

## Notes from the Field

### Injuries Associated with Bison Encounters — Yellowstone National Park, 2015

Cara Cherry, DVM<sup>1,2</sup>; Kirsten Leong, PhD<sup>3</sup>; Rick Wallen MS<sup>4</sup>; Danielle Buttke DVM, PhD<sup>2</sup>

Since 1980, bison have injured more pedestrian visitors to Yellowstone National Park (Yellowstone) than any other animal (1). After the occurrence of 33 bison-related injuries during 1983–1985 (range = 10–13/year), the park implemented successful outreach campaigns (1) to reduce the average number of injuries to 0.8/year (range = 0–2/year) during 2010–2014 (unpublished data, National Park Service, September 2015). During May–July 2015, five injuries associated with bison encounters occurred (Table). Case reports were reviewed to evaluate circumstances surrounding these injuries to inform prevention.

American bison (*Bison bison*) are the largest terrestrial mammals in the Western Hemisphere (2). Yellowstone is home to the largest U.S. bison population on public land, with an estimated 4,900 bison in July 2015 (3). Mating season occurs during July–September, coinciding with Yellowstone's peak tourism season. Mature bull aggressiveness increases during mating season (2). Yellowstone promulgates regulations that prohibit visitors from “willfully approaching, remaining, viewing, or engaging in any activity within 300 ft (91 m) of bears or wolves, or within 75 ft (23 m) of any other wildlife, including nesting birds, or within any distance that disturbs, displaces or otherwise interferes with the free unimpeded movement of wildlife, or creates or contributes to a potentially hazardous condition or situation” (4,5). Yellowstone conducts extensive education campaigns to warn visitors of the dangers of approaching wildlife and inform visitors on the required viewing distances. A graphic flyer is distributed at park entrances, and signs are present throughout campgrounds, developed areas, along roadsides, and in the visitor centers.

The five persons injured during 2015 (four Yellowstone visitors and one employee) ranged in age from 16 to 68 years (median = 43 years); four were female. Every incident occurred in developed areas, such as hiking trails or geyser basins. Two

persons were gored, and three were tossed into the air. Four persons required hospitalization, three of whom were transported by helicopter ambulance. There were no deaths.

All encounters resulted from failure to maintain the required distance of 75 ft (23 m) from bison. Four injuries occurred when three or more persons approached the bison. Two persons were injured while walking on hiking trails. Three persons sustained injuries while taking photographs at a distance of approximately 3–6 ft (1–2 m) from bison, including two who turned their back on the bison to take the photograph; one person reported taking a cell phone self-portrait (selfie), which necessitated getting close to the animal.

During 1980–1999, a total of 10 of 35 bison encounters (29%) involved photography (1); the majority of persons were ≥10 ft (3 m) from the bison, unlike the 3–6 ft (1–2 m) reported with recent photography-related injuries. Smart phones now meet the needs of most casual photographers. Smart phones are owned by 64% of American adults, and 67% of smart phone owners report using their phone to share pictures and videos (6). The popularity of smart phone photography with its limited zoom capacity and social media sharing of selfies might explain why visitors disregard park regulations and approach wildlife more closely than when traditional camera technology was used. Educating visitors about wildlife behavior and the need to maintain distances of 75–300 ft (23–91 m) from wildlife for safety of persons and wildlife is critical. Injury prevention campaigns that identify and target the underlying motivations of visitors to not comply with viewing distances might prevent future injuries.

#### Acknowledgments

Kerrie Evans, Yellowstone National Park; Margaret Wild, DVM, PhD, National Park Service, Wildlife Health Branch; Glenn Plumb, PhD, National Park Service, Wildlife Conservation Branch; Jennifer Proctor, PE, National Park Service, Office of Risk Management; David Wong, MD, National Park Service, Office of Public Health; Jennifer Wright, DVM, Division of Scientific Education and Professional Development, CDC.

TABLE. Injuries associated with bison encounters — Yellowstone National Park, 2015

Age	Sex	Park affiliation	Activity	Distance from bison	Encounter type	Injuries
16	Female	Visitor	Photography; turned back to bison	3–6 ft	Gored	Serious
62	Male	Visitor	Photography	3–5 ft	Tossed	Serious
19	Female	Employee	Walking; did not observe bison	10 ft	Tossed	Minor
68	Female	Visitor	Walking; observed bison and continued to walk past	NA	Gored	Serious
43	Female	Visitor	Photography; turned back to bison	6 ft	Tossed	Minor

Abbreviation: NA = not available.

---

<sup>1</sup>Epidemic Intelligence Service, CDC; <sup>2</sup>Office of Public Health and Wildlife Health Branch, Natural Resource Stewardship and Science, National Park Service, Fort Collins, Colorado; <sup>3</sup>Human Dimensions of Biological Resource Management, Natural Resource Stewardship and Science, National Park Service, Fort Collins, Colorado; <sup>4</sup>Bison Ecology and Management Team, Yellowstone National Park, Wyoming.

Corresponding author: Cara Cherry, CCherry@cdc.gov, 970-267-7230.

### References

1. Oliff T, Caslick J. Wildlife-human conflicts in Yellowstone, when animals and people get too close. *Yellowstone Science* 2003;11:18–22.
2. Plumb GE, White PJ, Aune K. American bison *Bison bison* (Linnaeus, 1758). In: Melletti, M, Burton, J, eds. *Ecology, evolution, and behaviour of wild cattle: implications for conservation*. Cambridge, MA: Cambridge University Press; 2014. p.83–114.
3. Geremia C, Wallen R, White PJ. Population dynamics and adaptive management of Yellowstone bison. Mammoth Hot Springs, WY: Yellowstone National Park, National Park Service; 2015. [http://www.ibmp.info/Library/OpsPlans/2016\\_BisonRemovalRecommendations\\_NPS.pdf](http://www.ibmp.info/Library/OpsPlans/2016_BisonRemovalRecommendations_NPS.pdf)
4. Yellowstone National Park. Superintendent's compendium of designations, closures, permit requirements and other restrictions imposed under discretionary authority. Mammoth Hot Springs, WY: Yellowstone National Park, National Park Service; 2014. [http://www.nps.gov/yell/learn/management/upload/YELL\\_Supt\\_Comp\\_2014\\_June20\\_Final.pdf](http://www.nps.gov/yell/learn/management/upload/YELL_Supt_Comp_2014_June20_Final.pdf)
5. Wildlife protection. 36 C.F.R. Sect. 2.2 (1983). <http://www.nps.gov/goga/planyourvisit/upload/36%20CFR%202.2.pdf>
6. Smith A, McGeeney K, Duggan M, Rainie L, Keeter SUS. Smartphone use in 2015. Washington DC: Pew Research Center; 2015. [http://www.pewinternet.org/files/2015/03/PI\\_Smartphones\\_0401151.pdf](http://www.pewinternet.org/files/2015/03/PI_Smartphones_0401151.pdf)