



06-0K-1

United States
Department of
Agriculture

Finding of No Significant Impact and Decision
for
Predator Damage Management in Oklahoma

Marketing and
Regulatory
Programs

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) program responds to a variety of requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife in Oklahoma. WS activities are conducted in cooperation with other federal, state, and local agencies, as well as private organizations and individuals.

Animal and
Plant Health
Inspection
Service

WS prepared an environmental assessment (EA) to continue to conduct predator damage management (PDM) in Oklahoma. Mammalian predators in the state include a range of species that prey on livestock and wildlife, damage property and other natural resources, and threaten human health and safety. Those that create the majority of conflicts that WS responds to are coyotes (*Canis latrans*), feral/free roaming dogs (*C. familiaris*), bobcats (*Lynx rufus*), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and opossums (*Didelphis virginianus*). Most other predators in the State have historically caused only localized damage on an occasional basis and include feral/free roaming cats (*Felis domesticus*), mink (*Mustela vison*), long-tailed weasels (*M. frenata*), badgers (*Taxidea taxus*), spotted skunks (*Spilogale putorius*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*) and swift fox (*Vulpes velox*). Other species that could cause damage on rare occasion are ringtails (*Bassariscus astutus*) and hog-nosed skunks (*Conepatus mesoleucus*). WS also responds to a few requests for assistance each year involving mountain lions (*Felis concolor*), but no lions have been taken by WS in the state. In accordance with a Memorandum of Understanding (MOU) with the Oklahoma Department of Wildlife Conservation (ODWC), WS either refers complaints received for river otters (*Lutra canadensis*) and black bears (*Ursus americanus*) directly to ODWC, or provides assistance to ODWC as resources permit.

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APHIS-WS has the Federal statutory authority under the Act of March 2, 1931, as amended, and the Act of December 22, 1987, to cooperate with other Federal agencies and programs, States, local jurisdictions, individuals, public and private agencies, organizations, and institutions while conducting a program of wildlife services involving animal species that are injurious and/or a nuisance to, among other things, agriculture, horticulture, forestry, animal husbandry, wildlife, and human health and safety as well as while conducting a program of wildlife services involving mammal and bird species that are reservoirs for zoonotic diseases.

Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management (WDM) actions, and research and developmental activities may be categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). However, we prepared the EA to conduct PDM throughout Oklahoma to facilitate planning and interagency coordination, to streamline program management, and to involve the public and obtain their input through comments and feedback. The predecisional EA, released by WS in May 2005, documented the need for PDM in Oklahoma and assessed potential impacts and effects of various alternatives addressing the resolution of predator damage problems. This EA is tiered to the programmatic Environmental Impact Statement (EIS) for the Wildlife Services Program (USDA 1997).

The WS proposed action is to continue to conduct PDM in Oklahoma using Integrated Wildlife Damage Management (IWDM) principles to mitigate or alleviate predator damage or damage threats to resources in a biologically and environmentally sound manner. An IWDM approach would be implemented which would allow the use of legal techniques or methods, used singly or in combination, to meet requests or needs for resolving conflicts with predators affecting valued resources which could include agriculture, property, livestock, natural resources, and human health and safety.



United States Department of Agriculture
Animal and Plant Health Inspection Service

Safeguarding American Agriculture

The current program, the proposed action in the EA, is presently covered under two EAs covering Oklahoma (WS 1997a, b). This statewide EA for WS PDM actions in Oklahoma supersedes those documents and incorporates relevant analyses from them by reference.

WS cooperates with the Oklahoma Department of Agriculture, Food and Forestry (ODAFF) as authorized under State Law, Title 2, O.S.2001,§12-1, in the management of predator damage. In Oklahoma, state statutes allow landowners and resource managers to take most of the predator species listed in this EA causing damage. The WS PDM EA evaluated alternatives for WS involvement in PDM to protect resources and cannot change Oklahoma State Statutes permitting private landowners to manage predator damage themselves. Therefore, a major overarching factor in determining how to analyze potential environmental impacts of the WS program involvement in PDM, as well as damage caused by other species of resident wildlife in Oklahoma, is that such management will apparently be conducted by state, local government, or private entities that are not subject to compliance with NEPA if WS is not involved. In fact, the State Secretary of Agriculture over ODAFF has stated in a letter that in the event that WS does not conduct PDM, ODAFF would conduct PDM with available State resources. This means that the Federal WS program has limited ability to affect the environmental outcome of PDM in the state, except that the WS program is likely to have lower risks to nontarget species and less impact on predator populations than some alternatives available to ODAFF and private landowners. Therefore, WS has limited ability to affect the environmental *status quo*. Despite this limitation of federal decision-making in this situation, this EA process is valuable for informing the public and decision-makers of the substantive environmental issues and alternatives of PDM for resource protection.

Public Involvement

Following interagency review of a preliminary draft of the EA, including the U.S. Fish and Wildlife Service (USFWS), ODAFF, and ODWC, an EA was prepared. The predecisional EA was available for public review and comment during a 45-day period (May 28 – July 11, 2005), which complies with public involvement guidelines/policies contained in NEPA, Council on Environmental Quality (CEQ) regulations, and APHIS's Implementing Regulations, as well as all pertinent agency laws, regulations, and policies. A Legal Notice of Availability was published in the Daily Oklahoman, a daily newspaper with statewide coverage, for three days (May, 28 – May 30, 2005). Additionally, the predecisional EA was mailed directly to potentially interested parties in May 2005 that were on National and State mailing lists compiled from direct requests for PDM EAs and previous NEPA document mailings including Native American Tribes, agencies, interested groups, and individuals. From this process, 114 separate mailings were sent to the identified entities. The EA was also made available for public review at the WS State Office, 2800 N. Lincoln, Blvd., Oklahoma City, OK, and from requests received by personal contact, mail, or e-mail. A notice of availability was also publicly posted for general viewing at ODAFF. However, the public did not request additional EAs as a result of this process.

Public Comments

Upon the closing date for public comment, July 11, 2005, three public comment letters from non-profit organizations (1 associated with environmental concerns, 1 with animal welfare concerns, and 1 with agricultural concerns) were received in response to the predecisional EA. The letters included several comments. Some of the comments warranted further discussion below. Several of the comments were adequately discussed in the EA and were considered in Appendix A, but not addressed further.

Issue 1: Need for Action: Predators Kill Relatively Few Livestock Compared to Losses from Other Causes

A commenter believed that WS omitted data on livestock losses caused by "other" factors such as disease, weather, and theft to intentionally sway the public into believing that livestock losses are serious because these other factors are far more serious. All livestock losses are a serious concern to producers, especially for those producers that suffer higher than average losses. PDM can only have an effect on losses caused by predators, and not on those losses caused by other factors. WS did not intentionally omit these from the EA because we believe that these are outside the scope of the EA. The issue that predators kill few livestock and disease, theft, and weather cause significantly more damage was addressed by Dr. John

Shivik, WS-National Wildlife Research Center (NWRC) Field Station Leader and Research Associate Professor (Letter to T. Hall, WS, 11/9/05). He stated that:

"The latest National Agricultural Statistics Service [NASS 2005] estimates conclude that the problem of predation is real and significant. In 2004, for example, there were an estimated 224,200 (valued at \$18.3 million) sheep and lambs lost to predators. Of all losses, 37.3% were due to predation. Here are percentages from other causes: Weather: 6.6%, all diseases (digestive, respiratory, metabolic) combined: 27%, theft: 0.4%. Publicly owned predators kill private livestock in very large numbers (probably more than any other single factor), and the loss is very significant."

Thus, we believe that the EA identified livestock losses from predators as a need for action and that livestock losses are a significant need for action in Oklahoma regardless of "other" losses.

Issue 2: Issue: Area Too Large to Be Covered by a Single EA and PDM Could Cause Local Predator Extirpations

A comment was received stating that the area covered by the EA (Oklahoma) was too large and inappropriate and another stating that WS could potentially extirpate some predator species populations at the local level, thus implying that WS needed to analyze site-specific impacts in the Oklahoma PDM EA. Impacts from WS PDM are, for the most part, similar wherever they occur in Oklahoma and can be discussed broadly because WS does not conduct intensive broad-scale predator control efforts, but focuses PDM in areas of damage; in general, recruitment and immigration replaces those predators taken in PDM in a relatively short time frame. Therefore, a discussion of site-specific impacts would be unnecessary and redundant for most PDM activities. The EA, which this decision document is addressing, discussed site-specific impacts where impacts would be dissimilar to the statewide level impacts and where data were available to reasonably discuss such impacts (e.g., ODWC provides harvest data for game animals and furbearers at the State level, not site-specific, and only has survey trend data for some of the species considered in the EA for various habitat types or *ecoregions* in the State, but not exact site-specific areas). Thus, statewide harvest data were used in Section 4.2.1.1 of the EA. It must be noted that the previous EAs for WS PDM in Oklahoma were completed for the eastern and western regions of Oklahoma, a more site-specific level, and these two EAs found no significant impacts to the quality of the human environment for either part of the State (WS 1997a, b).

Federal agencies have the discretion to determine the geographic scope of their NEPA analyses, and WS has determined that preparation of this EA to address PDM activities for Oklahoma in its entirety is appropriate. In terms of considering local cumulative impacts, one EA covering PDM activities in Oklahoma is likely to provide a better analysis of impacts than multiple EAs covering smaller zones within the analysis area. The agency with management authority for predator species, ODWC, manages predators from a statewide perspective and collects information accordingly. Thus cumulative impacts would be at that level. ODWC monitors the predator species through harvest and road count surveys. For predators, the statewide level provides the clearest picture of cumulative impacts for WS because that is the comparison that can be made with ODWC's data. Additionally, a more detailed and more site-specific analysis would not substantially improve the decision making process, and pursuing a more site-specific analysis might even be considered inconsistent with NEPA's emphasis on reducing unnecessary paperwork (Eccleston 1995). Thus, Section 4.2.1.1 of the EA provides cumulative take of the predator species impacted by WS PDM activities at the statewide level. However, to ensure that impacts are not significant locally (though we believe that this would be seen in Section 4.2.1.1 of the EA if this were true), we have analyzed county-wide impacts to coyote and bobcat populations in this Decision document.

The primary concern regarding site-specificity is typically the notion that PDM will lead to the extirpation of a target or nontarget species' population over a specific area (e.g., counties), but at a more site-specific level than analyzed in the EA (statewide). Section 4.2.1.1 in the EA described the predator populations in Oklahoma, their relative abundance, and impacts of PDM at the Oklahoma population level. Sections 4.2.2.1 in the EA discussed the nontarget species that are or could be impacted by WS PDM. Section 3.4 described the SOPs that are incorporated into WS PDM to minimize impacts to target and nontarget species. Lethal take of target and nontarget species by WS was analyzed in the EA for target and nontarget species taken in FY04 which is similar to take in other years. The EA found that none of the predator or

nontarget species populations taken in the last several fiscal years has been impacted by PDM at a level greater than a sustainable level. Of the species taken in Oklahoma during PDM operations, the coyote, bobcat, striped skunk, raccoon, opossum, and gray fox are taken with greatest frequency in PDM. Therefore, we analyzed cumulative take in Table 1 of Appendix B from FY02 to FY04 for these species. The average cumulative (WS take and sportsmen harvest) impact on the conservatively estimated populations for FY02 to FY04 was 9.2% for coyotes, 5.2% for bobcats, 0.5% for striped skunks, 1.2% for raccoons, 0.1% for opossum, and 1.3% for gray fox. We believe that the take of other species listed in the EA was low enough to intuitively be of little impact to their populations statewide and locally. Take and the potential take of threatened and endangered (T&E) and sensitive species was adequately discussed in the EA in Sections 2.2.2 and 4.1.2.1. WS has had little, if any, impacts on these species nor anticipates any increase in the reasonably foreseeable future.

At the county level, cumulative impacts were considered in Appendix B for coyotes (Table 2 in Appendix B) and bobcats to determine if local impacts have occurred. Effects on the coyote population are a concern because the coyote is the species most frequently targeted by WS, with take over 20 times greater than any other species. Coyotes are also harvested at a relatively high level by sportsmen. Bobcat take is a concern because they have relatively lower estimated populations, a lower harvest potential than other predators, and, although they are not frequently targeted by WS PDM activities, they are often sought by sportsmen. To estimate cumulative impacts for these species at the county level, sportsmen harvest had to be assumed to be equally distributed throughout the state because ODWC collects harvest information at the statewide level and not by county or other unit.

The highest cumulative take of coyotes occurred in Stephens County at 51% of the estimated county population (Table 2). Take could increase another 20% (166 more coyotes) before any potential for a significant impact would occur. However, this would likely be higher when factoring in recruitment (births into the population) and immigration which was not done because take was minimal compared to the potential take. The highest take of bobcats by WS and cumulatively occurred in Pontotoc County at 1% and 6% of the estimated county population, respectively. Take could increase several-fold before any potential for a significant impact would occur. Given the above and data presented in Appendix B, no site-specific impacts could be identified to predators in Oklahoma.

WS PDM actions dealing with somewhat unpredictable predators are, in many respects, analogous to agencies or entities with similar damage management missions such as fire and police departments, emergency clean-up organizations, and insurance companies. Fire and police departments and other emergency response agencies cannot predict where the next fire will occur or where the next burglary or assault will happen. It is both unrealistic and impractical for a fire or police department (or likewise for many PDM situations, a federal response agency like WS) to have to write an environmental analysis document with a 30-day comment period each time an emergency or relatively urgent request for assistance is received and before action could be taken to address a site-specific problem. Exactly when or where wildlife will create the next conflict with people or their resources is not very predictable. We can evaluate and scrutinize where we have typically done PDM and other WS activities (e.g., disease management) in the past such as on farms and ranches with livestock or at airports (e.g., where coyotes have been traversing runways and pose collision risks to aircraft during take-offs and landings) and, thereby, expect that we will probably be requested to do such actions in these general types of locations again in the future. However, we cannot definitively predict exactly which farms, ranches, or airports that have not before requested our services will do so in the future. Although WS can predict some of the possible locations or kinds of situations and sites where wildlife damage might occur as discussed in Section 1.0 of the EA, an accurate prediction cannot be made regarding the specific locations or times where many predator damage situations will occur in any given year. The majority of lands under agreement (86%) for all wildlife damage management in Oklahoma are private lands.

In light of our many years of experience and the nature of the predator species targeted by WS PDM actions, we know that requests for our assistance and resulting needs for PDM action in any given year will occur on some, but probably not all, of the exact same areas where PDM was conducted in the prior year, and that undoubtedly WS will receive PDM requests in new locations next year where PDM was not conducted this year. As such, there is no way for us to be prospectively 100% sure of or to be able to definitively predict all of the exact site-specific locations where WS might receive PDM requests in the

future, and thus there is no realistic way to thereby analyze the potential environmental effects of possible PDM actions on those unknown future site-specific locations. That is precisely the fundamental and true point of the analogy we discussed above that, just like an emergency response agency such as a fire or police department which cannot predict where the next fire will occur or where the next burglary or assault will happen, WS cannot predict when or where the next request for wildlife services will arise. In order to effectively address and appropriately deal with these "unpredictable" factors and aspects, WS has institutionalized a monitoring and "adaptive management" process and has developed and uses standard operating procedures (SOPs) to respond to such requests appropriately.

In order to minimize adverse impacts on the public or other aspects of the affected human environment, when a response agency goes out to address the next reported incident, the agency establishes SOPs that are designed to avoid or minimize the risk of adverse effects in the types of areas and situations in which they may find themselves responding to a need for their services. Section 3.4 of the EA describes or references numerous SOPs that we have in place to minimize the risk of adverse environmental effects when we provide PDM assistance in any subsequent specific locale following a request. We believe that these SOPs are effective and sufficiently adequate to avoid significant adverse effects on the quality of the human environment that are affected by WS PDM activities.

Additionally, WS has what could be described as a monitoring and "adaptive management" process in place to maximize the probability that conflicts that might arise as a result of changing circumstances will be identified in the future so that we can take further action to avoid significant adverse effects. That process is the coordination and review of our PDM operations that occurs with wildlife and land management agencies in the State that are responsible for management of the resources that may be directly or indirectly affected by WS PDM activities. The work planning also provides, in the most practical way we know of, the best opportunity for new potential and substantive environmental concerns to be raised based on changing conditions.

For example, if a new "special management area" was established by a wildlife or land management agency to protect a particular species that WS could impact with PDM, then, depending on all the respective facts, we might need to avoid or stop conducting PDM in that area, or switch to using other PDM methods that would not have the potential to have a significant adverse affect on that particular species which would have been analyzed and evaluated for that area. By coordinating with Federal and State wildlife and land managers, they are offered every reasonable opportunity to bring any such changes in circumstances to our attention. What this means to the issue of "site-specificity" is that our SOPs in combination with this coordination are built-in means for avoiding significant environmental effects at the local site-specific level, or they allow for the identification of significant effects that would then require the preparation of an EIS if the actions causing such significant effects were proposed for continuation or implementation. Given the nature of WS's request-based service-oriented program for managing damage by wildlife and the often urgent need to quickly respond to requests for assistance, this is the most realistic and practical way for us to address site-specific issues and still be able to meet our Federal responsibilities and mission as authorized by Congress.

The inability to predict where PDM requests will arise is why we gave the land acreages where WS conducts most of its PDM activity in section 1.0. The majority of WS PDM is conducted for the protection of livestock on private lands which could virtually be anywhere in the State where livestock are grazed such as private and State-leased pasturing lands. Other typical locations where PDM actions may be needed include specific and uniquely identifiable locations such as airports, and virtually anyplace in urban, suburban, and rural areas where nuisance predators such as raccoons, skunks, and coyotes cause damage to property or pets or present a safety or health (e.g., injury, disease transmission) risk to people. The important concept to convey here is that the need for PDM can occur anywhere in Oklahoma within a target predator's range where that predator can damage a resource of interest or value to people. The various predator species included in the scope of this EA do not all occur in the same types of habitats or areas. For example, mink generally prefer wetland areas in Oklahoma and do not often occur in areas of wide open rangeland. Thus, "typical" locations where PDM is conducted for different species tend to be limited to a particular species' habitat. However, the coyote, which is the species that is the subject of the majority of PDM activity by WS in Oklahoma, occurs statewide in virtually all habitat areas, including

many urban and suburban environments. Thus, "typical" areas where WS may initiate PDM to resolve coyote damage problems may be at any location or in any type of habitat in the State.

The EA and this decision document analyzed impacts on the human environment from WS PDM and provided the SOPs that help avoid impacts so that the analysis could reasonably apply to almost any location in the State where WS could be asked to perform PDM. Therefore, any requests for WS to conduct PDM in almost any "new" area (i.e., an area in which we have not conducted PDM before or in recent years and did not anticipate being requested to conduct PDM in the area) would be a normal or "typical" area for PDM activity. We know of no site-specific environmental aspects in such areas that would be significantly adversely affected by WS PDM, given the nature of our program, methods, and SOPs. Thus, virtually all of the locations we have conducted PDM on in the past, and most, if not all, of the locations on which we could reasonably expect to conduct PDM in the future have been adequately evaluated and analyzed in the EA and herein. Even though locations we might work in the future are not yet identified, the analysis of impacts applies to those areas and supports a conclusion of no significant impacts similar to the conclusions we have made for those areas we have done PDM actions in the past. The EA and this decision document thoroughly analyzed and evaluated the effects for any area resulting from WS PDM actions. If WS indeed encounters or is made aware of a very different area or location from those we have typically worked in the past or expect to possibly work in the future, or if there were quite different or new factors or aspects that had not been analyzed or evaluated in our EA, then we would not proceed to provide any wildlife services in such areas until those very different locations or new, unique, factors or aspects were appropriately evaluated and analyzed and all the appropriate NEPA procedural requirements were correctly met.

We believe the analysis of relevant environmental issues in the EA and herein are reliable and adequate to reasonably conclude there is little risk of significant adverse effects at the site-specific level in any of the areas of Oklahoma to any of the target predator and nontarget species taken in PDM. These analyses fully support and justify a reasonable determination that the environmental effects resulting from our proposed PDM actions in Oklahoma are not significant and that there is no reasonable need to prepare an environmental impact statement for these proposed actions even though the analysis area is Oklahoma.

Issue 3: Issue: Nontarget Impacts Section Should Consider and Analyze Selectivity of PDM Methods in Targeting Depredating Species and Individual Animals

One commenter stated that WS does not target the offending individual animal causing damage and uses indiscriminate PDM methods. WS targets individual animal species given the constraints of current technology. Many of the PDM methods used by WS are virtually 100% selective for target species such as shooting and aerial hunting; these methods involve visually sighting and identifying the target species before shots are fired with firearms. Also, WS's use of traps, snares, and M-44s has been very selective for target species. Section 4.2.2.1 of the EA discusses the take of nontargets which has been very minimal under the current program. To further address this issue, we consulted with Dr. Shivik, WS-NWRC (Letter to T. Hall, WS, 11/9/05) and he stated:

"This issue comes up repeatedly, primarily because of the term selective, which has many different meanings to different people.

Selective removal can mean removal of "the animal that has killed and is currently killing livestock," (e.g., classifying some coyotes as "good" and others as "criminals" or "culprits"). It can also mean removing "a predatory animal that is likely to kill livestock." In the least restrictive sense, some people could even argue that selective removal means "killing only predatory animals."

There are different interpretations of what is "likely to kill," for instance and thus there are different degrees of selectivity. Because in some studies (Till and Knowlton 1983) territorial breeders with pups were found to kill most sheep, some authors (Blejwas [et al.] 2002) considered selective removal as "the death of a breeding coyote in a territory where predations were occurring." Selectivity for them meant selectively removing a territorial, breeding coyote, because these animals were shown to be more likely to be responsible for most kills.

However selective can also refer to removing "a coyote that has access to a territory with sheep," because Blejwas et al. (2002) found that "all pairs with access to sheep eventually killed sheep," and that the overriding factor that determines lamb kills was the availability of lambs within a territory. Blejwas found no evidence, much like Linnell et al. (1999), that there are not "good," non-sheep killing coyotes and "bad" sheep killing coyotes. If given the chance, most coyotes are likely to be, or become, coyotes that kill sheep; thus, removing any coyote in an area where sheep occur can be considered selective removal.

The definition for selective removal that I like to use is "removal which is designed to ensure that coyotes and sheep do not occupy the same place at the same time." In contrast, if coyotes are removed from areas where they are not likely to encounter livestock, this would be nonselective. Similarly, if non-predatory species are removed from in and around livestock, then this would be nonselective control. If WS is using lethal tools that specifically target coyotes in sheep areas then their management methods are selective.

Lastly, the question of how selective particular tools are is not necessarily an inherent quality of the tool, but rather how the tool is used. There is nothing inherently non-selective about traps, toxicants, or aerial work. Actually, traps, M-44s, and shooting are extremely selective in terms of targeting a particular species in a particular area, such as coyotes on sheep bed grounds. Interestingly, there is no method more selective, even at the most restrictive definition of the word, than poison used in a livestock protection collar. These collars only kill predators that are in the act of killing livestock.

In contrast, non-lethal methods can be quite nonselective. Fencing limits travel by all species, for instance, and frightening devices will frighten deer and other species too. Their application should be considered as carefully as when using lethal methods."

The commenter has also expressed the desire that only nonlethal methods be used in PDM. However, as Dr. Shivik has pointed out above, such methods can be quite nonselective in their effects on target and nontarget species.

We believe that WS has targeted individual species with the PDM methods used within the constraints of current technology and the least impacts to nontarget species would occur under the current program alternative in the EA and not the other 3 alternatives.

Issue 4: Issue: Indirect Nontarget Species Impacts Including Microherbivore Irruptions

Section 4.2.3 adequately discussed in detail the effects of predator removal on prey populations, including microherbivores (rodents and rabbits) under the alternatives in the EA. A commenter thought that WS's removal of predators would cause microherbivore irruptions unlike the conclusions in the EA and that we misquoted a researcher. We believe that the EA adequately discussed the effect of predator removal under all of the alternatives in Section 4.2.3. We also believe that we did not misquote a researcher regarding microherbivore irruptions. The conclusion of Henke (1995) was based on one study (Henke 1992) which was conducted in the rolling plains area of Texas that involved one year of pretreatment and two years of treatment. Whether such changes would occur in all ecosystems in general remains to be proven. Assuming that such changes do nevertheless occur in general, the following mitigating factors should serve to minimize these types of environmental impacts:

1. Most PDM actions in localized areas of the State would not be year round but would occur for short periods after damage occurs (corrective control situations) or for short periods (90-120 days) at the time of year when benefits are most likely such as the period of time immediately preceding and during calving and lambing in the spring.
2. WS would conduct PDM on properties that comprise less than 10% of the land area of the State and would kill a low percentage (< 20%) of the area population of coyotes in any one year means ecosystem impacts from WS actions should be low in magnitude and would be replaced annually through immigration and recruitment (Knowlton et al 1999, Pitt et al. 2001)

The intensity and geographic area of a PDM action would be dictated by the resource being protected. For example, PDM could be intensified in a larger area where a T&E species such as the black-footed ferret

were being reintroduced because it has been found that PDM is critical for the successful establishment of a new population. However, such removal would likely be only a suppression of the coyote population and be negated by relatively rapid immigration shortly after control were stopped.

Additionally Dr. Shivik, WS-NWRC, (Letter to T. Hall, WS, 11/9/05) stated:

“Henke’s (1995) review concluded that short-term coyote removal programs typically are not sufficient in reducing coyote density and, therefore do not alter ecosystem composition. In some systems, the evidence is that prey populations limit coyotes, not the other way around. However, given intensive large scale reduction of coyote populations, there is some evidence also that there can be prey-base increases. If WS is not doing intensive, year-round removal, it is unlikely to be affecting micro-herbivore populations.”

Based on the analysis in the EA and the above, we believe that WS will not cause microherbivore irruptions in Oklahoma and believe this issue has been adequately addressed.

Issue 5: Alternatives: Nonlethal Control Is Effective Enough to Resolve Predator Problems

The Technical Assistance Alternative (Alternative 3) in the EA is much like the Nonlethal Control Only Alternative and was thoroughly discussed in the EA. The Nonlethal Required before Lethal Control was also discussed in detail in the EA. Section 3.3.4 in the EA discussed the Humane Society of the U.S.’s Alternative which would require all nonlethal methods be used before lethal control methods could be used and lethal control would be limited to only a few of the PDM methods. Finally, the Nonlethal Program Only Alternative was considered in detail in the programmatic EIS (USDA 1997). All of these varying nonlethal alternatives have been analyzed and determined to be less effective than the Current Program Alternative. These discussions have provided ample discussion why the sole or limited use of only nonlethal PDM methods is frequently not a viable approach to resolving many predator damage situations.

Additionally, Dr. Shivik, WS-NWRC (Letter to T. Hall, WS, 11/9/05) addressed the use of nonlethal methods:

“The [National Wildlife Research Center], which is the research arm of Wildlife Services, is dedicated to developing and testing non-lethal methods. Indeed, more than 75% of our funding is tied to non-lethal research. As such, Wildlife Services is undoubtedly the world leader in developing and applying alternative methods for predation management.

Furthermore, it is my perception that WS Operations has been very good at supporting non-lethal methods research and then appropriately applying alternative methods (formalized in the Decision Model which prioritizes non-lethal methods). In general, non-lethal methods are the methods of first resort and already in use by producers before Wildlife Services’ assistance is requested (due to the non-lethal techniques being insufficiently effective). However, some more complicated methods, including devices such as the Radio Activated Guard (that I developed) and fladry (that I’ve tested) are currently being used by WS specialists, especially in Idaho where problems with wolves are becoming more common, and the socio-biological importance justifies the immense expense required to use these specialized methods.

On training collars specifically, we have published 4 papers on aversive conditioning using electrical stimuli (dog training collars) for coyotes and wolves. WS is not using these devices operationally, if for no other reason, that although WS (through NWRC) is the leader in developing this technology, as yet, we have not been able to develop a design that is applicable for field use.

Many non-lethal tools are incredibly expensive and the ones that work only do so for a short period of time and on a very small area, but when methods are effective and economical, they are being used intensively as a direct result of WS research and outreach. NWRC scientists pioneered the use of guard animals nearly 30 years ago, for instance, which are now used by almost 1/3 of all Producers in the US. Similarly, fencing, night-penning, and shed-lambing are also frequently used. The NASS estimates that about \$9.8 million is spent using non-lethal methods by producers every year.”

Thus, as stated in the EA, USDA (1997), and by Dr. Shivik, WS is dedicated to providing PDM and includes the preferential use of nonlethal techniques, and that as analyzed, the current program alternative is the most effective alternative to meet the need for action as discussed in the EA.

Issue 6: Alternatives: WS May Not Be Using the Latest PDM Technology

The PDM methods used by WS were briefly, but adequately discussed in Section 3.2.1 of the EA and included the latest technology used operationally. NWRC is a world leader in the development of new technology for wildlife damage management. This information has sometimes not gotten to WS operations in a timely manner as noted by the commenter. However, WS has already identified this shortcoming and NWRC hired a Public Affairs Specialist with APHIS-Legislative and Public Affairs whose mission includes updating WS operations on new wildlife damage management methods developed by NWRC that could be used operationally. The employee in this new position has already been able to bridge gaps between research and operations.

The issue that the operational WS program is not in touch with the latest PDM methods was also addressed by Dr. Shivik, NWRC (Letter to T. Hall 11/9/05) in the previous comment. We believe that new tools are implemented as logistically and financially possible after being endorsed by NWRC.

Issue 7: Analysis of Impacts: Target and Nontarget Species Impacts - EA Fails to Consider the Effects of Widespread Lethal Control; PDM Likely to Have Long-Term Rather Than Short-term Effects

We disagree with the commenters' assertions that the EA failed to consider the impact of PDM on predator take in the EA because, as noted in the EA, WS does not conduct widespread lethal control of predators. Thus, removals are only short-term because the population is replaced relatively rapidly. Sections 4.2.1.1, 4.2.2.1, and 4.2.3.1 fully discussed the take of target and nontarget species by WS in PDM, and the indirect effects on prey populations from PDM by WS, respectively. Further, site-specific impacts have been addressed in Issue 2 above and Appendix B.

The effect on any wildlife population within a limited time frame conducted on a limited area is deemed "short term." A "long term removal" would be interpreted as a continuous campaign of widespread lethal control over time encompassing a large geographic area. WS targets coyotes more frequently than any other predator and long-term effects would most likely be seen with this species, if this were true. Several studies suggest that coyote territories would not remain vacant for very long after the coyotes are removed. Gese (1998) noted that adjacent coyote packs adjusted territorial boundaries following social disruption in a neighboring pack, thus allowing for complete occupancy of the area despite removal of breeding coyotes. Blejwas et al. (2002) noted that a replacement pair of coyotes occupied a territory in approximately 43 days following the removal of the territorial pair. Williams et al. (2003) noted that temporal genetic variation in coyote populations experiencing high turnover (due to control) indicated that "...localized removal did not negatively impact population size..." When we consider the level of coyote removals that WS PDM activities achieve during PDM actions (<10% of the estimated population - see Section 4.2.1.1) and the fact that WS conducts PDM on less than 10% of lands in Oklahoma, as discussed in Section 1.0 of the EA, it is most likely that the coyote population, or any other predator population for that matter, is impacted enough, even at the individual territorial level, to create the vacant territories that would theoretically be considered to have long-term impacts such as increases in microherbivores or effects on T&E species. Finally, under the proposed action, Oklahoma WS does not have the resources to conduct "intensive long term removal," nor would choose to do so as considered in Sections 2.3.1, 3.3.3, and Chapter 4 of the EA. Potential impacts by PDM on other species are considered in Sections 2.2.1, 3.4 and 4.2.3.1 of the EA.

The issue that WS impacts populations to such an extent that the demographics change was also addressed by Dr. Shivik, WS-NWRC, (Letter to T. Hall 11/9/05):

"Anytime an animal is removed from a population, the demographics at the very small-scale, the local population, are affected. Managing populations or components of populations is a primary goal of modern

Wildlife Management, and affecting demographics is often the point of management. In coyote populations that experience a great amount of removal, the demographics tend to be skewed toward younger age classes (Knowlton et al. 1999), but there is no evidence that the numbers or densities of coyotes are altered. I would agree that management could affect coyote demographics at an extremely small scale, but I would not agree that the populations are damaged or in any way limited. At the state or national scale at which Wildlife Services operates, I'd actually argue that the program has no significant effect on coyote demographics.

It has been said that removing coyotes causes more coyotes to be produced the next year, however this is an oversimplification that isn't correct. The latest scientific thought is that coyotes do not produce more animals in response to control (Crabtree and Sheldon 1999). If there is more food and space available, more coyotes will be supported and densities could rise—that much is true. However, coyote carrying capacity is thought to be limited by food supply and intraspecific interactions. Removing coyotes usually results in no net change in the population, especially at the large scale. They are incredibly resilient animals. Indeed, the removal of >70% of coyotes for multiple years is required for population reduction (Connolly 1978). This level of control at any but the smallest scales is beyond our capability (or desire) when using today's wildlife management tools.

When coyotes and sheep are living in the same place, coyotes will kill sheep (Blejwas et al. 2002), so modern management targets specific areas where coyotes and livestock are likely to come into conflict. That managers target problems and not populations is a point that even scientists sometimes miss; for example, the use of imprecise terminology (such as "Lethal control: population reduction") by Mitchell et al. (2004) highlights the need for a better understanding of current coyote predation management methods."

We believe that the EA and the additional information provided here adequately addressed the issue of the effects of widespread lethal control and long-term effects of PDM. We believe that the proposed action would have the least impacts on species' populations.

Issue 8: Analysis of Impacts: Target Species Impacts – Population Data

An ODWC wildlife biologist was cited for the population status of several species in the EA. WS relies on ODWC as the management authority for these species because they have information about these species populations from sportsmen harvest, road surveys (Appendix B), and other unpublished data, making them the authority on their populations in Oklahoma. Because population estimates are unavailable for the species analyzed in the EA, WS estimated population sizes by using the best available information on each species' range in Oklahoma and known densities in the literature. Using what we believe to be a low density for each species in Oklahoma, we believe that we conservatively estimated each species' population. Therefore, we believe that the EA adequately discussed how the species estimated populations were determined and stand by these estimates.

Issue 9: Analysis of Impacts: Target and Nontarget Species Impacts – Species of Special Concern

A commenter was concerned that WS could target spotted skunks and swift fox, species of special concern in Oklahoma. The commenter was also concerned that WS likely has more impacts on swift fox from taking them as nontargets in PDM than coyotes as noted in the EA. The EA and Appendix A of this Decision document adequately discussed the need for the potential to conduct PDM to target these species (relatively rare requests for assistance) and the take of swift fox as nontargets. We believe that WS PDM has had minimal, if any noticeable, effects on these species' populations.

Eastern spotted skunk populations have declined range-wide and are a species of special concern in many states (Gompper and Hackett 2004). Population information on spotted skunks is currently unknown in Oklahoma (ODWC 2005), but to the species occurs over a broad region and trapping records did not reveal any difference in distribution from 1906 to 1977 (Tyler and Lodes 1980). It was concluded that spotted skunks should not be considered rare in Oklahoma (Tyler and Lodes 1980). WS agrees that the spotted skunk is a species of concern and, as noted in the EA, WS will work with ODWC should WS need to target

a known spotted skunk. WS does not anticipate that it will conduct much more-PDM for this species than that analyzed in the EA. We believe that the analysis in the EA was adequate for this species.

On the other hand, the swift fox population in Oklahoma can reasonably be estimated from recent studies. In FY04, WS took 5 nontarget swift fox. Densities have been reported for swift fox from 0.4-10/mi² (Scott-Brown et al. 1999, Finley et al. 2005). The most recent study in eastern Colorado found that over a large area, including areas with and without fox, swift fox density was 0.4 swift fox/mi² (Finley et al. 2005). The swift fox is found primarily in the 3 panhandle Counties (Cimarron, Texas, and Beaver), and also in parts of 3 other Counties (Ellis, Harper, and Woodward) (Hoagland 2006). For the sake of estimating their population in Oklahoma, though, just the 3 panhandle county area (5,686 mi²) will be used. At the low density this would equate to 2,274 swift fox in Oklahoma. An allowable harvest has not been determined for swift fox, but we will set it at 25%, the allowable harvest for gray fox (USDA 1997) and a conservative allowable harvest considering their natural history information. This would suggest that an allowable harvest would be 569 swift fox in Oklahoma. Therefore, the take of 5 would represent about 1% of the allowable harvest, well below take that would be sustainable by the population. We have concluded that the take of 5 would not have a detrimental effect on their population.

A commenter was concerned that WS had more impact on swift fox (the take of 5) than coyotes. However, recent studies confirm that coyotes are indeed a significant mortality factor for the swift fox (e.g., Andersen et al. 2006). Section 4.2.3.1 cites literature that determined that swift fox could adversely be affected by coyote populations. In studies in Kansas and Colorado, among others, coyotes were found to be the major mortality factor for swift fox (Sovada et al. 1998, Andersen et al. 2006). Thus, we believe that this is probably similar in Oklahoma. Therefore, we stand by our discussion in the EA that the take of coyotes in areas inhabited by swift fox could potentially have a beneficial effect on this species. However, we do not expect that the average take of about 500 coyotes in the 3 counties of the Oklahoma panhandle would have a great effect on the swift fox population, but certainly believe that this does reduce their mortality to a degree probably much higher than WS's nontarget take.

Monitoring

WS monitors each EA, the Decision associated with the EA, and the activities specified in the Decision. These are reviewed annually for applicability and accuracy of the documents, monitoring compliance, and the need for further analysis and documentation due to new information or changes in activities. A report of this review is prepared and filed in the respective WS State Office and with the appropriate WS Regional Director's Office. This EA will be reviewed annually to ensure that it is complete and still appropriate to the scope of WS's PDM activities.

Major Issues

WS, other agencies, and the public have helped identify a variety of issues deemed relevant to the scope of this EA. These issues were consolidated into the following four primary issues that were considered in detail in the predecisional EA:

- Effects on Target Predator Species Populations
- Effects on Nontarget Species Populations, including T&E Species
- Effects of Predator Removal on Prey Populations
- Humaneness of Control Techniques

Alternatives Analyzed in Detail

Four potential alternatives were developed to address the issues identified above. Six additional alternatives were considered, but not analyzed in detail in the EA. A detailed discussion of the anticipated effects of the alternatives on the objectives and issues is described in Chapters 3 & 4 of the predecisional EA. The following summary provides a brief description of each alternative and its anticipated impacts.

Alternative 1 - Continue the Current Federal PDM Program (No Action/Proposed Action)

The No Action Alternative is a procedural NEPA requirement (40 CFR 1502), is a viable and reasonable alternative that could be selected, and serves as a baseline for comparison with the other alternatives. The No Action Alternative, as defined here, is consistent with CEQ's definition for ongoing programs. In the case of the PDM EA for Oklahoma, the No Action Alternative was the equivalent of the Proposed Action Alternative and the Current Program. This alternative would allow the current program to continue as conducted under the existing Western Oklahoma and Eastern Oklahoma EAs and FONSI's (WS 1997a, 1997b). This statewide EA would supercede the Eastern and Western Oklahoma EAs.

Under the current program, WS responds to requests for PDM to protect human health and safety, agricultural resources, crops, turf, landscaping, livestock feed, livestock, livestock health, property, natural resources, T&E species, other wildlife, forestry and aquaculture in the State of Oklahoma. A major component of the current program is protecting livestock and property from wildlife predation and damage. Another important portion of the current program is protecting human health and safety from direct conflicts with animals or disease threats. The program would also operate to reduce or minimize predator damage, or the risk of damage, to all other resources. To meet these goals WS would have the objective of responding to all requests for assistance with, at a minimum, technical assistance or self-help advice, or, where appropriate and when cooperative or congressional funding is available, direct damage management assistance in which professional WS Specialists and/or Biologists conduct damage management actions. An IWDM approach would be implemented which would allow use of any legal technique or method, used singly or in combination, to meet the needs of requestors for resolving conflicts with predators. Agricultural producers and others requesting assistance would be provided with information regarding the use of effective nonlethal and lethal techniques. In many situations, the implementation of nonlethal methods (such as fencing, guard animals or animal husbandry techniques) would be the responsibility of the requestor to implement, meaning in those situations, WS's only function would be to implement lethal methods if determined to be appropriate and necessary. PDM by WS would be allowed in the State, when requested, on private property sites, public facilities or other locations where a need has been documented, upon completion of an Agreement for Control. All management actions would comply with appropriate Federal, state, and local laws.

Alternative 2 – No Federal Predator Damage Management

This alternative would consist of no Federal involvement in PDM in Oklahoma. Neither direct operational PDM nor technical assistance to provide information on nonlethal or lethal PDM techniques would be available from WS. A portion of the formerly Federal PDM responsibility would be borne by the remaining state agency program, ODAFF, that has stated that it would continue PDM should WS not. Private individuals would likely increase their efforts as allowed by State law which means more PDM would be conducted by persons with less experience and training, and with little oversight or supervision. Risks to the public, nontarget and T&E species, and public lands and associated recreational activities would probably be greater than under Alternative 1, and humaneness, effectiveness, and selectivity would probably be lower. The use of illegal or inappropriate techniques by frustrated resource owners or managers may increase under this alternative and result in an increase in adverse effects.

Alternative 3 - Technical Assistance Only

Under this alternative, WS would not provide any direct control assistance to persons experiencing predator damage problems, but would instead provide advice, recommendations, and limited technical supplies and equipment. Lethal PDM would be conducted by ODAFF and by private individuals with little or no experience and training, and with little oversight or supervision. Risks to the public, and nontarget and T&E species would probably be more than Alternative 1, but slightly less than or about the same as Alternative 2. Humaneness and effectiveness in resolving predator damage problems and selectivity of PDM actions in targeting damage-causing species or individuals would probably be lower than under Alternatives 1 and 4, but somewhat greater than under Alternative 2. The use of illegal or inappropriate techniques by frustrated resource owners or managers may increase under this alternative and result in an increase in adverse effects.

Alternative 4 – Nonlethal Required before Lethal

This alternative would not allow the use of lethal methods by WS as described under the proposed action until nonlethal methods had been attempted. Private landowners and state agencies, particularly ODAFF, would still have the option of implementing their own lethal control measures as needed without waiting to implement nonlethal methods. Risks to or conflicts with the public and target species would be about the same as Alternative 1. Risks to nontarget and T&E species would probably be somewhat greater than Alternative 1, but slightly less than or about the same as Alternative 2 or 3. Program effectiveness and humaneness would probably be lower than Alternative 1. Personnel experienced in PDM often already know when and where practical nonlethal control techniques would work. Therefore, this alternative could result in the use of methods that are known to be ineffective in particular situations. Selectivity of PDM methods under this alternative would likely be less than Alternative 1 if WS's reduced effectiveness led to greater PDM efforts by less experienced and proficient private individuals, but greater than Alternatives 2 and 3. The use of illegal or inappropriate methods, and adverse effects associated with such methods, would probably be similar to or slightly higher than that which would occur under Alternative 1, but less than under Alternative 2.

Alternatives considered but not analyzed in detail were:

- Compensation for Predator Damage Losses
- Bounties
- Eradication and Long Term Population Suppression
- The Humane Society of the United States Alternative

Management Techniques Not Considered for Use in IWDM:

- Lithium Chloride as an Aversive Agent
- Immunocontraceptives or Sterilization Should Be Used Instead of Lethal PDM

Comments regarding the Alternative Selection

The 45 day Public Comment Period for the predecisional EA for PDM actions in Oklahoma ended on July 11, 2005. Three comments were received on the EA for PDM actions in Oklahoma. Only one of the three commenters on the EA stated their preferred alternative and that would be to continue the Current Program (Alternative 1). The other commenters raised certain issues that were addressed in the EA or this Decision document, but did not state their preferred alternative. However, from comments made in their letters, it could be reasonably assumed that one commenter would prefer a Nonlethal Control Only alternative and the other the HSUS Alternative.

Finding of No Significant Impact

The Predecisional May 2005 EA is hereby accepted as the Final EA for PDM in Oklahoma. The analysis in the EA and herein indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of the Proposed Action. I agree with this conclusion and, therefore, find that an Environmental Impact Statement need not be prepared. This determination is based on the following factors:

1. PDM, as conducted by WS in Oklahoma, is not regional or national in scope. It is a statewide program and the scope was discussed in the EA. Under the proposed Action, WS would continue to assist entities with predator damage as necessary. Even if WS were not involved, PDM will apparently be conducted by ODAFF as they have stated this in a letter to WS or, as allowed by State law, by private entities that are not subject to compliance with NEPA.
2. The proposed action would pose minimal risk to public health and safety. No injuries to any member of the public are known to have resulted from WS PDM activities in Oklahoma. In addition, a risk assessment of PDM methods used by WS was completed in USDA (1997, Appendix P and Q) which found that the

PDM methods used by WS pose only minimal risks to the public, pets and nontarget wildlife species. This issue was addressed in the EA and the Proposed Action was found to present the least potential for impacts.

3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected by the proposed action. Almost all PDM projects conducted by WS occur in agricultural, urban, and other developed areas. None of the methods used in PDM would have an adverse significant effect on these areas as discussed in the EA.

4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to predator control, this action is not highly controversial in terms of size, nature, or effect. Predator and nontarget species populations will not be significantly affected by PDM under the proposed action, but effects on such populations may be more uncertain under the other alternatives depending on the efforts of other individuals to conduct PDM and the potential for illegal use of toxicants.

5. Based on the analysis documented in the EA, the effects of the proposed PDM program on the human environment are not highly uncertain and do not involve unique or unknown risks. The other alternatives could potentially involve unique and unknown risks by non-professionals implementing PDM and frustrated property owners that have been ineffective with PDM methods potentially resorting to use of illegal methods, particularly unregistered chemicals.

6. The proposed action would not establish a precedent for any future action with significant effects. The nature of PDM is such that it can be curtailed at any time without automatically leading to other Federal actions that may have significant environmental effects.

7. No significant cumulative effects on the quality of the human environment were identified through this assessment. The number of any predator species taken by WS added to the total known "other" take of that species are either within levels sustainable by populations or authorized or desired by the responsible State agencies that represent those species interests.

8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources.

9. An evaluation of the proposed action and its effects on T&E species determined that no significant adverse effects would occur to such species. This is supported by the 1992 Biological Opinion (USDA 1997) and a subsequent Biological Assessment in Oklahoma with Concurrence from USFWS in 1999. No other T&E species have been listed in Oklahoma since then.

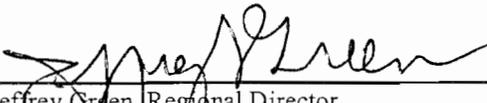
10. The proposed action would be in compliance with all Federal, State, and local laws imposed for the protection of the environment. The proposed activity does not violate the Endangered Species Act, or any other law. It is most probable that these could be broken under the other alternatives with the use of inappropriate methods, including the potential illegal use of chemicals by frustrated resource owners.

11. There are no irreversible or irretrievable resource commitments identified by this assessment, except for a minor consumption of fossil fuels and other materials for routine operations.

Decision

I have carefully reviewed the EA and the input resulting from the public involvement process. I believe the issues and objectives identified in the EA would be best addressed through implementation of Alternative 1 (the proposed action to continue the current program). Alternative 1 is therefore selected because (1) it offers the greatest chance at maximizing effectiveness and benefits to affected resource owners and managers within current program funding constraints; (2) it will maximize selectivity of methods available; (3) it offers a balanced approach to the issue of humaneness when all facets of the issue are considered; (4) it will continue to minimize risk to or conflicts with the public; and (5) it will minimize risks to nontarget and T&E species. WS in Oklahoma will continue to use an Integrated Wildlife Damage Management approach in compliance with all the applicable mitigation measures listed in Chapter 3 of the EA.

For additional information regarding this decision, please contact John E. Steuber, USDA-APHIS-WS, 2800 N. Lincoln Blvd., Oklahoma City, Oklahoma, (405) 521-4039.



Dr. Jeffrey Green, Regional Director
APHIS-WS Western Region

3/10/06
Date

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APPENDIX A - Comments Received for the Oklahoma 2005 Predator Damage Management Environmental Assessment

1. Oklahoma Farm Bureau – Marla Peek, Director of Regulatory Affairs - 7/8/05
2. The Humane Society of the United States (HSUS) – Bette Stallman, Ph.D., Wildlife Scientist – 7/11/05
3. Center for Biological Diversity – Olivia Rhoades – 7/15/05

Letter: Page	Comment	Section/Issue Comment Addresses: Response
Comments and Concerns Associated with the Need for Action (Chapter 1)		
2: 1-2	The Wildlife Services (WS) Decision Model (Slate et al. 1992) is vague and not sufficient to describe the steps that would be taken to implement the Proposed Action.	Description of the Proposed Action: The WS Decision Model (Slate et al. 1992) was addressed in the Environmental Assessment (EA) in Sections 1.1.1 and 1.4.6. United States Department of Agriculture (USDA 1997, Chapter 2 and Appendix N) provided many site-specific examples of how the Decision Model is used. The description of the Decision Model in the EA was not meant to be vague, but merely provide a concise description of the site-specific thought process for wildlife damage management (WDM) projects with citations where readers could get more in-depth information. The Decision Model and WS Directive 2.105 provide the site-specific thought process followed by WS Specialists when on-site analyzing a wildlife damage problem and is an SOP identified in Section 3.4.1 of the EA. We believe that the EA provided an adequate description of the Decision Model.
2: 2	<i>"...it is not clear under what conditions WS would use or recommend non-lethal methods for livestock protection..." "The EA does not indicate how successful either lethal or non-lethal methods have proven to be in Oklahoma or in other states..." "...the EA does not provide examples of damage situations in which no feasible non-lethal method could be reasonably attempted prior to the initiation of lethal control."</i>	Description of the Proposed Action: In the Summary of the Proposed Action discussed in Section 1.1.1 of the EA it stated that Integrated Wildlife Damage Management (IWDM) would be implemented. The IWDM concept is that lethal and nonlethal predator damage management (PDM) techniques and methods, which have inherent strengths and weaknesses for different situations (Knowlton et al. 1999), would be used by themselves or in conjunction with other methods so that a positive effect could be achieved. Each individual case of wildlife damage is unique; therefore, no blanket field protocol, (i.e. trapping or fencing only, etc.) can be applied to handle all damage situations. IWDM, along with the Decision Model, are therefore applied to provide the best solution to the individual situation. Success during a PDM project is determined by whether the damage or damage threat has been alleviated regardless of the approved method used under these guidelines. Therefore, a WS Specialist would consider recommending or implementing nonlethal or lethal methods in the Decision Model, based on the previously stated guidelines. Many nonlethal methodologies revolve around various day-to-day husbandry practices (e.g., night penning, fencing, and carcass disposal), and are usually implemented by the resource owner. It is WS policy to give preference to nonlethal methods first where their implementation would be practical and effective, and therefore, part of the proposed action.
2: 2	The Decision Model needs a goal-setting step.	Description of the Proposed Action: Although, the Decision Model (Slate et al. 1992) does not have a specific "goal-setting step", it is inferred in "formulating the wildlife damage control strategy" and "monitoring and evaluate results" steps (Slate et al. 1992, USDA 1997).
2: 4-6	EA gives insufficient justification for the proposed action. Predators kill relatively few livestock compared to losses from other causes. Commenter believed that the omission of this data was intentionally done to sway public into believing that predation of livestock is a problem when other losses surpass predation losses.	Livestock Protection: All livestock losses are a real concern of producers and they take remedial measures to reduce them. We did not omit data on losses other than predation (e.g., weather, livestock-associated disease) to be misleading because we believe that livestock losses to predators are serious and a concern by themselves. Livestock losses in Oklahoma were discussed in Section 1.2.2 of the EA and in previous EAs for PDM in Oklahoma (WS 1997a, b) and, as noted, Oklahoma has substantial livestock losses to predators. Losses, other than those caused by predators, cannot be affected by PDM and were outside the scope of the EA. We believe that the EA adequately discussed the need for action regarding livestock losses to predators. However, this is addressed further in the Decision document.
2: 5	<i>"While the EA cites the highest percentages of livestock lost when there is no predator damage program, the EA (1) omits the lowest percentage or the average percentage of loss in the absence of PDM, ... (3) omits the estimated percentages of livestock lost (highest, lowest, or average) when there is an active predator damage management program..."</i>	Livestock Protection: We believe that the EA provided adequate reference to the percentage of livestock losses with and without PDM. Section 1.1.2 in the EA referenced studies to demonstrate expectations for livestock losses in areas with and without PDM. Predator damage in a given area, with or without PDM, would be expected to have a range that could vary widely depending on specific factors (e.g., predator density and livestock availability). Some producers will experience heavy losses while others will not have any losses. Those without losses, with or without PDM, would not require assistance from WS. On the other hand, those producers with losses, whether or not they are sporadic, ongoing, or heavy, would probably conduct PDM on their own or request assistance from WS. Based on that, it can be reasonably assumed that the lowest losses would be "zero" and the highest would be a percentage higher than the average. However, these comments imply a misunderstanding of the goals of PDM which are to prevent further or future losses of livestock and that livestock losses would be much higher if PDM was not provided. Livestock producers generally do not wait for losses to accumulate to some high level before implementing PDM or requesting WS assistance, but attempt to act before such losses become severe. The more important factor is the number of livestock saved from predation by PDM.
3: 3	Project costs outweigh reported costs of livestock deaths.	

2-5	The EA omits data on less vulnerable livestock such as cattle and calves and focuses on vulnerable livestock.	Livestock Protection: Certain livestock are notably more at risk of predation than others generally as a result of the livestock's size, behavior, and availability and the size, behavior, and individual preference of the predator. However, the vulnerability of livestock to predation is usually case-specific. Resource owners may raise chickens with no predation, yet may lose calves to coyotes on another portion of their property due to prey availability and preference. Section 1.1.2 of the EA discussed livestock lost in Oklahoma. Many studies have been conducted on sheep predation by predators, particularly coyotes and, therefore, are discussed more frequently. However, as noted in the losses for FY04 in Section 1.1.2, more calves were lost than any other hoofed livestock in Oklahoma. The National Agricultural Statistics Service (NASS 2001) reported that 700 adult cattle and 6,800 calves were lost to predators in Oklahoma in 2000 valued at \$2.55 million, and coyotes were responsible for 200 adult cattle and 3,800 calves. NASS (2005) reported that 1,000 adult sheep and 2,700 lambs were lost to predators in Oklahoma in 2004 valued at \$300,000 with coyotes being responsible for the majority of kills, 600 adult sheep and 1,800 lambs. Thus, as reported by NASS, calves are vulnerable to predation in Oklahoma and producers lose a substantial number to predators. We believe that the EA adequately discussed the need for action and losses of the different livestock in Oklahoma.
2: 8 3: 2	WS claims predator management benefits wildlife populations. Native predators are rarely ever responsible for declines in prey species. Habitat is the key factor to a species decline. Proposed methods will not achieve game population increases.	Wildlife Protection: Wildlife managers sometimes request assistance from WS to protect certain wildlife species of interest. Species of interest often include threatened and endangered (T&E) species such as the Interior least tern (<i>Sterna antillarum</i>) or black-footed ferret (<i>Mustela nigripes</i>), species of concern, and declining game species such as the greater prairie-chicken (<i>Tympanuchus cupido</i>). Loss of habitat has been implicated in the decline of many these species, but predation has also been found to limit some species' populations. Many studies have found that predation is a limiting factor for other wildlife species and some of these studies were discussed in Section 1.1.3 of the EA. As a need for action, Section 1.1.3 in the EA provided an adequate discussion of the need to protect wildlife resources from predators.
2: 9	WS claims that PDM could be done for disease. Wildlife carrying disease have rarely been shown to pass them to man.	Human Disease Prevention: Predators can be responsible for diseases transmitted to people. In the commenter's own publication, "Pocket Guide to the Humane Control of Wildlife in Cities and Towns," it was stated that " <i>Wildlife serves as a reservoir for many diseases common to domestic animals and humans. Persons engaged in wildlife damage control should be alert to the potential of disease transmission from animals</i> " (HSUS 1991). The Centers for Disease Control has information regarding wildlife disease and track particular diseases transmissible from predators to people (@ http://www.cdc.gov/healthypets/animals/wildlife.htm). A disease of concern in Oklahoma is rabies, primarily in skunks (80 of the 114 rabies cases in 2004 involved skunks (Krebs et al. 2005)). Other human diseases with a direct link to predators include diseases such as leptospirosis (<i>Leptospira</i> spp.), trichinosis (<i>Trichinella spiralis</i>), raccoon roundworm (<i>Baylisascaris procyonis</i>), and cat scratch fever (<i>Bartonella</i>) (McLean 1994). While the incidence of cases in humans in the United States is low, the threat is very real. We believe that the EA adequately addressed PDM for diseases associated with predators transmissible to humans as a need for action.
2: 9	"...in a brief and vague discussion of bioterrorism, the EA suggests that WS may engage in large-scale management activities such as depopulation or quarantine of wildlife. The discussion is so vague that it is not clear under what circumstances such extreme actions may take place or what the role of other agencies would be, with respect to the role of WS."	Human Health and Safety Protection: After the multiple attacks on September 11, 2001, it is evident that enemies of the United States will attempt any number of methods to inflict harm to U.S. citizens. An identified potential avenue to inflict further injury or death is through the spread of disease using wildlife as a direct vehicle for that purpose. It is unknown to what level or extent terrorists would attempt such an action and the degree to which wildlife would be involved or affected. APHIS-WS was designated by the Department of Homeland Security as a first responder in the event of a terrorist attack. Should WS be mobilized to assist in such an event, WS would be part of a multi-agency effort under an Incident Command System (ICS). Under ICS, teams are formed to address the issues at hand, without regard to pre-existing agency hierarchy, in order to implement plans ultimately coordinated by the Incident Commander. Under ICS, WS personnel would be assigned specific tasks to be carried out, based largely on the perceived or known emergency at the time, depending on each individual's expertise. Wildlife emergency programs would likely be carried out with assistance from the agencies responsible for the species of concern in such an event. WS has no idea whether or not such an attack would arise, but considers it a new issue that was briefly addressed in Section 1.1.2 of the EA where it was adequately discussed for the decision-maker's consideration.
2: 10	WS must clarify the point that they would conduct PDM for purely nuisance wildlife.	Human Health and Safety: As discussed in Section 1.1.3, WS takes wildlife in Oklahoma for nuisance situations where no damage is noted. The need to take nuisance wildlife was discussed in detail in USDA (1997). Examples of nuisance wildlife are skunks emitting odors under a house that can be smelled inside, a raccoon using a child's sand box as its regular latrine, and an opossum creating noise as it comes and goes from an attic where it is living. Though some of these have no noticeable monetary damages, the presence of these animals are a nuisance WS takes nuisance wildlife in Oklahoma and the majority are striped skunks living under residential properties where odor is identified as the "damage." However, this is a very minor component of the current program, except for possibly striped skunks. In FY 04, WS was requested 92, 21, 10, 10, and 9 times to respond to human health and safety "nuisance" complaints for striped skunks, raccoons, opossums, feral cats, and other predators. The majority of these complaints are handled through technical assistance. We believe that the EA adequately addressed the issue of nuisance wildlife take.

2: 13	We are concerned about the economic incentives for WS to favor and pursue lethal control, because this represents a sustainable budget for WS because animals killed will be replaced by other animal so WS perpetuates itself, creating ethical and moral issues.	Purpose and Need: We disagree with this statement and believe it is a declaration of an inappropriate purpose and need for action. Our purpose is to meet the intent of Congress by providing assistance in resolving damage problems caused by publicly owned wildlife. Eradication would be the only way to assure that new wildlife damage problems would not arise. WS and wildlife management agencies would not support eradication of native species as an alternative as discussed in Section 3.3.3 of the EA. Impacts on target predators were discussed in Section 4.2.1.1 in the EA and as noted none of the predator populations would be significantly impacted by WS PDM activities. Therefore, WS expects predator damage problems to continue to arise, but has a program to help manage these problems.
3: 3	WS should only focus on the coyote because it causes 91% of the damage and killing other predators unrelated to the overwhelmingly principal cause of damage is wasteful.	Proposed Action: As described in Section 1.0 of the EA, WS could conduct PDM for several predator species in Oklahoma under the proposed action. The coyote is the primary focus of the program as a result of their abundance, adaptability, and damage. Other species cause problems too as discussed in the EA, but usually not to the degree that coyotes do, and many of the predator species are not as abundant as coyotes and therefore do not cause the extent of damage. We believe that resolving problems associated with the other predator species is needed and was discussed adequately in the EA.
Comments and Concerns Associated with the Issues (Chapter 2)		
2: 14	Area too large to be covered by an EA.	Site-specificity: Site-specificity was discussed in Section 1.4.6 of the EA. Site-specific PDM activities were addressed in the EA and the previous EAs (WS 1997a, b) where possible. Site-specificity is discussed in greater detail in USDA (1997) and further clarification of our treatment of this issue in the Decision document.
2: 4-6	EA fails to require that lethal control specifically target the individual animal causing damage because not all coyotes kill sheep.	Target Species Impacts: WS's use of PDM methods has been very selective for target species and take of target and nontarget species was analyzed in Sections 4.2.1.1 and 4.2.2.1 of the EA. We believe that the EA adequately addressed the issue of targeting individual animals given the state of current technology. However, this issue will be discussed further in the Decision document.
2: 12-13	EA does not address research examining injuries incurred by animals as a result of using traps, neck snares, and other restraint methods.	Humaneness: Section 2.2.2 of the EA succinctly described the issue of humaneness and Section 4.2.4 analyzed this issue among the various alternatives. Improper trapping techniques, including trapping or restraint by untrained individuals (including some "biologists" and "researchers") including unmodified equipment, tardy trap checks, and trapping during poor weather conditions, can cause unnecessary injury risk to some animals. Under the proposed action, WS employees are trained, follow Oklahoma laws and regulations, and WS policies and SOPs such as certain trap modifications and trap checks intervals (Section 3.4 of the EA) to minimize these potential injuries. Most captured target animals are euthanized in accordance with American Veterinary Medical Association guidelines for wildlife (Beaver et al. 2002), but nontarget species are released unless it is deemed by the Wildlife Specialist that the animal has an injury that would prevent it from surviving. We believe that the EA adequately addressed and analyzed the issue of humaneness.
2: 12-13	Commenter believed that the EA had an inadequate discussion of humaneness.	Humaneness: Humaneness was listed as an issue and described in Section 2.2.2 of the EA. Humaneness was compared among all of the alternatives in Section 4.2.4 of the EA. The Current Program was found to have the least negative impacts of the alternatives considering all facets of humaneness. This was the same conclusion in USDA (1997). We believe that the EA adequately addressed this issue enough for the decision-maker to reach a decision.
2: 13	Unnecessary death should be avoided unless compelling justification (immediate threat to human health and safety, for example) for actions exists.	Nontarget Species Impacts: WS avoids unnecessary death in PDM, but realizes that this occurs in the proposed action as nontargets can be taken during PDM projects. WS avoids many impacts through the use SOPs as discussed in Section 3.4 of the EA. Nontarget take was analyzed in Section 4.2.2 of the EA and the proposed action was found to have the least negative consequences of the alternatives. This was the same conclusion in previous EAs (WS 1997a, b) and USDA (1997). We believe that the current program minimizes unnecessary death to the highest extent possible given current technology in PDM and believe the issue was adequately addressed in the EA.
2: 13	WS will have a continuous cycle of lethal control because coyote populations will not be affected.	Target Species Impacts: These comments imply a misunderstanding of PDM in that it appears that the commenters believe that PDM is conducted just for the sake of killing predators and not to protect resources whether or not lethal or nonlethal PDM methods are used. WS PDM will not have a significant impact on the coyote population as discussed in Section 4.2.1.1 of the EA. WS implements IWDM program as discussed in Section 3.2.1 of the EA and concentrates efforts in small geographic areas (as opposed to statewide population suppression/eradication), for a limited amount of time; therefore, PDM applied to the individual areas at specific times will not cumulatively have an impact on the population and therefore wildlife damage could reoccur. WS has no way of predicting if and when wildlife damage will recur at any given site. A realistic goal for the human and wildlife environment is to allow predators to exist statewide, yet effectively address damage and threats of damage as they occur to individual resources as outlined in the Proposed Action. Those species that are able to adapt to newly created human-developed habitats and thrive in the presence of man such as the coyote, are often the species that creates the most problems. It is important to resolve problems with these species as they arise, especially with those deemed abundant or people often develop a negative attitude towards all wildlife and wildlife related projects and organizations (International Association of Fish and Wildlife Agencies 2004). We believe that the EA addressed this issue adequately.
3: 3	<i>"If killing 26% of the coyote population only provides temporary relief to livestock, producers, than coyotes will continue to thrive and kill livestock statewide, and thus Project methods are useless in limiting the state's cost of livestock damage."</i>	

2: 12 3: 1	Predator removal, especially coyotes, may cause microherbivore irruptions.	Indirect Nontarget Species Impacts: This issue was addressed in Section 4.2.3.1 of the EA. However, to respond and clarify the point made by the commenter regarding the two studies on microherbivore irruptions following intense PDM, we will provide additional information in the Decision document.
2: 12	The EA does not adequately consider the effects of predator population reductions on other predators populations (i.e. meso-predator release).	Indirect Nontarget Species Impacts: The EA addressed the effects of predator removal on prey populations under all the alternatives in Section 4.2.3 and found that impacts under any of the alternatives would be minimal. While the phenomena of meso-predator release has been documented in the absence of larger predators, this phenomenon would not likely result from WS's PDM efforts. This comment gave the impression that the commenter believes WS engages in general population suppression of coyotes or other predators across large areas of the State which is not the case. As noted in the EA (Section 4.2.1), WS removes only a minor portion of the coyote population during programs to reduce predation on livestock, and immigration and natural reproduction contribute to relatively rapid repopulation of areas where coyotes have been removed. Given the capabilities for rapid coyote repopulation of areas following localized control and sport harvest actions, we do not anticipate substantial impacts on other predator/omnivore populations (e.g. skunk, raccoons, fox). We believe that PDM activities would have minimal or no noticeable effects on other predator populations and that this issue was adequately addressed in the EA.
Comments and Concerns Associated with the Alternatives (Chapter 3)		
1: 2	Commenter supports an animal damage depredation program financed by the Oklahoma Department of Wildlife Conservation (ODWC) to reimburse farmers for losses caused by State regulated wildlife.	Compensation Alternative: A compensation alternative was adequately discussed in Section 3.3.1 of the EA.
1: 2	Fines should be given to people that knowingly release predatory animals.	Trap and Relocate/Introduction Programs: WS agrees with the policy that wildlife should not be relocated wildlife without a permit or at the direction of the managing agency (i.e., ODWC) as discussed in Section 3.2.1 of the EA with the exception of nontarget wildlife accidentally captured or sometimes target predators (e.g., animals accidentally entrapped indoors that can released on-site outdoors because it will be unable to gain access inside again, or rare species whose populations are low or below carrying capacity). The introduction of animals, especially invasive species such as feral cats, can have dire consequences for wildlife at the relocation/release site from overcrowding or disease introduction.
2: 2 3: 2-3	The EA does not indicate the success rate of the different PDM methods. PDM methods are unsuccessful.	Effectiveness of PDM Methods: Section 3.2.1 of the EA discussed the methods used in PDM by WS. The effectiveness of different PDM methods are very situation- and site-specific. No method has proven to be 100% effective for all situations. WS knows of no document that gives the effectiveness of different PDM methods for uses in every situation. Knowlton et al. (1999) reviewed the effectiveness of methods for coyote damage management and indicates the relative effectiveness of different methods discussing advantages and drawbacks of each method (e.g., fencing can keep predators out, but is costly, doesn't allow movement of target animals nor wildlife as a whole, and some wildlife can get entangled in them and die; guard dogs can keep predators away from livestock, but may kill wildlife and the livestock they're protecting). We believe that the EA had an adequate discussion of the methods used in PDM and realize each will have advantages and disadvantages at each site where they are used.
2: 2	<i>"The EA indicates that WS will recommend the use of any needed livestock husbandry practices or other non-lethal prevention or control methods, but there is no indication that WS would wait until any such recommended practices have actually been implemented before using lethal control..."</i>	Nonlethal before Lethal Control Alternative: Although this comment is directed at the proposed action, it was analyzed in the EA as the Nonlethal before Lethal Control Alternative, Alternative 4. Waiting for nonlethal control methods to be implemented and stop or reduce damage may work to reduce problems in the long-term, but may not avoid short-term problems. We believe that the EA adequately addressed this issue.
2: 2, 4 3: 3	WS needs to provide an aggressive public education effort in nonlethal PDM methods in Oklahoma. WS should spend more on nonlethal control research such as lithium chloride.	Technical Assistance: Technical assistance was described in Section 1.1.1 as part of the proposed action. Further detail was given in Section 3.2.1 of the EA. Technical assistance was part or all of Alternatives 1, 3, and 4 in the EA. WS already provides the public with a great deal of technical assistance on nonlethal methods and much of NWRC's budget is spent on researching nonlethal techniques for WDM including predators. We believe technical assistance was adequately addressed in the EA.

2: 2, 4 3: 1	EA does not give examples of situations where nonlethal methods are not feasible prior to initiating lethal control. “...the effectiveness of both lethal and non-lethal methods as long-term vs. short-term solutions to agricultural and other damage, and should indicate to the public how WS activities under the Proposed Action will affect wildlife damage, both in the short-term and long-term.”	The Proposed Action and Nonlethal Control: Nonlethal control is part of the proposed action. WS Specialists give consideration to nonlethal control methods first per WS Policy when formulating a PDM plan using the Decision Model (Slate et al. 1992). However, nonlethal PDM methods may or may not be used first. Each predator damage situation is fairly unique and as such, it is difficult to describe a particular situation where lethal would be initiated first without consideration of nonlethal methods. An example, though, may be a situation where a predator killed or injured a person; nonlethal control is usually not an option and nonlethal methods are usually not considered. Nonlethal control may not be used first in many other situations depending on the plan of action a Wildlife Specialist has determined would be the best approach to resolve the problem. The Specialist often determines the quickest and most effective way to stop a damage problem such as the predation of livestock, giving priority consideration to nonlethal control methods first. However, it may be ineffective to wait until a nonlethal approach was effective before stopping the problem at hand. Since many nonlethal methods cannot be implemented quickly (e.g., use of guard dogs), PDM methods that are used lethally may be implemented to stop the short term problem. The Specialist could recommend the use of feasible effective nonlethal methods to the producer (especially if the producer could implement such techniques quickly to stop the immediate problem) to prevent similar problems in the future (e.g., it could take several months to install “predator-proof” fencing or be the next season before shed lambing could be used).
2: 2, 4	EA does not consider a full range of alternatives.	Alternative Consideration: Four alternatives were analyzed in detail in the EA and provided a range from no federal WS PDM program to the current federal program. Additionally, 4 other alternatives for PDM programs and 2 alternatives considering a particular PDM method were considered, but not in detail with an explanation for why they were not considered. USDA (1997) considered 5 alternatives for analysis in detail and 8 other alternatives, but not in detail. We believe that the EA adequately considered a range of alternatives to implement PDM in Oklahoma and that the inclusion of additional alternatives would not provide a better analysis.
2: 2-8	EA does not consider a nonlethal only alternative. No need for PDM if producers use nonlethal control. Use guard dogs, animal husbandry, frightening devices.	Nonlethal Control Alternative: The Nonlethal Control Only Alternative was considered in detail in USDA (1997). It was found to have more negative consequences than to continue the current program. The Nonlethal Control Only Alternative was considered to be very similar to the Technical Assistance Alternative and have similar impacts on the human environment, thus, it was in essence analyzed in the EA as Alternative 3 and analyzed in Chapter 4 under all of the issues. Therefore, we believe that fundamental aspects of the nonlethal control alternative were discussed in detail in the EA and were sufficiently addressed. Section 3.2.1 of the EA discussed the PDM methods that the commenter had discussed in their comment letter; WS recommends or uses these PDM methods under the proposed action as appropriate. However, because of the extensive concerns the commenter had, further information will be provided in the Decision document.
2: 3-4	EA does not consider in detail the HSUS alternative which is not the same Alternative 4 because would require that all feasible non-lethal methods be exhausted before implementing lethal control.	HSUS Alternative: The HSUS Alternative was adequately considered in Section 3.3.4 of the EA.
2: 3 2: 13	EA should consider alternative that would require dogs and cats targeted in a PDM project be removed only with cage traps or control should be turned over to a local animal control agency or shelter. “The Final EA must more thoroughly describe and justify the final disposition of live-trapped feral or pet dogs and cats.” “The final EA should also indicate whether WS has undertaken any public education efforts to encourage responsible pet ownership in Oklahoma.”	Restriction of PDM Methods Used for Feral or Astray Domestic Animals: WS in Oklahoma abides by local laws and regulations when implementing feral or astray dog or cat control. WS is typically requested by the County Animal Control Office, Sheriff, or other responsible authority which was adequately explained in Section 1.5.1 of the EA. Dogs, cats and other domesticated animals, whether “astray” or “at-large,” are defined by state and local laws in Oklahoma, and regulated under these laws by various law enforcement entities statewide. WS is not a regulatory agency. WS may assist those agencies managing astray and feral domestic animals with control efforts abiding by their laws and policies. The PDM method(s) used is (are) often determined by the situation and local regulations. Cage traps are frequently used, but are not always effective (usually cage traps and hand-capture have already been attempted by animal control or other agencies and the animals have become “trap-shy.”) Restricting methods to cage traps only could limit the ability of a Wildlife Specialist to resolve a problem. WS turns over targeted estrays, most live-captured, to the appropriate animal control authority for their disposition. WS provides information to resource owners on damage and damage management from these animals. Consequences of irresponsible pet ownership in Oklahoma are not tolerated under the law. While WS certainly supports responsible pet ownership of any animal, general ownership other than specific animals causing damage was beyond the scope of the EA.
2: 14 3: 3	WS may not be using the latest nonlethal PDM methods that have been developed by NWRC and others.	Use of Current Nonlethal PDM Methods Research: NWRC is a world leader in PDM research and in the development of new PDM strategies. Proven methods that are tested or developed by NWRC are used in Oklahoma and are a part of the proposed action. NWRC has worked with Oklahoma WS personnel in the field testing of some of these methods (e.g. padded jaw leghold traps, trap telemetry devices, etc.). We believe that the EA adequately addressed this issue, but provide additional information in the Decision document.

3: 2-3	The PDM methods used by WS are environmentally unsound.	Adverse Environmental Impacts: Section 3.2.1 in the EA described the methods used in PDM. USDA (1997 – Appendix P & Q) analyzed environmental risks associated with nonchemical and chemical PDM methods and found them to have minimal impacts on the human environment when used according to applicable laws, regulations, and WS policies. Section 3.4 in the EA identified SOPs that are used to reduce the potential for impacts, and meet the Reasonable and Prudent Alternatives and Measures, and Terms and Conditions in Biological Opinions issued by the U.S. Fish and Wildlife Service (USFWS) on T&E species that could potentially be affected by WS PDM. The EA analyzed environmental impacts in Chapter 4 (and Chapter 2). We believe that the EA adequately addressed this issue and that the PDM methods used by WS are not environmentally unsound.
3: 3	<i>“Obviously, it is monetarily wasteful to spend money on prevention methods, when compensation to individuals is cheaper.”</i>	Compensation Alternative: Compensation as an alternative was discussed in Section 3.3.1 of the EA and was not discussed in detail because it has many drawbacks. We believe that compensation was adequately discussed in the EA.
Comments and Concerns Associated with Analysis of Impacts (Chapter 4)		
2: 6	Widespread lethal control of wildlife populations can result in population rebounds in a number of ways. If individuals are indiscriminately removed, less competition for food, immigration can occur, increased reproduction/survival, subordinates where dominant pair may not be reproductively suppressed. EA fails to address these consequences	Target Species Impacts: Section 4.2.1.1 discussed the impacts that WS has on target predator populations. It was found that the predator populations targeted by WS PDM were not adversely impacted and that WS removes well below a sustainable harvest for any species. We agree that populations rebound annually from natural mortality and other factors, but disagree that WS conducts widespread and indiscriminate lethal control to cause the problems suggested by the commenter. To adequately address this issue, though, it will be addressed further in the Decision document.
2-11	Removing predators could cause local extirpations.	Target Species Impacts: Impacts to predators taken by WS were analyzed in Section 4.2.1.1 of the EA. WS removes well below a sustainable harvest for any species taken in PDM actions. Of the species targeted by WS PDM in Oklahoma, WS takes more coyotes than any other species. A county-level impact analysis will be provided in the Decision document for the coyote and bobcat to illustrate the impact WS has at the local level and the potential for causing local extirpation.
2-11	Removing predators could create sink populations.	Target and Nontarget Species Impacts: This is a misinterpretation of an ecological theory because it would require the extirpation of a species and its habitat over a broad range. For most species discussed in the EA, this would require a species be extirpated from areas greater in size than any county in Oklahoma. A sink population is an isolated population that is too small to be genetically or biologically viable and in time would slowly die out because mortality would be higher than reproductive success (recruitment). Typically sink populations, if they are going to persist, are supported by a source population. A source-sink population is one where the source population produces more animals than the habitat can support and, hence, provides dispersing individuals to “sink” populations. Without these dispersing individuals, the sink population would disappear. A good example of a theorized source-sink population was the Canada lynx in the southern Rocky Mountains; the source population was the population of lynx found in the Canadian boreal forest and the sink population was the isolated population found in southern Rocky Mountains (Livaitis et al. 1991, Hickenbottom et al. 1999). It is to be determined if the lynx will persist with recent reintroduction efforts. The commenter is further referred to the prior comment and its discussion in the Decision document about the potential for WS to cause the local extirpation of any species in Oklahoma.
2-11	The EA uses crude population estimates. Density estimates often come from other states. Coyote density estimate based on 1970s’ studies. A personal communication with an ODWC official needs to have evidence for determining population status.	Target Species Impacts: The EA used the best available information to determine population sizes in Oklahoma and used the most conservative population density and range information to estimate predator populations available in the literature. The population estimates in the EA were discussed with ODWC wildlife biologists to determine if these were reasonable. Available trend information was also discussed for certain predator species. No accurate census methods are currently available for predators, but certain surveys can give an idea of the population status. Currently ODWC uses driving surveys (animals/miles driven) as an index of the predators in the State. These are discussed further in the Decision document.
2: 11	Concerned that WS could target “species of special concern” such as swift fox and the plains spotted skunk in PDM. The EA suggests that coyote removal could benefit swift fox, but WS took 5 in FY04 which could have had detrimental impacts.	Target Species Impacts: Under Oklahoma law, private persons experiencing predation of their livestock from spotted skunks and swift fox can take them. Swift fox may be killed with an ODWC permit issued by the agency Director. Under the same law, WS may target either species; however, as stated in the EA, WS would consult ODWC in cases where a species of special concern were causing damage, and work with that agency to develop an appropriate procedure to address the problem. Also, WS historically has not frequently targeted either species, or actually taken either of these animals as targets for a number of years. Further information on the status of the swift fox and spotted skunk is given in the Decision document.

2: 11	The EA failed to disclose how "allowable harvest level" was determined. The badger's was in a trapping manual.	Target Species Impacts: The EA adequately discussed where allowable harvest was determined through citations. USDA (1997) reviewed the literature and determined this level for many of the species. We cited Dr. M. Boddicker (1980) for the badger because that was the only citation available on sustainable harvest, even though it was from a trapping manual. Dr. Boddicker was an Extension Wildlife Specialist at Colorado State University in their Natural Resources Department where he taught many courses in wildlife, primarily on predators and furbearers. We believe he is a reliable source as a professional in the field of wildlife and stand by the use of his information. We also believe it is a reasonable estimate considering badger life history. Regardless of the accuracy of Boddicker's (1980) estimate that a sustainable harvest level is 30-40%, the EA showed that current cumulative harvest levels are less than 1% which should be far below the maximum level sustainable by any nonendangered wildlife species in North America.
2: 11	There was no attempt in the EA to actually predict impacts to the species analyzed in Chapter 4.	Target and Nontarget Species Impacts: We believe the EA adequately analyzed impacts to species from PDM under each of the Alternatives in Sections 4.2.1 and 4.2.2 of the EA. Each species that could be affected by PDM was analyzed under the Proposed Action Alternative and it was determined that WS PDM did not have any noteworthy impacts to any of the wildlife populations in Oklahoma. The results of this analysis were compared to the predicted impacts under the other alternatives analyzed in the EA. It was predicted that while most predator populations would not be impacted greatly under any of the alternatives, nontarget species were likely to be more at risk under the other alternatives. Therefore, it was determined that the proposed action would have the least negative impacts of the alternatives.
3: 1-2	The commenter cites a number of sources of eagle mortality (e.g., powerlines, incidental trapping, poisoning and shooting) and believes that the proposed action could impact eagles similarly.	Nontarget Species Impacts: This comment implies that WS will incidentally take eagles by trapping or poisons during PDM (the shooting of eagles would almost invariably be a targeted action and outside the scope of this EA) and have an impact on the eagle populations. Oklahoma has a dramatically increasing bald eagle (<i>Haliaeetus leucocephalus</i>) population and a relatively small golden eagle (<i>Aquila chrysaetos</i>) population because it is more on the edge of its primary distribution in the U.S. Oklahoma has about 45 pairs of nesting bald eagles and about 8 pairs of golden eagles (ODWC 2005). The wintering population of bald eagles in Oklahoma has increased substantially in the last 30 years averaging 830. Few golden eagles are found at scattered locations in the state in winter. Thus, the primary concern would be for the take of bald eagles in Oklahoma because of numbers and federal status (threatened species). Section 3.4 of the EA described SOPs for PDM to avoid taking eagles that specifically discusses measurements taken to prevent accidentally capturing a bald eagle. WS consulted with USFWS under Section 7 of the Endangered Species Act (USDA 1997) and measures to avoid incidentally taking an eagle were given in Section 3.4.2.2 of the EA. These procedures have been effective as no eagles have been taken by the Oklahoma WS program since the consult, nor is that likely to occur under the proposed action. Evidence that bald eagles have not adversely affected under the current program can also be determined by their increase in abundance. ODWC (2005) stated that the bald eagle nesting population has increased "While there were zero pairs of nesting eagles in 1990, Oklahoma had 45 nesting pairs in 2003." Similarly, wintering bald eagles have increased "Less than 30 years ago, the Bald Eagle was struggling to survive in America's lower 48 states. Thanks to strong protection and avid recovery efforts, eagle populations have increased 7-fold since the early 1970s." Statistics available for the golden eagle show a 1.9% non-significant (probability =0.26) increase annually from 1966 to 2004 (Sauer et al. 2005). Therefore, we conclude that the current program has not had an impact on eagles in Oklahoma and believe the EA adequately addressed SOPs to avoid nontarget take.
3: 1	"The EA claims that the proposed project is only "short term" removal...proposed methods are long term, and it is possible that effects will be similar to 'intensive long term removal.'"	Target Species Impacts: We disagree with the commenter's assertion that WS PDM activities have had long-term impacts and have only resulted in short-term removals. To adequately address this issue, though, it will be addressed further in the Decision document.
3: 2	In regard to the take of nontarget animal during PDM, "...this EA attempts to identify prevention strategies. Such strategies will be, and have been, unsuccessful."	Nontarget Take: The effects of WS PDM on nontarget wildlife were considered in adequate detail in Section 4.2.2 of the EA and it was determined that nontarget wildlife would be affected the least under the proposed action. As discussed, WS takes a small percentage of nontarget animals to target animals (0.04 nontarget animals for each target coyote in FY04). SOPs identified in Section 3.4 of the EA have helped keep nontarget take to a minimum. As for comparison, HSUS stated that trappers take 2 (HSUS 1998a) or 10 times (HSUS 1998b) the number of nontargets as target animals. In contrast, the nontarget animals killed by Oklahoma WS are at least 50 times below HSUS's cited hazards to nontarget animals. Thus, we believe that the discussion of nontarget impacts in Section 4.2.2 of the EA illustrated adequately that hazards to nontarget animals would be least under the proposed action and highest under the other alternatives.
Comments and Concerns Associated with the EA's Compliance with NEPA Implementing Regulations and Other Laws		
1: 1	Recommended that agriculture producers be allowed to control predators on their land by most effective and economical means.	Environmental Compliance: State law in Oklahoma allows landowners to protect their livestock and property with any legal method and WS assists with this under the proposed action. However, WS does not have regulatory authority and, therefore, cannot regulate take of predatory animals.
1: 1-2	Urge USFWS not to unnecessarily enact rules that restrict WS in conducting PDM.	Environmental Compliance: WS policy is to abide by State and federal regulations regarding wildlife and PDM as applicable. WS in Oklahoma abides by all applicable environmental laws and regulations while conducting PDM as discussed in Section 1.5 of the EA.

1: 2-3 2: 9	Due to legal oversight of predators by state and federal wildlife agencies, it is imperative that these agencies manage wildlife to reduce damage. The activities of WS are a crucial part of this management.	Laws Affecting WDM: Section 1.5 of the EA described the authorities of different agencies in Oklahoma. WS works with these agencies as necessary and appropriate and abides by their laws and regulations.
2: 5	An EIS would be more appropriate than an EA.	EIS vs EA Regulations: An EA is written to determine if an agency action will have significant or uncertain impacts on the human environment. If the EA's Decision concludes that the selected alternative to address the need for action would have significant impacts to the human environment then an EIS would be written as required under NEPA. If the conclusion is a finding of no significant impact to the quality of the human environment, then an EIS would not be written and a Decision could be rendered.
2: 10 3: 3	A cost-benefit analysis should be required under NEPA, erroneous not to do so. A cost benefit analysis should be completed on PDM.	Cost-Benefit Analysis: CEQ does not require a cost-benefit analysis as discussed in USDA (1997). However, USDA (1997) did provide an overall cost-benefit analysis section in Chapter 4 and found that WDM programs are cost-beneficial. It must be restated that the cost-benefit ratio comes from the values of losses saved and not the losses that had already occurred. Specific information to quantify benefits in terms of the value of losses avoided by conducting PDM in Oklahoma is not available and difficult to quantify. The cost-benefit ratio is often considered in the decision making process when conducting PDM at the site-specific level. Since a major intent of WS is to be cost-effective within the confines of other SOPs, WS employees weigh the relative benefits with the cost of different PDM tools to determine the most positive potential solution. In general, benefits can be expected to exceed costs by a considerable degree.
2: 12-13	<i>"We believe that the inadequate discussion of humaneness violates both the letter and intent of NEPA in which the human environment is the critical factor in directing agency decisions."</i>	Issue Analysis: We believe that the EA in Sections 2.2.2 addressed the issue of humaneness adequately as part of the human environment as required by NEPA for EAs. Humaneness was analyzed in Section 4.2.4 of the EA under the alternatives and found to have the lowest negative impacts on the human environment under the Current Program Alternative. This was the same conclusion in USDA (1997). Therefore, we do not believe that we violated the intent of NEPA in the analysis, but complied with it.
Comments Outside the Scope of the EA		
1: 2	Predators should not be released by ODWC, USFWS, or other public entities.	Predator Reintroduction/Introduction Programs: Wildlife reintroduction programs are common activities for wildlife agencies and can include predators. These programs involve other agency actions and generally public input. These activities, though, are generally outside of the scope of this EA. WS is currently not involved in these types of activities in Oklahoma, but is nationally. A potential exists for WS to conduct PDM for the protection of reintroduced animals (e.g., protection for the black-footed ferret is a common management strategy if it were reintroduced into Oklahoma) or assist in the capture of predators in habitats where they are abundant for relocation to areas to be reintroduced or bolster a population (e.g., capture river otters (<i>Lutra canadensis</i>) to be reintroduced into other areas of the state where they have been considered extirpated).
1: 2	Need to conduct more deer, waterfowl, and other non-mammalian predator species damage management	WDM for Species Other Than Predators: The EA was focused on one aspect of the Oklahoma WS Program, PDM, as discussed in Section 1.1 of the EA. Damage management for species other than the predators listed in Section 1.0 of the EA is outside the scope of actions considered and reviewed in the EA.

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APPENDIX B - Impacts of WS PDM Activities on Predators in Oklahoma and on the Coyote and Bobcat Populations in Oklahoma Counties, and Trend Data for Five Predator Species

WS took more coyotes than any other species which also had the highest cumulative take of their cumulatively estimated populations. Table 1 gives WS and cumulative take for the coyote, bobcat, striped skunk, raccoon, opossum, and gray fox. None of the predators have been impacted at greater than a sustainable level. Trend information for 5 of these species (Figure 1), omitting the gray fox, shows that the populations have been fairly stable with minor fluctuations (M. Shaw, ODWC, *unpubl. data*, 2005).

Table 1. Cumulative predator kill in Oklahoma by WS PDM (target and nontarget) and sportsmen harvest from FY02 to FY04.

STATEWIDE CUMULATIVE IMPACT ANALYSIS FOR FURBEARERS				
	FY02	FY03	FY04	Ave.
COYOTE				
Est. Population	68,679	68,679	68,679	68,679
WS Take	5,953	5,490	5,123	5,522
Sportsmen Harvest	206	551	1,546	768
Total Take	6,159	6,041	6,669	6,290
WS Take - % of Pop.	8.7%	8.0%	7.5%	8.0%
Total Take - % of Pop.	9.0%	8.8%	9.7%	9.2%
Sustainable Harvest	70%	70%	70%	70%
BOBCAT				
Est. Population	34,340	34,340	34,340	34,340
WS Take	73	26	36	45
Sportsmen Harvest	996	1,578	2,632	1,735
Total Take	1,069	1,604	2,668	1,780
WS Take - % of Pop.	0.2%	0.1%	0.1%	0.1%
Total Take - % of Pop.	3.1%	4.7%	7.8%	5.2%
Sustainable Harvest	20%	20%	20%	20%
STRIPED SKUNK				
Est. Population	58,377	58,377	58,377	58,377
WS Take	224	331	237	264
Sportsmen Harvest	18	60	81	53
Total Take	242	391	318	317
WS Take - % of Pop.	0.4%	0.6%	0.4%	0.5%
Total Take - % of Pop.	0.4%	0.7%	0.5%	0.5%
Sustainable Harvest	60%	60%	60%	60%

STATEWIDE CUMULATIVE IMPACT ANALYSIS FOR FURBEARERS				
	FY02	FY03	FY04	Ave.
RACCOON				
Est. Population	472,384	472,384	472,384	472,384
WS Take	167	135	153	152
Sportsmen Harvest	2,955	6,333	7,930	5,739
Total Take	3,122	6,468	8,083	5,891
WS Take - % of Pop.	0.0%	0.0%	0.0%	0.0%
Total Take - % of Pop.	0.7%	1.4%	1.7%	1.2%
Sustainable Harvest	49%	49%	49%	49%
OPOSSUM				
Est. Population	686,790	686,790	686,790	686,790
WS Take	70	84	76	77
Sportsmen Harvest	486	805	1,071	787
Total Take	556	889	1,147	864
WS Take - % of Pop.	0.0%	0.0%	0.0%	0.0%
Total Take - % of Pop.	0.1%	0.1%	0.2%	0.1%
Sustainable Harvest	≥ 50%	≥ 50%	≥ 50%	≥ 50%
GRAY FOX				
Est. Population	10,645	10,645	10,645	10,645
WS Take	22	13	6	14
Sportsmen Harvest	65	92	212	123
Total Take	87	105	218	137
WS Take - % of Pop.	0.2%	0.1%	0.1%	0.1%
Total Take - % of Pop.	0.8%	1.0%	2.0%	1.3%
Sustainable Harvest	25%	25%	25%	25%

WS takes more coyotes more than any other species. Thus, we will take a closer look at their population. Trend information from road surveys was given in Figure 1 which showed a relatively stable trend. Additional trend information for coyotes can be obtained from the coyotes taken per hour of aerial hunting. Figure 2 provides the coyote take per hour of aerial hunting in Oklahoma. Take has remained relatively stable with an increase between FY98 and FY01. The average take has been more than 4 coyotes per aerial hunting hour from FY94 to FY04. Other nearby states, Colorado (WS 2005) and New Mexico (WS 2006), reported an average of 3 coyotes/aerial hunting hour for about the same fiscal years. Nationally, the average take is about 2 coyotes/aerial hunting hour. Thus, it is likely that Oklahoma has a more abundant coyote population than many other states. This difference was also noted in the predator scent-post surveys conducted in the 1970s (USFWS

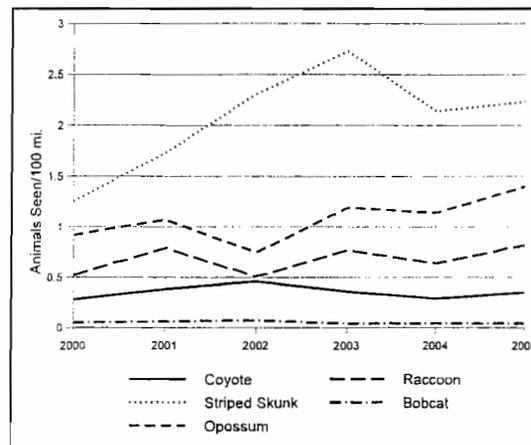


Figure 1. Trend information for five predators from road surveys conducted by ODWC (M. Shaw, ODWC, *unpubl. data* 2005).

1978) where the mean visitation in Oklahoma was 160/1,000 scent-posts and in Colorado and New Mexico was 110 and 133/1,000 scent-posts.

The cumulative impact to the coyote population at the county level is given in Table 2 which combines WS PDM take with an estimate of sportsmen harvest. WS collects information on coyote take in the Management Information System (MIS) as described in the EA. ODWC annually conducts a furbearer harvest survey, but only collects the information on a statewide basis and not at the county level. Therefore, county sportsmen harvest data was estimated by assuming that harvest is evenly distributed throughout the State. The cumulative impact is conducted on a 3 year average. For WS the average comes from FY02 to FY04 which are the actual numbers taken. The average for hunter harvest comes from the 2001-02 hunting season to the 2003-04 hunting season (hunting seasons basically correspond with the federal fiscal year). Table 2 shows WS and cumulative impacts to coyotes in each county and statewide. Take is below a sustainable harvest in every county in Oklahoma. Stephens County had the highest cumulative impact to the county coyote population at 51%. However, this is within a sustainable harvest. Table 2 does not account for recruitment and immigration which would occur and keep any impacts short-lived. Thus, it can be concluded that WS has not had local impacts to the coyote population.

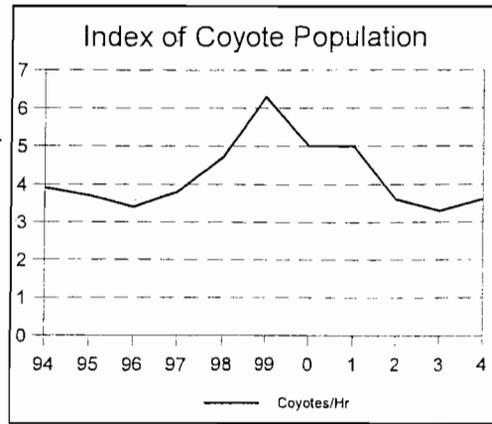


Figure 2. Coyotes taken by aerial hunting in Oklahoma from FY94 to FY04 provides an index of the coyotes population.

Table 2. Coyote take by WS PDM and from sport harvest for FY02 to FY04 and the impact this has had on the coyote population by WS and cumulatively at the county and statewide level.

COUNTY	Area (mi ²)/ Est. Coyote Pop.	WS Coyote Take				Est. Sportsmen Harvest 3 Seasons	Cumulative Coyote Take FY02-FY04	% of Est. Coyote Population
		FY02	FY03	FY04	Ave			
Adair	576	9	2	1	4	6	10	2%
Alfalfa	867	2	0	2	1	10	11	1%
Atoka	978	48	28	45	40	11	51	5%
Beaver	1,814	226	163	100	163	20	183	10%
Beckham	902	104	112	101	106	10	116	13%
Blaine	928	16	14	1	10	10	21	2%
Bryan	909	84	77	55	72	10	82	9%
Caddo	1,278	16	43	14	24	14	39	3%
Canadian	900	11	24	33	23	10	33	4%
Carter	824	104	82	20	69	9	78	9%
Cherokee	751	0	9	0	3	8	11	2%
Choctaw	774	25	34	14	24	9	33	4%
Cimarron	1,835	265	106	95	155	21	176	10%
Cleveland	536	15	14	28	19	6	25	5%
Coal	518	75	39	44	53	6	58	11%
Comanche	1,069	19	79	116	71	12	83	8%
Cotton	637	52	7	26	28	7	35	6%
Craig	761	142	70	75	96	9	104	14%
Creek	956	169	189	127	162	11	172	18%
Custer	987	47	71	62	60	11	71	7%
Delaware	741	0	1	0	0	8	9	1%
Dewey	1,000	69	48	13	43	11	55	5%
Ellis	1,229	68	57	34	53	14	67	5%
Garfield	1,058	0	0	0	0	12	12	1%
Garvin	807	136	218	60	138	9	147	18%
Grady	1,101	170	185	142	166	12	178	16%
Grant	1,001	33	8	6	16	11	27	3%
Greer	639	42	39	15	32	7	39	6%
Harmon	538	36	25	19	27	6	33	6%
Harper	1,039	154	79	87	107	12	118	11%
Haskell	577	26	17	2	15	6	21	4%
Hughes	807	251	264	170	228	9	237	29%
Jackson	803	61	89	136	95	9	104	13%

Jefferson	759	169	108	229	169	8	177	23%
Johnston	644	208	137	117	154	7	161	25%
Kay	919	8	3	9	7	10	17	2%
Kingfisher	903	5	12	1	6	10	16	2%
Kiowa	1,015	22	5	47	25	11	36	4%
Latimer	722	39	41	15	32	8	40	6%
LeFlore	1,586	18	11	1	10	18	28	2%
Lincoln	958	57	35	16	36	11	47	5%
Logan	744	124	135	128	129	8	137	18%
Love	515	83	113	176	124	6	130	25%
Major	957	13	3	2	6	11	17	2%
Marshall	371	66	70	57	64	4	68	18%
Maves	656	3	0	0	1	7	8	1%
McClain	570	94	140	112	115	6	122	21%
McCurtain	1,852	4	0	0	1	21	22	1%
McIntosh	620	80	82	36	66	7	73	12%
Murray	418	118	143	87	116	5	121	29%
Muskogee	814	52	15	36	34	9	43	5%
Noble	732	47	47	38	44	8	52	7%
Nowata	565	130	72	57	86	6	93	16%
Okfuskee	625	198	165	172	178	7	185	30%
Oklahoma	709	26	31	56	38	8	46	6%
Okmulgee	697	109	98	105	104	8	112	16%
Osage	2,251	307	524	189	340	25	365	16%
Ottawa	471	0	0	2	1	5	6	1%
Pawnee	569	85	123	115	108	6	114	20%
Payne	686	44	23	41	36	8	44	6%
Pittsburg	1,306	133	65	67	88	15	103	8%
Pontotoc	720	156	116	201	158	8	166	23%
Pottawatomie	788	106	84	310	167	9	175	22%
Pushmataha	1,397	41	41	43	42	16	57	4%
Roger Mills	1,142	33	51	37	40	13	53	5%
Rogers	675	7	6	3	5	8	13	2%
Seminole	633	20	6	13	13	7	20	3%
Sequoyah	674	15	17	42	25	8	32	5%
Stephens	874	455	412	441	436	10	446	51%
Texas	2,037	176	96	75	116	23	138	7%
Tillman	872	99	59	65	74	10	84	10%
Tulsa	570	45	63	4	37	6	44	8%
Wagoner	563	28	32	15	25	6	31	6%
Washington	417	25	23	0	16	5	21	5%
Washita	1,003	10	1	49	20	11	31	3%
Woods	1,287	10	42	65	39	14	53	4%
Woodward	1,242	10	43	16	23	14	37	3%
Total	68,667	5,953	5,486	4,933	5,457	768	6,225	9%

WS also looked at bobcat impacts at the county level, but 73 was the highest taken in any year statewide by WS with 9 the greatest number taken in any county in any year. This was in Pontotoc County where the three FY average was 4. The estimated sportsmen harvest was 19 in Pontotoc County bringing the cumulative impact to an average of 23. The estimated population of bobcats in that County is 360 and the sustainable harvest, 20%, would be 72 bobcats. The cumulative impact would have averaged just over 6% of the population or 32% of the sustainable harvest. Therefore, it was concluded that local level impacts were not significant.

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