



Utah's Predator Control Program Summary

Program activities and data from July 1, 2020 through June 30, 2021

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 2021, which runs from July 1, 2020 to June 30, 2021.

Participation, Payments and Coyotes Submitted for Payment

This is the ninth year of the General Predator Control Program, and a total of 4,931 coyotes were turned in for \$246,550 in compensation, an increase of 20% compared with 4,109 coyotes in FY2020.

In FY2021, 569 individuals submitted coyotes through the General Predator Control Program. The number of participants went up 5% from the previous year (n=541). The number of coyotes submitted per hunter remained similar to FY2020 with 51% of the participants submitting more than five animals and 20% of participants submitting one animal. Only 1% 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 hunters and trappers was 4931 during 2020-2021.

In addition, the Division has a cooperative interagency agreement with USDA Wildlife Services (WS) to remove coyotes under this program. WS personnel reported removing 3,871 coyotes from deer units between July 1, 2020 and June 30, 2021. Of the coyotes removed from deer units, 586 coyotes were from targeted areas defined by DWR to enhance mule deer population growth.

Total estimated harvest of coyotes for FY2021 through the General Predator Control Program (4,931) and by Wildlife Services (3,871) is 8,802 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 FY2021 indicates that 1,893 (52%) were female, 1,730 (47%) were male. For the 3,623 coyotes for which hunting method information was available, 2,728 (75%) were taken by shooting, 753 (20%) were trapped, and 142 (5%) 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 FY2019. In an effort to reduce costs associated with the program, tooth sampling was not conducted in FY21.

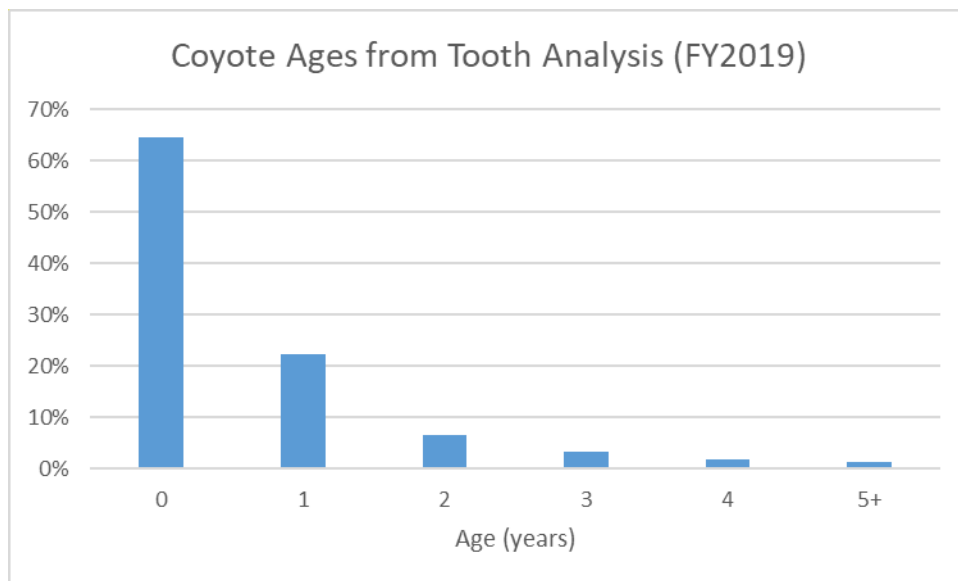


Figure 1. Age of coyotes determined by cementum annuli in FY2019 (n=318).

Temporal Distribution of Coyote Submissions and Harvest

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 FY2021 were harvested from July 2020- June 2021. We track and find this data relevant as recommended removal dates are December through June. Coyotes mate during winter and the most effective control efforts will remove coyotes after paid bonds are formed but prior to pups.

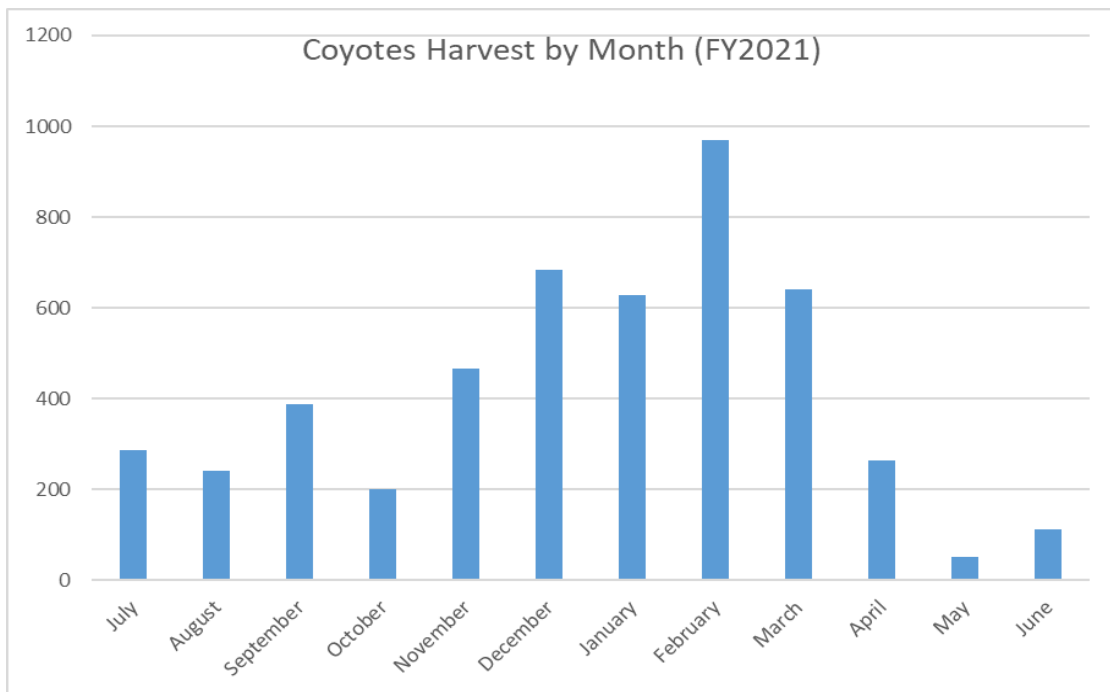
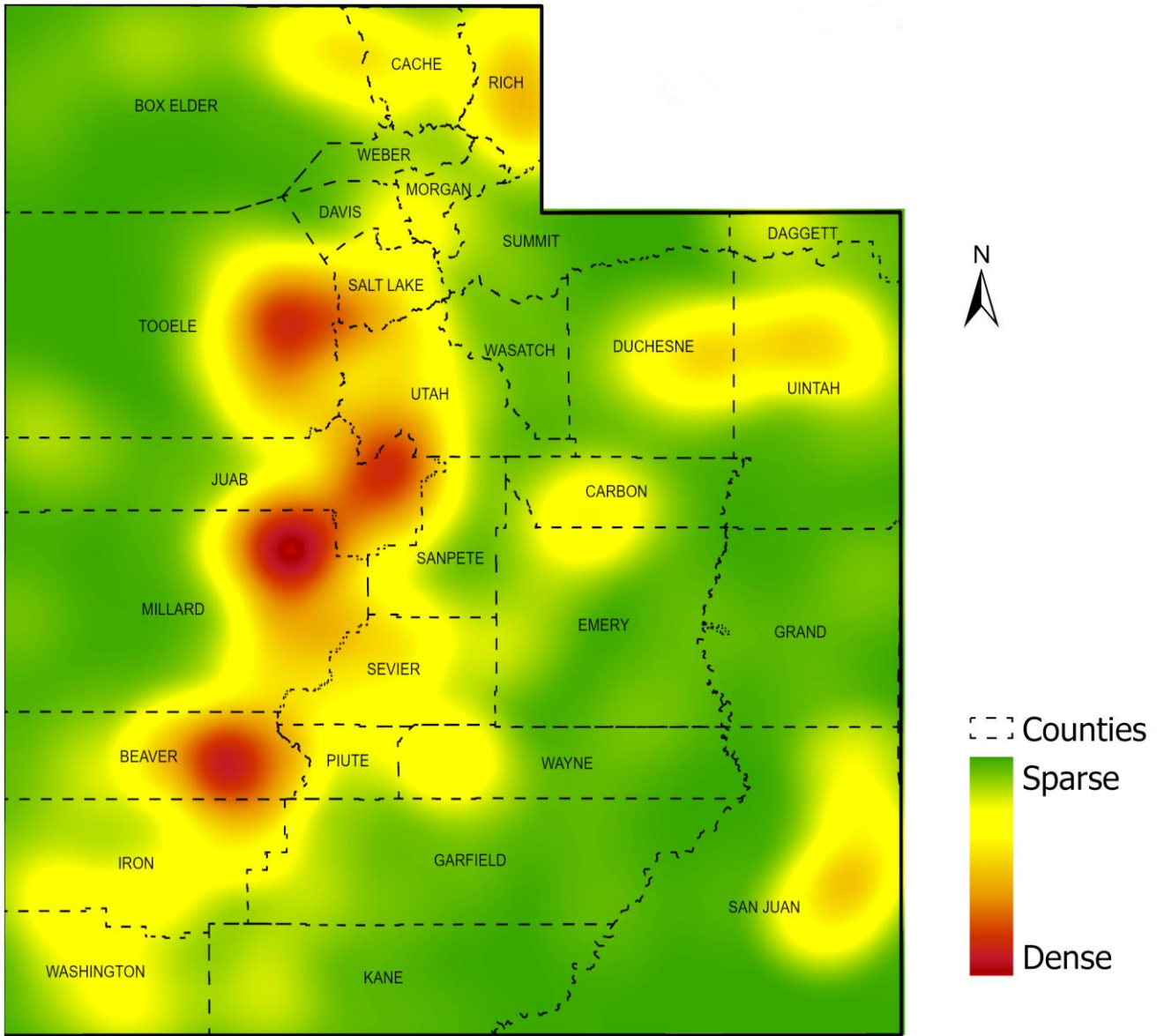


Figure 2. Number of coyotes harvested by month FY2021.

Spatial Distribution of Coyote Take

The total number of coyotes submitted in FY2021 with usable spatial data was 4,016. Coyote removal locations were plotted onto the state's deer management units (Table 1). Coyote removal success varied across the state with only 5 of the 51 units having more than 5% of removals. Of the 51,401 locations with usable spatial attributes submitted from September 2013 through June 2020, 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.

FY21 Coyote Removal Heat Map



Deer Unit	Coyots Removed	% of Statewide Total
Antelope Island	0	0.00%
Beaver	341	6.57%
Bookcliffs, North	19	0.37%
Bookcliffs, South	20	0.39%
Box Elder A	105	2.02%
Box Elder B	75	1.45%
Box Elder C	63	1.21%
Cache	215	4.14%
Cache, Crawford Mtn	66	1.27%
Central Mtns, Manti-North	55	1.06%
Central Mtns, Manti-South	69	1.33%
Central Mtns, Nebo	189	3.64%
Chalk Creek	12	0.23%
East Canyon	46	0.89%
Fillmore B	450	8.67%
Fillmore, Oak Creek LE	45	0.87%
Henry Mtns	29	0.56%
Kaiparowits	37	0.71%
Kamas	18	0.35%
La Sal, La Sal Mtns	96	1.85%
Monroe	84	1.62%
Morgan-South Rich	68	1.31%
Mt. Dutton	40	0.77%
Nine Mile, Anthro	73	1.41%
Nine Mile, Range Creek	20	0.39%
North Slope, Summit	1	0.02%
North slope, Three Corners	8	0.15%
North Slope, West Daggett	47	0.91%
Ogden	42	0.81%
Oquirrh-Stansbury	349	6.73%
Panguitch Lake	79	1.52%
Paunsaugunt	73	1.41%
Pine Valley	242	4.66%
Plateau, Boulder	113	2.18%
Plateau, Fishlake	57	1.10%
Plateau, Thousand Lakes	28	0.54%
San Juan, Abajo Mtn	236	4.55%
San Juan, Elk Ridge	12	0.23%
San Rafael	121	2.33%
South Slope, Bonanza	48	0.93%
South Slope, Diamond Mtn	16	0.31%
South Slope, Yellowstone	136	2.62%
Southslope, Vernal	147	2.83%
Southwest Desert	297	5.72%
Wasatch Mtns, Avintaquin	9	0.17%
Wasatch Mtns, Currant Creek	19	0.37%
Wasatch Mtns, West	109	2.10%
West Desert, Deep Creeks	228	4.39%
West Desert, Tintic	299	5.76%
West Desert, Vernon	134	2.58%
Zion	104	2.00%
Total	5189	100.00%

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

County	Coyotes Removed	% of Statewide Total
Beaver	205	10.98%
Box Elder	168	9.00%
Cache	48	2.57%
Carbon	19	1.02%
Daggett	33	1.77%
Davis	0	0.00%
Duchesne	69	3.70%
Emery	23	1.23%
Garfield	66	3.54%
Grand	13	0.70%
Iron	178	9.53%
Juab	116	6.21%
Kane	123	6.59%
Millard	158	8.46%
Morgan	13	0.70%
Piute	15	0.80%
Rich	53	2.84%
Salt Lake	10	0.54%
San Juan	127	6.80%
Sanpete	19	1.02%
Sevier	38	2.04%
Summit	3	0.16%
Tooele	92	4.93%
Uintah	50	2.68%
Utah	38	2.04%
Wasatch	17	0.91%
Washington	144	7.71%
Wayne	25	1.34%
Weber	4	0.21%
Total	1867	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 2021. The program demonstrated a decreased number of coyotes harvested in Utah compared to the average removal of previous years. We estimate that 112,464 coyotes have been harvested. This is an average of 12,496 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. In 2020-2021, coyote predation was responsible for 15% of the collared adult mule deer mortality rate. 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. As of now, this study is ongoing.

