Yellowstone Science

A quarterly publication devoted to the natural and cultural resources

An Interview with Richard Leakey

Wildlife Viewing: What Visitors Want

Draper Museum Debut

The Passing of a Matriarch

Volume 10 Number 3

A Lively Conversation

NPS photo.

Africa's Baobab tree.

It was one of those indelible impressions that has remained with me all my life, although at the time, I couldn't quite grasp how it would ultimately take me on a path that would lead to Yellowstone. I was a child of maybe twelve, lying on the floor of the family room one evening, watching a PBS nature show with my parents. Back then, such programs were special television events. My parent's would let me stay up late on a school night to catch the most recent National Geographic special or Jacques Cousteau's latest undersea adventure to some far off distant place. Of course this was before the advent of The Discovery Channel, Animal Planet, and the rest of today's cable programming that offers endless opportunities to experience nature 24/7.

On this particular night, I was introduced to the Serengeti of Africa and followed with fascination a year in the life of one of that continent's most abundant large mammals, the wildebeest. For some unexplained reason, the vastness of that landscape and the trials and tribulations of these animals resonated deeply with me.

Although I have yet to make it to Africa, life's journey has lead me to the "American Serengeti" that is Yellowstone. It is with great interest that we feature an interview with the renowned Kenyan conservationist Richard Leakey, which articulates the common challenges and the shared spirit of these two wild places on different continents. This spring, Dr. Leakey joined the community of Cody, Wyoming, to commemorate the opening of the Draper Museum of Natural History, the latest addition to the Buffalo Bill Historical Center. The Draper explores the natural and human dimensions that comprise and sometimes struggle to coexist within the Greater Yellowstone Ecosystem.

In a wide-ranging discussion with the YCR's Paul Schullery and public affairs chief Marsha Karle, Leakey reflects on the similarities and contrasts between Yellowstone and the wildlife preserves of Kenya. His observations are quite provocative; challenging old schools of thought and offering lessons from his African experience. I found it interesting that among the staff here at *Yellowstone Science*, Leakey's views ignited a lively debate filled with spirited discussion, some disagreement, and above all, an expressed passion for Yellowstone and what it represents. I hope it will do the same for our readers. For, while we may look back smugly at some of the seemingly naïve or misguided beliefs that previous generations have held about the management of natural resources, Dr. Leakey now calls us to question some of our own.

It is no coincidence, then, that the many things Leakey touches on in his interview echo through the other articles in this issue of *Yellowstone Science*. With interesting results, Alice Wondrak surveys the attitudes and expectations the public brings to seeing wildlife in the park. Wolf project leader, Doug Smith offers a tribute to wolf #7 and the contributions she made in her eight years to ensuring the restoration of her kind to the park. And lastly, in News and Notes, the park's evolving relationship with its affiliated tribes strikes an interesting parallel to Leakey's views on the Maasai and their centuries old relationship to Africa's wildlife.

In the end, I find that the lessons from Yellowstone and from Africa, though not always exactly comparable, evoke a common message. When I read Richard Leakey's words, I am reminded of another African emissary of an earlier generation who sought answers on the world's second largest continent. Albert Schweitzer, the 1954 Noble Peace prize winner, once observed:

> *"Slowly we crept upstream on one of the long African errands of mercy. Lost in thought I sat on the deck of the barge, struggling to find the elementary and universal conception of the ethical which I had not discovered in any philosophy. Sheet after sheet I covered with disconnected sentences, merely to keep myself concentrated on the problem. Late on the third day, at the very moment when, at sunset, we were making our way through a herd of hippopotamuses, there flashed upon my mind, unforeseen and unsought, the phrase, 'Reverence for Life.' The iron door had yielded: the path in the thicket had become visible…I cannot but have reverence for all that is called life. I cannot avoid compassion for everything that is called life. That is the beginning and foundation of morality."*

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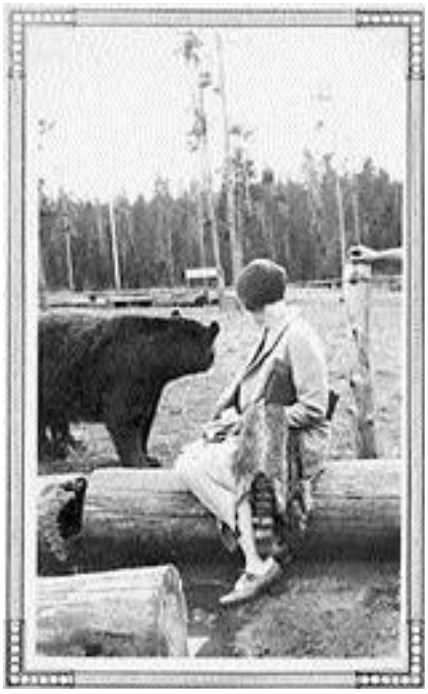

Editor
Roger J. Anderson
Roger_J_Anderson@nps.gov

Assistant Editor and Design
Renée Evanoff
Assistant Editors
Tami Blackford
Mary Ann Franke
Kevin Schneider
Alice K. Wondrak

Printing
Artcraft, Inc.
Bozeman, Montana

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Editor, *Yellowstone Science*, P.O. Box 168, Yellowstone National Park, WY 82190.
You may also email: Roger_J_Anderson@nps.gov.
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Yellowstone Wildlife Watching

A survey of visitor attitudes and desires

by Alice K. Wondrak

Background

For 60 years or so, Yellowstone was the place where visitors came to feed the bears. People got hurt, bears got killed, and the National Park Service (NPS) got sued, but still the park's managers failed to see how it would ever be possible, or even desirable, to end the roadside feeding which was at once so desired and so detrimental. With the 1963 release of the Leopold and Robbins Reports, however, came new ideas about what parks were for and how they and their wildlife resources should be managed, which were interpreted by Yellowstone's managers as necessitating a naturalizing process throughout the park. And that meant getting black bears to stop eating marshmallows at the roadside and extricating grizzlies from the park's soon-to-be-closed open pit dumps.

To some, it also meant removing the colored streamers that some of the park's grizzlies wore in their ears for research purposes, and minimizing the amount of marking (such as ear tags and radio collars) seen on the park's wildlife in the future. Arguments against marking were based on the contention that it gave the animals an "unnatural" appearance that visitors didn't like, and "unnatural" was undesirable at a time when the parks were charged with creating landscapes that represented "vignettes of primitive America." Biologists John and Frank Craighead, who had placed the markings on the park's grizzlies in the course of the groundbreaking studies of the animals, maintained that most visitors never saw the markings, and that many of those who did were more intrigued than bothered by them (this was but one of many things upon which the Craigheads and the NPS disagreed over the years).

In 1968, Yellowstone's rangers finally started enforcing the no-feeding regulations that had existed in the park since 1902, and roadside feeding was ended within a couple of years. By 1971 or so it was uncommon to see a roadside bear, and unhappy visitors were demanding to know where they had all gone. The park generally provided a prescriptive response to these queries, informing visitors that seeing fewer bears leading natural lives was a preferable experience to seeing many bears being denigrated by begging. Did visitors believe it? Some did, some didn't; the process of convincing visitors to "think like an ecosystem" in the wake of the vast policy changes of the past 35 years has been a long one, and the goal of this work was to gauge how far we've come, and catch a glimpse of how far we might have to go.

On the whole, park staff will tell you that although marmots, bighorn sheep, and elk are fed by visitors more frequently than bears are these days, the desire to feed Yellowstone's bears still exists in the hearts of some. That may come as a shock to those of us naïve enough to believe that 30 years of active law enforcement, NPS educational efforts, PBS nature shows, *Grizzly!*-type horror films, and wilderness ideology should have been enough to quell anyone's desire to hand-feed these massive, wild omnivores. But it is so, and what it demonstrates is the strength and lasting power of those images and attitudes that started to develop the very first time people gathered to watch bears eat garbage out behind the Fountain Hotel back in the 1890s. The question that drives this article is, just how strong and widespread is the desire to feed: how well have visitors received the park's anti-feeding messages over the years—is it just the fear of getting caught that keeps them from feeding? Or have visitors learned over the years, whether from park literature or outside sources, of the dangers that feeding brings to both humans and bears, and accepted that knowledge and incorporated it as their own?

The Survey

Over the course of 13 days in May–August 2001, I administered a 15-question survey to a random sample of 150 visitors in the Old Faithful geyser viewing area. The survey assessed attitudes and desires in regard to a number of issues related to wildlife watching in Yellowstone. The initial questions of my survey were designed to get visitors warmed up and thinking about their expectations for their Yellowstone experience, and to measure their level of previous experience with the park. Archival research seems to show that fear of punishment was the primary factor in finally ending bear feeding as common practice in the park. Thus, in a key survey question (about whether visitors wanted to feed bears, and why or why not), punishment was hypothetically eliminated as a potential deterrent to feeding in order to determine whether or not fear of punitive consequences was the reason that today's visitors generally don't feed the bears. The other major question surveyed people's

attitudes toward seeing collared wildlife, which remains controversial among researchers and managers today.

Results

Demographics: Ninety-nine percent of all visitors interviewed were white. Fifty-five percent were female, while 45% were male. Twenty-eight percent were aged 18–29, 27% were 30–45, 22% were between 46 and 55, and 23% were 56 or older. Respondent household income ranged from less than $10,000 per annum to over $100,000. Sixty-seven percent described themselves as married, 24% as single, and 9% as other (divorced, widowed, or in a long-term relationship). Ten percent of all respondents lived in foreign countries. Fifty-four percent of American respondents were from states west of the Mississippi River, 46% from east of it.

Expectations

Background: To get them thinking about their desires and expectations for their visit, respondents were asked to name three things that they hoped to see while in Yellowstone. Because my research is wildlife-related, visitors who answered simply, "wildlife," or "animals," were prompted as to whether there were any specific kinds of wildlife they were particularly interested in seeing. No specific species were suggested; however, respondents were never asked if they were interested in seeing bears, for example, or wolves. The specific animals named by respondents came strictly from them. Interviewees were not prompted when giving other general answers, such as "scenery" or "thermal features."

Question: What do you most hope to see while in Yellowstone? If you could, name three things.

Results: There were a fairly wide range of desired sights, but most could be categorized in terms of either wildlife, thermal features, or natural scenic features. Figure 1 shows responses that occurred at least 10% of the time, demonstrating that among those interviewed for this project, Yellowstone's most desired sights were Old Faithful, bears, wildlife, thermal features, bison, moose, scenery, elk, grizzly bears, waterfalls, and wolves, respectively.[i]

Old Faithful and bears appear to remain the park's most popular sights by far, with a little more than half of all respondents naming them as one of the three things they most wanted to see while in the park.

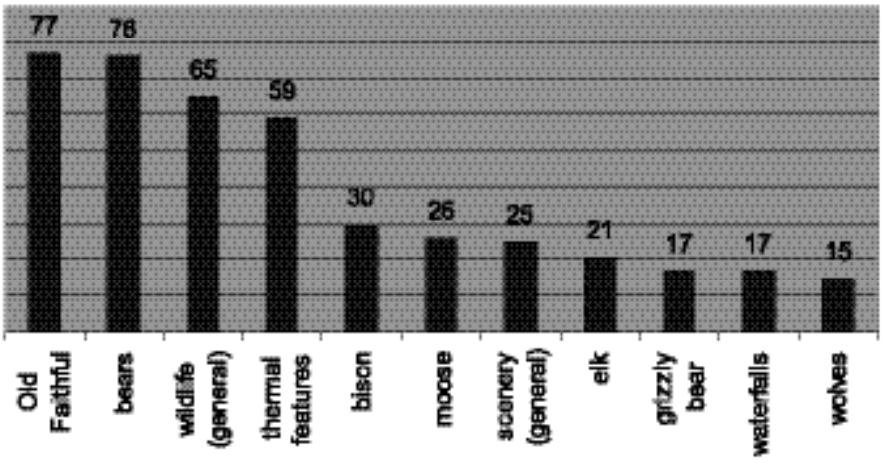
These answers, of course, should be considered within their context. While Old Faithful was the feature mentioned most often (53% of the time), it should be remembered that visitors were interviewed while sitting in front of Old Faithful, waiting for it to erupt, and so were probably likely to remember to mention that the geyser was one of the things they most wanted to see in Yellowstone. Similarly, animals such as bison and elk, although popular in their own right, are also frequently visible along the roads which approach the Old Faithful area from the park's most popular entrance (the West Entrance), and so some visitors may have been simply naming sights that they had already seen. When asked, several did just that. Musing, "well, we saw a bison on the way in, we wanted to see that, and I think a deer…" was not atypical.

The frequency with which visitors mentioned wanting to see a bear, however, (52% of the time) is less likely explained in this way. Bears are not commonly visible along the road between the West Entrance and Old Faithful, and many visitors, when stating that they would like to see a bear, specifically added that they had not yet seen one or did not really expect to see one. Therefore, it seems certain that these visitors associated bears with Yellowstone by reputation, rather than because of recent experience or visual convenience, i.e., because they were looking at them.

Question: On a scale of 1–5, with 1 being not very important and 5 being very important, how important is it to you to see a bear during your visit?

Results: Interestingly, in spite of the fact that an impressive one-half of the visitors interviewed had stated, unprompted, that a bear was one of the three sights they most wanted to see, it was not crucial to most people that they see one. When asked to measure, on a scale of 1–5, how important it was to them to see a bear during their visit, the overall average answer was 3.29—somewhere in the middle (this included a "minus 5" from a man traveling by motorcycle who was clearly less than interested in encountering a bear during his visit). Many people added that they would like to see one, "but it wouldn't ruin the trip if I don't," "but I won't

Figure 1. YNP sights that at least 10% of interviewed visitors said they hoped to see.



commit suicide if it doesn't happen," or "but I know they're hard to see."

Conclusions: Overall, it appears that visitors come to Yellowstone today to see the things they have always come to see; extraordinary thermal features, wildlife—bears in particular—and beautiful scenery. The only average importance of seeing a bear to the overall quality of one's trip would seem to indicate that although visitors still commonly associate bears and Yellowstone, seeing a bear is no longer a driving reason for making the trip, in spite of the fact that they still appear to be one of the park's main attractions in the visitor mind.

Collared Wildlife

Background: The debate over whether wild animals living in national parks and wilderness areas should be collared for scientific monitoring purposes has raged almost since the Craighead brothers pioneered the technique in Yellowstone during the 1960s. Collars and other markers have gotten smaller and less conspicuous over the years, and in order to further minimize their visibility, today's managers even frequently wrap collars in dark-colored tape. Nevertheless, there are those who still hold the line established by Superintendent Jack Anderson (1967–1975), maintaining that any visible marking is deleterious to the viewing experience and makes the marked animal seem "less than wild" because it is an indication of interaction with humanity. In this way, collaring shakes the façade of untouched nature that many people attribute to national parks and wilderness areas.

Radio-collared elk, Yellowstone National Park. Author photo.

Other critics point out that collaring requires that animals be drugged and handled, which has in the past proven to be potentially dangerous for both wildlife and managers. Advances in drug technology have greatly decreased the potential for hazard in recent years, but the possibility of injury or death during capture, immobilization, or (in extremely rare instances) afterward continues to exist. Still others complain that the collars look uncomfortable and that we should simply "leave wildlife alone" and "stop studying them to death;" a rather common expression which originated in the days when animal deaths caused by immobilizing drugs were more common than they are today.

Proponents of collaring maintain that the amount and quality of knowledge which can be obtained from monitoring certain members of an animal population far outweighs the negative visual effects and small potential for danger. Innovations in GPS technology have greatly increased the scope of that knowledge in recent years. Among other things, researchers can now learn the extent of an animal's range, measure its lifespan, discover what sorts of food sources might hold it in a certain place for extended periods of time, track its reproductive history, and find out how it uses land throughout the day and night—all of which is valuable information for managers charged with making land use decisions within the Greater Yellowstone Ecosystem and protecting endangered species such as the grizzly. It is important to note that this number of collared animals in the park changes as studies are introduced and concluded.

Question: a) Have you seen any park animals wearing radio collars or ear tags?

Results: Roughly 23% of the visitors interviewed believed that they had seen an animal wearing a radio collar or an ear tag.[ii] Elk were most frequently noted as having been marked, and as was earlier stated, are a fairly common sight along the road between Old Faithful and the park's most popular (West) entrance.

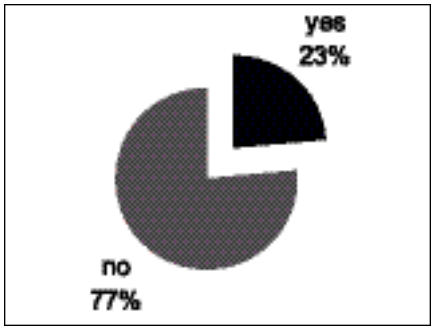


Figure 2. Have you seen any park animals wearing radio collars or ear tags?

Question: b) If yes (or "if you did see that"), did that affect (or "do you think that it would affect") your experience of viewing that animal, one way or the other? Make it better or worse?

Results: "No impact/positive impact." Of those 23% (35 people) who believed that they had seen an animal wearing a radio collar or an ear tag, 77% (27 people) said that seeing the marking had had no adverse impact on their experience of viewing that animal. Visitors who had not seen any animals wearing radio collars or ear tags were asked to imagine their reaction to seeing such an animal. Of those, 86% (97 people) believed that seeing an animal wearing a collar or a tag would have no impact on their experience of viewing that animal. Although those who said that seeing a collared animal would not depreciate their experience were not generally prompted to explain why not,

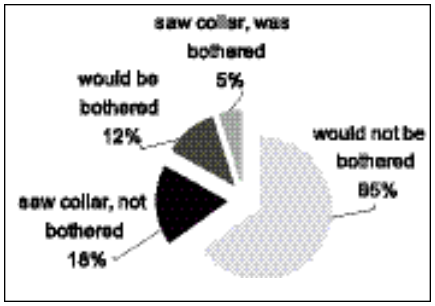


Figure 3. Did/would seeing a collared animal in Yellowstone affect your experience of viewing that animal?

21 of them (17%) volunteered that they wouldn't be bothered because they knew why collaring was done and believed it to be a positive thing. One man went so far as to say that seeing a collar would actually enhance his viewing experience for that reason.

"*Negative impact.*" Twenty-three percent (8 people) of visitors who had seen a marked animal said that seeing the marking had adversely impacted their experience of viewing that animal. These respondents were prompted to explain why such had been the case. Three said that the collar had made the animal seem less natural. One person each said that the collar had looked uncomfortable for the animal, that wildlife should be "left alone," and that wildlife should be "allowed to be free." Two people were ambiguous as to their reasons, with one saying that "it would be better to see one without one but I understand why they do it," and the other not specifying a reason.

Of those visitors who had not seen a marked animal but were asked to imagine their reaction, 14% (16 people) said they thought that their viewing experience would be adversely impacted by the marking. These respondents were also asked to explain why this would be the case, with the overall result that 12 of the 24 people total who said that they had been or would be bothered by seeing collared wildlife said that it was because it seemed "unnatural," with one adding that collared wildlife were unsuitable for wildlife photography for this reason. Three people said that they thought the collar would be uncomfortable for the animal to wear, and two each said that "wildlife should be left alone" and that "animals should be free." Two people said that they would be bothered by seeing traces that the animal had interacted with humans, and two people said that they would be bothered because they wouldn't know why the animal was wearing a collar.

Lack of knowledge seemed to be a bit of a problem in regard to collaring. Although they were not asked about their knowledge, a total of 4% of all respondents stated that they did not know why collaring was done, with one respondent initially stating that she would be bothered by seeing a collared animal because "it would make me sad that [the animal] had to wear a collar because [it] had been fed by people" (she changed her mind after her husband explained what the collars were typically used for). Five people were ambivalent about collaring, stating that they knew and appreciated the reasons why it is done, but still didn't like seeing it.

Conclusions: Overall, this research shows that more than 4 out of 5 visitors surveyed said that seeing an animal marked for scientific purposes either had had or would have had no impact on their experience of viewing that animal. In fact, in some instances, the long-held contention by some scientists that far from being a bad thing, visitors' seeing marked animals was a positive byproduct of research because it generated public interest in science and wildlife conservation proved to be true. The percentage of people who had actually seen a marked animal and been bothered by it, however, was higher than the percentage of people who had not seen a marked animal but thought they would be bothered by it, reminding us that there is a gap between how people imagine their reactions and what they actually turn out to be. But even among those who had seen a collared animal, more than 3 out of 4 said that the marking had had no impact on their viewing experience, indicating that most visitors may not cling as tightly to an ideal of "pure, untouched" Yellowstone as we may have thought they did, or as they actually did at times in the past.

Awareness of Bear Feeding

Background: This question was designed as a contextual precursor to asking visitors whether they would want to feed the bears today.

Question: Are you aware that several decades ago, it was common for people to see many bears along Yellowstone's roadsides, begging for food?

Results: About three-quarters of visitors surveyed (76%) answered that yes, they were aware that people used to feed bears at the roadsides. The 24% who did not know that such was common practice in the past were informed that the activity had always been against the rules but that those rules were not enforced until the late 1960s, and that a visitor in the 1950s might have expected to see between 40 and 50 bears a day along Yellowstone's roads.

Overall, 37% of those who were not aware of roadside feeding were 18–29 (this age group comprised 28% of the total sample), 28% were 30–45 (27% of the total sample), 19% were 46–55 (22% of the total sample), 5% were 56–65, and none were over 65 (combined, 23% of the total sample).

Conclusions: Though they haven't been seen for three decades, the reputation of Yellowstone's begging bears still precedes the bears of today. Visitors' knowledge of this past activity appeared to be correlative to age, with awareness increasing with visitor age. Awareness was low among those from outside the U.S., especially among the younger age groups.

Would You Want to Feed a Bear in Yellowstone?

Background: Because enforcement appears to have been the driving force behind ending bear feeding in Yellowstone, and I was interested in finding out whether visitors still had any desire to feed the bears, I asked them whether they would want to feed a Yellowstone bear if they did not have to fear being caught or punished for doing so.[iii]

Question: Today, the rules against feeding bears are strictly enforced. But during the years of the roadside bears that I just mentioned, they weren't. If we existed in a kind of vacuum here today, and you could feed bears in Yellowstone today without being afraid of getting caught or punished, do you think that's something you would want to do?

Results: Although there are, of course, gaps between what people will say they might do when queried out of context and what they might actually do when placed in the midst of a situation, the results were overwhelming; 95% of

visitors surveyed said that no, they would not want to feed Yellowstone's bears, even if they would suffer no legal consequences for doing so. Eight people (5%) stated that yes, if they could do it without fear of reprisal, they would want to feed a bear in Yellowstone.

Question: Why not?

Results: "That's unsafe." Asking these people "why not" frequently earned me incredulous looks.[iv] In sum, 43% of all those who answered "no" cited safety reasons (Figure 4). Notable responses falling into this category included, "a bear can attack me," "it might kill me or scratch my car," "you don't mess with bears," "I'm chicken," and "you can't have people going around getting themselves killed." It seems clear that 21st century visitors to Yellowstone are fairly well aware of the risks associated with bear feeding. Ten percent of all people interviewed said that they would not want to feed the bears for safety reasons alone. Eighty-nine percent of people who said they would not want to feed a bear provided more than one reason why not.[v]

"*That's bad for the bears.*" The second-most popular explanation for not wanting to feed the bears related to the idea that bear-feeding is bad for bears. Concerns cited in this category included, accurately, the popular adage that "a fed bear is a dead bear;" 10 people explained that bears which gain access to human foods have to be either relocated or killed, because they will invariably return in search for more and then become hazardous nuisances. Others (25% of those who said no) knew that bears that were fed would become dependent upon human foods, and some worried that they would be unable to survive in the winter, "when there's no one there to feed them." Eleven percent mentioned the possibility that they might even lose their natural instincts and skills for foraging altogether. A third supposition was that human foods would be unhealthy for bears; that they are "not the right food" (8%). In all, 32% of the people who said they would not want to feed bears alluded to the fact that to do so would be to the detriment of the bears.

"*That's unnatural.*" Sixteen percent of those who would not feed said they were opposed to the idea because it was "unnatural" in some way. Thirteen percent said they would not feed the bears because they were "wild," and eight percent said that they wouldn't feed because the bears would cease to be wild if they were fed.

"*That's bad for people.*" Fifteen percent indicated that feeding had negative effects on people. The most common responses here had to do with the idea that people feeding the bears today will cause trouble for those who visit tomorrow, in that they will leave behind a habituated bear who may cause property damage or bodily injury in its search for human foodstuffs.

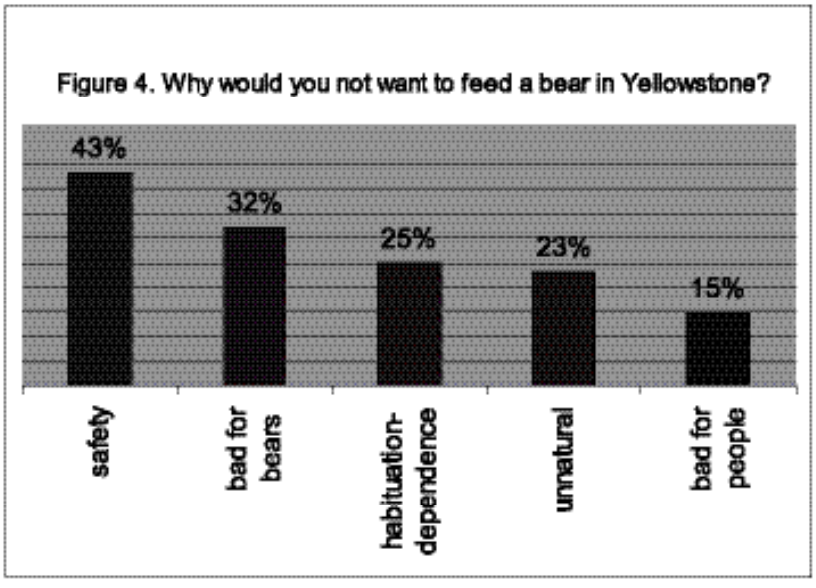
Other reasons for not feeding included "we just want to look, not to touch" (8%), "wildlife should not be fed" (8%), a desire to follow the rules (6%), "that's stupid" (6%, once accompanied by, "If I saw someone doing that, I would hit them"), "that would make it like a zoo" (4%), a concern that human feeding would disrupt the cycle of nature (4%), an overall feeling that feeding is "just not right" (3%), and a simple lack of desire to feed (2%).

As with the question of collaring, there was some ambivalence among those who said that they would not feed. In a clear case either of conflicting internal philosophies or of saying what one thinks one should say and then what one really feels, one woman commented, "I know human food is not appropriate for wildlife—wildlife needs to be with the ecosystem as it is. Have they ever thought about selling food that could be used for that?"

Question: Why?

Results: Of the eight people who said they would want to feed a bear in Yellowstone, five said that they would do it in order to be able to get close to a bear. The remaining three said that they would feed because "they're hungry," "it seems like the humane thing to do," and "I've just always fed animals. Like squirrels." Four were men and four were women, and half were in the 18–29 age group. Two were 30–45, and one each was 45–55 and 56–65. Three of these visitors lived in Idaho (a rather disproportionate turn of events, as only five respondents total were from Idaho) with the others hailing from Colorado, South Dakota, Wisconsin, New Jersey, and Georgia.

Conclusions: If one of the preconditions for civil obedience of a rule is that its constituency believes in its legitimacy, then the NPS appears not to have a problem in regard to bear feeding, as at least 95% of those interviewed agreed that there are legitimate reasons why people should not feed bears in Yellowstone, and were aware of what some of those reasons are. This conclusion, however, should be taken with the earlier caveat which tells us to mind the



gap between decontextualized statements and contextualized action, and keeping in mind a 1953 visitor survey by researcher Donald Bock, in which almost everyone claimed to have seen someone else feeding a bear but almost no one would admit to having done it themselves.

It also does not bespeak any need to reduce either the numbers of staff available to patrol bear jams, nor the wildlife warnings that are conveyed via interpretive materials, as this question did not address whether people would approach a bear without the intent to feed. In fact, two people, in the course of emphatically stating that they would want to stay far away from bears, named "50 feet" as being the proper distance—a full 250 feet closer than the 100-yard distance required by law. Surveys have been conducted which found that as a group, Yellowstone's visitors tend to greatly underestimate the distance from which wildlife viewing can be safely conducted. The continuing need for both education and vigilance is shown by the fact that half of those who wanted to feed the bears were in the lowest age group and by the decrease in awareness of past feeding as age increases.

In other words, the practical management implications of my results for this question may be minimal, except for the fact that we have learned that people are generally aware, at this point, of at least some of the reasons why they shouldn't feed bears. What is more important here are the indications for changing visitor expectations, experience, and attitudes, as well as the fact that residual desire for bear feeding still exists.

Conclusions

This research provides an overview of the kind of expectations and preconceived notions that visitors bring with them to Yellowstone relative to wildlife and bears in particular these days. It also shows that on the whole, Yellowstone's visitors are not particularly bothered by seeing collared or otherwise marked wildlife, that they still strongly associate bears with the park but don't necessarily expect to see them anymore, and are aware of the past history of bear feeding in Yellowstone. And although they don't claim to be keen to feed a bear in Yellowstone, the gap between those who would and those who wouldn't gets smaller with youth, and it is the young who are probably the least aware of the park's history in this regard. It is also the young, however, who seem the most incredulous to hear of it, which should be encouraging news for those charged with keeping the bears natural and the people watching, rather than participating in, their daily lives.

Yellowstone National Park bear management staff talk with visitors at a "bear jam," 2001. Author photo.

Alice Wondrak is a writer-editor at the Yellowstone Center for Resources and a life-long lover of Yellowstone. In August 2002 she graduated with a Ph.D. in Geography from the University of Colorado at Boulder. This article is an excerpt from her dissertation, (Do Not) Feed the Bears: Policy, Culture, and the Historical Narrative of the Yellowstone Bear. *Alice's dissertation research was supported by a generous grant from the Canon National Park Science Scholars Program. Alice and her fiancé, Mark, live in Gardiner, Montana.*

Photo courtesy of Alice Wondrak.

[i] A vote for "grizzly bear" also counted as a vote for "bear."

[ii] It should be noted that this is not indicative of the percentage of animals in the park that are collared, as a single elk standing by the roadside may be seen by hundreds of people a day.

[iii] This question was also designed to remind people that feeding wildlife is illegal and punishable in today's Yellowstone, in spite of whether or not they might want to do so.

[iv] All respondents were prompted to explain their answer to question 13.

[v] This is why the numbers in Fig. 4 don't add up to 100%.

Science, Sentiment, and Advocacy

An Interview with Richard Leakey

Sue Consolo Murphy photo.

BBHC photo.

As part of the events associated with t opening of the Draper Museum of Natural History at the Buffalo Bill Historical Center in Cody, Wyoming, Kenyan sci - entist and conservationist Richard Leakey was invited to deliver several addresses, including the keynote speech during the opening ceremony on June 4, 2002. (The opening of the Draper Museum is covered on pages 12 and 13 in this issue of Yellowstone Science.*)*

Dr. Leakey, son of the renowned paleoanthro - pologists Mary and Louis Leakey, was born in Kenya in 1944. His remarkable early fossil dis - coveries, funded by the National Geographic Society, led to his appointment, at the age of 25, as director of the National Museums of Kenya, a position he held for about 20 years. In 1989, he was appointed director of Kenya's Department of Wildlife and Conservation Management (later the Kenya Wildlife Service), a position he held until 1994, and again from 1998 to 1999, followed by a two-year term as head of civil service and secretary to the Cabinet. He continues to be embroiled in Kenya's stormy political scene, and has survived beatings, relentless political intrigues, and a plane crash in which he lost both lower legs; many still believe this crash was an assassination attempt.

Dr. Leakey's scientific achievements, his leadership in fighting political corruption and the destruction of Kenya's natural resources, and his prominence as a global spokesman for conservation, have resulted in many awards, including Gold Medals from the Royal Geographic Society and the Scottish Geographical Society, the Hubbard Medal of the National Geographic Society, and numerous honorary doctorates. His books include Origins; The Origin of Humankind; The Sixth Extinction; *and most recently,* Wildlife Wars: My Fight to Save Africa's Natural Treasures.

This interview was conducted by former Yellowstone Science *editor Paul Schullery and Yellowstone chief of public affairs Marsha Karle at the Buffalo Bill Historical Center following the opening ceremonies for the Draper Museum.*

Museums in Greater Yellowstone

Yellowstone Science (YS): Let's start with where we are today, at this outstanding new natural history exhibit. To newcomers, it might seem odd that Greater Yellowstone should be blessed with so many fine museums, and now we have the Draper Museum of Natural History to add to the list. With so many wonders of nature available, why are museums important in this region? In other words, why should people visiting this extraordinary region go into a museum—especially a natural history museum—when they can stay outside and experience the real thing instead?

Richard Leakey (RL): To me, as a former museum person and educator and writer, there is an initial "Wow!" value to a canyon or a forest or a bear or an elephant. And then the wow-value is quickly dissipated. To really understand what it is that wowed you, and to give it context and depth, is very rarely possible for somebody looking at the real thing, because they're generally not with people who have the time [to explain it all]. And yet if you can understand the wow, the drama, the awe, through displays and interactive information kits and things of that kind, the life of the wow, the life of the awe, is automatically increased and becomes deeper. And I think these little visitor centers are often not enough, because they don't really explain the depth. They're too small, and you go in and what you're looking for is where the next picnic site is that has a flushing toilet. You went in the visitor center to have your lunch, or have your tea, or have your pee.

So I think that there is a role for museums, but the museums are very seldom tied to something as specific as one ecosystem. They're very seldom designed from the outset to do that task.

YS: But the Draper Museum is exceptionally well designed to do it.

RL: I find this museum exciting in that it appears that in the last four years a group of people have come together and thought about the value of having something like this. But I've said to Chuck [Charles Preston, curator of the Draper Museum], and I've said it to a number of people, I think you've done a great job getting this far, but the tough work is ahead. Can you now provide the continuing excitement of the facility and make sure that the awe of Yellowstone and the ecosystem continues to be pushed at people who are coming through? Have you got the energy and the money to keep the place doing that job? And I think this is relevant to say: can you persuade people on a different turf, that is the park people, that you're a complement not a competitor? And no, this can't replace the real thing, but the real thing can't give what this gives to the average visitor. I don't know if that answers your question.

During the Draper Museum opening ceremony, left to right: Draper Museum Curator Charles Preston; BBHC Executive Director Charles Shimp; Richard Leakey; former U.S. Senator and present BBHC Chairman of the Board Alan Simpson. NPS photo.

YS: It does. The interpretive rangers who work in the park's visitor centers would agree that many people just come in to find the Coke machine or the bathroom, but they would add that many others have real questions and real excitement, and are looking for help to learn about the place.

RL: Absolutely.

YS: And the visitors who hurry through don't necessarily get that depth.

RL: That's right. And this [museum] could provide a lot of that.

YS: You mentioned potential competition between the educational efforts of the park and those of the Buffalo Bill Historical Center. Of course traditionally there are sometimes tensions and occasional controversy between park managers and surrounding communities, but you will be pleased to know that the specialists in education in the park and the specialists here at the Buffalo Bill Historical Center are on very good terms.

RL: Yes, I'm sure that's the case, and I've seen this in other countries including my own. And that's the important thing.

The politics of administration and leadership of institutions and communities is in part a turf issue of course, and I've played that game too. I know what that's about. If you've attended the various functions where I've spoken, I think you'll appreciate that one of the points I've tried to make is that I come at this question [only] partly as a scientist. I'm a farmer; I've put quite a bit of money into land. I've been a politician, and I've been an administrator at the highest level you get, so I've seen this sort of issue from every corner of the box. And I understand the difficulties. I think it's very challenging.

Yellowstone and the Perception of Nature

YS: During the speeches you've given this week, you've said that when you were young you heard of Yellowstone and found a certain inspiration in knowing that Yellowstone was this

Scientific debate continues over the ecological similarities and differences between African wildland parks and Yellowstone, but they have become almost interchangeable as symbols of the conservation of large predator-prey systems. Left: Amboseli National Park, Kenya, Darren Ireland photo. Right: Hayden Valley, Yellowstone Park, Renée Evanoff photo.

formative force in the early conservation movement. We think it is significant that Yellowstone now often benefits from other parks in return. Yellowstone's role has changed. Where other nations once referred to their premier park as their "Yellowstone," now Yellowstone is sometimes referred to as the "American Serengeti." As another example, for the past several years Yellowstone has been working with Costa Rica to learn more about the legal and political implications of bioprospecting.

RL: There are some very interesting licensing agreement questions, I'm aware.

YS: Right. And we also imagine we can learn from the African parks. In Yellowstone we deal constantly with the very emotional issue of death in the natural world. Many Americans still tend to like their natural world to be tidy and well-mannered, and natural violence often shocks them, whether from fire or predation or any other cause, including the deaths of winter-weakened animals. Can you offer us any words of encouragement, from your African experience, on how to address these issues so people understand them better?

RL: I would have thought that the exposure of predator-prey interaction and the kills that predators make and people watch—the tearing apart of carcasses and flesh—this surely is something that if any visitor goes to an African park, that's what they want to see. They want to see a cheetah kill. I think basically that's easy.

I think the problem with perception is in the role of fire. I think there are plenty of arguments around as to whether parks should be fired or allowed to fire, or what is the management regime policy that you want to adopt. And I think those are going to be issues that will continue to raise sentiment. But I think it is quite clear that a very good argument can be made for the beneficial effects of fire on certain habitats.

> ***"...the idea of nature being a balance is nonsense. If we had [balance] there would be no nature. It is the imbalance that provides the dynamic for diversity."***

YS: We've made it, or at least tried to.

RL: Yeah, and I think one of the points that needs to be made, and I think now it is beginning to happen more than it was 20 years ago is that clearly Yellowstone National Park as an entity needs a little extension in terms of area, particularly in winter foraging [lands], which are currently taken up by irrigated agriculture and ranchers. I think the fact that organizations such as the Nature Conservancy are beginning to get into negotiating easements and next-generation property rights is very positive, because you will make it easier for people to understand that a fire can be beneficial and there are other places these animals can move to as these places regenerate.

YS: But it is only part of the equation we face in reconciling the public to the realities of nature. In 1988, we had enormous fires. They were within the known size range of historical fires here, but they were shocking. Then, the following winter was the first reasonably severe winter in several years. The grazing animals lost forage to the fires, then, after several easy winters were faced with more severe winter conditions that they were not physiologically prepared for. Ecological circumstances kind of ganged up on the wildlife.

RL: Of course. This happens in many countries.

YS: Most of us in America were raised to think of nature as a smoothly functioning machine. Yellowstone has been teaching us otherwise.

RL: As you well know, the idea of nature being a balance is nonsense. If we had [balance] there would be no

nature. It is the imbalance that provides the dynamic for diversity.

Yellowstone as a Global Asset

YS: You have spoken out for the global significance of reserves like Yellowstone, but in reality a national park has many constituencies. International, national, regional, and local interest groups are often at odds in what they regard as "best" for Yellowstone. Managers of American national parks, including Yellowstone, are usually in the middle of these debates and, in effect, function almost as arbiters. Presumably that is the same in Africa.

RL: Yes, but I think if you step away from Yellowstone being the sort of property of the people who live around it, you see that Yellowstone is in fact the property of America, the United States. And indeed it is part of the globe's assets. And it would be, you know, understandable but nonetheless very selfish to perpetuate the myth that this is a local activity, any more than the Serengeti is. There are obligations. And the constituency is not your ranchers. They are part of your constituency, but the people in Nairobi, probably are entitled to feel that they are part of the same constituency, you see, ensuring that this ecosystem is sustained. That's a shift in thinking.

YS: That is a hard shift to accomplish.

RL: It *is* a hard shift but it's a hard shift because this is a very conservative area. I can understand people getting upset if wolves eat their stock, but you know, at the end of the day, isn't it more important to have wolves running free, and accommodate the people whose stock is being eaten?

YS: By the way, you have contributed to making that shift. In your speeches this week you have offered such hearty congratulations to the regional people who worked so hard to create this wonderful museum—a museum that interprets Yellowstone as part of a globally significant ecosystem—that you have almost certainly helped some skeptical people better rationalize the museum's message, when up to now they may not have been sure they agreed with it.

RL: I know. Several people have said that to me.

YS: Yellowstone's problems often seem irresolvable, and vast amounts of energy and money go into trying to settle them. But over the past few days, at least some of the people who have listened to you describe the problems and issues facing Kenyan parks must have paused to wonder: we must seem like real whiners to you. By comparison to Kenya, we Americans have great luxuries, not only in the wealth of wild lands and wild animals but also in the economic and legal wherewithal to care for them.

RL: It is very true. Yeah. I mean, you know, if a troop of baboons comes onto your property, they can destroy everything. Fast. And then you talk about a herd of elephants, or a herd of African buffalo, and it's hopeless.

YS: That leads back to this matter of how the national park gets along with its neighbors, and for that matter with its former tenants. In one of your speeches, you brought up the long tradition of guilt that plagues many national parks. Either there is guilt because the land was originally "stolen" from Native Americans, or from white people who themselves took it from Native Americans, or in some other way someone is believed to have suffered loss for the sake of creating the park.

RL: Absolutely right. And it doesn't help make policy if you're doing it on a defensive starting point. And, you know, one has to say, thank God somebody *did* think of stealing this land from somebody else, because if they hadn't we wouldn't have it today. That's the bottom line, isn't it?

If you look at what's happened to the rest of the country, and it has been taken over by motor bikes and trail riders and agriculture and irrigation, etcetera, thank goodness somebody

continues on page 14

Whether it is the bison of Yellowstone or the buffalo of Africa, wildlife of this size and nature are a force to be reckoned with. These African buffalo are enjoying a mineral dig in the Aberdares Mountains in Kenya. Darren Ireland photo. The Yellowstone bison are grazing Yellowstone's Lamar Valley. Renée Evanoff photo.

Above, Ms. Nancy-Carroll Draper, primary benefactress of the new Draper Museum of Natural History. Above right, Ms. Draper releasing monarch butterflies during opening ceremonies. Middle, wide view of the front of the Buffalo Bill Historical Center, with the new wing housing the Draper Museum on the left. BBHC photos.

DRAPER MUSEUM OF NA

On June 4, 2002, the Draper Museum of Natural History joined the four other museums in the Buffalo Bill Historical Center (BBHC) complex in Cody, Wyoming. The seventeen-million-dollar facility, termed by a variety of speakers as "the first natural history museum of the twenty-first century," celebrates the complex natural and cultural landscapes of the Greater Yellowstone Ecosystem. In delivering the keynote address at the opening ceremony, Kenyan scientist-conservationist Richard Leakey, himself former director of the National Museums of Kenya, said that "This museum will be the envy of great cities and countries around the world."

If that seems a trifle hyperbolic, the exhibits themselves provide considerable support for Leakey's claim. The BBHC now has seven acres under the roofs of its five museums and research library, and the Draper occupies a substantial share of that acreage. The roughly 30,000 square feet of exhibit, gallery, and classroom spaces in the Draper Museum are designed around a four-story rotunda. Visitors enter through an "Expedition Trailhead," featuring two log cabins: one a "field station classroom" and the other a "naturalist's study" that celebrates the Muries, the Craigheads, and other famed Yellowstone-area researchers and historical figures. A 3,700 square-foot photography gallery branches off the trailhead.

Sculptor T.D. Kelsey's life-size portrayal of bison suspended in mid-fall in a buffalo-jump exhibit. BBHC photo.

From the trailhead, visitors enter the top of the Grand Hall, passing through a variety of interactive exhibits about alpine life, and then descending ramps through various life zones. They find a dense yet hospitable array of exhibits and educational opportunities, including a life-size depiction of a buffalo jump featuring a massive sculpture of airborne bison in mid-fall from a cliff (their remains appear in a re-created archaeological site at the bottom).

At every turn, ecological information mingles with the interests, passions, and effects of human culture in the greater Yellowstone setting. Classrooms and a theatre branch off from the Grand Hall here and there, indicating the strong educational outreach component of both the Draper and the BBHC. The large circular floor of the Grand Hall is a colorfully-tiled map of the Greater Yellowstone Ecosystem that attracts a steady flow of visitors to trace

Above left; the Honorable Alan Simpson, BBHC Chairman of the Board of Trustees, delivering remarks during the opening ceremony. NPS photo. Above, a portion of the high-elevation landscape exhibit with moun - tain goat and bighorn sheep mounts. BBHC photo.

L HISTORY OPENS IN CODY

their own travel routes across the landscape (underlying photo, BBHC).

Visitors encounter not only the wonder and beauty of nature, but also the complexities of human relationships with the ecosystem—the continuing puzzle of the great Pleistocene extinctions; conflicts between native and non-native ungulates in modern greater Yellowstone; controversies over the restoration of predators; possible effects of global warming on regional plant species abundance and distribution; and impacts of agriculture and other industries on the setting.

The opening ceremony, held in front of the main entrance to the BBHC, featured a variety of luminaries. Sportscaster and Wyoming native Curt Gowdy was master of ceremonies. Former Wyoming Senator Alan K. Simpson, now Chairman of the Board of the BBHC, paid special tribute to the Draper's primary benefactress, Nancy-Carroll Draper, whose brief, emotional remarks about the dream that the museum represented for so many people were met with a standing ovation.

The ceremony was not without its own natural history. Simpson and Draper opened a large trunk to release 250 monarch butterflies that quickly scattered to settle on the hats of the crowd. And, more in keeping with the unpredictability of nature in greater Yellowstone: when an eagle, provided by Hawkquest of Denver, Colorado, was brought on stage during the opening of the ceremony, it immediately attracted two irate crows. The crows perched on the peak of the BBHC directly behind the podium, and spent the entire ceremony circling over the crowd and loudly objecting to the eagle even after it was taken from the stage (a scheduled flight of the eagle was cancelled due to the probable opposition of the crows).

At once, the Draper Museum becomes the foremost educational force in interpreting the character and history of the Greater Yellowstone Ecosystem. It likewise complements the other BBHC facilities—The Plains Indian Museum, the Cody Firearms Museum, the Buffalo Bill Museum, and the Whitney Gallery of Western Art, as well as the McCracken Research Library—in providing a well-rounded celebration of this region.

The opening ceremony proceeds while two crows watch from peak of BBHC roof. NPS photo.

said, well it's not going to happen here. Because that's for the good of everybody.

YS: Most conservationists would agree, but there is an historical tendency of hostility and suspicion among regional people, especially in communities whose activities and economic fortunes are directly tied to the fate of a nearby national park. This is a universal situation near National Park Service areas all over the United States. How does that work in Africa? How do your border towns relate to the parks? How much say do they have in management?

RL: Well, it's certainly very much part of the debate in Africa, the role of communities adjacent to parks as stakeholders. I would take a tougher line than I used to and say that, yeah, I understand they're stakeholders, but the people who live around a nuclear reactor are theoretically stakeholders, and the people who live around a hydroelectric dam setup are stakeholders. Why is it that national parks have to bend over backwards to give the local community greater rights, or access, or benefit, when none of the other national enterprises that benefit the whole country are similarly taxed with a double level of involvement?

And I think it's this guilt thing. I think that it's different here [in the United States], but perhaps not that different. I mean, we clearly wouldn't have kept this environment as it is if it hadn't been the park.

YS: It does seem mostly likely that without the federal reservation of the park so long ago, the Yellowstone Plateau would now be settled and its various resources intensively and commercially developed.

RL: Yeah. And maybe they [local interests] are enlightened today, but they're enlightened today because there's an example to be enlightened on.

You know, you can't now reverse the clock. It's a pity. But certain people say, well the Maasai have lived with wildlife for centuries; why are you telling them they can't interact? Well, of course they have, and indeed the wildlife survived because they didn't interfere with it. They didn't interfere with it because they didn't need to. They didn't have to put children through college, and buy medications for their mother-in-law, and run a vehicle, and insure it. But once you get into a modern economy, once you get into the dynamics of being part of a twenty-first century economic enterprise state, you can't any longer live with the values you had before. Sadly.

The interests of indigenous peoples, such as these Maasai in Tanzania must be addressed by modern park managers. Photo courtesy of Kerry Murphy.

It used to be sufficient for people to harvest the forest. But there were less than a tenth of the people wishing to harvest it, and they weren't harvesting it to sell hardwood timber to make coffins for people on the west coast of America. Now, cutting down one tree per person per year doesn't pay the bills. They need to cut down a hundred trees. And there are a hundred times more people than there were then. So you can't change one side of the equation and not the other.

YS: In the past 10 years or so, we've witnessed a heartening political and social process in greater Yellowstone, in which Native American tribes have been re-enfranchised in the dialogues over the management of the park. But it has also pointed out what you have just described, that so far there seems to be no equitable or politically palatable way to "restore" those cultures to this landscape.

RL: It can't be done. It's a pity, but it can't be done.

YS: A intriguing element of the relationship between some national parks and native peoples in this country. especially in Alaska, is subsistence hunting. You certainly have subsistence hunting in Kenya.

RL: But not in national parks. You know, I guess it's not unlike this argument that the Inuits or some of the Indian indigenous people of the Arctic Circle should be allowed to continue clobbering whales. Yeah, but there is no glory in slaughtering a whale today. These people are driving around on snowmobiles, using outboard motors; they're not traditional any more.

YS: But they would argue that the tradition survives despite the changed technology, and that their culture hasn't fundamentally changed just because they have fancier tools. They would argue that they're still who they were.

RL: We're *all* still who we were. I have a friend who's a very erudite, highly educated man. Full-blood Maasai. And you know, he says, "What is all this talk about traditional people? Who are these traditional people? Why am I any less traditional? Why am I, [with a] heritage of Maasai blood going back six hundred years, why is it that I have to wear a cloak and a fly whisk to be considered to have a stakeholding in this matter? Does my suit offend?"

So he's who *he* was. Isn't that the same thing?

The Role of Scientists in National Parks

YS: In your book, *Wildlife Wars*, you talk about several biologists you've worked with who have made the choice to become advocates and political activists. Scientists in the United States seem very divided over whether or not they should engage in the political arena of resource conservation. How are these African scientist-advocates perceived by their colleagues? Has their activism affected their professional standing?

RL: I don't think there is any doubt at all that there is a role for everybody. Take Jane Goodall. She hasn't done any science in chimpanzees for many, many

years. And yet her advocacy—the desperate state of wild chimpanzees and the need to consider ways in which the great apes can be secured for the future—I mean, it's been enormously powerful.

YS: The world seems to agree that she's a hero of the highest order.

RL: And I think the scientists may have looked down on her when she started her advocacy, but I think today Jane is widely respected for having made an enormous contribution to changing the status of the chimps and other great apes to a point where the politics of their conservation are actually being discussed by politicians, which is how it should be.

And I think people like Cynthia Moss and Joyce Poole [elephant researchers in Kenya] and others are doing the same thing in other areas, so I think one has to be very careful. I wouldn't want to criticize those scientists who are simply committed to trying to understand systems and produce evidence upon which policy can be made. That is a very valuable and significant role. But at the same time, they [scientists] are human, and they are constituents, and they may have at times a point of view, and I think those who do go into advocacy are to be encouraged.

I think where people go wrong is that they often suggest that their [scientists'] advocacy should be more relevant because they are scientific. I don't agree. You don't have to be scientific to be relevant. And so we tend to be a little more polarized than is necessary. And I think some of the African scientists have done tremendous things for the good of wildlife. I don't look down on them. I strongly encourage them. But you know, it's very rare that you have time to do both for very long. You have to do one or the other. Without being in any way putting it down, I mean there is a certain cynicism in it, if you look at the skills of writing grant applications. I mean, even the purest scientist is having to be quite skilled at advocacy.

YS: Let's move from the philosophical to the more immediately practical. As in most American national parks, managers in Yellowstone are required by law to know a great deal about certain animal species, in order to manage them according to legislative mandates. This often involves attaching some pretty substantial technology to the individual animals. As long as there have been radio collars and other tags and markers in Yellowstone, there has been debate over their appropriateness. Is this an issue in Kenya?

> ***"You don't have to be scientific to be relevant."***

RL: Oh, yes. The debate is equally heated and I'm very ambivalent. I think the research has to be done and I think it's important for us to know the answers to a lot of these questions that do require intervention. What I'm not sure is whether a lot of this scientific work has to be done on the same "patch" [of land] as your prime wildlife photography and tourism. And I think that in some of the larger parks a little more effort could be made to tag animals that are not going to be seen every day by hundreds of visitors.

I mean, there's no question that people do get annoyed if they photograph a rhino and it's got an orange collar on it. They didn't come all that way to do that. And yeah, it is important that the rhino's movements be understood, but I think there needs to be a little more sensitivity about the value of the public appreciation. Because we're in a market. I think if you're watching a group of wild dogs and some scientist comes over the horizon and starts shooting them with darts, [you are right to say] what the hell's going on here, I came from the other side of the world to see these animals, and what are you doing? Go and do it somewhere else. So there are both sides to the story.

YS: On the positive side, here in Yellowstone, visitors could easily encounter several researchers in the course of their visit, and with a little luck may come away with a heightened understanding of the animals, or of why the information matters so much here.

RL: But you know we don't [want to] do it to death. There is always a danger, [and I'm speaking] as a previous administrator, that we're so busy gathering data that we don't actually ever understand what the data is telling us as managers. We lose sight of the core business. And I think it's always important to try to keep a balance.

Experiencing Wildlife in Parks

YS: One of the most interesting aspects of wildlife appreciation in Yellowstone involves what might be called a personality cult of the wild animal. Ever since the early days of roadside bear feeding, visitors have come to know a surprising number of Yellowstone animals as individuals. Today, there are grizzly bears and wolves that park visitors have in some cases literally watched grow up. Does that sort of familiarity with individual wild animals happen in your parks?

RL: I think much less so. We have very few repeat visitors in our national parks; so many of our visitors are overseas tourists who come once.

YS: But your guides probably know some animals more specifically?

RL: Guides may know.

YS: In a way, those animals that are so well known, even if they are still living entirely without human assistance, such as feeding, are kind of the sacrificial animals in the population. Their role, in the big picture of park management, is to be habituated enough to make it possible for us to get this extraordinary glimpse into the life of the wild. But any time an animal is placed in that position it seems that some of its wildness—its remoteness from us—might be compromised.

RL: I think that's true, but ultimately, you know, a modern state has to have soldiers and politicians and doctors, and some of these animals are contributing to the good of their species.

YS: It is true that they are serving rather like emissaries from their species to ours.

RL: That's right. One has to be realistic, you know? They're part of the team.

YS: Another element of the visitor

experience of wildlife involves professional photographers and filmers. Everybody has a camera any more, but we're talking here about the commercial enterprises that are attracted to national parks for ease of access to remarkable wildlife viewing. How do you deal with that use in Kenyan parks?

RL: Again, in Kenya it is slightly different. I think we've been slightly too mercenary in putting a financial price on access and I think we often forget that good photographs and good films sell the product, and we are dependent on visitors, and we should not underestimate the advantages we're getting without just the money.

Perhaps a second aspect is [that] some of these [Kenyan park] areas are for those who want to off-road drive. They create precedents and a lot of photographers want to do things that are possibly more dangerous than they would be here. There are many more dangerous species in an African park, and it does require a degree of knowledge and experience to get away with walking in some of these areas on foot to get the buffalo, rhino, elephant. At the end of the day, bad publicity arises from somebody getting trampled or gored and so one is careful.

But we do make concessions. I don't know if you take the *National Geographic*, but there was a Mzima Springs article [November 2001] with underwater pictures of hippo and different fish. They had special access to one of the springs that the public can't visit, and were there for a year and a half. And so we do facilitate that sort of thing. [But] if someone wants to make a commercial ad for a four-wheel drive vehicle against a backdrop of spectacular wildlife and scenery, then we make them pay for that.

YS: So do we. Another interesting complication of managing large wild animals is human safety. One of the most dramatic differences in North American and Kenyan wildlife experiences is that we rarely have someone killed by an animal, especially in the parks.

RL: I think we have much more, absolutely, not necessarily photographers, but the number of people killed by wildlife incidents is I should think 150 or 200 a year—buffalo, rhino, and so on. It's very common.

YS: In your book, *Wildlife Wars*, you describe the revelation you experienced in Amboseli National Park in southern Kenya, when elephant researcher Joyce Poole drove you into the midst of a family of elephants. At the time, Poole was being criticized by other ecologists for introducing too much "sentiment" into her scientific study, and treating her study subjects too much like they were people. Here is what you said:

> *For the first time, though, I realized that my job involved far more than merely ensuring that a certain number of elephants continued to exist in our parks. KWS was doing much more than that: we were protecting sentient creatures with babies and sisters and families. I fell asleep laughing at myself. In the space of one hour, I had become a "sentimental" convert.*

That statement resonates powerfully in today's Yellowstone. As that kind of sensitivity increases, do you think it's likely that we'll reach the point in national parks that we will value animal lives as much as human lives? Will civilized society eventual conclude that a human's life in greater Yellowstone is worth no more than a grizzly bear's life?

RL: I wouldn't have thought so. I am sure people come out and say that, but it doesn't mean it's true.

It's very different to say that an animal's life has no value and only a human life does have value. I don't think there's any question that if we were a group of people together, and we were given an opportunity to help somebody, we would choose to help our family first. It doesn't make them any more valuable. You do something to save your child or your wife or your cousins, before Joe Doe over the hill, and certainly you, as Americans, would do more to look after Americans than you would to look after Kenyans.

I also think this is possibly a consequence of nothing less than the Judeo-Christian theology to have dominion over the earth, and to have that great chasm between us and them. I think what we do is say that it's not a chasm,

Wildlife (such as this lioness on a zebra kill in Masai Mara National Reserve, Kenya) kill hundreds of humans in Kenya each year. Such extensive loss of human life is a significant difference between African and North American national parks. Darren Ireland photo.

A magestic African elephant, photographed in the Samburu Reserve Kenya. Kerry Murphy photo.

it's part of a continuum, but it's not going to drive me to only eating lettuce. I can tell you, I'm part of the food chain. I enjoy being part of the food chain, and there it is. But it doesn't mean that I don't have a far greater appreciation in the way I conduct my life and my job when it comes to looking after my responsibilities to know that an elephant is much more than simply a four-legged chunk of meat.

But this is true of civil rights, you know. There were those people who had the temerity to suggest the slaves shouldn't be slaves–that there was something fundamentally wrong in putting people in servitude and bondage. But others said, where are we going? [They asked] Where is this leading? Then you want good race relations—where's that taking us? I don't think it's any different. I think it's just an increasingly enormously valuable storehouse of knowledge that successive generations of humans are gaining.

[Saying these wild animals have] "Personality" is wrong. They have character. They have a degree of cognition that we never suspected. Now, I think that it is quite clear that a bison has sentimental feeling, but perhaps less humor than some of the social primates.

YS: Or than the wolves.

RL: Or than the wolves. But you know, as we learn more we can put some of these things in better perspective. I'm not sure if you shoot a bison that the rest of the troop feels the loss. But I'm pretty sure that if you shoot out a wolf in a pack you have a far bigger impact than with bison. And I think with elephants it's more certain, and with chimpanzees it's much more significant. With humans it is even more significant. So I don't think we should be ashamed of being aware [of it].

> ***"...what humans have done to humans is outrageous, [as is] what we continue to do to our environment, including what we continue to do to the other species who live in it. I'm not sure it's*** **equally** ***outrageous. What is equal?"***

And yes, the old timers don't want any sentimentality and they accuse you of anthropomorphism. Well, anthropomorphism isn't a package you get from somewhere else. It's a concept. And many of our behavioral traits we're beginning to see in other creatures. I think it's a little arrogant to think [these observations are] anthropomorphic, but that's the only way we can describe them. Our vocabulary is tied to our own experience. You know, what humans have done to humans is outrageous, [as is] what we continue to do to our environment, including what we continue to do to the other species who live in it. I'm not sure it's *equally* outrageous. What is equal?

Parting Advice

YS: It's clear from the story you tell in *Wildlife Wars* that as director of wildlife management in Kenya you were able to take a thoroughly disenchanted and discouraged government department and—after you'd dismissed the corrupt people—turn it into a vital, productive agency that did its job with energy and a great deal of pride. What advice would you offer today's park managers and staff, to help them keep their hopes and spirits high?

RL: I think everybody works for somebody somewhere. And I think it behooves those who have people working under them to make everybody feel part of the team and to appreciate other people's efforts. I think it's when the hierarchy of management [honors] the individual sacrifice and commitment that people are making, and when people are rewarded for that commitment—not necessarily financially but by the right words and the right actions—that you can build a much stronger team that will go through much greater difficulty than if everybody's just punching a number. That's what I would say. It is a collective effort.

Photo courtesy of Roger Anderson.

Wolf #7: The Passing of a Matriarch

by Douglas W. Smith

Before wolves were reintroduced to Yellowstone in 1995—when there were no wolves "out there"—it was natural to imagine that a few individual wolves would have inordinate importance. We wondered over those first few wolves and guessed what would happen, but, as expected, the stories spun by the wolves themselves were much, much better. Such is the case with wolf #7.

Wolf #7 was one of those first wolves, and this is her story. It cannot be told, however, without invoking another wolf, #9, the best known of all wolves in the reintroduction effort, and the mother of #7. Through 1999, 79% of all wolves in Yellowstone were related to this founder wolf, a staggering number. The contribution of #9 to the restoration of wolves here is a rich story that will forever secure her place in the annals of Yellowstone. The story of her daughter, #7, while more unsung, also needs to be told, and especially now, because we found her dead this last May, killed by other wolves. It is timely to review her legacy to wolf restoration in Yellowstone.

Number 7 came from Alberta with the first shipment of wolves to Yellowstone on January 12, 1995. She was captured in a neck snare, destined for the stretching board, but then was rescued for reintroduction into Yellowstone. She was radio collared and rereleased into her pack to be used as a "Judas" wolf. Judas wolves were named such because they revealed the locations of their fellow wolves, which could also be captured and used in the reintroduction effort. She was captured a second time a week later with her packmates, an experience she learned from well, as it took us three years to recapture her in Yellowstone to replace her failing radio collar.

She was acclimated with her mother, #9, in the Rose Creek pen behind the Buffalo Ranch in Lamar Valley. Male wolf #10 was introduced to the mother-daughter pair one week later, but apparently #7 only endured this pen matchmaking. She left as soon as she could when the wolves were released from the pen in late March 1995. She wandered nine months alone.

In January 1996 she found #2, a dispersing Crystal Creek wolf on Blacktail Deer Plateau. Their pairing represented the first naturally forming wolf pack in Yellowstone's new wolf era—all the other packs had been reintroduced as packs. To commemorate the event we named them the Leopold pack. Aldo Leopold recommended wolf reintroduction to Yellowstone in 1944, an event we felt worthy of recognition.

The pair had three pups that first year and went on to have six more litters together. Over the course of her life, # 7 gave birth to at least 39 pups, of which at least 29 survived to become yearlings. By 1998 the pack had 13 wolves, and from 1998 through 2002 her pack size varied less than any other pack for that time period ranging from 11 to 14. During four of those years it was 13 or 14 wolves. Their territory also changed little over the years; it was probably the most stable of any pack in the ecosystem. Blacktail Deer Plateau was Leopold turf, and they never left Yellowstone National Park.

The offspring #7 produced also did well. A daughter dispersed nearby and formed the Swan Lake pack—coexisting as a neighbor peacefully because of extensive knowledge of her mother's territory accompanied with a knowledge of how to avoid her mother's pack—only rarely were they located near each other. Border skirmishes among wolves can be ferocious and fatal, but were unrecorded for these two packs. Another daughter dispersed and started the Cougar Creek pack near West Yellowstone. A son left and traveled the closest of any wolf to Bozeman, Montana, within eight miles, but soon after he disappeared, not to be found again.

Number 7 looked small but was actually big, weighing 115 pounds in 2000. Her legs were short, making her

look petite, but she had a stout body. She also probably seemed small because her leadership of the pack was not overt, but rather had a subdued, gentle touch to it. Contrast this with wolf #40, who ruled by aggression and ultimately was killed by her packmates. Within a few days watching, a novice observer could identify #7 because of this quiet nature, which was observable in the wolves around her due to their deference. Her gray color had a reddish tint, a trait she passed on to most of her gray pups, which made them annoyingly hard to identify, but we could always pick her out because of her distinctive behavior—a dead giveaway.

While other wolves changed mates frequently, with multiple mates in the same breeding season at times, #7 always had only one mate and one litter each year. Her black mate, #2, visibly grayed as he aged, but she did not, or if she did, her graying went unnoticed amid her gray coat.

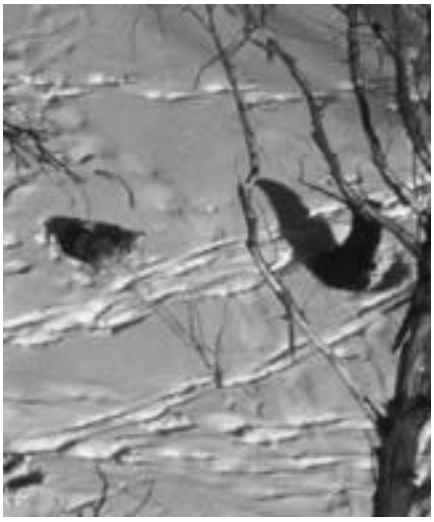
She was found dead during a tracking flight on May 12, 2002; her radio collar was in mortality mode, beeping at twice the normal rate. We hiked in the next day and located her carcass. At the time of her death she had a litter of six, one-month old, pups that she was still nursing. Her teats were visible and it was evident that they were being used. Some worry ensued over the fate of the pups because normally pups are weaned gradually, but it was clear that this year's pups were weaned "cold turkey." In June, we saw six rambunctious pups mobbing a non-lactating female who patiently endured their wishful attempts. They made it, and as of this writing (August 2002) continue to do well.

We found her dead near where another pack had denned. A new pack had formed from a fragmentation of the large Druid Peak pack. We suspect they killed her because they were nearby, and there was an elk kill they made even nearer. It is known that alpha wolves are preferentially attacked when wolves do battle. They are more valuable to the pack, and hence, for rivals it is like taking out a general rather than a lieutenant. So far it looks like the Leopold Pack will survive and #2 will carry on. Now only two wolves, #2 and #42, are left from the original 31 reintroduced.

Number 7 was eight when she died, old by wolf standards. And when stories about Yellowstone wolves are old by the standards of stories, hers will still be among them.

A natural ending to a legendary matriarch of Yellowstone's fascinating wolf poplation. NPS photos.

A very rare aerial photo of #7 nursing her pups, and below, #7 and her mate, #2. Their pairing represented the first naturally forming wolf pack in Yellowstone's wolf restoration era.



Douglas Smith is currently the project leader of the Yellowstone Gray Wolf Restoration Project in Yellowstone National Park. He worked as biologist for the project from 1994 to 1997 and has been with the program since its inception.

Doug has studied wolves for 23 years; prior to Yellowstone, he worked with wolves on Isle Royale from 1979 to 1992 and in Minnesota in 1983. He received his Bachelor of Science in Wildlife Biology from the University of Idaho in 1985, and his coursework and fieldwork from 1985 to 1988 earned him a Master of Science in Biology from Michigan Technological University. Smith received his Ph.D. from the University of Nevada, Reno, in the program of Ecology, Evolution, and Conservation Biology. He has produced numerous publications and has lectured widely on wolves and beavers. He co-authored the book The Wolves of Yellowstone*, a chronology of the first two years of the wolf restoration effort in Yellowstone National Park. Doug is an avid canoeist, having run many wild and remote rivers within Alaska, Ontario, Nunuvut, Yukon, and Northwest Territories. He and his wife, Christine, make their home in Gardiner, Montana.*

Continuum of Yellowstone's Land Managers Deliberate the Complexities of Preservation

Some of those attending the spring 2002 government-to-government consultation meeting. Frank Walker and John Varley pictured upper right corner. NPS photo. Below: Elaine Hale and John Varley from YCR with Darrin Old Coyote and George Reed of the Crow Tribe at Obsidian Cliff. Sandra Nykerk photo.

On May 29–30, 2002, Yellowstone National Park continued its tradition, inaugurated in 1998, of regularly consulting with governmental representatives from affiliated and bison-interested American Indian tribes. At this spring meeting, 15 representatives attended from the Comanche Tribe, Confederated Salish and Kootenai Tribes, Crow Tribe, Eastern Shoshone Tribe, Kaibab Paiute Indian Tribe of Utah, Northern Cheyenne Tribe, and the Shoshone-Bannock Tribes. Representatives from the Intertribal Bison Cooperative (ITBC) also were present; ITBC represents over 50 tribes across the nation, all proud owners of buffalo herds. Assistant Superintendent Frank Walker and other park staff were active participants.

Tribal sovereignty, and the special tribal-federal government relationship of ward and trustee, elucidated by an 1832 Supreme Court decision, directly defines a relationship between tribes and the federal government that is not shared by the general public. Hence, the need exists to approach and deal with Indian tribes differently than we do the general public.

Yellowstone acknowledges its millennia-long, multifaceted American Indian past, as well as the role its resources play in maintaining the diversity of tribal traditions. A mutual interest exists in cultural preservation: tribes desire that certain traditions survive, and the National Park Service wants to assist such preservation as part of their mandate to preserve cultural resources (what we refer to as "ethnographic resources"). At the government-to-government meeting, Tony Incashola, Director of the Salish-Pend d'Oreille Culture Committee, reminded park officials, "You maintain the medicinal plants, the food plants, and the animals, those that are important to our way of life as Indian Nations. Whether you realize it or not, as park officials, as park rangers, as caretakers, you play an important part now, in the survival of tribal people."

How Yellowstone, along with other federal and state agencies, manages the park's buffalo was by far the most popular topic at the meeting. Elders first, and then other individuals from each tribe spoke about the buffalo as a way of life. Other topics discussed included how to increase visitor education (interpretation) of American Indians' connection with Yellowstone, long-term road reconstruction efforts and their impacts on tribal resources, summer archaeological excavations, and the dilemma of managing Obsidian Cliff, described below.

Tony Incashola, Director of the Salish-Pend d'Oreille Culture Committee. Sandra Nykerk photo.

Several attendees accompanied park staff on field trips. Rick Wallen, of the Bison Management Office, led a group to see the park's bison herds. The other trip, to Obsidian Cliff National Historic Landmark, was led by John Varley, Director of the Yellowstone Center for Resources, who said he was honored to talk about the Cliff, which is "one of my favorite places, just because the history reaches up and grabs ahold of you."

Varley then engaged those attending in a dialogue about ways to protect and interpret the site, given the importance of this place to Indians and the fact that many people yearn to remove obsidian as souvenirs of the park. Native representatives expressed a desire to work

with the park on a policy to allow collecting for traditional purposes. Assistant Superintendent Walker responded that park staff would work with tribes to develop a process best for all concerned, one that is respectful of the National Park Service mission and simultaneously considers the obligations of the federal government toward Indian tribes. In recent years, tribes have requested permission to collect items including bison skulls, plants, thermal mud, and obsidian for traditional, including ceremonial, purposes. The requests have been handled on a case-by-case basis with some permissions granted and most others met by offering alternative sites outside the park where such items could be obtained. Park staff should refer requests for collecting and questions about conducting traditional ceremonies to cultural anthropologist Rosemary Sucec at (307) 344-2229.

Walker reiterated the terms of the entrance fee exemption for affiliated tribes instituted in the fall of last year. The policy permits a waiver of the recreation fee charged at the entrance gates, to allow affiliated tribal members to enter the park for ceremonial purposes. Other regional parks have similar policies, including Glacier National Park and Craters of the Moon National Monument.

In June, Crow elder, historian, and religious leader Grant Bull Tail spent several days at many park sites relaying the oral history of the Mountain Crows' time in what is now Yellowstone National Park. The Crow are believed to have come into the area as early as the 1500s, during a time we know as the Little Ice Age. The 1851 Treaty of Fort Laramie recognized the eastern portion of the park, from Yellowstone Lake along the Continental Divide, as Crow aboriginal territory. Mr. Bull Tail told park personnel that the Yellowstone Plateau was used as a mountain summer home for the Crow, also known as Sheepeaters (a name that applies to Mountain Shoshone, too). He said that what is now the park would be entered from the east, at Cody, as if entering a tipi. Petition for entrance was made to

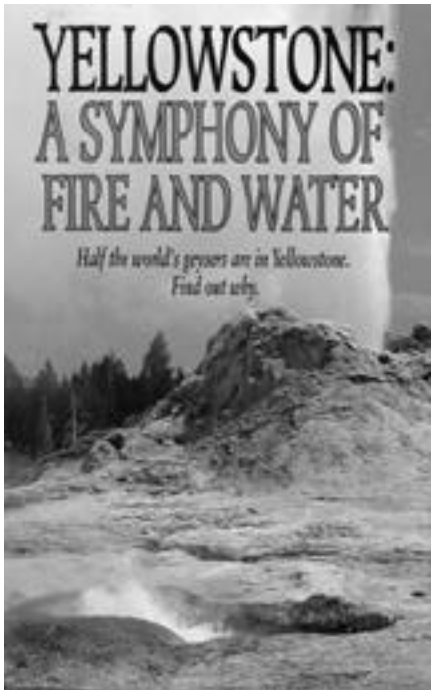
Grant Bull Tail at Dragon's Mouth, Yellowstone National Park. Rosemary Sucec photo.

the patron spirits. Once affirmed, the journey began along trails, some of which are now roads, as well as rivers, in a clockwise direction. Family groups passed by Yellowstone Lake, over Craig Pass, and along the Firehole River. At what we know as the Bannock Trail but the Crow refer to as the Nez Perce Trail, they crossed over the Yellowstone River near Tower Junction. The proper way to exit was to retrace the same route by which they had come in.

Bull Tail also relayed a compelling epic saga of how a bright and skillful Crow hero courageously engaged the powerful and dangerous forces of nature here, once referred to as "monsters," to make the land safe for Crows to live. Yellowstone's contemporary land managers give different names to these forces that include a cataclysmic volcano, molten earth, hydrothermal basins, wildfires, and predators, and are charged with tending to this dynamic natural system while painstakingly deliberating the effects of their decisions with vested communities such as tribes who were once caretakers here. The saga of Yellowstone, in varied forms, continues. The park's reinvigorated relationships with native peoples is one that hopes to incorporate, in a balanced and measured fashion, the perspectives and needs of American Indians so that along with the park's biodiversity, the plethora of multicultural traditions engendered and nurtured in this unique environment can continue to be preserved.

New Wide-Screen Film Debuts at Old Faithful Visitor Center

Yellowstone National Park and the Yellowstone Association have released a new film explaining the park's geysers, hot springs, mudpots, and other hydrothermal features. The high-definition, wide-screen, surround-sound film has been two years in the making and was produced by Northern Light Productions of Boston. It is the first new film developed for a Yellowstone visitor center in more than 25 years and marks the beginning of the development of several new educational projects and programs focusing on Yellowstone's rare hot water features. Funding for the film was provided by the Yellowstone Association, which was founded in 1933 to provide educational products and services for park visitors.



Yellowstone: A Symphony of Fire and Water is shown throughout each day at the Old Faithful Visitor Center. The 14-minute film includes interviews with renowned geologists, spectacular cinematography of the park's various hydrothermal features, and animation showing how these features are fueled by a "hot spot" of molten rock that lies not far beneath the earth's surface in the Yellowstone area.

A 24-minute version of *Yellowstone: A Symphony of Fire and Water* is available for sale at visitor center bookstores, or by mail from the Yellowstone Association. The cost is $14.95. To order this item from the Yellowstone Association, call (877) 967-0090 or visit *www.YellowstoneAssociation.org.*

Ranger Adventure Hikes Program Expanded

This spring Yellowstone's Division of Interpretation announced the expansion of the Ranger Adventure Hikes program for 2002. Interpretive park rangers are offering ten, half-day hikes per week from June 17 through August 31. Hikes are offered at Old Faithful, Mammoth Hot Springs, and the Tower/Roosevelt areas, providing visitors with a more in-depth experience about Yellowstone National Park.

The Ranger Adventure Hikes program is offered as a fee activity. The price of this program is $15 for adults, $5 for kids aged 7 to 15, and free for kids six and under. These high-quality programs are limited to 15 participants per hike. Hikes rated from easy to difficult. Some hikes are not recommended for people with heart, breathing, or serious medical conditions. Program locations change daily. Information and tickets are only available in-person at the following NPS Visitor Centers: Old Faithful, Albright (Mammoth), Grant, Canyon, and Fishing Bridge. Tickets must be purchased prior to hike day.

Interpretive park ranger Bill Wengeler talking with visitors during a Ranger Adventure Hikes program. NPS photo.

The park has identified fee programs as those activities that go beyond the scope of the basic interpretive program, focus on programs that serve a small segment of park visitors, or tend to be relatively expensive to offer. These programs are beyond the park's ability to fund without recovering some of the costs. Fees charged go back into the program's budget and help offset staff and supply costs. Interpretive park rangers continue to offer more than 4,000 free walks, talks, and evening programs for the public each summer.

Yellowstone originally offered hikes as part of the interpretive program until the early 1990s. They were discontinued when the federal budget could no longer keep pace with operational needs. Yellowstone re-established a hike program during the 2001 season and received many favorable comments from participants.

Wayne Brewster Receives Resource Management Award

Yellowstone Center for Resources Deputy Director Wayne Brewster has been chosen as one of two recipients of the 2001 Director's Award for Resource Management. Nominated by his park colleagues, Wayne was selected on the basis of his leading role in resolving two precedent-setting issues in the NPS: the reintroduction of gray wolves to Yellowstone and central Idaho and the management of bison, *Brucella*, and livestock in the Greater Yellowstone Ecosystem. He was specifically recognized for his skills in the areas of leadership; logistics; NEPA; interagency cooperation and negotiation; and biological, social, legal and political analysis in situations of high complexity and virulent controversy that have important, widespread implications and ramifications for the NPS as a whole.

YCR Deputy Director Wayne Brewster with some very tired horses after a gru - eling climb in to a backcountry cabin. NPS photo.

Robert Johnson, research director at Everglades National Park, was the other award recipient. Wayne and Robert accepted their awards following the NPS's annual Natural Resource meeting, held in Tucson, Arizona on August 6, 2002. The meeting was held in conjunction with the joint annual meeting of the Ecological Society of America and the Society for Ecological Restoration.

New Courthouse Proposed

Yellowstone Park Superintendent Suzanne Lewis announced on May 7 that the park is soliciting public comments on the proposal for a courthouse to be built in the Mammoth Hot Springs area of Yellowstone National Park. Proposed building functions would include a courtroom, judge's chambers, interview rooms, ante room, temporary holding facility, law enforcement offices, and evidence and records storage areas. The building would be two stories high with a basement for a total of approximately 9000 square feet. The proposed building footprint would be approximately 3000 square feet. Several sites in the Mammoth area will be considered in the planning process, in conjunction with the requirements of the U.S. Courts and U.S. Marshal Service. The building would be funded through the NPS Line Item Construction program, U.S. Courts, and the U.S. Marshall Service.

The existing courthouse, located in the "Pagoda," has been determined to

be grossly inadequate in terms of space and security for the facility, judge, defendants, and all involved in courtroom proceedings. The NPS believes the building is no longer suitable for its purpose as a courtroom, but the building would continue to be used for offices by the North District ranger operation.

The comment period was extended through June 3, 2002. The EA should be available for public review in the winter of 2002–2003.

Brucellosis Symposium Scheduled

"Brucellosis in the Greater Yellowstone Area," a two-day symposium sponsored by the Greater Yellowstone Interagency Brucellosis Committee (GYIBC) will be held on September 17–18, 2002, at the Snow King Resort in Jackson, Wyoming. The purpose of this year's symposium is to provide information about the work and progress that the members of the GYIBC and other government and academic institutions have made on the brucellosis issue. Registration is $100 and is open to all interested parties. For more information, contact either Becky Russell at (307) 766-5616 or rrussell@uwyo.edu; or Terry Kreeger (307) 322-2571 or tekreege@wyoming.com. This event is hosted by the Wyoming Game and Fish Department.

New Framework for Winter Use of Parks Announced

On June 25th, a new proposed framework for a preferred alternative for winter use in Yellowstone and Grand Teton National Parks was announced by the parks. The two parks, plus the connecting Rockefeller Memorial Parkway, have been dealing with winter use issues for several decades. Debates over these issues came to a head on November 22, 2000, with the publication of a final environmental impact statement and record of decision (ROD) that called for the elimination of recreational snowmobile and snowplane use from the three-park area by the winter of 2003–2004.

That ROD resulted in a lawsuit brought by the snowmobile industry and others asking that the decision be set aside. Under a settlement agreement, the Department of the Interior agreed to do a supplemental environmental impact statement (SEIS) to solicit more public comments on the earlier decision and alternatives and to consider any new or updated substantive information not available at the time of the earlier decision. The draft SEIS was made available to the public on March 29th and was open for public comment until May 29th. Over 350,000 comments were received.

The proposed framework would allow some snowmobile use with very strict limitations; it would provide for cleaner, quieter snowmobiles and snowcoaches using "best available technology"; and adaptive management would allow for flexibility. Critical elements of this proposed preferred alternative framework include: reducing numbers of snowmobiles; continuing to limit snowmobile use to park roads; requiring all snowmobiles to be "best available technology" (cleaner and quieter, i.e. four-stroke engines); applying adaptive management methods to adjust numbers as new information and research is obtained; requiring that all snowmobilers be guided (either commercially or non-commercially); incorporating a reasonable phase-in period; and requiring that funding must be obtained to support the entire package, including extensive monitoring and educational elements.

Much work remains to be done on the preferred alternative to define the details, i.e. numbers of snowmobiles to be allowed and how the commercial vs. non-commercial guiding would occur. It is important to remember that this is a proposed framework—not a decision; it is the first step in what eventually will be a decision.

Recently, the National Park Service reached an agreement for an extension to complete the Final SEIS. The extension was requested so that the park can more effectively analyze the thousands of public comments and incorporate any significant new additional information or data submitted with respect to the plan. With the approved extension, the record of decision will now be finalized by March 21, 2003.

Yellowstone Interagency Science Conference Coming

The Eighth Yellowstone Interagency Science Conference will be held on September 11–12, 2002 at the YCC camp at Mammoth Hot Springs. This meeting brings together scientists from government agencies and universities to report on continuing scientific studies in greater Yellowstone. The range of topics includes geophysics, geothermal, limnology, biochemistry, geology, geochemistry, biology, hydrology, mapping, remote sensing, and GIS applications. Registration is $20. For information about submitting a paper or registering for the conference, contact Daniel Norton; USGS, MS973; P.O. Box 25046, Federal Center; Denver, CO 80225 or call Dr. Norton at (303) 236-2484.

Fuel Cell Installed at West Entrance

In May, Yellowstone National Park took a significant step in its ongoing "Greening of Yellowstone" initiative with the installation of an H Power 4.5 kilowatt fuel cell at the park's West Entrance. The fuel cell, which will provide heat and power to ticket kiosks and an office on a test and demonstration

Fuel cell being installed at West Entrance on May 6, 2002. NPS photo.

basis, is the first to be installed in the park. Electricity from the fuel cell will power lights, communications equipment and computers in the entrance facilities, while the heat will be used for space heating.

The fuel cell produces electricity and heat through an electrochemical process rather than by combustion. The H Power fuel cell at Yellowstone uses propane to operate. A reformer extracts hydrogen from the propane, and the hydrogen produces electricity when mixed with oxygen in the fuel cell stack at the core of the system. The only by-products of the reaction within the stack are heat and pure water.

Yellowstone partnered with Fall River Rural Electric Cooperative of Ashton, Idaho, and Energy Co-Opportunity (ECO) of Herndon, Virginia, to provide the fuel cell. Fall River REC provides commercial power to the park's west entrance. ECO is an energy services cooperative working with H Power of Clifton, New Jersey, to develop a stationary fuel cell on behalf of Fall River REC and more than 300 other ECO member utilities. Fall River REC will own and operate the Yellowstone fuel cell.

Yellowstone officials hope that the year-long demonstration of the fuel cell will lead to expanded use of the ultra-clean and quiet technology to generate power to various park areas. Of particular interest are remote ranger stations and other facilities where generators are now being used. For more information on this or any other "green" initiative programs taking place in the park you may contact jim_evanoff@nps.gov or call (307) 344-2311.

Grizzlies Struck by Vehicles

On the evening of August 12, bear #125 was hit by a vehicle approximately one half mile north of Canyon Junction. After being struck broadside in the shoulder and head area, the bear ran off into the surrounding forest, leaving behind its radio telemetry collar which was knocked off in the accident. Her two cubs, believed to be cubs-of-the-year, followed her into the forest. A nineteen-year old adult female grizzly, bear #125 is the oldest collared bear in the Greater Yellowstone Ecosystem. Rarely seen, she has produced several litters during her lifetime and has never been in conflict with humans. She was first radio collared in 1986 and her activities have been monitored throughout the Mount Washburn area, specifically the Antelope Creek drainage. The fate of bear #125 and her cubs is not certain at this time. As of this writing, the bear management office is still investigating.

Another adult female grizzly was struck and killed on August 2 by a vehicle traveling on Highway 191 north of West Yellowstone. Earlier in the summer, a 14-pound male grizzly cub-of-the-year died from injuries received after it was apparently struck by a vehicle either late on the evening of June 20 or early the next morning. The cub was found lying in the road with severe head trauma on the west end of Mary Bay at Yellowstone Lake. In both incidents, the carcasses were sent to the Montana Fish, Wildlife and Parks lab in Bozeman, Montana, where a necropsy was performed.

See a Bear? Don't Drop that Pack!

Yellowstone National Park officials report that on June 20, 2002, a black bear was able to obtain human food when two fishermen dropped their backpacks after they encountered the bear while walking downstream along the Yellowstone River near the confluence of Tower Creek. The bear was coming upstream toward the two visitors at the time of the encounter. After spotting the bear, the two fishermen immediately turned and starting walking away from it; the bear continued upstream in their direction. The fishermen became concerned and dropped their backpacks along the trail, continuing on. They noted that the bear immediately went to the packs and was able to open them and obtain the food.

Visitor photo.

Feeding bears or leaving food where they can get it, as in this case, is extremely dangerous for both bears and people. A bear that eats human food or garbage—even once—may become conditioned to this food source and actively seek it out around people. These bears often become increasingly aggressive and dangerous and can cause injury to humans, requiring removal of the bear.

If you do encounter a bear—DO NOT drop your pack.

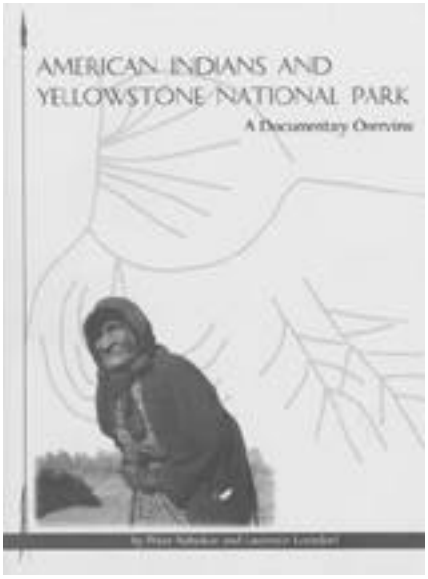
By dropping your pack, you are contributing to conditioning bears to human foods. And in the rare case where a bear attacks, a pack will help shield your back from injury.

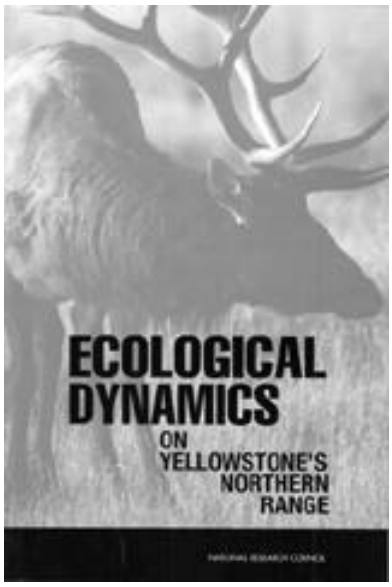
Wildlife is just one of Yellowstone's precious resources. Park visitors are encouraged to help the park protect this important resource by obeying park regulations. Keep a safe distance from all wildlife; it is against the law to approach within 100 yards of bears or within 25 yards of other wildlife or nesting birds or any distance which causes disturbance or displacement of wildlife. If wildlife react to your presence, you are too close. It is illegal to feed any wildlife in the park.

New Publications Available

Copies of the publication *American Indians and Yellowstone National Park: A Documentary Overview* by Peter Nabokov and Lawrence Loendorf are available by contacting Beth Taylor at (307) 344-2203 or Beth_Taylor @nps.gov. This report was commissioned to investigate American Indian

affiliations with the land and resources of the park. It challenges some persistent misconceptions and lays out their role in the history of the Yellowstone landscape.

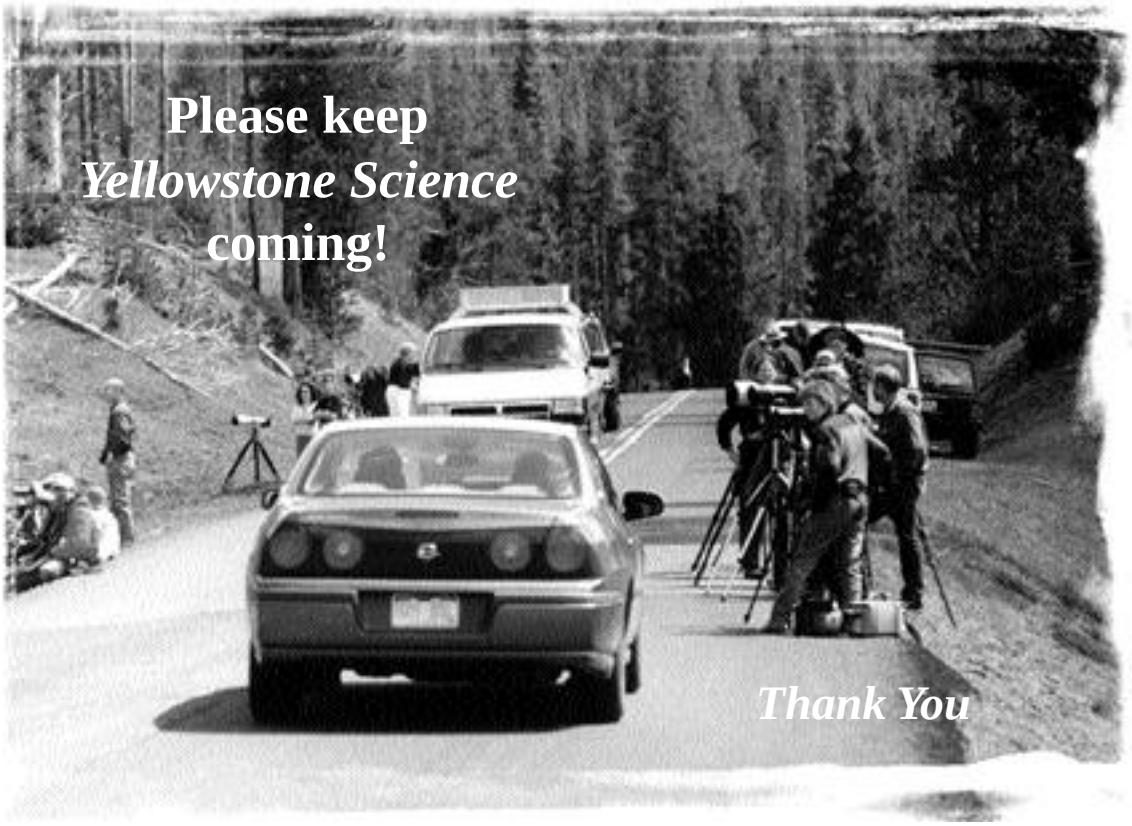




The *Yellowstone Bird Report, 2001* and the *Yellowstone Wolf Project Annual Report, 2001* may be viewed in pdf format on the web at *www.nps.gov/yell/publications.* The wolf report is available in print while copies last by contacting Deb Guernsey at (307) 344-2243 or Deb_Guernsey@nps.gov.

Printed copies of *Ecological Dynamics on Yellowstone's Northern Range* by the National Research Council are now available for purchase from the Yellowstone Association or through the National Academy Press (NAP) web site at *www.nap.edu* or by calling them at (800) 624-6242. As was first reported in the spring 2002 issue of *Yellowstone Science*, the electronic version of the report is available for viewing at the NAP web site or through a link with park's official web site, *www.nps.gov/yell/nature/northernrange.*

The *Natural Resource Year in Review* for 2001 summarizes and analyzes significant natural resource preservation issues and trends in the national park system for each calendar year. The 2001 report contains several feature articles highlighting Yellowstone National Park. It is published electronicaly and can be viewed at *www.nature.nps.govpubs/yir/yir2001.* Printed copies may be obtained by e-mailing rich_gregory@nps.gov.



Alice Wondrak photo.

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