

Nevada Predator Management Plan
Fiscal Year 2004
July 1, 2003 - June 30, 2004

Summary

Ten predator management projects were approved by the Board of Wildlife Commissioners on August 10, 2002. An overview of accomplishments of each is contained herein. Projects one through four were continuing efforts begun in FY 2000. Projects five and six were continuing efforts begun in FY 2001. Projects seven through ten were new starts in FY 2003. The total project budget was \$ 271,305.

The Board of Wildlife Commissioners considered FY 2004 project proposals and took action on September 27, 2003 to continue with five of the ten existing management projects. Projects 1,4,5, 6a, and 8 are continuing efforts. Projects 2, 6b, 7, 9 and 10 were discontinued.

Five new projects were voted on by the Board of Wildlife Commissioners for implementation in FY 2004: Project 11, East Range Bighorn Sheep Pre-Augmentation Treatment. Project 12, Tobin Range Bighorn Sheep Pre-Augmentation Treatment. Project 13, Santa Rosa Range Bighorn Sheep Pre-Augmentation Treatment, Project 14, Wilson Creek - White Rock, Coyote Control to Enhance Mule Deer Fawn Production, and Project 15, Horse and Cattle Camp Loop, Schell Creek Range, Coyote Control to Enhance Mule Deer Fawn Production.

Project 1: Raven Control to Enhance Sage Grouse Nesting Success*Project Description:*

Raven populations were controlled during the 2000-2003 sage grouse breeding and nesting seasons. The project treatment was conducted in the Grassy/Hart Camp area of Washoe County with control areas on the Sheldon National Wildlife Refuge and the Lone Willow area of Humboldt County. Total size of the project area is approximately 250 square miles. During the first year of the study, the size of the study area was at least a third larger. However, with the establishment of the Black Rock National Conservation Area and its new wilderness area designation in the summer of 2001, a good portion of the contiguous sage grouse habitat to the east was lost in terms of our ability to control ravens and harvest grouse. Ravens were controlled through the use of lethal doses of corvidicide-laced eggs and shooting. The corvidicide is injected into eggs that are specifically placed to attract ravens. Continued monitoring will aid in determining if raven control has a positive effect on sage grouse recruitment. This project is scheduled to continue through 2004.

Reason for Conducting the Project:

Sage grouse populations have been decreasing for the past 20 years west-wide. Nevada populations have followed this trend. This decline has generated interest in petitioning the U.S. Fish and Wildlife Service to protect the species under the provisions of the Endangered Species Act.

The Department of Wildlife has determined that sage grouse nest success and chick survival within the Grassy/ Stevens Camp area are below levels needed for population growth or maintenance (chick/ hen ratio ≥ 1.75). The Department of Wildlife and University of Nevada, in cooperative studies, have also determined that a proximal cause of nest loss is raven predation.

Services Provided by Wildlife Services:

Wildlife Services will design and implement the raven control project. Wildlife Services will place baits in the field and monitor baits during the project duration. Wildlife Services will provide Nevada Department of Wildlife (NDOW) with Global Positioning System (GPS) coordinates for the locations of the treated areas. Wildlife Services will provide licensed applicators. Raven densities will be monitored during the project duration using standard survey methods. Wildlife Services will conduct a post-treatment analysis of the effectiveness of the control project. Reports of all surveys conducted will be provided by Wildlife Services to NDOW.

Timing of Service:

Control Period: Mid-March through May
Evaluation Period: April through October
Fiscal Years: FY 2000-2004

Geographic Area of Project:

Grassy/Hart Camp area of Washoe County is the treatment area and the Lone Willow area of Humboldt County and the Sheldon National Wildlife Refuge in Washoe and Humboldt Counties are the control areas.

Project Analysis:

Sage Grouse chick production and survival will be measured by NDOW through the analysis of wings collected during the hunting season. Hen nesting success will also be assessed using hunter harvested Sage Grouse wings collected during the fall hunting season. These "success" parameters will be compared between the "treatment" and "control" areas and compared to historic breeding success.

Wildlife Services Budget Summary:

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Requested	\$ 35,903	\$47,129	\$31,010	\$11,038	\$11,038
Expended	\$25,306	\$29,723	\$31,274	\$8,656	

This budget summary includes a WS personnel position

Summary of Control Activities:

Predators removed during the FY 00 through FY 03 work period were reported by Wildlife Services as the following:

Species	Fiscal Year 00	Fiscal Year 01	Fiscal Year 02	Fiscal Year 03	Total
Coyote	92	6	0	0	98
Badger	8	1	0	0	9
Bobcat	3	0	0	0	3
Raven	349	251	194	214	1,008
Totals	452	258	194	214	1,118

During the 2003 season Wildlife Services conducted raven surveys within the project area during the months of March through July. Survey stations were at ½ mile intervals for 25 miles for a total of 50 stations. Surveys were conducted 3 times each month resulting in 150 stations per month. Results of ravens/ 10 miles² is as follows; March 8.3, April 5.3, May 4.0, June 5.0, and July 6.0. These results are similar to raven counts in the proceeding two years of the study but considerably less than the FY 2000 pretreatment raven survey that resulted in 23.1 ravens/ 10 miles², indicating ravens are being suppressed on sage grouse nesting areas within the project.

Summary of Project Outcome:

Sage Grouse wings provide biologists with a tool that is appropriate for measuring the species response to the predator removal. We depend upon hunters to provide the sample of wings during the hunting season. Harvested wings provide biologists information on sex, age, nest success of females, and days since hatch of chicks.

During the fall of 2000, NDOW attempted to collect wings from hunter harvested birds in the control area. The wing collection effort met with limited success. There were only a small number of hunters within the area and only nine wings were collected the first year. During the second year, 2001, a special hunt was held with 75 permits available by application only and a 3/6 limit. A total of 115 hunter-harvested wings was

collected with a chick/hen ratio of 1.24. For the same year, chick/hen ratios were 1.35 in the rest of Washoe County, 1.83 on the Sheldon and 2.06 in unit 031.

Although chick/ hen ratios were calculated from wings collected during the 2001 season, hen nesting success was not. This is a valuable tool in helping biologists determine at what point recruitment may be failing. This data should be collected in the future.

During the fall of 2002, the special sage grouse hunt for this area was again conducted. Seventy-five permits available by application only and a 3/6 limit. A total of 61 hunter-harvested wings was collected with a chick/hen ratio of 1.04. Same year chick/hen ratios for the rest of Washoe County were 1.61, and 2.53 for the Sheldon National Wildlife Refuge (NWR).

Nest success data was collected from 2002 harvested grouse. Nest success data indicate that 62.5% of females (n=24) within the Grassy/ Hart study area nested successfully, compared with 39.1% nest success in the rest of Washoe County (n=64). No data was available on nest success within the Sheldon NWR. This project was designed to determine the effects of Ravens on nesting sage grouse. The results of this study thus far indicate that ravens can have an effect on nesting sage grouse, as nest success levels on the project area were higher ($Z_c = 1.72, 0.05 < P < 0.10$) than the rest of Washoe County. However, the study area had the lowest overall chick/hen ratio indicating that, despite high nest success, some other factor post-hatch is having a profound effect on sage grouse production in the area. Currently, no data are available on what factor(s) might be the cause of poor post-hatch survival.

There are a total of 16 strutting grounds in and adjacent to the study area based on historical lek data. Of these 16 historical grounds, five have been counted on a yearly basis. Using information gathered from these lek counts, a breeding population estimate of 800 to 900 birds was present in the spring of 2001 and 500 to 600 birds were present in the spring of 2002. Lek count data gathered during the spring of 2003 demonstrate similar results to 2002 with 500 to 700 breeding birds being present on active leks.

After three years of conducting this project within the Grassy-Stevens Camp area, sage grouse production rates continue to remain low and population levels are showing a downward trend. Monitoring indicates that raven control aids in sage grouse nest success, but continued low recruitment suggests that other problems exist within this area.

Continuance of this project will help determine if continued raven control will have a positive effect on sage grouse recruitment. Future research needs to be focused on factors effecting chick survival after hatch, as causes of mortality to chicks after hatch are not within the scope of this project. This project is scheduled to continue through 2004.

Project 2: Predator Management to Enhance Sharp-tailed Grouse Reintroduction Success*Project Description:*

Predator management was undertaken to facilitate successful sharp-tailed grouse reintroduction. Predator populations were controlled during the sharp-tailed grouse breeding and nesting season. The project was conducted in the Snake Range of Elko County in the immediate vicinity of the sharp-tailed grouse translocation sites. Ravens were controlled through the use of an avicide and other ground control activities. Coyotes were controlled primarily by aerial gunning and secondarily by ground control activities.

No sharp-tailed grouse were released during the 2003 season. Source populations in Idaho were found to be at very low densities so a compliment of grouse was not available. Sharp-tailed grouse are still present within the project area and have apparently established a breeding lek near the release site. Although no sharp-tailed grouse were monitored during 2003, a graduate student working on a sage grouse project within the same area collected data on sage grouse during the past season. In the absence of sharp-tailed data, the sage grouse data can offer us an idea of what effects the continued predator management efforts may have on sharp-tailed nesting success.

During 2002, 19 sharp-tailed grouse were translocated from Idaho to the project area. Results were positive for the few females that did nest with only one predated nest documented. An additional un-tagged hen was seen with a brood of chicks southeast of the release site. During the three years of the control project, 30 nests of radio-tagged grouse were located. Of those 30, 12 have hatched (40%). 13 have suffered nest predation (43.3%), and 5 have been abandoned (16.6%). Nest site selection by sharp-tailed grouse the first year (2000) showed no preference between inside the control area and outside, but in subsequent years (2001, 2002) nest site selection is highly in favor of inside the control area.

Reason for Conducting the Project:

Sharp-tailed grouse populations were extirpated in Nevada about 50 years ago. The Department of Wildlife is reintroducing the species back into Nevada. The source of sharp-tailed grouse is from the State of Idaho and transplant stock is very limited. Transplant efforts resulted in the release of approximately 50 birds per year until FY 2002 when only 19 sharp-tailed grouse were released (5 females 14 males). The survival of each bird and their offspring is important for the success of the project.

Services Provided by Wildlife Services:

Wildlife Services will design and implement the control project. WS will evaluate raven and coyote densities and determine where effective population management can be implemented. WS will provide licensed applicators to apply avicide. Wildlife Services will provide Nevada Department of Wildlife (NDOW) with Global Positioning System (GPS) coordinates for the locations of the treated areas.

WS will conduct a pre and post-treatment analysis of raven and coyote densities utilizing standard survey methodologies. Reports of all surveys conducted will be provided by Wildlife Services to NDOW.

Timing of Service:

Control Period: Early March through June
 Evaluation Period: March through June
 Fiscal Years: FY 2000 - 2005

Geographic Area of Project:

The Snake Range, Elko County, Nevada. The approximate size of the treatment area is 175 square miles.

Project Analysis:

Success of the control effort will be difficult to measure since control is focused on a single location and thus there is no control area. There are no data on sharp-tailed grouse predation rates in Nevada. A sample of birds will be telemetered and monitored by NDOW and Idaho State University researchers so mortality causes may be determined. The ultimate success of the control effort will be the successful re-establishment of a self sustaining population of sharp-tailed grouse in Nevada. A sustained predator management effort may enhance successful population establishment.

Wildlife Services Budget Summary:

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Requested	\$26,807	\$38,479	\$34,010	\$17,832	Discontinued
Expended	\$21,703	\$33,135	\$31,419	\$13,391	

This budget summary includes a WS personnel position

Summary of Control Activities:

Predators removed during each Fiscal Year were reported by Wildlife Services as the following:

Species	Fiscal Year 00	Fiscal Year 01	Fiscal Year 02	Fiscal Year 03	Total
Raven	454	470	370	378	1,672
Coyote	130	102	38	13	283
Badger	2	0	1	5	8
Bobcat	0	0	0	0	0
Totals	586	572	409	396	1,963

During the 2003 season, Wildlife Services conducted raven surveys within the project area during the months March through July. Survey stations were at ½ mile intervals for 25 miles for a total of 50 stations. Surveys were conducted 3 times each month resulting in 150 stations per month. Results of ravens/ 10 miles² is as follows; March 8.0, April 2.5, May 6.0, June 1.0, and July 0.05. These results are similar to raven counts in the proceeding three years of the study but considerably less than the FY 2000 pretreatment raven survey that resulted in 36.7 raven/ 10 miles² indicating ravens are being suppressed on sharp-tailed grouse nesting areas.

During the 2003 season, scent-post station surveys were conducted by Wildlife Services during the months of March through July. Scent-post stations were placed at ½ mile intervals for 25 miles for a total of 50 stations. Scent-post stations were monitored for 3 night each month resulting in 150 station-nights per month. Coyotes per station for each month is as follow; March 0.13, April 0.07, May 0.07, June 0.03, and July 0.04. Pre-treatment Scent Station data (March 2000) resulted in 0.16 coyote per station. These results indicate that coyote densities within the unit were suppressed during the critical nesting period.

Summary of Project Outcome:

The Wildlife Services report documents a significant decrease in both avian nest predators (ravens) and the major mammal predator (coyotes) within the 175 square mile study area. Coyotes and ravens are the predators that would be expected to have the most serious deleterious affect on re-establishing Sharp-tailed grouse and other ground nesting upland game birds. Masters students have been following radio-collared sharp-tailed grouse in the study area and reported the following for Years 2000 - 2002.

Table 1. 2000 Nesting Status of Females Inside and Outside Control Area

	Total Nests	Nest Predation	Hatched	Abandoned	Predation %	Nesting Success
Inside Control Area	6	2	2	2	33.3%	33.3%
Outside Control	8	3	3	2	37.5%	37.5%
Total	14	5	5	4	35.7%	35.7%

Table 2. 2001 Nesting Status of Females Inside and Outside Control Area

	Total Nests	Nest Predation	Hatched	Abandoned	Predation %	Nesting Success
Inside Control Area	11	7	3	1	63.6%	27.3%
Outside Control	1	0	1	0	0.0%	100%
Total	12	7	4	1	58.3%	33.3%

Table 3. 2002 Nesting Status of Females Inside and Outside Control Area

	Total Nests	Nest Predation	Hatched	Abandoned	Predation %	Nesting Success
Inside Control Area	4	1	3	0	25%	75%
Outside Control	0	0	0	0	0.0%	0.0%
Total	4	1	3	0	25%	75%

During FY 2003 no release of sharp-tailed grouse was conducted. Source populations in Idaho were unusually low and no complement of birds was available for release on the recovery area. Residual birds remain within the area and remain a small and vulnerable population. Researchers working within the study area conducting Sage Grouse research indicate seeing sharp-tailed grouse on seven separate occasions during the lekking period. Groups of greater than three individuals were observed four different times. Courtship vocalizations during the lekking period were heard on several mornings. Five sharp-tailed grouse were flushed within 200 meters of the previous years lekking site.

A sage grouse study is being conducted in the same location as the sharp-tail release site. Sage grouse nest success was monitored during the 2003 nesting period. Three sage grouse nested within the sharp-tail project area. Of those, two nested successfully and one nest was abandoned. No predation of nests occurred within the treatment area. While this is a separate species with similar nesting habits and overlapping nest areas, this data, while anecdotal, is a good gauge of predation rates conditions within the treatment area.

The FY 2002 release consisted of only 19 sharp-tailed grouse, less than the planned release complement of 50. Results were positive for the few females that did nest, with only one predated nest. An additional un-tagged hen was seen with a brood of chicks southeast of the release site. The three years of the project has resulted in 30 nests documented from radio-tagged grouse. Of those 30, 12 have hatched (40%), 13 have suffered nest predation (43.3%), and 5 have been abandoned (16.6%). Nest site selection by sharp-tailed grouse the first year (2000) showed no difference ($\chi^2 = 0.29$, $P = 0.05$) between inside the control area and outside. In subsequent years (2001, 2002) nest site selection was highly in favor of inside the control area ($\chi^2 = 12.25$, $P < 0.001$).

Table 4. Sharp-tailed Grouse Released in Snake Range, Elko County.

	2000	2001	2002	2003	Totals
Males released (number radio-tagged)	41 (21)	36 (13)	14 (11)	0	91
Females released (number radio-tagged)	26 (25)	22 (20)	5 (5)	0	53
Totals	67	58	19	0	144

An analysis of the production of sharp-tailed grouse on the project area from the period of 2000 through 2003 resulted in the following; during the spring of 2000, twenty-six females were released. Monitoring of radio-tagged hens ($n=25$) indicated that 56% of all hens nested; of those, 35.7% nested successfully. A total of 5 nests successfully produced chicks. Mitchell and Openshaw¹ indicate the average productivity of sharp-tailed grouse in Utah is 5 chicks per nest. Five successful nests with 5 chicks gives a production prediction of 25 chicks being hatched. Approximately half are females, so we predict 13 new hens are in the population. Hays et. al² report that the average survival of sharp-tailed grouse chicks is 59%, so we anticipate that 7 of the female chicks survive to the next breeding season. Hays et. al² also reports that adult breeding hen survival ranges from 24 - 40%, meaning that between 7 - 10 of the originally released hens survived to the next breeding season. Taking an average of adult hens and including 7 female chicks which survived, we predict 16 hens carrying over to 2001. In 2001, twenty-two additional hens were released. Combined with the carry over of 16 hens from the previous year, there is predicted to be 38 hens in the population. Monitoring radio-tagged hens ($n=20$) during 2001, resulted in observed nest rates of 60% while nest success was 33.3%. Following the same predictor model as the previous

¹ Mitchell D., and J. Openshaw. 2002. Columbian sharp-tailed grouse, Wildlife Notebook Series No. 17. Utah Division of Wildlife Resources. Salt Lake City

² Hays, D. W., M. J. Tirhi, and D. W. Stinson. 1998. Washington state status report for the sharp-tailed grouse. Wash. Dept. Fish and Wildl., Olympia. 57 pp.

year, we have 11 hen chicks and 12 adult hens survive to the next year. Following this same model for the entirety of the project, we conclude that from the years 2000 - 2003, 137 total chicks have been produced. Of those, 40 females and 41 males survived and entered the breeding population.

Without continued efforts in both predator control and sharp-tailed release efforts, it is predicted that this species will again become extirpated in Nevada within the next 4-5 years.

This project was not funded for Fiscal Year 2004 and will therefore end, with no further work being done under the predator management program.

**Project 4: Coyote Control to Enhance Pronghorn Fawn Production:
Vya - Massacre Area of Northern Washoe County**

Project Description:

This project is designed to provide protection to new-born pronghorn antelope fawns within Game Management Unit (GMU) 011. Management work is performed on fawning grounds during the critical period each spring when pronghorn antelope fawns are most vulnerable to predation. Coyote control on pronghorn fawning grounds within this unit has been underway since FY 2000.

Reason for Conducting the Project:

Pronghorn fawn production across northwestern Nevada has been lower than expected since the population decline of 1992-93. Production in GMU 011 has been one of the lowest in the State. Coyotes are a known predator of pronghorn fawns. Coyote populations that remain stable during a period of pronghorn population declines may exhibit predation rates that hold pronghorn numbers below desirable numbers. Research on the nearby Hart National Antelope Refuge in 1996- 1997 found that predation by coyotes accounted for 58% of all fawn mortalities (total documented fawn loss = 86 of 104 born).

Services Provided by Wildlife Services:

Wildlife Services will design and implement the control project. WS will evaluate coyote densities and determine where effective population management can be implemented. Wildlife Services will provide Nevada Department of Wildlife (NDOW) with Global Positioning System (GPS) coordinates for the locations of removal, and data on numbers and methods of take.

WS will conduct a pre and post-treatment analysis of coyote densities utilizing standard survey methodologies. Reports of all surveys conducted will be provided by Wildlife Services to NDOW.

Timing of Service:

Control Period: April - May through June
 Evaluation Period: September through October
 Fiscal Years: 2000 - 2004

Geographic Area of Project:

Game Management Unit (GMU) 011 in northern Washoe County. Wildlife Services refers to this pronghorn herd as the "Surprise Antelope Herd."

Project Analysis:

Pronghorn populations should respond to lower predation rates by exhibiting increased fawn survival as measured by the fall composition survey. Population estimates should show an upward trend. Once numbers reach a threshold where predation no longer limits the population, growth will continue until another limiting factor is reached.

Wildlife Services Budget Summary:

	Fiscal Year 00	Fiscal Year 01	Fiscal Year 02	Fiscal Year 03	Fiscal Year 04
Requested	\$ 0	\$ 0	\$17,770	\$18,179	\$22,921
Expended	\$5,400	\$20,633	\$22,269	\$19,337	

This budget summary includes a WS position

Summary of Control Activities:

Species	Fiscal Year 00	Fiscal Year 01	Fiscal Year 02	Fiscal Year 03	Total
Coyote	35	101	89	92	317
Mountain Lion	0	0	0	1	1
Totals	35	101	89	93	318

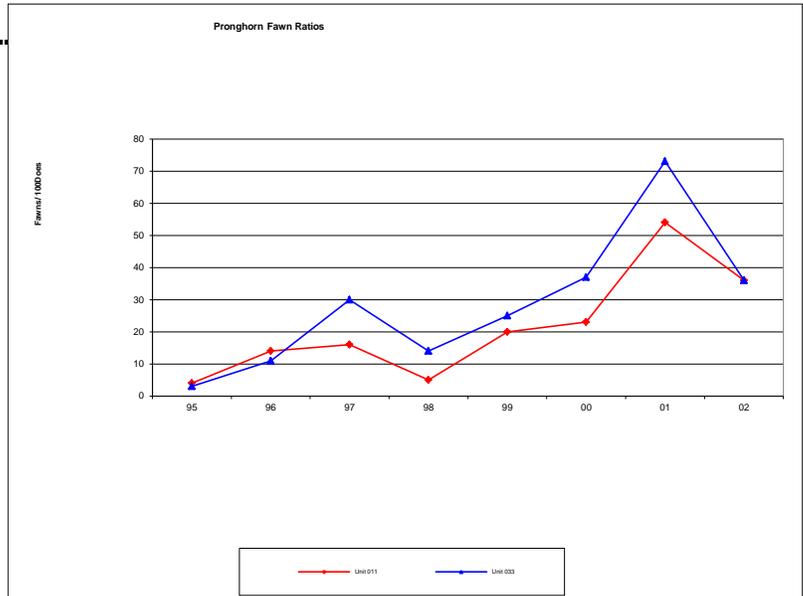
During the 2003 season, scent-post station surveys were conducted by Wildlife Services during the months of March through July. Scent-post stations were placed at ½ mile intervals for 25 miles for a total of 50 stations. Scent-post stations were monitored

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for 3 nights each month for a total of 150 station-nights per month. Coyotes per station for each month is as follows; March 0.09, April 0.03, May 0.03, June 0.03, and July 0.02. These results indicate that coyote densities within the unit were suppressed during the critical fawning period.

Summary of Project Outcome:

Pronghorn production has been monitored for several decades in northern Washoe and Humboldt Counties. The following graph shows production values by year:



The graph illustrates the recovery in production values starting in 1999 and continuing through 2002.

The following table demonstrates fawn production compared to both long-term and short-term averages:

Pronghorn Production Changes

Unit	Action	Fawns/ 100 does					Percent Change From	
		1999	2000	2001	2002	20 yr Average	Long-Term Average	Short-term Average
011	Treatment	20	23	54	36	27.3	31.9%	- 33.3%
033	Control	25	37	73	36	41.6	- 13.5%	- 50.7%

The table shows that GMU 011's production rate decreased 33% from the short term average but is still 32% higher than the 20 year average. The Sheldon NWR, GMU 033, which serves as a control unit without coyote control, showed production down 50.7% between years and 13% below the long-term 20 year average.

Overall, pronghorn production in northern Washoe County decreased over the past year from the high levels observed in 2001. Despite production decreases, a total of 447 antelope was classified in Unit 011 during 2002. This represents a 26% increase from the number (n=355) classified in 011 during 2001, and nearly a 57% increase in the average number (n=285) classified since 1995. A total of 767 pronghorn was classified in Unit 033. This represents a 92% increase from the number (n=400) classified in 2001, and a 50% increase from the average number (n=511) since 1995.

Continued monitoring of this project will help determine if control efforts are the primary reason for the increases in fawn production in GMU 011. This project was designed to continue through FY 2004.

Project 5: Protection of Upland Game Birds and Waterfowl - Moapa Valley

Project Description:

Raven control to enhance nesting and early brood rearing success of wild turkey, Gambel's quail, and pheasant. Ravens are a known egg and chick predator and can be a major cause of production and recruitment failures. Ravens will be controlled through the use of lethal doses of poison and shooting. The poison will be injected into eggs that are specifically placed to attract ravens. The project duration is undetermined.

Reason for Conducting the Project:

In Spring, 2001, Nevada Department of Wildlife personnel reported unexpectedly few observations of juvenile pheasants, turkeys and waterfowl. The pheasant population has waned in the Region over the last decade. The decline may be due to a variety of factors including predation. Quail production also appears to have been impacted. Personnel at the Overton WMA speculated that excessive predation was occurring on turkey and pheasants. Pheasant nesting and reproduction is undetectable at the Overton WMA. An expanding raven population is suspected as having impacts on both pheasant and turkey populations and on the waterfowl that nest in the area. Department personnel provided the following observations: 1) as many as 12 nests were destroyed on the management area, 2) five instances of ravens observed flying with turkey eggs in the bill, 3) two Class II poultts attended by two hens were harassed by 51 ravens in a field north of Overton, Nevada.

Services Provided by Wildlife Services:

Wildlife Services will design and implement the control project. WS will evaluate raven densities and determine where effective population management can be implemented. WS will provide licensed applicators to apply avicide. Wildlife Services will provide Nevada Department of Wildlife (NDOW) with Global Positioning System (GPS) coordinates for the locations of the treated areas.

WS will conduct a pre- and post-treatment analysis of raven densities utilizing standard survey methodologies. Reports of all surveys conducted will be provided by Wildlife Services to NDOW.

Timing of Service:

Control Period: February through May

Evaluation Period: April through October

Fiscal Years: FY 2002 - 2004

Geographic Area of Project:

Muddy River Drainage and Apex Dump of Clark County.

Project Analysis:

The success of the control project will be evaluated in subsequent spring/summer months when upland game/waterfowl production surveys are conducted and population data are evaluated.

Wildlife Services Budget Summary:

	Fiscal Year 2002	Fiscal Year 2003	Fiscal Year 2004
Requested	\$13,000	\$15,552	\$12,500
Expended	\$13,018	\$12,615	

This budget summary includes a WS personnel position

Summary of Control Activities:

During 2003, Wildlife Services conducted a pre-treatment raven population census on and around the Overton WMA. The survey provided an estimate of raven populations in the area and allowed Wildlife Services personnel to design a treatment plan that focused on raven travel corridors onto the WMA. Wildlife Services personnel started placement of DRC-1339 laced eggs in March 2003, in areas surrounding known nesting locations for turkey and other ground nesting birds. Treatment continued for a 10 week period. Wildlife Services estimates that from March until July, 2003, 172 ravens were removed from the Moapa Valley. Wildlife Services conducted raven surveys from March through June, 2003. Results of ravens/ 10 miles² are as follows; March 14.3, April 4.0, May 1.3, and June 1.3. These surveys indicate that ravens were suppressed during critical upland bird and waterfowl nests periods.

Pre-treatment Raven Surveys for Moapa Valley

Date	Apex	Warm Springs	Moapa Dairy	Logandale	Overton WMA	Total
11/20/01	140	2	449*	56	2	649
01/24/02	88	2	479*	6	0	575

01/23/03	18	0	227*	1	0	246
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*Includes both ravens and crows

Summary of Project Outcome:

Pre-treatment surveys on Overton WMA were not conducted prior to the start of this project. Area biologists report that little to no recruitment was occurring prior to treatment in the area. Spring brood surveys conducted during 2002 and 2003 resulted in the following observation of chicks:

Species	2002 Surveys	2003 Surveys	Total
Turkey	88	346	434
Quail	25	242	267
Mallard	171	294	465
Canada Goose	95	34	129
Total	379	916	1295

Project 6A: Protection of Desert Bighorn Sheep : Delamar Range

Project Description:

The Nevada Department of Wildlife reintroduced desert bighorn sheep into the Delamar Range with a release of 19 animals in 1997 and an additional 25 in 1999. On November 29, 2002, NDOW augmented the small population in the Delamar Range with a release of 26 animals brought in from the Muddy Mountains.

This project is designed to help protect existing and recently transplanted sheep from predation by mountain lions. Mountain lions are known predators of bighorn sheep. Concern over mountain lion predation on the Delamar Herd was confirmed in April 2002, when one of the released ewes equipped with a satellite collar was confirmed killed by a mountain lion.

Reason for Conducting the Project:

Mountain lions are known predators of bighorn sheep. The Delamar Mountain Range has a history of lion predation on bighorn sheep. Each of the past bighorn sheep augmentation efforts into the Delamar Range has been met with losses to mountain lions. During the spring of 2001 a desert bighorn was found dead and determined to be a lion

kill. Recently, the loss of 2 desert bighorn from the 2002 augmentation were reported as lost to lion predation.

Services Provided by Wildlife Services:

Wildlife Services will attempt to control resident lions if they are in conflict with bighorn sheep. WS will periodically monitor the area during the winter months to evaluate the number of migratory lions that move into the area. Lions that are found in proximity to bighorns will be killed. Wildlife Services will provide dates, location and method of removal to NDOW for each lion removed.

Timing of Service:

September - August

Geographic Area of Project:

Delamar Mountain Range in Lincoln County.

Project Analysis:

Analysis of the effects of mountain lion control on the density of desert bighorn sheep will be through monitoring bighorn sheep population growth. NDOW biologists will use aerial and ground surveys and population models to make pre-treatment versus post-treatment population trend comparisons.

Wildlife Services Budget Summary:

	FY 2002	FY 2003*	FY 2004*
Requested	\$17,000	\$840	4 months \$6,528 6 Months \$9,792
Expended	\$17,523	\$840	

*This budget summary does not include WS personnel, and indicates expenses related only to field work

Summary of Control Activities:

Wildlife Services personnel conducted lion control work in the Delamar Range. In FY 2002 and FY 2003 one large adult mountain lion was removed from the vicinity of the relocated bighorn sheep population. Mountain lion survey work within the area has demonstrated that lion numbers are low. Due to the vulnerability of bighorn sheep to lion predation, any lion in the area is a threat. Follow-up surveys of the area after the

removal of the large male indicate that a small lion, most likely a female, passed through the Delamar Range but did not take up residency.

Species	2001	2002	Total
Mountain Lion	0	1	1

Summary of Project Outcome:

A desert bighorn sheep survey of the Delamar Mountains was conducted in late September 2002. Twenty sheep were classified as two 5-year old rams and a 6-year old ram, 15 ewes and three lambs. A total of 8.3 hours of aerial survey time was spent on the Delamar Mountains and the Hiko, Pahroc ranges. The Nevada Department of Wildlife has scheduled a bighorn sheep augmentation for the Delamar Range during Fiscal Year 2004.

Project 6B: Protection of Desert Sheep: East Walker River

Project Description:

The Nevada Department of Wildlife reintroduced 21 desert bighorn sheep into the East Walker River Canyon of the Pine Grove Range on October 28, 1993. A single ram was moved into the East Walker River area on October 27, 1994 to replace a radio-collared sheep that was a mortality. An augmentation of 21 additional desert bighorn from the River Mountains were released in the East Walker River area on October 28, 1995. The herd maintained stability for a period of three to four years following the releases. Herd monitoring revealed some production. Survey data, incidental observations and other information indicate the herd began to fail around the period of 1997 to 1998. During the spring of 1996 a local Mason Valley rancher reported the sighting of six animals in the Wilson Canyon area. Ear tags on these animals were the same as those that were originally released along the East Walker, a distance of 26 miles to the south. Further reports indicate these animals took up residence in the Wilson Canyon area above the west fork of the Walker River.

As a result of several deaths and a declining population, a decision was made to attempt another augmentation and to provide predator control to assist the population in sustaining itself at a level where routine losses would not be detrimental to the herd.

An estimated 12 to 15 animals still existed in Unit 204 prior to the augmentation consisting of 22 desert bighorn sheep that occurred on October 30, 2001. These animals were captured in the Gabbs Valley Range on the 29th of October, 2001. This release complement contained 16 adult females, two yearling females, one female lamb and three yearling rams.

This control project is designed to help protect existing and newly transplanted sheep from predation by mountain lions. Mountain lions are known predators of bighorn sheep. Two bighorn sheep losses have been documented since the augmentation. The first was an adult ewe that turned out to be a lion kill within a week of release. It is possible this animal was weakened as a result of capture and transport. The second mortality was a radio-collared ewe. This mortality occurred around the first week of May, 2002. The cause of death is unknown.

Reason for Conducting the Project:

Two previous attempts to establish a population of desert bighorn have been unsuccessful as some sheep have emigrated outside of the release area and several sheep mortalities documented as lion kills have been observed at the site of previous sheep releases. Mountain lions are thought to be at least partially responsible for the poor success of the previous reintroduction attempts.

Services Provided by Wildlife Services:

Wildlife Services controlled resident lions when they came in conflict with bighorn sheep. WS periodically monitored the area during the winter months to evaluate if migratory lions moved into the area. Lions that were found in proximity to bighorns were controlled. Wildlife Services will provided dates, location and method of removal to NDOW for each lion removed.

Timing of Service:

September - August

Geographic Area of Project:

East Walker River area of Lyon and Mineral Counties.

Project Analysis:

Analysis of the effects of mountain lion control on the density of desert bighorn sheep will be through monitoring bighorn sheep population growth. NDOW biologists will use aerial and ground surveys and population models to make pre-treatment versus post-treatment population trend comparisons.

Wildlife Services Budget Summary:

East Walker	Fiscal Year 2002	Fiscal Year 2003*	Fiscal Year 2004
Requested	\$17,000	\$840	Discontinued
Expended	\$16,227	\$840	

*This budget summary does not include WS personnel, and indicates expenses related only to field work

Summary of Control Activities:

A Wildlife Services employee began conducting lion control on October 18, 2001, in the Pine Grove/East Walker bighorn area. During the pre-treatment period the lion hunter was successful in the removal of two resident lions in the release/predator treatment area. A large male lion was harvested along the river between Raccoon Beach and Grant Hot Springs on October 18, 2001. On the 25th of October, 2001, an adult female lion was removed from an area to the south and west of Zanis' cabin.

Two more lions were removed after the augmentation of October 30, 2001. Wildlife Services snared a large male lion on December 17, 2001. A fourth lion was removed on May 6, 2002. This was a 10 year-old male lion. Wildlife Services Personnel felt that this is was same lion that had been in and out of the control area of the East Walker predator control project.

No lion activity was reported within the unit for some time until Wildlife Services personnel located a yearling ram that was an apparent lion kill during November of 2002.

In February 2003, two adult mountain lions, a male and a female, were removed from this unit. These lions were in the 3-4 year age-class. In June 2003, a adult 3 year old male mountain lion was removed from the protection unit.

Species	Fiscal Year 2002	Fiscal Year 2003	Total
Mountain Lion	4	3	7

Summary of Project Outcome:

On July 1, 2002, a telemetry flight was conducted in an attempt to find collared bighorn sheep in the East Walker and Pine Grove area. Five ewes with five lambs were sighted on the north facing slope of a large hill between Raccoon Beach and Grant's Hot Spring. The sheep were found in three groups. The first was a single ewe and lamb. A second group consisted of three ewes and three lambs. The last pair spotted was a single ewe and lamb, and surveyors could not tell if this ewe had ear tags.

A sheep survey was conducted in this area in August 2003. Additionally, several incidental sightings were made during the year by both NDOW and Wildlife Services employees. Survey efforts resulted in the sighting of 17 bighorn sheep being sighted several times within the project area including 11 ewes, 3 lambs, 2 young rams and an older ram; this helps document the fact that the sheep are reproducing within the area.

Project 6B was not funded for Fiscal Year 2004 and will therefore end with no further work being done under the predator management program.

Project 7: Bighorn Sheep Establishment Cost Comparison: East Range and Tobin Range

Project Description:

Comparison of the time and expenditures associated with augmentation of bighorn sheep population establishment. One introduction/ augmentation will be conducted under conditions of predator management, a second introduction will be without predator management. The expectation of this project is that the area which is under predator control should reach a sustainable population more rapidly than an area receiving no predator management. Analysis will be by direct associated expenditure on each area. Once an area has reached the management goal of a sustainable population, total costs will be calculated. The costs for each from time of first action (control and augmentation) will be compared. This comparison will help the Department determine the most cost effective process of pursuing future sheep reestablishment efforts.

Reason for Conducting the Project:

One of the Nevada Department of Wildlife's bighorn sheep management goals is to restore and maintain bighorn herds at optimal levels. This requires the Department to make frequent augmentations of bighorn sheep to areas with no existing sheep or areas of low density. These augmentations are designed to elevate the density of a specific herd to a sustainable population. Population biology studies of bighorn sheep indicate that ecological limiting factors can be overcome if sheep densities are sufficient to rebound after a stochastic event.

This study will investigate the costs associated with bighorn sheep population establishment on two similar ranges. One effort (East Range) will be preceded by conducting predator control of mountain lions, and will undergo continued control in years following sheep releases. The second effort (Tobin Range) will have no predator control before or after releases. Total expenditures on each area, including costs of augmentation and predator control will be documented until that time at which a sustainable herd of bighorn is established (80+ animals) for an area. The total output in

time and expenditures will be compared to determine which method of release results in establishment of a viable herd for the least associated costs. These results may influence future direction for the Departments bighorn sheep management.

Services Provided by Wildlife Services:

Wildlife Services will attempt to control resident lions within the East Range if they are in conflict with bighorn sheep. WS will periodically monitor the area during the winter months to evaluate the number of migratory lions that move into the area. Lions that are found in proximity to bighorns will be controlled. Wildlife Services will provide dates, location and method of removal to NDOW for each lion removed.

Timing of Service:

September - March

Geographic Area of Project:

Treatment : Southern end of East Range and the northern end of the Stillwater Range, Pershing County, Nevada. Area of concentration to be desert bighorn habitat north and south of McKinney Pass including known habitat on Granite Mountain and in the Root Springs area.

Control: Southern end of the Tobin Range, Pershing County.

Project Analysis:

Analysis will be by direct associated expenditure on each area. Once an area has reached the management goal of a sustainable population, total costs will be calculated. The costs for each from time of first action (control and augmentation) will be compared. This comparison will help the Department determine the most cost effective process of future sheep augmentations.

The Department realizes that there is a real chance that some other unpredictable event could effect one or both of the bighorn sheep populations proposed in this study. An unforeseeable event could create a population crash that would ultimately negate the outcome of this project. While it is our hope that we will be able to analyze the outcome of this project as designed, we must acknowledge the possibility of mischance.

In order for the Tobin Range to properly function as a control site for the aforementioned project, the Department may recommend to the Board of Wildlife Commissioners a closure on mountain lion sport seasons in the vicinity of occupied bighorn sheep habitat within the Tobin Range for the duration of the project.

Wildlife Services Budget Summary:

East Range	Fiscal Year 2003*	Fiscal Year 2004
Requested	\$600	Discontinued
Expended	\$600	

*This budget summary does not include WS personnel, and indicates expenses related only to field work

Summary of Control Activities:

In July 2003, an adult male lion was removed from the East Range Unit. A large male mountain lion was also removed from the East Range Unit in February 2003. In June 2003, Wildlife Services found sign that a mountain lion had killed a buck deer on the south portion of the unit. This deer kill was the first mountain lion sign on the unit in the last two months. A third lion was removed during August 2003. The prey population on this unit appears to be limited (Wildlife Services has seen only seven bighorn sheep and four deer), and with the low food availability the mountain lions appear to visit the unit only for short periods of time.

Species	Fiscal Year 2003	Total
Mountain Lion	3	3

Summary of Project Outcome:

This project was discontinued due to concern over releasing bighorn sheep into the control area (Tobin Range) without prior removal of large predators. It was felt by the Wildlife Damage Management Commission Committee that release of a valuable resource such as bighorn sheep release stock would not be prudent without prior treatment of the release site.

Project 7 was not funded for Fiscal Year 2004 and will therefore end with no further work being done under the predator management program.

Project 8: Wilson Creek - White Rock, Mule Deer Predator/ Prey Relationship Project

Project Description:

Mule deer populations in Game Management Area (GMU) 231, northeastern Lincoln County, have shown a gradual downward trend since the 1995 season. Predation could be a limiting factor. Studies indicate that predators can be a significant

cause of mortality for mule deer. However, research also indicates that in order for predator control to be effective, the following conditions should exist: Deer populations below carrying capacity, predation identified as a limiting factor, and control efforts be designed to reduce predator populations enough to yield a response in deer populations, and control efforts be timed to be most effective.

In an effort to determine that these conditions exist within the proposed study area, thereby assuring that predator management actions are both warranted and effective, the Department proposes a one year evaluation period. After this evaluation the Department will use information collected to assess a need for protection of mule deer in GMU 231.

Reason for conducting the project:

Mule deer populations in Nevada have declined steadily since the late-1980s. GMU 231 has followed this same downward trend. Studies indicate that predators can be a significant cause of mortality for mule deer.

Services provided by Wildlife Services:

Wildlife Services will conduct an evaluation of the population status of predators within the proposed study area. They will, in cooperation with the Department of Wildlife, assess the effects of predators on mule deer survival. That assessment may include delineation and audits of fawning grounds, migration corridors and summer and winter ranges to help determine if predation is a limiting factor at specific times of the year.

If predators are found to be a limiting factor, Wildlife Services, in cooperation with Department of Wildlife, will design a management strategy that will best utilize their resources for the protection of mule deer within the study area.

Timing of Service:

Evaluation Period: September - August

Length of Project: 1 - 5 years

Geographic Location of Project:

Treatment Area: Game Management Unit 231, Northeast Lincoln County Nevada.

Control Area: Area 22 (GMUs 221, 222, 223)

Project Analysis:

Studies indicate that predators can be a significant cause of mortality for mule deer fawns. However, research also shows that, in order for predator control to be effective, the following conditions should exist: Deer populations are below carrying capacity, predation was identified as a limiting factor, control efforts reduce predator populations enough to yield results, control efforts be timed to be most effective. In an effort to determine that these conditions exist within the proposed study area, thereby assuring that predator management actions are both warranted and effective, the Department proposes a one year evaluation period.

Evaluation: Monitoring of deer populations on the treatment and control areas will be conducted by NDOW during spring (April/ May) when conditions on the ground indicate to biologists that fawning has commenced and conditions are optimal to make accurate counts. Likewise, in the winter (December), composition surveys will be conducted on wintering deer when biologists feel migration is largely completed and conditions are optimal for accurate surveys. When possible, mule deer herd composition surveys will be replicated to ensure accurate counts and to minimize sampling bias.

Additionally, NDOW will re-evaluate deer population estimates for areas 22 and 23 for previous years to validate population data. Accuracy of population estimates depends largely on accurate assessment of mortality rates. In order to provide accurate mortality rates for the proposed treatment and control areas, 30 deer (15 for each area) will be captured and fitted with UHF-style radio transmitters, each equipped with an internal mortality sensor. Radio-collared deer will be monitored on a weekly basis to provide biologists with mortality rates needed for population modeling.

Wildlife Services Budget Summary:

	FY 2003	FY 2004
Requested	\$0	\$0
Expended	\$0	

Nevada Department of Wildlife Budget Summary:

Nevada Department of Wildlife will incur the following costs related to monitoring deer populations and predator/ prey interactions within the proposed treatment and control areas (NDOW will utilize funding from the predator management budget).

	FY 2003	FY 2004
Requested	\$44,400	\$18,000
Expended	\$30,294	

Summary of Activities:

This project is in an evaluation phase. NDOW and Wildlife Services are conducting an analysis of feasibility on the area. Wildlife Services will be assessing the feasibility of conducting future work within the area (a wilderness study area), and both agencies are analyzing data to determine best management practices if future control work is deemed necessary.

During the week of December 2, 2002, NDOW employees conducted a capture and radio-tagged 30 mule deer (15 in Game Management Unit 231, and 15 in Management Area 22). During the week of February 17 aerial follow-up was conducted on the radio-tagged deer in the two areas. Twenty-nine transmitters were located with 25 of these animals alive and well. Four transmitters had dropped off the animals.

On April 21, 2003, the 13 remaining deer in Unit 231 were again located. All 13 animals were alive. Some of these deer remained on the winter habitat, while others had moved away from the winter habitat towards higher spring and summer use areas.

On April 22, 2003, NDOW employees commenced search for the 13 remaining deer in Area 22. Seven of those deer were located before severe winter snow storms shut down search operations. On the Morning of April 23, NDOW employees attempted again to make searches for the remaining deer, but heavy fog banks prevented helicopter flight in most of Area 22. The deer that were located were found to be alive. As with Unit 231, some deer remained on winter habitat while others had moved towards spring and summer use areas.

On June 12 and 13, the remaining 13 deer in Unit 231 were again located. All 13 deer were alive and most likely on their fawning and summer ranges. On June 12 and 13, the remaining deer from Area 22 were also located. Of the 13 remaining deer, ten of the animals were located and found to be alive. Included in these 10 that were located were five of six deer that were not located due to inclement weather during April flights. Three additional deer that were originally radio-tagged in Area 22 could not be located. Despite covering a very large area within Lincoln and White Pine Counties, no radio signal could be found for the three missing deer.

On August 14 and 15, during telemetry surveys, 11 of the 13 deer in area 231 were located and found to be alive. No signal was found for two other deer in this area.

Surveys

were also conducted to locate the remaining 13 deer in Area 22. Of those 13, ten were located and alive. No signal was found for three other deer in this area.

Summary of Project Outcome:

This project is ongoing and in an evaluation phase. This phase will continue through December of 2003. After this time the data being collected will be reviewed and analyzed to determine best management practices if future control work is deemed necessary.

Project 9: Predator Control to Protect Waterfowl Nesting on Key Pittman WMA

Project Description:

This project will provide protection to ground nesting waterfowl on the Key Pittman WMA in Lincoln, County. Waterfowl brood survey data indicate a recent decline in production, while sightings of nest predators, both avian and mammalian, have sharply increased.

Services Provided by Wildlife Services:

Wildlife Services will design and implement the control project. WS will evaluate raven and coyote densities and determine where effective population management can be implemented. WS will provide licensed applicators to apply avicide. WS will conduct a pre and post-treatment analysis of raven and mammalian predator densities utilizing standard survey methodologies.

Timing of Service:

Control Period: February through June 2003.

Evaluation Period: March through July 2003.

Geographic Area of Project:

Key Pittman Wildlife Management Area, Lincoln County, Nevada.

Reason for conducting the Project:

Spring of 2002 waterfowl brood count data indicate substantial drops in production from previous years. Brood counts for Canada Geese, which normally averages 83

goslings, only resulted in 5 goslings during the spring of 2002. Key Pittman WMA personnel have noticed a rise in the number of coyotes and ravens on the WMA. One report relates an observation of 7 coyotes at one time on the Nesbitt Unit of the area.

Project Analysis:

Waterfowl nest production was measured by NDOW personnel through the analysis of annual brood counts and pair counts. Success was indicated by an increase in the production of waterfowl on Key Pittman WMA.

Wildlife Services Budget Summary:

	Fiscal Year 03*	Fiscal Year 04
Requested	\$2,040	Discontinued
Expended	\$2,040	

*This budget summary does not include WS personnel, and indicates expenses related only to field work

Summary of Control Activities:

Wildlife Services personnel utilized DRC-1339 laced eggs for the control of nest predating corvid species. Coyote populations were also controlled near nesting and fledgling waterfowl during the nesting season. During this period a total of 18 coyotes and 42 ravens was removed from the Key Pittman Wildlife Management Area.

Summary of Project Outcome:

During the 2002 nesting season, surveys indicate little to no recruitment was occurring on Key-Pittman WMA. Surveys conducted during 2003 season resulted in the following observation of chicks:

Species	Number of Broods	Chicks Observed	Chicks/ Brood
Canada Geese	18	130	7
Mallard	13	87	7
Gadwall	18	124	7
Pintail	2	9	4
Cinnamon Teal	7	38	5
Shoveler	2	13	6
Redhead	41	291	7

Canvasback	5	32	6
Ruddy Duck	23	186	8

While several species of waterfowl were noted during spring brood counts, analysis of this project was to be determined with brood survey data of Canada goose and mallards only, as these two species have the best historical data for a comparison. Production for both Canada goose and Mallard dropped significantly below both short term and long term production rates for the Key-Pittman WMA. During the 2002 season Canada goose production resulted in only 2 broods with a total of 5 goslings. Mallard production was non-existent during the 2002 season. This represents a dramatic drop from long term averages (Canada goose brood average = 12.5, Canada goose average gosling production = 83, mallard brood average = 3.4, mallard average duckling production = 21). The sudden drop caused concern which prompted managers to initiate this project.

After the 2003 season, when predator control activities took place on Key-Pittman WMA, a comparison of the number of Canada goose broods during 2003 compared to the long term (1985-2001) average of number of goose brood indicates that there was no difference ($\chi^2 = 2.65$). A comparison of Canada goose chick production in 2003 compared to the long term difference (1985-2001) does, however, indicate a significant increase ($\chi^2 = 26.64$, $P < 0.001$) in number of goslings produced in 2003. Similarly, comparing the number of mallard broods in 2003 to the long term (1985 - 2001) average indicates that there was a significant difference in broods for the 2003 season ($\chi^2 = 27.11$, $P < 0.001$). Duckling production comparisons between 2003 and the long term (1985-2001) average also indicate a significant increase for 2003 ($\chi^2 = 207.43$, $P < 0.001$).

These results indicate not only a dramatic improvement from the nearly non-existent production of 2002, but a significant increase over the average production of Key-Pittman over the last 17 years. A correlation analysis between annual precipitation and number of broods produced was conducted with results ($r = 0.400$) indicating a poor correlation. Much of Key-Pittman WMA's water comes in the form of ditch water from local irrigation sources. A correlation between allotted ditch flows and brood production also showed a poor correlation ($r = 0.360$).

Project 9 was not funded for Fiscal Year 2004 and will therefore end with no further work being done under the predator management program.

Project 10: Mormon Mountains, Desert Bighorn Sheep Predator/ Prey Relationship Project

Project Description:

Desert bighorn sheep within the Mormon Mountains once numbered nearly 500 animals. That estimate declined since its peak in 1994 to the present estimate of 170. Composition survey data shows that lamb production has remained steady during the past decade, however, the population continues to decline. This project is designed to acquire additional data on bighorn/ mountain lion relationships, and to determine if mountain lion predation is a significant limiting factor on desert bighorn sheep in the Mormon Mountains.

Reason for Conducting the Project:

The Mormon Mountain desert bighorn sheep population declined over the past decade from an unknown limiting factor. Lamb/ ewe ratios since 1995 have averaged 45 lambs/ 100 ewes, which is above the estimated herd maintenance level (30-35/100). Yet the herd is still declining. Mountain lions are a known predator of bighorn sheep. This project is designed to determine if mountain lions are a limiting factor of desert bighorn sheep on this range.

Services provided by Wildlife Services:

Wildlife Services will conduct an evaluation of the population status of mountain lions within the proposed study area. They will, in cooperation with the Department of Wildlife, assess the effects of predators on desert bighorn sheep survival.

This project is designed to help determine what factors may be limiting bighorn sheep production. If predators are found to be a limiting factor, the Department of Wildlife, in cooperation with Wildlife Services, will design a management strategy that will best utilize their resources for the protection of bighorn sheep within the study area.

Timing of Service:

Evaluation Period: FY 2004
Length of Project: 1 - 5 years

Geographic Location of Project:

Proposed Treatment Area: Game Management Unit 271, Southeast Lincoln County Nevada.

Project Analysis:

Studies indicate that mountain lions can be a significant cause of mortality for bighorn sheep. The Department proposes a one year evaluation period to determine if mountain lions are a limiting factor on sheep population growth.

Nevada Department of Wildlife will work with Wildlife Services to analyze the number of lions within the proposed project area and the possible effects that lions may have upon the bighorn sheep herd.

Wildlife Services Budget Summary:

	Fiscal Year 2003*	Fiscal Year 2004
Requested	\$240	Discontinued
Expended	\$240	

*This budget summary does not include WS personnel, and indicates expenses related only to field work

Summary of Control Activities:

In March 2003, Wildlife Services' personnel inspected the Mormon Mountain area for possible mountain lion activity. A total of two days was spent riding mules into remote locations inspecting mountain lion travel corridors. During the two-day inspection no mountain lion sign was found on the Mormon Mountain Range. Wildlife Services personnel feels that the best period for finding lions or fresh sign would be during the summer months. Because the area has only a few watering locations for big game, desert bighorn sheep would be more restricted in their range and easier targets for lions hunting water holes. Wildlife management actions aimed at mountain Lions would be difficult in this area due to the sporadic nature of lion activity.

Summary of Project Outcome:

A desert bighorn sheep survey was conducted on September 19 and 20, 2002 during which a total of 71 sheep was classified including three yearling males, 7 adult males (one 2-year old, five 3-year old, and one 5-year old), 55 ewes and 6 young. Three bighorn mortalities were also noted on this survey, but no indication was given as to the cause of these losses.

Project 10 was not funded for Fiscal Year 2004 and will therefore end with no further work being done under the predator management program.

Project 11: East Range: Bighorn Sheep Pre-Augmentation Treatment/ Mule Deer Protection Project

Project Description:

The Nevada Department of Wildlife's Bighorn Sheep Management Plan

recommends that prior to a bighorn sheep augmentation, an evaluation of possible predation problems will be made on the release area. If it is determined that predation is a limiting factor, predator management will be instituted. This control project is designed to help protect existing and newly transplanted sheep within the East Range from predation by mountain lions. Additionally, predator management for the protection of bighorn sheep will also benefit mule deer within the same geographic area.

Reason for Conducting the Project:

One of the management goals established by the Nevada Department of Wildlife's Bighorn Sheep Management Plan is to restore and maintain bighorn herds at optimal levels. This requires the Department to make frequent augmentations of bighorn sheep to areas with a low population density. These augmentations are designed to elevate the density of a specific herd to a sustainable population level. Population studies of bighorn sheep indicate that ecological limiting factors can be overcome if sheep densities are sufficient to rebound after a stochastic event.

The Bighorn Sheep Management Plan lists criteria for developing and initiating predator control programs for enhancing bighorn sheep habitat. Those criteria include possible predation on newly released sheep populations, low recruitment or population trends, confirmed predator-caused bighorn sheep mortalities, and environmental conditions (i.e., reduction in alternate prey or water sources) that may cause added vulnerability of sheep to predators.

Services Provided by Wildlife Services:

Wildlife Services will attempt to control resident lions prior to the release of bighorn sheep into the East Range. WS will periodically monitor the area during the winter months to evaluate if any migratory lions move into the area. Lions that are found in proximity to bighorn sheep and mule deer, or that are in apparent conflict with bighorn sheep and mule deer, will be controlled. Wildlife Services will provide dates, location and method of removal to NDOW for each lion removed.

Timing of Service:

FY 2004

October - May

This project is scheduled for 4 months under funding from the Predator Management program, it is scheduled to continue for an additional 2 months using funding from private donations.

Geographic Area of Project:

Southern end of East Range and the northern end of the Stillwater Range, Pershing County, Nevada. Area of concentration to be desert bighorn habitat north and south of McKinney pass including known habitat on Granite Mountain and in the Root Springs area.

Project Analysis:

Analysis of the effects of mountain lion control on the density of desert bighorn sheep will be through monitoring bighorn sheep populations. NDOW biologists will use aerial and ground surveys to monitor sheep for losses due to predation.

Wildlife Services Budget Summary:

East Range	Fiscal Year 2004*
Requested	4 months \$12,500** 6 months \$18,000**
Expended	

*This budget summary includes a WS personnel position

** This project is priced in conjunction with Project 12, Tobin Range bighorn sheep augmentation treatment. This project is being funded for 4 months, up to \$12,500 from the Predator Management budget, the remaining 2 months of the project equaling \$5,500 will be secured through private contribution to the project.

Project 12: Tobin Range Bighorn Sheep Pre-Augmentation Treatment/ Mule Deer Protection Project

Project Description:

The Nevada Department of Wildlife's Bighorn Sheep Management Plan recommends that prior to a bighorn sheep augmentation, an evaluation of possible predation problems will be made on the release area. If it is determined that predation is a limiting factor, predator management will be instituted. This control project is designed to help protect existing and newly transplanted sheep within the Tobin Range from predation by mountain lions. Additionally, predator management for the protection of bighorn sheep will also benefit mule deer within the same geographic area.

Reason for Conducting the Project:

One of the management goals established by the Nevada Department of Wildlife's Bighorn Sheep Management Plan is to restore and maintain bighorn herds at optimal levels. This requires the Department to make frequent augmentations of bighorn sheep to areas with a low population density. These augmentations are designed to elevate the density of a specific herd to a sustainable population level. Population studies of bighorn sheep indicate that ecological limiting factors can be overcome if sheep densities

are sufficient to rebound after a stochastic event.

The Bighorn Sheep Management Plan lists criteria for developing and initiating predator control programs for enhancing bighorn sheep habitat. Those criteria include possible predation on newly released sheep populations, low recruitment or population trends, confirmed predator-caused bighorn sheep mortalities, and environmental conditions (i.e., reduction in alternate prey or water sources) that may cause added vulnerability of sheep to predators.

Services Provided by Wildlife Services:

Wildlife Services will attempt to control resident lions prior to the release of bighorn sheep into the East Range. WS will periodically monitor the area during the winter months to determine if any migratory lions move into the area. Lions that are found in proximity to bighorn sheep and mule deer, or that are in apparent conflict with bighorn sheep and mule deer, will be controlled. Wildlife Services will provide dates, location and method of removal to NDOW for each lion removed.

Timing of Service:

FY 2004

October - May

This project will be funded for 4 months from the Predator Management program, and for an additional 2 months using funding from private donations.

Geographic Area of Project:

Southern end of Tobin Range, Pershing County, Nevada.

Project Analysis:

Analysis of the effects of mountain lion control on the density of desert bighorn sheep will be through monitoring bighorn sheep populations. NDOW biologists will use aerial and ground surveys to monitor sheep for losses due to predation.

Wildlife Services Budget Summary:

East Range	Fiscal Year 2004*
Requested	Priced jointly with project 11
Expended	

*This budget summary includes a WS personnel position

Project 13: Santa Rosa Range Bighorn Sheep Pre-Augmentation Treatment/ Mule Deer Protection Project*Project Description:*

The Nevada Department of Wildlife's Bighorn Sheep Management Plan recommends that prior to a bighorn sheep augmentation, an evaluation of possible predation problems will be made on the release area. If it is determined that predation is a limiting factor, predator management will be instituted. This control project is designed to help protect existing and newly transplanted sheep within the Santa Rosa Range from predation by mountain lions. Additionally, predator management for the protection of bighorn sheep will also benefit mule deer within the same geographic area.

Reason for Conducting the Project:

One of the management goals established by the Nevada Department of Wildlife's Bighorn Sheep Management Plan is to restore and maintain bighorn herds at optimal levels. This requires the Department to make frequent augmentations of bighorn sheep to areas with a low population density. These augmentations are designed to elevate the density of a specific herd to a sustainable population level. Population studies of bighorn sheep indicate that ecological limiting factors can be overcome if sheep densities are sufficient to rebound after a stochastic event.

The Bighorn Sheep Management Plan lists criteria for developing and initiating predator control programs for enhancing bighorn sheep habitat. Those criteria include possible predation on newly released sheep populations, low recruitment or population trends, confirmed predator-caused bighorn sheep mortalities, environmental conditions (i.e., reduction in alternate prey or water sources) that may cause added vulnerability of sheep to predators.

Services Provided by Wildlife Services:

Wildlife Services will attempt to control resident lions prior to the release of bighorn sheep into the Martin Creek Drainage. WS will periodically monitor the area during the winter months to determine if any migratory lions move into the area. Lions that are found in proximity to bighorn sheep and mule deer, or that are in apparent conflict with bighorn sheep and mule deer, will be controlled. Wildlife Services will provide dates, location and method of removal to NDOW for each lion removed.

Timing of Service:

FY 2004

November - May

This project is scheduled to run from 4 to 6 months contingent on securing private donations to fund predator control work.

Geographic Area of Project:

Martin Creek Drainage of the Santa Rosa Range, Humboldt County, Nevada.

Project Analysis:

Analysis of the effects of mountain lion control on the density of desert bighorn sheep will be through monitoring bighorn sheep populations. NDOW biologists will use aerial and ground surveys to monitor sheep for losses due to predation.

Wildlife Services Budget Summary:

Martin Creek Drainage	Fiscal Year 2004*
Requested	4 months \$20,494** 6 months \$30,744**
Expended	

*This budget summary includes a WS personnel position

**This project is scheduled for 4 to 6 months and is contingent upon securing a source of private donations.

Project 14: Wilson Creek - White Rock, Coyote Control to Enhance Mule Deer Fawn Production

Project Description:

This project is designed to protect mule deer fawns in Game Management Unit 231 where population levels over the past decade have steadily declined. Coyotes will be the focus of management activities, with protection focused on use areas where studies have shown most fawn loss occurs (e.g., fawning grounds and wintering areas). Mule deer population and fawn production levels from before, during and after the project will

be compared to help assess the effectiveness of the project. An age structure

analysis will be conducted on coyotes during the course of the project to help determine coyote population dynamics. A full time wildlife specialist will be assigned to this project.

Reason for Conducting the Project:

Mule deer populations in Game Management Area (GMU) 231, northeastern Lincoln County, have shown a gradual downward trend since the late 1980's. During this time fawn production has also declined. Studies indicate that predators can be a significant cause of mortality for mule deer. Research in other western states indicate coyote predation on mule deer fawns can account for 50 - 77 percent of the total fawn mortality. However, research also indicates that in order for predator control to be effective, the following conditions should exist: Deer populations below carrying capacity, predation identified as a limiting factor, and control efforts be designed to reduce predator populations enough to yield a response in deer populations, and control efforts be timed to be most effective.

Services Provided by Wildlife Services:

Wildlife Services will design and implement the control project. The control work will consist of the removal of coyotes in Game Management Unit 231 for the protection of mule deer. Coyotes are the only animal targeted for removal. WS will evaluate coyote densities and determine where effective population management can be implemented. Wildlife Services will provide Nevada Department of Wildlife (NDOW) with Global Positioning System (GPS) coordinates for the locations of removal, and data on numbers and methods of take. Wildlife Services will also collect a canine tooth from the lower mandibles of coyotes removed from the project area, and submit collected teeth to NDOW for age structure analysis.

WS will use a full time wildlife specialist utilizing best control methods for the removal of coyotes, including the use of aircraft. WS will conduct a pre and post-treatment analysis of coyote densities utilizing standard survey methodologies. Reports of all surveys conducted will be provided by Wildlife Services to NDOW.

Timing of Service:

Control Period: Throughout Fiscal Year 2004
Fiscal Years: 2004 - 2008 (5 year project)

Geographic Area of Project:

Game Management Unit 231. Wildlife damage management activities to protect

mule deer fawns will be concentrated around higher elevation fawning grounds as determined by Nevada Department of Wildlife and Wildlife Service personnel and through use of telemetry data previously collected. Fawning ground activities will take place during the months of March through August.

Wildlife damage management activities to protect mule deer fawns will continue on summer grounds and onto lower elevation winter grounds. Summer and winter ground activities will take place approximately during the months August through February.

Project Analysis:

Mule deer populations should respond to lower predation rates by exhibiting increased fawn survival as measured by the fall composition survey. Population estimates should show an upward trend. Once numbers reach a threshold where predation no longer severely limits the population, growth will continue until another limiting factor is reached.

A comparison of population estimates and fawn production will be compared from GMU 231 from years prior to work beginning and will be compared to population levels and fawn production both during and after treatment.

An analysis of coyote age structure will be conducted each year of this project. Wildlife Service personnel will collect lower mandibles from as many of the removed coyotes as possible. These canine teeth will be sent to a laboratory for cementum aging. This process will help determine if a change in coyote age structure occurs during this project. Older age coyotes are believed to be more efficient at preying on larger ungulates and their offspring, while younger age class coyotes must rely more on alternate food sources (e.g., rodents).

Wildlife Services Budget Summary:

	Fiscal Year 04*	Fiscal Year 05	Fiscal Year 06	Fiscal Year 07	Fiscal Year 08
Requested	\$ 16,560				
Expended					

*This budget summary does not include WS personnel, and indicates expenses related only to field work
Nevada Department of Wildlife Services Budget Summary:

	Fiscal Year 04	Fiscal Year 05	Fiscal Year 06	Fiscal Year 07	Fiscal Year 08
Requested	\$1,500				
Expended					

Project 15: Horse and Cattle Camp Loop, Schell Creek Range. Coyote Control to Enhance Mule Deer Fawn Production

Project Description:

This project is designed to protect mule deer fawns in Game Management Unit 222 where population levels over the past decade have steadily declined. Coyotes will be the focus of management activities, with control work being conducted on fawning grounds which primarily occur in the northern half of Unit 222. Mule deer population and fawn production levels from before, during and after the project will be compared to help assess the effectiveness of the project. An age structure analysis will be conducted on coyotes during the course of the project to help determine coyote population dynamics. A wildlife specialist will be assigned to this project during appropriate times of the year.

Reason for Conducting the Project:

Mule deer populations in Game Management Area (GMU) 222, White Pine County, have shown a gradual downward trend since the late 1980's. During this time fawn production has also declined. Studies indicate that predators can be a significant cause of mortality on mule deer. Research in other western states indicates coyote predation on mule deer fawns can account for 50 - 77 percent of the total fawn mortality. However, research also indicates that, in order for predator control to be effective, the following conditions should exist: Deer populations below carrying capacity, predation identified as a limiting factor, and control efforts be designed to reduce predator populations enough to yield a response in deer populations, and control efforts be timed to be most effective.

Services Provided by Wildlife Services:

Wildlife Services will design and implement the control project. The control work will consist of the removal of coyotes in the northern portions of Game Management Unit 222 for the protection of mule deer. Coyotes are the only animal targeted for removal. WS will evaluate coyote densities and determine where effective population management can be implemented. Wildlife Services will provide Nevada Department of Wildlife (NDOW) with Global Positioning System (GPS) coordinates for the locations of removal, and data on numbers and methods of take. Wildlife Services will also collect a canine tooth from the lower mandibles of coyotes removed from the project area and submit teeth to NDOW for age structure analysis.

WS will use a wildlife specialist utilizing best methods for the removal of coyotes, including the use of aircraft. WS will conduct a pre and post-treatment analysis of coyote densities utilizing standard survey methodologies. Reports of all surveys conducted will be provided by Wildlife Services to NDOW.

Timing of Service:

Control Period: January/February - August, Fiscal Year 2004
 Fiscal Years: 2004 - 2008 (5 year project)

Geographic Area of Project:

Northern half of Game Management Unit 222. Work will be focused on that area North of Patterson Pass to the North end of Unit 222. Work may occur within area 222 as deemed necessary by Wildlife Services to work effectively. Wildlife damage management activities to protect mule deer fawns will be concentrated around higher elevation fawning grounds as determined by Nevada Department of Wildlife and Wildlife Service personnel using mule deer distribution telemetry data previously collected. Control around fawning grounds will take place during the months of February through August.

Project Analysis:

Mule deer populations should respond to lower predation rates by exhibiting increased fawn survival as measured by the fall composition survey. Population estimates should show an upward trend. Once numbers reach a threshold where predation no longer severely limits the population, growth will continue until another limiting factor is reached.

Population estimates and fawn production will be compared from GMU 222 from years prior to work beginning and will be compared to population levels and fawn production both during and after the project.

An analysis of coyote age structure will be conducted each year of this project. Wildlife Service personnel will collect a canine tooth from the lower mandibles of as many of the removed coyotes as possible. These teeth will be sent to a laboratory for cementum aging. This process will help determine if a change in coyote age structure occurs during this project. Older age coyotes are believed to be more efficient at preying on larger ungulates and their offspring, while younger age class coyotes must rely more on alternate food sources (e.g., rodents).

Wildlife Services Budget Summary:

	Fiscal Year 04*	Fiscal Year 05	Fiscal Year 06	Fiscal Year 07	Fiscal Year 08
Requested	\$ 12,240				
Expended					

*This budget summary does not include WS personnel, and indicates expenses related only to field work

Nevada Department of Wildlife Services Budget Summary:

	Fiscal Year 04	Fiscal Year 05	Fiscal Year 06	Fiscal Year 07	Fiscal Year 08
Requested	\$1,500				
Expended					

Project Budget Detail

WILDLIFE SERVICES

Infrastructure Needs							
Personnel	Salary & Benefits	Per diem	Vehicle	D/T Hire	Supplies	Administration	Total
GS-11 (6 mos.)	\$34,718	\$2,184	\$6,200	\$0	\$900	\$8,800	\$52,802
AD-6 (12 mos.)	\$37,584	\$4,200	\$8,946	\$1,100	\$1,500	\$10,666	\$63,996
AD-6 (12 mos.)	\$37,584	\$4,200	\$8,946	\$1,100	\$1,500	\$10,666	\$63,996
Total	\$109,886	\$10,584	\$24,092	\$2,200	\$3,900	\$30,132	\$180,794

Infrastructure needs, while shown in the above table as a separate cost, are more correctly seen as a facet of each project.

WILDLIFE SERVICES

Project 1: Sage Grouse Project Budget					
BUDGET ITEM	FY00 (4 mos)	FY01	FY02	FY03	FY04
	Actual	Actual	Actual	Actual	Projected
1 Wildlife Technician - AD-4 (salary/ben.)	\$7,114	\$7,561	NA	NA	\$8,298
APHIS Vehicles (1,800 miles/month @ .325)	\$3,117	\$3,086	NA	NA	
Camp Trailer (\$100/month for 4 months)	\$400	\$450	NA	NA	
Aerial Hunting (@ \$150/hr)	\$5,835*	\$660	NA	NA	
Equipment (GPS, suppressed .22 rifle, binocs)	\$1,703	\$0	NA	NA	
Supplies (DRC-1339, Eggs, .22 bullets, etc)	\$358	\$936	NA	NA	\$900
Administration	\$6,779	\$17,030	NA	NA	\$1,840
TOTAL	\$25,306	\$29,723	\$31,274	\$8,656	\$11,038

* Included Vya antelope aerial hunting hours only for FY00.

WILDLIFE SERVICES

Project 2: Sharp-tailed Grouse Project Budget					
BUDGET ITEM	FY00 (4 mos)	FY01	FY02	FY03	FY04
	Actual	Actual	Actual	Actual	
1 Wildlife Technician - AD-4 (salary/ben.)	\$6,964	\$7,781	NA	NA	
APHIS Vehicles (1,800 miles/month @ .325)	\$3,780	\$3,646	NA	NA	
Camp Trailer (\$100/month for 4 months)	\$400	\$450	NA	NA	
Aerial Hunting (20 hrs @ \$150/hr)	\$1,980	\$3,675	NA	NA	
Equipment (GPS, suppressed .22 rifle, binocs)	\$1,564	\$0	NA	NA	
Supplies (DRC-1339, Eggs, .22 bullets, etc)	\$236	\$553	NA	NA	
Administration	\$6,779	\$17,030	NA	NA	
TOTAL	\$21,703	\$33,135	\$31,419	\$13,391	Discont.

WILDLIFE SERVICES

Project 4: North Washoe Pronghorn Antelope Project Budget					
BUDGET ITEM	FY00 (4 mos)	FY01	FY02	FY03	FY04
	Actual	Actual	Actual	Actual	Projected
1 Wildlife Technician - AD-4 (salary/ben.)			NA	NA	
Aerial Hunting	\$2,387	\$9,780	NA	NA	
Supplies			NA	NA	
Administration	\$3,013	\$10,853	NA	NA	
TOTAL	\$5,400	\$20,633	\$22,269	\$19,337	\$22,921

WILDLIFE SERVICES

Project 5: Protection of Upland Game Birds and Waterfowl - Moapa Valley			
BUDGET ITEM	FY02	FY03	FY04
	Actual	Actual	Projected
1 Wildlife Technician - AD-4 (salary/ben.)	NA	NA	
Supplies	NA	NA	
Administration	NA	NA	
TOTAL	\$13,018	\$12,615	\$12,500

WILDLIFE SERVICES

Project 6a: Protection of Bighorn Sheep Reintroductions: Delamar Range Desert Sheep Augmentation			
BUDGET ITEM	FY02	FY03	FY04
	Actual	Actual	Projected
Supplies	NA	NA	
Administration	NA	NA	
TOTAL	\$17,523	\$840	\$9,792

WILDLIFE SERVICES

Project 6b: Protection of Bighorn Sheep Reintroductions: East Walker Desert Sheep Augmentation			
BUDGET ITEM	FY02	FY03	FY04
	Actual	Actual	
Supplies	NA	NA	
Administration	NA	NA	
TOTAL	\$16,227	\$840	Discont.

WILDLIFE SERVICES

Project 7: Bighorn Sheep Establishment Cost Comparison: East Range and Tobin Range		
BUDGET ITEM	FY03	FY04
	Actual	Discontinued
Supplies		
Administration		
TOTAL	\$600	Discontinued

WILDLIFE SERVICES

Project 8: Wilson Creek - White Rock, Mule Deer Predator/ Prey Project		
BUDGET ITEM	FY03	FY04
	Actual	Projected
Administration	\$0	\$0
TOTAL	\$0	\$0

NEVADA DEPARTMENT OF WILDLIFE

Project 8: Wilson Creek - White Rock, Mule Deer Predator/ Prey Project		
BUDGET ITEM	FY03	FY04
	Actual	Projected
Deer Capture and handling (30 animals @ \$500/animal)	\$15,000	\$0
Radio Collars (30 collars @ \$196.50/ collar)	\$5,894	\$0
Monitoring of animals (airplane, pilot, observer 6 hours/ month @ \$300/hr for 6 months)	\$9,400	\$18,000
TOTAL	\$30,294	\$18,000

WILDLIFE SERVICES

Project 9: Predator Control to Protect Waterfowl Nesting on Key Pittman WMA		
BUDGET ITEM	FY03	FY04
	Actual	
Supplies		
Aerial Hunting	\$	
Administration	\$	
TOTAL	\$2,448	Discontinued

WILDLIFE SERVICES

Project 10: Mormon Mountain, Desert Bighorn Sheep Predator/ Prey Relationship Project		
BUDGET ITEM	FY03	FY04
	Actual	
Supplies	\$200	
Administration	\$40	
TOTAL	\$240	Discontinued

WILDLIFE SERVICES

Project 11: East Range Bighorn Sheep Pre-Augmentation Treatment/ Mule deer protection project		
BUDGET ITEM	FY03	
	Projected	
Supplies	\$	
Administration	\$	
TOTAL	\$12,500 (4 months) \$18,000 (6 months)	

WILDLIFE SERVICES

Project 12: Tobin Range Bighorn Sheep Pre-Augmentation Treatment/ Mule deer protection project	
BUDGET ITEM	FY03
	Projected
Supplies	\$
Administration	\$
TOTAL	Priced jointly with project 11

WILDLIFE SERVICES

Project 13: Santa Rosa Range Bighorn Sheep Pre-Augmentation Treatment/ Mule deer protection project	
BUDGET ITEM	FY03
	Projected
Supplies	\$
Administration	\$
TOTAL	\$20,494 (4 months) \$30,744 (6 months)

WILDLIFE SERVICES

Project 14: Wilson Creek - White Rock, Coyote Control to Enhance Mule Deer Fawn Production					
BUDGET ITEM	FY04	FY05	FY06	FY07	FY08
	Projected	Projected	Projected	Projected	Projected
Supplies					
Administration					
TOTAL	\$16,560				

NEVADA DEPARTMENT OF WILDLIFE

Project 14: Wilson Creek - White Rock, Coyote Control to Enhance Mule Deer Fawn Production					
BUDGET ITEM	FY04	FY05	FY06	FY07	FY08
	Projected	Projected	Projected	Projected	Projected
Coyote ageing	\$1,500				
Administration					
TOTAL	\$1,500				

WILDLIFE SERVICES

Project 15: Horse and Cattle Camp Loop, Schell Creek Range. Coyote Control to Enhance Mule Deer Fawn Production					
BUDGET ITEM	FY04	FY05	FY06	FY07	FY08
	Projected	Projected	Projected	Projected	Projected
Supplies					
Administration					
TOTAL	\$12,240				

NEVADA DEPARTMENT OF WILDLIFE

Project 15: Horse and Cattle Camp Loop, Schell Creek Range. Coyote Control to Enhance Mule Deer Fawn Production					
BUDGET ITEM	FY04	FY05	FY06	FY07	FY08
	Projected	Projected	Projected	Projected	Projected
Coyote Ageing	\$1,500				
Administration					
TOTAL	\$1,500				

APPENDIX
Predator Management Project Summary

Project Segment	Description	Species Protected	Control Species	Status	Wildlife Specialist	2002		2003	2004		
						Budget	Actual	Budget	Actual	Budget	Actual
	Infrastructure			Approved				\$190,325	\$187,044	\$180,794	
1	Grassy Sage Grouse	Sage Grouse	Ravens	Active	Included	\$31,010	\$31,274	\$11,038	\$8,656	\$11,038	
2	Sharp-tailed Grouse Re-establishment	Sharp-tailed Grouse	Ravens, Coyotes, Badgers, Bobcats	Discont.	Included	\$34,010	\$31,419	\$17,832	\$13,391		
4	Vya Pronghorn Production	Pronghorn	Coyotes, Bobcats	Active	Included	\$17,770	\$22,269	\$18,179	\$19,337	\$22,921	
5	Moapa Upland Game	Turkey, Pheasant, Quail, Waterfowl	Ravens	Active	Included	\$13,000	\$13,018	\$15,552	\$12,615	\$12,500	
6a	Delamar Range Bighorn	Desert Sheep	Mt. Lions	Active	Not Incl.	\$17,000	\$17,523	\$840	\$840	\$6,528/ \$9,792	
6b	East Walker Bighorn	Desert Sheep	Mt. Lions	Discont.	Not Incl.	\$17,000	\$16,227	\$840	\$840		
7	East Range/ Tobin Range	Desert Sheep	Mt. Lions	Discont.	Not Incl.			\$600	\$600		
8	Wilson Creek Range	Mule Deer	No Control	Approved	None			\$44,400	\$30,294	\$18,000	
9	Key Pittman WMA	Waterfowl	Ravens, coyotes	Discont.	Included			\$2,040	\$2,448		
10	Mormon Mountains	Desert Sheep	No Control	Discont.	Not Incl.			\$240	\$240		
11	East Range Bighorn	Bighorn/ Deer	Mt. Lion	New	Included					\$12,500	
12	Tobin Range Bighorn	Bighorn/ Deer	Mt. Lion	New	Included					\$18,000	
13	Santa Rosa Range	Bighorn/ Deer	Mt. Lion	New	Included					\$20,494/ \$30,744	
14	Wilson Creek Range	Mule Deer	Coyote	New	Not Incl.					\$18,060	
15	Horse/ Cattle Camp loop	Mule Deer	Coyote	New	Not Incl.					\$13,740	

				Totals		\$129,790	\$131,730	\$301,886	\$276,305		
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