

California Condor. Some concern has arisen about the potential of PDM to affect wandering condors from the reintroduced experimental/nonessential population along the Colorado River in Arizona and a small portion of Nevada that surrounds Lake Mead National Park, that venture out of the projected range into greater Nevada. The designated experimental range of the condors includes areas in Nevada and Utah. Reports indicate that several of these condors have temporarily ranged outside of their experimental population zone, which changes their status to endangered while they are out of the experimental population area. The last confirmed report of condors in Nevada occurred on May 21, 1999, where an NDOW employee observed two condors at Mount Wilson near the radio tower shack (NDOW Sight Records Database 2010(internal database)). Based on neck bands/patagial flag markings, the condors were from the experimental population that was banded at the Vermillion cliff in Utah/Arizona. Therefore, the potential exists for condors to wander into southern Nevada beyond the experimental range where its status would change.

The California condor is strictly a scavenger, eating carrion such as cattle, sheep, deer, and ground squirrel carcasses. The condor finds carrion by sight and not smell, unlike a turkey vulture which relies as much, or more, on odor to locate dead animals as it does sight. WDM tools that may affect California condors include primarily the M-44, leghold traps, strychnine for rodent control, and lead poisoning from ingesting lead pellets/bullets from carcasses of predators taken by shooting.

Through consultation with the USFWS, the following measures were established for the protection of California Condors in Nevada. NWSP will continue to adhere to the USDA/APHIS/WS policies for use of leghold traps and snares including not using visible bait at the set site and that trap set sites (except traps used for mountain lions) will be no closer than 30 feet from a draw station. Additionally, in Clark County, South and East of I-15, the only area of NV in the experimental population area for California condors, WS will not use double leghold sets (more than 1 trap within 20 ft of one another) for coyotes or other large predators. NWSP will not use strychnine bait (not used in PDM but below ground for pocket gopher control) in Clark County, South and East of I-15. NWSP will not shoot standard lead shot from aircraft. The NWSP is currently using steel shot for aerial hunting, but, for safety reasons, NWSP may convert to non-lead shot. In Clark County, all animals shot on the ground by NWSP using lead bullets will be retrieved whenever possible and/or disposed of in a manner that renders them inaccessible to condors. NWSP will not use M-44s South and East of I-15. If a Condor sighting is confirmed within Nevada North and West of I-15, M-44 sets will be recessed, covered or placed in single sets (not closer than 1000 feet from one another. The California Condor Recovery Coordinator with USFWS in Ventura, California will contact NWSP should a condor be found in Nevada. NWSP will contact the Coordinator on annual basis to make sure that the Coordinator knows contact points in Nevada should a condor be seen. In addition, this will ensure that changes in personnel and phone numbers are exchanged.

Nevada State Listed Species

The only State listed endangered or threatened species, as listed in (NAC 503), that may be affected by the NWSP, and which is not a federally listed Tor E species are the peregrine falcon (*Falco peregrine*), and the bald eagle. The bald eagle is discussed under Section 4.2.1.2. The NWSP would not be likely to adversely affect the peregrine falcon because the program does not utilize methods that would likely capture or harm a falcon, and because

peregrine falcons almost exclusively feed on birds captured in flight (letter from NDOW, 1998 on effects of NWSP on State listed species, and 2010 NDOW draft EA review comments).

The only State listed mammal in Nevada that is not federally listed is the spotted bat (*Euderma maculatum*). NWSP has no potential to affect the spotted bat because it is insectivorous, inhabits arid areas, and is fairly solitary.

4.2.1.3 Alternative 1 and Humaneness and Ethical Considerations

The issue of humaneness, as it relates to the killing or capturing of wildlife is an important but very complex concept that can be interpreted in a variety of ways. Humaneness is a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. People concerned with animal welfare are concerned with minimizing animal suffering as much as possible, or eliminating unnecessary suffering. The determination of what is unnecessary suffering is subject to debate (Schmidt 1989). WS personnel are experienced and professional in their use of management methods that are as humane as possible. The lead and cooperating agencies have determined that management actions are necessary to resolve problems with predation on private and public resources.

Animal welfare organizations are concerned that some methods used to manage wildlife damage expose animals to unnecessary pain and suffering. Research suggests that with methods such as restraint in foothold traps, changes in the blood chemistry of trapped animals indicate "stress." Blood measurements of fox indicate that this is the case for fox that have been held in traps and chased by dogs ((USDA 1997, revised), Revised). The situation is likely to be similar for other animals caught in snares or chased by dogs.

The challenge in coping with this issue is how to achieve the least amount of animal suffering with the constraints imposed by current technology. WS personnel are concerned about animal welfare. WS is aware that some of the lethal management techniques are controversial, but also believes that these activities are being conducted as humanely and responsibly as practical. To ensure the most professional handling of these issues and concerns, WS has numerous policies giving direction toward the achievement of the most humane wildlife damage management program possible. WS and the National Wildlife Research Center are striving to bring additional nonlethal damage management alternatives into practical use. Research continues to improve the selectivity and humaneness of management devices. Until new findings and products are found practical, a certain amount of animal suffering could occur when some methods are used in situations when non-lethal damage management methods are not practical or effective.

Selectivity of wildlife damage methods is related to the issue of humaneness in that greater selectivity results in less potential suffering of non-target animals. Methods vary in their selectivity for non-target animals. The selectivity of each method is augmented by the skill and discretion of the WS specialist applying the technique, and on specific measures and modifications designed to reduce or minimize non-target captures. All WS specialists are trained in techniques to minimize the risk of capturing non-target wildlife. Section 4.2.1.2 discussed the proposed program's potential for affecting non-target species.

WS supports the most humane, selective, and effective damage management techniques, and would continue to incorporate advances into program activities. WS field specialists conducting predator damage management are highly experienced professionals, skilled in the use of

management methods and committed to minimizing pain and suffering.

The project related effects on individual animal welfare may include: anxiety, fear, stress, and injury. Dogs used to pursue mountain lions or bears may also be injured or killed.

Few premises are more obvious than that animals can feel pain (AVMA 2007). Determining whether an animal is experiencing pain or suffering is difficult. Despite this difficulty, many manifestations of pain are shared by many animal species (AVMA 2007). The intensity of pain perceived by animals could be judged by the same criteria that apply to its recognition in human beings. If a condition causes pain in a human being, it probably causes pain in other animals. Suffering is a much abused and colloquial term that is not defined in most medical dictionaries. Neither medical nor veterinary curricula explicitly address suffering or its relief. Therefore, there are many problems in attempting a definition. Nevertheless, suffering may be defined as a highly unpleasant emotional response usually associated with pain and distress. Suffering is not a modality, such as pain or temperature. Thus, suffering can occur without pain; and although it might seem counter-intuitive, pain can occur without suffering (AVMA 2007). The degree of pain experienced by animals that are shot probably ranges from little to no pain to significant pain depending on the nature of the shot and time until death. Since the connotation of suffering carries with it the connotation of time, it would seem that there is little or no suffering where death comes immediately. WS personnel are trained professionals experienced in the placement of shots that result in quick death and minimize pain and suffering.

When implementing management activities, WS evaluates all potential tools for their humaneness, effectiveness, ability to target specific individuals as well as species, and potential impacts on human safety. The American Veterinary Medical Association (AVMA 2007) also recognizes that “for wild and feral animals, many recommended means of euthanasia for captive animals are not feasible. The panel recognized there are situations involving free-ranging wildlife when euthanasia is not possible from the animal or human safety standpoint, and killing may be necessary.” AVMA states that in these cases, the only practical means of animal collection may be gunshot and lethal trapping, and that personnel should be proficient, and use the proper firearm and ammunition. WS policy and operating procedures are in compliance with these guidelines, and the WS program recognizes the importance of careful decision-making regarding use of lethal methods.

Wildlife Values and Ethical Perceptions of Predator Damage Management

Ethics can be defined as the branch of philosophy dealing with values relating to human conduct, with respect to the rightness or wrongness of actions and the goodness and badness of motives and ends (Costello 1992). Individual perceptions of the ethics of wildlife damage management and the appropriateness of specific management techniques would depend on the value system of the individual. These values are highly variable (Schmidt 1992, Teel et al. 2002), but can be divided into some general categories (Kellert and Smith 2000, Kellert 1994 Table 15). An individual's values on wildlife may have components of various categories and are not restricted to one viewpoint. The tendency to hold a particular value system varies among demographic groups. For example, one major factor influencing value system is the degree of dependence on land and natural resources as indicated by rural residency, property ownership and agriculture or resource dependent occupations (Kellert 1994). People in these groups tend to have a higher tendency for utilitarian and dominionistic values. Socioeconomic status also influences wildlife values with a higher occurrence of naturalistic and ecologicistic value systems among college

educated and higher income North Americans (Kellert 1994). Age and gender also influence value systems with a higher occurrence of moralistic and humanistic values among younger and female test respondents (Kellert 1980, 1994).

Table 15 Basic wildlife values. Table taken from Kellert and Smith (2000) and Kellert (1994).

Term	Definition
Aesthetic	Focus on the physical attractiveness and appeal of large mammals
Dominionistic	Focus on the mastery and control of large mammals
Ecologicistic	Focus on the interrelationships between wildlife species and natural habitats
Humanistic	Focus on emotional affection and attachment to large mammals
Moralistic	Focus on moral and spiritual importance of large mammals
Naturalistic	Focus on direct experience and contact with large mammals
Negativistic	Focus on fear and aversion of large mammals
Scientific	Focus on knowledge and study of large mammals
Utilitarian	Focus on material and practical benefits of large mammals

Two philosophies on human relationships with animals are commonly considered relative to ethical perceptions of wildlife damage management techniques. The first philosophy, Animal Rights, asserts that all animals, humans and nonhumans, are morally equal. Under this philosophy, no use of animals, e.g. for research, food and fiber production, recreational uses such as hunting and trapping, zoological displays and animal damage management, etc. should be conducted or considered acceptable unless that same action is morally acceptable when applied to humans (Schmidt 1989). The second philosophy, Animal Welfare, does not promote equal rights for humans and nonhumans, but focuses on reducing pain and suffering in animals. Advocates of this philosophy are not necessarily opposed to utilitarian uses of wildlife but they are concerned with avoiding all unnecessary forms of animal suffering. However, the definition of what constitutes *unnecessary* is highly subjective (Schmidt 1989). In general, only a small portion of the U.S. population adheres to the Animals Rights philosophy, but most individuals are concerned about Animal Welfare.

Alternative 1 would be unacceptable to Animal Rights advocates, individuals with strong Humanistic and Moralistic values, and to others with strong emotional or spiritual bonds with certain wildlife species. Some individuals assert that killing the offending animal is not the response of a moral or enlightened society. Response of other individuals and groups would vary depending on individual assessments of the need for damage management, risk to the target animal population, risk to non-target species and individuals, the degree to which efforts are made to avoid or minimize the pain and suffering associated with the various management techniques, and the perceived humaneness of individual methods.

4.2.1.4 Alternative 1 Effects on Recreation

Recreation encompasses a wide variety of outdoor entertainment in the form of consumptive and non-consumptive uses. Consumptive uses of public lands include hunting, fishing, and rock-hounding. Non-consumptive uses include activities such as bird watching, photography, camping, hiking, biking, rock climbing, winter sports, and water sports. Recreationists are the general public and their pets which includes hunting dogs. NWSP is aware that most concerns of recreationists about PDM centers around the perceived impacts on hunting, photography, wildlife viewing, and pet safety.

Public opinion about the best ways to reduce conflicts between humans and wildlife is highly variable, making the implementation and conduct of damage management programs extremely complex. Ideas about how these programs are implemented and conducted are as unique as the almost infinite combinations of philosophies, psyches, aesthetic values, personal attitudes, and opinions found in humans. These differences in opinion result in concerns that the proposed action or the alternatives would result in the loss of aesthetic benefits to the general public and resource owners. The mere knowledge that wildlife exists is a positive benefit to many people (Decker and Goff 1987).

Wildlife populations also provide a range of direct and indirect social and economic benefits. Direct benefits are derived from a user's personal relationship or direct contact with wildlife and may include both consumptive (e.g. hunting), or nonconsumptive (e.g. observing or photographing bears). Indirect benefits, or indirect exercised values arise without a human being in direct contact with an animal and are derived from experiences such as looking at pictures or videos of wildlife, reading about wildlife, or benefiting from activities or contributions of animals such as their use in research (Decker and Goff 1987). According to Decker and Goff (1987), two forms of indirect benefits exist; bequest and pure existence. Bequest benefits arise from the belief that wildlife should exist for future generations to enjoy, pure existence benefits accrue from the knowledge that the animals exist in the human environment (Decker and Goff 1987), or that they contribute to the stability of natural ecosystems (e.g. ecological, existence, bequest values; Bishop 1987).

Under the proposed alternative some predators would be lethally removed. WS programs for managing predation damage focus on individual problem predators or localized populations of predators. The proposed action has a low magnitude of impact on target predator populations in Nevada. Dispersal from adjacent areas typically contributes to repopulation of a site, depending upon the level of removal and predator population levels in the surrounding sites. Problem wildlife which cause the most damage typically have relatively high populations. While the likelihood of seeing a predator in some localized areas could be temporarily reduced as a result of WS activities, those that are more commonly observed (such as ravens), would continue to be observed, while those that are less commonly or rarely, if ever observed (such as mountain lions due to their secretive nature), will continue to be present in the environment but there would be little visual impact due to the very low likelihood of observing them in the first place. Therefore, the aesthetic and visual impact would probably not be noticeable.

Game and non-game wildlife populations are not significantly impacted by NWSP's take on public lands (Tables 13 and 14) allowing hunters ample opportunities for pursuit. Recreationists interested in viewing and photography opportunities for wildlife also have ample areas in Nevada that are suitable for seeing abundant wildlife to include those areas that NWSP has worked.

NWSP activities do not significantly impact animal populations; it does not remove a significant number of any one species. In fact, NWSP activities could bolster particular populations of wildlife such as PDM focused for the protection of game species or T&E species, thereby increasing opportunities for recreational enjoyment.

Mitigation measures and policies designed to minimize potential negative effects on recreationists are in place that help minimize the potential for effects of NWSP activities on recreation. NWSP personnel post signs in prominent places to alert the public that PDM tools are set in an area. On private lands, the cooperators or landowners are aware that PDM control tools are set and can alert guests using the property of their presence. Landowners determine the areas and timing of equipment placement, thereby avoiding conflicts with recreationists.

For public lands, NWSP coordinates with the different land management agencies to determine high public use areas and for what particular time of the year such as hunting season. High use recreational areas are mostly avoided or the types of equipment used are limited. These areas are designated in AWP's and on maps so PDM does not unnecessarily interfere with recreational activities. NWSP avoids conducting PDM in high-use recreational areas except for the purposes of human health and safety.

Some individuals may believe their recreational experiences on public lands are impaired by knowing that any lethal PDM actions are occurring on these lands. Others feel that they are being deprived of the aesthetic experience of viewing or hearing coyotes or other predators because of NWSP PDM actions. On the other hand, some believe that PDM is wholly acceptable since it can help bolster certain species populations such as game species (e.g. bighorn sheep or sage grouse) or sensitive/threatened species.

The take of animals on BLM and USFS lands is minimal averaging about one target predator for every six square miles of land under BLM or FS agreement for PDM which would have little impact on recreation. Although the primary reason for the take of these animals is for predation damage management, such take also indirectly offers benefits to recreationists because blood samples from many of the mammalian predators are analyzed for plague titers. This information has allowed the Health Department to warn recreationists such as campers about plague "hot spots" in certain areas of Nevada by posting signs.

Some groups or individuals have expressed concerns regarding the effects of NWSP's low level aerial hunting flights on non-target wildlife and on public land recreational users. NWSP has agreements for conducting PDM on no more than about 32% of the lands in Nevada and much less for aerial hunting. NWSP conducts PDM on a fraction of the land under agreement, so the actual land affected by NWSP PDM activities is much less than 32% of the lands in Nevada. The slight increase since the last environmental assessment (approximately one percent), is due to the increased need to protect natural resource species, specifically: sage grouse, bighorn sheep species, elk and mule deer. NWSP conducts aerial operations on a small percentage of the lands in Nevada: 19% in FY 06; 18% in FY 07; 20% in FY 08 and 26% in FY 09. On average during the FY 06 thru FY 09 time frame, 59 percent of the land use area receiving aerial hunting was BLM lands, 31% for private lands, 5% for USFS lands, and 5% for other lands. NWSP concentrates flying efforts during certain times of the year to specific areas such as lambing grounds so the amount of time spent flying over properties under agreement is relatively small on an annual basis. For acres under agreement where target predators were taken, the average amount of time spent on the different classes of lands was 46 min/mi² flying for private lands, 4

min/mi² for USFS lands, 3 min/mi² for BLM lands, and 396 min/mi² for other lands in during FY 06-09 (USDA 2010a). Thus, the average amount of time during any given year that NWSP spends on a given property is minimal. Of interest, the area that comprises the “other lands” is extremely small as compared to the vast acreage of BLM property. The affect is that relatively little time spent repeatedly on a small portion of property provides an extremely high ratio of time per square mile. Additionally, acreage flown or direct control performed during PDM by NWSP is tracked by MIS through individual agreements. Therefore even if an aerial crew, or Wildlife Specialist, performed work on only 100 acres, the MIS will show it as flying/working the number of acres listed under that specific agreement, which could be and usually is considerably more (e.g. 5,000 acres). The 1999 EA, 2004 supplement, and other WS EAs in the western U.S. have all concluded that effects on recreational users of public lands were insignificant, and this analysis shows that the potential for such effects continues to be low. Additionally, as the majority of low level flying in Nevada is typically conducted in remote spring lambing and calving grounds, it is unlikely that recreationists would find themselves in a situation to be disturbed.

Table 16. Average number of predators taken on BLM land by NWSP during FY 06-09 by jurisdiction (USDA 2010a).

Average number of Predators taken on BLM land by NWSP during FY 06-09 by Jurisdiction									
Predator Species	Battle Mountain	Carson City	Eagle Lake	Elko	Ely	Las Vegas	Surprise	Winnemucca	Total
Coyote	472.5	36.25	50.75	852.75	967.75	1	150.5	584.25	3,115.75
Common Raven	55	10	50	188.75	298.25	13.75	37	337	989.75
Mountain lion	1	1.25	0.75	2	5.75		2.5	6.5	19.75
Bobcat	4	0.25	0.5	1.25	2.75	0.75	4.25	2	15.75
Badger	6.5		0.25	3.5	2.75		0.75	1	14.75
Gray fox					0.75				0.75
Kit fox	0.25				0.75		0.25	2.25	3.5
Red fox					1				1
Feral dog								0.25	0.25
Feral cat		0.25							0.25
Raccoon				0.25					0.25
Striped skunk		0.75		0.25	0.25				1.25
Total take by Jurisdiction	539.25	48.75	102.25	1,048.75	1,280	15.5	195.25	933.25	4,163

Table 17. Average number of predators taken by NWSP on USFS lands by Ranger district from FY 06-09 (USDA 2010a).

Average Number of Predators taken by NWSP on USFS lands by Ranger district from FY06-09							
Predator Species	Ely	Mountain City	Mountains Ruby	Austin	Bridgeport	Spring Mountains	Total
Coyote	36	44	99.75	9	44		232.75
Bobcat					0.25	0.25	0.5
Mountain Lion	0.25	0.25	1.25				1.75
Badger	0.5	1		0.25			1.75
Red fox		0.25					0.25
Gray fox					0.5		0.5
Striped skunk				1			1
Feral cat						2.25	2.25
Total	36.75	45.5	101	10.25	44.75	2.5	240.75

On federal lands, NWSP coordinates with the land management agency through AWP and designates different work zones on maps to reduce potential problems. For example, high-use recreational areas are designated on maps associated with the AWP and NWSP does not set equipment within a ¼ mile of these areas. Furthermore, upland game and other high-use hunting areas are delineated by NDOW, USFS, or BLM, and if NWSP works on them, control equipment is removed a week or more prior to the hunting season. NWSP does not conduct PDM in high use recreational areas except for the purposes of human health and safety protection. High use recreation and other sensitive areas are identified at a site specific level in NWSP AWP on maps, or as new damage situations arise. Human safety zones, planned control areas and restricted or coordinated control areas are identified through interagency coordination.

Furthermore, NWSP reduces conflicts with recreationists due to inherent features of PDM. NWSP conducts PDM on public lands almost entirely for grazing allotments with sheep and cattle, with an approximate increase of 1% for the protection of natural resources listed previously. Of interest, much of the area worked is likely to not be noticed by recreationists due the remote and hostile terrain of where these species occur (e.g. bighorn sheep species). Regarding livestock protection and natural resource protection, these areas are generally not used extensively by recreationists. Most recreational areas are set aside for that specific purpose and grazing is not allowed. The highest seasonal PDM activity for the protection of livestock coincides with lambing and calving which is in the spring. During this time, aerial hunting is a method of choice because many of the grazing areas have poor access and driving conditions are usually limited by wet grounds. Many recreationists as well as NWSP Specialists do not have access to these public lands because of these limitations. In addition, NWSP currently averages only 3 and 4 minutes of flight time per square mile on BLM and USFS lands, respectively. Most recreationists are totally unaware of the PDM actions and the quality of the outdoor experience is not disrupted. Thus, NWSP avoids significant effects on recreational users.

4.2.1.5 Alternative 1 Effects on Public Safety and the Environment

Mitigation measures to reduce risks to public safety and the environment are built into the program and are listed in Chapter 3 under standard operating procedures. A formal risk assessment of WS methods, including those used for PDM in Nevada, concluded low risks to humans ((USDA 1997, revised), Appendix P) including traps, snares, firearms, aerial hunting, immobilization drugs, and chemical toxicants. The use of chemical drugs and toxicants by NWSP is regulated by EPA under FIFRA, Nevada Pesticide Control Laws, and WS Policies and Directives. Under several of the alternatives proposed in this EA, NWSP would use sodium cyanide in the M-44 device, DRC-1339 in eggs or meat baits, and carbon monoxide produced from the gas cartridge used for fumigating coyote, skunk, and fox dens. Based on a thorough Risk Assessment, WS concluded that, when NWSP chemical methods, including those referenced above, are used in accordance with label directions, they are highly selective to target individuals or populations, and such use has negligible impacts on the environment and do not represent a risk to the public (USDA 1997, revised).

NWSP control methods do not pose a significant potential hazard to employees or the public because all methods and materials are consistently used in a manner known to be safe to the user and the public. A detailed risk assessment analyzed all PDM methods used by WS in Appendix P of the FEIS for their impacts on public safety and the FEIS found low level risks associated with only a few of them (USDA 1997, revised). This assessment included potential risks to WS employees, the public, and non-target animals. While some of the materials and methods used by NWSP have the potential to represent a threat to health and safety if used improperly, problems associated with their mis-use have rarely occurred in Nevada. This favorable record is due to training and a certification program for the use of PDM methods such as the M-44, proper use and safety being stressed, and mandatory compliance with use of PDM methods with policies and pesticide labels. The risk to the public is further reduced because most NWSP PDM methods are used in areas where public access is limited and warning signs are prominently posted to alert the public whenever toxic devices or traps are deployed. NWSP coordinates with cooperators or landowners about where and when PDM methods are to be used, thereby decreasing the likelihood of conflicts with the public.

NWSP PDM activities are also not likely to negatively affect the public in terms of "Environmental Justice" and "Executive Order 12898" (see section 1.5.2). "Environmental Justice" and "Executive Order 12898" relates to the fair treatment of people of all races, income and culture with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Environmental justice is a priority within USDA, APHIS, and WS. Also, all APHIS-WS activities are evaluated for their impact on the human environment and compliance with Executive Order 12898 to ensure Environmental Justice.

Under the current program alternative, PDM methods could be used to resolve complaints involving predators that represent a risk to public health and safety. Recent projects involving predators that represented a human health and safety risk, such as those described in 2.2.5, were effectively resolved using PDM methods such as traps and firearms.

Risks associated with the use of lead ammunition. WS has determined that the use lead from ground shooting is not significant in terms of effects from accumulation in the soil (USDA 2005). Very small amounts are used which are sparsely and widely disbursed, rather than concentrated in small areas. Lead artifacts and lead from spent ammunition are relatively stable, and are not readily released into aquatic or terrestrial systems (TWS 2008), especially in alkaline soil

environments such as are typically found in Nevada. To minimize the use of lead, WS uses non-lead shot when shooting from aircraft. Additional discussions of the effects of lead are contained under discussions of effects on non-target species.

Risks Associated with Aerial Hunting: One group has raised an issue stating that the potential for aircraft accidents by WS aerial hunting operations to cause catastrophic ground fires or pollution as a result of spilled fuel and oil. As a result of these issues, the following information was obtained from Mr. Norm Wiemeyer, Chief, Denver Field Office of the National Transportation Safety Board (the agency that investigates aviation accidents):

Regarding major ground or forest fires, Mr. Niemeyer stated he had no recollection of any major fires caused by government aircraft since he has been in his position beginning in 1987. Also, an informal polling of WS State Directors in the Western Region affirms that no major ground fires have resulted from any WS aviation accidents (USDA 2005).

Regarding fuel spills and the potential for environmental hazard from aviation accidents, Mr. Wiemeyer stated that aviation fuel is extremely volatile and will evaporate within a few hours or less to the point that even its odor cannot be detected. Thus, there should be no environmental hazard from unignited fuel spills. The quantities involved in WS aircraft accidents are small (10-30 gallons). In some cases, not all of the fuel is spilled.

Regarding oil and other fluid spills, the aircraft owner or his/her insurance company is responsible for cleanup of spilled oils and other fluids if required by the owner or manager of the property on which the accident occurred. In the case of BLM, Forest Service, and National Park Service lands, the land managing agency generally requires that contaminated soil be removed and disposed of. In most accidents involving private property, the property owner is generally not concerned about the quantities of spilled oil involved in these types of accidents and has not requested or required clean-up. With the size of aircraft used by Wildlife Services, the quantities of oil capable of being spilled in any accident are small and insignificant with respect to the potential for environmental damage 6-8 quarts maximum for reciprocating (piston) engines and 3-5 quarts for turbine engines. Aircraft used by WS are single engine models, so the greatest potential amount of oil that could be spilled in one accident would be about 8 quarts.

Petroleum products biodegrade through volatilization and bacterial action, particularly when exposed to oxygen (EPA 2000). Thus, small quantity oil spills on surface soils can be expected to biodegrade readily. Even in subsurface contamination situations involving underground storage facilities which would generally be expected to involve larger quantities than would ever be involved in a small aircraft accident, EPA guidelines provide for "natural attenuation" or volatilization and biodegradation in some situations to mitigate environmental hazards (EPA 2000). Thus, even where oil spills in small aircraft accidents are not cleaned up, the oil does not persist in the environment. Also, WS accidents occur in remote areas away from human habitation and drinking water supplies. Thus, the risk to drinking water appears to be exceedingly low or nonexistent.

For these reasons, the risk of ground fires or fuel/oil pollution from aviation accidents is considered to be low. Based on the history and experience of the program in aircraft accidents, it appears the risk of significant environmental damage from such accidents is exceedingly low.

4.2.1.6 Cost Effectiveness of Alternative 1

The three primary mechanisms by which predators can negatively affect livestock profitability are directly through death losses, and indirectly through reduced weaning weights caused by stress from the presence or harassment of predators, and increased labor and management costs. Direct livestock mortality alone can significantly reduce the viability of the ranching business. A reduction in weaning weights can affect the whole herd and in extreme cases may also threaten insolvency in the ranch business. Labor and management costs associated with increased effects from predators can include an increase in the need for veterinary services and additional herders, among others. Rashford et al. (2010) found that the effect of predators in western Wyoming cow-calf operations was most costly from reduced herd weaning weights, followed by calf death loss to predation and lastly, increased management costs. While the collective impacts on the ranch economy from all three predator effects were not studied, intuitively it would seem that the combination of the three would more significantly reduce ranch business viability. This study suggested that predator control activities would need only to reduce death or weaning weight losses a small amount to be economically efficient. Rashford et al. (2000) also point out the value of protecting the long-term viability of western ranch lands as they provide beneficial public and ecosystem services such as open space and wildlife habitat.

A common concern about government-funded wildlife damage management programs is that the value of livestock losses reported to, or verified by, APHIS-WS is often less than the cost of providing wildlife damage management services for the protection of livestock. However, this concern, stated in that way, indicates a misconception of the purpose of wildlife damage management for livestock protection, which is not to wait until the value of losses is high, but to prevent or stop losses in order to minimize them. Wildlife damage management would reach its maximum potential success if it prevented all losses, which would mean the value of losses would be zero. However, in the real world, it is not reasonable to expect zero loss. The actual concern should be whether the cost of providing wildlife damage management services is equal to or greater than the value of livestock losses avoided.

A team of economic specialists from the National Wildlife Research Center in Ft. Collins, CO, conducted an economic assessment of select benefits and costs of USDA-APHIS-WS in California. The assessment focused primarily on damage in agricultural areas because urban wildlife damage figures were not readily available. Funding for the study was provided by the California Department of Food and Agriculture Vertebrate Pest Control Research Advisory Committee. Results of the study indicate that for every \$1.00 California counties invest in Wildlife Services, they save between \$6.50 and \$10.00 in wildlife damage and replacement program costs (Shwiff et al. 2005).

Other studies have also shown positive results for benefits to costs. Using the best information available at the time, the APHIS-WS EIS (USDA 1997, revised) concluded that benefits, in terms of avoided sheep and lamb losses plus price benefits to consumers are 2.4 times the cost of providing USDA-APHIS-WS predation damage management services for sheep protection in the 16 western States. An economic assessment of the California Cooperative Animal Damage Control program was completed for a 10-year period between 1980 and 1990. The results showed a cost to benefit ratio of 1:8 for direct producer benefits, and a cost to benefit ratio of 1:21 for the

general public⁶ (USDA 1991). Schwiff and Merrill (2004) reported 5.4 percent increases in numbers of calves brought to market when coyotes were removed by aerial hunting. Bodenchuk et al. (2002) reported predation management benefit-cost ratios of 3:1 up to 27:1 for agricultural resource protection, and 2:1 to 22:1 benefit-cost ratios for predation management for wildlife. Wagner and Conover (1999) found that the percentage of lambs lost to coyote predation was reduced from 2.8 percent to less than one percent on grazing allotments in which coyotes were removed 3-6 months ahead of summer sheep grazing.

Variables that would change the cost to benefit ratio of a predation damage management program include: local market values for livestock, age, class and type of livestock preyed upon, management practices, geographic and demographic differences, local laws and regulations and USDA-APHIS-WS polices, the skill and experience of the individual USDA-APHIS-WS specialist responding to the damage request, and others.

Connolly (1981) examined the issue of cost effectiveness of federal predator control programs and concluded that public policy decisions have been made to steer the program away from being as cost effective as possible. This is because of the elimination of control methods believed to be effective but less environmentally preferable such as toxic baits. Thus, the increased costs of implementing the remaining available methods were to achieve other public benefits besides livestock protection and could be viewed as mitigation for the loss of effectiveness in reducing damage. The ADC EIS (USDA 1997, revised) states that cost effectiveness should not be the primary goal of the USDA-APHIS-WS program. Additional constraints, such as environmental protection, land management goals, and others, are considered whenever a request for assistance is received. These constraints increase the cost of the program while not necessarily increasing its effectiveness, yet they are a vital part of the APHIS-WS program.

4.2.1.7 Alternative 1 Effects on Special Management Areas

Special Management Areas (SMA) include protected lands such as Designated Wilderness, Wilderness Study Areas, and Wild and Scenic Rivers. During the analysis period (FY 06-FY 09), NWSP conducted worked on 11 Wilderness Study Areas, of which contained 10 Designated Wildernesses. The majority of predator damage management activities occurred during select and critical birthing times for mule deer, bighorn sheep, and more recently sage grouse, as requested by the Nevada Department of Wildlife. WS will continue to conform to Revisions and Clarifications to H-8550-I, Interim Management Policy for Lands Under Wilderness Review (March 19, 2002 memorandum (No. 2004-140) from BLM and FS Acting Director to BLM and FS Washington and Field Office Officials). Because of the relatively low amount of work on special management areas, because of the limited and temporary nature of the work, and because NWSP coordinates all planning with federal land managers for conformance to land use plans, NWSP continues to have no impact on SMAs. NWSP anticipates that the NDOW could request assistance on an additional 10 Designated Wilderness Areas for the protection of such natural resources as: bighorn sheep species, mule deer, antelope, elk and sage grouse. Any WSA or WA is considered a potential work area for NWSP as outlined at annual work planning meetings. Any raven damage management work in these areas would be closely coordinated with land managers to fully conform with desert tortoise management area land use plans, including restrictions to

⁶Economists with the U.S. Department of Agriculture have published studies that indicate the CONSUMER IMPACTS are 2.62 times greater for the public or the consumer of agricultural commodities, than the costs of production and losses on profits received by the agricultural producer of these products.

avoid or minimize harm to desert tortoise and their habitat, as described in the WS 2003 Biological Opinion.

Sections 2.2.7 and 3.4.2.7 discuss the issue of NWSP PDM activity in SMAs such as WAs and WSAs and mitigation measures to ensure no effects in SMAs. PDM is only conducted in designated WAs or WSAs when allowed by the legislation that designated the WA, or under regulations and policies developed by USFS or BLM for PDM in these areas. PDM in SMAs is only a very minor component of the current program.

BLM SMAs. NWSP follows BLM's Interim Management Policy for Lands Under Wilderness Review, H-8550-1 of (BLM 2002) and the MOU between BLM and WS. NWSP would follow BLM's policies for WAs should the need to work these areas arise. WS proposed activities on lands under wilderness review (WSAs) do not conflict with BLM management objectives as set forth in the RMPs. Proposed NWSP AWP's are presented for review by BLM during the work planning process to ensure that areas of conflict do not exist. Therefore, NWSP actions should have no effect on wilderness characteristics such as size, naturalness, solitude, aesthetics, primitive or unconfined type of recreation, supplemental values, and the possibility of returning the area to a natural condition as stated in BLM's Wilderness Inventory Handbook from 1978 and the Interim Management Policy of for lands under wilderness review (BLM 2002). PDM under the current program has been limited in scope and has not interrupted the wilderness review processes, or impaired the potential suitability for wilderness designation of these areas by Congress. In FY 06-FY 09, NWSP conducted work on 11 WSA's with grazing allotments in response to predation of livestock, mule deer, bighorn sheep, antelope and sage-grouse (USDA 2010a). NWSP has also worked on 9 BLM Designated Wilderness Areas over the past several years (USDA 2010a). The amount of work performed in SMAs on BLM lands has been minor. From 2006 to 2009 approximately 220 staff hours were worked per year on BLM SMAs. A list of PDM methods used in WSAs are given in Table 4. NWSP worked on the following BLM WSA's and WA's. NWSP may work on these and others in the future:

WSA NV-020-012/CA-020-618/621 – NWSP provided sporadic, seasonal (winter and spring time fawning/lambing) natural resources related PDM on roughly 1.5 square miles to protect bighorn sheep and mule deer from the predation of mountain lions and coyotes.

WSA CA-020-619A – NWSP provided sporadic, seasonal (spring time calving/lambing) livestock related PDM to reduce predation by coyotes.

WSA CA-020-615 – NWSP provided sporadic, seasonal (spring time calving/lambing) livestock related PDM to reduce predation by coyotes.

WSA NV-020-406Q – NWSP provided sporadic natural resource related PDM at the request of NDOW to protect bighorn sheep from mountain lion predation.

WSA NV-030-104 – NWSP provided sporadic natural resource related PDM at the request of NDOW to protect bighorn sheep from mountain lion predation.

WSA NV-030-525A – NWSP provided sporadic, seasonal (spring time calving/lambing) livestock related PDM mainly to reduce coyote predation, and minimal assistance of one mountain lion specialist.

WSA NV-060-158/199 – NWSP trailed a mountain lion from outside the WSA where it had killed livestock.

WSA NV-040-166 – NWSP trailed a mountain lion from outside the WSA where it had killed livestock.

WA Meadow Valley Range – NWSP made site visits at the request of NDOW regarding bighorn sheep damages.

WA Delamar Mountains – NWSP provided sporadic, seasonal natural resource and livestock related PDM for the protection of desert bighorn sheep from coyotes, mountain lions and bobcats.

WA Parsnip Peak – NWSP provided PDM for the protection of mule deer from coyote predation.

WA White Rock Range – NWSP provided sporadic PDM for the protection of mule deer from coyote predation.

WA Fortification Range - NWSP provided sporadic natural resource related PDM for the protection of mule deer from coyote predation.

WA Mount Grafton - NWSP provided sporadic natural resource related PDM for the protection of mule deer from coyote predation.

WA Highland Ridge - NWSP provided seasonal (mostly winter) livestock related PDM to reduce mountain lion and coyote damage.

WA Mount Moriah - NWSP provided sporadic, seasonal natural resource (winter) related PDM at the request of NDOW for the protection of bighorn sheep and mule deer from mountain lions and coyotes.

WA Goshute Canyon - NWSP provided some livestock related PDM to reduce losses caused by coyotes.

NWSP future sporadic and seasonal PDM at the request of NDOW for natural resource protection (bighorn sheep species, elk, mule deer, sage grouse) from mountain lion, coyote and raven predation may include the above listed BLM SMA's and the following.

WA's Muddy Mountain, Lime Canyon, Mormon Mountains, South Pahroc Range, North Jackson Mountain and South Jackson Mountain.

USFS SMAs. NWSP follows policies outlined in the USFS Manual, particularly Section 2323, and the national MOU between USFS and WS when conducting PDM in WAs and SDAs (no PDM in SDAs except for emergency human health situations). Proposed NWSP PDM plans are reviewed by USFS during the work planning process to ensure that areas of conflict do not exist. Therefore, NWSP PDM would have almost no effect on wilderness characteristics or management objectives of SDAs. Proposed PDM would be limited in scope to grazing areas with a limited buffer zone for the protection of livestock, natural resources (bighorn sheep, mule deer and sage grouse) and it would not impair the wilderness designation by Congress. In FY 06-FY 09, NWSP conducted work on 2 USFS WA's, Mount Moriah and Grant Range.

WA Mount Moriah - NWSP provided sporadic, seasonal natural resource (winter) related PDM at the request of NDOW for the protection of bighorn sheep and mule deer from mountain lions and coyotes.

WA Grant Range - NWSP provided a few pursuits of mountain lions by one Mountain Lion Specialist from outside the WSA where they had killed livestock.

NWSP future sporadic and seasonal PDM at the request of NDOW for natural resource protection (bighorn sheep species, mule deer, sage grouse) from mountain lion, coyote and raven predation may include the above listed USFS SMA's and the following.

USFS WA's High Schells, Ruby Mountain, East Humboldt and Jarbidge.

A list of PDM methods that may be used in USFS WAs are given in Table 4.

Other SMAs. Areas of Critical Environmental Concern (ACECs), SDAs, and other types of SMAs are areas managed for the protection of certain qualities or values such as biological, riparian, cultural, historic, scenic, geological, paleontological, recreation, rangeland, or sensitive plant species. In general, PDM has not been needed in these types of areas primarily because livestock have not been grazed on them. However, it may be conducted on such areas if the need arises. Similar to WAs and WSAs, sport hunting and PDM by private individuals using firearms and trail hounds is not always subject to additional restrictions in these areas. The BLM and USFS are responsible for identifying any conflicts that PDM might have with the management of any of these types of areas during the work planning process. If, for example, the respective federal land management agency determines that an area with special management emphasis is to be closed to all public hunting and the use of firearms, or to all low level flights, then NWSP would be subject to those restrictions unless provided a special exemption. When the need arises, restrictions on methods for these areas may be established in the AWP's.

Because of the relatively low amount of work on special management areas and because NWSP coordinates all planning with federal land managers for conformance to land use plans, NWSP has no impact on SMAs.

NWSP and WS policies require *Agreements for Control* or *AWPs* be in place prior to conducting PDM. NWSP meets with land management agencies to discuss PDM activities and their location. If NWSP were requested to conduct PDM in a "Special Management Area" (SMA), all applicable guidelines, restrictions, and mitigation measures would be followed to ensure PDM would not affect the SMA and its particular values. Therefore, it is highly unlikely that PDM activities would impact SMAs.

4.2.1.8 Indirect and Cumulative Impacts of Alternative 1

Cumulative impacts, as defined by CEQ (40 CFR 1508.7), are impacts on the environment that result from the incremental impact of the action when added to the past, present, and reasonably foreseeable future action, regardless of who undertakes such other actions. Based on NWSP's impact on target animal populations (USDA 2010a), combined with other harvest (NDOW 2006, 2007, 2008, 2009 and 2010), cumulative impacts are determined to be minimal. The national W's programmatic FEIS (USDA 1997, revised) also concluded that no significant cumulative impacts were identified or expected under the current program (integrated wildlife damage management).

Effects of Predator Removal on Prey Populations. NWSP takes several species of predators in Nevada as discussed in 4.2.2.1, but NWSP conducts most PDM for the coyote. Since NWSP deals predominantly with coyotes, much of the following information is given for coyote effects on prey species.

Some people have expressed a concern that reducing predators might result in an over abundance of rodents or rabbits. The relationship between predators and rodent and rabbit populations has been summarized in USFWS (1979). Rabbit and rodent populations normally fluctuate substantially in several-year cycles. Two hypotheses attempt to explain these cyclic fluctuations: 1) rodent and rabbit populations are self-regulated through behavior, changes in reproductive capacity due to stress, or genetic changes (Chitty 1967, Myers and Krebs 1983); and 2) populations are regulated by environmental factors such as food and predation (Pitelka 1957, Fuller 1969). The impact analysis on rodents and lagomorphs (rabbits and hares) showed that predators generally prolong the low points in rodent population cycles and spread the duration of the peaks. Predators generally do not "control" rodent populations (Keith 1974, Clark 1972, Wagner and Stoddart 1972). It is more likely that prey abundance controls predator populations. USFWS (1979, p. 128) concluded that "ADC Program (former name of WS) activities have no adverse impacts to populations of rodents and lagomorphs." The FEIS did not specifically deal with this issue (USDA 1997, revised).

Keith (1974) concluded that: 1) during cyclic declines in prey populations, predation has a depressive effect and as a result, the prey populations may decline further and be held for some time at relatively low densities; 2) prey populations may escape this low point when predator populations decrease in response to low prey populations; and 3) since rabbit and rodent populations increase at a faster rate than predator populations, factors other than predation must initiate the decline in populations. Wagner and Stoddart (1972) and Clark (1972) independently studied the relationship between coyote and black-tailed jackrabbit populations in northern Utah and southern Idaho. Both concluded that coyote populations seemed to respond to an abundance of jackrabbits. When a broad range of prey species is available, though, coyotes generally feed on any of the species available. Therefore, coyote populations may not vary with changes in the availability of a single prey species (Knowlton 1964, Clark 1972).

Henke (1995) reviewed literature concerning coyote-prey interactions and concluded that short term (≤ 6 months) coyote removal efforts typically do not result in increases in small mammal prey species populations. However, longer term intensive coyote removal (9 months or longer) can in some circumstances result in changes in rodent and rabbit species composition which may lead to changes in plant species composition and forage abundance. Most PDM actions in Nevada are not year round but occur for short periods after damage occurs (corrective control situations) or for short periods (< 6 months) at the time of year when benefits are most likely such as the 2-3 month period immediately preceding calving in the spring. This factor, combined with the fact that NWSP conducts PDM on only about 26% of the land area of Nevada, in any one year where predators are taken, and kills a low cumulative percentage (6-14%) of Nevada's population of coyotes, indicates that PDM has a minimal effect on the overall ecosystems in Nevada (USDA 2010a). Also, take of other carnivores that prey on rodents and rabbits such as gray fox is too low to represent any potential for a significant effect. Evidence also exists to suggest other carnivores such as gray and red fox increase in number when coyote populations are reduced (Robinson 1961, Nunley 1977). The greatest limiting factor for swift fox, a closely related species to the kit fox, has been suggested to be coyotes (USFWS 1995). Therefore, even if coyote numbers were reduced temporarily, other species that prey on rodents and rabbits would probably increase in number to mitigate the reduction in coyote predation on those prey species.

Other prey species of predators in Nevada include T&E and sensitive species and big game as discussed in section 1.1.3. Under certain conditions, predators, primarily coyotes and ravens in Nevada, have been documented as having a significant adverse impact on sensitive species (Pimlott 1970, Bartush 1978, USFWS 1978, Hamlin et al. 1984, Neff et al. 1985).

Based on the above information, it is clear that local short term predator population reductions do not have a significant long term effect on rodent and rabbit populations, but could enhance T&E and sensitive species, and big game populations. As far as the latter, this could either be a beneficial or detrimental effect depending upon whether local big game populations were at or below the capacity of the habitat to support them. However, NWSP only conducts PDM on limited and specific areas to benefit prey populations where predation has been identified as a limiting factor to success. Except where NWSP is specifically requested by a management agency to conduct PDM for species enhancement, the current program has little effect on prey species populations in Nevada.

4.2.2 Alternative 2 No Federal NWSP PDM

This alternative was discussed in 3.2.2. It would not allow WS to fulfill its legislative authority as directed by Congress to provide wildlife damage management assistance to the American public. This alternative was considered in detail in the ADC FEIS (USDA 1997, revised) and found to have the potential for significant impacts on target and non-target species, humaneness, public safety, and other resources. It was assumed that without professional oversight, training, and experience, the environmental consequences of a no federal program alternative could be significant. A no federal program alternative in Nevada, though, would probably still retain NDRP. Therefore, the impacts that were described in the FEIS for this alternative (USDA 1997, revised) would not be quite the same in Nevada as in other areas. The impacts under the no federal NWSP alternative would likely be intermediate between the current program alternative and the FEIS analysis of the no federal program because some professional services would still be available for the public. The primary concern of not having a federal program is that impacts would increase because non-professional private individual's efforts conducting PDM on their own would increase. Many of these individuals would probably be untrained and unlicensed to use certain PDM methods that have the potential for high impacts when not properly used. Because private persons conducting PDM would not be associated with a federal program, accountability, records maintenance, regulatory and policy compliance, and coordination with other agencies would not always be required or adhered to, thus, impacts would have the potential to be much higher than under the current program alternative. Finally, it is hypothetically possible that the inability of some of these private individuals to resolve damage problems would lead to the illegal use of chemical toxicants which could have the greatest potential for significant negative impacts on the environment.

4.2.2.1 Alternative 2 Effects on Target Predator Populations

Under this alternative, the federal portion of NWSP would have no impact on target predator populations in Nevada. However, private organizations and individuals conducting PDM would most likely increase in proportion to the reduction of services, and NDRP, the State portion of NWSP, would probably still provide some level of PDM, but without federal supervision. These efforts to reduce or prevent depredations would probably result in affects similar to those of the proposed action depending on the level of effort expended by NDRP, private persons and organizations. For the same reasons shown in the population impacts analysis, section 4.2.1.1, it is

highly unlikely that predator populations would be affected significantly by implementation of this alternative. However, the hypothetical use of illegal chemical toxicants caused by frustration, as described in 4.2.2, could lead to unknown impacts on carnivore populations.

Raven take would be likely to decrease substantially because the primary proposed means of removing ravens is with DRC-1339, a toxicant registered exclusively for use by federal Wildlife Services employees or individuals under their supervision. Alternative methods (e.g. shooting) are likely to be more time consuming and expensive to implement and considerably fewer birds are likely to be taken and, based on WS experience, considerably less success would be realized in raven damage management.

Additionally, if NWSP was not conducting the work, NDOW, by Nevada Revised Statute and Nevada Administrative Codes would still be required to perform PDM (See appendix C).

4.2.2.2 Alternative 2 Effects on Non-target Species Populations, Including T&E Species

Under this alternative, the NWSP would be unable to provide assistance with predation management including programs to protect T&E species. The amount of professional oversight in PDM would diminish but would still be available to some extent through NDRP. In the 1999 EA, the reduction in professional oversight was anticipated to result in an increase in impacts on non-target species populations over that described for Alternative 1 because the individuals conducting the work may not have the same access to training and current PDM tools and techniques as the federal NWSP PDM specialists. This Alternative would also result in less aerial hunting and increased ground work for predation management. The increase in ground work would result in increases in potential risks to non-target animals from an increased use of traps and snares (Wagner and Conover 1999). This alternative would not include the use of DRC-1339 to take ravens, so shooting would presumably increase.

Private efforts to reduce or prevent depredations would likely increase which may result in less experienced persons implementing control methods leading to a greater take of non-target wildlife than the under the current program. Similar to NWSP PDM, private individuals could trap coyotes and unprotected predators year-round. However, private individuals would not be restricted to mitigation measures such as NWSP's self-imposed restrictions (ie. setting traps closer than 30 feet to livestock carcasses to avoid capturing scavenging birds or using pan tension devices to exclude smaller animals). Therefore, hazards to raptors, including bald eagles, and other non-target animals could be greater under this alternative. As described in 4.2.2, the hypothetical use of chemical toxicants could impact non-target species populations, including T&E species. Therefore, it is likely that more impacts would occur under this alternative than the current program as discussed in section 4.2.1.2. Aerial hunting, though, would probably not be used as much under this alternative because it requires a permit from NDOW and pilots experienced at low-level flying. Even if NDOW issued several more aerial hunting permits, the effects of low level flights on wildlife and wild equines would likely be similar to those discussed in section 4.2.1.2, barring illegal activities.

4.2.2.3 Alternative 2 Humaneness

Under this alternative, the federal portion of NWSP would not employ methods viewed by some persons as inhumane and, thus, have no program effect on humaneness. NDRP would probably still provide some level of professional direct control assistance with PDM, but without federal

supervision, and would continue to use the PDM methods considered inhumane by some individuals, but at lower levels. NDRP personnel, though, would no longer receive training from federal sources, nor would the program benefit from federal research focused on improved humaneness, selectivity, and non-lethal methods. However, private individuals, who are no longer provided professional assistance from NWSP and have experienced resource losses, could conduct lethal controls on their own. This could have the potential for increased and unnecessary pain and suffering to target and non-target species. Use of leghold traps, snares, and shooting by private individuals would probably increase. This could result in less experienced persons implementing use of PDM methods such as traps without modifications like the underpan tension devices that exclude smaller non-target animals. Greater take and suffering of non-target wildlife could result. It is hypothetically possible that frustration caused by the inability of resource owners to reduce losses could lead to illegal use of chemical toxicants. The illegal use of toxicants could result in increased animal suffering.

PDM actions taken by individuals would probably be less humane than with a federal program partly for other reasons. NWSP is accountable to public input and humane interest groups often focus their attention and opposition on PDM activities employed by NWSP. PDM methods used by private individuals may be more clandestine. The people that perceive some PDM methods as inhumane would be less aware of PDM activities being conducted by private individuals but mostly because the private individuals would not be required to provide information under any policies or regulations similar to those NWSP follows. Thus, the perception of inhumane activities would probably be reduced, although the actual occurrence of PDM activities may increase.

Under this alternative, predation rates would be expected to increase. It has been determined that livestock losses are expected to be 4 times higher in areas without effective PDM (USDA 1997, revised). Therefore, more domestic animals, including livestock and pets, would suffer inhumanely from injuries caused by predation than under the current program.

Therefore, this alternative would likely result in more negative impacts with regard to humaneness than the current program. This is primarily due to the fact that more private individuals would attempt to alleviate predator damage without professional training and guidance, and more domestic animals would be lost to predation.

The federal WS portion of this Alternative may be more acceptable to Animal Rights activists and to a wider range of animal welfare advocates because WS would not be involved in the lethal removal of predators. Livestock producers and others who receive services of NWSP are likely to perceive this as an unethical restriction of their access to legally available damage management techniques from professional, accountable WS Specialists, and may perceive this Alternative as an imposition of additional costs of livestock production and results in unacceptable losses. People concerned about the use of public resources to reduce damage (e.g. enhance profit) on private and public lands may find this alternative preferable to Alternative 1. However the NDRP component would still be operational.

4.2.2.4 Alternative 2 Effects on Recreation

Under this alternative, there would be no NWSP involvement in predation management and, consequentially, no impact on recreation. However, NDRP would probably provide some level of predation management on public lands. Private efforts to reduce or prevent depredations on livestock allotments would likely increase which could result in less experienced persons implementing PDM methods and a greater impact on recreation than Alternative 1. Aerial hunting would probably be greatly reduced under this alternative because it requires pilots with experience at low level flying

and a permit from NDOW. Even if NDOW increased permits, impacts are not likely to be greater than analyzed for Alternative 1. A reduction in aerial hunting would result in an increase in the amount of ground traffic and hours of PDM required for an equivalent level of predation management (Wagner and Conover 1999). This increase in PDM activity on the ground would increase the risk of damage to the environment from vehicular traffic and increase the likelihood of a conflict between PDM and recreational activities.

The federal portion of NWSP would not impact hunting and nonconsumptive uses with the no federal program alternative. NDRP would probably provide some level of direct control assistance with PDM. NDRP would have similar effects on recreation as described under the current program alternative, except that with no federal portion, effects would be decreased proportionately. Private efforts to reduce or prevent depredations would likely increase which could result in less experienced persons implementing PDM methods leading to a greater effect on recreation than described under the current program alternative. As discussed with other issues, it is hypothetically possible that the frustration caused by the inability of novice PDM persons to reduce losses could lead to the illegal use of chemical toxicants which could impact recreationists and their pets. This activity could also have impacts on game species, as described for predators in 4.2.2.1 and non-target species in 4.2.2.2, but it is not likely to impact these species greatly. Aerial hunting would probably not be used as much under this alternative because it requires pilots with experience at low level flying and a permit from NDOW, and therefore, recreationists would be affected minimally with this PDM method. Even if NDOW issued several more permits, the effects would likely be similar to those in section 4.2.1.4, barring illegal activities. PDM activities would probably cause damage to the environment from off-road vehicle use where NWSP would normally aerial hunt. This is because much of the desert environment is sensitive by nature and vehicles can leave long-lasting scars, especially when vehicles are used during the wet season because ruts are made. These scars can be an eyesore to recreationists. Therefore, it is likely that some negative impacts could occur under this alternative which are more than the current program, as discussed in section 4.2.1.4.

4.2.2.5 Alternative 2 Impacts on Public Safety and the Environment

Under this alternative, there would be no NWSP involvement in predator damage management and, consequentially, there would not be any risks to human health and safety from NWSP pesticide or aircraft use. Conversely, NWSP would not be available to provide assistance with wildlife threats to human health and safety. However, NDRP would probably provide some level of assistance with these issues. Private efforts to reduce or prevent depredations on livestock allotments would likely increase which could result in less experienced persons implementing PDM methods and a greater health and safety risks associated with improper use of PDM tools. Aerial hunting would probably be greatly reduced under this alternative because it requires pilots with experience at low level flying and a permit from NDOW. Even if NDOW increased permits, impacts on public safety are not likely to be greater than analyzed for Alternative 1. The reduction in aerial hunting would result in further increases in use of ground-based PDM techniques (Wagner and Conover 1999). As stated above, increased ground-based private efforts to reduce or prevent depredations on livestock allotments could result in less experienced persons implementing PDM methods and a greater health and safety risks associated with improper use of PDM tools.

The federal portion of NWSP would have no effect on public safety, the environment, or Environmental Justice (Executive Order 12898) issues under this alternative. NDRP would probably still provide some level of PDM without federal supervision and their effects would be similar to those discussed under section 4.2.1.6, except these would comparatively less. Compared to the current program alternative, private individuals would likely have more significant negative effects

on the environment and human safety. This would result from untrained and unlicensed individuals using PDM methods and toxicants, legal and illegal. As discussed in section 4.2.2.1, it is hypothetically possible that frustration caused by the inability to reduce losses could lead to illegal use of chemical toxicants which could lead to unknown impacts on public safety. In addition, private individuals are not accountable and can conduct PDM for unprotected species year-round and without many of the policies, regulations, and restrictions that NWSP personnel must follow. Of the alternatives, this one would have the greatest potential for negative impacts on public safety and the environment.

In addition to some of the problems noted above, the federal portion of NWSP would not be able to respond to predator complaints involving human health and safety. NDRP could respond to complaints within reasonable proximity of their duty stations. However, it is unlikely that NDRP would be able to respond to all predator complaints involving human health and safety. Therefore, human health and safety problems associated with predators would likely increase and either go unresolved or be handled by private individuals with similar risks described above.

4.2.2.6 Cost Effectiveness of Alternative 2

Federal funds would not be expended for NWSP services. The federal program currently provides much of the supplies for PDM and supervision of the cooperative program. NDRP would have to increase their expenditures in this area with State funds. Damage control costs could be large or small depending on the role of the public sector (USDA 1997, revised). It was estimated that in a statewide “no program” option, monetary losses to producers would be expected to increase an average of four times the present level (USDA 1997, revised). Indirect consumer and producer impacts could be expected to be substantially higher. NDRP would reduce monetary losses, but the cost effectiveness under this alternative is estimated to be lower than under the current program alternative.

4.2.2.7 Alternative 2 Impacts on Special Management Areas

The current program has been determined to have no significant effect on the SMAs, so the same program reduced by the federal component would similarly not affect SMAs. Without a federal program to provide assistance, individuals affected by predator damages could conceivably have a negative effect on SMAs for reasons described under this alternative elsewhere in 4.2.2. Therefore, this alternative would likely have more negative effects on SMAs than the current program alternative.

4.2.2.8 Indirect and Cumulative Impacts of Alternative 2

Indirect impacts under the no federal program alternative would be the lowest and would correlate with program effectiveness. Positive contributions to the local economy would be expected to be lowest under the no federal program alternative because resource losses are expected to be higher (USDA 1997, revised) as discussed in section 4.2.2.6.

Cumulative impacts would be expected to be higher under this alternative than under the current program alternative as a result of uncoordinated control actions or misapplication of control methods by individuals. These impacts could result in higher impacts on target and non-target wildlife and public safety, thereby affecting wildlife populations and the environment.

Effects of Predator Removal on Prey Populations. Under Alternative 2, the effects on prey populations from predator removal would be somewhat less than those of the proposed action because no federal PDM activities would occur. However, the difference is not likely to be substantial because of the following factors: 1) Private efforts to reduce coyote populations could still occur and would probably increase without NWSP operational activities; 2) NDRP PDM actions would still occur without federal involvement, but would likely be to a lesser extent than under a cooperative program with federal involvement; 3) eliminating federal involvement would probably only reduce the percentage of land area worked from 32% to 10% which is not a major change in terms of potential impacts on prey populations; and 4) anticipated effects on coyote populations and other carnivore populations are expected to be minimal as identified by the analysis in section 4.2.1.

4.2.3 Alternative 3 Non-lethal Management Only

This alternative was discussed in 3.2.3. The nonlethal control only alternative is a modification of the current program alternative wherein no lethal technical assistance or direct control would be provided or used by NWSP. Both technical assistance and direct control would be provided in the context of a modified IWDM that administratively constrains NWSP personnel to use nonlethal strategies to resolve wildlife damage problems (methods allowed in Table 3). Similar to Alternative 2, this alternative could have negative environmental consequences where individuals implement lethal control without professional oversight, training, and experience.

4.2.3.1 Alternative 3 Effects on Target Predator Populations

Under this alternative NWSP would be limited to using nonlethal methods, whereas other agencies, organizations, or individuals would be free to carry out necessary lethal control work to resolve wildlife damage. Since nonlethal controls alone do not always prevent or reduce wildlife damage to acceptable levels, other government agencies, private organizations, and individuals would likely assume responsibility for implementing lethal controls necessary to adequately deal with these problems. Therefore, NWSP would have no impact on target predator species populations directly under this alternative. As under Alternative 2, NDRP would probably provide some level of direct control assistance with predator damage problems but without federal supervision, and private efforts to reduce or prevent depredations would likely increase which would result in impacts on those populations. For the same reasons shown in the population impacts analysis in section 4.2.1.1, it is highly unlikely that coyote populations or other predators would be impacted significantly by implementation of this alternative. Impacts and possible risks of illegal chemical toxicant use under this alternative would probably be about the same as those under Alternative 2. As discussed for Alternative 2, due to the lack of access to DRC-1339, the total raven take is likely to be substantially lower than with Alternative 1.

Additionally, if NWSP was not conducting the work, NDOW, by Nevada Revised Statute and Nevada Administrative Codes would still be required to perform PDM (See appendix C).

4.2.3.2 Alternative 3 Effects on Non-target Species Populations, Including T&E Species

Alternative 3 would not allow NWSP to conduct direct operational PDM. Therefore, NWSP would not have any direct impact on non-target or T&E species. NWSP would not conduct aerial hunting and would not impact wildlife with that method. Although technical support might lead to more selective use of control methods by private parties than that which could occur under Alternative 2, private efforts to reduce or prevent depredations could result in less experienced persons implementing control methods leading to greater take of non-target wildlife and T&E species as

discussed in section 4.2.2.2. This alternative would have the potential for increased adverse impacts resulting from NWSP not providing quality PDM and the compensatory actions of private individuals. Presumably, many service recipients would become frustrated with NWSP's failure to resolve their wildlife damage, and would turn somewhere else for assistance. Higher variability in the level and scope of wildlife damage control activities could occur without a full IWDM program, and this could have a greater negative effect on some local wildlife species, including T&E species. Aerial hunting activities would not be used by NWSP, but could be by the private sector or NDRP. Even if NDOW issued several more aerial hunting permits, the effects of low level flights from aerial hunting on wildlife and wild equines would likely be similar to those discussed in section 4.2.1.2, barring illegal activities.

4.2.3.3 Alternative 3 Humaneness and Ethical Considerations

Nonlethal control techniques are generally considered more humane by animal welfare groups. However, nonlethal control techniques such as cage traps and netting must be used in a proper fashion. For example, cage traps can be potentially inhumane if the trap is not attended to regularly and a caught animal is exposed to the elements such as being left out in the sun. The effects of this alternative with regards to the issue of humaneness would be most similar to those under Alternative 2. However, these effects would not be as great because some service recipients would be successful with nonlethal control techniques while others would tolerate the predator damage and not do anything about the situation. However, some NWSP service recipients may not be successful and conduct lethal controls on their own resulting in similar effects as described in section 4.2.2.3.

The federal WS portion of this Alternative would be more acceptable to Animal Rights activists and to a wider range of animal welfare advocates because WS would not be involved in the lethal removal of predators. Livestock producers and others who receive services of NWSP are likely to perceive this as an unethical restriction of their access to legally available damage management techniques from professional, accountable WS Specialists, and may perceive this Alternative as an imposition of additional costs of livestock production and results in unacceptable losses. People concerned about the use of public resources to reduce damage (e.g. enhance profit) on private and public lands may find this alternative preferable to Alternative 1. However NWSP would still use federal funds for supervision, reporting, and compliance with State and federal regulations, and the NDRP component would still be operational.

4.2.3.4 Effects on Recreation

NWSP would not impact hunting and nonconsumptive uses with the nonlethal alternative. However if individuals implement lethal control this could have adverse impacts on both the hunting and nonconsumptive user groups as was discussed under Alternative 2, section 4.2.2.4. However, the negative effects on recreation would probably be slightly less under this alternative than in Alternative 2, but more than under the current program alternative.

4.2.3.5 Impacts on Public Safety and the Environment

Most PDM methods with the potential for negative impacts on the physical environment or public safety, such as chemical toxicants, traps, and snares, would not be used by NWSP under this alternative. Since lethal controls would no longer be used, NWSP would not have an effect on public safety. NDRP, though, would still probably provide lethal PDM services at some reduced level. However, as discussed in section 4.2.1.5 the effects of these services would likely be negligible. Private individuals would increase their use of lethal PDM methods. As discussed in Alternative 2,

many of these individuals would use registered toxicants incorrectly or illegal toxicants and these could adversely impact the environment and public safety. In addition, traps, snares, and firearms used by novices could have more adverse effects on public safety and the environment as discussed in 4.2.2.5. NWSP nonlethal PDM activities would not be likely to have a negative effect on the public concerning “environmental justice and executive order 12898” issues. NWSP would be able to respond to predator complaints with lethal PDM for incidences involving human health and safety and, therefore, would have the same effect as under the current program alternative. As with Alternative 2, aerial hunting would probably be greatly reduced under this alternative because it requires pilots with experience at low level flying and a permit from NDOW. Even if NDOW increased permits, impacts are not likely to be greater than analyzed for Alternative 1. The reduction in aerial hunting would result in an increase in the amount of ground traffic and hours of PDM required for an equivalent level of predation management (Wagner and Conover 1999). This increase in PDM activity on the ground would increase the risk of damage to the environment from vehicular traffic and increase the likelihood of a conflict between PDM and recreational activities.

4.2.3.6 Cost Effectiveness

Livestock losses would be greater than in the current program (USDA 1997, revised). Direct federal costs to implement this alternative would be lower than the current program. The number of NWSP personnel could be reduced to only those needed to provide technical assistance and make recommendations to landowners or permittees wishing to conduct their own control work. Monies would only be spent on nonlethal operational activities. Livestock owners would likely have to absorb the cost of hiring private control agents or conduct lethal PDM themselves. Losses to predators would probably increase substantially, and some sheep operations would probably not be able to stay in business.

4.2.3.7 Impacts on SMAs

Impacts on SMAs under this alternative would be expected to be higher than under the current program alternative, since producers might conduct their own lethal control. The effects would probably be much closer to the no federal program alternative for the same reasons identified in section 4.2.2.7.

4.2.3.8 Indirect and Cumulative Impacts

Indirect impacts under the nonlethal control only alternative would be almost as low as the no program alternative and would correlate with program effectiveness. Positive contributions to the local economy would be expected to be low and similar to the no federal program alternative because resource losses are expected to be higher (USDA 1997, revised) as discussed in section 4.2.2.6.

Cumulative impacts would be expected to be higher under this alternative than under the current program alternative as a result of uncoordinated control actions or misapplication of control methods by individuals. These impacts could result in higher impacts on non-target wildlife and public safety, thereby affecting wildlife populations and the environment. The effects of predator removal on prey populations would be similar to that discussed in section 4.2.2.8.

4.2.4 Alternative 4 Nonlethal Required before Lethal Control

This alternative could affect NWSP's ability to quickly address wildlife threats and damage problems by limiting control actions to nonlethal control methods before lethal measures could be used. Under this alternative, agricultural and property resource losses would be more than under the current program alternative due to the restrictions placed on this management alternative.

4.2.4.1 Effects on Target Predator Populations

Under this alternative, NWSP take of target predator species would probably be somewhat less than that of the proposed action because lethal actions by NWSP would be restricted to situations where the requestor or, possibly, NWSP had attempted nonlethal controls without success. No proactive lethal control actions would be taken by NWSP. For many individual damage situations, this alternative would be similar to the current program because many producers, prior to contacting NWSP, have attempted one or more nonlethal methods such as predator resistant fencing without success, or have considered them and found them to be impractical in their particular situations. Without NWSP conducting proactive control activities, it is likely that private efforts at proactive control would increase. These increased private PDM activities would lead to potentially similar cumulative impacts as those described under the current program alternative. For the same reasons shown in the population impacts analysis in section 4.2.1.1, it is highly unlikely that the coyote or other predator populations would be significantly affected by implementation of this alternative. Impacts and hypothetical risks from illegal chemical toxicant use under this alternative would probably be the same as those under Alternatives 2 and 3. Any reductions in targeted wildlife by NWSP as a result of this alternative would have no major adverse impacts to the species involved or Nevada's statewide population. Most sheep and cattle producers already use one or more nonlethal control methods. Connolly and Wagner (1998) found that 55% of the U.S. sheep producers, that own 70% of the nation's sheep, used one or more nonlethal control measures in 1994. Fencing, husbandry, guard animals, and frightening tactics were the most common nonlethal control methods used during the survey. Therefore, the effects on target species populations would probably be insignificant, similar to that described under the current program alternative.

4.2.4.2 Effects on Non-target Species Populations, Including T&E Species

The nonlethal before lethal control alternative would not consistently allow NWSP to respond to wildlife threats quickly or adequately. If cooperators were not satisfied by corrective control operations by NWSP, private efforts to reduce or prevent depredations could increase, but at a much lower effort than described in Alternatives 2 and 3. However, the impacts of persons implementing control would be similar to those described in Alternatives 2 and 3. Additionally, this alternative is not supported by the FEIS and Record of Decision (USDA 1997, revised) and WS Directive 2.101, which addresses NWSP's policy for applying IWDM. Under this alternative, NWSP take of non-target animals would probably be a little less than that of the current program because no preventive lethal control actions would be taken by NWSP. Mitigation measures to avoid T&E impacts were described in Chapter 3 and they would ensure that adverse impacts are not likely to occur to T&E species by implementing Alternative 4. Aerial hunting activities may be reduced, and minimal impacts would occur as described in section 4.2.1.2.

4.2.4.3 Humaneness of Control Techniques

The amount of suffering by target and non-target wildlife under this alternative would likely be less than under the proposed action since proactive preventive control activity by NWSP would not be

allowed. However, some private individuals would increase their use of leghold traps, snares, and shooting for preventive control activities and where NWSP could not resolve a damage problem in a timely manner because nonlethal control measures needed to be implemented first. This could result in similar, but lesser, effects as those described for Alternatives 2 and 3, but more than those under the current program. Suffering of livestock because of injuries caused by predation would likely increase under this alternative because PDM actions by NWSP could not be implemented until after the onset of depredation.

Alternative 4 would still be unacceptable to Animal Rights advocates and to many individuals with strong Humanistic and Moralistic values because it permits lethal removal of predators. However, a larger number of Animal Welfare advocates would find this alternative more acceptable than the current program because it provides an assurance that predators would not be killed unless a nonlethal alternative has been tried. Livestock producers may perceive this alternative as an unethical imposition of additional cost of production, and, potentially, additional losses on resource owners by may be borne (since most livestock producers already implement some form of non-lethal protective measures and need assistance when those have failed. Individuals concerned about the use of public resources to enhance private profit are unlikely to perceive this alternative as much of an improvement over Alternative 1.

4.2.4.4 Effects on Recreation

NWSP would minimally affect recreationists with the nonlethal before lethal PDM alternative. In areas where nonlethal control had already been implemented and found to be unsatisfactory, the full array of PDM methods could be used and their effects were considered minimal as discussed in section 4.2.1.4. However, some individuals would implement lethal control on their own because NWSP might seem unresponsive. This could have significant adverse effects on recreationists as discussed for Alternatives 2 and 3. However, the effects on recreation would probably be less than these alternatives, but more than the effects discussed for Alternative 1.

4.2.4.5 Impacts on Public Safety and the Environment

NWSP would not have an adverse effect on public safety, the environment, or the public concerning “environmental justice and executive order 12898.” The effects of the use of toxicants and other PDM methods are discussed in detail in the current program alternative section and the FEIS (USDA 1997, revised). Because NWSP could not necessarily resolve problems in a timely manner, some cooperators would resort to tactics described in section 4.2.2.5. Effects under this alternative would be greater than the current program alternative, but less than the non-lethal alternative.

4.2.4.6 Cost Effectiveness

The cost effectiveness of requiring the use of nonlethal methods would be low in situations where they are not effective and resource losses are allowed to continue. The full array of management tools would be available, but nonlethal methods would be used first, regardless of whether or not they were determined to be the most effective or appropriate choice using the WS Decision Model (Slate et al. 1992). Thus, the use of nonlethal methods first may delay effective wildlife damage management and the protection of livestock, property, human health and safety. The current program uses or recommends nonlethal methods in instances in which they are considered likely to be effective. Mandating nonlethal methods as a first option when they are unlikely to resolve a damage situation would reduce the effectiveness of PDM. Under the IWDM approach, NWSP

always considers if nonlethal methods would be effective before contemplating the use of lethal methods. Therefore, this alternative would be more costly and less effective than the current program, but more effective than the no federal program alternative and non-lethal only alternative.

4.2.4.7 Impacts on SMAs

Impacts on SMAs under this alternative would be similar to the current program, Alternative 1. Although the effectiveness may not be as high as the current program, this alternative would allow the use of all methods eventually. Producers would be less inclined to impact SMAs since coordinated assistance would still be available.

4.2.4.8 Indirect and Cumulative Impacts

The nonlethal before lethal alternative would have somewhat lower positive indirect impacts on the economy (USDA 1997, revised) than that under the current program, but more than under the nonlethal alternative. Cumulative impacts on target and non-target species would be expected to be greater than the current program, since individuals who find this alternative unacceptable would be more likely to implement their own lethal control actions without waiting for non-lethal methods to be attempted first. Cumulative impacts under this alternative would be less than the nonlethal only program. Impacts of implementing Alternative 4 on prey species populations would not likely differ much from those of the proposed action for the same reasons identified in section 4.2.3.1.

4.2.5 Alternative 5 Proposed Alternative. Integrated Predator Damage Management with Expanded Natural Resource Damage Management.

This alternative would be identical to Alternative 1 in all respects except that efforts to manage damage associated with predation on game species such as sage-grouse and big game such as bighorn sheep, pronghorn antelope and mule deer would be likely to increase.

4.2.5.1 Effects on Target Predator Populations

The effects on target species would be similar to the current program since any program emphasis of game species protection over livestock protection would be likely to take a similar number of predators. Overall, the number of individual animals removed would remain within the low magnitude range and would not contribute towards the decline of any species populations.

4.2.5.2 Effects on Non-target Species Populations, Including T&E Species

The effects of the program on non-target species populations and on T&E species would be similar to the current program. WS would follow all standard operating procedures and measures required from ESA consultations to ensure that the program would minimize the potential to harm T&E species and would not jeopardize the continued existence of any T or E species. Non-target take is expected to continue to remain low due to the high selectivity of management measures used combined with the expertise and training of NWSP Specialists.

4.2.5.3 Humaneness of Control Techniques

Alternative 5 would be likely to be unacceptable to animal rights advocates and many individuals with strong humanistic and moralistic values similar to Alternative 1, and with the enhanced feature of PDM to benefit game species.

4.2.5.4 Effects on Recreation

Similar to Alternative 1, NWSP would not notably affect recreational land uses, however, this alternative would be likely to provide benefit to both consumptive and nonconsumptive recreational users of public and private lands (e.g. hunters, photographers, wildlife viewers) as discussed in Section 4.2.5.6.

Relating to non-consumptive uses, as noted in NDOW's bighorn sheep management plan (NDOW 2001), it is difficult to place value on wildlife and while it is not well documented, there is no doubt that thousands of recreational days annually are spent on wildlife viewing and photography (NDOW 2001, 2003). Where this alternative is successful in assisting NDOW to achieve its management goals of big game and sage-grouse populations in Nevada, the public would benefit by knowing that populations are healthy, and there is an increased opportunity to enjoy the resource.

4.2.5.5 Impacts on Public Safety and the Environment

Effects from this alternative would be similar to the current program, Alternative 1.

4.2.5.6 Cost Effectiveness

Cost effectiveness would be similar to the current program. Cost effectiveness would vary if program emphasis were refocused more on natural resource protection and less on livestock protection but either way is expected to be positive. Bodenchuk et al. (2000) looked at benefits to protecting sage-grouse, bighorn sheep, mule deer and pronghorn antelope and found that the benefit to cost ratios for predation damage management to protect these and other wildlife species ranged between 2:1 and 22.6:1.

PDM to protect game resources is likely to benefit local and State economies by increasing hunting opportunities for the sportsmen in the State. The number of hunters in Nevada totaled 47,000 in 2001, and those hunters spent over 490,000 days hunting. Expenditures associated with hunting are significant and include everything from equipment to lodging and travel. The International Association of Fish and Wildlife Agencies reports that hunting in Nevada in 2001 benefitted the economy from expenditures of 156.3 million dollars in retail sales, 246.7 million dollars from the multiplier effect, and 2,256 jobs, many of them vital to small town economies (IAFWA 2002).

Nevada Department of Wildlife biologists collected anecdotal information that indicated that the success of some recent PDM projects for the protection of big game were highly effective. For example, a Vya antelope herd experienced a 115% increase in herd size (2000 thru 2004) when fawns were protected from coyote predation compared with a control antelope herd where fawns were not protected (Spencer 2006).

Other reports similarly indicate that predator control may be substantially beneficial. In 2010, project results from coyote and mountain lion damage management to protect adult and juvenile mule deer in NDOW game management unit 14 showed an increase in the mule deer herd size from 850 to 1300, a 53 percent increase after PDM was initiated over a five-year period (USDA 2010c). A control game management unit where no PDM occurred showed an estimated 38 percent decline in its mule deer populations over the same time period. And although another game management unit was not considered a control unit (unit 15, adjacent to unit 14), the mule deer population there declined 38 percent over the same time period. Mule deer numbers in game management until 231

in northeastern Lincoln County increased 48 percent over five years when PDM was conducted there to protect mule deer and mule deer fawns from coyote predation (USDA 2010d). Otherwise, overall, the statewide mule deer population in Nevada remained unchanged at an estimated 107,000 in 2004 and 2010.

When NWSP implemented PDM to protect a bighorn sheep herd in Nevada's Granite Mountains, the herd experienced a 200 percent increase in size over five years. In addition, the age structure of the herd appeared to increase so that larger rams were being harvested by hunters. The larger herd size also provided a source population for NDOW to capture some of the Granite project bighorn sheep and translocate them to the nearby Jackson Mountains (USDA 2010c).

While other factors such as weather, disease, and habitat conditions can influence wild ungulate herd size, these reports indicate that PDM may be beneficial to improving wild ungulate herd size, thus enhancing hunting opportunities. Hunting revenues collected by the State of Nevada would be expected to be favorable based on the likelihood of success where PDM protects game resources.

Based on the information provided here, the benefit to cost ratio is expected to be favorable. PDM to protect game species in Nevada is conducted with monies that come from fees associated with hunting licenses, and is not revenue that can be used for purposes other than PDM.

4.2.5.7 Impacts on SMAs

Impacts on SMAs under this alternative would be similar to the current program, Alternative 1. There may be a slight increase to work in SMAs such as Wilderness to protect some big game, however, the increased program presence would not affect SMAs for the reasons discussed under section 4.2.1.7.

4.2.5.8 Indirect and Cumulative Impacts

This alternative would not be likely to result in a net increase in NWSP size, an increase in target animal take, or any new methods. Some program losses to the livestock protection sector would likely be diminished by county and State budgetary constraints, while the balance would probably be made up by increased emphasis to protect big game and sage grouse. Indirect effects on prey (game species) and effects on recreation (both consumptive and non-consumptive), would be expected to be positive by removing predators when NDOW has determined that they are limiting game populations.

4.3 SUMMARY AND CONCLUSION

The current program, Alternative 1, and the proposed program, Alternative 5, provide the lowest overall negative environmental consequences combined with the highest positive effects and benefits (cost effectiveness, reduced losses). Impacts associated with activities under consideration here are not expected to be "significant." Based on experience, impacts of the PDM methods and strategies considered in this document are very limited in nature. The addition of those impacts to others associated with past, present, and reasonably foreseeable future actions, as described in the ADC FEIS (USDA 1997, revised), USDA (1999), USDA (2004), and herein, would not result in cumulatively significant environmental impacts. Monitoring the impacts of the program on the populations of both target and non-target species will continue. All predator control activities that may take place will comply with relevant laws, regulations, policies, orders, and procedures, including the Endangered Species Act, Migratory Bird Treaty Act, and Federal Insecticide, Fungicide, and Rodenticide Act. The environmental consequences of

each alternative as discussed in this document are summarized and compared in Table 18.

Table 18. A summary of the environmental consequences of each program alternative relative to each issue.

Table 18. Summary of Environmental Consequences					
Issues/	Alternative 1 Current Program	Alternative 2 No Federal Program	Alternative 3 Nonlethal	Alternative 4 Nonlethal before Lethal	Alternative 5 Proposed Action
Impacts on Target Species Populations	Well below sustainable harvest levels, including cumulative effects.	NWSP would have no effect on target species. NDRP may increase efforts but would not replace NWSP. Impact of private actions to resolve damages is likely to have increased negative consequences. Additionally, if NWSP was not conducting the work, NDOW, by Nevada Revised Statue and Nevada Administrative Codes would still be required to perform PDM (See appendix C).	Effects likely to be similar to Alternative 2 since non-lethal methods that are not effective would likely result in lethal controls implemented by others. Additionally, if NWSP was not conducting the work, NDOW, by Nevada Revised Statue and Nevada Administrative Codes would still be required to perform PDM (See appendix C).	More animals would be removed but the total would be below sustainable harvest levels, including cumulative effects	Similar to Alternative 1 since focus would shift slightly from livestock protection to game protection. Overall program effort and effects on target species would be similar.

Table 18. Summary of Environmental Consequences					
Issues/	Alternative 1 Current Program	Alternative 2 No Federal Program	Alternative 3 Nonlethal	Alternative 4 Nonlethal before Lethal	Alternative 5 Proposed Action
Non-target Species	Low negative impact on other non-target species.	NWSP would have no negative effects on non-target species populations. Depending upon who implements predation damage controls, the actions of others in the absence of a federal program is likely to have a higher negative effect on non-target species.	Similar to Alt. 2.	Likely to be similar to Alt. 1	Similar to Alt. 1 with benefits to big game from predation control.
T/E Species	Not likely to adversely affect threatened and endangered species. Ongoing coordination with USFWS and NDOW will ensure the program would not jeopardize the continued existence of any threatened or endangered species.	NWSP would have no effect. NDRP may increase efforts but would not replace NWSP. The uncoordinated and unprofessional actions of others in the absence of a government assistance program are likely to have a higher negative effect on T&E species.	Similar to Alt. 2	Likely to be similar to the Alt. 1	Similar to Alt. 1.
Humaneness/Ethical Perspectives	Public perceptions vary by method, familiarity with the tools, and by their	NWSP would have no effect. NDRP may increase efforts but would not replace	Similar to Alt. 2. Preferred by some groups and individuals opposed	Similar to Current Program. Some individuals prefer that non-lethal methods	Similar to Alternative 1. Some individuals may oppose PDM to protect game species.

Table 18. Summary of Environmental Consequences					
Issues/	Alternative 1 Current Program	Alternative 2 No Federal Program	Alternative 3 Nonlethal	Alternative 4 Nonlethal before Lethal	Alternative 5 Proposed Action
	relationship to the natural world and to resources protected WS uses selective control techniques that reduce unnecessary pain and death.	NWSP. This is the least humane of the alternatives due to actions of untrained private individuals that would likely implement damage control measures in absence of professional assistance. Domestic animals (livestock and pets) would be likely to experience increased predation effects.	to lethal control.	always be used first, and that lethal methods only be used as a last resort.	
Aerial Hunting	Not considered to be significant on non-target animals, the public, or the environment.	Not Applicable	Not Applicable	Similar to Alternative 1.	Similar to Alternative 1.
Recreation	No notable effects. Coordination with land management agencies ensures minimum effects on recreational users.	APHIS-WS would have no effect. Impact of individuals resolving damages in the absence of the NWSP may have negative effects to recreationists and pets.	Similar to Alt. 2 since resource owners may implement their own PDM in the absence of professional assistance.	Similar to Alternative 1.	Similar to Alternative 1.

Table 18. Summary of Environmental Consequences					
Issues/	Alternative 1 Current Program	Alternative 2 No Federal Program	Alternative 3 Nonlethal	Alternative 4 Nonlethal before Lethal	Alternative 5 Proposed Action
Public safety	Low risk to public safety due to procedures built into the NWSP program that minimize the potential for public exposure to dangerous tools.	APHIS-WS would have no effect. NDRP may increase efforts but would not replace NWSP. Potential for higher negative impact from individuals that may improperly use toxicants or other tools to resolve wildlife damage.	Similar to Alt. 2	Similar to Alternative 1.	Similar to Alternative 1.
Cost Effectiveness	Positive benefit to cost ratios repeatedly demonstrated.	Not applicable. Resource losses likely to be higher.	Low where non-lethal methods are ineffective.	Moderate due to losses incurred while ineffective or inadequate non-lethal controls are being implemented, thus delaying the effective use of lethal measures.	Positive benefits expected, similar to Alt 1.
Special Management Areas	Coordination with land management agencies, minimal disturbance effects and minimal work performed in SMAs ensures no notable effects on SMAs.	No effect. Potential for negative effects where individuals implement actions to protect livestock grazing on SMAs.	No notable effects, similar to Alternative 1.	No notable effects, similar to Alternative 1.	No notable effects, similar to Alternative 1.

Table 18. Summary of Environmental Consequences					
Issues/	Alternative 1 Current Program	Alternative 2 No Federal Program	Alternative 3 Nonlethal	Alternative 4 Nonlethal before Lethal	Alternative 5 Proposed Action
Cumulative Impact	Species populations would not be negatively affected.	No effect by NWSP. NDRP may increase efforts but would not replace NWSP. The uncoordinated and unprofessional actions of individual resource owners/managers has the highest potential for negative environmental consequences.	Increased potential for negative effects over that of the current program due to the actions of others in the absence of effective professional assistance (where non-lethal methods are not effective).	Similar to Alternative 1.	Similar to Alternative 1.
Indirect Impacts	No notable negative effects. Benefits to game species	Unlikely effects.	No negative effects	Similar to Alternative 1.	Similar to Alternative 1.

The Proposed Action Alternative is likely to have the lowest cumulative effect on target species since a professional program with federal oversight and research programs would be expected to remove only those individuals or groups of depredate animals after non-lethal options have been determined to be ineffective or impractical. Alternatives that inhibit NWSP would be likely to draw upon other public agencies, such as NDRP, or private professional pest control operators, but probably also individuals with lesser skills or experience in wildlife damage management would be likely to take action and would not be expected to be as selective for target animals. For similar reasons, the non-target species affected would be expected to be the lowest under the Proposed Action and the Current Program Alternatives. The humane treatment of animals is likely to be highest under these two alternatives, according to perspectives of wildlife professionals, but perhaps not viewed as such by some members of the public who are opposed to predator damage management. The Proposed and Current Program Alternatives are likely to be effective in resolving damages.

Under the No Federal Program Alternative NWSP would have no impact on the issues evaluated. This alternative would likely result in the greatest negative environmental impact when professional and accountable assistance is not available.

The Non-lethal Methods Only Alternative could affect APHIS-WS' ability to quickly address wildlife threats and damage problems by limiting control actions that could be used. Continued or increased threats to agricultural producers, property owners, and human safety would be likely to occur due to the restrictions placed on this management program. The No Federal Program and Non-lethal Methods only alternative would, to varying degrees, not allow NSP to respond to wildlife threats quickly or adequately. These alternatives do not fully support the APHIS-WS Directive 2.101, which addresses APHIS-WS policy for applying Integrated Wildlife Damage Management. However, components of the restricted methods alternative would be preferred since lethal methods are considered only when non lethal methods have been determined by the wildlife professional to be either ineffective, inhumane, not biologically sound, or not economically feasible.

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APPENDIX A

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APPENDIX B WILDLIFE SERVICES WILDLIFE DAMAGE MANAGEMENT METHODS

Description of Methods

A variety of methods are used by U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (WS) including personnel from the Nevada Division of Resource Protection (NDRP), collectively the Nevada Wildlife Services Program (NWSP), in wildlife damage management. Control strategies are based on applied Integrated Wildlife Damage Management (IWDM) principles. NWSP employs three general strategies for control of wildlife damage: resource management, physical exclusion, and wildlife management. Each of these approaches is a general strategy or recommendation for addressing wildlife damage situations. Within each approach there are available a number of specific methods or tactics. Selection of the appropriate approach and method is the result of the WS decision making process outlined in the 1997 WS Final Environmental Impact Statement (FEIS), Chapter 2. Mechanical methods generally are used and recommended in preference to chemical pesticides. No pesticide is used or recommended if it is likely to adversely affect fish, wildlife, food safety, or other components of the natural environment.

Various Federal, State, and local statutes and regulations as well as WS Directives govern the use of control tools and substances. The following basic wildlife damage control methods and materials are used or recommended in the direct - control and technical assistance efforts of NWSP.

- Resource Management

- Animal Husbandry
 - Habitat Management
 - Modification of Human Behavior

- Physical Exclusion

- Fencing
 - Sheathing (hardware cloth, solid metal, chain link)
 - Tree Protectors, Barriers, Netting, Wire Grids, Porcupine Wire (Nixalite), and Other Methods

- Wildlife Management

- Habitat Management
 - Frightening Devices
 - Chemical Repellents
 - Capture Methods
 - Chemical Toxicants

The methods listed above all have limitations which are defined by the circumstances associated with individual wildlife damage problems. When NWSP specialists receive a request for assistance, they consider a wide range of limitations as they apply the decision making process described in the 1997 FEIS, Chapter 2, to determine what method(s) to use to - resolve a wildlife damage problem. Examples of limitations which must be considered and criteria to evaluate various methods are presented in the 1997 FEIS, Appendix N and in the following discussions.

Resource Management

Resource management includes a variety of practices that may be used by agriculture producers to reduce their exposure to potential wildlife depredation losses. Implementation of these practices is appropriate when the potential for depredation can be reduced without significantly increasing the cost of production or diminishing the resource owner's ability to achieve land management and production goals. Changes in resource management are recommended through the technical assistance extended to producers when the change appears to present a continuing means of averting losses.

Animal Husbandry. This general category includes modifications in the level of care and attention given to livestock, shifts in the timing of breeding and births, selection of less vulnerable livestock species to be produced, and the introduction of human custodians or guarding animals to protect livestock.

The level of care or attention given to livestock may range from daily to seasonal. Generally, as the frequency and intensity of livestock handling increase, so does the degree of protection. In operations where livestock are left unattended for extended periods, the risk of depredation is greatest. The risk of depredation can be reduced when operations permit nightly gathering so livestock are unavailable during the hours when predators are most active. Additionally, the risk of depredation is usually greatest with immature livestock. This risk diminishes as age and size increase and can be minimized by holding expectant females in pens or sheds to protect births and by holding newborn livestock in pens for the first 2 weeks. Shifts in breeding schedules can also reduce the risk of depredation by altering the timing of births to coincide with the greatest availability of natural prey to predators or to avoid seasonal concentrations of migrating predators such as golden eagles.

The use of human custodians and guarding animals can also provide significant protection in some instances. The presence of herders to accompany bands of sheep on open range may help ward off predators. Guard animals have also proven successful in many sheep and goat operations.

Altering animal husbandry to reduce wildlife damage has many limitations. Nightly gathering may not be possible where livestock are in many fenced pastures and where grazing conditions require livestock to scatter. Hiring extra herders, building secure holding pens, and adjusting the timing of births is usually expensive. The timing of births may be related to weather or seasonal marketing of young livestock. The expense associated with a change in husbandry practice may exceed the savings.

The supply of proven guarding dogs is generally quite limited, requiring that most people purchase and rear a pup. Therefore, there is usually a 4-to-8 month period of time necessary to raise a guarding dog before it becomes an effective deterrent to predators. Since 25 to 30 percent of dogs are not successful, there is a reasonable chance that the first dog raised as a protector will not be useful. The effectiveness of guarding dogs may not be sufficient in areas where there is a high density of predators, where livestock widely scatter in order to forage, or where dog-to-livestock ratios are less than recommended. Also, guarding dogs often harass and kill non-target wildlife.

Habitat Management. Change in the architectural design of a building or a public space can often help to avoid potential wildlife damage. For example, selecting species of trees and shrubs that are not attractive to wildlife can reduce the likelihood of potential wildlife damage to parks, public spaces, or residential areas. Similarly, incorporating spaces or open areas into Landscape designs

that expose wildlife can significantly reduce potential problems. Modifying public spaces to remove the potential for wildlife conflicts is often impractical because of economics or the presence of other nearby habitat features that attract wildlife.

Predators are more likely to be successful if the area is conducive to ambush or allows the predator to approach the prey species under the cover of dense brush. Removal or thinning of the brush can discourage predator activity. Also, opening the area allows for better monitoring of the area and also increases the value of shooting.

Predatory birds utilize trees and poles and the removal or modification of these items will often reduce the attractiveness of the area to predatory birds.

Modification of Human Behavior. NWSP may recommend alteration of human behavior to resolve potential conflicts between humans and wildlife. For example, NWSP may recommend the elimination of feeding of wildlife that occurs in parks, forest, or residential areas. This includes inadvertent feeding allowed by improper disposal of garbage. Many wildlife species adapt well to human settlements and activities, but their proximity to humans may result in damage to structures or threats to public health and safety. Eliminating wildlife feeding and handling can reduce potential problems, but many people who are not directly affected by problems caused by wildlife enjoy wild animals and engage in activities that encourage their presence. It is difficult to consistently enforce no-feeding regulations and to effectively educate all people concerning the potential liabilities of feeding wildlife.

Physical Exclusion

Physical exclusion methods restrict the access of wildlife to resources. These methods, (including fences, sheathing, netting, porcupine wire, and wire grids) provide a means of appropriate and effective prevention of wildlife damage in many situations. Physical exclusion methods used or recommended by NWSP are described in the following section.

Fencing. Fences are widely used to prevent damage. Predator exclusion fences constructed of woven wire or multiple strands of electrified wire are also effective in some areas, but fencing does have limitations. Even an electrified fence is not predator proof and the expense exceeds the benefit in most cases. If large areas are fenced, the predators have to be removed from the enclosed area to make it useful. Some fences inadvertently trap, catch or affect the movement of non-target wildlife. It is not uncommon for coyotes to use fences to trap deer or antelope. Lastly, fencing is not practical or legal in some areas (e.g., restricting access to public land).

Sheathing. Sheathing consists of using hardware cloth, solid metal flashing, or other materials to protect trees from predators or to block entrances to gardens, fish ponds, dwellings, or other areas. Tree protectors are most often used as protection from bears, beavers, or porcupines. Entrance barricades of various kinds are used to exclude bobcats, coyotes, foxes, opossums, raccoons, skunks, or starlings from dwellings, storage areas, gardens, or other areas. Metal flashing may be used to prevent entry of small rodents to buildings. Sheathing may be impractical where there are numerous plants to protect.

Tree Protectors, Barriers, Netting, Wire Grids, and Other Methods. Netting consists of placing plastic or wire nets around livestock pens, fish ponds, or agricultural areas. Netting is used to exclude a variety of birds and mammals from poultry operations and other areas requiring exclusion

of animals. Two types of physical barriers frequently used to protect fish from foraging birds are (1) complete enclosure of ponds and raceways with screen or net and (2) partial exclusion using overhead wires, lines, net, or screen. Complete enclosures are costly but effectively exclude all problem birds. Partial enclosures, such as overhead lines, cost less but may not exclude all bird species. Selection of a barrier system depends on the bird species and expected duration of damage, size of facility, compatibility of the barrier with other operations (e.g., feeding, cleaning, harvesting, etc.), possible damage from severe weather, and effect on site aesthetics. Complete enclosure of ponds and raceways to exclude all fish-eating birds requires 1.5- to 2-inch mesh netting secured to frames or supported by overhead wires. Gates and other openings must also be covered. Some hatchery operators use mesh panels placed directly on raceways to effectively exclude predatory birds. Small mesh netting or wire with less than 1-inch openings, secured to wood or pipe frames, prevents feeding through the panels. Because the panels may interfere with feeding, cleaning, or harvesting operations, they are most appropriate for seasonal or temporary protection.

Ponds or raceways can be protected with overhead wires or braided or monofilament lines suspended horizontally in one direction or in a crossing pattern. Spacing between wires or lines should be based on the species and habits of the birds causing damage.

Perimeter fencing or wire around ponds and raceways provides some protection from wading birds and is most effective for herons. For ponds, fencing at least 3 feet high should be erected in water 2 to 3 feet deep. Small mesh can be used to prevent fish from entering the shallow water. If fences are built in shallow water, birds can easily feed on the pond side of the fence. Raceway fences should be high enough to prevent feeding from the wall. Occasionally, blackbirds will cling to fencing or screening near the water and feed on small fish. A slippery surface created by draping plastic over the fence or screen can be used to eliminate this problem. Electric fences or wires have also been used with limited success. Some areas in need of protection are too large to be protected with netting or overhead wires. This type of exclusion can make routine work around ponds and - hatcheries difficult or impossible.

Wildlife Management

Controlling wildlife damage through wildlife management is achieved through the use of a myriad of techniques. The objective of this approach is to alter the behavior of the target animal to eliminate or reduce the potential for loss or damage to property.

Habitat Management. Just as habitat management is an integral part of other wildlife management programs, it also plays an important role in wildlife damage control. The type, quality, and quantity of habitat are directly related to the wildlife that are produced. Therefore, habitat can be managed to not produce or attract certain wildlife species. Most habitat management methods for IWDM are used by NWSP at airports to reduce bird aircraft strike problems, in winter roosts to reduce problems associated with large numbers of blackbirds and European starlings, and in orchards and crops to control field rodent populations. Habitat management around airports is aimed at eliminating nesting, roosting, loafing, or feeding sites. Generally, many predator problems on airport grounds can be minimized through management of vegetation (grass, shrubs, brush, and trees) and water from runway areas, because the presence of an attractive prey species is reduced or eliminated.

Limitations of habitat management as a method of controlling wildlife damage are determined by the characteristics of the species involved, the nature of the damage, economic feasibility, and other factors. Also, legal constraints may exist which preclude altering particular habitats.

Frightening Devices. The success of frightening methods depends on animals' fear of, and subsequent aversion to offensive stimuli. Once animals become habituated to a stimulus, they often resume their damaging activities. Persistent effort is usually required to consistently apply frightening techniques and then vary them sufficiently to prolong their effectiveness. Over time, some animals learn to ignore commonly used scare tactics. In many cases animals frightened from one location become a problem at another. The effects of frightening devices on non-target wildlife need to be considered. For example, sensitive birds may be disturbed or frightened from nesting sites.

Electronic Distress Sounds. Distress and alarm calls of various animals have been used singly and in conjunction with other scaring devices to successfully scare or harass animals. Many of these sounds are available on records and tapes. Calls should be played back to the animals from either fixed or mobile equipment in the immediate or surrounding area of the problem. Animals react differently to distress calls; their use depends on the species and the problem. Calls may be played for short (few second) bursts, for longer periods, or even continually, depending on the severity of damage and relative effectiveness of different treatment or “playing” times. Some artificially created sounds also repel birds in the same manner as recorded “natural” distress calls.

Propane Exploders. Propane exploders operate on propane gas and are designed to produce loud explosions at controllable intervals. They are strategically located (elevated above the vegetation, if possible) in areas of high wildlife use to frighten wildlife from the problem site. Because animals are known to habituate to sounds, exploders must be moved frequently and used in conjunction with other scare devices. Exploders can be left in an area after dispersal is complete to discourage animals from returning.

Pyrotechnics. Double shotgun shells, known as shell crackers or scare cartridges, are 12-gauge shotgun shells containing a firecracker that is projected up to 75 yards in the air before exploding. They can be used to frighten birds or mammals but are most often used to prevent crop depredation by birds or to discourage birds from undesirable roost locations. The shells should be fired so they explode in front of, or underneath, flocks of birds attempting to enter crop fields or roosts. The purpose is to produce an explosion between the birds and their objective. Birds already in a crop field can be frightened from the field; however, it is extremely difficult to disperse birds that have already settled in a roost.

Noise bombs, whistle bombs, racket bombs, and rocket bombs are fired from 15 millimeter flare pistols. They are used similarly to shell-crackers but are projected for shorter distances. Noise bombs (also called bird bombs) are firecrackers that travel about 75 feet before exploding. Whistle bombs are similar to noise bombs, but whistle in flight and do not explode. They produce a noticeable response because of the trail of smoke and fire, as well as the whistling sound. Racket bombs make a screaming noise in flight and do not explode. Rocket bombs are similar to noise bombs but may travel up to 150 yards before exploding.

A variety of other pyrotechnic devices, including firecrackers, rockets, and Roman candles, are used for dispersing animals. Firecrackers can be inserted in slow-burning fuse ropes to control the timing of each explosion. The interval between explosions is determined by the rate at which the rope burns and the spacing between firecrackers.

Lights. A variety of lights, including strobe, barricade, and revolving units, are used with mixed results to frighten predators. Brilliant lights, similar to those used on aircraft, are most effective in frightening night-feeding birds and mammals. These extremely bright-flashing lights have a blinding effect, causing confusion that reduces the predator's ability to locate the prey.

Flashing amber barricade lights, like those used at construction sites, and revolving or moving lights may also frighten predators when these units are placed on raceway walls, fish pond banks, or ingress corridors. However, most predators rapidly become accustomed to such lights and their long-term effectiveness is questionable. In general, the type of light, the number of units, and their location are determined by the size of the area to be protected and by the power source available.

Water Spray Devices. Water sprays from rotating sprinklers placed at strategic locations in or around ponds or raceways will repel certain predatory birds, particularly gulls. However, individual birds may become accustomed to the spray and feed among the sprinklers. Best results are obtained when high water pressure is used and the sprinklers are operated with an on-off cycle. The sudden startup noise also helps frighten the predatory birds.

Harassment. Scaring and harassment techniques to frighten animals are probably the oldest methods of combating wildlife damage. A number of sophisticated techniques have been developed to scare or harass wildlife from an area. The use of noise-making devices is the most popular and commonly used; however, other methods, including aerial hazing and visual stimuli, are also used. Harassment using vehicles, people, falcons or dogs is used to frighten predators or birds from the immediate vicinity. Boats, planes, automobiles, and all-terrain vehicles are used as harassment methods. As with other wildlife damage control efforts, these techniques tend to be more effective when used collectively in a varied regime rather than individually. However, the continued success of these methods frequently requires reinforcement by limited shooting (see Shooting).

Other Scaring Devices. The Electronic Guard, a portable unit that houses a strobe light and siren has been developed by the Denver Wildlife Research Center and is produced by the Pocatello Supply Depot. In certain situations, this device has been used successfully to reduce coyote depredation on sheep. The device activates automatically at nightfall and is programmed to discharge periodically throughout the night. The technique has proven most successful when used at "bedding grounds" where sheep gather to sleep for the night.

Chemical Repellents. Chemical repellents are compounds that prevent consumption of food items or use of an area. They operate by producing an undesirable taste, odor, feel, or behavior pattern. Effective and practical chemical repellents should be nonhazardous to wildlife; nontoxic to plants, seeds, and humans; resistant to weathering; easily applied; reasonably priced; and capable of providing good repelling qualities. The reaction of different animals to a single chemical formulation varies, and for any species there may be variations in repellency between different habitat

types. Lithium chloride and capsicum derivatives have been examined as mammalian predator repellents, but no successful application has yet been found. Methyl anthranilate is an avian repellent that shows some favorable results. Development of chemical repellents is expensive and cost prohibitive in many situations. Chemical repellents are strictly regulated, and suitable repellents are not available for many wildlife species or wildlife damage situations.

Capture Methods

Leghold Traps. Leghold traps are used to capture animals such as the coyote and bobcat. These traps are the most versatile and widely used tool for capturing these species. The leghold trap can be set under a wide variety of conditions but can be difficult to keep in operation during rain, snow, or freezing weather. When placed without baits in the travel lanes of target animals, leghold traps are known as “trail sets.” More frequently, traps are placed as “baited sets,” meaning that they are used with a bait consisting of the animal's preferred food or some other lure, such as fetid meat, urine, or musk, to attract the animal. In some situations a “draw station,” such as a carcass or large piece of meat, is used to attract target animals. In this approach, one to several traps are placed in the vicinity of the draw station. WS program policy prohibits placement of traps closer than 30 feet to the draw station. This provides protection to scavenging birds.

Before leghold traps are employed, their limitations must be considered. Injury to target and non-target animals, including livestock, may occur. Weather and the skill of the user will often determine the success or failure of the leghold trap in preventing or stopping wildlife damage. Various tension devices can be used to prevent animals smaller than target animals from springing the trap. Effective trap placement also contributes to trap selectivity; however, livestock and non-target animals may still be captured. These traps usually permit the release of non-target animals.

Cage Traps. A variety of cage traps are used in different wildlife damage control efforts. The most commonly known cage traps used in the current program are box traps. Box traps are usually rectangular, made from wood or heavy gauge mesh wire. These traps are used to capture animals alive and can often be used where many lethal or more dangerous tools would be too hazardous. Box traps are well suited for use in residential areas.

Cage traps usually work best when baited with foods attractive to the target animal. They are used to capture animals ranging in size from mice to deer, but are usually impractical in capturing most large animals. They are virtually ineffective for coyotes; however, large cage traps work well to capture bears and have shown promise for capturing mountain lions, provided the traps can be transported by vehicle to the control sites.

Large decoy traps, modeled after the Australian crow trap, are used to capture crows, ravens, gulls, and vultures. They are large screen enclosures with the access modified to suit the target species. A few live birds are maintained in the baited trap to attract birds of the same species and, as such, act as decoys. Non-target species are released unharmed.

There are some animals that avoid cage traps and others that become “trap happy” and purposely get captured to eat the bait, making the trap unavailable to catch other animals. Cage traps must be checked frequently to ensure that captured animals are not subjected to

extreme environmental conditions. Some animals fight to escape from cage traps and become injured.

Snares. Snares made of wire or cable are among the oldest existing control tools. They can be used effectively to catch most species but are most frequently used to capture coyotes, beaver, and bears. They have limited application but are effective when used under proper conditions. They are much lighter and easier to use than leghold traps and are not generally affected by inclement weather.

Snares may be employed as either lethal or live-capture devices depending on how and where they are set. Snares set to capture an animal by the neck are usually lethal but stops can be applied to the cable to make the snare a live capture device. Snares positioned to capture the animal around the body can be useful live-capture devices. Also, most snares incorporate a breakaway feature to release non-target wildlife and livestock. These snares can be effectively used wherever a target animal moves through a restricted lane of travel (i.e., “crawls” under fences, trails through vegetation, or den entrances). When an animal moves forward into the loop formed by the cable, the noose tightens and the animal is held.

The foot or leg snare is a spring-powered nonlethal device, activated when an animal places its foot on the trigger. Foot snares are used effectively to capture black bears. In some situations using snares to capture wildlife is impractical due to the behavior or animal morphology of the animal, or the location of many wildlife conflicts. Snares must be set in locations where the likelihood of capturing non-target animals is minimized.

The catch-pole snare is used to capture or safely handle problem animals. This device consists of a hollow pipe with an internal cable or rope that forms an adjustable noose at one end. The free end of the cable or rope extends through a locking mechanism on the end opposite of the noose. By pulling on the free end of the cable or rope, the size of the noose is reduced sufficiently to hold an animal. Catch poles are used primarily to remove live animals from traps without danger to or from the captured animal.

Quick-Kill Traps. A number of specialized “quick-kill” traps are used in wildlife damage control work. They include Conibear, snap, gopher, and mole traps. Some quick-kill traps are potentially dangerous to people and cannot be used in populated areas. Quick-kill traps are available only for a limited number of species. Conibear traps are used mostly in shallow water or underwater to capture muskrat, nutria, and beaver. The Conibear consists of a pair of rectangular wire frames that close like scissors when triggered, killing the captured animal with a quick body blow. Conibear traps have the added features of being lightweight and easily set.

Denning. Denning is the practice of seeking out the dens of depredating coyotes or red fox and destroying the young, adults, or both to stop or prevent depredations on livestock. Denning is used in coyote damage control efforts primarily in the western States. The usefulness of denning as a damage control method is limited because coyote dens are difficult to locate in many parts of the country and den use is restricted to approximately 2 to 3 months during the spring.

Coyote depredations on livestock and poultry often increase in the spring and early summer because of the increased food requirements caused by the need to feed pups. The removal of pups will often stop depredations even though the adults are not taken. When the adults are taken it is customary to kill the pups to prevent their starvation. In this method, pups are removed from dens by excavation and then shot, or they are killed in the den with a registered fumigant. Denning is highly selective for the target species and family groups responsible for damage. Den hunting for adult coyotes and their young is often combined with calling and shooting. Denning can be labor intensive with no guarantee of finding the den of the target animal.

Shooting. Shooting is used selectively for target species but may be relatively expensive because of the staff hours sometimes required. Nevertheless, shooting is an essential control method. Removal of urban coyotes may be achieved by night shooting because urban wildlife are primarily active at that time. Many airports have perimeter fences for security purposes that also confine resident wildlife populations. The wildlife frequently stray onto active runways and pose a significant threat to aircraft. Removal of these troublesome wildlife may be effectively achieved by shooting.

Lethal reinforcement through shooting is often necessary to ensure the continued success in bird scaring and harassment efforts (see the discussion on shooting under Modification of Human Behavior). This is especially important where predatory birds are drawn to birthing grounds, aquaculture facilities, sanitary landfills, and other locations where food is readily available. In situations where the feeding instinct is strong, most birds quickly adapt to scaring and harassment efforts unless the control program is periodically supplemented by shooting.

Shooting is frequently performed in conjunction with calling particular predators such as coyotes, bobcats, and fox. Trap-wise coyotes are often vulnerable to calling. Shooting is limited to locations where it is legal and safe to discharge firearms. Shooting may be ineffective for controlling damage by some species and may actually be detrimental to control efforts.

Aerial Shooting. Shooting from aircraft, or aerial hunting, is a commonly used coyote damage control method. Aerial hunting is species-selective and can be used for immediate control where livestock losses are severe if weather, terrain, and cover conditions are favorable. Aerial hunting can be effective in removing offending coyotes that have become “bait-shy” or are not susceptible to calling and shooting. Local depredation problems can often be quickly resolved by the use of aerial hunting.

Fixed-wing aircraft are useful for aerial hunting over flat and gently rolling terrain. Because of their maneuverability, helicopters have greater utility and are safer over timbered areas, or broken land where animals are more difficult to spot. In broken timber or deciduous ground cover, aerial hunting is more effective in winter when snow cover improves visibility.

NWSP aircraft-use policy helps ensure that aerial hunting is conducted in a safe and environmentally sound manner, in accordance with federal and State laws. Pilots and aircraft must be certified under established NWSP procedures. Only properly trained NWSP employees are approved as gunners.

Hunting Dogs. Dogs are essential to successful hunting of mountain lion and bear. Dogs trained for coyote denning are also valuable in luring adult coyotes to be shot. Trained dogs are used primarily to locate, pursue, or decoy animals. Training and maintaining suitable dogs requires considerable skill, effort, and expense and, therefore, a sufficient need for dogs must exist to make the effort worthwhile.

Egg, Nest, and Hatchling Removal and Destruction. Nesting populations of cattle egrets and gulls, especially if located near airports, may pose a threat to public health and safety, as well as equipment. Pigeons and starlings can also cause extensive damage to public facilities. Egg and nest destruction is used mainly to control or limit the growth of a nesting population in a specific area through limiting reproduction of offspring or removal of nest to other locations. Egg and nest destruction is practiced by manual removal of the eggs or nest.

This method is practical only during a relatively short time interval and requires skill to properly identify the eggs and hatchlings of target species. Some species may persist in nesting and the laying of eggs, making this method ineffective.

Chemical Immobilizing and Euthanizing Agents. Several NWSP Specialists are trained and certified to use drugs for capturing or euthanizing wildlife. Drugs such as ketamine hydrochloride and alpha-chloralose are used as immobilizing agents. Drugs such as sodium phenobarbital are used for euthanasia. Most drugs fall under restricted-use categories and must be used under the appropriate license. For example, alpha-chloralose is an immobilizing agent used to capture and remove nuisance waterfowl and other birds (e.g., pigeons, gulls, etc.). It is typically used in recreational and residential areas, such as swimming pools, shoreline residential areas, golf courses, or resorts. Single bread or corn baits are fed directly to the target waterfowl, while corn baits are placed in feeding areas to capture pigeons. NWSP personnel are present at the site of application during baiting to retrieve the immobilized birds. Unconsumed baits are removed from the site following each treatment.

Chemical Toxicants. Several toxic chemicals have been developed to control wildlife damage and are widely used because of their efficiency. Toxicants are generally not species specific, and their use may be hazardous unless used with care by knowledgeable personnel. The proper placement, size, type of bait, and time of year are keys to selectivity and successful control. Development of appropriate toxicants is expensive, and the path to a suitable end product is filled with legal and administrative hurdles. Few private companies are inclined to undertake such a venture. Most chemicals are aimed at a specific target species, and suitable chemicals are not available for most animals. Available delivery systems make the use of chemical toxicants unsuitable in many wildlife damage situations. This section describes the chemical toxicants used currently by NWSP.

Sodium cyanide is used in the M-44 device, a spring-activated ejector device developed specifically to kill coyotes and other canine predators. The M-44 device consists of a capsule holder wrapped with fur, cloth, or wool; a capsule containing 0.8 gram of powdered sodium cyanide; an ejector mechanism; and a 5- to 7-inch hollow stake. The hollow stake is driven into the ground, the ejector unit is chocked and placed in the stake, and the capsule holder containing the cyanide capsule is screwed onto the ejector unit. A fetid meat bait is spread on the capsule holder. An animal attracted by the bait will try to pick up or pull the baited capsule holder. When the M-44 device is pulled, a spring-activated plunger propels sodium cyanide into the animal's mouth.

Fumigants or gases used to control burrowing wildlife are efficient but often expensive. Fumigants are only used in rodent burrows and predator dens. The WS' Pocatello Supply Depot manufactures denning cartridges especially formulated for fumigation of dens and burrows. The cartridges are placed in the active burrows of target animals, the fuse is lit, and the entrance is then tightly sealed with soil. The burning cartridge causes death by oxygen depletion and carbon monoxide poisoning.

EPA Label Gas Cartridge (EPA Reg. No. 56228-21)

EPA Label M-44 (EPA Reg. No. 56228-15)

EPA Label LPC (EPA Reg. No. 56228-22)

DRC-1339 concentrate is used effectively in hard-boiled eggs to control raven damage under several State-specific registrations for the protection of livestock and certain endangered species. It is also registered for application on various materials, such as grain, meat baits, sandwich bread, and cull French fries to control pigeons, gulls, crows, ravens, blackbirds, and starlings. DRC-1339 concentrate is only available for use in Nevada under NWSP supervision

LETTER FROM THE NEVADA DEPARTMENT OF WILDLIFE

RECEIVED OCT 29 2010



JIM GIBBONS
Governor

STATE OF NEVADA
DEPARTMENT OF WILDLIFE

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KENNETH E. MAYER
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October 28, 2010

Mr. Mark Jensen, State Director
USDA-APHIS-Wildlife Services
8775 Technology Way
Reno, NV 89521

Re: Assessment of Impact to Wildlife in Nevada by USDA-APHIS-Wildlife Services

Dear Mr. Jensen:

The Nevada Board of Wildlife Commissioners and the Nevada Department of Wildlife (NDOW) were given management authority over mountain lions and most other wildlife species by Nevada State law (Nevada Revised Statute (NRS) 501.100, 501.181, 501.331) which was passed via the State's system of representative government. Under this authority, the Board of Wildlife Commissioners and NDOW are charged with the management of wildlife. A diversity of human values and biological facts help guide these entities to a management strategy that preserves wildlife as a contributing member of the fauna of the State of Nevada, but also recognizes public safety issues, economic factors, and recreation values.

NDOW is responsible by State statute (NRS 503.595) for controlling wildlife causing damage to personal property or endangering personal safety. A protocol established by NDOW and approved by the Board of Wildlife Commissioners sets forth policies and procedures to be followed in controlling and preventing wildlife damage and addressing public safety issues. In carrying out these policies where wildlife/human interactions are involved, NDOW has the discretion to choose the most applicable management action, following guidelines outlined within the policy.

In order to comply with this responsibility, NDOW utilizes USDA-APHIS-Wildlife Services (WS) to control offending wildlife which are causing, or about to cause, damage to livestock, wildlife resources, agricultural crops, or personal property and to protect the public from dangerous animals when it is warranted and as authorized by Nevada Administrative Code (NAC) (NAC 503.710 thru 503.740 inclusive).

Without WS participation, NDOW would, by statute, carry out the management of wildlife with existing personnel or contract the work to other capable entities.

Sincerely,


Kenneth E. Mayer
Director

Appendix A -- Quality Assurance Checklist

Mitigation in Standard Operating Procedures (SOPs)

- X** NWSP activities are consistent with WS mitigation and measures, and comply with guidance established from USFS LRMPs and BLM RMPs and Interim Management Guidelines for Wilderness Study Areas (WSA).

- X** National MOUs with the BLM and USFS delineate expectations for PDM on public lands administered by these agencies. NWSP work plans are developed in coordination with BLM Field Offices and USFS NFs. Work plans detail activities, target species, and mitigation measures to be implemented on allotments where PDM is needed. This ensures that NWSP is aware of and avoids impacts on recreational and cultural resources, hunting, sensitive species, wildlife viewing and other land uses.

- X** NWSP coordinates with Tribal officials for work on Tribal lands to identify and resolve any issues of concern to Indian Tribes.

- X** The use of PDM methods such as traps and snares conform to current rules and regulations administered by NDOW.

WS and NVSP Mitigation Measures Specific to the Issues

The following is a summary of mitigation measures that are specific to the issues listed in the 1999 EA and 2004 Amendment.

Effects on Target Predator Species Populations

- X** PDM is directed toward localized populations or individual offending animals, depending on the species and magnitude of the problem, and not an attempt to eradicate populations in the entire area or region.

- X** NWSP Specialists use trap lures and set traps in locations that are conducive to capturing the target animal.

- X NWSP kill is monitored by considering “Total Harvest” and estimated population numbers of key species. These data are used to assess cumulative effects so as to maintain the magnitude of harvest below the level that would impact the viability of populations of native species (See Chapter 4). NWSP provides data on total take of target animal numbers to BLM, USFS and NDOW during annual coordination meeting.
- X Decisions to relocate or kill problem bear and mountain lions are made by the NDOW. In mountain lion situations involving a threat to human safety, NWSP personnel can initiate control without NDOW input, but NDOW will be notified in a timely manner.
- X PDM agreements are made on a limited number of sites in any given year, and the agreements are based upon wildlife conflicts as they arise. It is not expected that the total land area under agreement for PDM would change greatly.

Effects on Nontarget Species Populations.

- X NWSP personnel are highly experienced and trained to select the most appropriate method(s) for taking problem animals with little impact to nontarget animals.
- X Traps and snares are not set within 30 feet of exposed carcasses to prevent the capture of scavenging birds. The exception for this is the capture of cougar and black bear because the weight of these target animals allows foot snare tension adjustments to exclude the capture of smaller nontarget animals such as scavenging birds.
- X Foot snare trigger and leghold trap underpan tension devices are used throughout the Program to reduce the capture of nontarget wildlife that weigh less than the target species.
- X Breakaway snares, which are snares designed to break open and release tension exerted by larger nontarget animals such as deer, antelope and livestock, have been developed and are being refined, and will be implemented into the NWSP program as appropriate.

- X Nontarget animals captured in leghold traps or foot snares are released unless it is determined by NWSP Specialists that they are not capable of self maintenance.
- X NWSP Specialists use trap lures and set traps in locations that are conducive to capturing the target animal, but minimize potential impact to nontarget species.
- X NWSP personnel work with research programs to continue to improve the selectivity of management devices.
- X NWSP avoids wild horses by directing aerial hunting operations that are conducted below 500 feet away from their herds. NWSP strives to maintain a distance of ½ mile or more from wild horse herds during foaling season (March 1 through June 30).

Effects on Threatened & Endangered species.

- X NWSP has adopted and implemented all reasonable and prudent measures and conditions for the protection of T&E species that were identified by USFWS in their 1992 Biological Opinion (USDA 1997, Revised) on WS's nationwide program. The 1992 USFWS Biological Opinion has been updated for the NWSP in a consultation completed on March 27, 2003. The NWSP has adopted all requirements for the protection of T&E species established as a result of this consultation. These requirements are described in Section 4.2 of this amendment.

Proposed Minimizing Measures

APHIS Wildlife Services proposes the following Standard Operating Procedures (SOPs) to minimize/eliminate the potential effects to the 30 federally listed or proposed species in the *Listed/Proposed Species* section from the proposed action (APHIS-WS 2002):

Gray Wolf

- X APHIS Wildlife Services will contact USFWS's Gray Wolf Recovery Coordinator currently located in the USFWS's Montana Field Office, Helena, Montana at (406) 449-5902, to verify any APHIS Wildlife Services sighting of

gray wolves in Nevada.

- X APHIS-WS will not use M-44's and neck snares in the immediate area of "occupied endangered gray wolf range" in accordance with the 1992 BO on the Wildlife Services National program (USFWD 1992b). Occupied gray wolf range as defined by the 1992 BO: "(1) an area in which gray wolf presence has been confirmed by State or Federal biologists through interagency wolf monitoring programs, and the Fish and Wildlife Service has concurred with the conclusion of wolf presence, or (2) an area from which multiple reports judged likely to be valid by the Fish and Wildlife Service have been received, but adequate interagency surveys have not yet been conducted to confirm presence of absence of wolves."
- X APHIS-WS will require that all leghold traps and leghold snares be checked at least once a day in areas known to be occupied by gray wolves. Use of electronic monitoring of traps or snares for daily checks may be used in monitoring traps and/or snares.
- X APHIS-WS will require that aerial hunting and shooting in areas where gray wolves have been documented will be limited to those personnel who can distinguish coyotes from wolves.
- X APHIS-WS personnel in Elko County Nevada will obtain a basic training course in the recognition of wolf from a coyote or hybrid wolf/dog and associated wolf sign within six months of the date of this informal consultation/BO. All other Program personnel will receive training at the next State Conference.
- X APHIS-WS will incorporate the special regulations established in the USFWS's final ESA 4(d) rule for the Western Gray Wolf Distinct Population Segment into their NWSP.

Southwestern willow flycatcher

- X APHIS-WS has initiated a regional consultation for its program effects on southwestern willow flycatcher throughout its range in the continental U.S. (Arizona, California, Colorado, New Mexico, Nevada, Texas, and Utah) with the USFWS's Arizona Field Office, Phoenix, Arizona. The consultation is

considering effects of beaver dam removal projects on southwest willow flycatchers. The terms and conditions of the range wide programmatic BO will be incorporated into the NWSP. Until this consultation is complete APHIS-WS will coordinate with USFWS prior to initiating any beaver dam removal projects within flycatcher habitat in Nevada.

California condor

- X** APHIS-WS will adhere to SOPs for leghold traps and snares including no visible bait at the set site and that trap set sites (except traps used for mountain lions) will be no closer than 30 feet from a draw station. In addition, in Clark County South and East of I-15, APHIS-WS will not use double leghold trap sets (more than one trap within 20 feet of each other) for coyotes or other large predators.

- X** APHIS-WS will not use strychnine bait in potential condor forging habitat in Clark County South and East of I-15. All uses of strychnine will be according to label restrictions.

- X** APHIS-WS uses steel shot in Nevada for aerial hunting. For safety reasons, APHIS-WS may convert to copper-plated shot or other shot, but will not shoot lead shot from aircraft. In addition, in Clark County, all animals shot on-the ground by APHIS-WS using lead bullets will be retrieved whenever possible and/or disposed of in a manner that renders them inaccessible to condors.

- X** APHIS-WS will not use M-44 devices in Nevada South and East of I-15. In the remainder of Clark County, APHIS-WS personnel will use M-44 devices in accordance with all label restrictions. If a condor sighting is confirmed within Nevada North and West of I-15, M-44 sets in that area will be recessed, covered or placed in single sets (not closer than 1000 feet from one another).

- X** APHIS-WS will coordinate with USFWS's California Condor Recovery Coordinator in the Ventura Field Office, Ventura, California, at (805)644-1766, on at least an annual basis. USFWS will notify APHIS-WS in Reno, Nevada at (775-851-4848 of any condors sited in Nevada and APHIS-WS will notify USFWS of any dead or injured condors found in Nevada.

Bald eagle

- X APHIS-WS will require that no leghold traps (except those used to trap mountain lions) or snares set by APHIS-WS personnel be placed closer than 30 feet from a carcass or bait stations.
- X APHIS-WS uses steel shot in Nevada for aerial hunting. For safety reasons, APHIS-WS may convert to copper-plated shot or other shot, but will not shoot lead shot from aircraft. In addition, all animals shot on-the-ground by APHIS-WS using lead bullets within the immediate vicinity of bald eagles, will be retrieved whenever possible and/or disposed of in a manner that renders them inaccessible to eagles.
- X APHIS-WS will notify the appropriate USFWS office within five days of the finding of any dead or injured eagle. Cause of death injury, or illness, if known, will be provided to USFWS.
- X APHIS-WS personnel will monitor for, and routinely remove, carcasses or trapped individuals resulting from WDM activities conducted within the immediate vicinity of active bald eagle sites to prevent attracting eagles to the immediate area of ongoing predator control activities.
- X APHIS-WS will use strychnine according to Environmental Protection Agency (EPA) label restrictions which prohibit the above ground use but permits the below ground use for control of gophers or marmots. APHIS-WS will not use strychnine within a ½ mile of an active nest site January 1 through August 31 and an active winter roost site from November 15 through March 15 each year unless coordination with USFWS, prior to use, concurs with such application. Upon request, USFWS will provide APHIA-WS in Reno, Nevada (775) 851-4848 of the location of active nest or active winter roost sites.

Yuma clapper rail

- X APHIS-WS will coordinate with USFWS prior to initiating any beaver dam removal projects within Yuma clapper rail habitat in Nevada.

Lahontan cutthroat, Bull trout

- X APHIS-WS will coordinate with USFWS prior to initiating any proposed beaver dam removal projects within the habitats of these species in Nevada.
- X APHIS-WS will coordinate with USFWS prior to initiating any proposed electrofishing activities for purposes of removing nonnative fish predators/competitors within the habitats of these species in Nevada unless requested by USFWS.
- X APHIS-WS will coordinate with USFWS prior to initiating the use of baited hooks for purposes of removing nonnative fish predators/competitors within the habitats of these species in Nevada unless requested by USFWS.

Fish

- X APHIS-WS will coordinate with USFWS prior to initiating any proposed electrofishing activities for purposes of removing nonnative fish predators/competitors within habitats of the 25 species listed above under the *Listed/Proposed Species* section. APHIS-WS has no plans to initiate any electrofishing activities within the habitats of these species in Nevada unless requested by USFWS.

General

- X APHIS-WS will require the use of underpan tension devices on all leghold traps and foot snare triggers to reduce the capture of nontarget wildlife, including T&E species, that weighs less than the target species.
- X APHIS-WS personnel will adhere to all EPA label requirements for toxicants including restrictions for protecting T&E species.
- X APHIS-WS personnel will work with research programs such as APHIS-WS's National Wildlife Research Center to continue to improve the selectivity of management devices.

- X APHIS-WS will only use experienced personnel who have been trained to select the most appropriate method(s) for taking problem animals with little impact to T&E species.
- X APHIS-WS will coordinate with USFWS prior to implementing any proposed projects involving habitat management where T&E species could potentially be affected.
- X APHIS-WSD will coordinate with USFWS prior to implementing any proposed beaver dam removal project within Nevada where T&E species could potentially be affected.

Humaneness of Control Techniques

- X Chemical immobilization and euthanasia procedures that do not cause pain or undue stress are used by certified personnel when practical.
- X NWSP personnel attempt to kill captured target animals that are slated for lethal removal as quickly and humanely as possible. In most field situations, a shot to the brain with a small caliber firearm is performed which causes rapid unconsciousness followed by cessation of heart function and respiration. This is in concert with the American Veterinary Medical Association's definition of euthanasia. In some situations, accepted chemical immobilization and euthanasia methods are used.
- X Traps are set and inspected according to NDOW regulations and WS policy.
- X Research continues with the goal of improving the humaneness of PDM devices.

Effects on Recreation

- X Work Plans between NWSP and BLM and USFS and maps provided by BLM and USFS delineate the areas where and when PDM will occur and the methods that will be used on public lands. The plans define zones where wildlife damage management will be limited, restricted, or not be allowed because of potential conflicts with land uses.

Impacts on Public Safety and the Environment

- X PDM conducted on federal lands within identified public safety zones (one-quarter mile or other appropriate distance around any residence or community, state or federal highway, or developed recreation site) will be limited to the protect human health and safety, unless the land management agency requests the action or is notified of the action prior to PDM activities involving methods of concern such as firearms, M-44s, dogs, and traps and as agreed to in the Work Plan. Public safety zones are delineated and defined on annual work plan maps by BLM and USFS during the yearly work plan review phase. A formal risk assessment (USDA 1997, Appendix P) reported hazards to the public from PDM devices and activities are low.
- X All pesticides are registered with EPA and NDOA. Label directions are followed by NWSP employees.
- X NWSP Specialists who use restricted use chemicals (i.e., pesticides or drugs) are trained and certified by program personnel, or other experts, in the safe and effective use of these materials under EPA and NDOA approved programs. NWSP employees who use chemicals participate in continuing education programs to keep abreast of developments and to maintain their certification.
- X M-44s are used by NWSP personnel who are trained and have received sate certification from NDOA to use sodium cyanide and the M-44 device within label restrictions. PDM activities that involve the use of sodium cyanide and the M-44 device are conducted in accordance with both state and federal EPA regulations and label restrictions. (USDA 1997 Appendix Q)
- X Conspicuous, bilingual warning signs alerting people to the presence of traps, snares and M-44's are placed at major access points when they are set in the field. If the livestock protection collar is approved for use in Nevada, similar warning sign would be used at major points of access when the collar is the field.

Effectiveness of NWSP

- X The WS Decision Model, which is designed to identify effective wildlife damage

management strategies and their impacts, is consistently used.

Impact on Special Management Areas

- PDM will be conducted on federal public lands only when and where a need exists and is requested.
- Vehicle access will be limited to existing roads unless off-road travel is specifically allowed by the land managing agency.
- WS personnel follow guidelines as specified and agreed upon in WS Work Plans. These plans include delineation of areas where certain methods may not be used during certain time periods when conflicts with recreational events may occur.
- PDM in Wilderness Areas would be in accordance with FS or BLM Wilderness Policy.
- NWSP does not conduct PDM in National Parks. There is a potential that a request could come from the National Park Service or NDOW for responding to a threat to human health and safety or for research purposes.
- NWSP PDM is conducted in accordance with BLM RMPs or LRMPs.
- NWSP road use and vehicle access will conform to LRMPs and RMPs.
- PDM follows guidelines as specified in the NWSP Annual Work Plan and as developed in cooperation with the land management agency.
- Should any of BLM's existing WSA's be officially designated as Wilderness Areas in the future, wildlife damage management would be performed in accordance with BLM Wilderness Management Policy of 1981 and the enacting legislation.
- If it is necessary to work in areas outside the planned area, the area manager or their representative will be contacted in a timely manner.

- X In WSA's NWSP work is limited to actions allowed in BLM's Interim Management Policy for Lands Under Wilderness Review (H-8550-1, III.G.5.) as revised (March 19, 2004).

Indirect and Cumulative Impacts

- X NWSP personnel consult with BLM, USFWS, USFS, NDOW and other appropriate agencies regarding program impacts. Frequently contacts are made with BLM and USFS when conducting PDM on public lands administered by these agencies. NWSP regularly coordinates with NDOW and USFWS concerning the wildlife species being targeted and numbers taken.
- X PDM activities are directed at taking action against individual problem animals, or local populations or groups to resolve problems associated with them.
- X NWSP take is monitored. Total animal take is considered in relation to the estimated population numbers of key species. These data are used to assess cumulative effects so as to maintain the magnitude of harvest below the level that would impact the viability of a population.
- X NWSP has consulted with the Nevada State Historic Preservation Office on September 3, 1997 and has determined that the program is not likely to affect historic properties or archeological sites. NWSP consults with cultural resource specialists from BLM and USFS to determine the potential for the impacts of PDM activities to historic or cultural resources on public lands and the need for any mitigation measures.

Cost Effectiveness

- X The cost effectiveness of different PDM methods and actions will be used to assist NWSP planning and decision making. Consideration will be given to different values such as selectivity and humaneness as well as overall monetary costs within the constraints of the financial resources available.



Mark Jensen, State Director, NWSP

6/19/07
Date

Fiscal Year 2005 and 2006 Monitoring Report for Finding of No Significant Impact, Decision and Environmental Assessment Predator Damage Management in Nevada (July 1999) and Final Amendment (August 2004) For the Environmental Assessment: Predator Damage Management in Nevada

**United States Department of Agriculture
Animal and Plant Health Inspection Service
Nevada Wildlife Services Program**

June 19, 2007

Scope

The United States Department of Agriculture-Animal Plant Health Inspection Service-Nevada Wildlife Services Program (NWSP) completed an Environmental Assessment (EA) for reducing Predator Damage Management in Nevada (USDA 2004), and a Decision and Finding of No Significant Impact (FONSI) was signed on July 15, 1999. A Final Amendment for the Environmental Assessment: Predator Damage Management in Nevada was issued on August 27, 2004. WS evaluated alternatives and impacts to the environment and selected an Integrated Predator Damage Management approach to manage damage associated with predators.

Background

The EA documented the need for predator damage management in Nevada and assessed potential impacts of the alternatives for responding to damage problems. Nevada Wildlife Services Program's proposed action is to implement a Predator Damage Management (PDM) program on public and private lands in Nevada, in which a variety of methods and approaches are used and recommended to reduce damage. Predator species addressed in the EA and this report includes: coyotes (*Canis latrans*), common ravens, mountain lions (*Felis concolor*), striped skunks (*Mephitis mephitis*), feral/free roaming dogs (*C. familiaris*), bobcats (*Lynx rufus*), raccoons (*Procyon lotor*), and badgers (*Taxidea taxus*). Other predators in Nevada have historically caused only localized damage on sporadic basis including black bear (*Ursus americanus*), feral/free roaming cats (*Felis domesticus*), minks (*Mustela vison*), long-tailed weasels (*M. frendata*), short-tailed weasels (*M. rixosa*), spotted skunks (*Spilogale putorius*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*), kit fox (*V. macrotis*), and ringtails (*Bassariscus astutus*).

Need for Action

Predators are responsible for the depredation of a wide variety of domestic animals including cattle, goats, sheep, swine, exotic pen-raised game, other hoofed-stock, poultry, and pets. Predators also impact a number of other resources throughout Nevada including other agricultural resources, property and natural resources (e.g. wildlife) Predators also can represent a threat to human health and safety For example, in FY99 12 people in Nevada were bitten by coyotes to the extent that medical attention was required.

Objectives

The objective of this report is to document the review of information on the implementation of the selected alternative during FY 2005 and 2006 to determine if the Decision/FONSI is still appropriate. Specifically, this report documents these considerations: 1) evaluate any new activities or methods that have been proposed or implemented that were not addressed in the EA; 2) identify what data and other information to obtain which will be useful in evaluating program activities in regards to their potential impacts on the environment; 3) describe how to use such data and information in performing a review; and 4) document that program procedures, protection measures, and mitigation measures have been followed to provide quality assurance.

Analysis

NWSP has reviewed the EA and determined that the environmental impacts on the quality of the human environment from the activities conducted pursuant to the EA and its Decision/FONSI will continue to be insignificant, and that no substantive changes in the analysis are necessary at this time. No substantive changes have occurred in the activities conducted or methods used as a result of implementing the EA decision during the reporting period. Program activities have not changed from those described and analyzed in the EA.

Issues Analyzed in Detail. Nine issues were analyzed in detail in the EA:

1. Effects on Target Predator Species Populations.
2. Effects on non-target species populations, including threatened and endangered (T&E) species.
3. Humaneness of control techniques
4. Effect on recreation (hunting and non-consumptive uses)
5. Impact on public safety and the environment (effect of toxicants and hazardous materials)
6. Effectiveness of NWSP
7. Impacts on special management areas (such as Wilderness Study Areas)
8. Indirect and cumulative impacts
9. Cost effectiveness

1. Effects on Target Predator Species Populations.

The EA concluded that the NWSP activities would have minimal effects on local or statewide predator populations. During FY 2005 and FY 2006, WS direct management activities in Nevada resulted in the lethal take of 5,329 and 6,660 coyotes respectively. When combined with other take, cumulative take ranged from 6 to 12% of the estimated coyote population, well below allowable harvest levels for sustaining a viable coyote population. Other mortality figures are not yet available from Nevada Department of Wildlife (NDOW).

Table 1. Coyote take.

Est.	FY 1999		FY 2000		FY 2001		FY 2002		FY 2003		FY 2005		FY2006	
	Low	High	Low	High										
	55,000	110,000	55,000	110,000	55,000	110,000	55,000	110,000	55,000	110,000	55,000	110,000	55,000	110,000
NWSP	4,597	4,597	7,020	7,020	5,978	5,978	4,826	4,826	4,795	4,795	5329	5329	6,660	6,660
Other*	1,003	1,003	1,202	1,202	1,185	1,185	1,071	1,071	1,340	1,340	1776	1776	xx	xx
Total Take	5,600	5,600	8,222	8,222	7,163	7,163	5,897	5,897	6,135	6,135	7105	7105	xx	xx
NWSP	8%	4%	13%	6%	11%	6%	9%	4%	9%	4%	9%	4%	xx	xx
Other	2%	1%	2%	1%	2%	1%	2%	1%	2%	1%	3%	1%	xx	xx
Total Take	10%	5%	15%	7%	13%	7%	11%	5%	11%	5%	12%	6%	xx	xx
Allowable	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	xx	xx
Significant	No	No	No											

* Other take - Coyotes taken by sources other than NWSP including sport hunting/trapping.
xx=Not available.

The EA concluded that the NWSP activities would have minimal effects on local or statewide raven populations with a 3,000 cap or 3% of the raven population (Discussion: Impact on Raven Population, pp 20-21) During Calendar 2005 and 2006, WS direct management activities in Nevada resulted in the lethal take of 1,087 and 1,448 ravens respectively. When combined with other take, cumulative take ranged below the 3000 cap for sustaining a viable raven population. Other mortality figures are not yet available from Nevada Department of Wildlife (NDOW).

Table 2. Raven take

Calendar Year	2001	2002	2003	2004	2005	2006
Ravens taken in NWSP*	4,759	5,036	2,475	1,751	1,087	1,448
Ravens taken in Nevada by other sources ¹	149	98	207	118	243	229
Total ravens taken in Nevada	4,908	5,134	2,682	1,869	1,330	1,677

* Raven take is reduced in part due to more accurate parameters for estimating take compared with 2001 and 2002.

¹ Data provided by USFWS

The EA concluded that the NWSP activities would have minimal effects on local or statewide mountain lion populations. During FY 2005 and FY 2006, WS direct management activities in Nevada resulted in the lethal take of 29 and 19 mountain lions respectively. The percentage of take by NWSP remains in the acceptable 1% level for sustaining a viable population. Other mortality figures are not yet available from Nevada Department of Wildlife (NDOW).

Table 3. Mountain lion take

YEAR	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06
Est. Mountain Lion	2,700	2,820	2,750	2,700	2,680	2,700	2,680	X
NWSP Take	28	22	18	23	29	23	29	19
Other Take ¹	140	130	194	104	154	104	154	X
Total Take	168	152	212	127	183	127	183	X
NWSP Take - % of	1%	1%	1%	1%	1%	1%	1%	X
Other Take ² - % of	5%	5%	7%	4%	6%	4%	6%	X
Total Take - % of pop.	6%	6%	8%	5%	7% 7%	5%	7%	X
Allowable Harvest	21%	21%	21%	21%	21%	21%	21%	21%
Significant	No	No						

¹ Estimate from NDOW

² Other take - Mountain Lions taken by sources other than NADCP (e.g., sport hunting).

X Not yet available

The EA concluded that NWSP take for all other Predator Species has not exceeded more than 1% of the estimated population for any of these other predator species. In addition to lethal take several projects were conducted for target badgers, bobcats, and kit fox where the animals were relocated from damage situation. Drought conditions forced the various species to seek water sources. Feral cats and dogs are taken to the proper animal control entity.

Table 4. Other Predator Species taken by NWSP as target predators.

YEAR	FY 99-03 Average Take per year	FY 04	FY 05	FY 06
Badgers	18	11	7	10
Bobcats	10	3	7	7
Raccoons	10	11	15	108
Striped Skunks	8	6	2	50
Kit Fox	4	7	1	2
Red Fox	6	4	2	1

Raccoon and Striped Skunk take has increased due to implementation of an active urban program to address concerns generated by this species in the Reno urbanized area. This issue was addressed in the Final Amendment 4.1.4 Other Predator Species Population Impact Analysis, second paragraph p.25.

2. Non-Target Species other than T&E Species

The number of non-target animals, other than T&E and specially protected species, taken by WS during direct mammal management assistance for the purpose of this report appear in the following table.

Non-Target Species

YEAR	FY 2009-2003 Average take per year	FY 2004	FY 2005	FY 2006
Feral dogs	3	0	0	1
Gray Fox	0-1	0	0	1
Black bear	0-1	0	0	3
Spotted Skunk	0-1	0	0	1
Feral Cats	0-1	9	2	4

The non-target take continues to be low and not consequential to any population.

T&E species and other sensitive species

In the period covered by this monitoring report from post amended EA (August 27, 2004) to the end FY 2006 there was one incident involving a T&E species and one involving a golden eagle protected by the Bald & Golden Eagle Protection Act and the Migratory Bird Treaty Act. One desert tortoise and one golden eagle were incidentally taken during wildlife damage management activities. A live cage trap captured a tortoise which subsequently died. The golden eagle was taken in a neck snare and found dead.

The desert tortoise was an incidental take allowed under the 2003 Biological Opinion issued by USFWS to NWSP for the action which resulted in the take. Desert Tortoise take is addressed under the Incidental Take Statement (pp.35-36) found in the Informal Consultation/Biological Opinion (March 27, 2003) for Addressing Effects on All Federally Listed or Proposed Threatened and Endangered Species in Nevada. The allowed take is one (1) Desert Tortoise may be killed or injured as a result of crushing above ground or in a burrow, or captured in a trap or snare and one desert tortoise maybe be killed on injured by burrow fumigants per year, and up to a maximum of five (5), cumulatively. Nevada Wildlife Services Program reported the take immediately to USFWS officials and had followed all reasonable and prudent measures for minimizing risks to desert tortoise.

The accidental take of a golden eagle occurred in the spring of 2005. The incident was reported to a USFWS warden in charge of the geographic area of eastern Nevada where the incident occurred. The site was investigated and the take was ruled purely accidental in nature. Nevada Wildlife Services Program was found to be following all required program policies and the accident occurred during the normal course of duties. The bird was turned in to the warden who expressed satisfaction that the incident was reported in a timely fashion. The bird was placed in an eagle repository for eventual release to Native Americans.

A review of T&E species listed by the U.S. Fish and Wildlife Service showed that no additional listings of T&E species in Nevada have occurred since the completion of the EA. Nevada

Wildlife Services Program's predation management programs implemented during FY 2006 benefited threatened and endangered species, including the southwest willow flycatcher (Federal endangered) and the Palmer's chipmunk, which is a State listed endangered species. Thus, Wildlife Services determinations, and the Nevada Department of Wildlife (NDOW) and U.S. Fish and Wildlife Service's Reno Field Office concurrence, that the NWSP Program is not likely to adversely affect other threatened and endangered species, and that some Wildlife Services programs will benefit certain threatened and endangered species, are still valid for the proposed action.

Program activities and their potential impacts on non-target wildlife species, including T&E species have not changed from those analyzed in the EA. Impacts on non-target wildlife species, including threatened and endangered species populations are expected to remain insignificant.

3. Humaneness of Control Techniques

The 1999 EA addresses the issue of humaneness of control techniques in the following manner (1) Chemical immobilization and euthanasia procedures that do not cause pain or undue stress are used by certified personnel when practical. (2) NVWP personnel attempt to kill captured target animals that are slated for lethal remove as quickly and humanely as possible. In most field situations, a shot to the brain with a small caliber firearm is performed which causes rapid unconsciousness followed by cessation of heart function and respiration. A well placed shot to the head is in concert with the American Veterinary Medical Association's definition of euthanasia. In some situations, accepted chemical immobilization and euthanasia methods are used. (3) Traps are set and inspected according to NDOW regulations and WS policy. (4) Research continues with the goal of improving the humaneness of PDM devices. The conclusions in the EA remain valid.

4. Effect on Recreation (hunting and non-consumptive uses)

The 1999 EA concluded that effects on recreation users of public lands were insignificant. The EA amendment has updated analysis that addresses concerns regarding effects of WS's low level hunting flights on non-target wildlife and on public land recreational users to BLM in Colorado. The present EA amendment addresses this issue and presents an analysis of the impact that the current program would have on recreation. The new conclusion reached shows that about 83% of the land area of the State had no aerial activity and that the duration of aerial hunting on 17% of the State over which such activity was conducted was minimal. Thus the original and new analysis reached the same conclusions. Effects on recreation users of public lands are expected to remain insignificant.

5. Impact on Public Safety and the Environment (e.g. effect of toxicants and hazardous materials)

The current EA addresses relevant issues including pesticide use, wildlife threats to Human Health and Safety and risks associated with Aerial Hunting. The conclusion reached on pesticide/chemical use remained the same as that analyzed in the EA (NWSP 1999) and the

August 27, 2004 Final Amendment, which were found to have negligible effect on the environment, including health and safety.

6. Effectiveness of NADCP

This topic is treated as a management issue versus an environmental issue in the present EA. The focus is upon the service that NWSP provides in its mode as a public service agency. This is reflected in part by the number of calls received by the agency for assistance in successfully resolving of damage. Nevada Wildlife Services Program continues to receive an average of 1,000-1,600 requests for assistance in resolving damage occurrence (MIS 2006).

7. Impacts on Special Management Areas (such as Wilderness Study Areas)

During this reporting period 2005-2006 the NWSP worked on four special management areas. The activity occurred during select and critical birthing times for mule deer and bighorn sheep as requested by the Nevada Department of Wildlife. "WS will conform to Revisions and Clarifications to H-8550-I, Interim Management Policy for Lands Under Wilderness Review (March 19, 2004 memorandum (No. 2004-140) from BLM Acting Director to BLM Washington and Field Office Officials)." Conclusions from sections 4.7 and 4.7.1 (Final Amendment, August 27, 2004) read: Because of the relatively low amount of work on special management areas and because NWSP coordinates all planning with Federal land managers for conformance to land use plans, NWSP has no impact on SMAs (4.7) All ravens damage management work in these areas would be closely coordinated with land managers to fully conform with tortoise management area land use plans, including restrictions to avoid or minimize harm to tortoise and their habitat.(4.7.1).

8. Indirect and Cumulative Impacts

The NWSP has no known additional direct or indirect impacts to any resources or people other than the positive contribution to local economies. This conclusion was also reached in the original 1999 EA and continues to be the case for this monitoring report.

9. Cost Effectiveness

The cost effectiveness of NWSP was discussed in the 1999 EA and 2004 amendment. It is still concluded that the program is being cost effective as possible with a positive benefit to cost ratio.

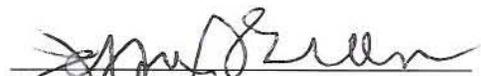
Findings.

Nevada Wildlife Services program has implemented all applicable mitigation in standard operating procedures as described in the selected action in the EA and amendment and listed on the Quality Assurance Checklist attached as Appendix A.

The EA, amendment and FONSI's indicate that the proposed action would not significantly impact, individually or cumulatively, the quality of the human environment. This review

indicates that finding is still appropriate. The affected environment has not changed, and impacts on the environment remain as analyzed in the EA and amendment. Therefore, revision of the EA or its Decision/FONSI dated August 27, 2004 is not necessary at this time.

For additional information concerning this decision, contact State Director, 8775 Technology Way, Reno, NV 89521.



Jeff Green, Director
USDA APHIS WS Western Region

6/28/07

Date

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Appendix A -- Quality Assurance Checklist

Mitigation in Standard Operating Procedures (SOPs)

- NWSP activities are consistent with WS mitigation and measures, and comply with guidance established from USFS LRMPs and BLM RMPs and Interim Management Guidelines for Wilderness Study Areas (WSA).

- National MOUs with the BLM and USFS delineate expectations for PDM on public lands administered by these agencies. NWSP work plans are developed in coordination with BLM Field Offices and USFS NFs. Work plans detail activities, target species, and mitigation measures to be implemented on allotments where PDM is needed. This ensures that NWSP is aware of and avoids impacts on recreational and cultural resources, hunting, sensitive species, wildlife viewing and other land uses.

- NWSP coordinates with Tribal officials for work on Tribal lands to identify and resolve any issues of concern to Indian Tribes.

- The use of PDM methods such as traps and snares conform to current rules and regulations administered by NDOW.

WS and NVSP Mitigation Measures Specific to the Issues

The following is a summary of mitigation measures that are specific to the issues listed in the 1999 EA and 2004 Amendment.

Effects on Target Predator Species Populations

- PDM is directed toward localized populations or individual offending animals, depending on the species and magnitude of the problem, and not an attempt to eradicate populations in the entire area or region.

- NWSP Specialists use trap lures and set traps in locations that are conducive to capturing the target animal.

- X NWSP kill is monitored by considering "Total Harvest" and estimated population numbers of key species. These data are used to assess cumulative effects so as to maintain the magnitude of harvest below the level that would impact the viability of populations of native species (See Chapter 4). NWSP provides data on total take of target animal numbers to BLM, USFS and NDOW during annual coordination meeting.
- X Decisions to relocate or kill problem bear and mountain lions are made by the NDOW. In mountain lion situations involving a threat to human safety, NWSP personnel can initiate control without NDOW input, but NDOW will be notified in a timely manner.
- X PDM agreements are made on a limited number of sites in any given year, and the agreements are based upon wildlife conflicts as they arise. It is not expected that the total land area under agreement for PDM would change greatly.

Effects on Nontarget Species Populations.

- X NWSP personnel are highly experienced and trained to select the most appropriate method(s) for taking problem animals with little impact to nontarget animals.
- X Traps and snares are not set within 30 feet of exposed carcasses to prevent the capture of scavenging birds. The exception for this is the capture of cougar and black bear because the weight of these target animals allows foot snare tension adjustments to exclude the capture of smaller nontarget animals such as scavenging birds.
- X Foot snare trigger and leghold trap underpan tension devices are used throughout the Program to reduce the capture of nontarget wildlife that weigh less than the target species.
- X Breakaway snares, which are snares designed to break open and release tension exerted by larger nontarget animals such as deer, antelope and livestock, have been developed and are being refined, and will be implemented into the NWSP program as appropriate.

- X Nontarget animals captured in leghold traps or foot snares are released unless it is determined by NWSP Specialists that they are not capable of self maintenance.
- X NWSP Specialists use trap lures and set traps in locations that are conducive to capturing the target animal, but minimize potential impact to nontarget species.
- X NWSP personnel work with research programs to continue to improve the selectivity of management devices.
- X NWSP avoids wild horses by directing aerial hunting operations that are conducted below 500 feet away from their herds. NWSP strives to maintain a distance of ½ mile or more from wild horse herds during foaling season (March 1 through June 30).

Effects on Threatened & Endangered species.

- X NWSP has adopted and implemented all reasonable and prudent measures and conditions for the protection of T&E species that were identified by USFWS in their 1992 Biological Opinion (USDA 1997, Revised) on WS's nationwide program. The 1992 USFWS Biological Opinion has been updated for the NWSP in a consultation completed on March 27, 2003. The NWSP has adopted all requirements for the protection of T&E species established as a result of this consultation. These requirements are described in Section 4.2 of this amendment.

Proposed Minimizing Measures

APHIS Wildlife Services proposes the following Standard Operating Procedures (SOPs) to minimize/eliminate the potential effects to the 30 federally listed or proposed species in the *Listed/Proposed Species* section from the proposed action (APHIS-WS 2002):

Gray Wolf

- X APHIS Wildlife Services will contact USFWS's Gray Wolf Recovery Coordinator currently located in the USFWS's Montana Field Office, Helena, Montana at (406) 449-5902, to verify any APHIS Wildlife Services sighting of

gray wolves in Nevada.

- X APHIS-WS will not use M-44's and neck snares in the immediate area of "occupied endangered gray wolf range" in accordance with the 1992 BO on the Wildlife Services National program (USFWD 1992b). Occupied gray wolf range as defined by the 1992 BO: "(1) an area in which gray wolf presence has been confirmed by State or Federal biologists through interagency wolf monitoring programs, and the Fish and Wildlife Service has concurred with the conclusion of wolf presence, or (2) an area from which multiple reports judged likely to be valid by the Fish and Wildlife Service have been received, but adequate interagency surveys have not yet been conducted to confirm presence of absence of wolves."
- X APHIS-WS will require that all leghold traps and leghold snares be checked at least once a day in areas known to be occupied by gray wolves. Use of electronic monitoring of traps or snares for daily checks may be used in monitoring traps and/or snares.
- X APHIS-WS will require that aerial hunting and shooting in areas where gray wolves have been documented will be limited to those personnel who can distinguish coyotes from wolves.
- X APHIS-WS personnel in Elko County Nevada will obtain a basic training course in the recognition of wolf from a coyote or hybrid wolf/dog and associated wolf sign within six months of the date of this informal consultation/BO. All other Program personnel will receive training at the next State Conference.
- X APHIS-WS will incorporate the special regulations established in the USFWS's final ESA 4(d) rule for the Western Gray Wolf Distinct Population Segment into their NWSP.

Southwestern willow flycatcher

- X APHIS-WS has initiated a regional consultation for its program effects on southwestern willow flycatcher throughout its range in the continental U.S. (Arizona, California, Colorado, New Mexico, Nevada, Texas, and Utah) with the USFWS's Arizona Field Office, Phoenix, Arizona. The consultation is

considering effects of beaver dam removal projects on southwest willow flycatchers. The terms and conditions of the range wide programmatic BO will be incorporated into the NWSP. Until this consultation is complete APHIS-WS will coordinate with USFWS prior to initiating any beaver dam removal projects within flycatcher habitat in Nevada.

California condor

- X APHIS-WS will adhere to SOPs for leghold traps and snares including no visible bait at the set site and that trap set sites (except traps used for mountain lions) will be no closer than 30 feet from a draw station. In addition, in Clark County South and East of I-15, APHIS-WS will not use double leghold trap sets (more than one trap within 20 feet of each other) for coyotes or other large predators.
- X APHIS-WS will not use strychnine bait in potential condor foraging habitat in Clark County South and East of I-15. All uses of strychnine will be according to label restrictions.
- X APHIS-WS uses steel shot in Nevada for aerial hunting. For safety reasons, APHIS-WS may convert to copper-plated shot or other shot, but will not shoot lead shot from aircraft. In addition, in Clark County, all animals shot on-the ground by APHIS-WS using lead bullets will be retrieved whenever possible and/or disposed of in a manner that renders them inaccessible to condors.
- X APHIS-WS will not use M-44 devices in Nevada South and East of I-15. In the remainder of Clark County, APHIS-WS personnel will use M-44 devices in accordance with all label restrictions. If a condor sighting is confirmed within Nevada North and West of I-15, M-44 sets in that area will be recessed, covered or placed in single sets (not closer than 1000 feet from one another).
- X APHIS-WS will coordinate with USFWS's California Condor Recovery Coordinator in the Ventura Field Office, Ventura, California, at (805)644-1766, on at least an annual basis. USFWS will notify APHIS-WS in Reno, Nevada at (775-851-4848 of any condors sited in Nevada and APHIS-WS will notify USFWS of any dead or injured condors found in Nevada.

Bald eagle

- X APHIS-WS will require that no leghold traps (except those used to trap mountain lions) or snares set by APHIS-WS personnel be placed closer than 30 feet from a carcass or bait stations.

- X APHIS-WS uses steel shot in Nevada for aerial hunting. For safety reasons, APHIS-WS may convert to copper-plated shot or other shot, but will not shoot lead shot from aircraft. In addition, all animals shot on-the-ground by APHIS-WS using lead bullets within the immediate vicinity of bald eagles, will be retrieved whenever possible and/or disposed of in a manner that renders them inaccessible to eagles.

- X APHIS-WS will notify the appropriate USFWS office within five days of the finding of any dead or injured eagle. Cause of death injury, or illness, if known, will be provided to USFWS.

- X APHIS-WS personnel will monitor for, and routinely remove, carcasses or trapped individuals resulting from WDM activities conducted within the immediate vicinity of active bald eagle sites to prevent attracting eagles to the immediate area of ongoing predator control activities.

- X APHIS-WS will use strychnine according to Environmental Protection Agency (EPA) label restrictions which prohibit the above ground use but permits the below ground use for control of gophers or marmots. APHIS-WS will not use strychnine within a ½ mile of an active nest site January 1 through August 31 and an active winter roost site from November 15 through March 15 each year unless coordination with USFWS, prior to use, concurs with such application. Upon request, USFWS will provide APHIA-WS in Reno, Nevada (775) 851-4848 of the location of active nest or active winter roost sites.

Yuma clapper rail

- X APHIS-WS will coordinate with USFWS prior to initiating any beaver dam removal projects within Yuma clapper rail habitat in Nevada.

Lahontan cutthroat, Bull trout

- APHIS-WS will coordinate with USFWS prior to initiating any proposed beaver dam removal projects within the habitats of these species in Nevada.
- APHIS-WS will coordinate with USFWS prior to initiating any proposed electrofishing activities for purposes of removing nonnative fish predators/competitors within the habitats of these species in Nevada unless requested by USFWS.
- APHIS-WS will coordinate with USFWS prior to initiating the use of baited hooks for purposes of removing nonnative fish predators/competitors within the habitats of these species in Nevada unless requested by USFWS.

Fish

- APHIS-WS will coordinate with USFWS prior to initiating any proposed electrofishing activities for purposes of removing nonnative fish predators/competitors within habitats of the 25 species listed above under the *Listed/Proposed Species* section. APHIS-WS has no plans to initiate any electrofishing activities within the habitats of these species in Nevada unless requested by USFWS.

General

- APHIS-WS will require the use of underpan tension devices on all leghold traps and foot snare triggers to reduce the capture of nontarget wildlife, including T&E species, that weighs less than the target species.
- APHIS-WS personnel will adhere to all EPA label requirements for toxicants including restrictions for protecting T&E species.
- APHIS-WS personnel will work with research programs such as APHIS-WS's National Wildlife Research Center to continue to improve the selectivity of management devices.

- APHIS-WS will only use experienced personnel who have been trained to select the most appropriate method(s) for taking problem animals with little impact to T&E species.
- APHIS-WS will coordinate with USFWS prior to implementing any proposed projects involving habitat management where T&E species could potentially be affected.
- APHIS-WSD will coordinate with USFWS prior to implementing any proposed beaver dam removal project within Nevada where T&E species could potentially be affected.

Humaneness of Control Techniques

- Chemical immobilization and euthanasia procedures that do not cause pain or undue stress are used by certified personnel when practical.
- NWSP personnel attempt to kill captured target animals that are slated for lethal removal as quickly and humanely as possible. In most field situations, a shot to the brain with a small caliber firearm is performed which causes rapid unconsciousness followed by cessation of heart function and respiration. This is in concert with the American Veterinary Medical Association's definition of euthanasia. In some situations, accepted chemical immobilization and euthanasia methods are used.
- Traps are set and inspected according to NDOW regulations and WS policy.
- Research continues with the goal of improving the humaneness of PDM devices.

Effects on Recreation

- Work Plans between NWSP and BLM and USFS and maps provided by BLM and USFS delineate the areas where and when PDM will occur and the methods that will be used on public lands. The plans define zones where wildlife damage management will be limited, restricted, or not be allowed because of potential conflicts with land uses.

Impacts on Public Safety and the Environment

- X PDM conducted on federal lands within identified public safety zones (one-quarter mile or other appropriate distance around any residence or community, state or federal highway, or developed recreation site) will be limited to the protect human health and safety, unless the land management agency requests the action or is notified of the action prior to PDM activities involving methods of concern such as firearms, M-44s, dogs, and traps and as agreed to in the Work Plan. Public safety zones are delineated and defined on annual work plan maps by BLM and USFS during the yearly work plan review phase. A formal risk assessment (USDA 1997, Appendix P) reported hazards to the public from PDM devices and activities are low.
- X All pesticides are registered with EPA and NDOA. Label directions are followed by NWSP employees.
- X NWSP Specialists who use restricted use chemicals (i.e., pesticides or drugs) are trained and certified by program personnel, or other experts, in the safe and effective use of these materials under EPA and NDOA approved programs. NWSP employees who use chemicals participate in continuing education programs to keep abreast of developments and to maintain their certification.
- X M-44s are used by NWSP personnel who are trained and have received sate certification from NDOA to use sodium cyanide and the M-44 device within label restrictions. PDM activities that involve the use of sodium cyanide and the M-44 device are conducted in accordance with both state and federal EPA regulations and label restrictions. (USDA 1997 Appendix Q)
- X Conspicuous, bilingual warning signs alerting people to the presence of traps, snares and M-44's are placed at major access points when they are set in the field. If the livestock protection collar is approved for use in Nevada, similar warning sign would be used at major points of access when the collar is the field.

Effectiveness of NWSP

- X The WS Decision Model, which is designed to identify effective wildlife damage

management strategies and their impacts, is consistently used.

Impact on Special Management Areas

- PDM will be conducted on federal public lands only when and where a need exists and is requested.
- Vehicle access will be limited to existing roads unless off-road travel is specifically allowed by the land managing agency.
- WS personnel follow guidelines as specified and agreed upon in WS Work Plans. These plans include delineation of areas where certain methods may not be used during certain time periods when conflicts with recreational events may occur.
- PDM in Wilderness Areas would be in accordance with FS or BLM Wilderness Policy.
- NWSP does not conduct PDM in National Parks. There is a potential that a request could come from the National Park Service or NDOW for responding to a threat to human health and safety or for research purposes.
- NWSP PDM is conducted in accordance with BLM RMPs or LRMPs.
- NWSP road use and vehicle access will conform to LRMPs and RMPs.
- PDM follows guidelines as specified in the NWSP Annual Work Plan and as developed in cooperation with the land management agency.
- Should any of BLM's existing WSA's be officially designated as Wilderness Areas in the future, wildlife damage management would be performed in accordance with BLM Wilderness Management Policy of 1981 and the enacting legislation.
- If it is necessary to work in areas outside the planned area, the area manager or their representative will be contacted in a timely manner.

- In WSA's NWSP work is limited to actions allowed in BLM's Interim Management Policy for Lands Under Wilderness Review (H-8550-1, III.G.5.) as revised (March 19, 2004).

Indirect and Cumulative Impacts

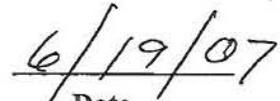
- NWSP personnel consult with BLM, USFWS, USFS, NDOW and other appropriate agencies regarding program impacts. Frequently contacts are made with BLM and USFS when conducting PDM on public lands administered by these agencies. NWSP regularly coordinates with NDOW and USFWS concerning the wildlife species being targeted and numbers taken.
- PDM activities are directed at taking action against individual problem animals, or local populations or groups to resolve problems associated with them.
- NWSP take is monitored. Total animal take is considered in relation to the estimated population numbers of key species. These data are used to assess cumulative effects so as to maintain the magnitude of harvest below the level that would impact the viability of a population.
- NWSP has consulted with the Nevada State Historic Preservation Office on September 3, 1997 and has determined that the program is not likely to affect historic properties or archeological sites. NWSP consults with cultural resource specialists from BLM and USFS to determine the potential for the impacts of PDM activities to historic or cultural resources on public lands and the need for any mitigation measures.

Cost Effectiveness

- The cost effectiveness of different PDM methods and actions will be used to assist NWSP planning and decision making. Consideration will be given to different values such as selectivity and humaneness as well as overall monetary costs within the constraints of the financial resources available.



Mark Jensen, State Director, NWSP



Date

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	letter for new EIS, 2) War on Wildlife report to President Obama and Congress and 3)Administrative order by a judge re: Gary Strader			
NEPA's mandate Page 2				
9	NEPA statute and CEQ regulations cited. Court cases cited describing need to supplement when there are substantial changes in proposed actions or significant new circumstances or info bearing on the impacts.	See attached summary of legal cases cited. This section appears to provide legal background only for the purposes of establishing that a new EA or EIS is necessary based on allegations made in the WEG letter. Unless legal citations are incorrectly interpreted by WEG or incorrectly applied, WS does not disagree with this section. WS views a final EA and decision as a working document that requires monitoring and supplementing as time and circumstances warrant. If made in response the 1994/1997 ADC EIS, comments on that Decision are outside of the scope of the EA since the EA is no longer tiered to the EIS. Furthermore, WS has complied with the ADC ROD in terms of local evaluation of alternatives.		—
Unsupported Purpose and Need and Failure to Use Best Avail Science				
10	CEQ regs 40 CFR 1502.22 cited. Comment relating to CEQ regulation that notes how incomplete or unavailable information should be discussed.	What actually precedes this statement in the regulation is: “(b) If the information relevant to <i>reasonably foreseeable significant adverse impacts</i> (emphasis added) cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement. . . Based on the EA, no reasonably foreseeable significant adverse impacts were identified.		—
11	Commenter asserts that WS is 1) mandated to disclose scientific uncertainty 2) has a duty to complete independent research and gather information if none exists, and 3) evaluate the potential impacts in the absence of	Without discussion of specific perceived foreseeable significant impacts, no response is necessary. However, WS does in practice use the best available information in its environmental analysis documents, carefully considers all information provided by the public during public comment periods or otherwise, and discusses the likelihood of impacts within the documents. In		—

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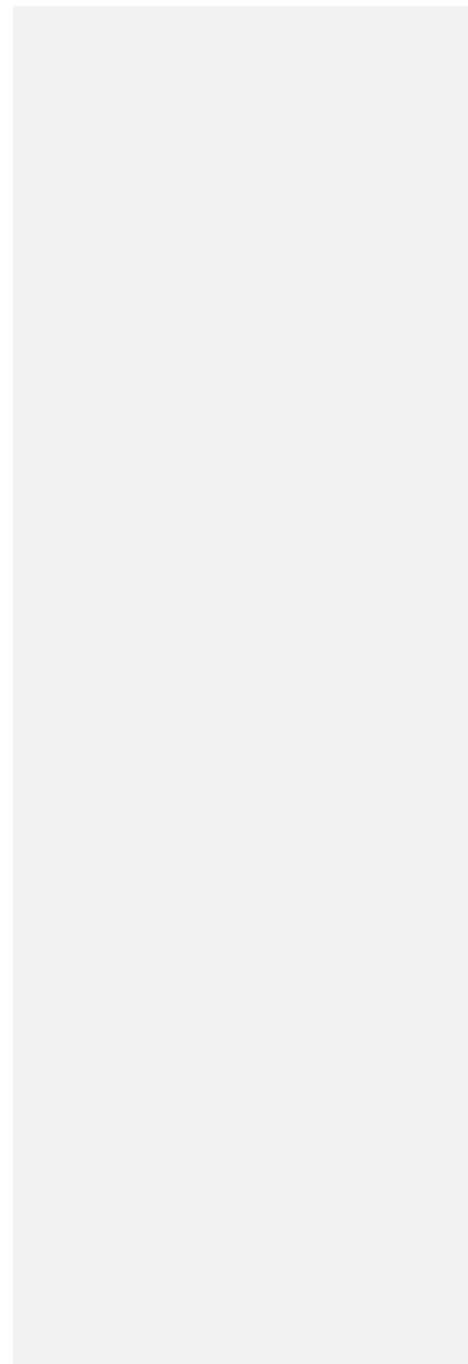
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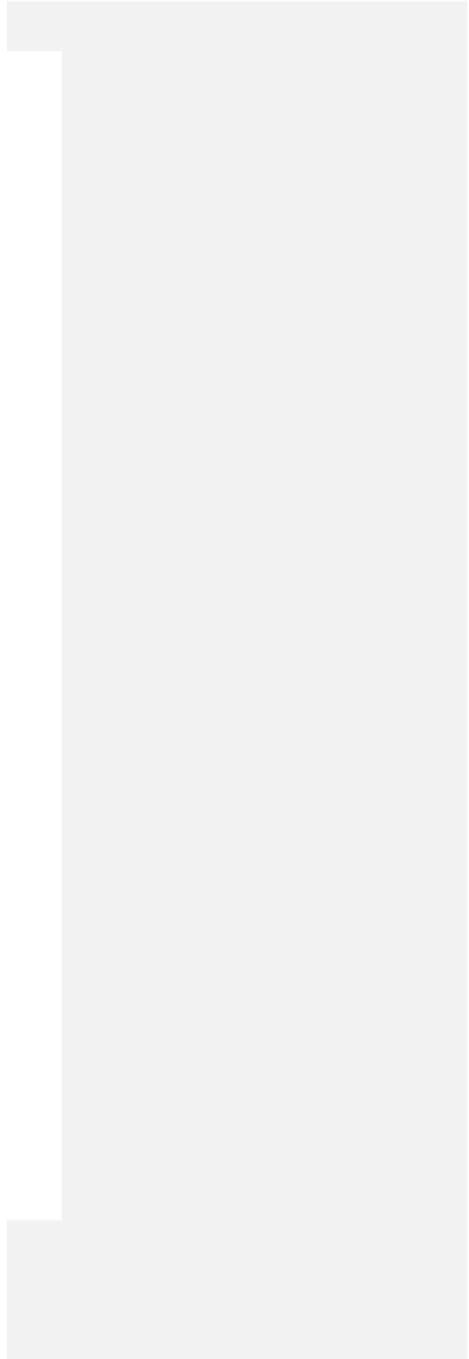
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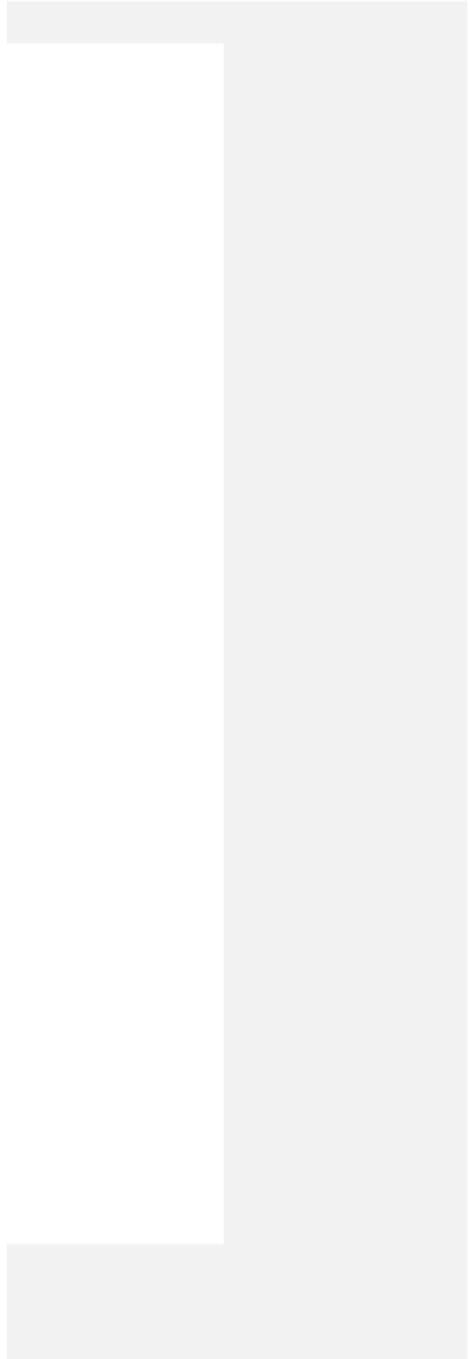
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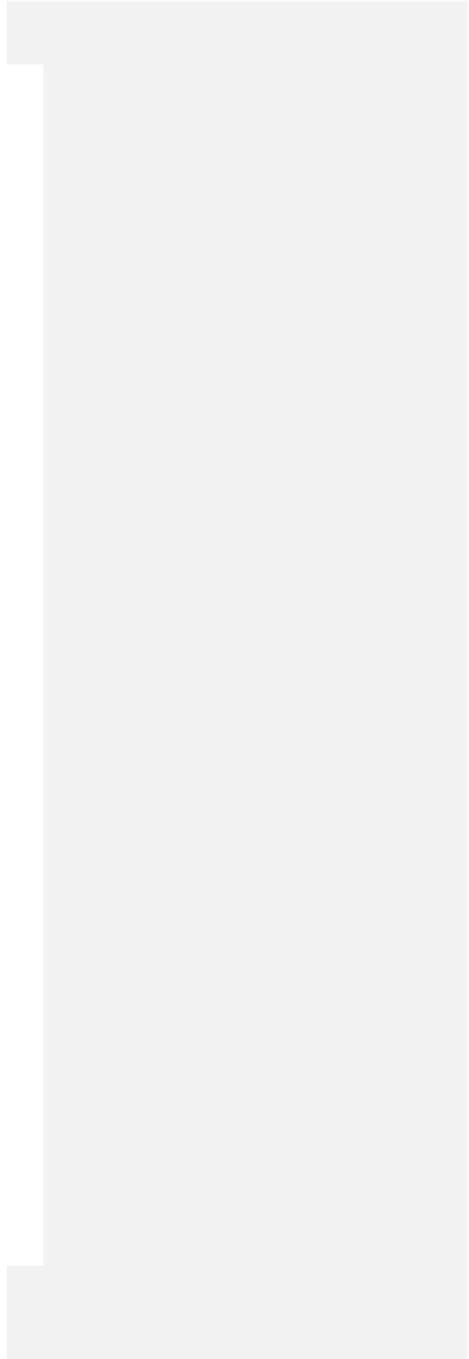


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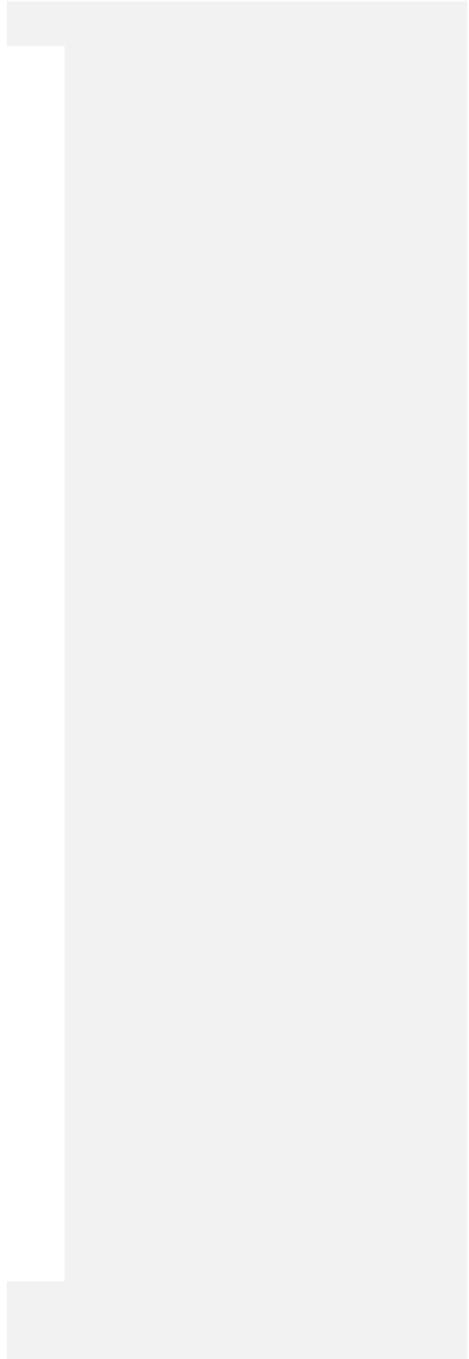
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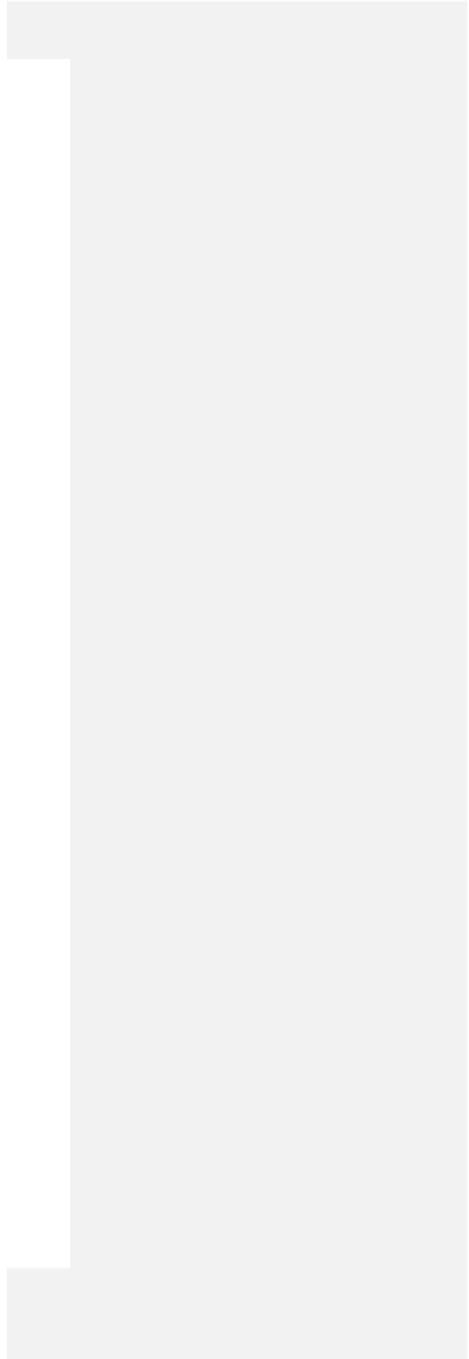
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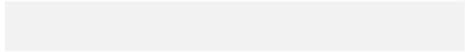


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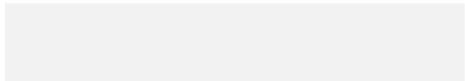


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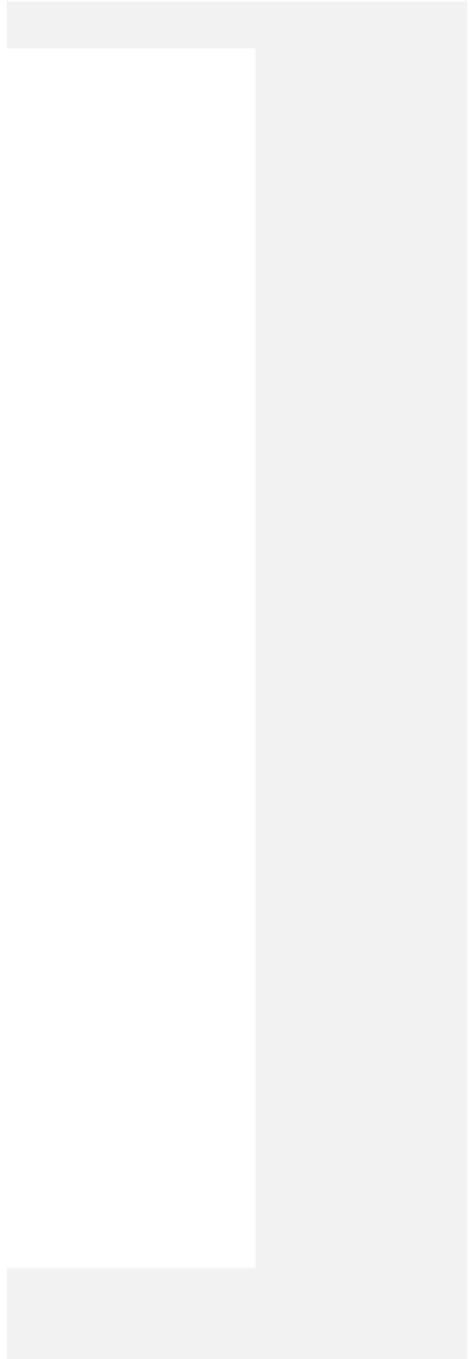




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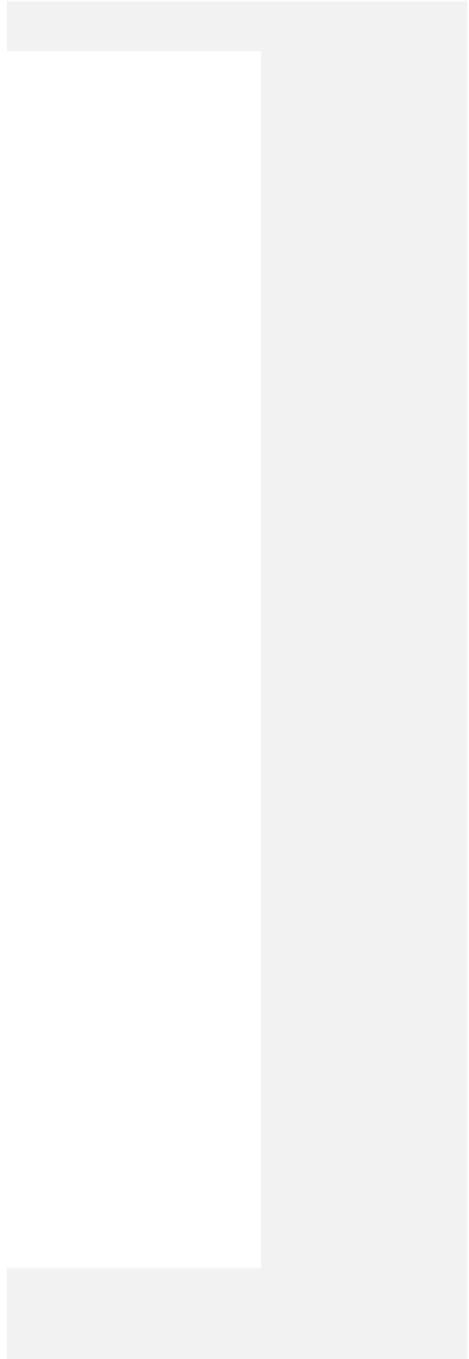
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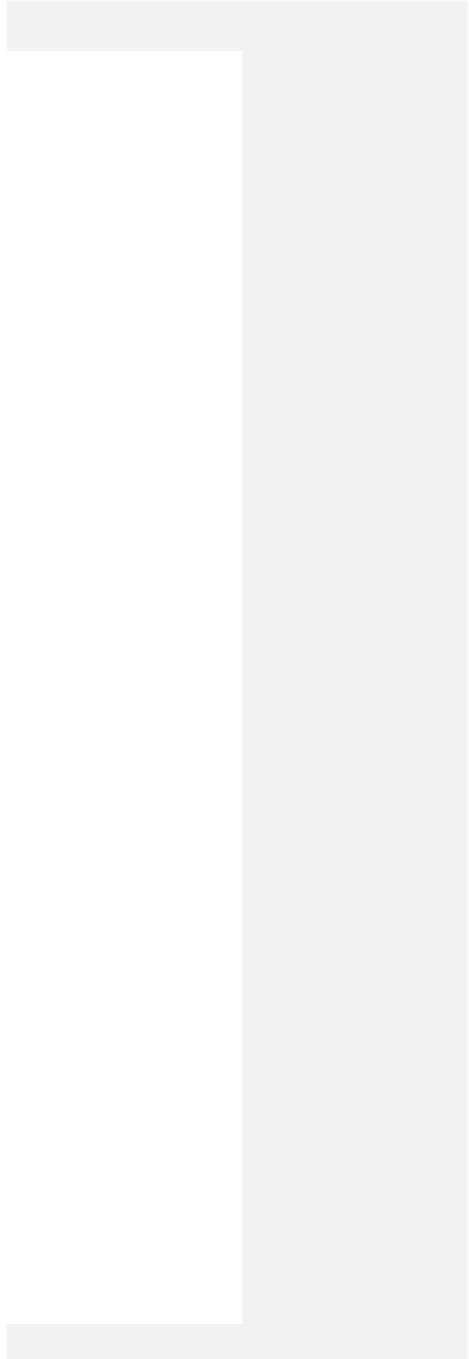
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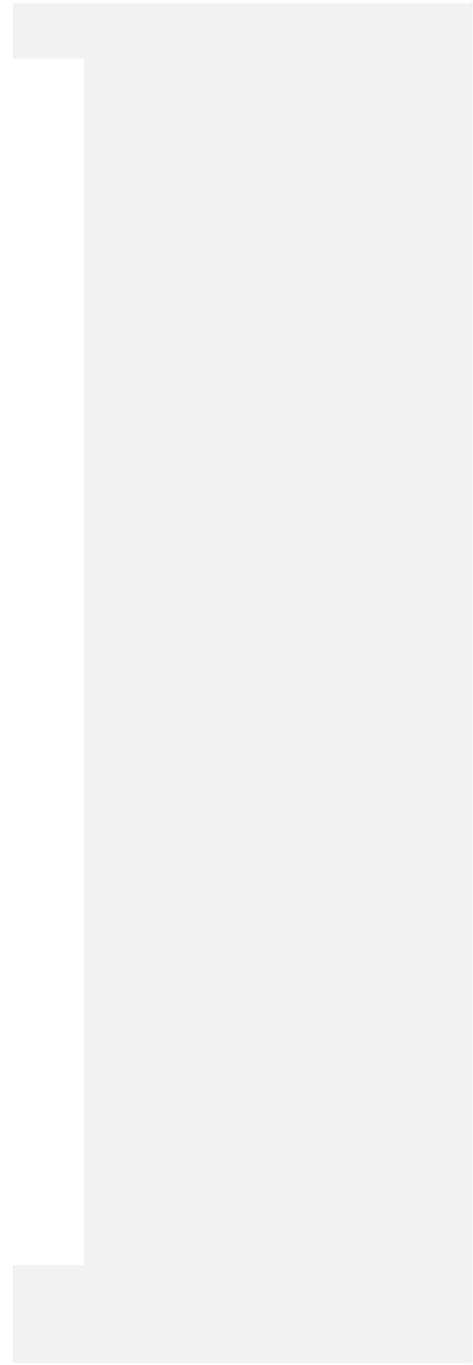
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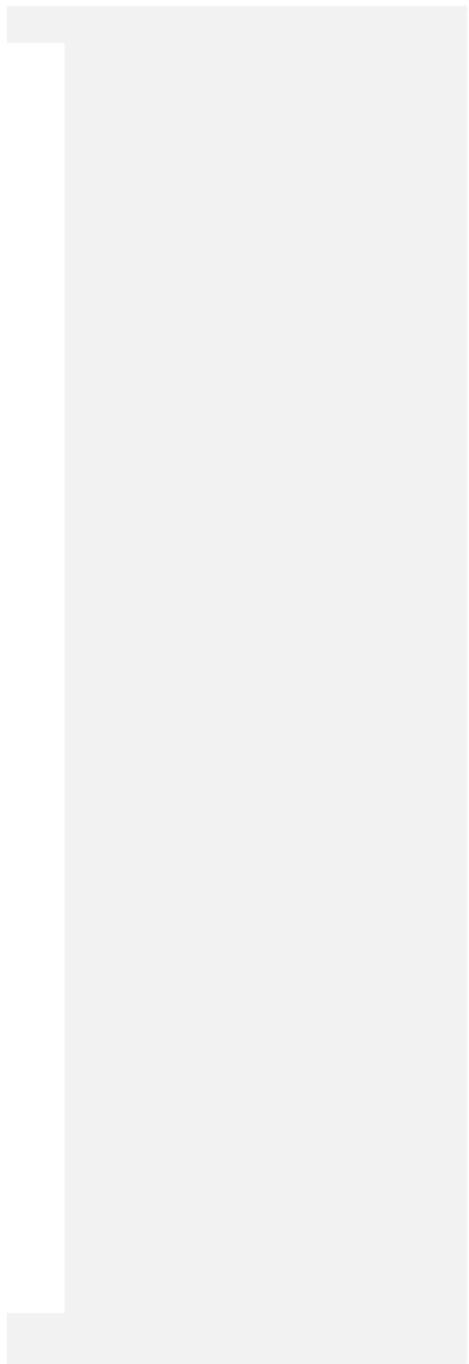
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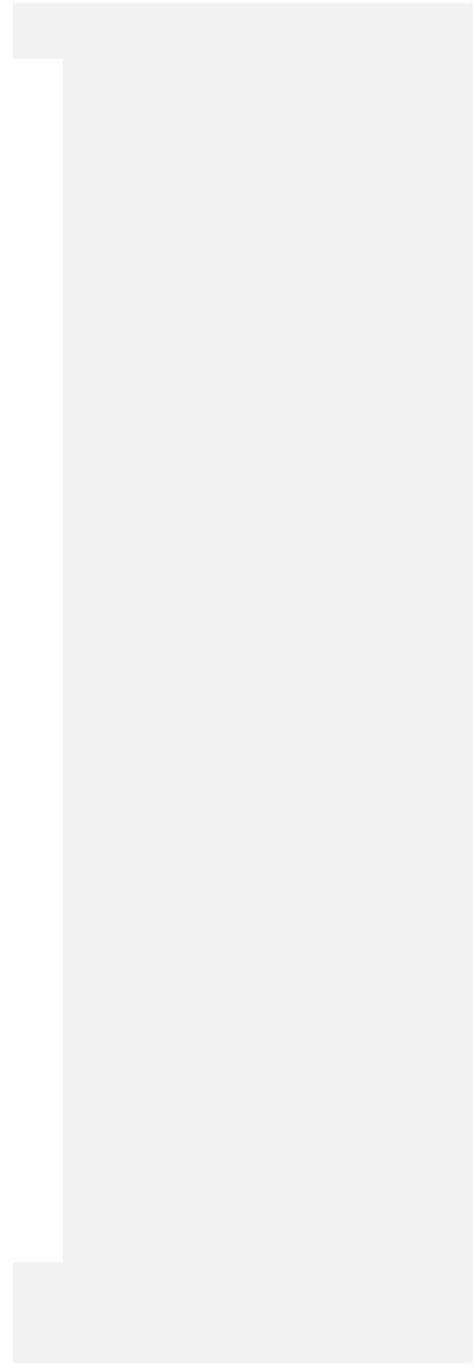
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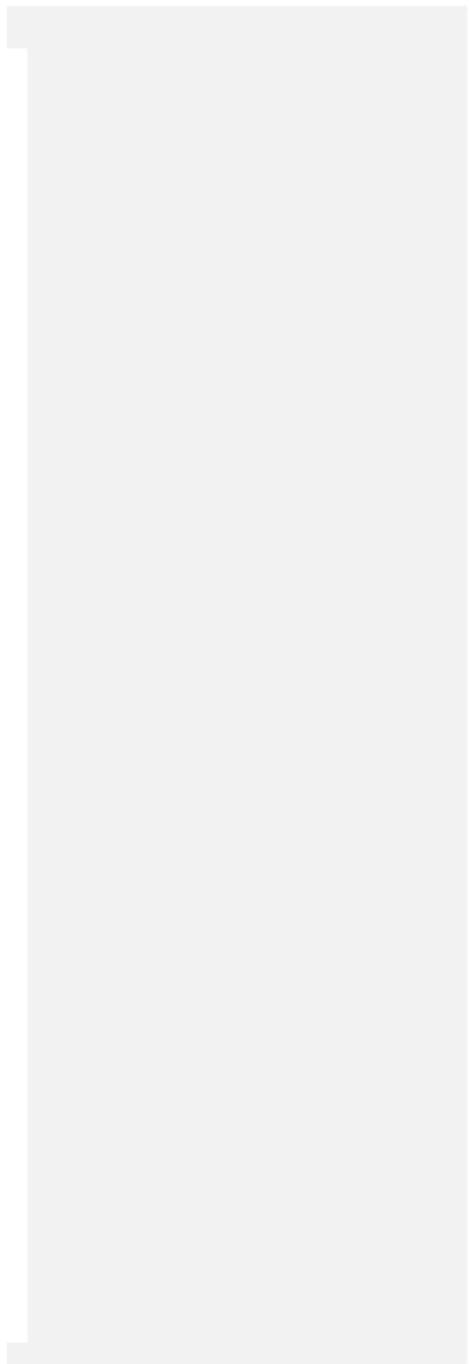
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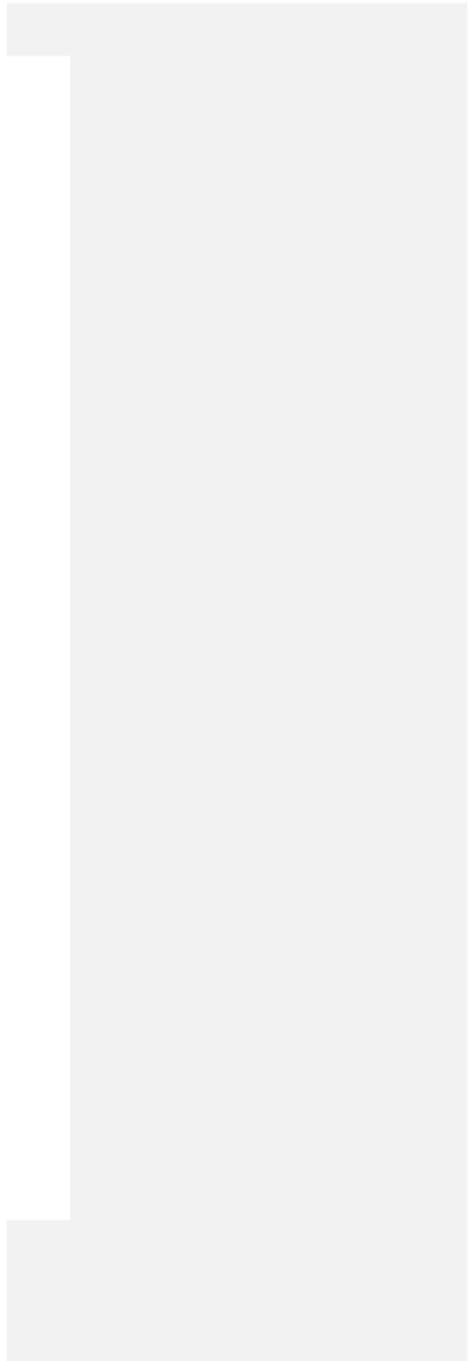
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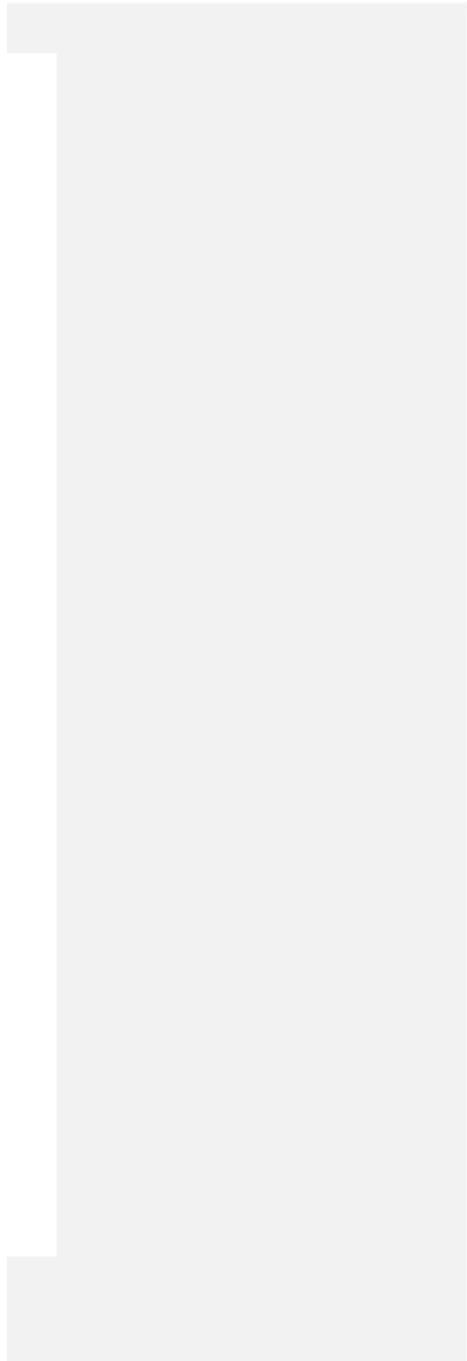
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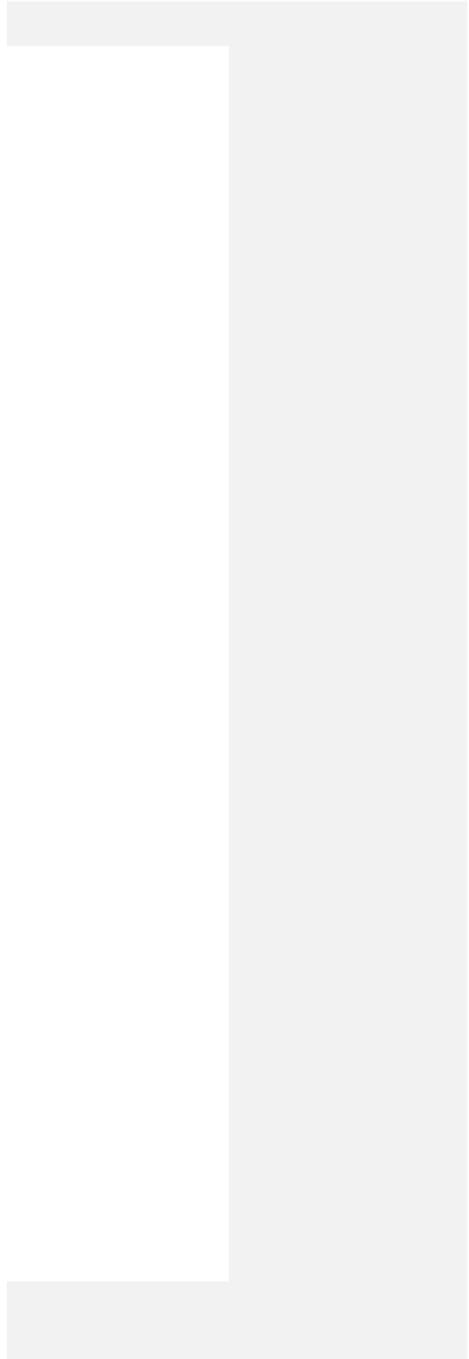


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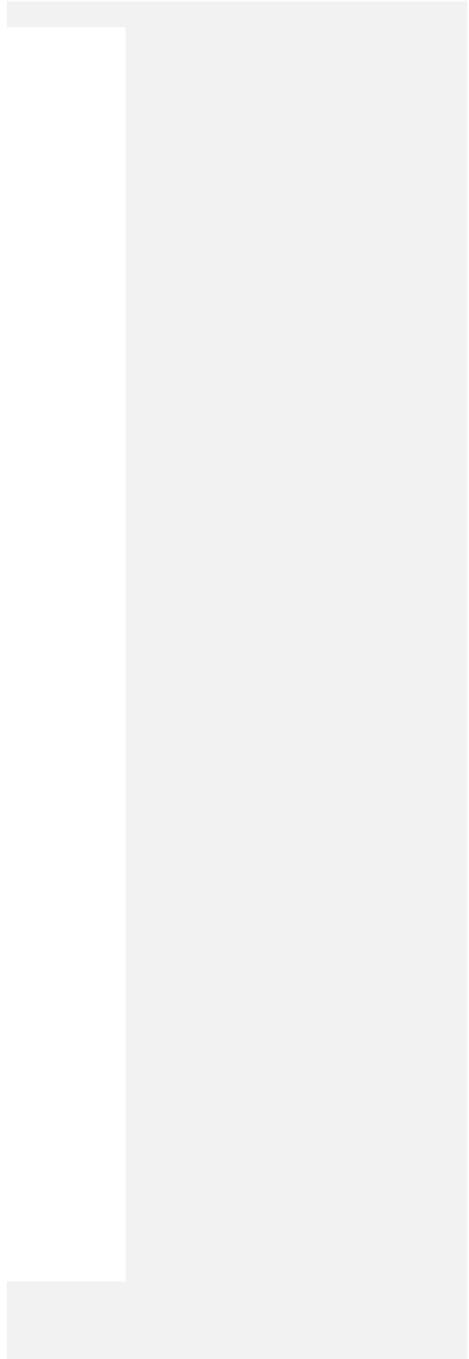
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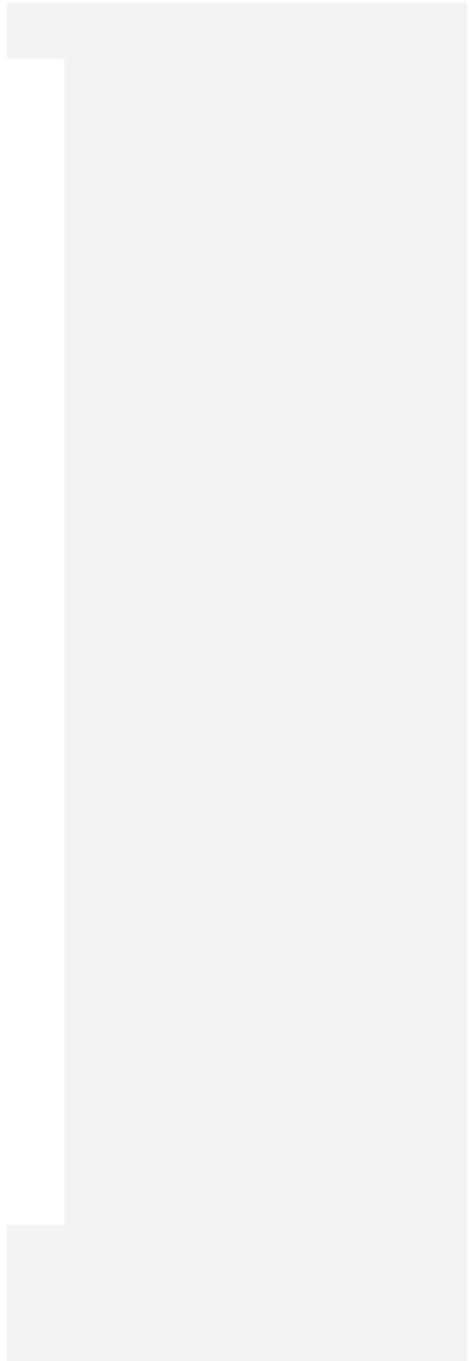


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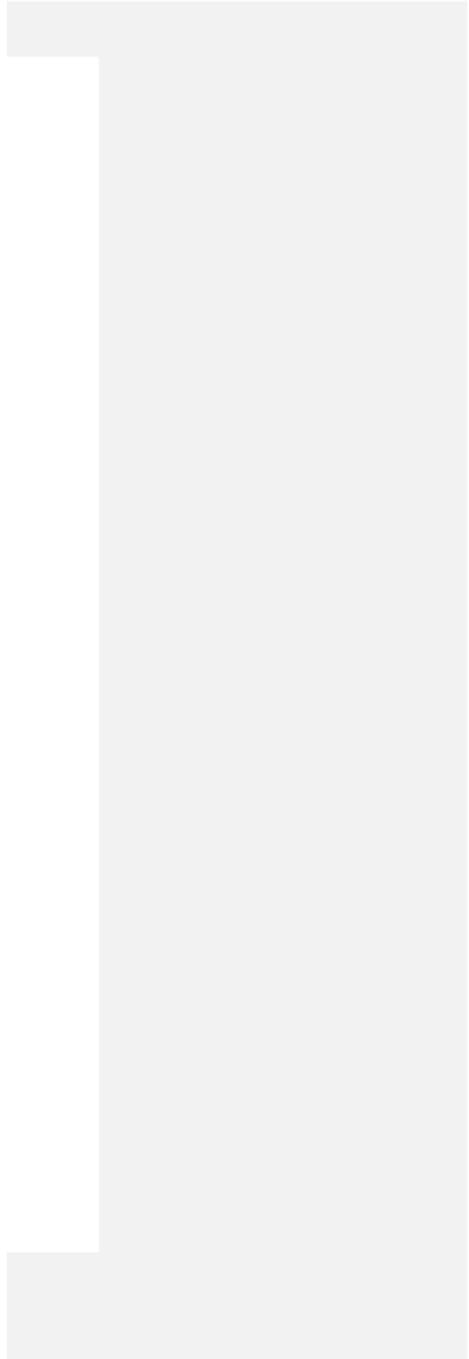


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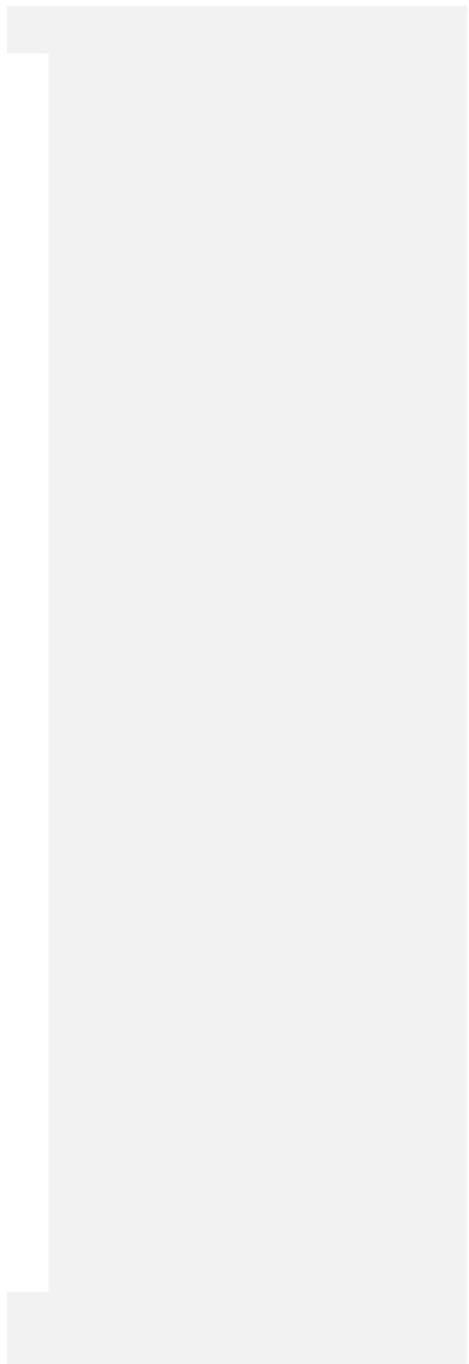


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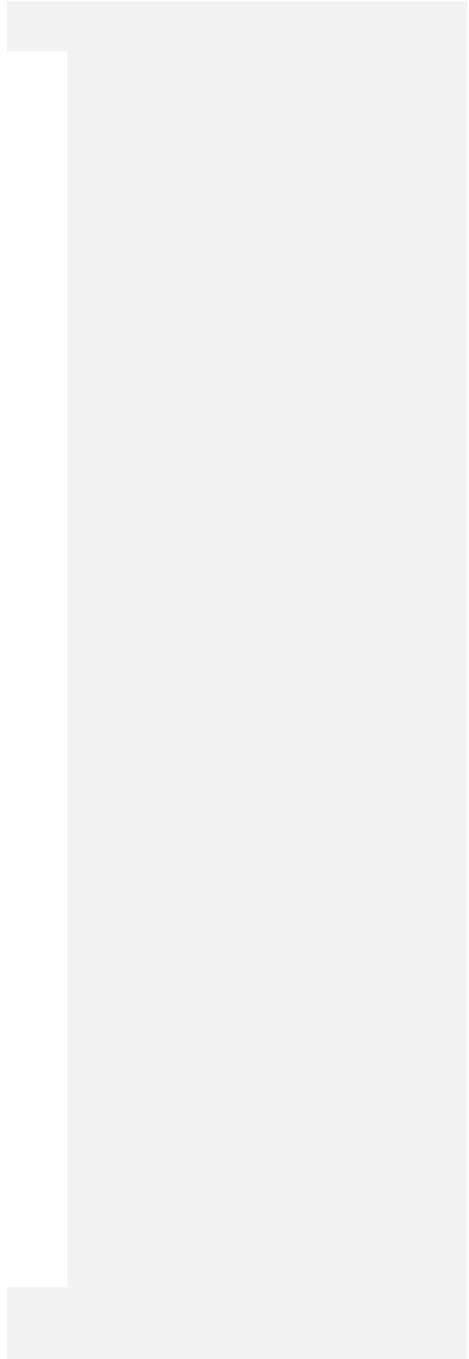
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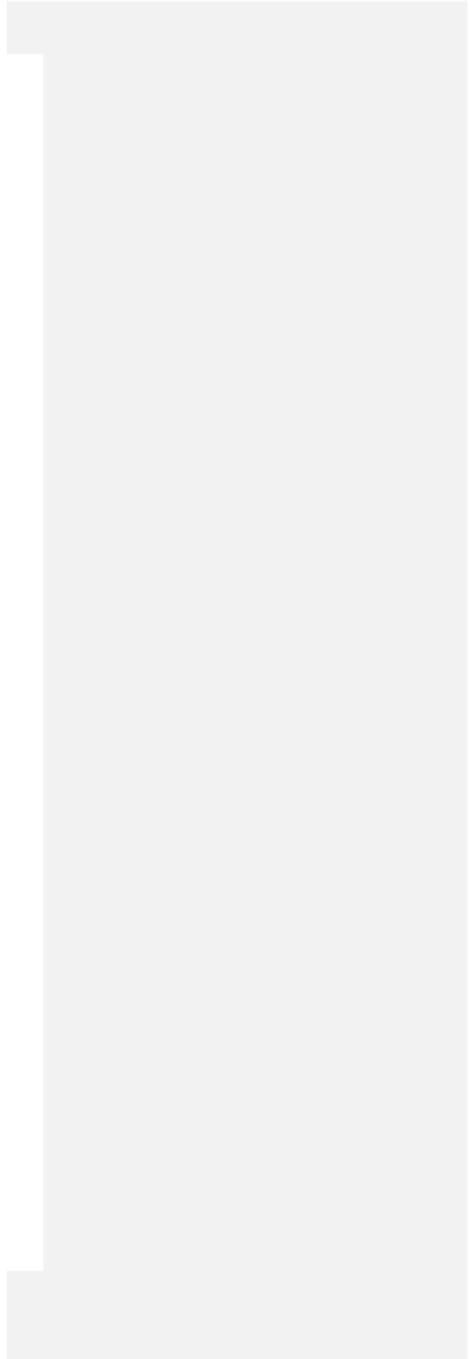
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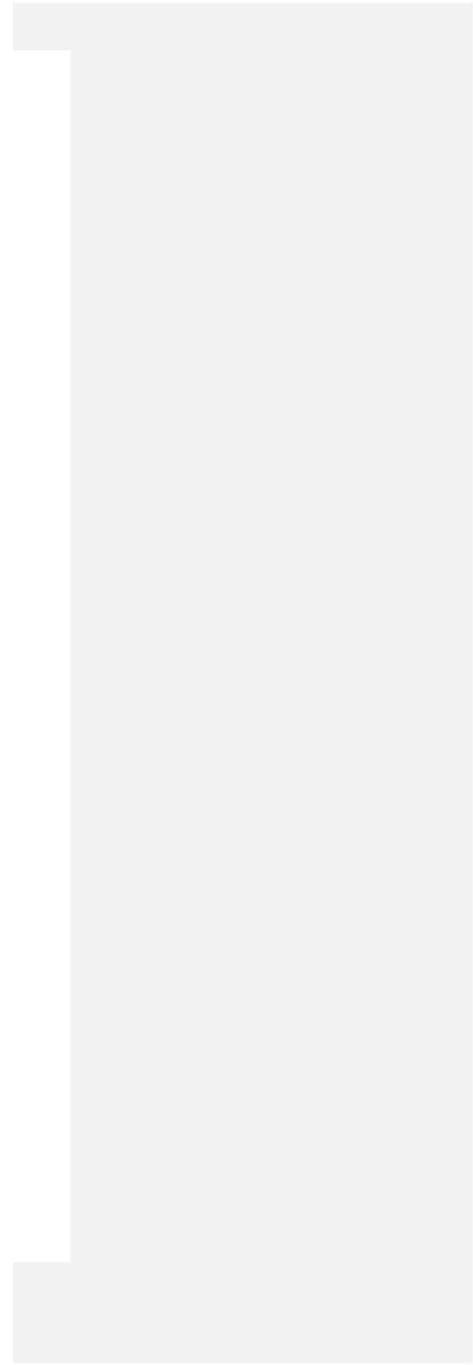
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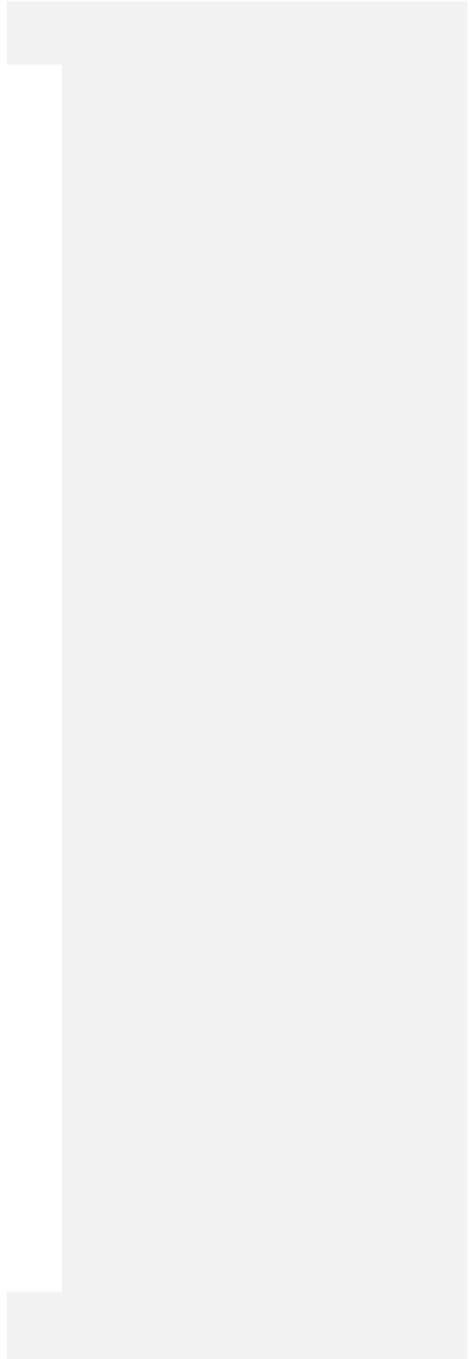


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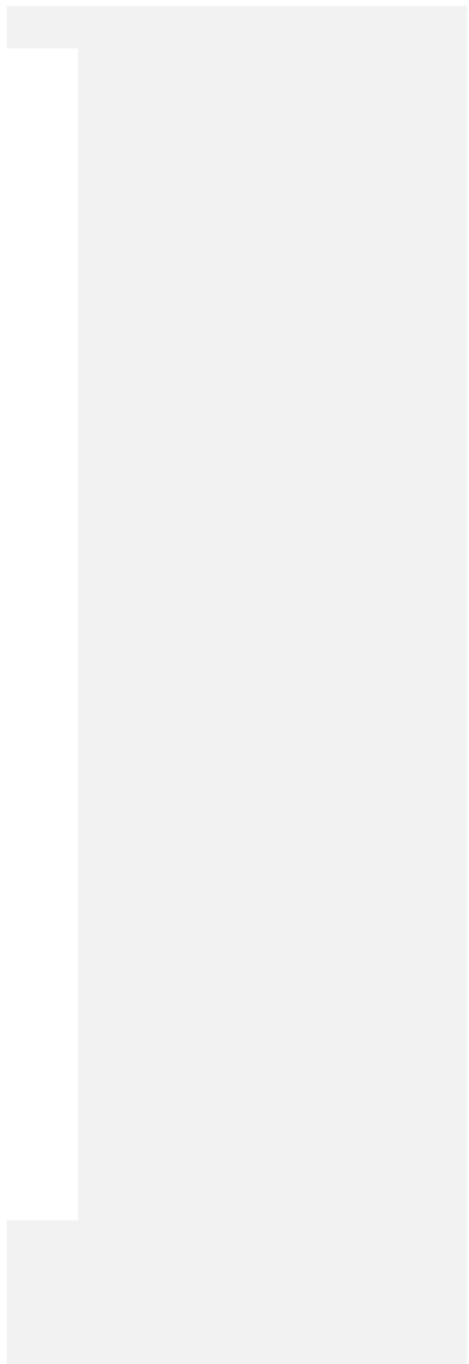
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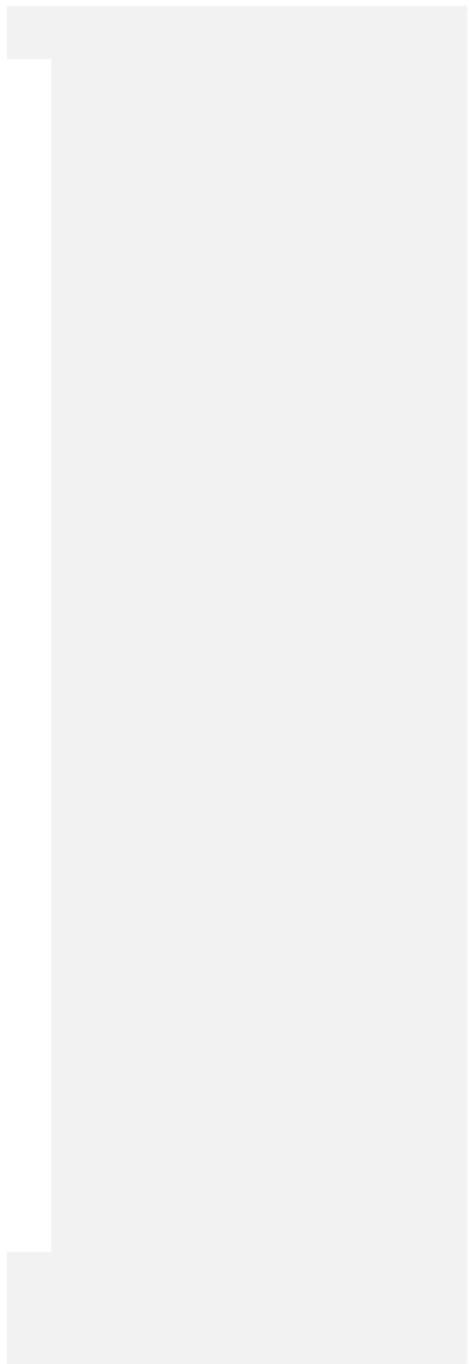


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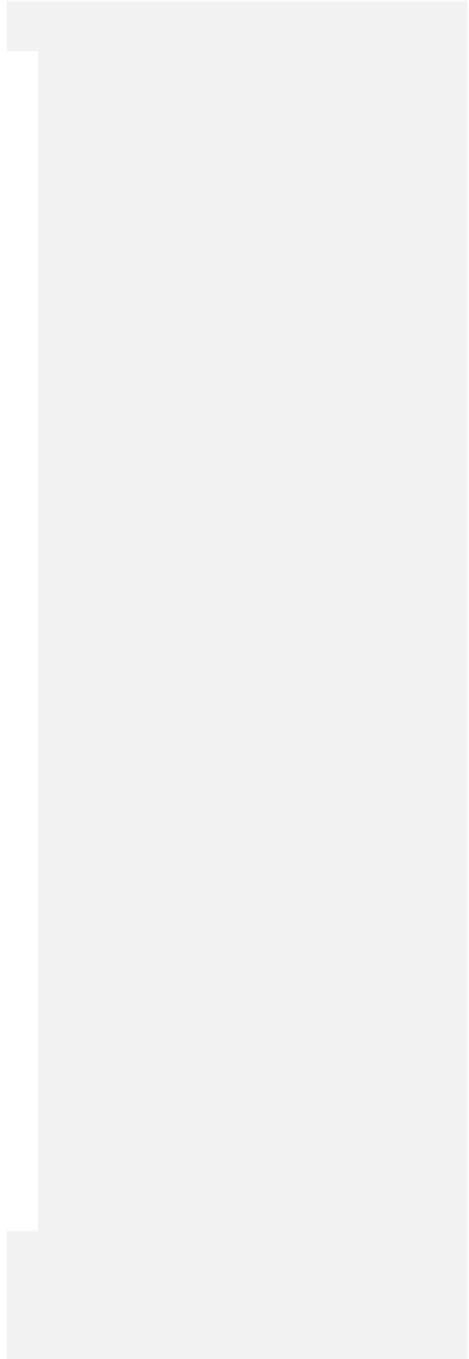
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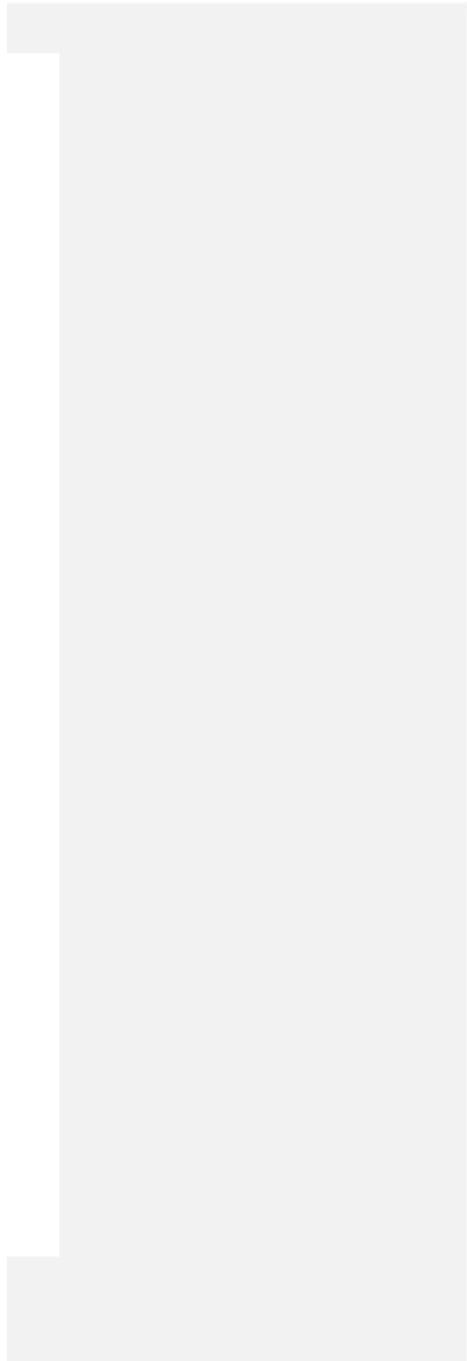
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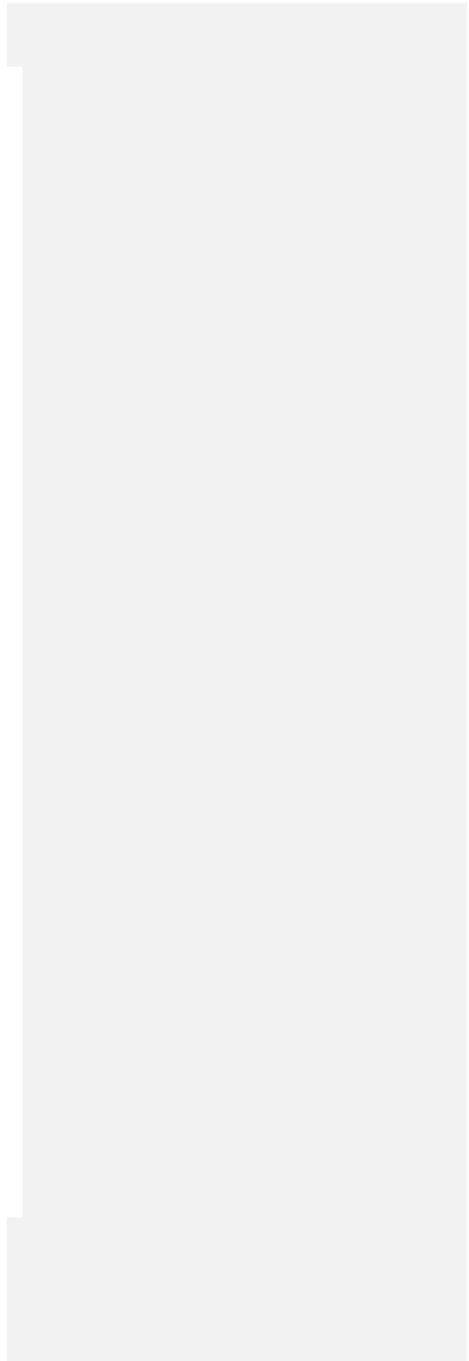
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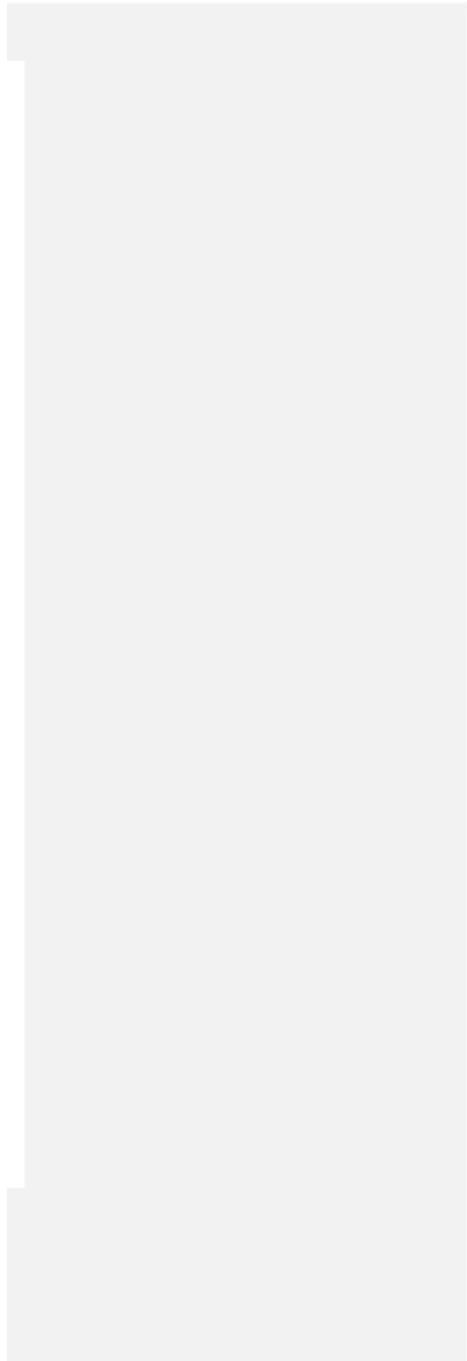


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