

Nevada Department of Wildlife

PREDATION MANAGEMENT PLAN FY11 REPORT & FY12 PROJECT PROPOSALS



Photo by: Jack Spencer (Wildlife Services)

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NEVADA PREDATION MANAGEMENT PLAN

Fiscal Year 2012 (FY12)

July 1, 2011 - June 30, 2012

The goal of the Nevada Predation Management Program is to initiate projects that have the greatest potential to produce the intended results based on the best available information and carried out in the most appropriate manner.

NDOW maintains the philosophy that predation management is a tool to be applied by itself, or ideally in conjunction with other management actions to reduce impacts of predation on populations identified as being additively impacted by specific predators. As with any management strategy, predation management should be applied on a location specific, case-by-case basis, with clear goals, and based on the best available information. It should be applied in the proper intensity and at a focused scale. Equally important, after management is initiated, projects should be monitored to determine whether the desired results are achieved. The analysis of these projects will lead to better applications on future projects.

The first part of this Predation Management Plan (PMP) provides a synopsis and/or analysis of individual projects completed in FY11 and recommendations for new projects or continuation of current projects in FY12. The last section of the report entitled "***Budget Detail by Project***" provides budget details in table format.

"All intrastate boundaries of wildlife damage management projects are to be taken as flexible boundaries, and any damage control personnel may operate freely in adjacent areas if, in their professional opinion, the animals determined to be causing damage in the target project area are located in such an adjacent area."

A history of the Projects through 2006 can be found in the NDOW document entitled: *A Program Overview - Nevada Predator Management Plan - A Report to the Nevada Board of Wildlife Commissioners' Wildlife Damage Management Committee (Predation Management Committee)*. This report was prepared by NDOW to describe the history of the Predator Management Program, including description of management applications, a documentation of deliverables, an accounting of budget commitments and analysis of project goal-completion. This document is available online at www.ndow.org.

Executive Summary

The Predator Management Staff Specialist position was vacant for most of FY11. DURING FY11 seven of eight projects were implemented. Only Project 21 was not implemented because predator management work identified in that particular project was accomplished under Heritage Program funding with similar objectives. A total of \$374,851 was spent by Wildlife Services and \$31,775 spent by the Nevada Department of Wildlife to implement these projects in FY11. All eight projects have been recommended to continue in FY12. There was \$503,985 dollars available to start FY12.



FY11 Project Status Reports and FY12 Project Proposals

Project 6: Protection of Desert Bighorn Sheep – Delamar Mountains

By Mike Scott, Mike Cox, and Mark Jensen

Project Inception and Current Status: FY02, and recommended through FY12.

Project Conclusion: FY14

Original Proposed Budget for FY11 (from est. FY10 costs): \$17,422.00

Proposed Wildlife Services' Budget Request for FY11: \$34,845

WDMC & NBWC recommended budget from August 2011 meeting: \$90,000

FY11 Expenditures by Wildlife Services to accomplish work: \$87,041.58

FY12 Projected Expenditures: WS-Nevada proposed a budget of \$90,000 to conduct predator removal within the Delamar Mountains during FY12. This increased budget was for a fulltime year-round WS Wildlife Specialist to work the Delamar Mountains for targeted mountain lions, coyotes, and bobcats.

Project Area: Delamar Mountains and adjacent ranges as needed. The area of concern agreed upon by Wildlife Services and NDOW was expanded in 2004 to include the following mountain ranges: Delamar Mountains, Meadow Valley Mountains, South Pahroc Range and a portion of the Hiko Range.

Target Predators: Coyotes, bobcats and mountain lions.

Control Period: Year-round as needed.

Predator Control Action: The primary objective is to provide Wildlife Damage Management (WDM) activities to protect transplanted bighorn sheep but mule deer and other wildlife species may also benefit. In 2001, NDOW released a total of twenty six (26) bighorn sheep into the Delamar Range. Five (5) desert bighorn sheep were equipped with special satellite-transmitter collars. In October 2003, twenty five (25) additional bighorn sheep were released into the unit and seven (7) were equipped with special ear-radio tags. The collars and ear tags allowed the animals to be monitored for location and also emitted a mortality signal if the animal dies. WS was included in the monitoring loop, so that information concerning the welfare of the sheep could be funneled to the field specialist in a timely manner.

It is important that Wildlife Services (WS) be informed of mortality in as timely a manner as possible, so that a Wildlife Specialist can examine the carcass while it and any other important "sign" is still "fresh". A Wildlife Specialist can then examine the dead sheep to determine what predator (if any) caused its death. If it was determined that a mountain lion (lion) or other predator had killed the sheep, then a Mountain Lion Specialist (MLS) or Wildlife Specialist would pursue the offending predator. The methods used by WS to remove offending lions would be: the use of trailing hounds; trail set snares; traps; call boxes; and foot snares. Other predators will be removed by: traps, snares, calling, shooting, or spotlighting. Mules are used by the WS MLS and the Wildlife Specialist to



check equipment and follow dogs through the predominately roadless country. Seven trail cameras were also utilized to help identify potential predator issues. Several thousand photos were reviewed and have helped identify future predation issues. A field camp was placed in different locations to help minimize travel and save time and money.

The WDMC recommended budget of \$90,000 to conduct mountain lion removal within the Delamar Mountains during FY11 was based on the cost for a fulltime WS Wildlife Specialist to work the Delamar Mountains for targeted mountain lions, coyotes, and bobcats throughout the year.

Project 6 Predator Removal By Year											
Year	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	Total
Lions	1			1	1		1	2	3	3	12
Coyotes								16	4	87	107
Bobcats							2		1	1	4
Totals	1			1	1		3	18	8	91	123

Project 6 Wildlife Services' Expenditures By Year										
FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	Total
\$17,523	\$840	\$5,486	\$9,104	\$8,222	\$9,104	\$11,836	\$17,475	\$17,369	\$87,042	\$184,001

FY11 Summary: Funding was increased to hire a full time Wildlife Specialist to protect bighorn, mule deer and other wildlife in the area. On November 8th, 2010 a full time Wildlife Specialist started working the area. From 7-1-10 to 6-30-11, Wildlife Services removed 3 lions, 1 bobcat, 87 coyotes and 3 badgers. Seven badgers and 3 bobcats were also released unharmed. Although bobcats were a targeted species due to past documented predation on bighorn sheep, the 3 bobcats were released because they were trapped on the north end of the Delamar Mountains well away from known bighorn sheep populations and did not pose a threat. Wildlife Services reported 1 adult bighorn ram and 2 adult mule deer does as confirmed lion kills and 1 adult mule deer doe as a confirmed coyote kill during this reporting period. Several other mule deer mortalities and 1 bighorn mortality were discovered but the cause of death could not be determined due to the age of the carcasses (coyotes were suspected in some cases).

Wildlife Services' employees were also involved with the removal of more than 8,300 marijuana plants in late summer 2010. While conducting routine predation management activities, a large marijuana plantation was discovered in a remote canyon. WS employees escorted law enforcement officials into the area and assisted with the removal of some of the plants.

Two radio-collared adult rams were found in the general vicinity of the Ford water development in August, 2010. Both appeared to be possible predator kills, but did not appear to have normal indications associated with lion kills. Another collared ram was found in Jump-Up Canyon in August, 2010. All indications were that this ram was taken by a mountain lion. A mortality signal was obtained from an adult ewe in Bomber



Canyon in April, 2011. An investigation suggested this was also a likely predator kill, but did not appear to have been caused by a mountain lion. Only one of these kills was detected in time to take any action toward the offending predators. Additionally, two sportsmen using trail cameras reported taking pictures of lions on water developments and springs in the Delamars during the summer and fall of 2010. These reports were passed along to Wildlife Services when they occurred. The Wildlife Services Lion Specialist began trailing the cats again in September 2010. NDOW biologists reported a lion approximately 6 months old was caught in a trap and subsequently killed in FY11.

FY10 Summary: In FY10, the three lions that were trailed by Wildlife Services were first observed on trail cameras and the report of this event by two sportsmen was passed on to Wildlife Services. In addition NDOW contacted Wildlife Services on at least four separate occasions concerning mortality signals emitted by radio collars placed on bighorn sheep in the Delamar Mountains. Mortality signals indicated the sheep died or possibly lost the collar for various reasons. One adult ewe was killed by a bobcat. An adult male bobcat was trapped and removed near the kill site. Three other mortality signals were investigated by Wildlife Services personnel during FY10. One was a confirmed lion kill and one adult male lion was removed associated with this kill. The other two bighorn sheep died of natural causes. Two other lions were also removed by Wildlife Services for the protection of bighorn sheep. Four coyotes were removed near the location that two adult ewe bighorn sheep were confirmed killed by coyotes the previous fiscal year. Three coyotes were removed with the use of a helicopter and one coyote was caught in a leghold trap placed for the above mentioned bobcat.

FY09 Summary: In FY09 an additional 108 bighorn sheep were augmented into the Delamar Mountains (75) and Meadow Valley Mountains (33). Shortly after the release, mortality signals on two GPS collars were received. Initial investigation of the carcasses indicated predation by coyotes. This added to the list of mountain lions and bobcats as confirmed bighorn sheep predators in the Delamar Range. Aerial hunting of coyotes in the immediate vicinity was accomplished and resulted in the removal of eight coyotes from the area. Wildlife Service's contracted a helicopter to return to the area in May. Eight more coyotes (16-total) were removed from in and around bighorn sheep herds and the vicinity of the original predation.

Subsequent to the coyote predation, two bighorn sheep mortalities were documented as caused by mountain lion predation. In FY08 the lion specialist assigned to the project had trailed one of the lions but never was able to capture it. In FY09, the area biologist placed trail cameras at several waterholes and caught two lions on film utilizing the area. The Wildlife Services Lion Specialist began trailing the cats again in December FY09 and captured them, one on 12-16 and the other on 12-22. One female and one male were removed with estimated ages of 7.5 and 4.5 years old, respectively.

FY08 Summary: In FY08 53 bighorn sheep (3 rams, 43 ewes, 7 lambs) were augmented into the Delamar Mountains with one sheep lost to predation by a bobcat within the first month. Severe weather impeded trapping efforts but eventually two bobcats were removed and no new bighorn mortalities were documented. Additionally one 5-6 year-old adult female lion (90 lbs.) was removed from the area. Several days later two collared bighorn mortalities were documented by the NDOW area biologist and the Wildlife Services lion specialist trailed the lion for weeks, finally losing it during a late



season storm. Five of the bighorn were lost including 1 lost to bobcats, 3 likely killed by lions, and 1 died giving birth.

FY07 Summary: No lions were removed but Wildlife Services conducted intense surveys on multiple occasions overlapping the months of historically documented as most likely to have predation by lions occur (November through March).

FY06 Summary: Wildlife Services removed 1 male lion.

FY05 Summary: Wildlife Services removed 1 male lion.

FY04 Summary: Wildlife Services conducted follow-up lion work but no lions were removed.

FY03 Summary: Wildlife Services removed 1 male lion and noted a smaller lion that moved through the area.

FY02 Summary: Wildlife Services conducted follow-up lion work but no lions were removed.

Conclusion: Thirteen lions, four bobcats and 107 coyotes have been removed as of June 30, 2011. An initial large tom was removed in 2002; one lion in 2005, one lion in 2006, three in 2008, and three in 2010 all associated with bighorn sheep mortalities. Three lions, 87 coyotes and 1 bobcat were removed in 2011. Bobcat predation was documented as having a larger impact than originally thought with one bighorn killed in FY08 and another one in FY10. This can also be said of coyotes after the predation of two bighorn sheep following the FY09 augmentation.

A large portion of the Delamar Mountains was declared wilderness in the Lincoln County Lands Act of 2004 and is now Designated Wilderness Area. Access for trappers was severely reduced, which may result in higher bobcat and coyote densities than adjacent areas where trappers have good access. The project was designed to mitigate bighorn losses to predation until such time that the herd has reached a threshold level where such losses are overcome by recruitment.

Most known lion predation incidents occurred from October through March. The project provided important information concerning lion use patterns, season of use, general densities, as well as pinpointing windows when lions and bighorn sheep use areas overlap. A better understanding of how to more efficiently and effectively allocate personnel and resources facilitates a more surgical approach to lion removal.

Bobcats and coyotes are known predators of large ungulates. Recently augmented or introduced bighorns are also known to be more vulnerable to predation. This was confirmed since both the bobcat and coyote predation incidents occurred on recently augmented and collared sheep within weeks of their release.

Indications the Delamar Mountains predation management project may help facilitate establishment of a stable bighorn population were suggested by the following table of survey results:



<i>Year</i>	<i>Rams</i>	<i>Ewes</i>	<i>Lambs</i>	<i>Total</i>
2001	16	17	5	38
2002	3	15	3	21
2003	7	12	2	21
2004	5	15	5	25
2005	4	23	5	32
2006	6	7	1	14
2007	12	25	9	46
2008	6	22	4	32
2009	7	37	10	54
2010	12	37	11	60

Recommendation for FY2012: Continue with Project (6). It is recommended that efforts to snare lions be increased in FY12, especially around the Ford and Nerksipple water developments and around the springs between Jump-Up and Boulder Canyon. Additionally, efforts to place trail cameras on big game water developments and springs in the area would be helpful in detecting the presence of predators during the hot summer months. Wildlife Services also recommends that the wildlife damage management work continues to protect bighorn sheep, mule deer and other wildlife in the expanded area (since 2004) that includes the Delamar Mountains, Meadow Valley Mountains, South Pahroc Range and a portion of the Hiko Range. Radio collar data indicate released bighorn sheep use all of these ranges and the expanded control area should facilitate protection efforts.

Project 18: Washoe County Deer

By Chris Hampson, Mike Dobel, Tony Wasley and Mark Jensen

Project Inception: FY05, and recommended through FY12.

Project Conclusion: FY14 (10 year project - originally 5 years - extended by Commission Recommendation)

Original Proposed Budget for FY11 (from FY10 costs): \$103,945

Proposed Wildlife Services' Budget Request for FY11: \$102,193.42

WDMC & NBWC recommended budget from August 2011 meeting: \$93,564.00

FY11 Expenditures by Wildlife Services to accomplish work: \$92,959.93

FY12 Projected Expenditures: WS-Nevada proposed a budget of \$102,193.42 to conduct mountain lion and coyote removal within the Granite Range during FY12.

Project Area: Treatment Area: Granite Range, Washoe County.

Control Area: Balance of northern Washoe County and the Sheldon NWR.

Target Predators: Coyotes and mountain lions.

Control Period: Year-round as needed.

Predator Control Action: Target Predators are to be removed on a year-round basis as needed by USDA-APHIS-Wildlife Services (WS) using dogs, calling, call boxes, shooting, leg-hold traps, aerial hunting and snares.



Project 18 Predator Removal By Year								
Year	FY05	FY06	FY07	FY08	FY09	FY10	FY11	Total
Lions	2	2	5	7	5	7	12	40
Coyotes	145	220	216	93	105	59	129	967
Totals	147	222	221	100	110	66	141	1,007

Project 18 Wildlife Services' Expenditures By Year							
FY05	FY06	FY07	FY08	FY09	FY10	FY11	Total
\$20,511	\$25,966	\$31,946	\$95,525	\$103,945	\$85,185	\$92,960	\$456,038

FY11 Summary: Wildlife Service's removed 12 lions and 129 coyotes from within the Project 18 boundary. In addition, 11 lions were removed from adjacent Hunt Unit 015 funded through livestock protection efforts (depredation) while one additional lion was removed due to expansion of Project 18 removal efforts. The total number of lions removed since the inception of the project now stands at 40 and the number of coyotes removed was 967. The Wildlife Specialist provides a bi-monthly report for NDOW detailing fixed-wing and ground trapping efforts with GPS coordinates for all predators removed in the Project 18 protection area. In addition, GPS locations are recorded for most game species and wild horse observations. Finally, coyote jaws are collected for NDOW's age structure analysis and database.

Last year an extensive analysis was conducted in an attempt to identify benefits or differences in performance of Unit 014 deer or bighorn populations in comparison to other adjacent units in the northern Washoe-Humboldt Counties area. Big game monitoring and survey data were collected again in FY11 and resulted in the following 2010 post-season mule deer sex and age ratios: Unit 014 - 26 bucks:100 does:54 fawns, Unit Group 011-013 - 32 bucks:100 does:58 fawns, and the Sheldon - 36 bucks:100 does:54 fawns. Once again, production as measured by post-season deer surveys was not noticeably different in areas with or without predator control.

Mule deer surveys conducted in the spring of 2011 resulted in the following fawn:adult ratios: Unit 014 - 43 fawns:100 adults, Unit Group 011-013 - 41 fawns:100 adults, Unit 015 - 39 fawns:100 adults and the Sheldon - 40 fawns:100 adults. Also of interest, were the results of spring deer surveys in Management Area 2 where the highest fawn ratios were observed as follows: Unit 021 - 45 fawns:100 adults and Unit 022 - 47 fawns:100 adults. It would have been more encouraging if Unit 014 had exhibited the highest fawn ratio similar to Unit 022 or higher! But, fawn ratios in all of these areas were similar and within statistical variance based on population and samples sizes. Spring fawn ratio comparisons in 2011 were less supportive of predator control benefits than those of 2010 when the following spring fawn ratios were observed: Unit 014 - 52 fawns:100 adults, Unit Group 011-013 - 48 fawns:100 adults, Unit 015 - 50 fawns:100 adults and the Sheldon - 43 fawns:100 adults. The differences in 2010 spring fawn ratios were



also determined to be statistically insignificant (see last year's Predator Management Plan for FY11 & FY10 Report).

Survey sample sizes for bighorn sheep were not sufficient to provide sex and age ratios with only 7 bighorn sheep observed compared to 38 the previous year.

FY10 Summary: According to Wildlife Services and NDOW records, as of November 2010, a total of 812 coyotes and 31 mountain lions were removed since project inception. Since this project's primary objective has been to provide a benefit to mule deer via decreased predation by mountain lions and coyotes, indices of mule deer population, mule deer production, hunting opportunity, hunting success, and quality of animals harvested were considered and compared between the area in which predator management is occurring and three adjacent areas without additional predator management activities occurring. During FY10 big game data were analyzed by NDOW and UNR in an attempt to identify if objectives to benefit mule deer (primary objective) or bighorn sheep could be documented since the project was initiated in FY04.

Results of the analyses indicated mule deer population estimates have shown decreases in units 015 and 033 and increases in 011-013 and 014. Since project initiation in FY04, the population in Unit 014 has increased by 53%. However, 30% of that increase occurred prior to any appreciable predator removal, and, the adjacent units, 011-013, experienced a 37% population increase over that same time frame in the absence of predator management. Population decreases in Unit 015 were largely an artifact of mild winters in California and an absence of migratory deer from California making the trek to Nevada. The decrease in Unit 033 was likely a result of catastrophic wildfire destroying ~50-60% of the available mule deer summer range since 1998 and prolonged drought, (precipitation was well below average during 9 of the last 12 years).

Fawn ratios, hunter success, total harvest, and 4-point or better didn't provide evidence or insight to any population level benefits of project 18 that might have led to increased opportunity or improved buck quality. With the assistance of UNR a series of statistical analyses were performed on data from project 18. Population estimates, fall fawn ratios, spring fawn ratios, hunter success, total harvest, and percent 4-point or better were all independently regressed against both lion harvest and coyote harvest. The regressions performed resulted in zero significant correlations. Additionally, population trends of mule deer were tested for statistically significant differences between the predator management area and other adjacent areas. No statistically significant difference existed between 014 and either 033 or 011-013. However, the population trend in 014 was statistically different from that observed in 015.

Spring fawn/adult ratios have varied widely. In only one of 6 years since the inception of the project, was the spring fawn/adult ratio noticeably higher in 014 than the other units. This occurred after only 4 lions and 185 coyotes had been removed and has not occurred since with significantly more predator removal having occurred subsequent to that time.

Total harvest for all areas maintained a similar pattern with increases experienced in 2005, 2006, and 2007. Harvest in all of them declined sharply in 2008 except for 015 which had already declined in 2007. While both 011-013 and 014 rebounded in 2009, harvest in 033 reflects the direction of the deer population which declined each of the



past two years. Harvest in Unit 015 has been relatively stable since 2007. The pattern observed in 014 does not appear unique to 014 or significantly different from adjacent areas. Hunter success rate data seem largely unremarkable as it relates to project 18. Additionally, there does not appear to be any relationship between the percentage of bucks 4-points and better in the harvest and predator management activities.

Population increases in 011-013 (37%) and 014 (53%) could be attributable to a number of factors including; predator control, wild horse gathers, mild winters, wet springs, and late summer moisture. Predator control publicly received credit for much of the 53% increase in Unit 014 (850 deer to 1300) and may well have facilitated at least some of the growth. But it should be noted that well over half of that population increase (850-1100) occurred by the spring of 2007 before any appreciable lion removal occurred. Only 4 of the 31 lions were removed before preparation of the 2007 deer population estimate. Additionally, since the same pattern of deer population increases occurred in 011-013 and 033 from 2004 to 2008 in the absence of predator control, it strongly suggests deer population increases in northwest Nevada were likely the result of a larger landscape scale phenomenon such as weather.

Some attention was also given to potential effects of predator control on California bighorn sheep in Unit 014. This bighorn sheep population increased 200% since the inception of the project in FY04. Some felt this was indicative of benefits of predator removal. Although removal of lions and coyotes may be facilitating population growth and expansion of bighorn sheep, it is important to consider several other factors that may have also influenced bighorn sheep populations. At the inception of the predator management project in Unit 014 the sheep population was already very low after a suspected bighorn sheep die-off (2001) where up to 70% of the sheep may have perished. An augmentation accomplished in 2004 helped offset losses from the die-off. Eighteen bighorn sheep were transplanted into the northern part of 014 in order to start a new sub-population at Negro Creek and they exhibited a rapid growth rate frequently observed in new sheep populations. Unit 014 went from the smallest California bighorn population in the state at 40 animals to only the fourth smallest California bighorn sheep population of 120 animals from 2004 to 2010. In 2010, 9 bighorn sheep were trapped from Unit 014 and transplanted to the Jackson Mountains in Humboldt County. So the actual increase over the 6-year period was 89 bighorn and represents a 223% increase. This population increase was facilitated by natural recovery and predator management, but augmentations were also part of the formula for success.

For comparative purposes, Unit 012 bighorn population estimates went from 160 California bighorn sheep in 2005 to 270 in 2010 for a 69% increase of 110 animals in just 5 years. Furthermore, 20 bighorn were removed and transplanted to Idaho from Unit 012 in 2004 and 6 more were removed and transplanted to the Jackson Mountains in 2010. If those additional 26 bighorn are added to the total, then the Unit 012 bighorn population would have increased by 146 animals, or 73%, without specific predator management actions being employed. In actuality, there would have been even more than the 26 bighorns added to the population. This is because by keeping those ewes in the herd, their offspring from 2004 to 2010 would have added even more animals to the population demonstrating the ability for natural recovery and recruitment of bighorn sheep.



The bighorn sheep hunting season reopened in 2005 with one tag issued for Unit 014. Since 2005 every sheep that has been harvested in this unit came from the new sub-population at Negro Creek. These sheep are from a different source stock of larger horned animals. Although predator removal certainly provide benefits to bighorn sheep populations, these other factors were also important to consider when explaining a 200% population level increase and improved trophy quality that was reported elsewhere.

FY09 Summary: Wildlife Services removed 5 lions and 105 coyotes. Unit 014 mule deer had the highest spring fawn ratio (42 fawns:100 does) compared to the rest of Washoe County (38 fawns:100 does) but only slightly higher than Unit 012 (41 fawns:100 does). The fawn ratio in the Sheldon (Unit 033) was only 34 fawns:100 does but habitat conditions were poor due to three years of drought conditions. It was concluded that the high number of lions removed from the Granite Range over the past few years demonstrates transient lions from adjacent areas continue to fill in behind those removed.

FY08 Summary: Wildlife Services removed 93 coyotes (71 – ground, 22 – aerial) and 7 lions (snares – 6, dogs – 1). Two lions were also removed from adjacent Unit 015 with home ranges that likely include parts of Unit 014. Recruitment rates for mule deer were down (below previous three-year averages) in FY08.

FY07 Summary: Wildlife Services removed 216 coyotes and 5 lions.

FY06 Summary: Wildlife Services removed 220 coyotes and 2 lions. Additional radio-telemetry surveys were conducted for radio-collared mule deer from the December 2004 capture and marking project. Transmitter battery life was found to be around 18 months with a few lasting up to two years.

FY05 Summary: In December 2004, a total of 24 mule deer were captured and fitted with ear-tag transmitters in an effort to better understand mule deer seasonal use patterns and to investigate survival of marked mule deer. Transmitters were attached to 8 juveniles (4 males and 4 females) and 16 adults (10 females and 6 males). All but two of the 24 deer were also fitted with plastic All-Flex numbered ear-tags to help in identifying animals from the ground. Telemetry follow-up was conducted from both the air (2/12/05 & 3/25/05 by NDOW Cessna airplane) and twice from the ground (vehicle) in March 2005.

All transmitters stopped functioning at the end of the two-year period. None of the 24 marked mule deer were known to have died during the two-year monitoring period. However, two adult males were later harvested by hunters, one during the 2006 rifle season and the other during the 2008 season. Three of the transmitters malfunctioned and were observed on “live deer” while emitting a mortality signal. Two other transmitters simply fell off of the deer and were found with deer tracks coming and going from the transmitter left lying on the ground. One other transmitter quit working entirely in April of 2005. All other deer were known to be alive and well at the end of the monitoring period.



Telemetry information gained from this portion of the study helped confirm and document mule deer movement patterns within the Granite Range. No major deer movements away from the Granite Range were noted. As expected, mule deer within the Granite Range simply dropped in elevation during the winter and were generally located on known winter ranges. During extreme winter events some deer moved further to the east and into the foothills east of Leadville Canyon and to lower elevation alluvial fans south of Little High Rock Canyon. During the summer months, most deer moved to the highest elevations on the southern half of the range or were located on upper elevation peaks or ridges.

Wildlife Services removed 66 coyotes in FY04.

Conclusion: Wildlife Services reported that 967 coyotes and 40 lions have been removed from this area since initiation of protection efforts. It should be expected that this level of predator removal would provide relief in adjacent management units, especially where BLM horse round-ups reduce available prey densities and focus lion predation more on big game.

Project 18 was initiated with the capture and collaring of 24 mule deer in December 2004. Collars were tracked and monitored for the next 12 to 24 months. The initial collaring effort was designed to document movement and seasonal ranges of mule deer living in the Granite Range. In addition, survival of collared animals was noted for the two-year period. NDOW will continue to monitor mule deer populations in Washoe and western Humboldt Counties by conducting aerial composition surveys. An in-depth analysis of data collected thru the end of FY10 was completed last year and can be found under Project 18 in the *Predation Management Plan for FY11 & FY10 Report*. Additional analysis of the project will be undertaken following the scheduled completion of the ten-year project in 2014 to see if long-term predator management shows more promise than annual and short-term management has so far.

Recommendation for FY2012: Continue with Project (18) in order to monitor for positive effects of long-term predator management for mule deer and bighorn sheep.

Project 20: Virginia Mountains BHS

By Chris Hampson, Mike Dobel, Tony Wasley, and Mark Jensen

Project Inception and Current Status: FY08, and approved through FY12.

Project Conclusion: Undetermined.

Original Proposed Budget for FY11: \$5,807

Proposed Wildlife Services' Budget Request for FY11: \$17,678.03

WDMC & NBWC recommended budget from August 2011 meeting: \$17,678.03

FY11 Expenditures by Wildlife Services to accomplish work: \$14,983.01

FY12 Projected Expenditures: WS-Nevada proposed a budget of \$17,678.03 to conduct mountain lion removal within the treatment area during FY12.

Project Area: Washoe County, Unit 022.



Target Predator: Mountain lions

Control Period: Year-round as needed.

Predator Control Action: Target Predators are mountain lions to be removed on a year-round basis as needed by USDA-APHIS-Wildlife Services (WS) using dogs and other control tools such as a call box and snares.

Project 20 Predator Removal By Year					
Year	FY08	FY09	FY10	FY11	Total
Lions	5	0	1	2	8

Project 20 Wildlife Services' Expenditures By Year				
FY08	FY09	FY10	FY11	Total
\$4,000	\$5,807	\$4,707	\$14,983	\$29,497

FY11 Summary: Wildlife Services removed 2 lions in FY 11 with the use of trail snares and call boxes within a few hundred yards of bighorn sheep. Both lions were removed from the project area near Big Canyon/Tule Ridge. A male lion that was estimated at 4-years of age was removed in mid-May 2011 and one 3-year-old female was captured in mid April. The two WS trappers found sign of another male lion that inhabits the area which may have been re-collared by University of Nevada researchers last winter. Currently no protection efforts are being conducted in the Virginia Mountains because of personnel limitations and the presence of livestock until late fall that hinders the use of ground equipment. Protection efforts will continue during the winter months.

One additional lion was reported harvested in close proximity to the unit boundary between hunt units 021 and 022 in February of 2011. A 3-year-old male lion was harvested by a sport hunter. The bighorn sheep population estimate for Unit 022 was 110 for 2010-11 and continues to show an upward trend. As reported above for Project 18, it was of interest that the highest spring fawn ratio in the northern Washoe/Humboldt Counties area was in Unit 022 with 47 fawns:100 adults documented in 2011.

FY08-10 Summary: Wildlife Services' Lion Specialist initiated control activities in January 2008. Almost immediately a female with 3 juveniles was located and removed within the same range the sheep were occupying. It is well known and documented that female lions with kittens are the most prolific killers. Addressing that specific situation was important. In February of 2008 another lion was removed within the sheep's range, again a female. In January 2010, a large male mountain lion was removed in close proximity to where several bighorn sheep were residing. In October 2010, a hunter harvested a two-year-old female lion from the west side of Tule Ridge in Unit 022.

Conclusion: In the past there has only been enough funding to periodically use a Lion Specialist with hounds to occasionally visit the Virginia Mountains. Wildlife Services recommended that trail snares and call boxes be used to better offer 24 hour protection to address mountain lion immigration that can occur at any time. Control efforts have



removed 8 lions from the northern end of the Virginia Mountains. The sheep population in the Virginia Mountains continues to grow and was estimated at around 110 animals in 2010-11. Lion predation was identified as excessive in this area prior to the project being initiated in 2007-08. Unless higher priority areas surface, the recommendation will be for this project to continue.

Recommendation for FY12: Continue with Project (20). The recommendation is to continue to target mountain lions preying on populations of recently introduced, augmented, underachieving herds, or herds where lion predation is identified as excessive on bighorn sheep. Wildlife Services indicated protection efforts may be limited by funding since during FY11 the West District Supervisor and the Wildlife Disease Biologist conducted protection efforts in addition to their regular duties and there is no additional available time.

Project 21: Sage Grouse and WMA Turkey, Waterfowl, Shorebirds

By Shawn Espinosa and Joe Bennett

Project Inception: FY08

Project Conclusion: Undetermined.

Original Proposed Budget for FY11: \$17,475

Proposed Wildlife Services' Budget Request for FY11: \$16,261

WDMC & NBWC recommended budget - August 2011 meeting: \$16,261 (\$2,000 of this for turkeys, upland game, waterfowl and shorebirds at Overton & Steptoe WMA as needed)

FY11 Expenditures by Wildlife Services to accomplish work: \$0.00

FY12 Projected Expenditures: WS-Nevada proposed a budget of \$16,261 to conduct raven removal within the proposed treatment areas during FY11. A portion of this (\$2,000) was identified for possible use if needed at the Overton WMA. This was not done in 2010 but has been done in the past.

Project Area: Sage grouse lek habitat throughout the state as needed and identified by NDOW biologists and/or Overton and Steptoe Wildlife Management Areas

Target Predators: Ravens, badgers, skunks, coyotes, foxes, and bobcats

Control Period: March-June.

Predator Control Action: The USDA/APHIS Wildlife Services will remove ravens using DRC-1339 and coyotes by using calling, shooting, leg-hold traps, aerial hunting and snares. Bobcats are targeted on a case-by-case basis using calling, shooting, leg-hold traps, aerial hunting and snares, to remove offending animals. Raccoons, skunks, and badgers are removed using shooting, leg-hold traps and snares. Ravens are known predators of sage grouse nests and chicks. Ravens are also known predators of waterfowl and shore bird nests and chicks. USDA-APHIS-Wildlife Services was requested by NDOW to help reduce impacts caused by raven predation in designated areas utilizing DRC-1339 egg baits. Nest success of sage grouse, turkeys, waterfowl and shorebirds should increase from the suppression of ravens.



Project 21 Predator Removal By Year					
Year	FY08	FY09	FY10	FY11	Total
Ravens	925	630	890	0	2,445
Badgers					
Skunks					
Coyotes					
Foxes					
bobcats					
Totals					

Project 21 Wildlife Services' Expenditures By Year				
FY08	FY09	FY10	FY11	Total
\$10,000	\$17,475	\$14,298	\$0	\$

FY11 Summary: No predator management was conducted for sage grouse leks this fiscal because a Heritage Project provided enough money to cover all expenditures for raven and badger removal on sage grouse leks and on some Wildlife Management Areas.

FY10 Summary: During FY10 some pre-treatment raven counts were conducted and recorded within the vicinity of targeted leks. Due to weather conditions and logistics, not all leks had pre-treatment raven counts completed. Wildlife Services observations indicated that ravens tend to move into the treatment areas later in the season. This may have accounted for the low pre-treatment counts and the fluctuation in raven numbers.

A total of 4,146 treated eggs were placed for the protection of sage grouse, waterfowl and shorebirds this past season. Wildlife Services observations indicated a dramatic reduction in raven concentrations in and around the treatment areas. Wildlife Services observations indicated it may be possible to achieve a 90% or higher reduction in localized raven numbers.

NDOW project 21 began on March 2, 2010 with raven counts and then control activities started on March 3, 2010. For the third year, NDOW biologists pre-selected 22 sage grouse leks and lek complexes based on the number of sage grouse, the number of ravens observed, and leks associated with low production. All 22 leks were located in Elko and Lincoln Counties. Nine leks were in Elko County and 13 were in Lincoln County. Two new lek complexes were selected by NDOW biologists in Elko County and were treated several times. Two leks were also treated late in the nesting season in Lander County at the request of NDOW bringing the total number of leks treated to 24 during 2010. The two leks treated in Lander County were Ackerman and Dry Creek. Leks treated in Lincoln County included Whittemore, Little Spring Valley, Fogliani, Eight Mile, Benchland, Tub Peak Hills 1, Tub Peak Hills 2, Tub Peak Hills 3, North Hamlin Well, Rosencrans Knolls 1, Rosencrans Knolls 2, Gardner Ranch, and Patterson Pass. Leks treated in Elko County included the Harris Complex, Barry's Complex, West Basin



Complex, Willow Creek, St. Johns, and Death Creek. Three new leks were also treated for the first time. They were Maggie Creek, the Saval Bench Complex, and 18 Mile. The Maggie Creek Lek Complex was inadvertently treated once by Wildlife Services. A moderate amount of ravens was observed and removed.

For the first time, two NDOW wildlife management areas were treated for the protection of waterfowl and shore birds. Those two areas were the Kirch WMA in Nye County and the Steptoe Valley WMA in White Pine County. Kirch WMA was treated on April 15, 2010, but due to high raven numbers, the Steptoe Valley WMA was treated several times starting on April 15 and ending on June 2.

Recommendations:

- 1) Continue raven control on sage grouse leks identified by NDOW.
- 2) Provide funding for a seasonal employee to conduct raven removal.
- 3) Use sage grouse lek, brood count and wing analysis data to determine effectiveness of raven control.
- 4) Remove ravens later into the sage grouse nesting season.

Conduct raven control in White Pine County to protect sage grouse and control ravens in other areas of the state as needed.

FY09: A total of 2300 treated eggs were placed. An estimated 630 ravens were removed. Both Wildlife Services and NDOW's observations indicated a dramatic reduction in raven numbers in and around the treatment areas. Wildlife Services observations indicate that a 90% or higher reduction in localized raven numbers can be achieved.

FY08: A total of 2436 treated eggs were placed. An estimated 925 ravens were removed. Both Wildlife Services and NDOW's observations indicated a dramatic reduction in raven numbers in and around the treatment areas.

Conclusion: In the past raven control efforts on Overton and Kirch WMA's have been successful in producing clutches of waterfowl as well as turkeys. After several years of no turkey poult production it was hypothesized that raven predation was the problem. This was based on observations of ravens preying on other nesting birds on the WMA. Subsequent to control efforts, observations by WMA personnel indicated turkey production was up following raven reductions.

Recommendation for FY2012: Continue with Project (21).

Project 22: Statewide Deer and Multi Species Enhancement Project

By Tony Wasley, Mark Jensen and Jack Spencer

Project Inception: FY10

Project Conclusion: Undetermined.

Original Proposed Budget for FY11: \$145,187

Proposed Wildlife Services' Budget Request for FY11: \$145,187.50

WDMC & NBWC recommended budget from August meeting: \$145,187



FY11 Expenditures by Wildlife Services to accomplish work: \$102,240.57

FY12 Projected Expenditures: WS-Nevada proposed a budget of \$145,187 to conduct removal of mountain lions, bobcats and coyotes within the treatment area during FY12. Fixed-wing costs are \$175/hour. Helicopter cost varies by type of aircraft and is estimated between \$600 to \$850/hour plus expenses. The proportion of use will be determined project by project.

Project Areas: Statewide based on current information in regards to big game species. Areas will be selected on several criteria. Those will include but not be limited to:

1. Mule deer herds exhibiting below average long-term postseason fawn: doe ratios, long-term spring fawn recruitment, and/or carrying capacity.
2. Areas where multi big game species exist.
3. Areas where long-term habitat improvements are under way.
4. Areas where recent augmentations or reintroductions are planned.
5. Areas where other big game species are below carrying capacity, under long-term averages for adult female:offspring ratios, areas where recruitment is below long-term averages and/or where big game populations have recently experienced die-offs or other catastrophic conditions exist.

Target Predators: Coyotes, bobcats and mountain lions.

Control Period: Year-round as needed.

Predator Control Action: USDA-APHIS-Wildlife Services (WS) removes mountain lions using dogs and other control tools such as a call box and snares. Coyotes are targeted for removal using calling, shooting, leg-hold traps, aerial hunting and snares. Bobcats are targeted on a case-by-case basis using calling, shooting, leg-hold traps, aerial hunting and snares, to remove offending animals.

Project 22 Predator Removal By Year			
Year	FY10	FY11	Total
Lions	2	0	2
Coyotes		357	357
Bobcats			0
Totals	2	357	359

Project 22 Wildlife Services' Expenditures By Year		
FY10	FY11	Total
\$136,412	\$102,241	\$238,653

This project is supported by Wildlife Service's aerial hunting program to control predatory animals for game species enhancement. Selective and timely control in designated areas based on aforementioned criteria will focus the effort in critical seasonal ranges. The timing of control work will be in accordance with individual project criteria, but should occur mainly on critical winter range and summer fawning areas or in



release areas. Wildlife Services will have the ability to utilize funding for either fixed-wing or helicopter services.

FY11 Summary: Hunt units identified for predator management included 142, 144, 222, and 231. Detailed reports were provided on a bi-monthly basis including fixed-wing and helicopter activities, dates, number of coyotes removed, locations and observations. It should be noted that units 142 and 144 became part of the NDOW Heritage project NA4W during this fiscal. Total coyote removal in this area were reported by Wildlife Services as follows: Unit 142 – 8 coyotes removed prior to transition to Heritage Project NA4W, Unit 144 – 69 coyotes removed prior to transition to Heritage Project NA4W, Unit 222 – 165 coyotes removed, and Unit 231 – 115 coyotes removed.

FY10 Summary: Wildlife Services removed 2 lions in Unit 114 (Mt. Moriah – North Snake Range) of White Pine County to protect a Rocky Mtn. bighorn resource on winter range.

Conclusion: Wildlife Services removed 2 lions and 357 coyotes and are responding to requests from NDOW biologists where needed.

Recommendation for FY2012: Continue with Project (22) in areas as requested by NDOW biologists using both fixed-wing aircraft and helicopters and draw stations prior to and during aerial operations to increase the probability of successful coyote removal.

Project 23: Mason Valley Pheasant

By Pat Kelly, Mark Jensen and Jack Spencer

Project Inception and Current Status: 2010, and approved through FY12.

Project Conclusion: Undetermined.

Original Proposed Budget for FY11: \$9,872

Proposed Wildlife Services' Budget Request for FY11: \$9,872.75

WDMC & NBWC recommended budget from August meeting: \$9,872.75

FY11 Expenditures by Wildlife Services to accomplish work: \$9,373.31

FY12 Projected Expenditures: WS-Nevada proposed a budget of \$9,872.75 to conduct predator removal within the treatment area during FY12.

Project Area: Mason Valley Wildlife Management Area in Lyon County

Target Predators: Coyotes, raccoons, skunks, badgers, and ravens.

Control Period: March-June.

Predator Control Action: In 2010 Mason Valley Wildlife Management Area initiated a ring-necked pheasant program incorporating two surrogate incubator boxes designed to raise pheasant chicks for a period of four weeks and then released to augment the existing wild population of ring-necked pheasants. A target of 260 birds was scheduled to be released onto the area each year. Normally a fairly high number of released birds are lost to predation. The USDA/APHIS Wildlife Services' goal will be to remove ravens using DRC-1339 and coyotes by using calling, shooting, leg-hold traps, aerial hunting



and snares. Bobcats are targeted on a case-by-case basis using calling, shooting, leg-hold traps, aerial hunting and snares, to remove offending animals. Raccoons, skunks, and badgers may also be removed using shooting, leg-hold traps and snares.

Project 23 Predator Removal By Year			
Year	FY10	FY11	Total
Ravens	17	21	38
Coyotes	30	11	41
Bobcats	3	1	4
Skunks	2	2	4
Raccoons	16	2	18
Foxes			
Totals	68	37	105

Project 23 Wildlife Services' Expenditures By Year		
FY10	FY11	Total
\$7,450	\$9,373	\$16,823

FY11 Summary: A wildlife specialist was employed on station full time again this year, protecting upland and waterfowl species from predators. Eleven coyotes, 1 bobcat, 2 raccoons, 2 skunks and 21 ravens were removed from the area. The objective was to protect pheasants, Rio Grande turkey and waterfowl species on the area. Pheasant crow counts conducted on the management area for the last two years have shown an increase. It was reported last year that pheasant crow counts had been averaging only 2.75 calls/week which was down from the long-term average of 14 calls/week. Recent data show that those numbers increased from 1.33 calls/week in 2009 to 2.75 in 2010 and 8.38 in 2011. In addition, a record number of ducks were banded last year indicating duck production was good on the area.

FY10 Summary: The Lyon County pheasant population was at low levels based on harvest data and pheasant crow count data recorded at the Mason Valley Wildlife Management Area (MVWMA). Pheasant crow call count data was recorded at MVWMA in the spring for a six week period. Results from 2010 indicated that crow counts were averaging 2.75 calls/week, which was well below the long-term averages of 14 calls/week. Due to a dramatic decline in the pheasant population at MVWMA, a pheasant program was initiated in 2009. The program involves the use of a surrogate device called a surragator. A surragator is a self contained unit that provides food, water, warmth and protection to chicks for the first five weeks of the bird's life when it is believed the greatest mortality occurs. Also, there were inferences that birds might obtain a homing instinct to live and reproduce where they were raised and released. Therefore, the surragator was placed in a location where the manager wanted to establish a pheasant population on the MVWMA. In 2009 and 2010, two surrogates were utilized at MVWMA. Total birds released in 2009 at MVWMA were 170 pheasants. In 2010 a total of 148 pheasants was liberated as of July 28. This total was comprised of 27 ring-necked pheasants fitted with white plastic leg bands and 121 Manchurian cross pheasants attached with yellow plastic leg bands. It was decided to stop using ring-necked pheasants and only utilize Manchurian



cross with ring-necked stock because Manchurian pheasants exhibit naturally wild characteristics and have shown a higher survival rate when placed in a surragator. Additionally, another 150 pheasants was scheduled to be released on MVWMA in September.

A seasonal Wildlife Specialist was employed and lived daily on the management area protecting upland and waterfowl species from predatory wildlife. During a five-week period, Wildlife Services removed 30 coyotes, 3 bobcats, 16 raccoons, 2 gray fox, 2 skunks and 42 common ravens. The objective was to protect recently augmented and the existing wild population of ring-necked pheasants from predatory wildlife. Waterfowl and other upland game species such as wild turkeys located on the management area were also expected to experience an increase in nesting success with the reduction of avian and mammalian predators.

Conclusion: Preliminary information based on pheasant crow counts indicates predator management on the Mason Valley WMA has facilitated success of the pheasant release program. Wildlife Services recommends continuation of this project for one additional year and then ceasing protection efforts because past predator management directed towards waterfowl and upland game birds on NDOW WMA's has shown maximum benefits after 2-3 years of effort and then diminished.

Recommendation for FY2012: Continue with Project (23).

Project 25: Utah State University Coyote Study.

By Tony Wasley, Steve Kimble, Tom Donham and Pat Jackson

Project Inception and Current Status: FY10, and approved through FY12.

Project Conclusion: FY15 (5-year study, could be extended)

Original Proposed Budget for FY11: \$25,000 (Matched with Federal Aid P-R Grant)

WDMC & NBWC recommended budget from August 2011 meeting: \$25,000

FY11 Expenditures by the University of Utah: \$18,369

FY12 Projected Expenditures: USU will need a budget of \$25,000 to match with Federal Aid to conduct this study during FY12.

Project Area: Central Nevada – Management Areas 15 & 16

Target Predators: Coyotes

Predator Control Action: Area 16 is located mostly in Nye County in central Nevada. Fawn ratios in the fall and spring have been lower in Area 16 than others documented in the State in recent history. Spring fawn/adult ratios are seldom over 30:100. Area 16 provides over 300 tags for deer hunters and also provides habitat for elk, bighorn sheep and antelope. Deer herds in Area 16 utilize altitudinal migration to a large extent rather than long migrations to adjacent mountain ranges. Unit 162 is an important source stock for Nelson (Desert) bighorn sheep transplants. Utah State University researchers will be collaring coyotes to collect baseline data on coyote population demographics and dynamics. No additional predator removal will be implemented for the period of time required to collect baseline coyote population data. In the future the Wildlife Specialist



assigned to the project will coordinate coyote removal activities with USU and coyote management activities will be in conjunction with Project 22.

Project 25 Predators Collared By Year			
Year	FY10	FY11	Total
Coyotes Collared	0	3	3

Project 25 Expenditures By Year		
FY10	FY11	Total
\$25,000	\$18,369	\$43,369

FY11 Summary: From the end of FY10 through FY11 the Utah State University hired a graduate student to conduct the study and purchased equipment including a 4-wheel drive pick-up and radio collars for coyotes. Coordination meetings were held and phone calls were made with Wildlife Services and NDOW. Applications were made for scientific collection permits with NDOW. Initial field investigations were begun.

Masters candidate Pat Jackson working under the direction of Dr. Michael Conover began studying coyote biology in the Monitor, Toiyabe, and Toquima ranges in central Nevada between May 15 and June 30, 2011. Three coyotes were trapped using Victor #3 soft catch foothold traps in Charnac Basin in the Monitor Range. All three coyotes were immobilized with a ketamine/xylazine injection, weighed, measured, and ear tags (two) attached. Two coyotes received a 280-g necklace GPS and 145-g VHF collar (GPS collar model G2C 181B, VHF collar model V5C 271B, SIRTRACK®, Havelock, New Zealand). The other coyote (female) received a GPS collar. She had recently given birth and her overall health appeared to be only fair.

During May and June scat and lagomorphs transects were conducted along dirt roads in Birch Creek, Meadow Canyon, and Butler, Charnac, Stoneberger, and Callaghan basins. Scat transects involved walking four 0.5 km stretches of road (per location) and removing all coyote scat. These same stretches of road were walked four weeks later and all scats counted and collected for later diet analysis. Lagomorph surveys consisted of driving a 15-30 km transect in each location within one hour of sunrise or one hour before sunset, one day per month and counting all of those observed in the road. Passive-tracking indexes were conducted in Birch Creek and in Charnac, Stoneberger and Callaghan basins. Passive tracking indexes involved sweeping a 1-m X 1-m section free of stones and debris. One of these sections was located each kilometer along a dirt road. Each section was checked daily for three days for tracks of coyotes, deer, lagomorphs, cattle, or feral horses.

Conclusion: NDOW biologists will continue to coordinate with the project proponents to manage the federal aid grant and \$3 Predator Fee commitments to this project.

Recommendation for FY2012: Continue with Project (25).



Project 26: Wildlife Services' Field Specialist Positions

By Mark Jensen

Project Inception and Current Status: FY11, and approved through FY12.

Project Conclusion: Undetermined.

Original Proposed Budget for FY11: \$98,727

Proposed Wildlife Services' Budget Request for FY11: \$98,727.50

WDMC recommended budget from August meeting: \$98,727.50

FY11 Expenditures by Wildlife Services to accomplish work: \$42,250.33

FY12 Projected Expenditures: WS-Nevada proposed a budget of \$98,727.50 to facilitate personnel needs to cover ground crews for aerial operations, ground trapping, raven control, and other duties as required during FY12.

Description:

The position(s) allow flexibility to adaptively manage the needs of multiple projects. Wildlife Services was authorized to expend up to \$85,000 to facilitate personnel needs to cover ground crews for aerial operations, ground trapping, raven control, and other duties as required.

Project 26 Wildlife Services' Expenditures By Year		
FY10	FY11	Total
\$62,593	\$42,250.33	\$104,843.33

FY11 Summary: A total of \$42,250 was spent by Wildlife Services in FY11 to successfully implement this project.

FY10 Summary: A total of \$62,593 was spent by Wildlife Services in FY10 to successfully implement this project.

Conclusion: This Project provided valuable assistance to accomplish other projects identified in this plan including Project 22.

Recommendation for FY2012: Continue with Project (26).



Expenditures by Project

Project 6a: Delamar Bighorn Sheep	FY09	FY10	FY11
Salary/Benefits		\$5,956.19	\$49,704.26
GSA Vehicle	\$5,000	\$4,085.06	\$8,107.47
Dog & Horse	\$4,000		\$2,470.00
Equipment/Supplies/Aerial Hunt	\$3,500	\$1,769.00	\$8,321.94
Hire		\$1,240.00	\$0
Travel/Camp Rate	\$2,500	\$1,903.75	\$6,335.27
Admin Overhead (16.15%)	\$2,475	\$2,415.08	\$12,102.64
TOTAL WS Expenditures	\$17,475	\$17,369.08	\$87,041.58

Project 18: Washoe County Deer Project						
BUDGET ITEM	FY06	FY07	FY08	FY09	FY10	FY11
	Actual	Actual	Actual	<i>Projected</i>	Actual	Actual
Salary/Benefits	\$12,465	\$16,896	\$50,335	\$54,362	\$55,769.90	\$57,546.53
APHIS Vehicle	\$2,813	\$3,801	\$13,925	\$15,039	\$7,950.83	\$10,100.72
Travel, Camp & ATV Hire	\$1,506	\$1,007	\$8,782	\$9,484	\$5,998.55	\$5,451.00
Aerial Hunting	\$4,755	\$5,715	\$9,000	\$10,500	\$2,082.50	\$5,670.00
Equip/Supplies	\$99	\$85	\$200	\$216	\$1,678.81	\$1,266.13
Administration	\$4,328	\$4,442	\$13,282	\$14,344	\$11,704.96	\$12,925.55
TOTAL WS	\$25,966	\$31,946	\$95,525	\$103,945	\$85,185.55	\$92,959.93
NDOW Surveys	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$0



Project 20: Virginia Mountains BHS		
YEAR	FY10	FY11
Salary/Benefits		\$6,947.52
Aerial Hunting		
Travel	\$240.00	\$757.50
Equipment/Supplies		\$666.61
Hire		
Vehicle	\$3,812.60	\$4,528.38
Administrative Overhead	654.50	\$2,083.30
TOTAL WS Expenditures	\$4,707.10	\$14,983.31
NDOW Surveys	\$4,500	\$310

Project 21: Raven Control	FY10	FY11
Salary and Benefits	\$8,564.10	
Travel/Camp Rate/Per Diem	\$557.75	
Equipment/Supplies	\$531.44	
Hire	\$300.00	
Vehicle	\$2,356.50	
Admin Overhead	\$1,988.04	
TOTAL WS Expenditures	\$14,297.83	\$0.00

Project 22: Multi-Species	FY10	FY11
Salary/Benefits		\$4,261.60
Aerial Hunting	\$109,145.00	\$76,655.00
Travel	\$2,400.00	\$1,800.00
Equipment/Supplies		
Hire		
Vehicle	\$5,899.63	\$5,308.00
Admin Overhead	\$18,967.31	\$14,215.97
TOTAL WS Expenditures	\$136,411.94	\$102,240.57
NDOW Surveys	\$6,500	\$0



Project 23: Mason Valley Pheasant	FY10	FY11
Salary/Benefits	\$3,573.89	\$5,024.50
Aerial Hunting		
Travel	\$1,523.50	\$1,050.00
Equipment/Supplies	\$1,316.99	\$664.84
Hire		
Vehicle		\$1,330.66
Admin Overhead	\$1,035.93	\$1,303.31
TOTAL WS Expenditures	\$7,450.31	\$9,373.31

Wildlife Services Specialist	FY10	FY11
Salary/Benefits	\$36,584.75	\$21,388.01
Aerial Hunting		
Travel	\$5,533.32	\$5,600.74
Equipment/Supplies	\$898.73	\$2,269.56
Hire	\$980.00	\$1,200.00
Vehicle	\$9,893.36	\$5,917.35
Admin Overhead	\$8,703.26	\$5,874.67
TOTAL WS Budget	\$62,593.42	\$42,250.33

Emergency Fund	FY10	FY11
Salary/Benefits	\$6,945.50	
Aerial Hunting		
Travel	\$7,160.50	
Equipment/Supplies		
Hire	\$3,100.00	
Vehicle		
Admin Overhead	\$2,778.77	
TOTAL WS Budget	\$19,984.77	\$0.00



Total USDA Amended Budget	471,290.28
Billed July 2010-June 2011	348,849.03

July 2010 to June 2011 Summary of Nevada Department Of Agriculture Billings			
NDOA Mt. Lion Specialists (State)	Kilby	Buhler	Totals
Salary and Benefits	\$2,404.21	\$17,542.84	\$19,947.05
GSA Vehicle			
Dog & Horse Hire	\$0	\$2,368.40	\$2,368.40
Supplies/Aerial Hunt			
Camp Rate	\$0	\$405.41	\$405.41
Admin Overhead	\$0	\$3,281.14	\$3,281.14
TOTAL NDOA for FY 2010	\$2,404.21	\$23,597.79	\$26,002.00

Total USDA Billing	\$348,849.03
Total NDOA Billing	\$26,002.00
Total Billed July 2009-June 2010	\$374,851.03

FY11 Expenditures and FY12 Starting Balance	
Starting Balance for FY11:*	\$561,305
NDOW FY11 July-June Expenditures:	-\$31,775
WS FY11 July-June Expenditures:**	-\$374,852
Carry-Forward to FY12	-97,048
\$3 Fee Collected in FY11 for FY12.	\$433,452
Predator Donations Collected in FY11 for FY12.	\$12,902
Starting Balance for FY 12.	\$503,985
<p>*Fiscal Services Section Readjusted Starting Balance after doing some historical research on NDOW Reserve Balances in FY 11. The result was an increase of approximately \$20,000 to the beginning balance for FY 11.</p>	
<p>**Administrative Overhead for Wildlife Services in FY11 was \$48,505.44 (12.9%).</p>	



PROPOSED PREDATION MANAGEMENT PROGRAM BUDGET FY12				
<i>July 1, 2011 Beginning Balance</i>				\$503,985
Item	Unit	Day	Recommended 2012 Budget	TOTALS
Wildlife Services Approved Projects:				
Project 6 - Delamar BHS			\$76,070	
Project 18 – Washoe County Deer			\$86,375	
Project 20 - Virginia Mtns. BHS			\$14,942	
Projects 21 Sage Grouse –WMA Birds			\$13,745	
Project 22 Multi Species			\$122,713	
Project 23 Mason Valley			\$8,345	
Project 26 Wildlife Services Field Positions			\$83,445	
Total				\$405,635
NDOW Budget: Salary				
				*Productive Hrly Rt.
Game Bureau Chief			\$62.61	
Staff Biologist			\$54.02	
Field Biologists			\$48.83	
Administrative Assistants			\$35.65	
TOTAL				\$40,000
Operating				
Project 25 USU Coyote Study			\$25,000	
Additional Flight Surveys (same as FY10)			\$21,000	
Other Operating			\$9,000	
Total Flight Surveys and other operating				\$55,000
In-State Travel				
Mileage (Vehicle use)	\$0.50	4,500		\$900
Fixed Costs (Uniforms etc.)				\$200
				NDOW: \$98,350
TOTAL EXPECTED FY12 PROGRAM EXPENDITURES:				\$503,985
REVENUE 2011-12:				
Fees collected from Tag Applications**			\$388,000	<i>(projected)</i>
Donations through Tag Application processes:			\$13,000	<i>(projected)</i>
June 30, 2012 Ending Balance (Beginning Balance for FY13): ESTIMATED.				\$401,000

*PRODUCTIVE HOURLY RATE IS A CALCULATION FOR THE COST ASSOCIATED TO FULLY FUND PERSONNEL WHICH INCLUDES SALARY/BENEFITS/LEAVE AND OTHER RELATED EXPENSES.

** APPLICATION PROCESSES ARE FALL TURKEY, SPRING TURKEY, GUIDED DEER, MAIN BIG GAME, SECOND BIG GAME, FIRST COME FIRST SERVED, AND MOUNTAIN LION DRAWS/TAG SALES.

***Wildlife Services projected FY12 costs reduced by approximately 15.5% to keep from spending FY12 income that needs to be available for FY13.

