after the Interagency Grizzly Bear Committee gave its unanimous endorsement to delisting the Yellowstone grizzly, Pease and Mattson wrote a letter summarizing a three-year examination of the study team's data. "We are now far enough along in our analysis of the Yellowstone grizzly bear demography data to have identified some major problems with previous analyses," they stated, citing problems with the standards Servheen used to tally bear numbers and deaths. They noted that the way the government measures bear fecundity (i.e., females with cubs and corresponding population estimates), counts male bears, and estimates bear mortality are, at best, suspect. "Moreover," they added, "the problems with the existing analyses of the available data are large enough that correcting them could easily lead to a major revision in our understanding of the status of this population."

Servheen insists that the documents painting a positive-sum picture of the grizzly population have been peer reviewed, yet few of the papers have been offered for review to those who seriously

question the government's conclusions. "I can say emphatically that their science has not been peer reviewed because I've never received one of their manuscripts, and I think that's pretty damning given how much I know about these populations," Pease says. "This is not the first time that something like this has happened. They provide access only to those who are willing to toe the party line."

Shortly before the recovery plan—designed to guide grizzly management into the next century—was finalized in 1994, it came under a scathing barrage of criticism from twenty independent scientists. Shaffer said, "This current draft plan remains so weak that it calls into question not just the future of the grizzly, but the meaning of recovery under the Endangered Species Act." Thirty-eight conservation groups, led by Honnold at the EarthJustice Legal Defense Fund, sued, arguing that the plan failed to address habitat loss, establish minimum population levels to assure viability, and provide a mechanism for upholding the ESA. In 1996 a federal district court judge ordered the Fish and Wildlife Service back to the drawing board, calling the plan "arbitrary and capricious." The plan is being rewritten. It was an unprecedented defeat and embarrassment that, according to one U.S. government attorney, "rocked Chris Servheen back on his feet." The judge wrote that the Fish and Wildlife Service had no proof that the plan, which ostensibly would provide the groundwork for delisting, would result even in short-term recovery of the bear.

"If you use the current delisting criteria as laid out in the recovery plan, you're telling the public that everything's okay, and it is obviously not," Honnold says. He adds that Servheen has become an apologist for the Forest Service and the timber industry. Another conservation group—the Great Bear Foundation—has asked for the abolition of the Interagency Grizzly Bear Committee and the appointment of a new independent scientific panel. Says one Great Bear Foundation board member, "While the Great Bear Foundation does not yet have a formal proposal to oust Chris Servheen, we have suggested very vehemently that it is time for the Interagency Grizzly Bear Committee to be dismantled. The problem is larger than Chris Servheen, but he is the icon on the committee."

All the talk of delisting the grizzly makes environmentalists nervous, but Servheen believes they are overreacting. "Delisting just transfers the management from the federal government to the states.

I can tell you the pressure will be on the states, and they will be held to scrutiny. I have confidence in them, but if they screw it up once the species has been delisted, we can move to have the bear relisted in fifteen days."

Such a rationale provides no solace to bear supporters because the bear under state management nearly became extinct. Many of the low-lying valleys where bears prowl and used to gather around streams are made up of old-style cattle ranches that are quickly being transformed into residential subdivisions. In addition, the West remains a bastion for conservative politicians who align themselves with the Wise Use movement—a movement whose proponents despise grizzly bears for anything but hunting and would vehemently oppose any attempt to relist them under the Endangered Species Act.

In a stunning confession before he retired, Knight admitted to John Varley, the Yellowstone National Park research chief involved with the Interagency Grizzly Bear Committee, that he has reservations about delisting the grizzly. "It's too bad that delisting removes all the protection of the Endangered Species Act," Knight told Varley, as reported in a recent *Yellowstone Science* article. "I can imagine people out there with chain saws and herds of sheep ready to move in when the bear population is delisted, and that scares me. Because I don't know how to protect habitat. We just don't know. You can write some laws, but hell, we couldn't protect the Targhee from widespread clearcutting and roadbuilding in grizzly habitat, even under the Endangered Species Act. You get an administrator who wants to get around a law, and he'll do it."

The failure of government to protect grizzly habitat, however, transcends partisan politics. No party has a monopoly on hypocrisy. Even one of Secretary of the Interior Bruce Babbitt's righthand men, and a former golden boy of the environmental movement, George Frampton, failed to intervene on Mattson's behalf. Prior to Bill Clinton's election in 1992, Frampton had been president of the Wilderness Society, an organization that was a harsh critic of the way previous Republican administrations had managed bears. Today he is again a practicing attorney, hired, among other things, to represent Vice President Al Gore in the investigation of Gore's campaign fund-raising practices. Yet when Babbitt tapped Frampton to become the Department of the Interior's assistant secretary for fish

and wildlife and parks, his crusade to beef up the federal government's protection of bear habitat stopped, even though the same resource managers and deleterious policies still were in place.

In fact, once Mattson's allegations were made public, Frampton organized what he called a secret "mock court" in Washington, D.C., where Servheen and conservationists were asked to present their cases. Inexplicably, Mattson was not asked to defend himself, which begs the question: Is Dick Knight to blame for Mattson's ouster? Or is Chris Servheen, George Frampton, or even Mattson himself? Was his removal caused by sinister motives or a serious lack of communication? The more likely instigator is a system of managing public wildlife that is resistant to change and innovation. "With some good luck and intensive management, I think that a small population of grizzlies could possibly hang on indefinitely in the Greater Yellowstone Ecosystem, but the essence of those survivors would be gone," says Lance Craighead. "We can do better than that. We must do better than that. We need visionary thinkers. We have a chance to provide a more balanced lifescape in the northern Rockies. We can plan for a healthier situation than that of the last tigers in India, or the last brown bears in Spain, or the last pandas in China. We can provide a high quality of life—not just for humans but for native plants and animals. We can protect and maintain biodiversity, but we need to think big."

Politics still controls the purse strings of land management agencies, and few bureaucrats or scientists in their right minds are willing, as they say, to bite the hand that feeds them. It means that science is forever a hostage to politicized science and meddling. "The Interagency Grizzly Bear Study Committee needs to decide whether it is going to be a decisionmaking body or continue as it has as a group of bureaucrats that gets together twice a year to talk and compare notes," Scott of the Greater Yellowstone Coalition says. "Not much in the way of meaningful progress is made with the committee, which leads one to ask, then why does it exist? The way it's structured and the kinds of decisions it doesn't make, it's not productive use of the managers' time or the public's time and money. It either needs to be a real ecosystem coordinator of making hard decisions or it needs to disband and quit pretending to be something it is not."

With several Republicans who are outspoken critics of the Endangered Species Act now presiding over key committees in Congress, in

the years ahead it will be even tougher for the people who hold the grizzly's fate in their hands to do the right thing.

Will those who wear the uniform of the Fish and Wildlife Service and the Park Service—which partially funds the Yellowstone Interagency Grizzly Bear Study Team—assume their mandated role as advocates for wild places? Or will the people in charge wither under their own desires to assure their paychecks through ineffectual management with one foot constantly in retreat?

Richard West Sellars, a historian with the Park Service, pinpointed the flaws of public land management in his remarkably candid 1997 exposé, "Preserving Nature in the National Parks: A History." His analysis is a prescription for grizzly managers.

In this era of heightened environmental concern, it is essential that scientific knowledge form the foundation for any meaningful effort to preserve ecological resources. If the National Park Service is to fully shoulder this responsibility at last, it must conduct scientifically informed management that insists on ecological preservation as the highest of many worthy priorities. This priority must spring not merely from the concerns of specific individuals or groups within the Service but from an institutionalized ethic that is reflected in full-faith support of all environmental laws, in appropriate natural resource policies and practices, and in the organizational structures of parks and central offices. When—and only when—the National Park Service thoroughly attunes its own land management and organizational attitudes to ecological principles can it lay claim to leadership in "the preservation of the natural environment."

The survival of the grizzly is not a "bear problem" but a problem of managing people. Bears will show us which habitat is best for them, but we must be willing to heed their message. "Really, in the end, it's not going to be science that saves the grizzly but human values," Mattson says. "We already know what the preponderance of science says—that large, wide-ranging omnivores that are slow to reproduce and ill adjusted to human presence are doomed unless we make room for them. Society has to ask itself, 'Do we value grizzlies and the type of environment they represent?' I believe the public does want to see the bear survive, and they are willing to make adjustments." As Mattson points out, the challenges in saving wide-ranging carnivores is determining the proper place for residential development, mines, hiking trails, clearcuts, and cows.

Mattson has yet to take his final stroll through the thickets of Yellowstone grizzly country. "We know a lot about the side issues relating to bears, but we know very little about how to ask the important biological questions. Dave Mattson is a person who can answer them and help us ensure that we are not acting blindly. We face a habitat crisis that may mean the only place people see grizzlies are in zoos and stuffed in museums," says Honnold. "If a few years from now Mattson is not at the forefront of grizzly bear biology, the Yellowstone ecosystem will be a sorer place."

Latter-Day Frogs

The frog does not drink up the pond in which it lives.—Inca proverb

DURING THE MIDDLE OF the nineteenth century, pioneers crossing the Great Basin had a folksy method for assaying the potability of fresh water. If there were snakes and frogs in the bubbling springs and ephemeral pools along the Humboldt Trail, they figured it was safe to scoop a drink. In the silent absence of such creatures, the logic was to beware—something was wrong.

This tried-and-true technique never failed its practitioners. It helped slake the thirst of thousands of eastern religious refugees converging upon the arid territory of Utah. By 1847 Brigham Young and his plucky tribe of Mormons were establishing their diaspora in permanent settlements near the southern shores of the Great Salt Lake, and the location supplied physical sustenance that the spiritual teachings of Joseph Smith, the founder of Church of Jesus Christ of Latter-Day Saints, could not deliver. Water and, in a manner of speaking, frogs formed a prescription for survival.

Soon Young and his clan drifted southward along the towering western wall of the Wasatch Mountains, crossing the Bear, Weber, Jordan, Provo, and other smaller rivers in succession. The Provo River alone was home to riparian cottonwood, and spanned more than a half mile across in spots and was veined by half a dozen channels. Today, it has been reduced to a single channel. In the backs of their minds, fluent with scriptural literacy, they were thinking of Mesopotamia while studying the engineering practices of beaver. Biblically speaking, it was not a wilderness of milk and honey before them, but the land had potential.

As tributaries stormed down from the high country, running fast with snowmelt, water filtered through the ancient bed of Lake Bonneville, which once submerged the Salt Lake Valley. On the knolls rising above their future capital, the immigrants discovered surprisingly fecund meadows and seasonal ponds that held tadpoles. In the evenings egrets, herons, cranes, and other wading birds sailed into

Science Under Siege

The Politicians' War on Nature and Truth

Todd Wilkinson

Foreword by David Brower

Introduction by Jim Baca

Johnson Books

BOULDER

*For my parents, Dick and Mary,
but especially for my wife, Jeanne*

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