



Utah's Predator Control Program Summary

Program activities and data from July 1, 2018 through June 30, 2019

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 2019, which runs from July 1, 2018 to June 30, 2019.

Participation, Payments and Coyotes Submitted for Payment

This is the seventh year of the General Predator Control Program, and a total of 8232 coyotes were turned in for \$411,600 in compensation, a decrease of 22% compared with 10,589 coyotes in FY2018. FY2019, like FY2018, had no targeted contracts.

In FY2019, 905 individuals submitted coyotes through the General Predator Control Program. The number of participants went down 20% from the previous year (n=1,139). The number of coyotes submitted per hunter remained similar to FY2018 with 52% of the participants submitting more than five animals and 17% of participants submitting one animal. Only 2% of participants submitted more than 50 animals.

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 6,048. The reported harvest of coyotes by licensed furbearers was 3,590 during 2018-2019. The total reported coyote harvest by the general public from July 1, 2018 to June 30, 2019 is 11,822.

In addition, the Division has a cooperative interagency agreement with USDA Wildlife Services (WS) to remove coyotes under this program. WS personnel reported removing 3,911 coyotes from July 1, 2018 to June 30, 2019.

Total estimated harvest of coyotes for FY2019 through the General Predator Control Program (8,232) and by Wildlife Services (3,911) is 12,143 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 FY2019 indicates that 2,725 (46%) were female, 3,080 (52%) were male, and the remainder 63 (2%) was unspecified. For the 5,837 coyotes for which hunting method information was available, most (4,649 or 80%) were taken by shooting, 971 (17%) were trapped, and 217 (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 FY2019 indicate that 95% of the harvest was two-years old or younger, and 64% of the animals were less than one-year-old. The oldest animal taken in FY2019 was 11 years old. Results from tooth data were consistent from FY2013 through FY2018. In an effort to reduce costs associated with the program, tooth sampling is conducted every other year.

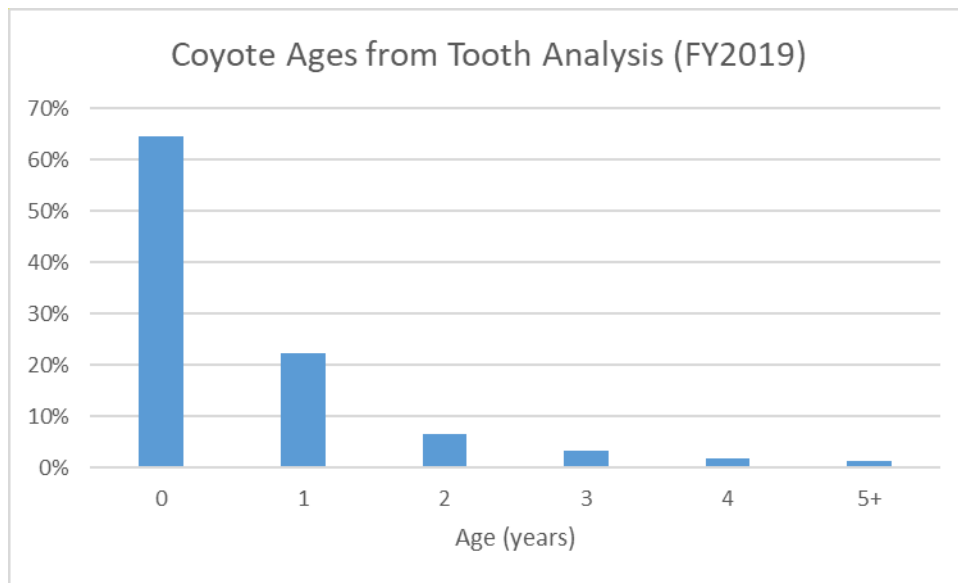


Figure 1. Age of coyotes determined by cementum annuli in FY2019 (n=318).

Temporal Distribution of Coyote Submissions and Harvest

Coyote submission in FY2019 peaked in February 2019, 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.

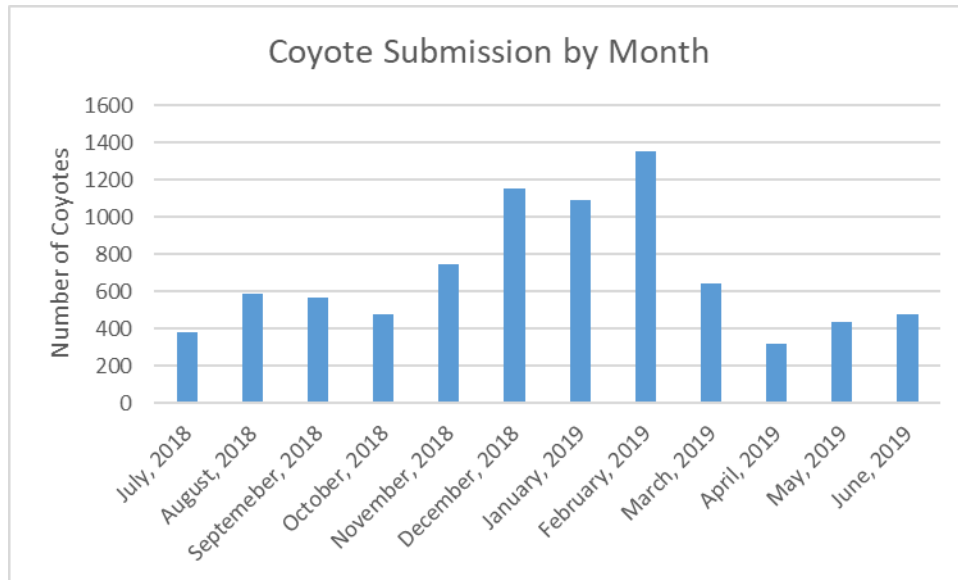


Figure 2. Number of coyotes turned in by month FY2019.

Between FY2013 and FY2018, participants were able to store coyotes for an undetermined amount of time before submitting. Beginning in FY2019, participants must submit coyotes within one year of harvest. Coyotes submitted in FY2019 were harvested from 2017-2019.

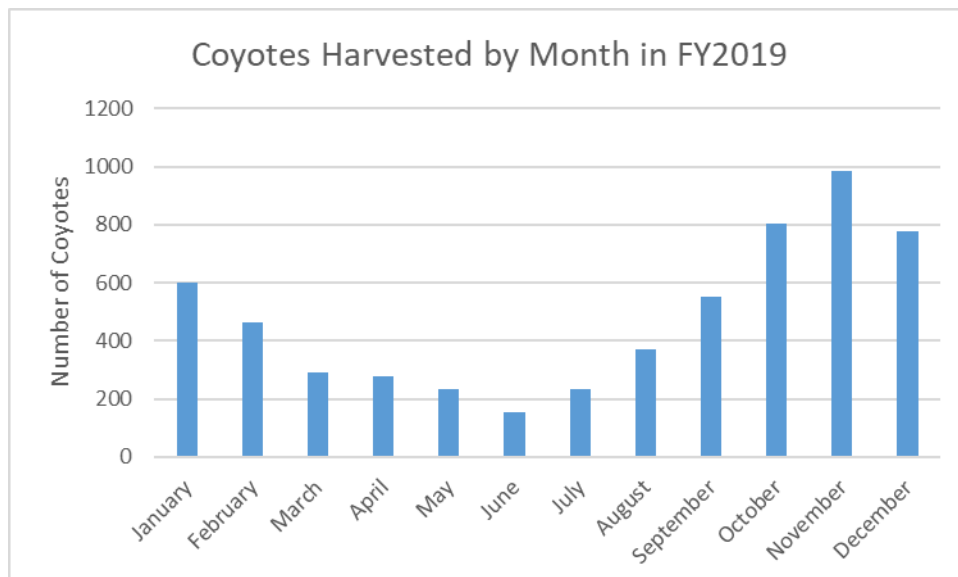


Figure 3. Number of coyotes harvested by month FY2019.

Spatial Distribution of Coyote Take

The total number of coyotes submitted in FY2019 with usable spatial data was 3,975. Coyote removal locations were plotted onto the state's deer management units (Table 1). Coyote removal success varied across the state with only 4 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 2019, 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 FY2019

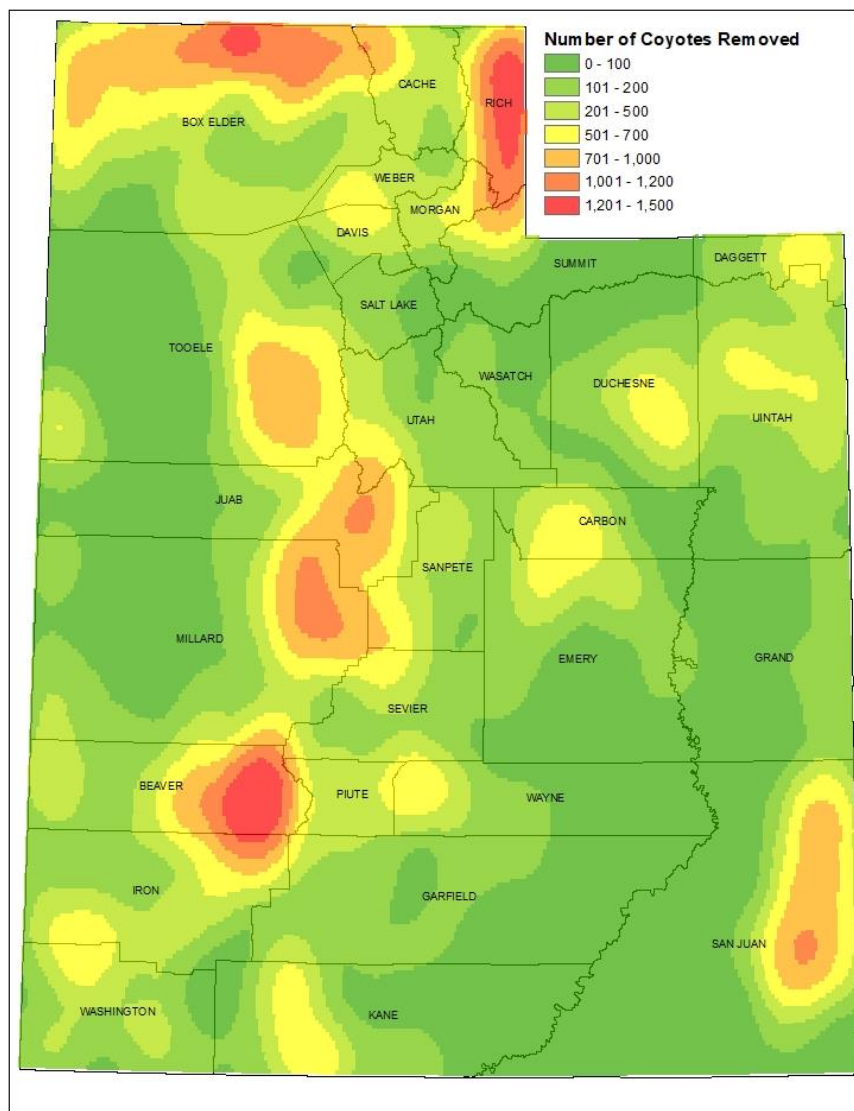


Figure 4. Map of coyote removal densities from coyotes submitted through the predator control program in FY2019.

Deer Unit	Coyotes Removed	% of Statewide Total
Antelope Island	0	0.00%
Beaver	388	7.02%
Bookcliffs	89	1.61%
Bookcliffs, South	33	0.60%
Box Elder	1016	18.39%
Cache	382	6.91%
Central Mtns, Manti/San Rafael	254	4.60%
Central Mtns, Nebo	130	2.35%
Chalk Creek/East Canyon/Morgan-South Rich	266	4.81%
Fillmore	246	4.45%
Fillmore, Oak Creek LE	45	0.81%
Henry Mtns	20	0.36%
Kamas	4	0.07%
La Sal, Dolores Triangle	10	0.18%
La Sal, La Sal Mtns	97	1.76%
Monroe	34	0.62%
Mt. Dutton	29	0.52%
Nine Mile	128	2.32%
North Slope	79	1.43%
Ogden	34	0.62%
Oquirrh-Stansbury	169	3.06%
Panguitch Lake	42	0.76%
Paunsaugunt	127	2.30%
Pine Valley	181	3.28%
Plateau, Boulder/Kaiparowitz	162	2.93%
Plateau, Fishlake	42	0.76%
Plateau, Thousand Lakes	18	0.33%
San Juan, Abajo Mtns	285	5.16%
San Juan, Elk Ridge	14	0.25%
South Slope, Bonanza/Vernal	155	2.81%
South Slope, Diamond Mtn	31	0.56%
South Slope, Yellowstone	70	1.27%
Southwest Desert	275	4.98%
Wasatch Mtns, East	49	0.89%
Wasatch Mtns, West	30	0.54%
West Desert, Tintic	194	3.51%
West Desert, Vernon	145	2.62%
West Desert, West	187	3.38%
Zion	65	1.18%
Total	5525	100%

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

County	Coyotes Removed	% of Statewide Total
Beaver	430	7.78%
Box Elder	955	17.34%
Cache	136	2.47%
Carbon	90	1.63%
Daggett	92	1.67%
Davis	79	1.43%
Duchesne	148	2.69%
Emery	150	2.72%
Garfield	116	2.11%
Grand	89	1.62%
Iron	241	4.38%
Juab	220	3.99%
Kane	172	3.12%
Millard	420	7.63%
Morgan	55	1.00%
Piute	61	1.11%
Rich	337	6.12%
Salt Lake	18	0.33%
San Juan	371	6.74%
Sanpete	110	2.00%
Sevier	88	1.60%
Summit	88	1.60%
Tooele	392	7.12%
Uintah	237	4.30%
Utah	122	2.22%
Wasatch	27	0.49%
Washington	147	2.67%
Wayne	106	1.92%
Weber	28	0.51%
Total	5525	100%

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 2019. The program demonstrated a decreased number of coyotes harvested in Utah compared to the previous. Based on seven years of data collected, we estimate that 103,424 coyotes have been harvested. This is an average of 14,774 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.