



Wildlife–Human Conflicts in Yellowstone

When Animals and People Get Too Close

by Tom Olliff and Jim Caslick

Introduction

It is widely known that bears occasionally injure humans in Yellowstone National Park. In fact, many of our current management practices (e.g., discouraging bear habituation and food conditioning, installing bear-resistant garbage receptacles, implementing strict food security regulations, and requiring backcountry camping in designated sites with poles to hang food) were introduced in a largely successful attempt to reduce the number of injuries that bears were regularly inflicting on humans prior to the 1970s.

While working as rangers in Yellowstone, we investigated several wildlife-

caused human injuries and other wildlife-human encounters. We became interested in acquiring more than an anecdotal knowledge about which species of wildlife injured the most humans; where and when those injuries occurred; what caused the injuries; and whether such injuries might have been avoided. We also wanted to gain a better understanding of wildlife-human encounters that did not result in injuries.

To answer these questions, we reviewed the literature on bear-caused human injuries and analyzed Case Incident Reports (CIRs) provided by the park's Law Enforcement Office for bison-human encounters (1980–1999) and other

wildlife-human encounters (1990–1999). Dr. Mary Meagher, retired park wildlife biologist, provided additional records of bison incidents that occurred between from 1963 to 1974.

Bison

It is a common misconception that the grizzly bear is Yellowstone's "most dangerous" animal. Statistically, that title belongs to the park's bison. During the 20-year period from 1980 to 1999, bison injured more of Yellowstone's visitors than did any other animal. During this period, bison charged and made contact with humans 79 times, an average of 3.95 per

year (the number of incidents each year ranged from 0 to 13). There were no injuries reported in 18 (23%) of the incidents. In addition to the 79 times that bison charged and made contact, bison charged but did not make contact with humans 16 times. For comparison, there were 24 bear-inflicted human injuries, an average of 1.2 per year during the same period (the number of incidents each year ranged from 0 to 5). Bison-inflicted injuries resulted in the death of one person during this period (in 1983), while bear-inflicted injuries resulted in the death of two humans (one each in 1984 and 1986).

Since 1978, all bear-caused human injuries have occurred in Yellowstone's backcountry. In contrast, every incident where bison charged and made contact with humans during 1980 through 1999 occurred in Yellowstone's developed areas or along roads. We know of one incident that was not documented in the CIRs, in which a bison charged but did not make contact with a group of backcountry skiers.

Between 1963 and 1974, seven people were gored by bison, including one human fatality in the Lower Geyser Basin in 1971, when a man was killed instantly while being photographed with a bison. No bison-human incidents were reported from 1966 through 1968, or in 1970, 1973, or 1979 through 1981.

We compiled a detailed summary of bison-human encounters that occurred between 1990 and 1999. In that period, 11 people were thrown into the air by bison for distances of up to 15 feet. One person was thrown against a parked car; one was thrown onto the bison's back where he was gored a second time as the bison twisted its head; one man was thrown 15 feet into the air, did a flip, and landed in a tree. A photographer lying on the ground was trampled by a charging bison, and told the investigating ranger that the bison then "sat" on him.

In addition to bruises, bison injuries to humans during that period included a variety of more serious injuries (see box).

Thirty-six bison-human encounters during this period occurred in summer; two in autumn; and three in winter. Many reports did not specify the sex of bison involved. Of those that did, 23 specified

bulls and only one incident with a cow bison was reported. The cow, which had a newborn calf nearby, charged a jogger and struck her on the head and back with its hooves after the jogger "dove into the dirt."

Thirty-four reports provided details on what people were doing just before a bison

We examined 29 CIRs to categorize any apparently unusual actions or warning activities by bison just before they charged. Bison "false-charged" in only one case, stamped feet in one case, and snorted in another case. In two cases, the bison shook its head before charging. Rolling on



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Two visitors approach a bison at an illegal and dangerously close distance in the Old Faithful area. May 2001.

charged. In 10 cases, they had approached to pose with or to photograph bison from distances of from two to 51 feet. Six people were within 10 feet of the bison when it charged. Two people were approaching within 20 feet to have a closer view, and two others were either petting or feeding the bison when it charged. In two other cases, bison charged after sticks or stones were thrown at them. In the 35 cases where the reporting ranger attempted to estimate the distance between the bison and human when the bison charged, the average distance was 28.5 feet.

the ground (wallowing) immediately preceded two charges. In three cases, bison butted trees just before they charged toward humans. Tail-raising is commonly considered a sign that bison are agitated. We found that snorting, head shaking, foot-stomping, tree-thrashing, or wallowing may also be warning signals that a bison is about to charge.

Twenty-one reports included information on what a bison did immediately after its first charge. The bison stood over the downed human in only three cases, and then only for a minute or two. One person

Bison-caused injuries to humans, 1990-1999

- a) puncture wounds to the: thigh (7), lower back (2), buttock (2), abdomen (1), groin area (1), leg (1), side (1), and chest (1);
- b) lacerations to the: head (2), and thigh (1);
- c) fractured: clavicle (1), humerus (1), and rib (1);
- d) abrasion of the: arm (2), thigh (1), knees (1), and groin area (1);
- e) injury to: wrist (1), pneumothorax (1), and elbow (1); and
- f) broken: elbow (1), ribs (1), arm (1).

was head-butted back to the ground when she tried to get up, and another was gored several times while lying on the ground. Usually, however, the bison moved away and resumed grazing after the first charge. In some cases, a vehicle was purposely driven between a bison and a downed human, which may have prevented prolonged encounters. Occasionally, a charge was followed by a very brief period of tree-thrashing, snorting, foot-stomping, or rolling on the ground; this was reported in only three of the 38 cases. During an unusually long encounter that lasted about an hour, a bison charged a snowmobile and chased it four times for distances of up to 50 yards.

Surprise encounters with bison that resulted in charges included: a man with a flashlight walking on a lighted trail, a man returning to his car from fishing, a woman who came out of a dormitory door and did not see a bison behind a nearby fire escape, a boy standing in line at a restroom; a woman jogging on a trail, a hiker on a trail, a family sitting at a picnic table 100 yards from a wallowing bison, a woman en route to a restroom, and a woman using a phone in a telephone booth when a bison butted the phone booth. These “surprise” encounters apparently may occur almost anytime, anywhere.

Bears

Yellowstone’s Bear Management Office has summarized bear-related human injuries and fatalities (Gunther and Hoekstra 1998, Gunther 2001). Their summaries show that human injuries from black bears have decreased from averages of 45 per year during 1931–1969, to four per year during the 1970s, and less than one (0.2) injury per year from 1980–1999. After 1970, 34 of

44 injuries caused by black bears resulted from visitors getting too close while attempting to feed, take pictures, or get better views of bears.

Injuries inflicted on humans by grizzly bears averaged about four per year during the 1960s, and decreased to about 1.5 per year during the 1970s, 1980s, and 1990s. Between 1963 and 1999, three grizzly bear-caused human fatalities occurred in Yellowstone, the most recent in 1986 when a male photographer too closely approached a female grizzly. The other two human fatalities (1972 and 1984) resulted from grizzly bear attacks on people at their campsites.

Coyotes

The earliest record we found of coyote–human interactions that possibly involved food-begging occurred in 1981 at Mammoth Campground, where a coyote bit a woman and a ranger shot the coyote. The next record is in 1990, when a coyote attacked a man who was skiing at Old Faithful. The coyote bit him several times in the face and legs before he used a ski to beat it away. The animal was shot by a ranger.

Between 1990 and 1999, there were 54 cases of coyote–human interactions. Fifteen of these cases involved intentional feeding of coyotes by humans, and 16 involved physical contact between coyotes

and humans. Eight humans were injured during these incidents, with no human fatalities. Human injuries included coyote bites to arms (3), legs (2), face (1), back (human sitting) (1), and unspecified (2). There were four injuries to men, three to women, and one to a child (sex not specified). At least two coyote–human interactions were reported each year after 1990, with an average of five incidents per year. Maximum numbers occurred in 1990 and 1998 (eight incidents each year). There was no apparent trend in the frequency of these incidents.

Of the 16 cases involving physical contact between humans and coyotes, 14 were in frontcountry developed areas or near roadsides. One of the two backcountry incidents involved a coyote that had been trapped by a researcher. The other occurred during the winter along the Mystic Falls ski trail near Old Faithful.

Elk

Fifteen elk–human encounters were reported between 1990 and 1999. Contact was made in only one of these incidents; during autumn 1996, a bull elk charged a female visitor and “touched” her with his antlers in front of Mammoth Hotel. This encounter did not injure the visitor, but she fell into a steam vent while attempting to flee the elk and had to be rescued by park rangers. Visitors reported being charged

by elk in seven of these incidents (including the one described above). Many of the encounters resulted in property damage, including tents (7) and a vehicle. In one case, an elk got his antlers tangled in wire. Park staff tranquilized him to remove the wire. Eight of these incidents occurred during autumn, five during spring, and one each occurred in winter and summer.



Visitors approach a roadside black bear, summer 1971.



Visitors feeding ground squirrels at the Gibbon Falls parking area...

Red Foxes

Food-begging by red foxes was reported in 1996 (four cases) and 1997 (one case), at Grant Village, Old Faithful, Tower Fall, and West Thumb. All of these occurred in developed areas. No physical contact occurred, and no human injuries resulted. In two incidents, the fox was live-trapped, ear-tagged, and relocated; another did not respond to pepper spray. One fox was shot by a ranger after many reports that it repeatedly approached visitors and employees, apparently begging for food. We received an additional verbal report (we did not find a CIR of this incident) that in 1997, in Mammoth, a red fox was trapped and euthanized after it bit a woman. The fox had previously been trapped and relocated three times that year.

Pine Marten

A pine marten jumped on a person when she tried to separate the marten from her dog, with no injuries reported. The marten was trapped by a ranger and died. The animal tested positive for distemper.

Moose

In July 1987, at Canyon Village, a screaming child ran toward a cow moose and her calf. The cow moose kicked the child, then left the area. The child received eight stitches.

In February 1993, a snowmobiler tried to pass a moose that had previously been observed making aggressive charges toward snowmobiles. As the snowmobile began to pass, both the moose and the snowmobile swerved in the same direction, causing a collision. The snowmobiler sustained a broken back. The moose broke a front leg and was shot by a ranger.

Mountain Lions

In 1998, a camper at Lower Black-tail reported that two adult mountain lions circled his campsite, blocked his path when he tried to leave, and remained in the area for six hours until he packed up and left.

Other Wildlife

Encounters between humans and some other Yellowstone animals are common but seldom result in injuries, so they go unreported. This is apparently the case for bats (one incident reported), ravens (one incident reported) and ground squirrels (one incident reported). The authors have witnessed or have been told about several unreported encounters between humans and each of these species.

Discussion

Can this information be used to reduce the number of humans that are injured by wildlife, and reduce the overall number of wildlife-human encounters? Certainly, injuries caused by bison can be reduced. Almost every person charged by a bison was much closer than the minimum 75 feet of separation required by regulation (remember, the average distance prior to the charge, in the cases where it could be determined, was 28.5 feet). If every visitor

stayed at least 75 feet from bison, there would likely be very few injuries. The park has made major efforts to educate visitors that bison may attack people who invade their space, including a very graphic flyer handed out at park entrances; signs in campgrounds, developed areas, and

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... a few feet from this sign warning them not to do so. Summer 2001.

along roadsides; articles in the park newspaper; and a visitor center exhibit that includes a video tape of several bison gorings and other encounters with people.



Graphic bison warning currently distributed to all parties entering the park.

These efforts appear to have helped. The numbers of bison-human contacts were reduced from highs of 13, 10, and 10 in 1983, 1984, and 1985 to 2, 5, and 1 in 1997, 1998, and 1999. It appears that with a single change in visitor behavior, most bison-caused human injuries could be avoided. A few surprise encounters like those described here are likely to continue to occur in the future.

Reducing injuries caused by bears will be much more difficult. Gunther and Hoekstra (1998) document the success of the 1970 bear management program in greatly reducing the number of bear-caused human injuries. They explain that current injuries most often involve surprise encounters between grizzly bears and backcountry hikers, concluding, "It will be difficult to reduce the frequency of this type of injury, especially if both backcountry recreational activity and the grizzly bear population...in YNP continue to increase."

In Yellowstone, most wildlife-human encounters, except bear-human encounters, occur in developed areas or along roadsides. This is not surprising, as only a small fraction of Yellowstone's visitors venture into the backcountry (Olliff and

Consolo Murphy 2000). This leads us to speculate that wildlife habituation, and in the case of predators, food conditioning, may cause many of the wildlife-human encounters that result in human injury. Many reports of coyote encounters, for example, mentioned that habituation (18) and/or food conditioning (18) was a factor. Several of these incidents involved visitors' throwing food to coyotes. In seven other cases, coyotes grabbed objects including bags, a paint brush, a camera pack, a shirt, and a ball, in their mouths. Although we suspect that many of the ungulate-human encounters involved habituated animals, the CIRs did not mention habituation. Continued enforcement of Yellowstone's strict food-security regulations, in conjunction with continued prohibition of wildlife feeding, will likely help to keep the numbers of wildlife-human encounters low.

This summary of records provides only a flavor of circumstances and results when humans have encountered wildlife in Yellowstone. The case incident records certainly under-report human-wildlife encounters, especially encounters that do not result in injury. Although we regret human injuries and fatalities, we—like

others who almost daily observe human-wildlife interactions—continue to marvel that there are so few humans injured here, considering the very large concentrations of both people and wildlife. 🌲

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