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Wyoming Game and Fish Commission

April 4, 2019

## PETITION FOR ADOPTION OF RULE

Director Nesvik and Commissioners:

We the undersigned organizations, on behalf of our members and supporters in Wyoming and across the country, hereby petition the Game and Fish Department and Game and Fish Commission to adopt a regulation requiring hunters in grizzly bear (*Ursus arctos*) range within the Greater Yellowstone Ecosystem (“GYE”) to carry bear spray.<sup>1</sup> This petition for the promulgation of a rule is submitted pursuant to Wyoming Statute 16-3-106.

Encounters between hunters and grizzlies too often prove injurious for both people and bears. For decades, a substantial majority of the human injuries and fatalities associated with hunter-grizzly conflicts have occurred during encounters with elk hunters during the fall hunting season. Although injurious and fatal attacks remain uncommon, they are no less tragic, and all reasonable steps should be taken to prevent their recurrence. Conflict with hunters also accounts for a disproportionate and escalating share of human-caused bear mortality within the GYE. As of 2017, it has become the most common human cause of grizzly bear deaths in the ecosystem. Yet, there is a simple, inexpensive, and proven solution. The best available science shows that when hunters carry bear spray, have it immediately accessible and deploy it, bear spray can effectively and non-lethally deter bear attacks on hunters. Studies show that bear spray is far more effective than firearms.

As ecological changes and population growth within the GYE continue to accelerate the frequency and lethality of these interactions, the need to implement effective non-lethal solutions is dire. The proposed regulation represents a proven, common-sense approach that will benefit both hunters and grizzly bears in Wyoming.

### **Lethal hunter-bear conflict is on the rise and must be addressed**

Management of conflicts between humans and grizzly bears has been a priority of state and federal authorities since the original Grizzly Bear Recovery Plan was published in 1993. These conflicts often result in the death of grizzly bears, and occasionally result in injury or death to humans. Such tragic outcomes should be prevented wherever possible. Bears and humans alike are best served by policies to mitigate or prevent lethal human-bear conflict. In addition to

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<sup>1</sup> “Bear spray” as used in this Petition refers to EPA-registered capsaicin sprays specifically formulated and packaged for deterring bear attacks containing 1% to 2% capsaicin and related capsaicinoids.

preventing the regrettable loss of human and bear life, conflict reduction enhances public support for bear recovery.<sup>2</sup>

Human-caused mortality has been the leading cause of grizzly bear deaths in the Greater Yellowstone Ecosystem since (at minimum) Interagency Grizzly Bear Study Team (IGBST) record collection began in 1992. High levels of human-caused mortality have historically stood as a barrier to achieving recovery of the population.<sup>3</sup> Now, as staple food sources have declined and a higher percentage of grizzly bears’ diet is derived from meat-based sources, bears are encountering humans more frequently. These encounters often prove lethal for bears, as illustrated by a record-breaking run of annual human-caused mortality from 2015-2018.

A staggering proportion of both bear-caused human casualties and human-caused grizzly mortality results from a single type of conflict: encounters between bears and elk hunters in the field. Elk hunters encounter bears at especially high rates because “the availability of ungulate gut piles and carcasses during fall hunting seasons, a time when bears’ caloric demand and intake is greatest due to hyperphagia” creates a “highly attractive grizzly bear food source.”<sup>4</sup> A 2004 IGBST review of mortality data illustrates the grim consequences: over an eight year period, self-defense kills by hunters “comprise[d] a significant proportion of total human-caused grizzly bear mortality” in the GYE – 88% of all defense-of-life mortalities, and 38% of total human-caused mortality.<sup>5</sup> During the same period, IGBST found that 54% of all injuries inflicted on humans by grizzly bears involved hunters.

This trend has continued in recent years, in both relative and absolute terms:

**Table 1: Share of GYE Human Injuries and Grizzly Mortalities Caused by Hunter-Bear Encounters**

<b>Year</b>	<b>Total injuries inflicted on humans by bears<sup>6</sup></b>	<b>Percent attributable to hunter-bear encounters<sup>7</sup></b>	<b>Total human-caused grizzly bear mortalities</b>	<b>Percent attributable to hunter-bear encounters</b>
1992-2000	38	54% (19 incidents to hunters of 38 total incidents) <sup>8</sup>	72	39% (28/72) <sup>9</sup>
2012	3	66% (2/3) <sup>10</sup>	34	32% (11/34) <sup>11</sup>

<sup>2</sup> Gunther *et al.*, “Grizzly bear-human conflict in the Greater Yellowstone ecosystem, 1992-2000,” *Ursus* 15(1):10-22 (2004).

<sup>3</sup> *Id.*

<sup>4</sup> IGBST, “Project Update: Grizzly Bear Response to Hunting in Grand Teton National Park,” *in* 2014 Annual Report, at 120 (available at <https://www.usgs.gov/media/files/2014-igbst-annual-report>).

<sup>5</sup> Gunther, *et al.* at 20-22.

<sup>6</sup> For years 2012-2017, this figure represents data from Montana and Idaho only. Wyoming does not report this information in the IGBST Annual Report.

<sup>7</sup> See note 6, *supra*.

<sup>8</sup> Gunther *et al.* 2004, at 16.

<sup>9</sup> *Id.*, at 17.

<sup>10</sup> IGBST, 2012 Annual Report at 56-57 (available at <https://www.usgs.gov/media/files/2012-igbst-annual-report>).

<sup>11</sup> *Id.*, at 24.

2013	3	0% (0/3) <sup>12</sup>	23	17% (4/23) <sup>13</sup>
2014	3	≥33% (≥1/3) <sup>14</sup>	19	37% (7/19) <sup>15</sup>
2015	2	100% (2/2) <sup>16</sup>	53	26% (14/53) <sup>17</sup>
2016	3	100% (3/3) <sup>18</sup>	51	14% (7/51) <sup>19</sup>
2017	3	66% (2/3) <sup>20</sup>	42	36% (15/42) <sup>21</sup>

This problem is only becoming more dire: hunter-grizzly bear conflicts have eclipsed the killing of killing bears over real or perceived livestock depredations as the leading human cause of grizzly bear deaths in the GYE in 2017, when a record 15 bears were killed in hunter defense-of-life situations.<sup>22</sup> As hunter-bear interactions occur more and more frequently, preventative action must be taken to stem the loss of human and bear life.

### Carrying bear spray greatly reduces the risk of lethal human-bear conflicts

Hunters in the field can take a proven, non-lethal precaution that drastically reduces the risk of injury or death during a grizzly bear encounter: having bear spray readily available and knowing how to deploy it. Experts researching human-bear conflicts have consistently and uniformly concluded that “bear spray represents an effective alternative to lethal force” to ensure “personal safety for those recreating and working in bear country.”<sup>23</sup> Indeed, decades’ worth of robust literature published by state and federal wildlife management professionals, veterinarians, and academic researchers has proven time and time again that bear spray works:

- A comprehensive study of every recorded incident where bear spray was used during close-range bear encounters in Alaska over a 20-year period (1996-2006) found that in **98% of cases, persons carrying bear spray walked away completely uninjured. And in the 2% of cases where bears did injure persons carrying bear spray, the injuries were minor and did not require hospitalization.**<sup>24</sup> A majority (74%) of the encounters examined in the study were with grizzly bears. The authors found that bear spray is

<sup>12</sup> IGBST, 2013 Annual Report at 60-63 (available at <https://www.usgs.gov/media/files/2013-igbst-annual-report>).

<sup>13</sup> *Id.*, at 27.

<sup>14</sup> IGBST, 2014 Annual Report at 59-60 (available at <https://www.usgs.gov/media/files/2014-igbst-annual-report>); see also Associated Press, “Montana hunter in serious condition after grizzly bear attack” (June 5, 2015) (available at <https://www.foxnews.com/us/montana-hunter-in-serious-condition-after-grizzly-bear-attack>);

<sup>15</sup> *Id.*, at 27.

<sup>16</sup> IGBST, 2015 Annual Report at 71, 73 (available at <https://www.usgs.gov/media/files/2015-igbst-annual-report>); see also Great Falls Tribune (Oct 4, 2015) (available at <https://www.greatfallstribune.com/story/news/2015/10/05/chase-dellwo-recounts-saturdays-grizzly-attack/73348328/>)

<sup>17</sup> IGBST, 2015 Annual Report at 29.

<sup>18</sup> IGBST, 2016 Annual Report at 66 (available at <https://www.usgs.gov/media/files/2016-igbst-annual-report>).

<sup>19</sup> *Id.*, at 30.

<sup>20</sup> IGBST, 2017 Annual Report at 78 (available at <https://www.usgs.gov/media/files/2017-igbst-annual-report>).

<sup>21</sup> *Id.*, at 28.

<sup>22</sup> *Id.*

<sup>23</sup> Smith *et al.*, “Efficacy of Bear Deterrent Spray in Alaska,” *Journal of Wildlife Management* 72(3):640-645 (2008).

<sup>24</sup> *Id.*

“highly effective” at stopping undesirable behavior and aggression by grizzly bears, concluding that “[p]ersons working and recreating in bear habitat should feel confident that they are safe if carrying bear spray,” and recommending its use to “reduce the number of bears killed [by firearms] in defense-of-life.”

- An earlier study of bear spray incidents in Alaska during the preceding decade (1985-1995) reached a similar conclusion, observing that **bear spray stopped aggressive behavior during close-range encounters with grizzly bears in 94% of cases** and endorsing its widespread use.<sup>25</sup>
- The Interagency Grizzly Bear Committee (IGBC) has twice (1999 and 2008)<sup>26</sup> reviewed the efficacy of bear spray and published position papers endorsing its use. In each case, IGBC biologists reviewed scientific literature, investigated incident reports, surveyed U.S. and Canadian wildlife managers, and drew on their own experience with grizzly bears. The official position of the IGBC, based on this comprehensive research, has remained: **“No deterrent is 100% effective, but compared to all others, including firearms, bear spray has demonstrated the most success in fending off threatening and attacking bears and preventing injury to the person and animal involved.** The proper use of bear spray will reduce the number of grizzly bears killed in self-defense, reduce human injuries caused by bears, and help promote the recovery and survival of the grizzly bear.”
- Leading grizzly bear researchers and the agencies who employ them – including IGBC constituents such as Yellowstone<sup>27</sup> and Glacier National Parks<sup>28</sup> – require staff to carry bear spray when working in the field. And Wyoming OSHA encourages private guides and other field workers in grizzly territory to carry and be trained in the use of bear spray as a matter of workplace safety.<sup>29</sup>
- An IGBST report co-authored by biologists from the Idaho Department of Fish and Game; Montana Fish, Wildlife and Parks; and Yellowstone and Grand Teton National Parks specifically called on state agencies to “promote the use of bear repellent spray as a non-lethal alternative for stopping aggressive encounters” with hunters.<sup>30</sup> Grand Teton

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<sup>25</sup> Herrero and Higgins, “Field Use of Capsicum Spray as a Bear Deterrent,” *Ursus* 10:533-537 (1998).

<sup>26</sup> Interagency Grizzly Bear Committee, “Bear Spray Report” (2008) (available at [http://igbconline.org/wp-content/uploads/2016/03/IGBC\\_BearSprayReport\\_.pdf](http://igbconline.org/wp-content/uploads/2016/03/IGBC_BearSprayReport_.pdf)); Interagency Grizzly Bear Committee, “Bear Spray Position Paper” (1999) (available at [http://igbconline.org/wp-content/uploads/2016/03/1999\\_Bear\\_Spray\\_P-1.pdf](http://igbconline.org/wp-content/uploads/2016/03/1999_Bear_Spray_P-1.pdf)).

<sup>27</sup> IGBC 2008, at 19 (“I carry bear spray while working in the Park and require my staff to carry it as well. I am confident in the ability of bear spray to stop aggressive behavior in bears.”)

<sup>28</sup> *Id.*, at 18 (“Glacier National Park provides bear pepper spray to its staff...and has adopted the current IGBC guidelines [regarding bear spray].”)

<sup>29</sup> See Casper Star Tribune, “OSHA recommends training review after grizzly attack that killed Wyoming Hunting Guide,” (Nov 23, 2018) (available at [https://trib.com/osha-recommends-training-review-after-grizzly-attack-that-killed-wyoming/article\\_f001e89c-ddda-5f90-a671-048a93aaf592.html](https://trib.com/osha-recommends-training-review-after-grizzly-attack-that-killed-wyoming/article_f001e89c-ddda-5f90-a671-048a93aaf592.html)).

<sup>30</sup> Gunther et al. 2004, at 21.

National Park itself requires elk hunters to “carry and have immediately accessible bear spray as a non-lethal deterrent for use during potential bear encounters.”<sup>31</sup>

- Controlled studies of pepper spray on captive grizzly bears have shown a near-100% success rate in halting aggressive behavior even using products far less sophisticated than bear spray available on the market today. An early 1962 study proved that pepper spray effectively terminated aggressive behavior by grizzly bears without triggering further aggression.<sup>32</sup> In 1981, a University of Montana researcher repelled all aggressive bears in a lab-recreated “charging bear” experiment, using commercial pepper spray formulated for repelling dogs.<sup>33</sup> The success of these early proof-of-concept studies provided motivation for the development of contemporary bear spray, including products that meet the IGBC’s minimum recommended performance standards.<sup>34</sup>
- **Dr. Stephen Herrero, regarded as the world’s leading authority on bear aggression, acknowledged the superior efficacy of bear spray in the most recent edition of his canonical reference *Bear Attacks: Their Causes and Avoidance*.<sup>35</sup> The original 1985 printing of this book in fact expressed skepticism about the then-novel product<sup>36</sup>; Dr. Herrero revised his opinion after co-authoring two major bear spray studies.**

**Not only is bear spray effective at resolving bear attacks without injury, it is *more effective than any existing alternative – including firearms*.** According to the U.S. Fish and Wildlife Service, “persons encountering grizzlies and defending themselves with firearms suffer injury about 50% of the time,” while “persons defending themselves with pepper spray escaped injury most of the time, and those that were injured experienced shorter duration attacks and less severe injuries.”<sup>37</sup> Firearms are simply less effective than bear spray at stopping a bear attack. Unlike a canister of bear spray, which is specifically formulated and designed for use during aggressive bear encounters, “most handguns and many rifles are of inadequate caliber to kill or stop a charging [grizzly] bear” and the “narrow and sloped” physiology of a grizzly’s cranial vault renders fatal shots “exceedingly difficult to hit accurately in a rapidly charging bear.”<sup>38</sup> The U.S. Geological Survey reports that even “experienced hunters have found that despite using firearms to defend themselves against a charging bear, they were nonetheless attacked and badly hurt.”<sup>39</sup>

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<sup>31</sup> Grand Teton National Park, “Elk Reduction Program,” (Oct. 18, 2016) (available at <https://www.nps.gov/grte/learn/news/elk-reduction-program.htm>).

<sup>32</sup> Jenkins and Hayes, “Studies on a Useful Method for Repelling Dogs and Other Animals,” U.S. Dept. of Agriculture (1962).

<sup>33</sup> Hunt, C. “Behavioral Responses of Bears to Tests of Repellants, Deterrents, and Aversive Conditioning,” M.S. Thesis, University of Montana, Missoula (1984) (available at <https://scholarworks.umt.edu/cgi/viewcontent.cgi?article=8081&context=etd>).

<sup>34</sup> IGBC 2008 at 2, IGBC 1999.

<sup>35</sup> Herrero, Stephen. *Bear Attacks: Their Causes and Avoidance* (Third Edition). Guilford: Lyons Press (2018).

<sup>36</sup> Herrero, Stephen. *Bear Attacks: Their Causes and Avoidance* (First Edition). Guilford: Lyons Press (1985).

<sup>37</sup> U.S. Fish and Wildlife Service, “Fact Sheet: Bear Spray vs. Bullets” (available at [https://above.nasa.gov/safety/documents/Bear/bearspray\\_vs\\_bullets.pdf](https://above.nasa.gov/safety/documents/Bear/bearspray_vs_bullets.pdf)).

<sup>38</sup> Floyd, T., “Bear-inflicted human injury and fatality,” *Wilderness and Environmental Medicine* 10:75-87 (1999).

<sup>39</sup> U.S. Geological Survey, Fact Sheet 2009-3018, “Bear Spray Safety Program,” (2009) (available at <https://pubs.usgs.gov/fs/2009/3018/pdf/FS09-3018.pdf>).

Furthermore, self-defense with firearms risks collateral injury; reports exist of individuals “inadvertently wounding or killing themselves or their companions with their weapons” under the pressure of a sudden grizzly bear attack.<sup>40</sup>

Although complete documentation of every attack is not available to the public, evidence indicates that most hunters injured or killed by grizzly bears in GYE states since 2012 were either not carrying bear spray, or did not deploy bear spray prior to the attack.<sup>41</sup> It is impossible to tell with certainty whether some or all of these tragedies could have been prevented had bear spray been readily available. But the best evidence strongly suggests that is indeed the case. Asked if he had advice for others recreating in grizzly country, the hunter survivor of a mauling during Montana’s 2015 elk season answered: “Carry bear spray.”<sup>42</sup>

### **The Commission should require hunters to carry bear spray**

Wyoming already recognizes the efficacy of bear spray, having thoroughly endorsed its use as a member of the IGBC<sup>43</sup> and encouraged hunters to carry it in the field through the Bear Wise program.<sup>44</sup> Yet despite the steep and still-increasing rate of hunter-bear conflicts and the overwhelming evidence that bear spray is the most effective tool to resolve them, carrying bear spray in Wyoming remains voluntary. As a result, possession of bear spray by hunters in the field is far from universal, and conflicts that could be resolved non-lethally are too frequently resulting in the death of bears or injuries to humans.

To protect hunters and public safety, and to conserve Wyoming’s grizzly bear population, the Commission should adopt regulations requiring that hunters in the field within game management units inside or adjacent to the GYE grizzly bear Demographic Monitoring Area “carry and have immediately accessible bear spray as a non-lethal deterrent for use during grizzly bear encounters.”<sup>45</sup> This regulatory language is modeled on Grand Teton National Park’s requirement during elk hunting seasons, which has proven workable and presented no difficulties in implementation.

The Commission possesses the statutory authority, pursuant to its broad rulemaking authorization under Wyoming law, to implement this regulation. The Commission is empowered to “promulgate such orders as [it] considers necessary to carry out the intent” of Title 23 of the Wyoming Statutes.<sup>46</sup> The legislature expressly provided that the intent of Title 23 is “to provide

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<sup>40</sup> See Associated Press, “Bullet, not bear, killed hunter in Mont. Grizzly attack,” (Sept. 23, 2011) (available at [http://www.nbcnews.com/id/44648280/ns/us\\_news-life/t/bullet-not-bear-killed-hunter-mont-grizzly-attack](http://www.nbcnews.com/id/44648280/ns/us_news-life/t/bullet-not-bear-killed-hunter-mont-grizzly-attack)); see also Floyd 1999; Middaugh, J., “Human Injury from Bear Attacks in Alaska, 1900-1985,” *Alaska Med.* 28:121-126 (1987).

<sup>41</sup> See, e.g., Great Falls Tribune, *supra* note 15; Ravalli Republic, “Investigation: bear spray worked, but was deployed too late” (Jan 30, 2019) (available at [https://ravallirepublic.com/news/state-and-regional/article\\_9ccef22-7ef0-57db-830a-2f52950bf2b9.html](https://ravallirepublic.com/news/state-and-regional/article_9ccef22-7ef0-57db-830a-2f52950bf2b9.html)).

<sup>42</sup> Great Falls Tribune, *supra* note 15.

<sup>43</sup> IGBC 2008.

<sup>44</sup> <https://wgfd.wyo.gov/Wildlife-in-Wyoming/More-Wildlife/Large-Carnivore/Grizzly-Bear-Management/Bear-Wise-Wyoming/Hunting-Fishing-in-Bear-Country>

<sup>45</sup> Grand Teton National Park, *supra* note 30.

<sup>46</sup> Wyo. Stat. Ann. § 23-1-302.

an adequate and flexible system for control, propagation, *management, protection* and regulation of all Wyoming wildlife.”<sup>47</sup> Because the proposed regulation is intended in part to reduce preventable human-caused grizzly mortality, it would fall under the Commission’s power to promulgate orders necessary to carry out the wildlife management and protection purposes of its authorizing statute, consistent with its own stated regulatory commitment “to managing grizzly bears in Wyoming to ensure a recovered population.”<sup>48</sup>

The Commission separately possesses authority to promulgate this regulation pursuant to its power over hunter safety. Commission regulations already exist requiring hunters to obtain and possess hunter safety certificates while in the field,<sup>49</sup> and requiring mentor supervision of hunters who lack certification in the competency and safety in use of firearms.<sup>50</sup> Because the proposed regulation is also intended to protect hunter safety in the field, it would fall under the same grant of authority under which these other regulations have been adopted.

## CONCLUSION

Bear spray is not “brains in a can”<sup>51</sup> and Petitioners do not suggest that it alone can substitute for comprehensive best practices when recreating in grizzly bear range. But as grizzly-hunter encounters continue to increase in frequency and lethality, regulatory action is needed to reduce avoidable death and injury to bears and hunters. The proposed regulation represents a simple and proven way to achieve these ends.

Respectfully submitted,

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<sup>47</sup> Wyo. Stat. Ann. § 23-1-103 (emphasis added).

<sup>48</sup> Wyo Admin. Code 040.0001.67 § 2.

<sup>49</sup> Wyo. Admin. Code 040.0001.7 § 7.

<sup>50</sup> Wyo. Admin. Code 040.0001.2.

<sup>51</sup> Herrero and Higgins 1998, at 537.

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