



# Public Employees for Environmental Responsibility

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## VIA EMAIL AND U.S. MAIL

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## **RE: COMPLAINT ABOUT INFORMATION QUALITY**

Dear Ms. Williams,

PEER respectfully submits this complaint about Data Quality.

Pursuant to Section (b)(2)(B) of the Data Quality Act of 2000 (“DQA”), Section 515 of Public Law 106-554, and the Correction of Information mechanism of the U.S. Department of Agriculture Information Quality Guidelines, Public Employees for Environmental Responsibility (“PEER”) hereby challenges data manipulation and conclusions drawn therefrom by the U.S. Department of Agriculture (“USDA”), as detailed *infra*. PEER is especially concerned about the government’s dissemination of faulty research that has been erroneously used to justify harmful, commonplace, and excessive coyote control and extermination policies throughout federal lands despite more recent, thorough, and peer-reviewed scientific studies demonstrating the importance of large mammalian carnivores contributing to ecological health and stability. Specifically, PEER challenges the government’s continued reliance upon the USDA-funded study Connolly, G.E., and W.M. Longhurst, 1975, *The effects of control on coyote populations: A simulation model*, University of California, Division of Agricultural Sciences Bulletin, Volume 1872, 37 pp. (hereinafter “Connolly and Longhurst study”).

The USDA has consistently used this study for over 40 years, despite its established flaws and disputed findings, to justify large-scale coyote extermination efforts – even though the study’s own findings stated that eradication efforts were not an effective means of preventing depredation. In addition to being used to justify large-scale coyote control (*i.e.*, killing

programs), this obscure (*i.e.*, a small agricultural bulletin) and non-peer reviewed study has been cited and utilized in a variety of USDA documents over the years to justify a variety of agency actions related to coyote management. *See, e.g.*, Paul L. Hegdal et al., *Hazards to Wildlife Associated with 1080 Baiting for California Ground Squirrels*, USDA National Wildlife Research Center – Staff Publications (1979); Guy E. Connolly, *The Effects of Control on Coyote Populations: Another Look*, Symposium Proceedings—Coyotes in the Southwest: A Compendium of Our Knowledge 23 (1995); Kathleen A. Fagerstone and Gail Keirn, *Wildlife Services—A Leader in Developing Tools and Techniques for Managing Carnivores*, USDA National Wildlife Research Center – Staff Publications (2012); Eric Gese, *Demographic and Spatial Responses of Coyotes to Changes in Food and Exploitation*, Wildlife Damage Management Conferences—Proceedings 131 (2005); John L. Gittleman et al., “References” for *Carnivore Conservation*, USDA National Wildlife Research Center – Staff Publications (2001); Gary Lee Nunley, *Present and Historical Bobcat Population Trends in New Mexico and the West*, Proceedings of the 8th Vertebrate Pest Conference 177, 180 (1978); Stewart W. Breck et al., *Evaluating Lethal and Non-Lethal Management Options for Urban Coyotes* (2016); William C. Pitt et al., *An Individual-Based Model of Canid Populations: Modelling Territoriality and Social Structure* (2003); USDA, *5 Year Environmental Monitoring Review for Predator Damage Management in Montana: FY 2002 through FY 2006* (2007).

Furthermore, USDA has relied upon this study for justification of coyote eradication efforts or large scale control (*i.e.*, killing) programs in numerous Environmental Assessments and Findings of No Significant Impact under the National Environmental Policy Act, 42 U.S.C. § 4321, *et seq* (“NEPA”). This includes, but is not by any means limited to, *Final EA: Predator Damage and Conflict Management in Idaho* (2016); *Final EA: Reducing Coyote Damage to Livestock and Other Resources in Louisiana* (2016); *EA: Mammal Damage Management in the Commonwealth of Massachusetts* (2015); *EA: Reducing Mammal Damage in the State of North Carolina* (2015); *EA: Mammal Damage Management in the State of Rhode Island* (2014); *EA: Mammal Damage Management in Arkansas* (2013); *Decision and Finding of No Significant Impact: Reducing Mammal Damage through an Integrated Wildlife Damage Management Program in the State of New Jersey* (2004); *Decision and Finding of No Significant Impact for Management of Coyote, Dog, and Red Fox on Livestock in the Commonwealth of Virginia* (2002); *Environmental Assessment and Decision/Finding of No Significant Impact for Predator Damage Management in the College Station Animal Damage Control District Texas* (1997). While USDA guidelines limit challenge of material used in NEPA documents to the public comment period for each NEPA document, it is evident from the recent and continued use of this study in justifying coyote eradication and control efforts that the study is being disseminated by the USDA and is clearly influential in both state and federal wildlife agency decision and policy-making, despite its faulty nature.

USDA’s use of the Connolly study violates the requirements of the Data Quality Act and as such the study should be removed from use by the agency and notice of its discontinued use be distributed among the USDA, Department of Interior (“DOI”) and state game agencies still utilizing this study to justify coyote hunting policies and control strategies.

According to the Information Quality Guidelines, affected persons may avail themselves of multiple methods for notifying the USDA of complaints. *See* USDA, Office of the Chief Information Officer, *Information Quality Guidelines: Correction of Information*, available at <https://www.ocio.usda.gov/policy-directives-records-forms/guidelines-quality-information/correction-information>. In accordance with those guidelines, PEER has mailed and emailed this complaint to the stated addresses and directed the complaint to Connie Williams, Chief Information Officer for the USDA Animal and Plant Health Inspection Service. *See id.* APHIS includes Wildlife Services, the primary USDA component disseminating the Connelly and Longhurst study.

## **I. CHALLENGED INFORMATION DOES NOT COMPLY WITH THE INFORMATION QUALITY GUIDELINES**

### **a. Legal Basis for Data Quality Act Challenge**

Section 515 of the Treasury and General Government Appropriations Act of 2001 (PL 106-544, H.R. 5658) directs the Office of Management and Budget (“OMB”) to issue government-wide guidelines that “provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies.” OMB published final guidelines to implement Section 515 in the *Federal Register* on September 28, 2001, 66 Fed. Reg. 49718, (Sep. 28, 2001), and subsequently updated these guidelines on February 22, 2002, 67 Fed. Reg. 8452 (Feb. 22, 2002).

OMB’s guidelines direct that Federal agencies “shall develop a process for reviewing the quality (including the objectivity, utility, and integrity) of information before it is disseminated. Agencies shall treat information quality as integral to every step of an agency’s development of information, including creation, collection, maintenance, and dissemination.” 67 Fed. Reg. 8452, 8459 (Feb. 22, 2002). Furthermore, “[t]o facilitate public review, agencies shall establish administrative mechanisms allowing affected persons to seek and obtain, where appropriate, timely correction of information maintained and disseminated by the agency that does not comply with OMB or agency guidelines. These administrative mechanisms shall be flexible, appropriate to the nature and timeliness of the disseminated information, and incorporated into agency information resources management and administrative practices.” *Id.*

The purpose of the Data Quality Act was to ensure that the government disseminated the best quality information. *See* 66 Fed. Reg. 49718, 49718 (Sep. 28, 2001). OMB guidelines require a basic standard of quality. 67 Fed. Reg. 8452, 8458 (Feb. 22, 2002). They also require that each agency adopt guidelines appropriate for the information they disseminate. *Id.* In this case, the Department of the Agriculture’s guidelines govern the challenge. USDA, Office of the

Chief Information Officer, Information Quality Activities.<sup>1</sup> The Department stated therein that it will make sure that information disseminated is accurate, reliable, and unbiased, and will “treat information quality as integral to every step in their development of information, including creation, collection, maintenance, and dissemination.” USDA Guidelines, Information Quality Activities, IQA Main.

The data disseminated by the USDA must meet requirements of objectivity, utility, and integrity. *Id.* To fulfill agency objectivity requirements, agency information must be “substantively accurate, reliable, and unbiased” and the agency must identify such information for public review of its objectivity. *Id.* The USDA assesses the utility of a study based upon its internal review of usefulness of the information and requires that disseminated information is accessible to all persons. *Id.*

Among the other standards, the USDA guidelines state that as a general matter, scientific and research information that has been subjected to formal, independent, external peer review is regarded as presumptively objective. USDA Guidelines, Information Quality Activities, Scientific Research. For the peer review process, the USDA guidelines require that one or more of the following procedures be used for influential studies:<sup>2</sup>

1. Conduct a peer review that meets the standards recommended by the OMB Bulletin.
  - i. Where appropriate, subject the information to formal, independent, external peer review to ensure its objectivity. If data and analytic results have been subjected to such a review, the information may generally be presumed to be of acceptable objectivity. However, in accordance with the OMB standard, this presumption is rebuttable based on a persuasive showing by a petitioner in a particular instance, although the burden of proof is on the complainant.
  - ii. If agency-sponsored peer review is employed to help satisfy the objectivity standard, the review process should meet the general criteria for competent and credible peer review recommended by OMB. OMB recommends that (a) peer reviewers be selected primarily on the basis of necessary technical expertise, (b) peer reviewers be expected to disclose to agencies prior technical/policy positions they may have taken on issues at hand, (c) peer reviewers be expected to disclose to agencies their sources of personal and

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<sup>1</sup> Available at <https://www.ocio.usda.gov/policy-directives-records-forms/information-quality-activities>

<sup>2</sup> The challenged Connolly and Longhurst study meets the influential standard as it has been the definitive study used by USDA for the past 40 years to establish lethal control policies and has been used by the U.S. Department of Interior and state game agencies.

institutional funding (private or public sector), and (d) peer reviews be conducted in an open and rigorous manner.

2. Confirm that the information to be released has been peer reviewed by a reputable scientific or professional journal, and the journal has agreed to publish the same information.
3. Conduct an internal review, which for the purposes of establishing transparency, ensures that the report or research product clearly states what the information and data are, how they were obtained, and any reservations or limitations on their use.

USDA Peer Review Implementation Guidelines at 5-6.<sup>3</sup> The presumption that peer-reviewed material is objective can be rebutted, and non-peer reviewed studies are not considered to be presumptively objective. *Id*; see also 67 Fed. Reg. 8452, 8459 (Feb. 22, 2002).

The Information Quality Guidelines describe how a challenge to the quality of information must proceed. USDA Guidelines, Correction of Information. The challenge must have six elements: a statement that the submittal is under USDA's Information Quality Guidelines, a specific reference to the information being challenged, a statement from the complainant describing why the information does not satisfy the Department's or OMB's guidelines, the ways in which the complainant is affected by the information, a recommendation and justification for how the information should be corrected, and the name, address and other contact information of the complainant. *Id*. All these requirements are satisfied in this letter.

PEER's name, address, phone number, fax number and email address is provided, the specific study is cited above, and the complainant is affected in ways described in Part III of this letter. Additionally, the challenged information violates the standards of data quality because it lacks the baseline reliability quality required by statute. "Quality" as a term encompasses utility, objectivity, and integrity. 67 Fed. Reg. 8452, 8459 (Feb. 22, 2002). As it relates to quality, utility refers to "the usefulness of the information to its intended users, including the public. In assessing the usefulness of information that the agency disseminates to the public, the agency needs to consider the uses of the information not only from the perspective of the agency but also *from the perspective of the public.*" *Id*. (emphasis added). Furthermore, "when transparency of information is relevant to assessing the information's usefulness from the public's perspective, the agency must take care to ensure that transparency has been addressed in its review of the information." *Id*. In this case, the information challenged herein is of limited utility due to its age, lack of transparency, and the numerous recent peer-reviewed publications rebutting its erroneous conclusions. It can no longer reasonably be used to inform the government's carnivore control policy. Furthermore, even if a challenged study has been through the peer review process (which this study and its 1995 review by its principal researcher do not appear to

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<sup>3</sup> USDA, Office of the Chief Information Officer, USDA's Peer Review Guidelines, available at <https://www.ocio.usda.gov/document/usdas-peer-review-guidelines>.

have been), its presumption of objectivity may be rebutted with a showing by a petitioner. 67 Fed. Reg. 8452, 8459 (Feb. 22, 2002). The information provided by this study is not reliable or accurate; thus even if it were peer-reviewed, the presumption in its favor would be rebutted.

#### b. Issues with the Quality of the USDA Research

*The Connolly and Longhurst study lacks utility for USDA's intended purpose of evaluating and authorizing large-scale coyote extermination.*

By repeatedly using the Connolly and Longhurst study for more than 40 years, USDA continues to rely on its findings as scientific evidence justifying large-scale coyote extermination programs, killing 76,859 coyotes in 2016 alone.<sup>4</sup> The study has been relied on to support a claim of population resiliency in explosives and poison usage assessments, population modeling publications, NEPA documents for lethal control programs, and efficacy reviews for various carnivore management tactics, as well as a variety of other agency documents. In other words, USDA has justified exterminating coyotes on the basis of the study's questionable conclusion that coyote populations rebound after major extermination events – while ignoring the ultimate conclusion of the study that lethal management of coyotes is not an effective method for reducing coyote populations or depredation events. Not only has USDA employed this study for internal purposes, it has disseminated this study to state game agencies and the DOI for use in their hunting program environmental assessments and planning materials.

However, it is abundantly clear that this study is no longer useful, due to its age and countless errors (discussed in detail below). Even apart from these flaws, USDA misuses the study to justify a practice that the study actually recommends against. The study that USDA uses to justify broad lethal control of coyotes actually describes the futility of killing coyotes for management purposes since the species will simply rebound in numbers in a short period of time (<3 years) due to density dependent responsive reproduction. In fact, the authors finished their paper by concluding that they “emphatically *do not* recommend eradication as the preferred coyote management strategy . . . Killing coyotes unselectively . . . is not a very feasible means of reducing populations over broad geographical areas.” Connolly and Longhurst at 32-33 (emphasis added). Rather than providing justifications for coyote killing, the authors “suggest[ed] that other means should be found to reduce coyote depredations, and that better understanding of coyote population dynamics is required.” Connolly and Longhurst at 33. We now understand more about coyote population dynamics.

Moreover, this study, which is relied upon so heavily by not just the USDA but also the DOI and numerous state game agencies,<sup>5</sup> is based on speculative – not empirical – data from the

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<sup>4</sup> See [https://www.aphis.usda.gov/wildlife\\_damage/pdr/PDR-G\\_Report.php?fld=&fld\\_val=](https://www.aphis.usda.gov/wildlife_damage/pdr/PDR-G_Report.php?fld=&fld_val=)

<sup>5</sup> As state game agencies often rely upon federal data and research to establish lethal control guidelines and hunting regulations, USDA and DOI reliance upon this study has significantly impacted state management of wildlife. See, e.g., *Strawberry Valley Greater Sage-Grouse (Centrocercus Urophasianus) Local Conservation Plan* (2006);

1970s. In fact, when discussing birth and death functions, the authors feel compelled to “reemphasize that the form of these functions is *largely speculative*.” Connolly and Longhurst at 15 (emphasis added). This paper is over 40 years old and reams of scientific data on coyotes and predators in general have been produced since then.<sup>6</sup>

It is questionable at best, and dishonest at worst, for USDA and other agencies to continue to rely on this 42 year old model, based on “largely speculative” data. Even the authors seem to acknowledge the unsuitability of using their work to justify lethal control by saying, “[s]ince reliable estimates of coyote numbers are notoriously difficult to obtain, the information needed to plan intelligent predator management programs is not usually available. In most areas we simply do not know how the control kill relates to the size of the population, or even whether coyote numbers are increasing or decreasing.” Connolly and Longhurst at 27. Not only does recent research demonstrate that lethal control programs have detrimental ecological effects, but it reinforces the missed message of the Connolly and Longhurst study that lethal control of carnivores is not an effective tactic for combating livestock depredation. See Treves, A., M. Krofel and J. McManus (2016), *Predator control should not be a shot in the dark*, *Frontiers in Ecology and the Environment* 14: 380–388; Van Eeden, L. M., et al. (2017), *Managing conflict between large carnivores and livestock*, *Conservation Biology*, doi: 10.1111/cobi.12959. Considering the fact that a tremendous volume of coyote research and data has emerged since the 1970s (including birth rates, age ratios, survival, effects of hybridization, etc.), the Connolly and Longhurst study has been rendered useless and antiquated for purposes of scientifically sound coyote control and hunting decisions.

Furthermore, the Connolly and Longhurst study is cited by USDA materials to erroneously reach broad conclusions about management of coyotes in the eastern U.S., such as the acceptability of large scale lethal management programs<sup>7</sup> and the efficacy of lethal control<sup>8</sup>, despite this region possessing a different population of canids, namely the eastern coyote, or coywolf, a hybridized subspecies with only roughly 60% shared genetics with western *Canis latrans*. Neither PEER nor its coyote researcher collaborators have been able to locate any USDA, or more specifically Wildlife Services, documents that effectively address the reproductive and behavioral differences between the western *Canis latrans* and the eastern coyote, whose reproductive rates and behavior often resembles the wolf, *Canis spp. (lycaon or lupus)*, with which it shares roughly 30% of its genetics. This manifests in the eastern coywolf possessing delayed sexual maturity, smaller litter size, larger territories, and differences in prey preference when compared to western *Canis latrans*. See Way, J.G. and Lynn, W.S., *Northeastern coyote/coywolf taxonomy and admixture: A meta-analysis*, *Canid Biology & Conservation* 19(1): 1-7 (2016); [http://canids.org/CBC/19/Northeastern\\_coyote\\_taxonomy.pdf](http://canids.org/CBC/19/Northeastern_coyote_taxonomy.pdf).

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*Nevada Animal Damage Control Program 2005 Work Plan for Nevada Public Lands* (2005); *Southeastern Arizona Wild Turkey Management Plan* (2000).

<sup>6</sup> See Appendix. A.

<sup>7</sup> See e.g., *Decision and Finding of No Significant Impact: Reducing Mammal Damage through an Integrated Wildlife Damage Management Program in the State of New Jersey* (2004).

<sup>8</sup> See, e.g., Stewart W. Breck et al., *Evaluating Lethal and Non-Lethal Management Options for Urban Coyotes* (2016).

Therefore, the challenged study lacks utility in predator management decisions and studies for large parts of the U.S. where hybridized eastern coyote/coywolf populations have replaced *Canis latrans* populations; yet USDA usage and dissemination of this material does not reflect these differences.

*USDA's use of the Connolly and Longhurst study lacks objectivity because the study is inaccurate and unreliable.*

Despite being outdated and not peer reviewed, the Connolly and Longhurst study continues to be used to support decisions by federal and state agricultural departments and wildlife agencies promoting the unlimited slaughter of coyotes nationwide. Specifically, agency studies and decisions are justified by Connolly and Longhurst's *speculative* finding that "coyotes through compensatory reproduction can withstand an annual control level of 70%." Connolly and Longhurst at 19.<sup>9</sup> Yet, while agencies continue to rely on this study, the substance remains inaccurate, unreliable, and biased. Inaccuracies throughout the study affect both models and conclusions. This is seen early on in the study when the author states that "in the model, both control and natural losses are calculated once each year[.]" However, earlier in the paper, it is mentioned that losses occur throughout the year, making reliance on data calculated once a year unsound. Connolly & Longhurst at 3. While it is just a model, having only one mortality event is highly inaccurate given that deaths occur throughout the year (Parker 1995), and such an inaccuracy could clearly affect population models. See G.R. Parker, *Eastern Coyote: The Story of Its Success* (1995), Nimbus Publishing, Halifax, NS.

Recent research and data on coyotes has revealed the information set forth in the Connolly and Longhurst study to be even more inaccurate than it appeared at the time. Figure 3 of the study, charting coyote litter size related to coyote density, is just one example of such an inaccuracy revealed by recent data. Connolly & Longhurst at 10. The corresponding text states that coyote litter size increases with additional control. While Knowlton (1972) noted that average litter size varied inversely with density of coyotes whereby lower populations of coyotes (*i.e.*, ones that were subjected to human lethal control) had higher litter sizes (and cited in Connolly and Longhurst 1975), more recently, Crabtree and Sheldon (1999) suggested that litter *survival* and not litter size at birth is the major reproductive parameter that responds to human exploitation in a density-dependent manner because litter size varied little with prey abundance.

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<sup>9</sup> See USDA, *5 Year Environmental Monitoring Review for Predator Damage Management in Montana: FY 2002 through FY 2006* (2007), 3-4; Paul L. Hegdal et al., *Hazards to Wildlife Associated with 1080 Baiting for California Ground Squirrels*, USDA National Wildlife Research Center – Staff Publications (1979) at 34. See also, *Final EA: Predator Damage and Conflict Management in Idaho* (2016); *Final EA: Reducing Coyote Damage to Livestock and Other Resources in Louisiana* (2016); *EA: Mammal Damage Management in the Commonwealth of Massachusetts* (2015); *EA: Reducing Mammal Damage in the State of North Carolina* (2015); *EA: Mammal Damage Management in the State of Rhode Island* (2014); *EA: Mammal Damage Management in Arkansas* (2013); *Decision and Finding of No Significant Impact: Reducing Mammal Damage through an Integrated Wildlife Damage Management Program in the State of New Jersey* (2004); *Decision and Finding of No Significant Impact for Management of Coyote, Dog, and Red Fox on Livestock in the Commonwealth of Virginia* (2002); *Environmental Assessment and Decision/Finding of No Significant Impact for Predator Damage Management in the College Station Animal Damage Control District Texas* (1997).

See R.L. Crabtree and J.W. Sheldon, *Coyotes and Canid Coexistence in Yellowstone* (1999); F.F. Knowlton, *Preliminary Interpretations of Coyote Population Mechanics with Some Management Implications*, 36 J. Wildlife Mgmt. 369 (1972). In sum, recent research clearly shows that litter survival over time is a more robust indicator of mortality rates than litter birth size. This is particularly relevant to the contents of the challenged study as coyote populations are self-regulated by prey availability and territoriality (*i.e.*, guarding home range areas from other packs); as a result, litter survival is directly related to artificially lowered population densities caused by lethal control.

This simply means that, on average, coyote litter size changes minimally following an increase in mortality, but litter survival over time does improve with increased mortality, which likely compensates for reduced survival of adults. A simple mechanism to explain this is that there is a greater energy cost to successfully raise offspring than to produce them, and increased mortality of adults likely causes the food supply to increase in an area, allowing for greater litter survival. While it is important to stress how vigorously coyote populations compensate for population reductions, this is a common characteristic for a density dependent (*i.e.*, territorial) species. See R. Crabtree, *Scientific Opinion Letter for Predator Defense: "What Effect does Reduction of Coyotes (older than 6 months) have on the Remaining Population?"* (1997, revised 2012), [http://predatordefense.org/docs/coyotes\\_letter\\_Dr\\_Crabtree\\_06-21-12.pdf](http://predatordefense.org/docs/coyotes_letter_Dr_Crabtree_06-21-12.pdf). However, the bottom line is that if litter sizes do not increase to the degree stated in Figure 3, then there will be less coyotes born and hence a smaller population size and population recovery under Connolly and Longhurst's model.

Furthermore, it is evident that the Connolly and Longhurst study lacks an acceptable level of objectivity because the experimental design of the study specifically seeks to model how to effectively eradicate coyote populations for the benefit of livestock producers. Therefore, the study has a built-in bias favoring eradication. It also lacks the benefit of a growing body of subsequently developed evidence of the negative ecological and behavioral consequences of carnivore hunting and eradication programs. See Estes, J.A., et al. 2011. *Trophic downgrading of planet earth*. Science 333: 301–306; Gilbert et al. 2016, *Socioeconomic benefits of large carnivore recolonization through reduced wildlife-vehicle collisions*, Conservation Letters DOI: 10.1111/conl.12280; Ripple et al. 2014, *Status and ecological effects of the world's largest carnivores*, Science 343: 151–162; Robinson et al. 2008, *Sink populations in large carnivore management: cougar demography in a hunted population*, Ecological Applications 18(4): 1028-1037. Hunting pressure on large carnivore populations can have disruptive effects on social structure, movement patterns, and behavior, which can undermine their ecological role as predators. Ordiz et al., 2013, *Saving large carnivores, but losing the apex predator?* Biological Conservation 168: 128-133. Moreover, heavily hunted wolves have higher stress and reproductive steroids/hormones than individuals with lower hunting pressure, supporting the theory of social and physiological consequences to sentient animals, like canids, of human-caused mortality such as sport hunting. Bryan, H., et al., *Heavily hunted wolves have higher stress and reproductive steroids than wolves with lower hunting pressure*, Functional Ecology, 2014, 1-10, doi: 10.1111/1365-2435.12354. Lethal control programs targeting coyotes can also disrupt population dynamics for other, smaller predators, resulting in increased predation and nest failure for species like the greater sage-grouse. Mezquida et al., 2006, *Sage-Grouse and*

*Indirect Interaction: Potential Implications of Coyote Control on Sage-Grouse Populations*, Condor 108.4, 747-759. The authors of this study noted that the effects of stress are often subtle, but the resulting harm can be acute, chronic, and permanent, sometimes spanning generations. *Id.*

Additionally, recent research suggests that lethal control may generate public opposition to wildlife managers, undermine positive attitudes toward wildlife and result in the devaluation of large carnivores such as wolves and coyotes. Bruskotter, J. T., J. J. Vaske, and R. H. Schmidt. 2009, *Social and Cognitive Correlates of Utah Residents' Acceptance of the Lethal Control of Wolves*, Human Dimensions of Wildlife 14:119-132; Treves A., L. Naughton-Treves, and V. Shelley, 2013, *Longitudinal analysis of attitudes toward wolves*, Conservation Biology 27: 315-323; Treves, et al., 2015, *Predators and the Public Trust*, Biological Reviews 92: 248-270. Research has discovered that American public acceptance of lethal methods of predator control has declined over the past two decades, with people increasingly finding lethal methods inhumane. Slagle et al., 2017, *Attitudes toward predator control in the United States: 1995 and 2014*, Journal of Mammalogy, 98, 7-16. In fact, a study in Massachusetts found that voters overwhelmingly opposed coyote hunting practices once they became aware of them. Jackman, J. L., and J. G. Way, 2017, *Once I found out: Awareness of and attitudes toward coyote hunting policies in Massachusetts*, Human Dimensions of Wildlife, DOI: 10.1080/10871209.2017.1397824. Thus, the American Society of Mammalogists recently published a series of papers presenting new evidence of the greater efficacy and social acceptability of nonlethal deterrents to livestock depredation by large carnivores, as well as the lack of justification for and possible harm to populations and ecosystems resulting from lethal control of these predators. Bergstrom, B.J., 2017, *Carnivore conservation: shifting the paradigm from control to coexistence*, Journal of Mammalogy 98: 1-6. This followed research by Treves et al. (2016) that recommended suspending lethal predator control methods, especially by publicly funded government programs, which do not currently have rigorous evidence for functional effectiveness in preventing predation, until gold-standard tests are completed. Treves, A., M. Krofel, and J. McManus, 2016, *Predator control should not be a shot in the dark*, Frontiers of Ecology and Environment 14(7): 380–388, doi:10.1002/fee.1312. Reliance on the outdated Connelly and Longhurst study results in ignoring all of this more recent research and its conclusions.

In sum, due to advances in coyote and carnivore research, the antiquated Connolly and Longhurst data is largely unreliable and lacks utility for making determinations regarding coyotes. Its use must be discontinued to achieve compliance with USDA Information Quality guidelines.

## **II. THE CHALLENGED INFORMATION IS INFLUENTIAL AND MUST MEET HIGHER STANDARDS**

In addition to not meeting the basic standards stated above, the Connolly and Longhurst study does not meet the higher standards for influential information. Information is influential when it has a broad impact, such as affecting a wide range of parties (*i.e.*, an entire industry),

rather than solely one company, and when its impact is intense, meaning that it has a large impact on affected parties. USDA Guidelines, Background, USDA's Definition of Influential Scientific, Financial, or Statistical Information.<sup>10</sup>

Under the USDA definition, the Connolly and Longhurst study is undoubtedly influential in agency decision making. It has affected a broad range of parties, from wildlife biologists and veterinarians to farmers and loggers, as well as wildlife enthusiasts and visitors to public lands. It has had an intense impact, illustrated by the fact that USDA Wildlife Services spent over \$1.13 billion in federal tax dollars on wildlife extermination efforts between 2004 and 2013.<sup>11</sup> The disputed study has informed coyote lethal control efforts and carnivore hunting policy for decades, despite being outdated and not peer reviewed, by being eternally regurgitated to support killing of up to 70% of a coyote population.<sup>12</sup> Furthermore, due to USDA's consistent reliance upon this study, its dissemination by this agency has also resulted in the widespread use of this study to establish liberal and excessive coyote and coywolf hunting policies by DOI and state game agencies across the country. *See e.g.*, Ronald A. Thompson, *The Cost of Predator Damage Control Using Trapping as the Primary Control Technique*, Proceedings of the 7th Vertebrate Pest Conference 146 (1976); National Park Service, *Cape Cod National Seashore Hunting Program, Final Environmental Impact Statement, Cape Cod National Seashore, MA*, 72 Fed. Reg. 44,176 (Aug. 7, 2007); EA: *Mammal Damage Management in the Commonwealth of Massachusetts* (2015). This dissemination to other federal and state agencies is significant and influential since Wildlife Services maintains a very close working relationship with state agriculture and wildlife agencies. *See*, USDA APHIS Wildlife Services Directive, 3.101 and 3.102.

The USDA's Office of Inspector General formally acknowledges on its website that "influential information is subject to an added level of scrutiny."<sup>13</sup> According to the Department of the Agriculture's guidelines, influential scientific information related to human health, safety, and the environment must "use the best available science and supporting studies conducted in accordance with sound and objective scientific practices," and "use data collected by accepted methods or best available methods." USDA Guidelines, Scientific Research, Part II. As a 42 year old non-peer reviewed speculative modeling study, it is evident that the Connolly and Longhurst

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<sup>10</sup> Available at <https://www.ocio.usda.gov/policy-directives-records-forms/guidelines-quality-information/background>

<sup>11</sup> *See* <http://www.humanesociety.org/assets/pdfs/wildlife/USDA-wildlife-services-kill-data-2004-2013.pdf>

<sup>12</sup> *See e.g.*, FN5 *supra*, USDA, *5 Year Environmental Monitoring Review for Predator Damage Management in Montana: FY 2002 through FY 2006* (2007), 3-4; *See also*, Final EA: *Predator Damage and Conflict Management in Idaho* (2016); Final EA: *Reducing Coyote Damage to Livestock and Other Resources in Louisiana* (2016); EA: *Mammal Damage Management in the Commonwealth of Massachusetts* (2015); EA: *Reducing Mammal Damage in the State of North Carolina* (2015); EA: *Mammal Damage Management in the State of Rhode Island* (2014); EA: *Mammal Damage Management in Arkansas* (2013); *Decision and Finding of No Significant Impact: Reducing Mammal Damage through an Integrated Wildlife Damage Management Program in the State of New Jersey* (2004); *Decision and Finding of No Significant Impact for Management of Coyote, Dog, and Red Fox on Livestock in the Commonwealth of Virginia* (2002); *Environmental Assessment and Decision/Finding of No Significant Impact for Predator Damage Management in the College Station Animal Damage Control District Texas* (1997).

<sup>13</sup> Office of Inspector General Information Quality Guidelines, Standards for Disseminated Information, <http://www.usda.gov/oig/qltyguidelinesrev.htm>.

study does not come close to meeting the USDA's requirements for the use of the best available science nor does it reflect data collected through the best available methods. Over the past 42 years, there have been significantly more detailed and academically rigorous studies dealing with coyote reproduction, population density, efficacy of lethal control, and effects of hybridization on canid populations.<sup>14</sup> Therefore, USDA lacks any justifiable reason to continue reliance upon this study in its decision-making concerning lethal control of coyote populations.

USDA's Data Quality Act standards also require USDA to "[d]isseminate influential scientific information with a high degree of transparency about data and methods to facilitate its reproducibility by qualified third parties." *Id.* However, the challenged study is not readily available to the public and PEER was only able to obtain a copy of this study through an inter-library loan with the University of Arkansas, seemingly the only place where this study could be found, as it was unavailable on any USDA website, common research databases, or the broader internet.

Based on the allegations above, it is clear that the USDA has developed its coyote control and hunting policies relying upon outdated information from the challenged study that is not the "best available science." Because it is influential information, the agency must review the paper with heightened scrutiny, which should result in not using it in future documents, and retracting it from previous ones.

### **III. PETITIONERS ARE AFFECTED BY THE INFORMATION ERRORS**

Public Employees for Environmental Responsibility ("PEER") is a non-profit public interest organization incorporated in Washington, D.C. and headquartered in Silver Spring, Maryland, with field offices in California, Colorado, Florida, Massachusetts, and Tennessee. Among other public interest projects, PEER engages in advocacy, research, education, and litigation to promote public understanding and debate concerning key current environmental policy issues. PEER focuses on the environment, including the regulation and remediation of toxic substances, public lands, natural resource and wildlife management, public funding of environmental and natural resource agencies, scientific integrity, and ethics in government. Furthermore, PEER members include wildlife biologists who study large mammalian carnivores and are directly impacted by the USDA's reliance upon and dissemination of improper data to establish coyote eradication, control, and hunting policies.

Additionally, the policy undergirded by the challenged study touches on a number of PEER's traditional concerns. Natural resource management, management of public lands and public trust resources including wildlife, and environmental stewardship more generally are all implicated by predator management by the USDA. PEER believes that the USDA has not utilized the best available science, as required by law, in developing an appropriate, science-based strategy for managing and considering the ecological importance of carnivores, such as

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<sup>14</sup> See Appendix A.

coyotes. Nor has the agency considered the importance of undisturbed populations of carnivores on the ecosystem or the ecological stability of agricultural lands and their surrounding environments. PEER values the presence of wild animals necessary for a healthy environment. While PEER supports management efforts backed by sound scientific principles, the USDA's current reliance on unreliable information has led to the mismanagement of a group of wild carnivores that PEER has an interest in protecting.

The Humane Society of the United States ("The HSUS") is the nation's largest animal protection organization, headquartered in Washington, D.C. Since its establishment in 1954, The HSUS has worked to combat animal abuse and exploitation and promote animal welfare through research, public outreach and education, advocacy and litigation. The HSUS strives to protect wildlife and improve wildlife management throughout the country, and has long advocated coexistence and nonlethal alternatives to predator control, which often relies on inhumane techniques such as leg-hold traps, snares, and poisons like sodium cyanide, sodium nitrate and Compound 1080. USDA's continued reliance on and dissemination of the challenged information harms The HSUS and its members' interest in native carnivore conservation and prevention of animal suffering by promoting lethal predator control in a manner that is not supported by the best available science.

Predator Defense is a national nonprofit advocacy organization funded primarily by member donations. It promotes non-lethal predator control that helps people and preserves wildlife, as well as monitors and challenges state and federal wildlife management policies that adversely affect predator species. Predator Defense works with these agencies in their efforts to protect native predators and when necessary, pursues litigation that requires agencies to follow laws and regulations established to protect native predators.

Project Coyote is a national non-profit organization based in Northern California whose mission is to promote compassionate conservation and coexistence between people and wildlife through education, science and advocacy. Its representatives, advisory board members and supporters include scientists, educators, ranchers and citizen leaders who work together to change laws and policies to protect native carnivores from abuse and mismanagement, advocating coexistence instead of killing. Project Coyote seeks to change negative attitudes toward coyotes, wolves and other misunderstood predators by replacing ignorance and fear with understanding, respect and appreciation.

The Center for Biological Diversity believes that the welfare of human beings is deeply linked to nature — to the existence in our world of a vast diversity of wild animals and plants. Because diversity has intrinsic value, and because its loss impoverishes society, CBD works to secure a future for all species, great and small, hovering on the brink of extinction. CBD does so through science, law and creative media, with a focus on protecting the lands, waters and climate that species need to survive.

The Animal Legal Defense Fund's mission is to protect the lives and advance the interests of animals through the legal system. ALDF accomplishes this mission by filing high-

impact lawsuits to protect animals from harm, providing free legal assistance and training to prosecutors to assure that animal abusers are punished for their crimes, supporting tough animal protection legislation and fighting legislation harmful to animals, and providing resources and opportunities to law students and professionals to advance the emerging field of animal law.

Since its founding in 1951, Animal Welfare Institute has sought to alleviate the suffering inflicted on animals by people. A major AWI effort is the quest to end the torture inflicted on furbearing animals by steel jaw leghold traps and wire snares.

The National Wolfwatcher Coalition is a 501(c)(3) nonprofit, all volunteer organization. It educates, advocates, and participates for the long term recovery and the preservation of wolves based on the best available science and the principles of democracy. NWC educates the public, advocates for science-based decision making at every level of government and participate in activities that promote citizens' awareness and participation in the decision-making process about wolves. It is a moderate organization that seeks to (1) find common ground among all stakeholders and (2) encourage solutions to roadblocks that challenge wolf recovery.

Western Watersheds Project is a nonprofit environmental conservation group with 1,500 members founded in 1993 and has field offices in Idaho, Montana, Wyoming, Arizona, Utah, Nevada and California. WWP works to influence and improve public lands management throughout the West with a primary focus on the negative impacts of livestock grazing on 250 million acres of western public lands, including harm to ecological, biological, cultural, historic, archeological, scenic resources, wilderness values, roadless areas, Wilderness Study Areas and designated Wilderness.

Protect the Wolves is a Native American Religious 501(c)(3) nonprofit that uses Tribal Treaty Rights to speak for wildlife. It hosts a wolf sanctuary where wolves can reside in a safe place, fights for the end of lethal control efforts on public lands, and promotes responsible animal husbandry practices in order to avoid conflicts between ranchers and wolves.

Coyote Watch Canada is a Federal Not-For-Profit community-based, wildlife organization which advocates positive human wildlife experiences. It collaborates with a broad range of stakeholders to develop and implement of non-lethal, sustainable human-wildlife conflict solutions. The organization provides educational programming, a first-response team, on-site investigation, assessment and mitigation directives, wildlife rescue and release assistance, private, municipal- and provincial-level consultation, digital mapping programs, training, educational resources, and municipal wildlife framework models.

Public Lands Media is an independent, non-partisan, source of ecological and conservation information. Its staff research, write, and publish articles, essays, and editorials on a variety of natural resource/environmental topics. PLM also provides information and assistance and links to scientists, the public, conservation groups and others so they can make better informed decisions on complex ecological issues. The organization's goal is to provide scientifically informed perspectives on current conservation/environmental issues.

WildLands Defense's activists' and supporters' on-the-ground presence, extensive experience enforcing existing statutory and regulatory regimes, and the group's unparalleled conviction provide managers and policy-makers a clear and competent picture of the conditions of our public lands and wildlife communities on the ground as they exist, as well as lend decision-makers the sense of informed urgency as to the need for policy changes into the future.

In Defense of Animals is an international animal protection organization with over 250,000 valued supporters and a 30-year history of protecting animals, people and the environment through education, campaigns and hands on rescue facilities. It educates and exposes animal abuse as a root cause, symptom, and early predictor of wider societal violence. Its staff advocate change in laws, human behavior, and enlightenment in the need to protect lives, advance rights, improve welfare, and steward environmental protection. IDA cares for and rehabilitates lost, orphaned, abandoned, and abused animals inside three main sanctuaries.

Center for Ecosystem Restoration is a non-profit organization headquartered in Wickford, R.I. that develops and leads projects and partnerships among local citizens, businesses, non-profit organizations and government agencies. Its goal is to help communities accomplish local environmental and economic priorities through ecological restoration. It provides resources to accomplish that work through technical support, grant-writing and funding development, outreach and other means.

Raincoast Conservation Foundation is a team of conservationists and scientists empowered by their research to protect the lands, waters and wildlife of coastal British Columbia. They use rigorous, peer-reviewed science and community engagement to further our conservation objectives. As a charitable, non-profit conservation science organization that operates a research lab, research field station and a research/sailing vessel, Raincoast is unique in Canada.

Founded in 1969 in Canada and in the UK in 1981, the International Fund for Animal Welfare saves individual animals, animal populations and habitats all over the world. With projects in more than 40 countries, IFAW provides hands-on assistance to animals in need, whether it's dogs and cats, wildlife and livestock, or rescuing animals in the wake of disasters. IFAW also advocates saving populations from cruelty and depletion, such as its campaign to end commercial whaling and seal hunts.

Alongside the listed organizational petitioners, petitioners include a number of the foremost researchers and advocates in the field of wildlife, carnivore, and canid conservation and/or research. As such, the continued use of faulty research to justify Agency policy directly impacts their interests.

#### **IV. RECOMMENDATIONS FOR CORRECTION OF THE INFORMATION CHALLENGED BY THIS COMPLAINT**

Accordingly, PEER respectfully requests the USDA APHIS take the following steps to comply with the Data Quality Act:

1. Retract from current and future agency usage the USDA-funded study: Connolly, G.E., and W.M. Longhurst, 1975, *The effects of control on coyote populations: A simulation model*, University of California, Division of Agricultural Sciences Bulletin, Volume 1872, 37 pp.
2. Issue a public statement explaining the reasons for this retraction.
3. Send a letter to other relevant USDA offices, the Department of Interior, and all state game agencies requesting that they refrain from relying on this retracted study for any regulatory or public health purpose.<sup>15</sup>

Please let us know if you require any additional information in support of this complaint or if there is any aspect of it that requires clarification.

Respectfully submitted,



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Founder of Eastern Coyote/Coywolf Research  
Co-Author of Carnivore Conservation Act of Massachusetts

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<sup>15</sup> In addition to continuous use by USDA, federal agencies within DOI and state game agencies have consistently relied upon this study or USDA NEPA material citing this study to justify large-scale coyote extermination and control efforts in planning and management documents. As these DOI documents utilizing this study would be subject to challenge during their respective comment periods, the USDA should avoid the vulnerability of numerous EAs by withdrawing the study from further use. Despite the plethora of data and studies that have emerged in recent years, federal and state game agencies continue to use a 40 year old, non-peer reviewed study for new environmental assessments to justify large-scale extermination and loosely regulated hunting of coyote populations. *See e.g.*, National Park Service, *Cape Cod National Seashore Hunting Program, Final Environmental Impact Statement, Cape Cod National Seashore, MA*, 72 Fed. Reg. 44,176 (Aug. 7, 2007); Bureau of Land Management, *Predator Hunt Derby #DOI-BLM-ID-I000-2014-0002-EA*, Nov. 2014, [https://eplanning.blm.gov/epl-front-office/projects/nepa/39720/51280/55821/SRP\\_Derby\\_EA\\_Final\\_508.pdf](https://eplanning.blm.gov/epl-front-office/projects/nepa/39720/51280/55821/SRP_Derby_EA_Final_508.pdf); *Nevada Animal Damage Control Program 2005 Work Plan for Nevada Public Lands* (2005).

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Mike Ruzich  
Science teacher, B.S. Biology  
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### *Organizations*

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## **Appendix A**

### **Relevant Recent Coyote Population Research and Related Literature**

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