



Utah's Predator Control Program Summary

Program activities and data from July 1, 2017 through June 30, 2018

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 2018, which runs from July 1, 2017 to June 30, 2018.

Participation, Payments and Coyotes Submitted for Payment

This is the sixth year of the General Predator Control Program, and a total of 10,589 coyotes were turned in for \$529,450 in compensation, a decrease of 8% compared with 11,505 coyotes in FY2017¹. Payment exceeded the allotted \$500,000 received from legislature. The additional \$29,450 was taken from remaining funds from previous years. FY2018, like FY2017, had no targeted contracts.

In FY2018, 1,139 individuals submitted coyotes through the General Predator Control Program. The number of participants went down 2% from the previous year (n=1,160). The number of coyotes submitted per hunter remained similar to FY2017 with 47% of the participants submitting more than five animals and 20% of participants submitting one animal. Only 2% of participants submitted more than 50 animals, compared to 3% in FY2017.

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 5,259 during 2017-2018. Of the 5,259 coyotes that were reported harvested by licensed fur harvesters, 1,924 were redeemed for bounty payment. This means that in addition to the 10,462 coyotes that were turned in for payment, an additional 3,335 coyotes were harvested and not submitted for a payment through this program in FY2018. The total reported coyote harvest by the general public from July 1, 2017 to June 30, 2018 is 16,821. Of the individuals who purchased a furbearer permit in FY2018, 38% 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 3,024 coyotes from July 1, 2016 to June 30, 2017.

Total estimated harvest of coyotes for FY2017 through the General Predator Control Program (10,462), additional general fur harvest not redeemed through the Predator Control Program (3,335), and by Wildlife Services (3,024) is 16,821 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 FY2018 indicates that 4,749 (46%) were female, 5,472 (52%) were male, and the remainder 184 (2%) was unspecified. For the 10,272 coyotes for which hunting method information was available, most (8,276 or 81%) were taken by shooting, 1,890 (18%) were trapped, and 106 (1%) 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 FY2017 indicate that 95% of the harvest was two-years old or younger, and 62% of the animals were less than one-year-old. The oldest animal taken in FY2017 was 10 years old. Results from tooth data were consistent from FY2013 through FY2015, but in FY2017, roughly 15%-20% more coyotes less than two years-old were removed compared to previous years. This may indicate a shift in population structure. In an effort to reduce costs associated with the program, tooth sampling is conducted every other year.

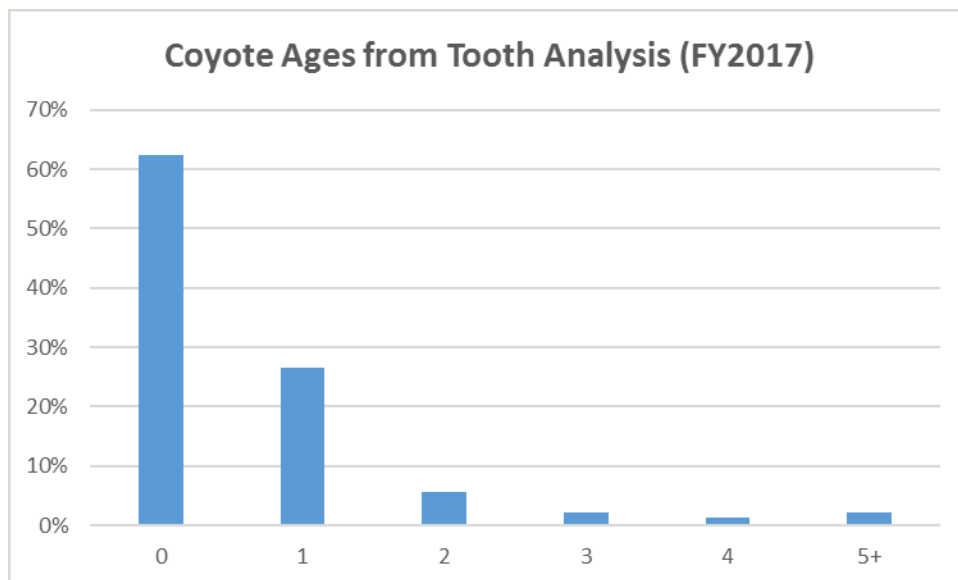


Figure 1. Age of coyotes determined by cementum annuli in FY2017 (n=1149).

Temporal Distribution of Coyote Submissions and Harvest

Coyote submission in FY2018 increased from September 2017 until a peak in January 2018, 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 through winter months.

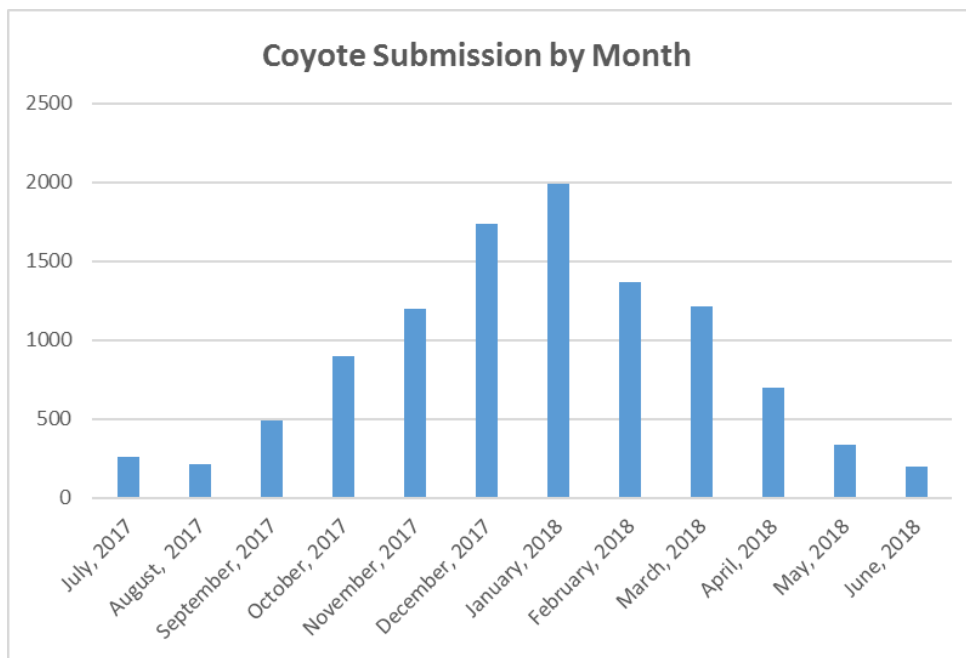
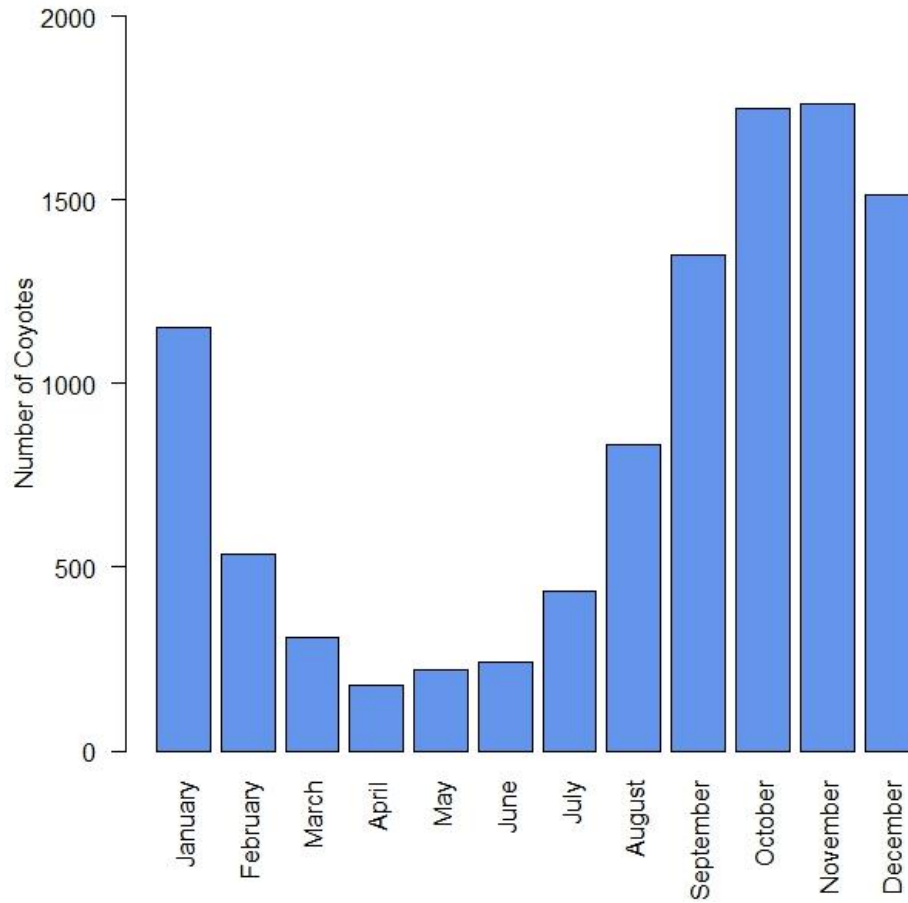


Figure 2. Number of coyotes turned in by month FY2018.

Between FY2013 and FY2018, participants were able to store coyotes for an undetermined amount of time before submitting. In FY2017, participants submitted coyotes that were removed in 2014, 2015, 2016, and 2017, and 2018. All years of removal have been combined to show the temporal distribution across month of coyote removals below.

Coyotes Removed by Month in FY2018



Spatial Distribution of Coyote Take

The total number of coyotes submitted in FY2018 with usable spatial data was 10,020. Coyote removal locations were plotted onto the state’s deer management units (Figure 3). Coyote removal success varied across the state with only 7 of the 39 units having more than 5% of removals . Of the 51,401 locations with usable spatial attributes submitted from September 2013 through June 2018, twenty percent (10,245) 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 Efforts for FY2018

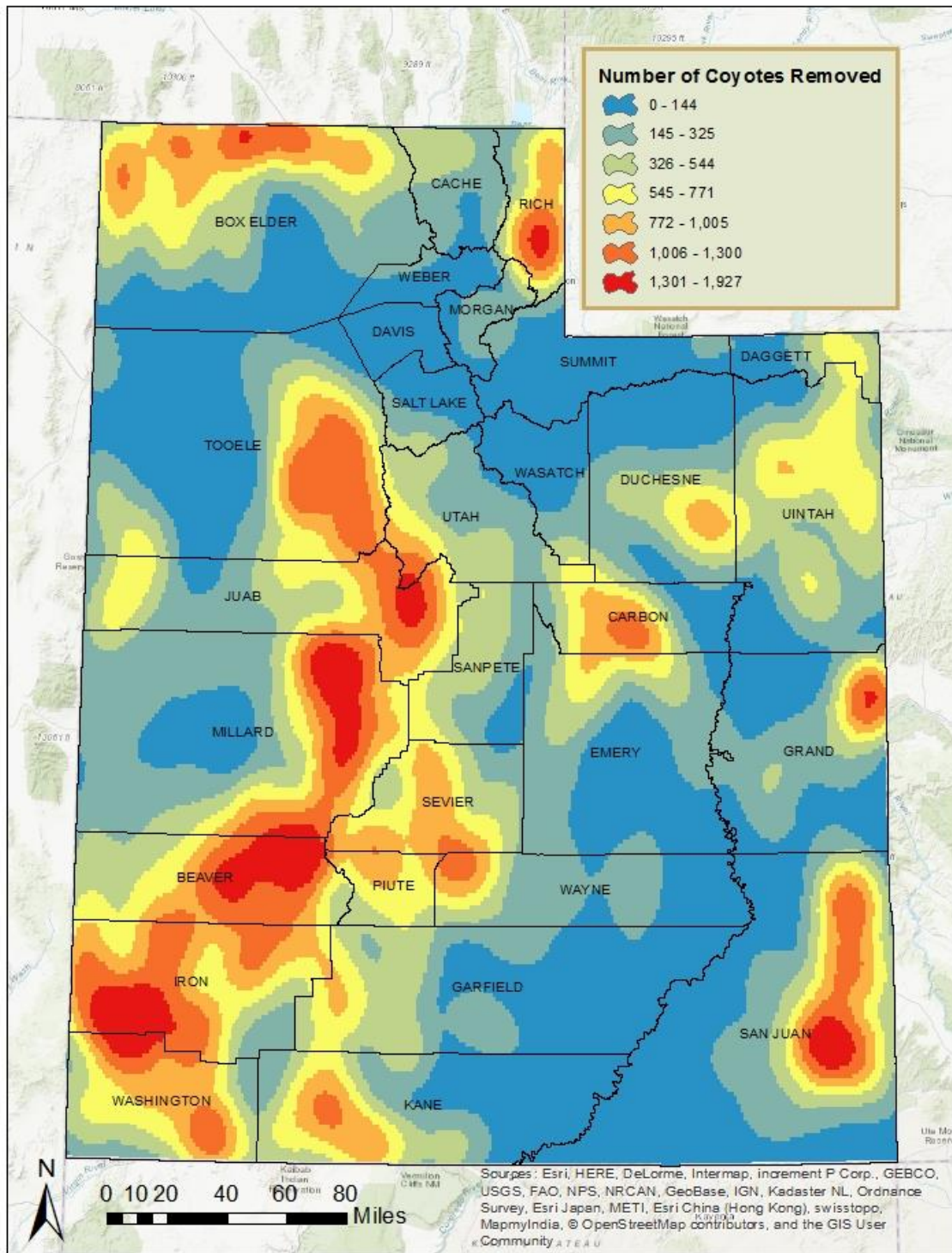


Figure 3. Map of coyote removal densities from coyotes submitted through the predator control program in FY2018

Deer Unit	Coyotes Removed	Percent of Statewide Total
Antelope Island	1	0.01%
Beaver	519	5.18%
Book Cliffs	128	1.28%
Book Cliffs, South	180	1.80%
Box Elder	1041	10.39%
Cache	321	3.20%
Central Mtns, Manti/San Rafael	466	4.65%
Central Mtns, Nebo	227	2.27%
Chalk Creek/East Canyon/Morgan-South Rich	165	1.65%
Fillmore	517	5.16%
Fillmore, Oak Creek LE	86	0.86%
Henry Mtns	27	0.27%
Kamas	8	0.08%
La Sal, Dolores Triangle	5	0.05%
La Sal, La Sal Mtns	196	1.96%
Monroe	138	1.38%
Mt Dutton	90	0.90%
Nine Mile	320	3.19%
North Slope	108	1.08%
Ogden	24	0.24%
Oquirrh-Stansbury	386	3.85%
Panguitch Lake	111	1.11%
Paunsaugunt	282	2.81%
Pine Valley	678	6.77%
Plateau, Boulder/Kaiparowits	288	2.87%
Plateau, Fishlake	173	1.73%
Plateau, Thousand Lakes	56	0.56%
San Juan, Abajo Mtns	466	4.65%
San Juan, Elk Ridge	120	1.20%
South Slope, Bonanza/Vernal	264	2.63%
South Slope, Diamond Mtn	76	0.76%
South Slope, Yellowstone	69	0.69%
Southwest Desert	835	8.33%
Wasatch Mtns, East	108	1.08%
Wasatch Mtns, West	54	0.54%
West Desert, Tintic	318	3.17%
West Desert, Vernon	284	2.83%
West Desert, West	580	5.79%
Zion	305	3.04%
Total	10020	100.00%

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

County	Number of Coyotes Removed	Percent of Statewide Total
Beaver	645	6.4%
Box Elder	1004	10.0%
Cache	99	1.0%
Carbon	208	2.0%
Daggett	111	1.1%
Davis	5	0.0005%
Duchesne	235	2.3%
Emery	284	2.8%
Garfield	301	3.0%
Grand	280	2.8%
Iron	884	8.8%
Juab	556	5.5%
Kane	411	4.1%
Millard	942	9.4%
Morgan	30	0.3%
Piute	153	1.5%
Rich	327	3.3%
Salt Lake	27	0.3%
San Juan	694	6.9%
Sanpete	154	1.5%
Sevier	333	3.3%
Summit	42	0.4%
Tooele	808	8.1%
Uintah	473	4.7%
Utah	272	2.7%
Wasatch	39	0.4%
Washington	511	5.1%
Wayne	184	1.8%
Weber	8	0.0008%
Grand Total	10020	100.0%

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 2018. The program demonstrated a slightly decreased number of coyotes harvested in Utah compared to the previous year. Based on six years of data collected, we estimate that 91,281 coyotes have been harvested. This is an average of 15,214 coyotes per year. Currently, we know that roughly 20% of coyote removals occur on summer range of mule deer. Fawn:doe ratios have decreased slightly throughout the entirety of the program from 65 in FY2013 to 58 in FY2018. Mule deer population estimates increased between 2012-2015 and took a slight decrease in 2016, and another slight decrease in 2017. 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.

