PETITION TO ISSUE A NOTICE OF INTENT

TO THE U.S. ENVIRONMENTAL PROTECTION AGENCY

TO CANCEL THE REGISTRATION OF COMPOUND 1080 (SODIUM FLUOROACETATE)

January 12, 2017

SUBMITTED BY:

ANIMAL WELFARE INSTITUTE
ANIMAL LEGAL DEFENSE FUND
CENTER FOR BIOLOGICAL DIVERSITY
PROJECT COYOTE
PREDATOR DEFENSE

Via Electronic and Certified Mail
January 12, 2017

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Dear Administrator McCarthy, Assistant Administrator Jones, Director Housenger, Acting Director Miller, Director McNally, Director Guilaran, Director Echeverria, and Acting Director Goodis:

The Animal Welfare Institute, the Center for Biological Diversity, the Animal Legal Defense Fund, Predator Defense, and Project Coyote hereby petition the Administrator of the Environmental Protection Agency (EPA) to issue, pursuant to Section 6 (7 U.S.C. § 136d) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. §§ 136 et seq.), a Notice of Intent to Cancel the registration of sodium fluoroacetate (commonly known as "Compound 1080" or sodium monofluoroacetate), a toxicant registered for use in "livestock protection collars" (LPCs). Further, we request that the Administrator suspend the registration of Compound 1080 under 7 U.S.C. § 136d(c)(1) because such action is necessary to prevent an imminent hazard[1] during the time required for cancellation.

Cancellation of a pesticide's registration is warranted where the "pesticide or its labeling or other material required to be submitted does not comply with the provisions of [FIFRA Subchapter II] or, when used in accordance with widespread and commonly recognized practice, generally causes unreasonable adverse effects on the environment."[2] Here, the registration must be suspended because EPA has not made the necessary finding, after public notice and comment, that coyotes are "pests," and as such, use of Compound 1080 to kill coyotes (*Canis latrans*) does not comply with the provisions of FIFRA, Subchapter II.[3]

[1] 7 U.S.C. § 136 (l): The term "imminent hazard" means a situation which exists when the continued use of a pesticide during the time required for cancellation proceeding would be likely to result in unreasonable adverse effects on the environment or will involve unreasonable hazard to the survival of a species declared endangered or threatened by the Secretary pursuant to the Endangered Species Act.
[2] 7 U.S.C. § 136d(b).
[3] 7 U.S.C. § 136d(b).

Lead Petitioners

Since 1951, the ANIMAL WELFARE INSTITUTE ("AWI") has sought to alleviate the suffering inflicted on animals by people. AWI works to end the torture inflicted on animals by Wildlife Services. It is particularly concerned about the routine use of lethal control techniques including, but not limited to, steel-jaw leghold traps, snares, poisoning, shooting, and denning. Instead, AWI favors non-lethal strategies to resolve human-wildlife conflicts and funds research to develop and test new strategies. AWI also works to minimize the impacts of all human action that are detrimental to endangered species.

The CENTER FOR BIOLOGICAL DIVERSITY ("Center") is a national, non-profit conservation organization with over 625,000 online activists and members whose mission is to work through science, law and creative media to secure a future for all species, great or small, hovering on the brink of extinction. The Center accomplishes its mission through scientific and legal advocacy, public education, and grassroots organizing.

The ANIMAL LEGAL DEFENSE FUND ("ALDF") is a national, non-profit organization dedicated to protecting the lives and advancing the interests of animals through the legal system. ALDF works to halt the ecologically harmful and inhumane killing of wild and domestic animals resulting from the outdated and unscientific predator policies practiced by APHIS–Wildlife Services. To this end, ALDF is engaged with governmental entities at the federal, state, and county level to highlight the problems of indiscriminant lethal control methods, provide compiled statistical data, and inform them of their legal obligations to protect and preserve wild animals currently being destroyed through their association with Wildlife Services.

PREDATOR DEFENSE is a national nonprofit advocacy organization with over 15,000 supporters. The organization has been working since 1990 to protect native predators and end America's war on wildlife. Predator Defense works in the field, on public lands, in Congress, and in the courtroom.

PROJECT COYOTE works to promote coexistence between people and wildlife through education, science and advocacy. Project Coyote aims to create a shift in attitudes toward native carnivores by replacing ignorance and fear with understanding and appreciation. Project Coyote accomplishes its mission by championing progressive management policies that reduce human-coyote conflict, by supporting innovative scientific research, and by fostering respect for and understanding of America's apex predators.

Petitioners and their members are "interested persons" within the meaning of 7 C.F.R. § 1.28, with have aesthetic, moral, scientific, recreational, and procedural interests in the nation's wildlife and ecosystems that are adversely affected and injured by the activities that are routinely conducted by APHIS-Wildlife Services. Petitioners' members include individuals who have scientific or other interests in the species and ecosystems that are impacted by APHIS-Wildlife Services' activities, and members who have domestic pets that have been injured or killed as a result of APHIS-Wildlife Services' activities and/or who must curtail their activities out of concern for their own and their companion animals' well-being.

Thank you for your consideration. We look forward to your timely response.

Respectfully submitted,

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Animal Welfare Institute

Collette Adkins
Senior Attorney
Center for Biological Diversity

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I. Introduction

FIFRA, in relevant part, defines a "pesticide" as "(1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any *pest*."[4] FIFRA defines a "pest" as "(1) any insect, rodent, nematode, fungus, weed, or (2) *any other form of terrestrial or aquatic plant or animal life* or virus, bacteria, or other micro-organism (except viruses, bacteria, or other micro-organisms on or in living man or other living animals) *which the Administrator declares to be a pest under section 136w(c)(1) of this title*."[5] Section 136w(c)(1) in turn provides that "The Administrator, *after notice and opportunity for hearing*, is authorized to declare a pest any form of plant or animal life (other than man and other than bacteria, virus, and other micro-organisms on or in living man or other living animals) *which is injurious to health or the environment*."[6]

Although the Administrator has some discretion in deciding what constitutes a "pest," the Administrator's authority is guided by two requirements set forth in FIFRA, Section 136w(c)(1). First, the Administrator must provide "notice and opportunity for hearing" before declaring a "form" of "animal life" a "pest." Second, the declaration of a "pest" is limited to species that are "injurious to health or the environment."[7]

The Administrator has never declared the coyote to be a pest and thus has never provided notice and opportunity for a hearing with respect to any such declaration. Moreover, the Administrator has never made a finding that coyotes are "injurious to health or the environment." Even the original EPA decision permitting the use of Compound 1080 in LPCs acknowledges the *beneficial role* coyotes have in their ecosystem, stating: "…coyotes are very useful to many farmers and ranchers, as well as to the public at large. Coyotes play a very important role in the ecosystem for their ability to prey on crop-destroying jackrabbits and numerous other small nuisance animals."[8]

Compound 1080's only lawful use is to kill coyotes.[9] Because coyotes have never been lawfully declared to be a "pest" or "injurious to health or the environment" (pursuant to 7 U.S.C. § 136w(c)(1)), Compound 1080, cannot lawfully be used to destroy coyotes.

Additionally, under 7 U.S.C. § 136d(b), in determining whether to issue a notice of cancellation, "the Administrator shall include among those factors to be taken into account the impact of the action proposed in such notice on production and prices of agricultural commodities, retail food prices, and otherwise on the agricultural economy." It is thus relevant to the Administrator's decision that there is no evidence that the suspension of Compound 1080's registration and its

[4] 7 U.S.C. § 136(u) (emphasis added).
[5] 7 U.S.C. § 136(t) (emphasis added).
[6] 7 U.S.C. § 136w(c)(1) (emphasis added).
[7] 7 U.S.C. § 136w(c)(1).
[8] 49 Fed. Reg. 4830 (Feb. 8, 1984) Applications to Use Sodium Fluoracetate (Compound 1080) to Control Predators; Final Decision; *see also* S. Henke and F. Bryant, 'Effects of Coyote Removal on the Faunal Community in Western Texas,' *The Journal of Wildlife Management* 63 (4), October 1999; B. Miller et al., 'The Importance of Large Carnivores on Healthy Ecosystems', *Endangered Species Update* 18 (5), 2001.
[9] United States Environmental Protection Agency, Reregistration Eligibility Decision Sodium Fluoroacetate, September 1995.

ultimate deregistration will adversely impact or burden production and prices of agricultural commodities, retail food prices, the agricultural economy or Wildlife Services' programs, or even severely impact the manufacturer of Compound 1080, which exports 80% of the product to New Zealand.[10]

It is unlikely that suspending the use of Compound 1080 will have a damaging effect on wildlife management. By the Animal and Plant Health Inspection Service's[11] (APHIS) own account, "the LPC is one of *many* tools available to [Wildlife Services][12] for predator management."[13] APHIS is authorized to use Compound 1080 liberally,[14] yet coyotes are found throughout the country, and the vast majority of states employ methods of control other than Compound 1080.[15] Of the 69,394 coyotes killed in 2015, only 1 was killed with Compound 1080 by APHIS.[16] Compound 1080 LPCs are not even particularly effective.[17] There is little if any real benefit to livestock producers from using this toxicant.

Compound 1080 places people and non-target wildlife at great risk. Compound 1080 is extremely lethal in very small amounts, and there is no known antidote and/or medical treatment to effectively counteract the effects of Compound 1080 poisoning.[18] Many studies have shown that lethal control methods, like Compound 1080 are often ineffective - wholly missing problem individuals and failing to eradicate depredation.[19] For example, studies conducted by noted wildlife biologists have found that lethal control methods are largely unselective and that "there is little evidence" of cost-effective diminution of livestock losses as predators learn to avoid control efforts.[20] Moreover, lethal poisons tend to indiscriminately kill non-target species.[21] A

[10] 1080 Reassessment Application, 'International Considerations of 1080', October 2006; *see also* http://www.annistonstar.com/news/threat-leads-nz-authorities-ask-local-plant-owner-about-customers/article_b7f3baa0-c84f-11e4-b6c1-675058e9de56.html; *see also* http://www.annistonstar.com/news/threat-leads-nz-authorities-ask-local-plant-owner-about-customers/article_b7f3baa0-c84f-11e4-b6c1-675058e9de56.html.
[11] APHIS is an agency within the U.S. Department of Agriculture.
[12] Wildlife Services is a program within Animal and Plant Health Inspection Service, U.S. Department of Agriculture.
[13] Factsheet: The Livestock Protection Collar, Wildlife Services, May 2010 [online via https://www.aphis.usda.gov/publications/wildlife_damage/content/printable_version/fs_livestock_protection_collar.pdf].
[14] The label for APHIS can be found at: https://www3.epa.gov/pesticides/chem_search/ppls/056228-00022-20161013.pdf
[15] http://animals.nationalgeographic.com/animals/mammals/coyote/
[16] *See* USDA APHIS, 2015 Program Data Reports.
[17] In 2006, only 47 of 2041 collared coyotes were killed using Compound 1080. From Factsheet: The Livestock Protection Collar, Wildlife Services, May 2010 [online via https://www.aphis.usda.gov/publications/wildlife_damage/content/printable_version/fs_livestock_protection_collar.pdf].
[18] http://www.predatordefense.org/1080.htm.
[19] McManus, J.S., Dickman, A.J., Gaynor, D., Smuts, B.H., Macdonald, D.W. Dead or alive? Comparing costs and benefits of lethal and non-lethal human–wildlife conflict mitigation on livestock farms. Fauna & Flora International, Oryx, 1–9 (2014).
[20] *Id.*
[21] *Id.*

recent case involved a wolf and a dog that were poisoned to death after feeding on a deer carcass that had been poisoned with Compound 1080.[22]

Allowing an exceptionally dangerous toxicant to be used to kill coyotes is utterly irresponsible, given the known risks that the chemical represents and the fact that other methods of controlling coyote predation on livestock - including non-lethal methods - are effective and sufficient,[23] whereas the risks and costs to people and wildlife from Compound 1080 are extremely high.

II. Background

Compound 1080 was first used in 1944 by the federal government as a pest control agent for rodents and predators.[24] In 1972, Executive Order 11643 ordered agencies to restrict the field use of chemical toxicants for the purpose of killing a predatory mammal or bird, and as a consequence EPA prohibited the use of this agent.[25] Subsequently, the U.S. Department of the Interior and the livestock industry petitioned for reconsideration of this prohibition, requesting that Compound 1080 be permitted for limited use in LPCs.[26] LPCs are devices with two bladders containing the poison, which are placed around the necks of potential prey animals (sheep and goats) to target coyotes."[27] However, because no one was required to destroy or relinquish the product, the illegal use - along with the legal use - of the substance continues to pose significant threats to wildlife.

In 1985, the EPA granted the petitioner's request and transferred authority to use LPCs to APHIS.[28] In addition, several states have the authority to use LPCs for predator control. The dangers of Compound 1080 already were well established at that time, as subsequent reports reiterated.[29] The June 1995 Reregistration Eligibility Decision (Case #3073) placed Compound 1080 in Toxicity Category 1, "the highest degree of acute toxicity."[30] Compound 1080 is most toxic to mammals, which helps explain its use as a predacide. In mammals, it is absorbed through the "gastro-intestinal tract, respiratory tract, or open wounds, but only slowly through intact skin."[31] Symptoms of Compound 1080 poisoning include convulsions, heart blockage,

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[22] http://www.mtexpress.com/news/environment/banned-poison-was-used-to-kill-wolf/article_8b2f1770-96fd-11e6-946d-bbfe614dd6a6.html.

[23] There is evidence that nonlethal interventions can reduce depredation (Breitenmoser et al., 2005), with the added benefits of favorable public perception, improved animal welfare and reduced nontarget casualties (Treves & Naughton-Treves, 2005).

[24] *See* History on Compound 1080, http://www.predatordefense.org/1080.htm.

[25] Richard Nixon: "Executive Order 11643 - Environmental Safeguards on Activities for Animal Damage Control on Federal Lands," February 8, 1972.

[26] EPA, 1995.

[27] PREDATORY BUREAUCRACY (note 24) at 330; EPA, REREGISTRATION ELIGIBILITY DECISION: STRYCHNINE (July 1996); Memorandum from Jane Smith, Health Effects Division, EPA to Jay Ellenberger, Special Review and Reregistration Division, STRYCHNINE, HED Chapter of the Reregistration Eligibility Decision Document (RED), Case #3133 (Jan. 22, 1996).

[28] EPA 1995.

[29] 'Compound 1080's 'controversial history of use in predator control'' in G. Connolly et al., 'Toxic Collar for Control of Sheep-killing Coyotes: a Progress Report', 1 March 1978.

[30] EPA, 1995.

[31] EPA, 1995.

respiratory failure, hallucination, and acute pain.[32] The inhumaneness of the poison has made it considerably unpopular with the general populace.[33]

A. Local Efforts to Ban Compound 1080

Since Compound 1080 was legally reintroduced into the market through the use of LPCs, there have been continued efforts to ban the substance at the local level.[34] For example, the national non-profit Predator Defense led a three-year campaign to keep Compound 1080 collars out of Oregon.[35] After the EPA and Oregon's Department of Agriculture accepted the use of Compound 1080 in collars, the organization approached Oregon's then-Governor, John Kitzhaber.[36] As an emergency room physician, Governor Kitzhaber recognized the many dangers of such a lethal poison, including the potential for the chemical to fall into the wrong hands.[37] Given this danger, Governor Kitzhaber assured Predator Defense that he would work to have its use banned.[38] The Governor asked the USDA to voluntarily pull the registration so these toxic collars would never be used in Oregon.[39] In 1998 it became illegal to use Compound 1080 in Oregon.[40] Due to concerns regarding the dangers and cruelty associated with Compound 1080, citizens in California (1998) and Washington State (2000) also passed ballot initiatives that banned LPCs containing Compound 1080.

Despite local campaigns and some regulation, illegal use of Compound 1080 continues to kill wildlife and family pets.[41] As noted, there have been recent cases of dogs and wolves killed by Compound 1080 because they accidently fed on the carcasses of animals that had been poisoned by Compound 1080.[42] Moreover, wildlife law enforcement officials have documented Compound 1080 poisoning wolves on national forests in Central Idaho.[43] Similarly, in one stark incident, Compound 1080 killed approximately 30 pets and at least 35 birds.[44] According to Predator Defense, because of the time lapse between ingesting Compound 1080 and the onset of sickness, as well as the incidence of secondary poisonings, the actual body count of animals that have been accidently poisoned and killed because of Compound 1080 is likely much higher than can be documented.[45]

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[32] Eason, 2002, Goncharov et al., 2006.
[33] *See* "Two Killers that Need to Go," http://www.predatordefense.org/docs/FactSheet_Two_Killers_final_04-01-10.pdf (discussing public outrage towards Compound 1080).
[34] *See* Compound 1080 History, http://www.predatordefense.org/1080.htm.
[35] *Id.*
[36] *Id.*
[37] *Id.*
[38] *Id.*
[39] *See* Compound 1080 History, http://www.predatordefense.org/1080.htm.
[40] *Id.*
[41] *Id.*
[42] http://www.mtexpress.com/news/environment/banned-poison-was-used-to-kill-wolf/article_8b2f1770-96fd-11e6-946d-bbfe614dd6a6.html.
[43] *See* Compound 1080 History, http://www.predatordefense.org/1080.htm.
[44] *Id.*
[45] *Id.*; *See also* EPA's technical bulletin for APHIS.

B. Public Opinion Indicates Disapproval of Lethal Management of Coyotes

Public opinion studies and polls indicate that the public is largely against using lethal management tools to control coyote populations. When assigning value judgments to management tools, the public seems to take factors like "humaneness" and "specificity" seriously.[46] For example, one study that specifically looked at public responses to coyote control noted that it was not surprising that "the methods judged by all respondents to cause the most suffering: [including] slow poisons" were also deemed to be the "least acceptable" by the public.[47] Whereas methods that were deemed to cause "the least amount of suffering" including "fast poisons and guns" were the most acceptable of the killing methods.[48]

These findings suggest that the public would be in favor of the proposed agency action, as detailed in this petition. In the same study, the authors discuss the support for humaneness and that humaneness was "clearly" the "primary concern in the acceptability...of a control method."[49] Likewise, the public was concerned with the "specificity of the methods," suggesting that the public is not in favor of management tools that indiscriminately kill non-target animals.[50] Compound 1080 has been shown to kill non-target animals, especially other predatory or scavenging animals that can puncture the collars or feed on poisoned carcasses.[51]

A 2004 study explored the effectiveness of non-lethal tools, finding that they were more selective toward predators than lethal tools.[52] Lethal coyote management tools, like Compound 1080, negatively impact non-target species. Additional studies conducted by noted research scientist Scott E. Henke had similar outcomes.[53] Henke noted that "coyote control is not a widely-accepted practice by the populace at present" because of a "growing concern" for animal welfare.[54] His findings indicate that the public has "re-assess[ed] its attitude toward coyote control."[55] For instance, Henke analyzed data that found that "all lethal methods," and even many nonlethal methods, of coyote control receive little acceptance from the public.[56]

These sentiments are widely echoed in a publication about the "Attitudes of the Michigan public and wildlife agency personnel toward lethal wildlife management."[57] The study cites human-dimension research funding that "a majority of the public generally prefers nonlethal means of

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[46] Arthur, L.M. Coyote Control: the Public Response. Journal of Range Management 34(l) (1987).
[47] *Id.*
[48] *Id.*
[49] *Id.*
[50] *Id.*
[51] U.S. Fish and Wildlife Service. 1993. Biological Opinion: Effects of 16 Vertebrate Control Agents on Endangered and Threatened Species; *see also* The killing agency: Wildlife Services' brutal methods leave a trail of animal death, at http://www.sacbee.com/news/investigations/wildlife-investigation/article2574599.html (April 28, 2012).
[52] Shivik, John A. Non-lethal Alternatives for Predation Management. Sheep & Goat Research Journal. Paper 14. http://digitalcommons.unl.edu/icwdmsheepgoat/14 (2004).
[53] Henke, *supra* n. 8.
[54] *Id.*
[55] *Id.*
[56] *Id.* (citing Arthur 1981).
[57] Koval, M.H. and Mertig, A.G. Attitudes of the Michigan public and wildlife agency personnel toward lethal wildlife management. Wildlife Society Bulletin (1973-2006), 32(1): 232-243 (2004).

controlling problem species, such as birth control or removal of animals to another area."[58] Likewise, a Bio One article on the "Repeated Exposure of Coyotes to the Coyote Lure Operative Device" underscored the "public opposition toward lethal control methods."[59]

A more recent study supports these findings.[60] In *Social and Cognitive Correlates of Utah Residents' Acceptance of the Lethal Control of Wolves*, the researchers found that Utah residents find non-lethal methods more acceptable than lethal forms of control.[61] They highlighted the significance that their data indicated that the acceptability of each method of non-lethal control was statistically identical across stakeholder groups.[62] The authors concluded that they anticipate that "the use of non-lethal forms" would be less controversial and would advise managers to use non-lethal forms of control whenever practicable.[63] Canceling the registration of Compound 1080 and using non-lethal tools as an alternative for coyote management is currently practicable.

C. The Indiscriminate Nature of Lethal Management Tools

It is well established that lethal management tools used to control wildlife are indiscriminate in their impacts. Part of the problem lies in the overall ineffectiveness of lethal coyote management tools. For instance, eradication of coyotes is not the goal of federal and state agencies seeking to control coyotes.[64] The numbers show that agencies have killed about 18-29% of the coyote population in 13 states.[65] Yet, scientific research indicates that "at a minimum" the annual removal of 75% of the coyote breeding population was needed to consistently lower the coyote density.[66] This demonstrates the ineffectiveness of current lethal approaches to combat and manage coyote depredation.

A 2001 study looked at removal of coyotes over a 14-year period.[67] The study found that there was no correlation between the number of coyotes removed and the sheep that were killed.[68] The researchers had two possible explanations for the lack of relationship. First, they underscored that not all coyotes were preying on sheep and those that were doing so were not being removed consistently.[69] A single sheep was killed by the alpha in a pair within a coyote territory each day.[70] If the management tools are not targeting the alpha coyote, the management would not be effective.

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[58] *Id.*
[59] Berentsen, R., Schmidt, R.H., Timm, R.M. Repeated Exposure of Coyotes to the Coyote Lure Operative Device. Wildlife Society Bulletin, 34(3):809-814 (2006).
[60] *Id.*
[61] *Id.*
[62] *Id.*
[63] *Id.*
[64] Henke 1995, *supra* n.8.
[65] *Id.*
[66] *Id.*
[67] Mitchell, B.R.; Jaegar, M.M.; and Barrett, R.H. Coyote depredation management: current methods and research needs. USDA National Wildlife Research Center - Staff Publications. Paper 345. http://digitalcommons.unl.edu/icwdm_usdanwrc/345 (2004).
[68] *Id.*
[69] *Id.*
[70] *Id.*

In 1995, alphas from four territories were associated with 89% of the 74 coyote-killed lambs.[71] The nonselective targeting of coyotes with traps, snares and M-44s was more likely to remove young, less experienced animals that were not associated with the killing of lambs.[72] When alpha coyotes were removed from their territories, sheep depredation was significantly reduced for about 3 months, after which new alpha coyotes moved in and began killing sheep.[73] This demonstrates that lethal management tools are widely ineffective in the short and long-term.

Although some of these studies are older, many new publications support their findings. A 2014 study further underscored the fact that "coyote control usually has involved population reduction rather than selective killing."[74] As emphasized, indiscriminate killing of coyotes and non-target wildlife does not address depredation problems, instead it can create "temporary local extirpations, soon attracting immigrants that experience dramatically higher reproductive output resulting in no long-term effect on depredation."[75] Furthermore, removing more than the territorial breeding pair of coyotes (which commit most depredations of sheep) from a wider zone around a depredation site may even increase the overall problem by allowing more breeding pairs to immigrate.[76] Despite considerable effort by Wildlife Services at lethal coyote control in the western United States, evaluation of a 60-year data set indicated that the decline of the sheep industry in both eastern and western United States could be attributed to market trends and production costs, and that predator control did not have a significant impact on the decline.[77]

Similarly, a recent 2014 study examined the history of non-target killing of mammals by Wildlife Services from 2000-2011.[78] The data found "striking" examples of waste of nontarget species.[79] Swift foxes were extirpated in many areas by the 1930s as a result of nontarget mortality from federal coyote and wolf control programs.[80]

As has been indicated, lethal management tools are often ineffective in halting coyote management. In one study, the researchers found that there was "no relation between number of lambs killed and number of coyotes removed."[81] This is largely because, as referred to above, lethal management tools fail to realize that individual animals need to be targeted to achieve long-term results.[82] Therefore, if only certain coyotes kill sheep, increasing numbers of coyotes removed will have no effect on number of sheep killed unless the problem coyote is removed.[83] In the same study, the results showed that there was literally "no indication that removal of

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[71] *Id.*
[72] *Id.*
[73] *Id.*
[74] Bergstrom, B.J., Arias, L.C., Davidson, A.D., Ferguson, A.W., Randa, L.A. Sheffield, S.R. License to Kill: Reforming Federal Wildlife Control to Restore Biodiversity and Ecosystem Function. Department of Biology, Valdosta State University (2014).
[75] *Id.*
[76] *Id.*
[77] *Id.*
[78] *Id.*
[79] Bergstrom et al., 2014, *supra* n.74.
[80] *Id.*
[81] Connor, M.M., Jaeger, M.M., Weller, T.J., McCullough, D.R. Effect of Coyote Removal on Sheep Depredation in Northern California. The Journal of Wildlife Management, Vol. 62, No. 2, pp. 690-699 (1998).
[82] *Id.*
[83] *Id.*

coyotes reduced predation the following year…suggesting that coyote density was not being reduced by removal efforts."[84] Instead, one-year later the researchers found that the territories of removed coyotes were replaced with new coyotes.[85]

In addition, and as demonstrated above, the use of Compound 1080 as a tool for lethal of coyotes is largely ineffective. For instance, in the initial field studies, 83% of the lambs that were wearing LPCs were killed, but only 65% of the collars on these lambs were punctured, thus effectively killing the predator. In another test the puncture rate was only 63%.[86] Lambs were collared because they are often targeted by coyotes. When there are no lambs in the flock, the effectiveness of the LPCs is even less, as not all sheep wear LPCs and it is a matter of sheer luck if the attacked sheep were wearing LPCs.[87] There is also a risk of LPCs leaking, getting punctured by accident, or getting lost, which causes great risk to the ranchers handling the sheep.[88]

III. Legal Standards for Cancellation of Registration of Compound 1080's Use to Kill Coyotes

Cancellation of a pesticide's registration is warranted where the "pesticide or its labeling or other material required to be submitted does not comply with the provisions of [FIFRA Subchapter II] or, when used in accordance with widespread and commonly recognized practice, generally causes unreasonable adverse effects on the environment."[89]

Registration of Compound 1080 should be cancelled because, while Compound 1080's sole legally permissible use as a pesticide is to target coyotes, coyotes as a species have never been "declare[d]," "after notice and opportunity for a hearing," as a "pest . . . which is injurious to public health or to the environment," as is required by 7 U.S.C. § 136w(c)(1).

A. The current registration of Compound 1080 is contrary to law because the Administrator has never "declare[d]" coyotes to be a "pest" as required by 7 U.S.C. § 136w(c)(1).

Under FIFRA, registered pesticides must target plants or animals that have been declared to be "pests" by the Administrator.[90] Such a declaration can only be made "after notice and

[84] *Id.*
[85] *Id.*
[86] G. Connolly and R. Burns, 'Efficacy of Compound 1080 Livestock Protection Collars for Killing Coyotes that Attack Sheep', *Proceedings of the Fourteenth Vertebrate Pest Conference* 1990.
[87] LPCs cost about $24 per piece and require significant monitoring, so most ranchers give a small amount of sheep a collar within a flock. From R. Timm and G. Connolly, 'Sheep-killing Coyotes a Continuing Dilemma for Ranchers', *California Agriculture* 55 (6), November December 2001.
[88] G. Connolly et al., 'Toxic Collar for Control of Sheep-killing Coyotes: a Progress Report', *Proceedings of the 8th Vertebrate Pest Conference*, 1978.
[89] 7 U.S.C. § 136d(b).
[90] 7 U.S.C. §§ 136(t)(u).

opportunity for hearing" for "any form of plant or animal life . . . which is injurious to health or the environment . . . ."[91]

A search of available public records reveals that the Administrator never "declare[d]" the coyote to be a "pest." Rather, EPA merely promulgated a rule, 40 C.F.R. § 152.5, providing that "[a]n organism is declared to be a pest under circumstances that make it deleterious to man or the environment, if it is: (a) Any vertebrate animal other than man . . . ." That rulemaking is insufficient to satisfy FIFRA's requirement that registered pesticides only target plants or animals declared as "pests."

First, FIFRA does not allow something to be declared a pest just because it is "deleterious to man or the environment." Instead, the statute provides that a pest needs to be "injurious to health or the environment."[92] Yet the Administrator never made a finding that coyote is injurious to health or to the environment. Importantly, as explained above, such a finding could not be reasonably made based on the fact that coyotes do not pose a health risk and they play important ecosystem roles, such as controlling rodents that harm field crops and preying upon jackrabbits that compete with cattle for forage.

Second, the rule's broad declaration that pests include "any vertebrates other than man" does not satisfy FIFRA's requirement that a "form" of "animal life" be so declared. The most reasonable interpretation is that Congress intended registered pesticides to target only those species that have been specifically identified as "injurious to health or the environment."

Therefore, a form of animal life that has not been properly and lawfully "declared" to be a pest under section 136w(c)(1) does not fall within FIFRA's definition of a pest, and thus is not a lawful target of a "pesticide" as defined under FIFRA. A proper, formal declaration requires both notice and opportunity for hearing as well as a finding that the form of life is injurious to health or to the environment. Because such a finding has not been made -- and cannot be made -- for the coyote, pesticides targeting coyotes, including Compound 1080, cannot be lawfully registered under FIFRA.

B. Compound 1080 cannot lawfully be registered because coyotes are not injurious to health or the environment, and therefore they are not "pest[s]"

The EPA has never made a declaration of coyotes as a pest and would be hard-pressed to do so, given that coyotes play a crucial rule in the maintenance of healthy ecosystems and environments.[93]

[91] 7 U.S.C. § 136w(c)(1); *see also* 5 U.S.C. § 554(c) (providing that agencies "shall give all interested parties opportunity for the submission and consideration of facts, arguments, offers of settlement, or proposals of adjustment when time, the nature of the proceeding, and the public interest permit; and to the extent that the parties are unable so to determine a controversy by consent, hearing and decision on notice and in accordance with sections 556 and 557 of this title").
[92] 7 U.S.C. § 136w(c)(1).
[93] *See* S. Henke and F. Bryant; B. Miller et al., *supra* n. 8.

IV. The Role of the Coyote in the Ecosystem and its Ecological Benefits

The coyote is an apex predator as well as a scavenger. The interplay of "predator and prey is complimentary, creating a balanced exchange of energy that provides both with life."[94] When this balance is disrupted, the entire system is compromised. The existence of an apex predator such as a wolf or coyote in an area, deters other predators from moving in and becoming overabundant. Coyotes feed on "rodents, lizards, snakes, and even berries and fruits, as well as scavenging on the carcasses of sheep, horse, cattle, and swine, which they have not killed."[95] Unlike many traditionally-defined "pests," coyotes do not carry disease but reduce the spread of disease, for example by preying on white-tailed deer and thus lowering the transmission of tick-borne Lyme disease to humans.[96]

For instance, a 2004 study determined that common prey species are "are often responsible for the emergence of zoonotic infectious diseases, including hantavirus and Lyme disease."[97] The dominant reservoir hosts for Lyme disease in North America are small mammals that coyotes and other predators prey on, and deer, which are an important reproductive host for adult ticks.[98] Therefore, it is important to underscore that the ecological benefits that coyotes provide extend to humans.

Large carnivores can shape the structure and function of ecological communities yet few ecosystems still harbor apex predators.[99] Most carnivore species are declining globally in large part due to human persecution.[100] A 1983 study found that coyotes fill an "ecological niche."[101] They underscored the usefulness of the animal in the ecosystem by detailing the control the coyote exercises over rodents and rabbits that compete with livestock for food and spread diseases that can impact livestock and humans.[102] Henke's work found that coyote removal caused a 320% increase in jackrabbit density and suggested that altered jackrabbit behavior due to a lack of coyote predation risk could increase competition with livestock for available forage.[103] His study stated that such "dramatic changes in the structural composition of the food web" would likely lead to "instability within the ecosystem."[104] The study concluded by emphasizing the fact that short-term coyote removal programs were typically not effective in reducing coyote density.[105]

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[94] http://digitalcommons.pepperdine.edu/cgi/viewcontent.cgi?article=1031&context=naalj
[95] *Id.*
[96] M. Gompper, 'Top Carnivores in the Suburbs? Ecological and Conservation Issues Raised by North-eastern North America by Coyotes', *Bioscience* 52 (2), February 2002.
[97] Levi, T., Wilmers, C.C. Wolves-coyotes-foxes: A cascade among carnivores. Ecology, 93(4): 921–929 (2012).
[98] *Id.*
[99] Berger, K.M.; Gese, E.M.; and Berger, J. Indirect Effects and Traditional Trophic Cascades: a Test Involving Wolves, Coyotes, and Pronghorn Biological Sciences Faculty Publications. Paper 78. http://scholarworks.umt.edu/biosci_pubs/78 (2008).
[100] *Id.*
[101] Burns, R.J. Coyote Predation Aversion with Lithium Chloride: Management Implications and Comments. Wildlife Society Bulletin (1973-2006), 11(2): 128-133 (1983).
[102] *Id.*
[103] Henke 1995, *supra* n.8.
[104] *Id.*
[105] *Id.*

Coyotes are competitors with, and predators of, a wide array of species.[106] A 2002 study by Gomperr looked at the influence of coyotes on the distribution and abundance of other species.[107] Gomperr found that as a large carnivore, the coyote's potential for top-down influence is "great."[108] Gomperr looked at specific examples of population dynamics in predators. For example, he wrote that the absence of coyotes in habitat fragments in southern California may result in "mesopredator release" - a sharp increase in the numbers of midsize predators - and altered bird communities. He noted that similar findings involving coyotes have been made elsewhere in North America, revealing indirect effects on waterfowl, songbirds, and rodents.

Coyotes are part of a delicate and complex web in the ecosystem that can be severely impacted when coyotes are indiscriminately killed. Many studies indicate the destabilizing environmental effects that occur when coyotes are removed from their environment. Many studies also note that the long-term effects of coyote management on the environment are not fully understood, in part because coyote behavior isn't fully understood. In "Coyote Behavior," Lehner found that we still "know very little about the basic behavioral biology of the coyote."[109] Because of this effective coyote management techniques are impeded.[110] She concluded by stating the dangerous fact that "expediency for a solution to the coyote-livestock problem will undoubtedly force short cuts [instead of] careful investigations; however, we must be prepared to shoulder the consequences of grasping false panaceas."[111]

A recent 2014 study underscored the negative environmental implications of indiscriminately removing coyotes from the ecosystem.[112] The authors state that "coyote removal at a local scale…can destabilize small-mammal communities, causing irruptions and "reduced diversity," "decreases in ecosystem resilience," and increases in invasive species "which only increases the need for invasive control while decreasing its likelihood of success."[113] The authors encouraged stakeholders to adopt a more "holistic and ecosystem-based management approach" when dealing with the management of coyotes and similar animals in order to "restore ecosystems."[114]

There is concern among the scientific community that not enough attention is given to the role coyotes play within the whole ecosystem. For example, another study found that "not enough" attention is given "to the entire predator complex."[115] The author states that predators are "in constant interaction" with the ecosystem and that "not enough attention is given to the environment that supports predators – hence, the importance of studying not just coyotes but all the interrelationships with their prey, other predator species, and their habitats."[116] McNamus,

[106] Gomperr 2002, *supra* n.96.
[107] *Id.*
[108] *Id.*
[109] Lehner, P.N. Coyote Behavior: Implications for Management. Wildlife Society Bulletin (1973-2006) 4(3): 120-126 (1976).
[110] *Id.*
[111] *Id.*
[112] Bergstrom et al. 2014, *supra* n. 74.
[113] *Id.*
[114] *Id.*
[115] Balser. D.S. A Research Review of Coyote Control. Vertebrate Pest Conference Proceedings collection at DigitalCommons@University of Nebraska – Lincoln (1974).
[116] *Id.*

for example, discussed the ecological effects that indiscriminate killing of non-target species by poisoning can have on the environment. For instance, the unintended outcomes of removing territorial predators can include an influx of replacement individuals, potentially increasing the local predator population and the risk of depredation.[117] Moreover, the use of lethal management tools has led to the extermination of populations of large carnivores.[118]

Government officials routinely acknowledge the critical importance of apex predators. President Nixon's Executive Order 11643 banning the use of Compound 1080 noted his support for predator conservation measures, even when control measures are necessary: "All such mammal or bird damage control programs shall be conducted in a manner which contributes to the maintenance of environmental quality, and to the conservation and protection, to the greatest degree possible, of the Nation's wildlife resources, including predatory animals."[119]

V. Alternatives to Compound 1080 exist and are Currently Used

Many viable alternatives to the use of Compound 1080 exist, some of which are preferred by both Wildlife Services and the ranching industry. Studies highlight promising new tools such as plastic collars, (which in South Africa have proven effective in protecting sheep from predatory jackals, whose manner of killing is similar to that of coyotes) and nocturnal and seasonal enclosures for birthing animals and their new offspring.[120] In addition, foxlights—disruptive stimuli-based deterrents invented in Australia—have shown promise across the globe in protecting livestock and crops from species including snow leopards in Nepal to elephants in India, coyotes in Northern California, and wolves in Idaho and Washington. Various disruptive stimuli - including electronic guards, biological odor repellents, guard dogs, and disruptive harassment – also provide numerous possibilities for the non-lethal control of predators.[121] These are "primary repellants" which if necessary can be supplemented with a host of "secondary repellants," including translocation and reproductive inhibition.[122] Unlike Compound 1080, all of these alternatives carry the additional benefit of being preemptive, meaning that no livestock animal has to die in order for the control method to start working.

VI. The Advantages to Alternatives of Lethal Management Tools

As indicated throughout this petition, lethal management tools like Compound 1080 have many drawbacks. Not only are they unpopular but their actual effectiveness has been consistently undermined in peer reviewed studies. In contrast, there are many advantages associated with alternatives to lethal management tools.

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[117] McNamus et al., *supra* n. 19.
[118] *Id*.
[119] Richard Nixon: "Executive Order 11643 - Environmental Safeguards on Activities for Animal Damage Control on Federal Lands," February 8, 1972.
[120] Shivik, *supra* n. 52.
[121] *Id*; *see also* Bruskotter, J.T., Schmidt, R.H., Vaske, J.J. Social and Cognitive Correlates of Utah Residents' Acceptance of the Lethal Control of Wolves. Human Dimensions of Wildlife, 14:119–132 (2009).
[122] Shivik, *supra* n. 52. Paper 14.

For instance, a federal research paper explored the advantages of reproductive inhibitors.[123] Some of these advantages include:

> (1) Preventing animals from being born may be more practical than reducing their numbers after they are partly or fully grown and established in a secure environment;
> (2) Increasing one or more mortality factors often results in a compensating increase in reproductive rates, or survival or both.[124] This compensating increase reduces the effectiveness of a lethal control program.[125] By suppressing reproduction, the compensating increase in reproduction may be overcome, but survival may be increased in the remaining population;
> (3) Movement or ingress that occurs when animals are removed from a population may be lessened by occupancy of territories by treated coyotes; and
> (4) Nontoxic antifertility compounds are safer to use than many toxicants and likely would be more readily accepted by the public.[126] This acceptance could result in more effective population control where the use of lethal techniques is restricted.[127]

LPCs do not provide an effective long-term solution. Instead, Bergstrom et al. (2014) found that preventive, nonlethal methods, such as fencing, guard dogs, and taste aversion conditioning hold more promise for long-term reduction of depredation.[128]

VII. Conclusion

Because coyotes have not been lawfully declared to be pests and have not been found to be "injurious to health or environment," Compound 1080 cannot legally be used to destroy them. Since Compound 1080's only legal use in the U.S. is for killing coyotes through LPCs, it should not be registered as a pesticide. Adequate and effective alternatives to Compound 1080 exist and are generally preferred for coyote management. There is no compelling evidence that suspending and cancelling the registration of Compound 1080 would place an undue burden on the production and pricing of agricultural commodities, on the agricultural economy generally or on retail food prices, given how seldom Compound 1080 is used in the few places it is allowed and how relatively ineffective it has proven to be in mitigating coyote predation. For the reasons contained herein, we respectfully petition the EPA to suspend and cancel its registration for Compound 1080.

Thank you for your consideration. We look forward to your timely response.

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[123] Stellflug, John N.; Gates, Norman L.; and Sasser, R. Garth. Reproductive Inhibitors for Coyote Population Control: Developments and Current Status. Proceedings of the 8th Vertebrate Pest Conference (1978). Paper 46. http://digitalcommons.unl.edu/vpc8/46 (1978).
[124] *Id.*
[125] *Id.*
[126] *Id.*
[127] *Id.*
[128] Bergstrom et al., 2014, *supra* n.74.

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