



Utah's Predator Control Program Summary

Program activities and data from July 1, 2016 through June 30, 2017

Utah's *Mule Deer Protection Act* has been in effect since July of 2012. The primary goal of the program is to remove coyotes from areas where they may prey on mule deer. Two bills were passed by the Utah Legislature, which provide funding to implement the program. SB245 set aside \$500,000 from the Utah General Fund to pay a bounty fee for coyotes that the public harvests, and SB87 added a \$5.00 fee increase to all big game hunting permits to help pay for predator removal efforts. The Utah Division of Wildlife Resources (Division) created the General Predator Control Program, which tracks harvest and participation, and provides payment to all participants in the program. The Division established locations throughout the state where people can check-in coyotes for payment. Each participant must submit the scalp of the animal with ears attached, the lower jaw, and a datasheet that documents where each coyote was killed.

This report summarizes details from the implementation of the Act in Fiscal Year 2017, which runs from July 1, 2016 to June 30, 2017.

Participation, Payments and Coyotes Submitted for Payment

This is the fifth year of the General Predator Control Program, and a total of 11,505 coyotes were turned in for \$575,250 in compensation, an increase of 29% compared with 8,192 coyotes in FY2016¹. Payment exceeded the allotted \$500,000 received from legislature. The additional \$75,250 was taken from remaining funds from previous years. FY2017, like FY2016, had no targeted contracts.

In FY2017, 1,160 individuals submitted coyotes through the General Predator Control Program. The number of participants went down 4% from the previous year (n=1,214). The number of coyotes submitted per hunter increased with 47% of the participants submitting more than 5 animals, compared to 39% in 2016.

Impact of the Program: Estimates from Survey Data

The Division's yearly furbearer survey provided supplementary information about coyote harvest in the state. Up until implementation of the Mule Deer Protection Act and the General Predator Control Program the annual reported harvest of coyotes by hunters licensed to harvest furbearers averaged 7,397. The reported harvest of coyotes by licensed furbearers was 5,124 during 2016-2017. Of the 5,124 coyotes that were reported harvested by licensed fur harvesters, 3,607 were redeemed for bounty payment. This means that in addition to the 11,505 coyotes that were turned in for payment, an additional 1,517 coyotes were harvested and not submitted for a payment through this program in FY2017. The total reported coyote harvest by the general public from July 1, 2016 to June 30, 2017 is 13,022. Of the individuals who purchased a furbearer permit in FY2017, 35% indicated that they increased their efforts to harvest coyotes this year because of the predator control program.

In addition, the Division has a cooperative interagency agreement with USDA Wildlife Services (WS) to remove coyotes under this program. WS personnel reported removing 3,473 coyotes from July 1, 2016 to June 30, 2017.

Total estimated harvest of coyotes for FY2017 through the General Predator Control Program (11,505), additional general fur harvest not redeemed through the Predator Control Program (1,517), and by Wildlife Services (3,473) is 16,495 coyotes. Prior to the implementation of the Mule Deer Protection Act reported harvest of coyotes by licensed furbearer permits holders and Wildlife Services together averaged approximately 9,300 animals per year.

Biological Data

Samples and locations of all coyotes could not be collected due to errors in locations, incomplete data forms, or when conditions prevented gathering the additional data. For example, some coyotes were submitted with injuries which precluded sampling such as broken teeth and damaged hides. Additionally, when long lines or software problems at coyote check-in locations were encountered, biological data was not collected in order to provide quicker customer service to program participants.

Biological data collected for coyotes harvested in the predator control program in FY2017 indicates that 5,167 (45%) were female, 6129 (53%) were male, and the remainder (2%) was unspecified. For the 11,336 coyotes for which hunting method information was available, most (9,369 or 83%) were taken by shooting, 1,613 (14%) were trapped, and 354 (3%) were harvested by other means such as trained dogs, denning, vehicle collisions, etc.

Tooth data consisting of a random sub-sample of approximately 10% of all collected teeth from FY2015 indicate that 75% of the harvest was two-years old or younger, and 45% of the animals were less than one-year-old. There were a few older animals also taken in FY2015; three of the submitted animals were estimated to be 12 years old. Results from tooth data have been consistent from FY2013 through FY2015, so in an effort to reduce costs associated with the program, tooth sampling is now conducted less frequently.

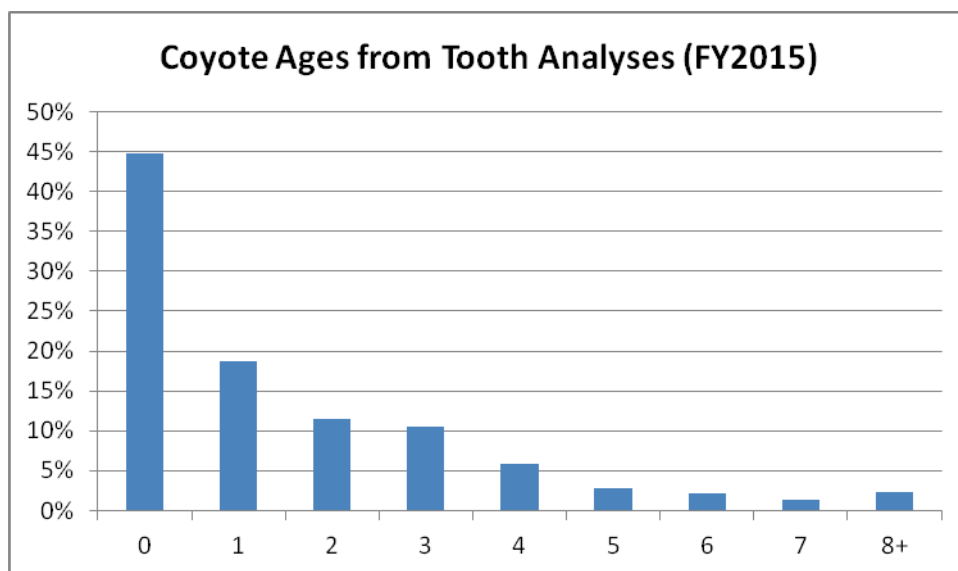


Figure 1. Age of coyotes determined by cementum annuli in FY2015 (n=740).

Temporal Distribution of Coyote Harvest

Coyote submission in FY2017 increased from October 2016 until a peak in February 2017, followed by a marked decrease thereafter (Figure 2). This follows the general pattern observed in previous years, reflecting a seasonal increase in hunters on the landscape and people harvesting coyotes for the regional fur sale held in February.

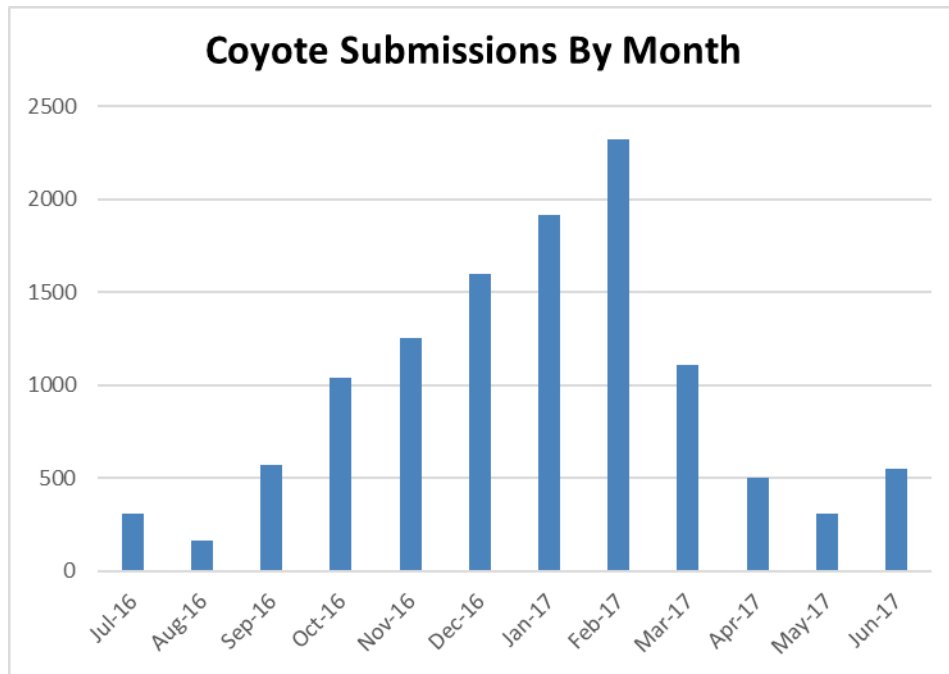
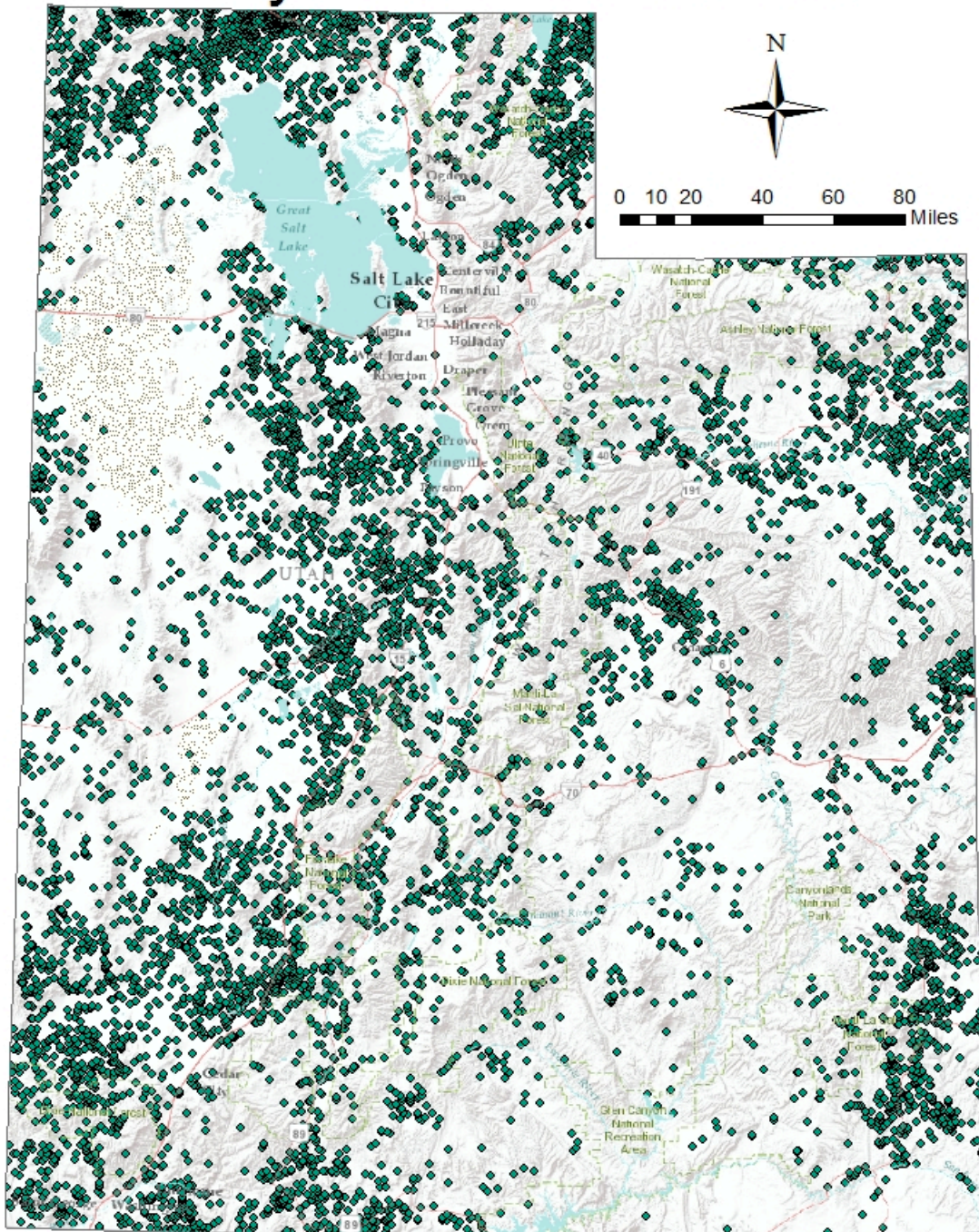


Figure 2. Number of coyotes turned in by month FY2017.

Spatial Distribution of Coyote Take

The total number of coyotes submitted in FY2017 with usable spatial data was 11,408. Coyote removal locations were plotted onto the state’s deer management units (Figure 3). Coyote removal success varied across the state with more than half (53%) of all removals occurring within 8 (Box Elder, Southwest Desert, Pine Valley, San Juan, Beaver, West Desert, Cache, and South Slope) of the 29 units. Of the 41,381 locations with usable spatial attributes submitted from September 2013 through June 2017, twenty percent (8,410) overlapped with summer (or yearlong) habitat for mule deer. The summer habitat data is the best useable data to estimate the overlap between mule deer fawning and coyote removals.

Utah Coyote Removal Locations July 2016 - June 2017



Sources : Esri, DeLorme, USGS, NPS, Sources : Esri, USGS, NOAA

Figure 3. Map of coyote removal locations submitted to the predator control program.

General Deer Hunt Unit	Coyotes Removed	Percent(%)
Beaver	559	4.9
Box Elder	2058	17.9
Cache	515	4.5
Central Mtns, Manti/San Rafael	454	3.9
Central Mtns, Nebo	187	1.6
Chalk Creek/East Canyon	253	2.2
Fillmore	363	3.2
Kamas	6	0.1
La Sal, La Sal Mtns	242	2.1
Monroe	86	0.7
Mt Dutton	84	0.7
Nine Mile	244	2.1
North Slope	129	1.1
Ogden	86	0.7
Oquirrh-Stansbury	352	3.1
Panguitch Lake	193	1.7
Pine Valley	607	5.3
Plateau, Boulder/Kaiparowits	255	2.2
Plateau, Fishlake	84	0.7
Plateau, Thousand Lakes	21	0.2
San Juan, Abajo Mtns	563	4.9
South Slope, Bonanza/Vernal	488	4.2
South Slope, Yellowstone	114	1.0
Southwest Desert	761	6.6
Wasatch Mtns, East	123	1.1
Wasatch Mtns, West	53	0.5
West Desert, Tintic	364	3.2
West Desert, West	559	4.9
Zion	265	2.3

Table 1. Number of coyotes submitted to the predator control program within each deer wildlife management unit.

County	Coyotes Removed	Percent (%)
Beaver	580	5.1
Box Elder	1954	17.1
Cache	233	2.0
Carbon	181	1.6
Daggett	119	1.0
Davis	29	0.3
Duchesne	235	2.1
Emery	220	1.9
Garfield	322	2.8
Grand	300	2.6
Iron	961	8.4
Juab	510	4.5
Kane	437	3.8
Millard	822	7.2
Morgan	49	0.4
Piute	100	0.9
Rich	435	3.8
Salt Lake	39	0.3
San Juan	886	7.8
Sanpete	151	1.3
Sevier	164	1.4
Summit	98	0.9
Tooele	888	7.8
Uintah	728	6.4
Utah	238	2.1
Wasatch	71	0.6
Washington	480	4.2
Wayne	137	1.2
Weber	41	0.4

Table 2. Number of coyotes submitted to the predator control program within each county.

Conclusion

The Predator Incentive Program was efficiently and effectively implemented at a statewide scale during fiscal year 2017. The program demonstrated an increased number of coyotes harvested in Utah. Based on five years of data collected, we estimate that 74,460 coyotes have been harvested. This is an average of 14,892 coyotes per year. Currently, we know that roughly 20% of coyote removals occur on summer range of mule deer. While fawn:doe ratios have remained stable (fluctuating between 60-65 statewide) throughout the entirety of the program, mule deer herds increased between 2012-2015 and took a slight decrease in 2016. However, further assessment of removals and fawn recruitment will be necessary to understand whether the program is benefitting mule deer at a statewide scale. There are many factors that influence deer populations, such as weather, habitat conditions and alternative prey availability, all of which will need to be accounted for when assessing the impacts of the program. It is also unknown how much overlap between removals and fawning is necessary temporally for deer populations to receive the most benefit. A study began August 2017 in an effort to assess the effectiveness of the program and address some of the above mentioned details more closely.

¹The coyote program does not have mandatory reporting requirements. It is legal to harvest coyotes and store them for indeterminate periods, meaning that coyotes harvested in one fiscal year may be submitted for payment in a different fiscal year. For the purposes of this report, analyses include all coyotes submitted for payment in FY 2017, regardless of their actual kill date.