



# Animal Welfare Institute

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Environmental Protection Agency  
Docket Center (EPA/DC), (28221T)  
1200 Pennsylvania Ave. NW  
Washington, DC 20460-0001

**Re: Comments on interim registration review decision for sodium cyanide, Case 3086,  
EPA-HQ-OPP-2017-0750**

To Whom It May Concern:

On behalf of the Animal Welfare Institute (“AWI”), I submit the following comments on the Environmental Protection Agency’s (“EPA”) proposed interim registration review decision for sodium cyanide, Case 3086. *See* 83 Fed. Reg. 62,571 (Dec. 4, 2018).

AWI is a nonprofit charitable organization founded in 1951 that is dedicated to reducing animal suffering caused by people. AWI engages policymakers, scientists, industry, and the public to achieve better treatment of animals everywhere—in the laboratory, on the farm, in commerce, at home, and in the wild.

We urge EPA to cancel all active and pending registrations for sodium cyanide because the pesticide fails to meet the statutory standard for registration set forth in the Federal Insecticide, Fungicide, and Rodenticide Act (“FIFRA”), section 3(c)(5) (7 U.S.C. §§ 136 *et seq.*). When used in accordance with widespread and commonly recognized practice, sodium cyanide has unreasonable adverse effects on humans and the environment. This comment addresses the ecological and human health risks associated with sodium cyanide, with a particular emphasis on the chemical’s risk to non-target wildlife species and companion animals.

## **I. Background and Legal Framework.**

Sodium cyanide is a highly toxic pesticide registered for restricted use under FIFRA (EPA Registration Nos. 56228-15, 35978-1, 35975-2, 39508-1, 33858-2, 13808-8, and CA840006). Sodium cyanide is the active ingredient used in M-44 ejector devices (“M-44s”), which are used to kill coyotes (*Canis latrans*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), and wild dogs. M-44s are spring-loaded, screwed or pushed into the ground, and topped with scented bait to lure animals to bite. Once the animal’s teeth clench on the bait, a

spring shoots a pellet of sodium cyanide into the animal's mouth.<sup>1</sup> The sodium cyanide combines with available moisture including saliva to make hydrogen cyanide gas, which is readily absorbed by the lungs and poisons the animal by inactivating an enzyme essential to mammalian cellular respiration.<sup>2</sup> That leads to central nervous system depression, cardiac arrest, and respiratory failure.<sup>3</sup>

Wildlife Services, a program of the U.S. Department of Agriculture, Animal and Plant Health Inspection Service ("APHIS"), is a registered user of sodium cyanide (EPA Registrant No. 56228-15). According to its 2015 and 2016 data, Wildlife Services uses M-44s in the following states: Colorado, Idaho, Montana, North Dakota, Nebraska, New Mexico, Nevada, Oklahoma, Oregon, Texas, Utah, Virginia, West Virginia and Wyoming.<sup>4</sup> Other registered users include Wyoming Dept. of Agriculture (No. 35978-1), Montana Dept. of Agriculture (No. 35975-2), New Mexico Dept. of Agriculture (No. 39508-1), Texas Dept. of Agriculture (No. 33858-2), and South Dakota Dept. of Agriculture (No. 13808-8).

Under FIFRA, a pesticide product may be registered or remain registered only if it meets the statutory standard for registration set forth in FIFRA section 3(c)(5) (7 U.S.C. § 136a(c)(5)). FIFRA requires the EPA to cancel a pesticide's registration when "used in accordance with widespread and commonly recognized practice," generally causes "unreasonable adverse effects on the environment." 7 U.S.C. § 136a(c)(5). "Unreasonable adverse effects" are defined as "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide." 7 U.S.C. § 136(bb). The EPA may only register a pesticide if the costs are outweighed by the benefits.

The registration for sodium cyanide should be cancelled because, as documented below, due to the indiscriminate nature of M-44s, the impacts to humans, pets, and non-target wildlife are substantial and unjustifiable, and impose unreasonable adverse impacts on humans and the environment, in violation of FIFRA.

## **II. M-44 Use Has Unreasonable Adverse Impacts on Non-Target Wildlife.**

Over the decades that they have been in use, M-44s have poisoned and killed non-target wildlife, including federally protected threatened and endangered species. The U.S. Department

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<sup>1</sup> For a history of the development and deployment of M-44s, see Blom, F.S. and G. Connolly, *Inventing and Reinventing Sodium Cyanide Ejectors: a technical history of coyote getters and M-44s in predator damage control*, U.S. Dept. of Agric. (2003).

<sup>2</sup> U.S. Fish & Wildlife Service, *Biological Opinion: Effects of 16 Vertebrate Control Agents on Endangered and Threatened Species*, II-73 (1993) [hereinafter "1993 Biological Opinion"]. Available at: <https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/PB96172671.xhtml>.

<sup>3</sup> *Id.*; Egekeze, J.O. and F.W. Oehme, *Cyanides and their Toxicity: a literature review*, 2 *Veterinary Quarterly* 104 (1980).

<sup>4</sup> U.S. Dep't of Agriculture, Wildlife Services, 2016 Program Data Reports. Available at [https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/sa\\_reports/sa\\_pdrs/ct\\_pdr\\_home\\_2016](https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/sa_reports/sa_pdrs/ct_pdr_home_2016).

of Agriculture's Animal Damage Control program<sup>5</sup> recorded 103,255 animals killed by M-44s between 1976 and 1986, including 4,868 non-target animals (representing approximately 5 percent of all animals killed).<sup>6</sup> The non-target species killed during this timeframe included black bears, mountain lions, badgers, kit and swift foxes, bobcats, ringtail cats, feral cats, skunks, opossums, raccoons, Russian boars, feral hogs, javelinas, beavers, porcupines, nutrias, wild turkeys, rabbits, vultures, ravens, crows, hawks, and a grizzly bear, amongst others.<sup>7</sup> Between 2003 and 2007, M-44s killed 68,044 animals, including both target and non-target species.<sup>8</sup> Non-target species killed during this time include bald eagles, marmots, badgers, black bears, dogs, kit and swift foxes, opossums, raccoons, feral hots, javelinas, ravens, ringtail cats, skunks, wolves, and bobcats.<sup>9</sup> For a more detailed list of both target and non-target species killed during this timeframe, see Table 12,<sup>10</sup> below:

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<sup>5</sup> The Animal Damage Control Program was the predecessor to APHIS-Wildlife Services.

<sup>6</sup> 1993 Biological Opinion at II-74; G. Connolly, M-44 Sodium Cyanide Ejectors in the Animal Damage Control Program, 1976-1986, Proceedings of the Thirteenth Vertebrate Pest Conference (1988).

<sup>7</sup> 1993 Biological Opinion at II-74; Eisler, R., Cyanide Hazards to Fish, Wildlife, and Invertebrates: a synoptic review, 85 Biological Report 6 (1991).

<sup>8</sup> Keefover-Ring, W., Report to President Barack Obama and Congress 53 (2009). Available at: [http://pdf.wildearthguardians.org/support\\_docs/report-war-on-wildlife-june-09-10.pdf](http://pdf.wildearthguardians.org/support_docs/report-war-on-wildlife-june-09-10.pdf).

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

Table 12 USDA-APHIS-WS M-44 Mortalities (2003 to 2007)						
	2003	2004	2005	2006	2007	TOTAL
Badgers	4	3	0	0	0	7
Bald Eagle	1	0	1	0	0	2
Black Bears	1	0	4	2	1	8
Bobcats	1	5	15	1	3	25
Coyotes	13,275	10,630	11,569	12,564	12,871	60,909
Crows	0	0	4	0	2	6
Dogs	108	117	92	112	90	519
Foxes, Gray	527	277	301	450	610	2,165
Foxes, Kit	27	29	25	24	10	115
Foxes, Red	494	387	353	394	368	1,996
Foxes, Swift	16	19	8	24	27	94
Hogs (Feral)	7	4	7	9	10	37
Javelinas	2	0	2	0	0	4
Marmots	0	1	0	0	0	1
Opossums	83	96	64	113	54	410
Raccoons	331	291	218	198	189	1,227
Ravens	4	7	2	2	3	18
Ringtails	4	1	2	1	0	8
Skunks, Striped	167	113	59	76	34	449
Wolves, Gray	1	0	0	1	2	4
<b>TOTAL</b>	<b>15,053</b>	<b>11,980</b>	<b>12,726</b>	<b>13,971</b>	<b>14,274</b>	<b>68,004</b>

According to Wildlife Services' data, from 2010-2016, over 2,600 animals were unintentionally taken by M-44s. During that timeframe, Wildlife Services killed 882 non-target animals in Texas, 635 in Virginia, 336 in West Virginia, 315 in New Mexico, and 283 in Oklahoma.<sup>11</sup> Wildlife Services' 2016 data shows that 321 animals were unintentionally killed by M-44s in that year alone.<sup>12</sup> Included among the non-targeted animals killed in 2016 were 101 gray fox, 61 red fox, 57 raccoons, one black bear, one fisher, and seven domestic animals, including family dogs.<sup>13</sup> In 2017, Wildlife Services reports that it killed at least 13,232 target and non-target animals with M-44s, including: 21 dogs, 12,119 coyotes, 1,013 foxes, 48

<sup>11</sup> U.S. Dep't of Agriculture, Wildlife Services, 2016 Program Data Reports. Available at: [https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/sa\\_reports/sa\\_pdrs/ct\\_pdr\\_home\\_2016](https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/sa_reports/sa_pdrs/ct_pdr_home_2016).

<sup>12</sup> U.S. Dep't of Agriculture, Wildlife Services, *Program Data Report G – 2016 Animals Dispersed/Killed or Euthanized/Removed or Destroyed/Freed*. Available at: [https://www.aphis.usda.gov/wildlife\\_damage/pdr/PDR-G\\_Report.php?fy=2016&fld=state&fld\\_val=CO](https://www.aphis.usda.gov/wildlife_damage/pdr/PDR-G_Report.php?fy=2016&fld=state&fld_val=CO)

<sup>13</sup> *Id.*

raccoons, 21 opossums, 5 skunks, 2 swine, 2 ravens and one gray wolf.<sup>14</sup> Of these 2017 M-44 deaths from Wildlife Services, over 200 were non-target animals, including: 110 foxes, a gray wolf, 48 raccoons, 21 opossums, and more.<sup>15</sup>

M-44s have also taken protected threatened and endangered species. Registered use of M-44s has unintentionally killed a threatened grizzly bear, endangered California condors, kit foxes, wolves and other species protected under the Endangered Species Act (ESA).<sup>16</sup> Specifically, in 1978 a threatened grizzly bear in Montana died from an M-44. In 1983, an endangered California condor died from an M-44 in Kern County, California.<sup>17</sup> In 1995, an endangered wolf in the panhandle of Idaho died from an M-44 set for coyotes. A threatened grizzly bear was killed in Montana in 1998.<sup>18</sup> In March of 2001, an endangered wolf died from an M-44 in South Dakota.<sup>19</sup> Two years later, in March of 2003, another wolf died in an undisclosed location.<sup>20</sup> In March of 2005, a bald eagle, protected under the ESA at that time, died from an M-44 in McHenry County, North Dakota. In 2006, one wolf died, and in January of 2007, two wolves died from M-44s in Idaho near Riggins. In December of 2008, an endangered wolf was killed from an M-44 north of Cokeville, Wyoming, in Lincoln County.<sup>21</sup> In May of 2013, a federally protected bald eagle died from an M-44 in Richland County, North Dakota.<sup>22</sup> Between 2003 and 2014, 200 kit foxes were killed by M-44s.<sup>23</sup> More recently, in February 2017, a wolf died in northeastern Oregon from an M-44 used by Wildlife Services to target coyotes.<sup>24</sup> The incidents detailed here do not include other protected non-endangered wildlife, such as state-listed or “special concern” species, killed by M-44s.

Such verified non-target wildlife deaths almost certainly underestimate the total number of non-target species impacted because the likelihood of locating the carcass of a non-target

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<sup>14</sup> U.S. Dep’t of Agriculture, Wildlife Services, 2017 Program Data Reports. Available at [https://www.aphis.usda.gov/wildlife\\_damage/pdr/PDR-G\\_Report.php?fy=2017&fld=KILLED\\_EUTH&fld\\_val=0](https://www.aphis.usda.gov/wildlife_damage/pdr/PDR-G_Report.php?fy=2017&fld=KILLED_EUTH&fld_val=0).

<sup>15</sup> *Id.*

<sup>16</sup> 1993 Biological Opinion at II-74.

<sup>17</sup> Eisler, R., Cyanide Hazards to Fish, Wildlife, and Invertebrates: a synoptic review, 85 Biological Report 6 (1991).

<sup>18</sup> Keefover-Ring, W., Report to President Barack Obama and Congress 53 (2009). Available at: [http://pdf.wildearthguardians.org/support\\_docs/report-war-on-wildlife-june-09-lo.pdf](http://pdf.wildearthguardians.org/support_docs/report-war-on-wildlife-june-09-lo.pdf).

<sup>19</sup> Nationwide Wildlife Deaths Caused by M-44s, 2003-2014. Available at: [https://www.predatordefense.org/docs/M44\\_Kill\\_Data.pdf](https://www.predatordefense.org/docs/M44_Kill_Data.pdf).

<sup>20</sup> *Id.*

<sup>21</sup> *See id.*

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

<sup>23</sup> *Id.*

<sup>24</sup> Wolves throughout the State of Oregon are considered “a special status game mammal, protected by the Oregon Wolf Plan.” Oregon Dep’t of Fish & Wildlife, *Frequently Asked Questions about Wolves in Oregon*, <http://www.dfw.state.or.us/Wolves/faq.asp>; Oregon Dep’t of Fish & Wildlife, *Press Release: Wolf Dies in Unintentional Take in Northeast Oregon* (Mar. 2, 2017), [http://www.dfw.state.or.us/news/2017/03\\_mar/030217.asp](http://www.dfw.state.or.us/news/2017/03_mar/030217.asp).

species is low, as they can die some distance from the M-44 device.<sup>25</sup> Moreover, other animals killed by M-44s may be found but not reported, especially small birds and small mammals. The number of federally-protected animals killed by M-44s is also likely underrepresented as these incidents only reflect deaths reported to the EPA. This is supported by the fact that one-third of the time that M-44s fire, no bodies are recovered (9,759 out of 24,059 total firings in a five-year period).<sup>26</sup> Yet “[o]nce the device is activated and the animal exposed, the likelihood of mortality is high.”<sup>27</sup> Therefore, for those firings, it is likely the exposed animals wandered off-site and died, or died and were moved off-site by scavengers.<sup>28</sup>

### **III. M-44 Use Has Unreasonable Adverse Impacts on Threats to People and Companion Animals.**

M-44s put people and their companion animals at unreasonable risk of being severely injured, or even killed. Numerous incidents highlight the danger of this pesticide. In March 2017, in two separate incidents, M-44s temporarily blinded a child and killed three family dogs in front of their families in Idaho and Wyoming. In the Idaho incident, a 14-year old boy was poisoned when he unsuspectingly tugged on an M-44 device while hiking behind his home in Idaho. The poison caused his dog to convulse and die within minutes of the device being activated.<sup>29</sup> In the Wyoming incident, M-44s killed two family dogs while the family hiked together on a prairie on public lands in Wyoming.<sup>30</sup> The family members were also exposed to sodium cyanide when they tried to save their dogs by washing them in a creek and when they hugged and kissed their dying pets.

From 2010 to 2016, more than 415 dogs were killed by M-44s.<sup>31</sup> In 2016 alone, Wildlife Services admitted to unintentionally killing seven domestic animals with M-44s.<sup>32</sup> In addition, in 2016, Wildlife Services reported unintentionally killing 22 dogs that were classified as feral, free-ranging or hybrids. Many of these dogs were likely family dogs running off-leash. For a more complete list of incidents involving the poisoning deaths of dogs, see: [https://www.predatordefense.org/docs/m44\\_incidents\\_pet\\_killings\\_human\\_poisonings.pdf](https://www.predatordefense.org/docs/m44_incidents_pet_killings_human_poisonings.pdf).

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<sup>25</sup> This is particularly the case if the M-44 is triggered in a manner that delivers only a partial dose of poison or delivers the poison in an area other than the mouth.

<sup>26</sup> U.S. Env'tl. Protection Agency, Memo: Sodium Cyanide, Draft Risk Assessment to Support the Registration Review 15 (Sept. 12, 2018) (Docket No. EPA-HQ-OPP-2010-0752-0094) [hereinafter “DRA”].

<sup>27</sup> *Id.* at 4.

<sup>28</sup> *Id.* at 12.

<sup>29</sup> Available at: [https://www.predatordefense.org/docs/m44s\\_canyons\\_story.pdf](https://www.predatordefense.org/docs/m44s_canyons_story.pdf).

<sup>30</sup> Available at: [http://www.predatordefense.org/features/m44\\_WY\\_Amy\\_dogs.htm](http://www.predatordefense.org/features/m44_WY_Amy_dogs.htm)

<sup>31</sup> Kadaba, D. (2017). The big picture: Cyanide killers. USDA’s Wildlife Services kills thousands of animals a year with exploding cyanide capsules. Retrieved from <http://therevelator.org/big-picture-cyanide-killers/>.

<sup>32</sup> U.S. Dep’t of Agriculture, Wildlife Services, Program Data Report G – 2016 Animals Dispersed/Killed or Euthanized/Removed or Destroyed/Freed. Available at: [https://www.aphis.usda.gov/wildlife\\_damage/pdr/PDRG\\_Report.php?fy=2016&fld=KILLED\\_EUTH&fld\\_val=0](https://www.aphis.usda.gov/wildlife_damage/pdr/PDRG_Report.php?fy=2016&fld=KILLED_EUTH&fld_val=0).



Various members of the public have also been poisoned by sodium cyanide. For example, in December of 1999, a private landowner tried to remove an M-44 placed on property that he was leasing and accidentally triggered the device. He tasted the poison and his wife drove him to the hospital, where he received medical attention. In November of 2002, a woman accidentally triggered an M-44 device placed on her property. She experienced increased respiratory rate and eye irritation but was able to drive herself to the hospital. In May of 2003, an M-44 device exploded and harmed a man in Uintah County, Utah. He immediately experienced disorientation and was unable to speak. According to his wife, he suffered for many years and had his life cut short because of the incident.<sup>33</sup> Another incident involved a woman who was exposed to sodium cyanide after trying to resuscitate her dog, who died from an M-44 set on her land without her permission.<sup>34</sup> She tasted the poison and felt disoriented. Over the next several months she experienced tingling in her arms and insomnia. Another incident involved a rancher who pulled on an M-44 device that Wildlife Services set on his property without his permission.<sup>35</sup> When the device exploded, it badly cut and burned his hand. He experienced pain in his hand for several months during the slow healing process. In May of 2007, a person spraying for mosquitoes accidentally stepped on an M-44 device and sodium cyanide sprayed into his eyes causing burning and irritation, as well as disorientation. He received emergency medical assistance, and several others, including a county sheriff, were exposed. In February of 2011, a border patrol agent in Kinney County, Texas, kicked and then tugged at an M-44. The device exploded in his gloved hands and he called an ambulance, which brought him to the hospital for medical attention.<sup>36</sup>

Several other reported incidents include pesticide applicators who were poisoned while setting M-44 devices. For example, in May 2001, an applicator accidentally triggered a device. He experienced temporary blindness in one eye, as well as blisters on his tongue and lips and went to the emergency room to receive medical attention. In January 2002, an applicator accidentally triggered a device and the sodium cyanide capsule hit his face and eye. He flushed his eyes and went to the hospital for medical attention. In March 2002, an applicator accidentally triggered an M-44 when he reached into a bucket in his vehicle that held the assembled device. He experienced burning of his eyes and could taste the poison, and he drove himself to the emergency room, where he received medical assistance. In April 2005, an applicator accidentally triggered the device while installing it and then administered the antidote. In January 2007, an applicator in Oklahoma triggered an M-44. He experienced eye irritation and disorientation but was able to administer the antidote and drive himself to the hospital. In November 2008, an applicator accidentally triggered the device and the sodium cyanide capsule

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<sup>33</sup> Available at: [https://www.predatordefense.org/docs/m44\\_letter\\_Slaugh\\_DeFazio.pdf](https://www.predatordefense.org/docs/m44_letter_Slaugh_DeFazio.pdf)

<sup>34</sup> Available at: [https://www.predatordefense.org/docs/m44\\_letter\\_Kingsley\\_DeFazio\\_01-09-07.pdf](https://www.predatordefense.org/docs/m44_letter_Kingsley_DeFazio_01-09-07.pdf)

<sup>35</sup> Available at: [https://www.predatordefense.org/docs/m44\\_letter\\_Guerro\\_DeFazio.pdf](https://www.predatordefense.org/docs/m44_letter_Guerro_DeFazio.pdf)

<sup>36</sup> Adkins, C. and K. Nokes, Petition to Cancel Registrations of M-44 Cyanide Capsules (Sodium Cyanide) 15 (2017). Available at: [https://biologicaldiversity.org/campaigns/carnivore\\_conservation/pdfs/M44NationwidePetition\\_08-10-2017.pdf](https://biologicaldiversity.org/campaigns/carnivore_conservation/pdfs/M44NationwidePetition_08-10-2017.pdf).

hit him in the face. After tasting the poison, he administered the antidote and went to the hospital for medical attention.<sup>37</sup>

For a more complete list of incidents involving the poisoning of both members of the public as well as pesticide applicators, see:  
[https://www.predatordefense.org/docs/m44\\_incidents\\_pet\\_killings\\_human\\_poisonings.pdf](https://www.predatordefense.org/docs/m44_incidents_pet_killings_human_poisonings.pdf).  
These incidents demonstrate that M-44 use imposes unreasonable adverse impacts on humans and companion animals, which weighs against continued registration of sodium cyanide.

#### **IV. Costs of M-44s Outweigh Benefits due to the Availability of Viable, Non-lethal Predator Control Alternatives and the Important Role of Predators in Ecosystems.**

The harms caused by M-44 use are not outweighed by the benefits of continued use because viable, non-lethal alternatives exist to protect livestock from predation and the predators that M-44s target play a vital role in ecosystems. M-44s are indiscriminate killing devices that are not needed in modern wildlife management because effective, non-lethal alternatives currently exist. The following methods can be used separately or in combination in lieu of M-44s to effectively deter coyotes and other wildlife: fencing, fladry and electrified fladry (flags tied to ropes or fences), guard animals, including dogs, llamas, and donkeys, range riders, strobe lights and noisemakers, lamb sheds and calving pens, and night penning.<sup>38</sup> Numerous studies have demonstrated the effectiveness of non-lethal methods to protect livestock from predators.<sup>39</sup>

Moreover, numerous scientific studies seriously call into question the efficacy of lethal predator control.<sup>40</sup> For example, in a study based upon a review of 25 years of livestock

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<sup>37</sup> *Id.* at 16.

<sup>38</sup> *See, e.g.*, G. Connolly, Animal Damage Control Research Contributions to Coyote Management, Predator Management Methods, Proceedings of the 1995 Joint Fur Resources Workshop (1995); Gese, E.M., et al., Lines of Defense: coping with predators in the Rocky Mountain region.

<sup>39</sup> Shivik, J. A., A. Treves, and P. Callahan, Nonlethal techniques for managing predation: Primary and secondary repellents, 17 *Conservation Biology* 1531 (2003). Available at <http://wscinof.dreamhosters.com/wpcontent/uploads/SHIVAKNon-Lethal.pdf>; Lance, N.J., S.W. Breck, C. Sime, P. Callahan, and J.A. Shivik, Biological, technical, and social aspects of applying electrified fladry for livestock protection from wolves (*Canis lupus*), 37 *Wildlife Research* 708 (2010). Available at:

[http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2257&context=icwdm\\_usdanwrc](http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2257&context=icwdm_usdanwrc).

<sup>40</sup> Berger, K.M., Carnivore-Livestock Conflicts: Effects of Subsidized Predator Control and Economic Correlates on the Sheep Industry, 20 *Conservation Biology* 751 (2006); Harper, E.K., et al., Effectiveness of lethal, directed wolf-depredation control in Minnesota, 72 *J. Wildlife Mgmt.* 778 (2008); Musiani, M., et al., Wolf depredation trends and the use of fladry barriers to protect livestock in western North America, 17 *Conservation Biology* 1538 (2003). Available at: [http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1616&context=icwdm\\_usdanwrc](http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1616&context=icwdm_usdanwrc).



depredation data, Wielgus and Peebles (2014)<sup>41</sup> found that an increase in the numbers of predators killed actually resulted in livestock losses increasing the following year. Additionally, Treves et al. (2016),<sup>42</sup> which consisted of a meta-review of 24 studies, showed little or no scientific support for the efficacy of killing predators to protect livestock. Indeed, according to the authors' analysis, the same number of livestock, if not more, are likely to be depredated after predators are killed. This is because the indiscriminate killing of coyotes disrupts the stability and equilibrium of their social structure, triggering compensatory breeding and an increase in the coyote population.<sup>43</sup> Specifically, younger pairs begin to breed, pup survival rates increase, and juvenile males move in to fill the gap caused by lethal predator control operations. Increasing the number of juvenile males in a destabilized population increases the likelihood of predation on livestock.<sup>44</sup>

Furthermore, an analysis of the most recent data from the U.S. Department of Agriculture on the loss of livestock to predators demonstrates that the proportion of losses compared to the total number of stock is miniscule and does not warrant the reregistration of sodium cyanide for use in predator control. For cattle, 41,680 animals were lost to predators in 2015. This corresponds to 0.053 percent of the total of 7,793,000 cattle in the United States on January 1, 2016. Of the cattle lost to predators, 16,880 (0.022 percent of all cattle) and 2,040 (0.0026 percent of all cattle) were killed by coyotes and wolves, respectively. Predators killed an estimated 238,890 calves in 2015 or 0.7 percent of the total calf inventory from the same year. Of these animals, 126,810 (0.37 percent of all calves) and 8,110 (0.0024 percent of all calves) were lost to coyotes and wolves, respectively.<sup>45</sup> In 2014, 61,713 and 132,683 sheep and lambs were killed by all predators. This corresponds to 1.8 percent of the total inventory of sheep in the United States in 2014 and 3.8 percent of the total estimated number of lambs. Coyotes killed 84,534 sheep and lambs in 2014 (1.2 percent of all sheep and lambs) while wolves killed only 500 (0.007 percent of all sheep and lambs).<sup>46</sup> The total estimated number of goats in the United States in January 2016 was 1,829,600 animals. The goat kid population in 2015 was 1,677,000.

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<sup>41</sup> Wielgus, R. and K. Peebles, Effects of Wolf Mortality on Livestock Depredations, 9 PLOS ONE e113505 (2014). Available at:

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0113505>.

<sup>42</sup> Treves, A., et al., Predator control should not be a shot in the dark, 14 Frontiers in Ecology and Env't. 380-388 (2016). Available at:

[http://faculty.nelson.wisc.edu/treves/pubs/Treves\\_Krofel\\_McManus.pdf](http://faculty.nelson.wisc.edu/treves/pubs/Treves_Krofel_McManus.pdf).

<sup>43</sup> See e.g., Letter from Dr. Robert Crabtree, Yellowstone Ecological Research Center (Revised Draft June 21, 2012), available at

[http://www.predatordefense.org/docs/coyotes\\_letter\\_Dr\\_Crabtree\\_06-21-12.pdf](http://www.predatordefense.org/docs/coyotes_letter_Dr_Crabtree_06-21-12.pdf)

(presenting research showing that indiscriminate killing of coyotes results in population booms with consequent increases in livestock and wild ungulate predation).

<sup>44</sup> *Id.*

<sup>45</sup> U.S. Dep't of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services, National Animal Health Monitoring System (2017); Death Loss in U.S. Cattle and Calves Due to Predator and Nonpredator Causes (2015).

<sup>46</sup> U.S. Dep't of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services, National Animal Health Monitoring System (2016); Sheep and Lamb Predator and Nonpredator Death Loss in the United States (2015).

In 2015, 38,880 goats (0.02 percent of all goats) and 83,753 kids (0.05 percent of all kids) were killed by predators, respectively. For those goats killed by predators in 2015, 12581 were killed by coyotes (0.007 percent of all goats) and 338 were killed by wolves (0.018 percent of all goats). Coyotes killed 40,249 kids (0.024 percent of all kids) while wolves killed only 55 (0.0032 percent of all kids).<sup>47</sup> In light of these extremely low percentages, and particularly given the full suite of alternatives to lethal control discussed above, the EPA should deny the reregistration of this toxin since it is not necessary to protect livestock from predators.

Under FIFRA, the EPA must also consider the benefits that prohibiting the use of M-44s would have on the health of ecosystems and native wildlife populations. Carnivores targeted by M-44s play an essential role in maintaining ecological balance. Predator species regulate and improve the health of prey populations. Coyotes play a keystone role in the American West's native ecosystems by preying upon smaller carnivores such as skunks, foxes, and raccoons.<sup>48</sup> This predation indirectly benefits the prey of small carnivores. For instance, the resulting decreased nest predation by smaller carnivores increases ground-nesting birds like the imperiled greater sage grouse.<sup>49</sup> Coyotes also increase the diversity of rodent species by increasing competition amongst smaller carnivores.<sup>50</sup> The presence of carnivores on the landscape increases the biological diversity and overall functionality of ecosystems. Indeed, numerous studies analyze how carnivore removal, in particular, can cause a wide range of unanticipated impacts (e.g., trophic cascades) that are often profound, including on native plant communities, wildfire and biogeochemical cycles, the spread of disease or invasive species, and more.<sup>51</sup>

The American Sheep Industry Association has recognized the important role that predators play in ecosystems:

Understanding and dealing with depredation is important for sheep producers and for those interested in sustainable management of natural resources. Despite their notoriety, not all predators kill sheep or other livestock. Predators are an integral

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<sup>47</sup> U.S. Dep't of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services, National Animal Health Monitoring System (2017); Goat and Kid Predator and Nonpredator Death Loss in the United States (2015).

<sup>48</sup> Crooks, K.R. and M.E. Soule, Mesopredator Release and Avifaunal Extinctions in a Fragmented System, 400 *Nature* 563 (1999); Henke, S.E. and F. C. Bryant, Effects of Coyote Removal of the Faunal Community in Western Texas, 63 *J. Wildlife Mgmt.* 1066 (1999).

<sup>49</sup> Mezquida, E.T. et. al., Sage-Grouse and Indirect Interactions: Potential Implications of Coyote Control on Sage-Grouse Populations, 108 *Condor* 747 (2006).

<sup>50</sup> Ripple, W.J. and R. L. Beschta, Linking a Cougar Decline, Trophic Cascade, and Catastrophic Regime Shift in Zion National Park, 133 *Biological Conservation* 397 (2006).

<sup>51</sup> Beschta, R.L., and W.J. Ripple, Large predators and trophic cascades in terrestrial ecosystems of the western United States, 142 *Biological Conservation* 2401 (2009); Levi, T., et al., Deer, predators, and the emergence of Lyme disease, 109 *Proc. Nat'l Academy Science* 10942 (2012); Bergstrom, B.J., et al., License to kill: reforming federal wildlife control to restore biodiversity and ecosystem function, *Conservation Letters* (2014); Bergstrom, B.J., Carnivore conservation: shifting the paradigm from control to coexistence, 98 *Mammal* 1 (2017).

part of most wildlife communities, and their consumption of rodents, rabbits, and carrion benefits some agriculture. The challenge to sheep producers becomes one of effective depredation prevention without unnecessary adverse impact on the nation's natural resources.<sup>52</sup>

Due to the availability of viable, non-lethal alternatives to protect livestock from predation and the ecosystem benefits of predators, the harms caused by M-44 use are not outweighed by the benefits of continued use, and the registration should therefore be cancelled.

## V. M-44s are Being Used in Violation of Labeling Requirements.

In its 1994 Reregistration Eligibility Decision (“RED”) pertaining to the use of sodium cyanide capsules in M-44 units, the EPA concluded that M-44s did not pose unreasonable risks to humans or the environment if used in accordance with the twenty-six use restrictions listed on the label and criteria established by the U.S. Fish and Wildlife Service to protect endangered species likely to be jeopardized by use of M-44s.<sup>53</sup> The labels<sup>54</sup> for registered sodium cyanide products require users to comply with all twenty-six use restrictions outlined in the Use Restriction Bulletin.<sup>55</sup>

Even though FIFRA requires strict adherence to pesticide labels,<sup>56</sup> the incidents in Idaho, Wyoming, and elsewhere described above demonstrate that the registered users do not consistently abide by a number of these use restrictions. The recent incidents in Idaho and Wyoming provide ample evidence demonstrating how registered users violate the label requirements and other use restrictions when placing M-44s. The incident in Idaho involved violations of the following use restrictions:

1. “The M-44 device shall not be used: (1) in areas within national forests or other Federal lands set aside for recreational use, (2) areas where exposure to the public and family and pets is probable, (3) in prairie dog towns, or (4) except for the protection of Federally designated threatened or endangered species, in National or State Parks; National or State Monuments; federally designated wilderness areas; and wildlife refuge areas”;<sup>57</sup>

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<sup>52</sup> American Sheep Industry Association, 8 Sheep Production Handbook 905 (2015).

<sup>53</sup> 12.

<sup>54</sup> See, e.g., Label for EPA Registration No. 56228-15 (“Users of this product must follow all requirements of product labeling, including but not limited to, all Use Restrictions, Directions for Use, Precautionary Statements, first aid and antidotal measures, information on endangered species, requirements for posting warning signs, and Storage and Disposal instructions.”). See also Labels for EPA Registration No. 35975-2, EPA Registration No. 39508-1, EPA Registration No. 13808-8, EPA Registration No. 33858-2, and EPA Registration No. 35978-1.

<sup>55</sup> U.S. Dep’t of Agriculture, Animal & Plant Health Inspection Service, WS Directive 2.415, M-44 Use and Restrictions (2017) [hereinafter “M-44 Use Restrictions”]. Available at: [https://www.aphis.usda.gov/wildlife\\_damage/directives/2.415\\_m44\\_use%26restrictions.pdf](https://www.aphis.usda.gov/wildlife_damage/directives/2.415_m44_use%26restrictions.pdf).

<sup>56</sup> 7 U.S.C. § 136j(a)(2)(G).

<sup>57</sup> M-44 Use Restrictions at 3.

2. “Bilingual warning signs in English and Spanish shall be used in all areas containing M-44 devices . . . Main entrances or commonly used access points to areas in which M-44 devices are set shall be posted with warning signs to alert the public to the toxic nature of the cyanide and to the danger to pets. Signs shall be inspected weekly to ensure their continued presence and ensure that they are conspicuous and legible . . . An elevated sign shall be placed within 25 feet of each individual M-44 device warning persons not to handle the device”;<sup>58</sup> and
3. “In all areas where the use of the M-44 device is anticipated, local medical people shall be notified of the intended use. This notification may be made through a poison control center, local medical society, the Public Health Service, or directly to a doctor or hospital. They shall be advised of the antidotal and first-aid measures required for treatment of cyanide poisoning. It shall be the responsibility of the supervisor to perform this function.”<sup>59</sup>

In the Idaho incident, the M-44 was placed in an “area[] where exposure to the public and family and pets is probable.” Fourteen-year-old Canyon Mansfield was walking the family dog, Casey, on a hill just 300 yards behind their home on public land managed by the Bureau of Land Management.<sup>60</sup> As for the requirement for conspicuous warning signs, Dan Argyle, a captain in the Bannock County Sheriff’s Office who responded to the incident, told National Geographic that “no warning signs were observed at the scene . . . .”<sup>61</sup> Canyon Mansfield confirmed that: “No signs like these were near the cyanide bomb that took my dog away from me.”<sup>62</sup> It has been reported that Wildlife Services made no notifications of the intended use of M-44s to local medical professionals.<sup>63</sup> Canyon Mansfield’s father, Dr. Mark Mansfield explains: “We didn’t know anything about it. No neighborhood notifications, and our local authorities didn’t know anything about them . . . The sheriff deputies who went up there didn’t even know what a cyanide bomb was.”<sup>64</sup> Records indicate that Wildlife Services notified Idaho hospitals *after* the Pocatello incident, in July 2017, and that Wildlife Services has not made these notifications on an annual basis, as the prior notification to Idaho hospitals occurred in 2013.<sup>65</sup>

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<sup>58</sup> *Id.* at 10–11.

<sup>59</sup> *Id.* at 12.

<sup>60</sup> Available at: <http://news.nationalgeographic.com/2017/04/wildlife-watch-wildlife-services-cyanide-idaho-predatorcontrol/>. That placement also violated a November 2016 pledge by Wildlife Services in Idaho not to use M-44s on public land in Idaho.

<sup>61</sup> Available at: <http://news.nationalgeographic.com/2017/04/wildlife-watch-wildlife-services-cyanide-idaho-predatorcontrol/>.

<sup>62</sup> Available at: [https://www.predatordefense.org/docs/m44s\\_canyons\\_story.pdf](https://www.predatordefense.org/docs/m44s_canyons_story.pdf).

<sup>63</sup> Available at: <http://www.theblaze.com/news/2017/03/21/cyanide-device-explodes-killing-familys-dog-they-cantbelieve-who-planted-it-behind-their-home/>.

<sup>64</sup> Adkins, C. and K. Nokes, Petition to Cancel Registrations of M-44 Cyanide Capsules (Sodium Cyanide) 20-21 (2017). Available at:

[https://biologicaldiversity.org/campaigns/carnivore\\_conservation/pdfs/M44NationwidePetition\\_08-10-2017.pdf](https://biologicaldiversity.org/campaigns/carnivore_conservation/pdfs/M44NationwidePetition_08-10-2017.pdf).

<sup>65</sup> *Id.*

The incident in Wyoming also demonstrates a violation of the requirement for warning signs.<sup>66</sup> A media report provides that a “few days after the dogs died in Wyoming, Daniel Helfrick returned to the area, looking for signs they might have missed to warn them of the cyanide traps. He didn’t see any.”<sup>67</sup> A personal account of the incident by one of the family members involved provides further evidence that no signs were posted.<sup>68</sup>

In the RED, the EPA concluded that M-44s did not pose unreasonable risks to humans or the environment if used in accordance with the twenty-six use restrictions listed on the label. These incidents provide evidence that M-44s are not being used in accordance with the use restrictions. Therefore, the EPA’s conclusion that M-44s did not pose unreasonable risks to humans or the environment is not justified by real-world practices and, consequently, the registration should be cancelled.

## **VI. Conclusion.**

Thank you for your consideration of these comments. If you have any questions or there is any additional information we can provide at this stage, please do not hesitate to contact me.

Sincerely,



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<sup>66</sup> Available at: <http://www.wyofile.com/column/cyanide-bomb-kills-two-casper-dogs/>.

<sup>67</sup> Available at: <http://www.wyofile.com/column/cyanide-bomb-kills-two-casper-dogs/>.

<sup>68</sup> Available at: [https://www.predatordefense.org/features/m44\\_WY\\_Amy\\_dogs.htm](https://www.predatordefense.org/features/m44_WY_Amy_dogs.htm).