

2017 RANGE-WIDE STATUS OF BLACK-TAILED AND MULE DEER

Mule Deer Working Group. Western Association of Fish and Wildlife Agencies

Abstract: The purpose of this paper is to provide a general overview of the current black-tailed and mule deer (*Odocoileus hemionus*) population status and general abundance trends throughout their range in North America. The Mule Deer Working Group (MDWG) consists of representatives from the 23 state and provincial agencies that comprise the Western Association of Fish and Wildlife Agencies (WAFWA). The purpose of the MDWG is to provide a collaborative approach to finding solutions to improve black-tailed and mule deer conservation and management. One of the most common types of information requested of the MDWG is regarding the general population status and trajectory of black-tailed and mule deer populations. Stakeholders are interested in whether mule deer are still declining or in the process of recovering. To provide a quick snapshot of the status of this species, we assembled this information by having each agency MDWG representative provide a current population status, as well as general survey and harvest information for their respective jurisdiction. All states and provinces use very different methods to survey and estimate populations parameters and harvest. Some have more scientifically rigorous processes than others, based on their resources and management needs. Black-tailed and mule deer populations are below agency goals in all but a couple jurisdictions, however, only a few are currently declining. Most states and provinces report their populations are stable or recently recovering from previous declines. The last two years have been favorable with several state and provincial mule deer populations showing noticeable improvement.



Black-tailed and
Mule Deer Distribution

Mule Deer
Working Group



Range-wide estimation of population size, harvest, and hunter numbers of mule deer provided by member agencies of WAFWA.

	Estimated Population ¹	Total Harvest	% males in Harvest	Hunter Numbers
Alberta	151,135	14,792	47%	37,858
Arizona	85,000 - 100,000	8,214	96%	42,240
British Columbia ²	100,000 - 168,000	15,613	78%	56,253
California ³	550,000-620,000	33,365	98%	176,192
Colorado ⁴	419,000	36,824	78%	81,253
Idaho	310,000	39,018	79%	90,971
Kansas	40,616	2,115	89%	17,134
Montana	363,236	55,276	82%	158,896
Nebraska ⁵	100,000 – 125,000	10,640	83%	15,000
Nevada	92,000	7,885	87%	18,111
New Mexico ⁴	80,000 - 100,000	10,895	99%	32,117
North Dakota ⁵	25,940 (Badlands)	4,617	74%	6,105
Oklahoma ⁶	1,500 - 2,000	189	97%	No Estimate
Oregon	220,000 - 240,000	20,429	97%	62,483
Saskatchewan	30,000-60,000	8,000	70%	10,500
South Dakota ^{7,8}	40,000 – 83,000	6,500	82%	67,400
Texas	230,672	9,804	90%	23,492
Utah	374,450	37,804	91%	90,675
Washington ⁹	90,000 - 110,000	8,669	91%	115,901
Wyoming	364,000	25,379	87%	49,859
Yukon	1,000	8	100%	12

¹ Estimated population may be presented as ranges to denote the difficulty and levels of uncertainty in gathering an estimate over a large spatial scale.

² All data presented are from the most recent year available.

³ Black-tailed and mule deer numbers combined. “Hunter Numbers” is “number of tags issued” so the actual number of hunters will be less.

⁴ Population estimate, harvest, and hunters include white-tailed deer (which are approximately 5% [CO]) of the estimates and cannot be easily removed because most deer licenses are for either species.

⁵ Population estimate is determined for the Badlands, total harvest includes gun and archery harvest, and number of hunters is based on mule deer licenses and any deer gun licenses within mule deer range.

⁶ Numbers are difficult to estimate as many permits allow the take of mule deer or whitetail deer.

⁷ Total deer hunters, includes both mule deer and white-tailed deer hunters.

⁸ Estimates are 2017 pre-season.

⁹ Estimates of Total Harvest and % males reflect 2016 general season harvest only. Estimate of Hunter Numbers reflects all deer hunters for the general season; WA does not estimate hunters by species or subspecies.

Range-wide estimation of population size, harvest and hunter numbers of black-tailed deer provided by WAFWA member agencies.

	Estimated Population ¹	Total Harvest	% males in Harvest	Hunter Numbers
Alaska ²	333,000-346,000	20,149	84%	14,229
British Columbia ³	98,000 - 157,000	7,490	77%	13,448
Hawaii ⁴	1,000-1,200	36	100%	No Estimate
Oregon	300,000 - 320,000	21,795	90%	95,316
Washington ⁵	90,000 - 110,000	11,709	89%	115,901

¹ Estimated populations may be presented as ranges to denote the difficulty and levels of uncertainty in gathering an estimate over a large spatial scale.

² Alaska population size is provided from our population objectives, rounded up to the closest thousand. These objectives were derived based on a combination of habitat capability modeling and expert opinion panels. This gross estimate is not re-calculated from year to year, but is rather a general ball-park figure.

³ All data presented are from the most recent year available.

⁴ Population estimate includes only public hunting areas, not private land.

⁵ Estimates of Total Harvest and % males reflect 2016 general season harvest only. Estimate of Hunter Numbers reflects all deer hunters for the general season, WA does not estimate hunters by species or subspecies.

Alaska

Sitka black-tailed (SBT) deer are native to the wet coastal rainforests of Southeast Alaska, which comprises Alaska Fish and Game (ADF&G) Region 1. Due to historic transplant efforts, SBT deer also now have established populations in parts of South Central Alaska (ADF&G's Region 2), including Prince William Sound and on Kodiak and Afognak islands. Deer density on the mainland has historically appeared lower than on the islands, presumably due to lower habitat quality. Because of the island geography, varying weather patterns, different predator guilds, and differences in the extent and pattern of forest logging, deer densities can vary greatly from one game management unit (GMU) to another, and even within GMUs. Population size or density has been a challenge to calculate throughout Alaska, due to the difficulties of employing various techniques in the remote and densely forested habitats that characterize deer range in Alaska. As a result, population objectives were set for each GMU based on expert opinion and analyses of habitat capability. These objectives constitute our best guess of what population levels may be in each GMU, but they are imprecise, and cannot be used to monitor changes in abundance. Based on these objectives, deer populations in Alaska as a whole would ideally range from 333,000-346,000. Due to the difficulty of measuring actual population size or density, since the early 1980's ADF&G has attempted to index changes in deer abundance by using pellet count surveys to look at multi-year trends within various watersheds. More recently, ADF&G has used fecal DNA to conduct mark-recapture population and/or density estimation, and is evaluating the efficacy of this technique for long-term use. Lastly, yearly harvest and hunter effort data provides information across multiple geographic scales. Prior to 2011, information was collected through a voluntary mail-out survey of ~30% of deer hunters, with an expansion factor applied to estimate total harvest. Approximately 65% of

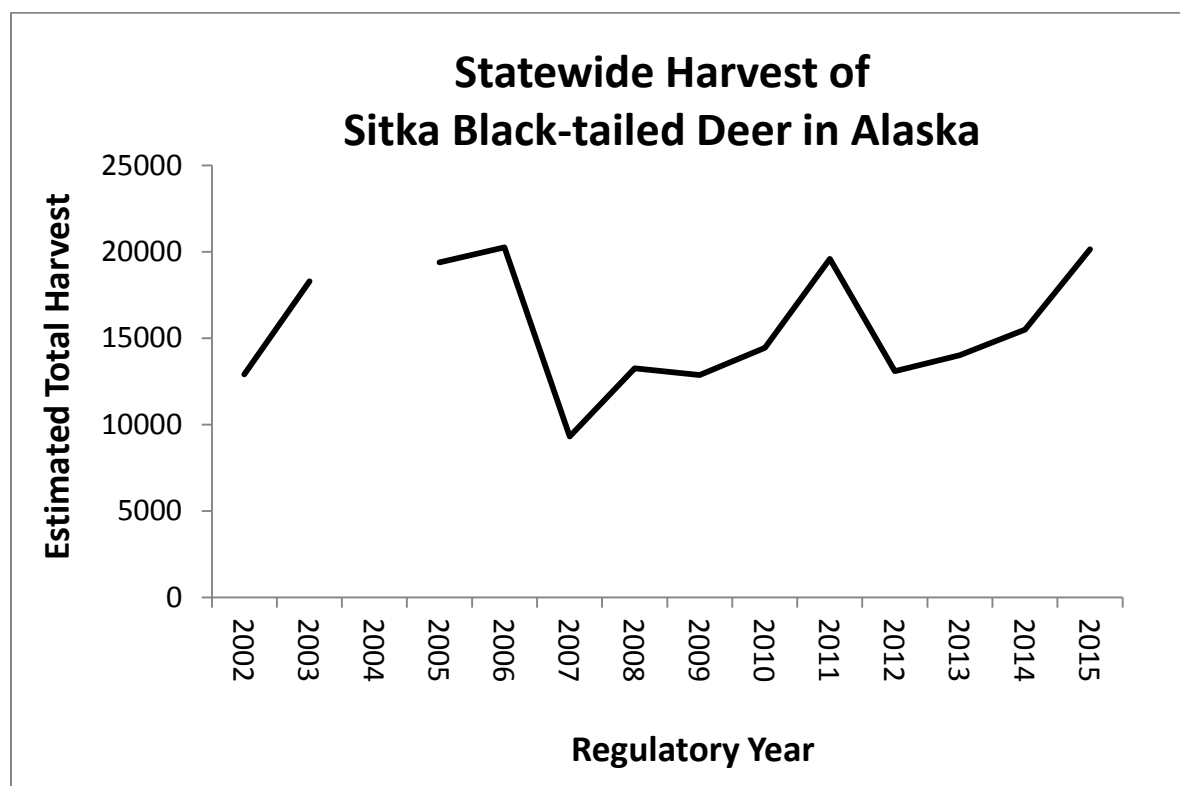
those surveyed responded each year. Since 2011, a deer harvest ticket system with mandatory reporting has been in place, but response rates have remained similar.

In Alaska, populations fluctuate predominately with the severity of winters - increasing during a series of mild winters and sometimes declining dramatically after one or more severe winters. Habitat change resulting from timber harvest affects deer by increasing summer browse (and browse available in mild winters with little snow) for about 30 years, before forests enter a stem-exclusion phase. Where deer become overpopulated with regard to the remaining primary winter range available to them, populations can plummet quickly when deep snow returns, and may stay at low levels if winter range is damaged from over-browsing. Predation by bears and wolves can also slow recovery of deer after these events. Harvest by deer hunters is believed to be compensatory in Alaska as a whole, due to the remoteness of most areas and lack of extensive road networks. However, where logging roads exist adjacent to communities, low snowfall in the fall or early winter may allow hunters prolonged access to deer range, and can lead to site-specific higher hunter harvest. In contrast, heavy snowfall can concentrate deer at low elevations or on beaches, and can lead to higher harvests in areas easily accessible by boat. When conditions seem to warrant, management has included closing specific areas to hunting, lowering bag limits, and temporary restrictions of “any deer” hunts to “buck only” hunts.

In Southeast Alaska, Sitka black-tailed deer are fairly ubiquitous, and the most frequently pursued big game species. Southeast Alaska experienced 2 severe and 1 above average winter between 2006 and 2009, which led to substantial declines in the deer population and management actions such as doe harvest closures were taken in parts of the region. Subsequent to the high harvest in 2006-2007, pellet-group counts went down, and much lower harvest levels were experienced. Some of this lower harvest was a result of lower effort on the part of hunters, who indicated they wanted to allow populations time to recover. From 2010-2016 we have experienced average to below average winter severity across most of the region, with the winter 2015-2016 being one of the mildest on record. Overall hunter harvest and effort trends appear to be rebounding from previously mentioned lows. Similarly, pellet group counts and populations estimates (in the limited areas where they have been conducted) indicate an increasing or stable trend in most areas. However, monitoring deer densities in Game Management Units (GMUs) 1A and 3Z remains a concern. The reduced number of deer in these GMUs from historical highs is thought to involve the effects of periodic severe winters, reduced habitat quality, and predation slowing deer population recovery. Intensive management (predator control) proposals were reviewed and approved by the Board of Game in 2013. In 2013, research commenced to assess deer population status and habitat conditions in certain watersheds to better evaluate the potential causes of the decline of deer in these areas. Initial DNA mark-recapture efforts failed to produce population density estimates due to low recapture rates in these GMUs, where the number of pellet groups seen was approximately 70% lower, and the number of fresh pellet groups collected was 90% lower, than in areas where the technique had been successfully employed in areas with greater deer abundance. More recently, increased efforts in smaller geographic areas enabled us to produce a density estimate for Gravina Island in GMU 1A. Currently, we are working on an estimate for an area on Mitkof Island in GMU 3Z. Efforts to evaluate changes in habitat as well as habitat quality also continue. Deer harvest statistics, deer pellet-group surveys, and abundance estimations efforts indicate that deer numbers are starting to rebound in these units, so there is no plan to initiate predator control at this time.

In South Central Alaska, the weather patterns can differ substantially from what is occurring in Region 1. During the winter of 2011-2012, the effects of winter severity in GMU 6

was the worst in 30 years with over 27 feet of snowfall recorded in Cordova. Winter mortality was estimated at >50% overall, and was likely as high as 70% in areas of western Prince William Sound. Deer congregating on beaches due to early and heavy snowfall increased hunter success in winter 2011-2012 to a record high, but subsequent effects of this harvest combined with high winter mortality caused a decrease in harvest numbers of approximately 80% after the winter of 2012-2013. Hunting seasons were modified in regulatory years 2012 and 2013 to reduce harvest while the population was recovering. Deer numbers are still lower than prior to 2011, but signs of recovery are noted with improvements in winter survival and body condition. GMU 6 researchers are planning to implement DNA mark-recapture to obtain density estimates in some areas. In GMU 8, the deer population of the Kodiak archipelago also declined due to the same severe weather winter of 2011-2012. For reasons similar to those stated for GMU 6, harvest for the winter of 2012-2013 was down by over 40% from the previous year. Deer mortality was greatest on the northern portion of Kodiak and the western side of Afognak Island. Since then deer populations have been rebounding with mild winters during 2013-2016. No regulatory action is anticipated for either GMU 6 or GMU 8 in the upcoming years.



-Karin McCoy, Alaska Department of Fish and Game

Alberta

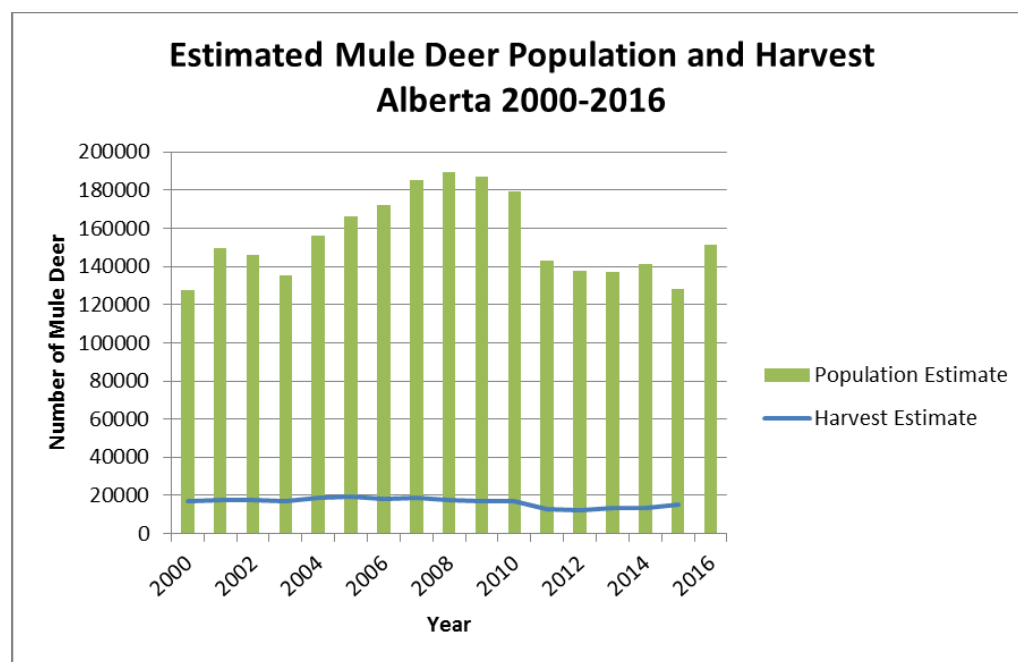
The 2016 pre-hunting season population estimate of mule deer in Alberta is 151,135 and reflects the most robust estimate provided in recent years. The population increase from 2015 can be attributed to a mild winter in 2015/16 and a more complete provincial database for mule deer population information. The population goal in Alberta's most recent management plan for

this species (1989) is 97,000. However, a new provincial management plan for mule deer is currently being written and this will see a change in the provincial population goal that is much nearer to the current population estimate.

Interest in mule deer hunting continues to increase in Alberta. The number of antlered mule deer special license applicants increased in 2015 (up to 75,112 from 70,668) along with the number antlerless mule deer special license applicants (up to 32,292 from 29,151). Based on voluntary hunter harvest surveys, during the 2015 hunting season 37,858 mule deer hunters in Alberta directed an estimated 255,915 days hunting for mule deer, producing an estimated harvest of 14,792 mule deer (~47% antlered deer) with an average provincial mule deer hunter harvest success rate of 28%.

The 2016 hunting season will support ~10,000 antlered mule deer special license and ~16,000 antlerless mule deer special licenses in addition to certain Wildlife Management Units (WMUs) providing unlimited licenses to harvest mule deer. Alberta also supports a healthy commercial hunting industry, with approximately 1,500 antlered mule deer licenses available for non-residents through outfitter-guide allocations. There is an unknown number of rights based hunters in Alberta that do not require a license to hunt for sustenance and thus information on effort and harvests by this group is unknown.

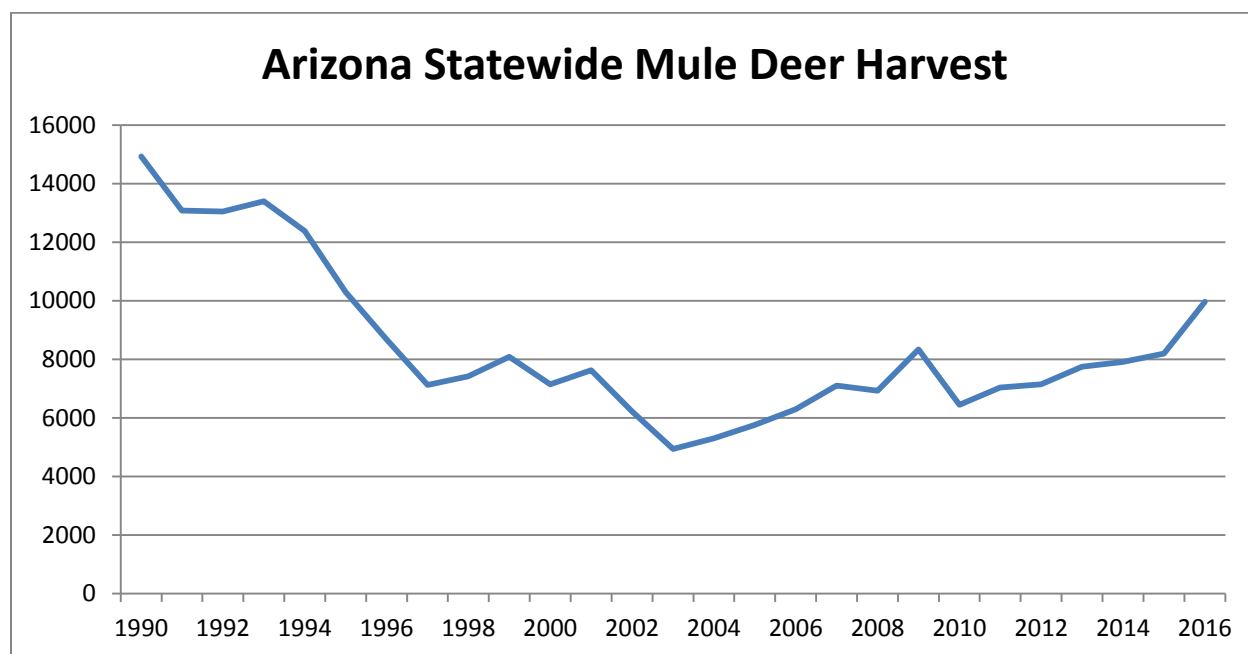
Chronic wasting disease (CWD) is present in Alberta, primarily in eastern Alberta along the Saskatchewan border. Prevalence in 2015/16 increased to 2.4% (n=4,929 deer heads tested), up from 2.1% in 2014/15 (n=4,163 deer heads tested). In 2015/16, CWD was detected in 6 additional WMUs where CWD was not known to occur. In Alberta CWD occurs primarily in mule deer and males. Local prevalence in mule deer bucks in some WMUs exceeds 15%. More information on CWD in Alberta is found at <http://aep.alberta.ca/fish-wildlife/wildlife-diseases/chronic-wasting-disease/cwd-updates/default.aspx>



-Justin Gilligan, Alberta Environment and Parks

Arizona

Mule deer populations reached the most recent peak in the mid-1980s. Mule deer declined through 2000 and since then have increased gradually. Total mule deer harvest reached the most recent low in 2003, with a harvest of only 4,638 (all weapon types). In 2016, 9,966 mule deer were harvested, representing a 21% increase in harvest from 2015, a 115% increase from the historic low point of 4,638 in 2003, but still only 57% of the 1986 peak harvest of 17,413. Population parameters indicate the statewide population has increased by about 30% in the last 15 years. Most deer populations within the state were surveyed annually using fixed-wing aircraft or helicopter with supplemental ground surveys used as well. Mule deer were surveyed during the breeding season to estimate buck:doe and fawn:doe ratios.



Hunter harvest was estimated using a voluntary post card questionnaire that may be returned with postage prepaid or responses may be entered online. We continue to receive about 40% response rate. In 2016, Arizona changed to an online option only for submitting hunter questionnaire. Buck:doe ratios for mule deer were managed at 20–30:100 and currently the statewide average is 27. Alternative management units were managed at higher buck:doe ratios with added guidelines regarding the age structure of the harvest or hunter density. These units approximate about 5% of the opportunity offered annually. The statewide number of fawns per 100 does is 46 which is within management guidelines (40-50).

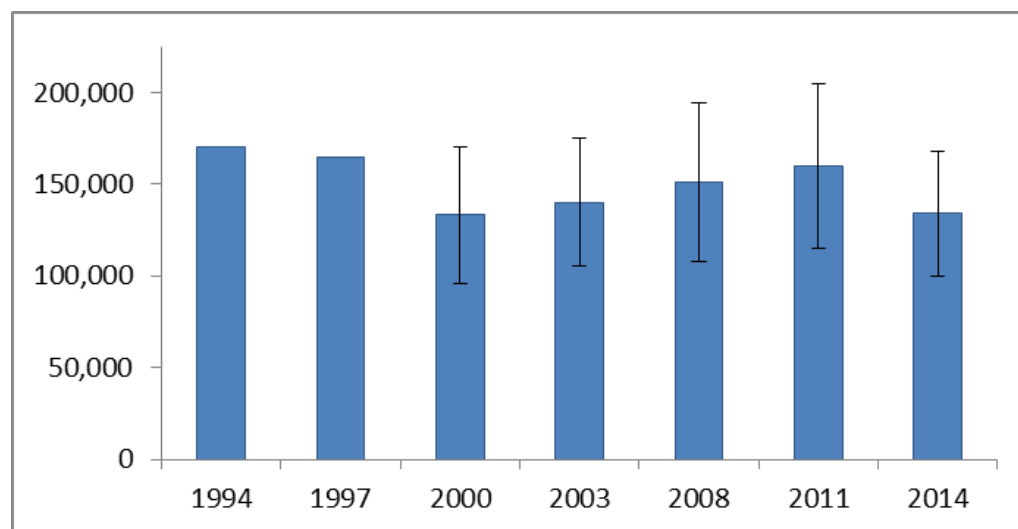
Large scale wildfires, over the last decade, have created favorable habitat changes that resulted in improved growth of deer populations; however, limited land management actions (e.g., prescribed fire, thinning) post-wildfire have been conducted to maintain these beneficial conditions. The Department is finishing the third year of a minimum three year mule deer habitat enhancement initiative targeting habitat improvements in Units 16A and 21. About \$800,000 has been spent each year on habitat and water projects within these units. The goal of this initiative is to effect a population-level change due to the habitat improvements implemented on the ground.

-Amber Munig, Arizona Game and Fish Department

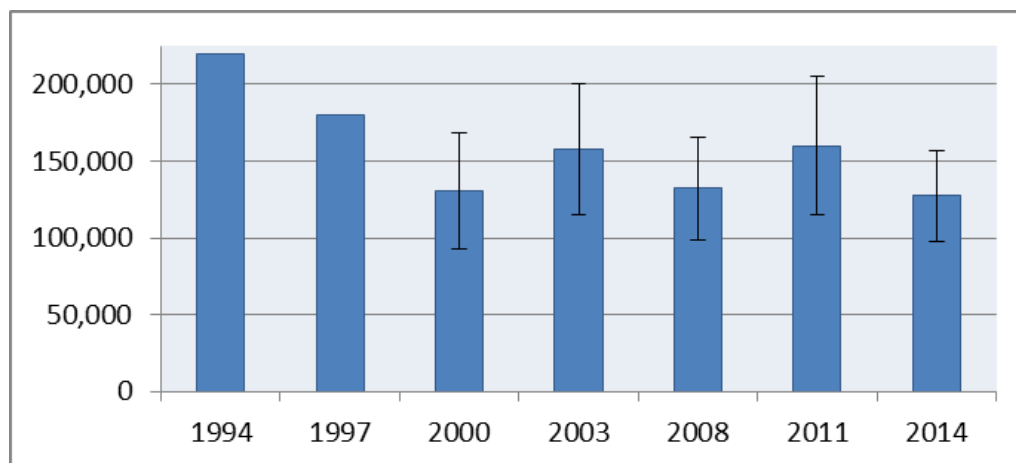
British Columbia

There remain localized differences in mule deer abundance in south-central, southeast, and northeast parts of the province which may be attributed to predation by cougars, wolves, and bears and severe winter conditions in some areas. This past winter some parts of the province such as the southeast experienced higher than normal snowfall which may have influenced mule deer fawn survival but adult female survival appears to have remained constant. There continues to be concerns in some parts of the province about declining quality and quantity of forage for mule deer. Harvest of mule deer is generally managed with a general open season for bucks using a combination of antler point restrictions and any-buck season in most areas. Some areas have buck season with only antler point restrictions. There are some opportunities for antlerless harvest through limited entry hunts. Increasing hunter access, combined with reduced habitat quantity and quality, could challenge future management objectives.

Trends in provincial abundance of black-tailed deer was similar to mule deer in that their numbers also declined slightly from 2011 to 2014 and were comparable to previous estimates. Predation from wolves and cougars on black-tailed deer continues to be of concern in most areas as well as the need for effective measures to conserve high quality habitat. Recent black-tailed deer buck harvest has dropped by approximately half since the early 1990s. There is some opportunity for antlerless harvest which is mostly limited to agricultural areas. Overall, black-tailed deer numbers are thought to be most impacted by increased predation. But the influence of predation is also combined with extensive second growth logging activities which can reduce security cover and available winter range and allow for increased hunter access. Overall, in most areas of intensive forestry activity, increased road density is assumed to result in increased predation rates and hunter success. Maintaining or increasing the present hunter harvest will remain challenging given the current predator densities and if adequate winter ranges are not available.



Mule deer population trends in British Columbia



Black-tailed deer population trends in British Columbia.

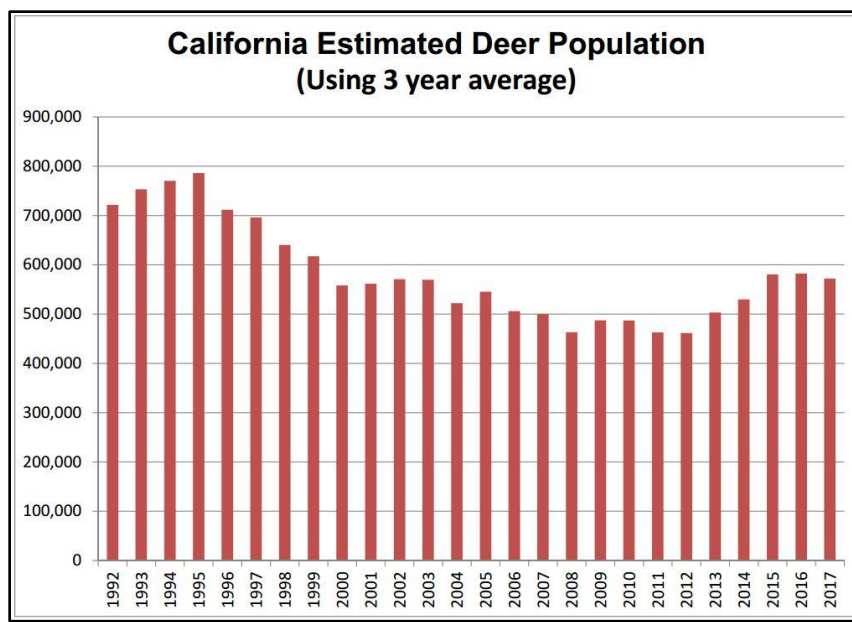
-Gerry Kuzyk, British Columbia Ministry of Forestry, Lands and Nat. Res.

California

California is updating its baseline population estimates along with updates to management goals and objectives. Helicopter quadrat surveys are being implemented in areas of high visibility. In areas of dense canopy cover DNA from deer fecal pellets is being used as part of an integrated population model. Aerial mark-resight and sightability correction methods are also being used. GPS collars are being deployed on males and females to collect spatial and survival information.

In California mostly bucks are harvested with a few special antlerless hunts. Population estimates are used with herd composition, mortality and survival data to estimate allowable deer harvest. To obtain a better harvest estimate and to assess level of hunter effort, mandatory deer tag reporting was implemented in 2015. A non-reporting penalty was assessed for the 2016 season. The reporting rate increased from 50% in 2015 to 84% in 2016.

Despite a five year drought, statewide trend data indicates populations have been on a slight upward trend over the past five years. Record amounts of rain have contributed to early green up, and the majority of deer captured this spring were in fair to good condition. However, severe weather conditions on winter range caused significant over-winter mortality to some migratory populations resulting in reduced tag quotas for some zones.



- Stuart Itoga CDFW

Colorado

The statewide post-hunt 2016 deer population estimate is 419,000, compared to 436,000 in 2015 (Figure 1). Population estimates are still far below the sum of statewide population objective ranges of 501,000 - 557,000 for all 55 deer herds combined. Many western slope herds have not recovered yet from the severe winter of 2007-2008. Higher population objectives reflect Colorado Parks and Wildlife's (CPW) desire to stabilize, sustain, and increase deer herds that have experienced declines and are below population objective.

CPW uses spreadsheet models to estimate population size. These models rely on data from age and sex classification, harvest surveys, and survival monitoring. Annual population and sex ratio estimates are compared to long-term population and sex ratio objectives for each herd to establish harvest quota recommendations for the next hunting season.

Diverse habitat types and environmental conditions around the state create considerable geographic variability in population performance. Many deer herds are performing well, and population sizes and license numbers are increasing. Despite these increases, there's still reason for concern because of declines in many of the large westernmost herds in Colorado.

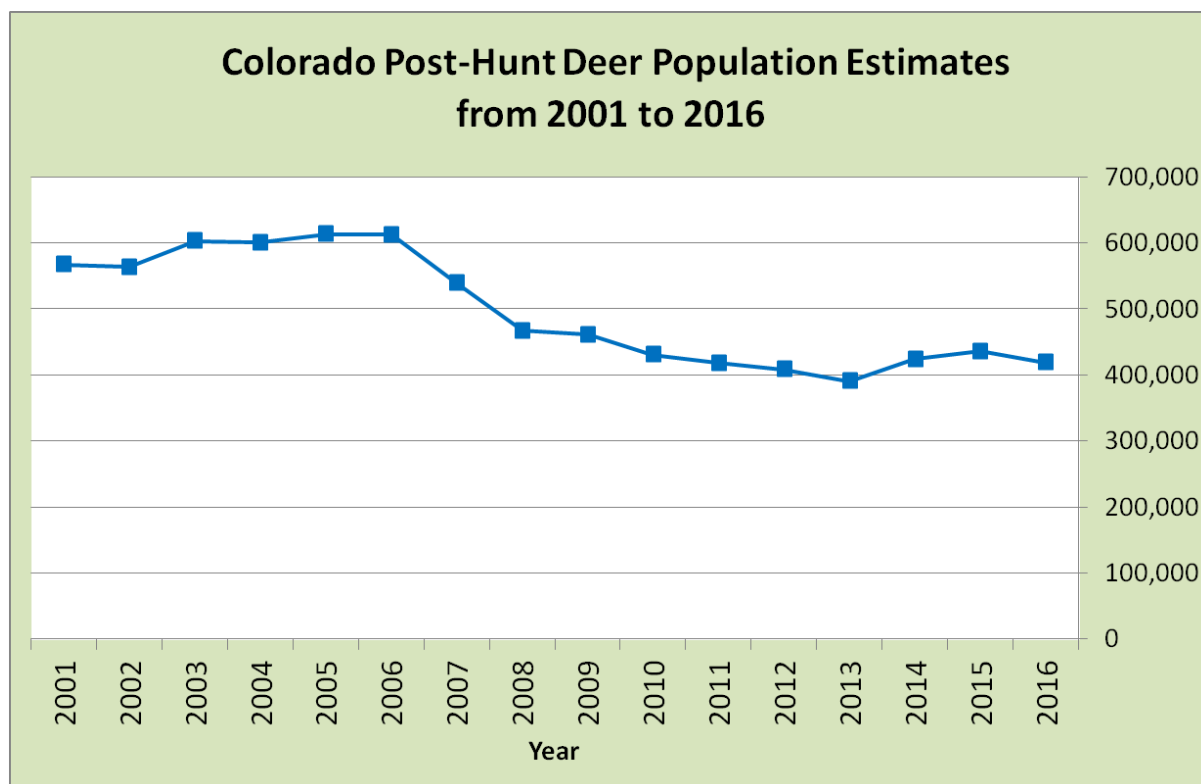


Figure 1. Colorado post-hunt deer population estimates from 2001-2016.

CPW intensively monitors annual adult doe survival and winter fawn survival in five mule deer herds. We also monitor buck survival in two of these herds. These herds were selected to ecologically and geographically represent mule deer west of Interstate I-25. CPW annually monitors over 900 radio-collared mule deer in the five intensive monitoring areas. Survival rates from these herds are used in deer population models for the rest of the herds west of Interstate I-25. Since 1997, annual adult doe survival has averaged 82.4% and over-winter fawn survival has averaged is 70%. Since 2008, annual buck survival in two of the five monitoring areas has averaged 81.5%, Survival rates for this past winter of 2016-2017 range from very high in several monitoring areas to very low in the Gunnison Basin because of the severe winter conditions there. Additionally, the extreme northwest corner of the state had below average survival as a result of difficult winter conditions in that part of the state.

CPW conducts post-hunt herd inventories with helicopters to estimate the sex ratios of males/100 females and the age ratios of young/100 females. In addition to survival rates, these ratios are needed to estimate population size using population models.

The average of sex ratio objectives for deer herds statewide is 30 bucks/100 does. During the post-hunt herd inventories in 2016, CPW staff classified 76,000 deer and observed an average sex ratio of 35 bucks/100 does which is down towards the objective from the peak of 38 bucks/100 does in 2015 (Figure 2). Mild winters resulted in high over-winter fawn and buck survival in 2013 and 2014 which had the combined effect of increasing populations and buck/doe ratios in many herds (Figures 2). Severe winter weather on the western slope of Colorado in December 2015 and January of 2016 in addition to January of 2017 resulted in lower over-winter fawn survival. Fortunately, February was very mild both winters reducing the potential for more

widespread winter mortality on the western slope. Buck doe ratios were reduced by a combination of buck license increases and higher mortality last winter (Figure 2). Reproduction and fawn survival to December was down this year compared with previous years, as the statewide average observed age ratio from helicopter inventory was 54 fawns/100 does compared with 56 fawns/100 does in 2015.

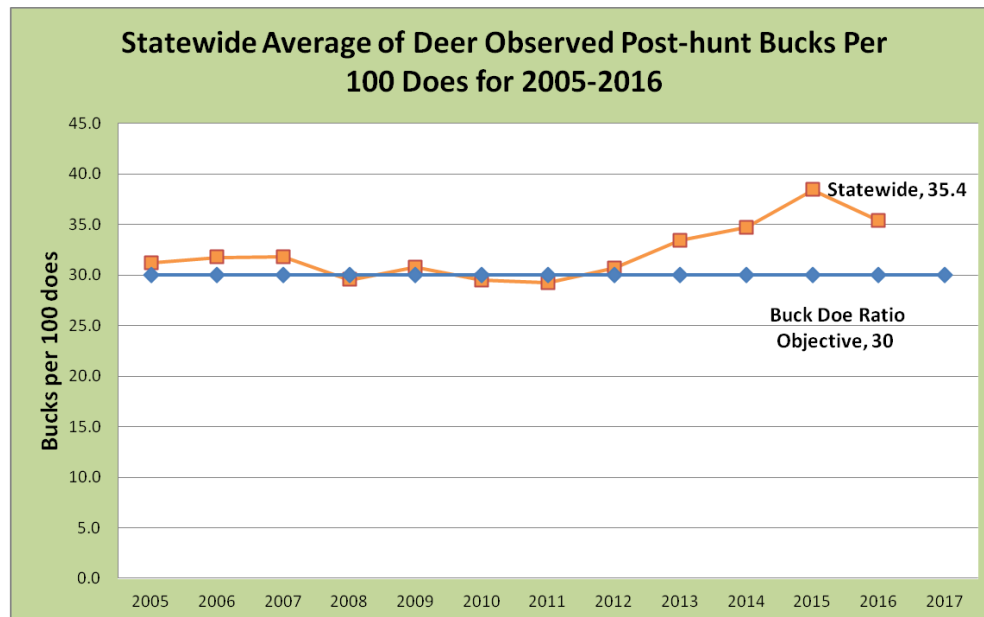


Figure 2. Colorado statewide weighted average of observed post-hunt bucks per 100 does for 2005-2016.

Since 1999, all mule deer hunting in Colorado is by limited license. In 2016, Colorado had 179,000 applicants for 89,000 deer licenses. The estimated harvest from the 81,253 hunters who hunted with those licenses was 36,824 (Figure 3).

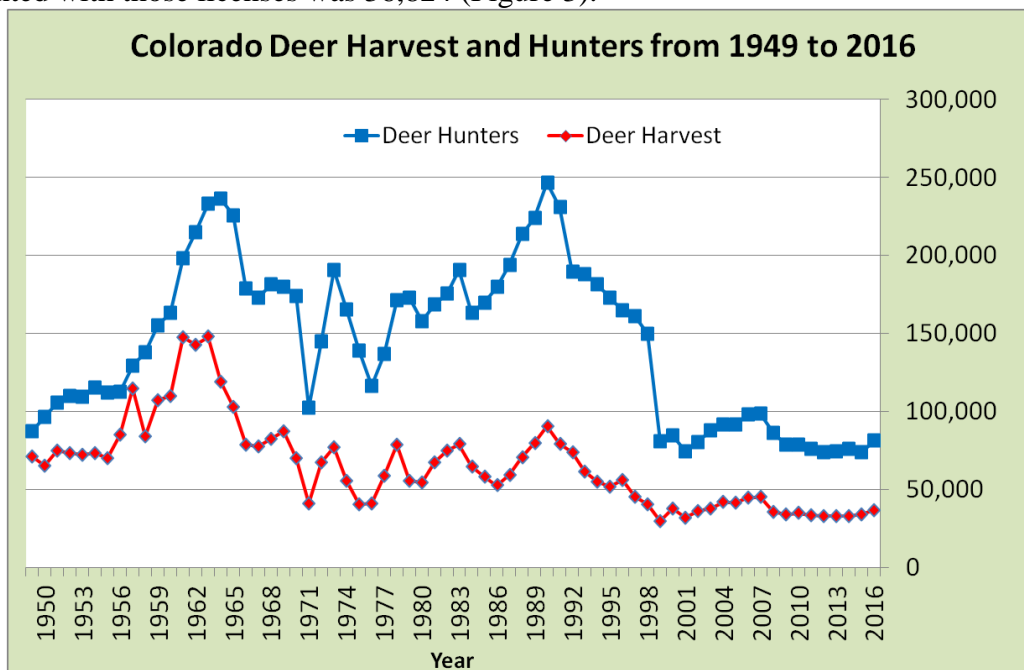


Figure 3. Colorado statewide hunters and harvest from 1949-2016.

Based on these high observed post-hunt sex ratios and a high average hunter success rate of 51% for all rifle seasons in 2016, overall deer hunting continues to be good. Buck/doe ratios have shown a strong response to our management actions, and Colorado remains a premier destination for deer hunters. Barring a difficult winter, high buck/doe ratios should continue to translate into increased hunter opportunity in the future

-Andy Holland, Colorado Parks and Wildlife

Hawaii (Kauai Island: Introduced Black-tailed Deer)

Since the introduction of the Oregon black-tailed deer to west Kauai in 1961, its range has expanded to south and east sections of the island. The deer population on Kauai's public hunting areas is estimated to be between 1000 to 1200 animals. Population estimates on private lands are not known at this time. Kauai uses the Aldous (1944) browse survey method which was modified to better fit Hawaiian environments. Kauai experienced 2 major wildfires in 2012, the Kokee forest fires consumed just over 1000 acres of State Forest Reserves and severely impacted much of the deer hunting range. The 2013 deer hunting season was restricted to portions of the range not impacted by the wildfires. In 2014, all black-tailed deer hunting units were re-opened following adequate habitat and population recovery to justify full open season. The average body weights improved slightly from the previous season and the overall health of the herd appeared to be very good. In July, 2015, two hunting units underwent changes to include year-round hunting and increased bag limits. The changes were needed to address ungulate damage to native forest watershed and to protect threatened and endangered plants. Six deer hunting units remain seasonal during the fall months.

Trends in harvest of black-tailed deer from 2003 to 2015 on Kauai public hunting areas.

Year	Bucks	Does	Total
2003	45	19	64
2004	39	12	51
2005	32	8	40
2006	32	2	34
2007	32	4	36
2008	51	2	53
2009	29	0	29
2010	26	0	26
2011	30	0	30
2012 ¹	4	0	4
2013 ¹	5	0	5
2014 ²	36	0	36
2015 ³	36	15	51

¹ Two units closed to hunting due to wildfires

² All units reopened to deer hunting

³ Two units open to year-round hunting

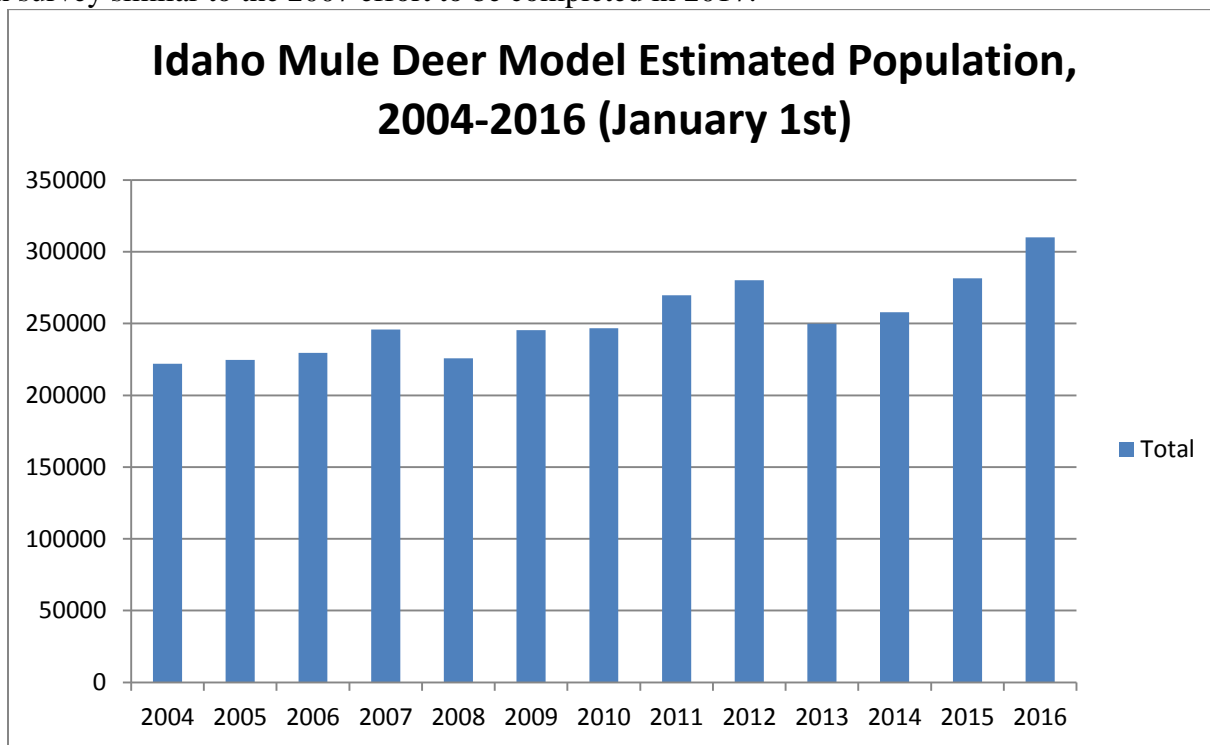
-Thomas Kaiakapu, Hawaii Division of Forestry and Wildlife

Idaho

Idaho's mule deer population appears to be increasing over the last four years (2013-2016). The state continues the process of converting population monitoring to allow total population estimates through a combination of sightability, survival estimates, composition surveys and modeling. Although not all areas have yet been assessed, recent winter population levels have likely reached and possibly exceeded 310,000 mule deer. Short- and long-term objectives are to increase mule deer numbers. Post-season buck ratios exceed the statewide minimum objective of 15:100 does. Over the last several years December fawn: doe ratios have generally shown increases over the typical (mid 50s to mid 60s), and fawn survival have generally been high from 70% to 78%.

Mule deer harvest in Idaho has been stable to increasing since the mid-1990s (average = 27,751) following a steep decline in harvest in the early 1990s; with a recent three-year total deer harvest of 36,388. Recent years' license and tag sales data indicate an increase in nonresident hunters in Idaho. Percent bucks with 4-point or better antlers harvested in the rifle controlled hunts have remained at or above 40% since 2010.

The next step of implementing our 2008 mule deer plan is to set population objectives by population management unit statewide and to do a statewide mule deer hunter attitude and opinion survey similar to the 2007 effort to be completed in 2017.



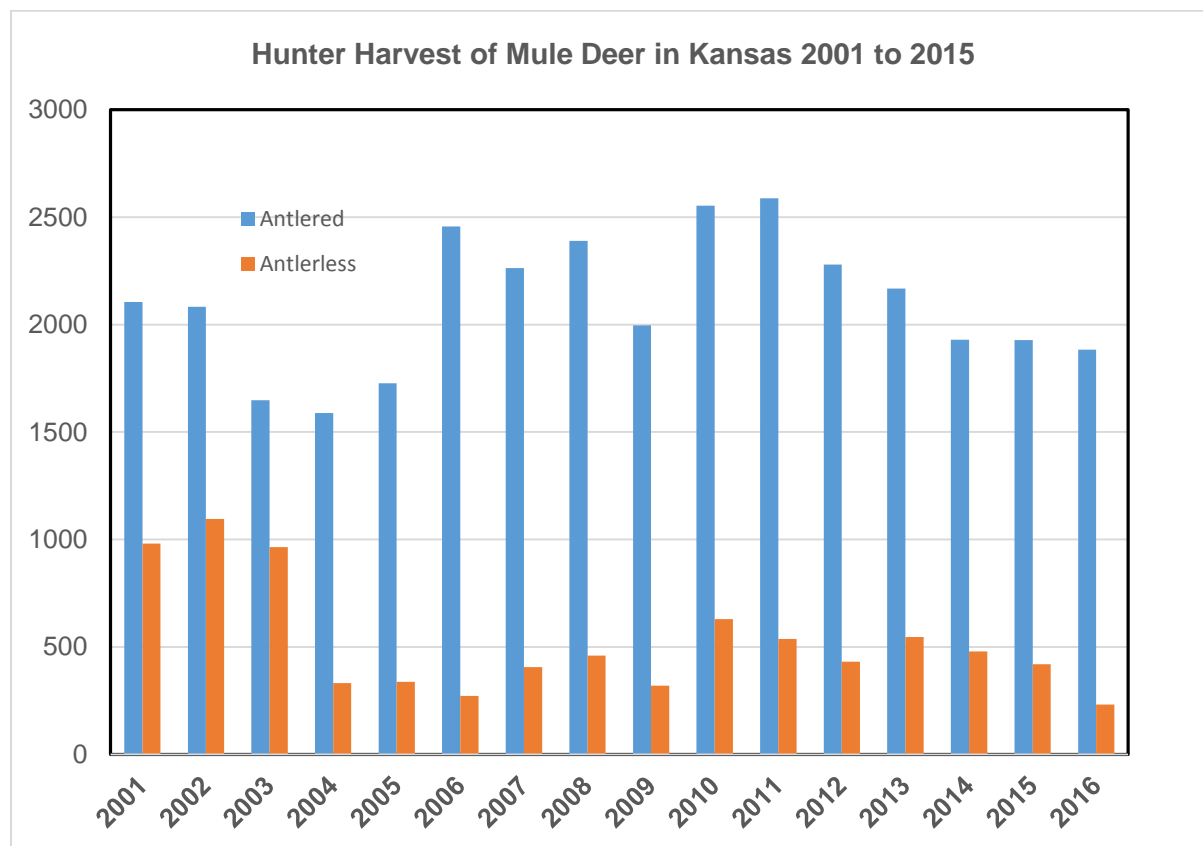
Mule deer population estimate from the Salmon River drainage south. Estimates are midpoint of Confidence Limits based on Integrated Population Model, from January 1, 2014.

-Craig White, Idaho Department of Fish and Game

Kansas

The mule deer population in the west zone of Kansas in 2016 was estimated to be 1.5 mule deer/mile² (95% CI: 0.9 – 2.5) using distance sample surveys while the density in the eastern zone was estimated to be only 0.1/mile² (95% CI: 0.04 – 0.5) resulting in a pre-firearm season population estimate of 40,616 mule deer. Mule deer populations have declined along the eastern tier of counties where mule deer occur in Kansas. Hunters have taken an average of 2,627 mule deer/year during the last 16 years.

Management for mule deer receives enthusiastic support from deer hunters. Hunters want more mule deer and fewer hunters competing for permits and hunting locations. Hunting regulations in Kansas have been liberal for white-tailed deer while being restrictive for mule deer. Mule deer could be taken on 9.2% of the either sex deer permits issued in Kansas last year. Landowners received 52.5% of those permits. Each of those permits allowed only one deer to be taken but it could be either a mule deer or a white-tailed deer. By allowing either species to be taken the permit system generally takes hunters out of the field earlier in the season compared to a mule deer only permit system and takes pressure off mule deer while allowing approximately 17,000 people to have the potential to pursue mule deer. In an effort to expand and increase the mule deer population, reductions in the permit quotas have been made in recent years. In 2016, no antlerless permits allowing the take of mule deer were issued. This coincided with the lowest estimated harvest (232) of antlerless mule deer since 1983 (84) and the lowest estimate of total harvest (2115) of mule deer since 2005 (2064).



Trends in the number of mule deer harvested in Kansas, 2001 to 2016.

-Levi Jaster, Kansas Department of Wildlife, Parks and Tourism

Montana

Montana Fish, Wildlife and Parks (FWP) annually estimates the statewide mule deer population because of a statutory requirement that the agency provides one. However, that estimate is based on a crude model that biologists have low confidence in, and is not used for making management recommendations. For management purposes, FWP relies on harvest and population survey data. Harvest data is collected through annual post hunting season phone surveys of hunters. This effort randomly surveys a sample of deer hunters that self-report success and effort, and provides an estimate of harvest and effort statistics within an 80% confidence interval. Population trend data are collected through aerial surveys of 102 trend survey areas across the state that represent publicly accessible deer across a diversity of habitat types.

The statewide population estimate (Figure 1), the antlered mule deer harvest (Figure 2), suggest that the statewide mule deer population experienced a modern low within years 2010 – 2012. This low was strongly influenced by severe conditions (extended cold temperatures and deep snow) across the eastern half of the state during winter periods 2009/10 and 2010/11, as well as an extreme snow event (2 – 5 feet of accumulation that persisted on the ground for ≥ 2 weeks) across the southeastern portion of the state during April 2009. As an example, the southeast Montana (Region 7) population survey data showed a 53% decrease in observed population density between spring 2008 and spring 2012. Since years 2010 – 2012, each of the aforementioned indices suggest population growth. From 2011 through 2017, the statewide population estimate increased from 211,361 to 363,236 (Figure 1); statewide antlered mule deer harvest increased from 28,985 to 45,564 (Figure 2); the southeast Montana observed mule deer per square mile on trend survey areas increased from 2.2 to 4.4 (Figure 3), and the southwest Montana (Region 3) observed mule deer per square mile on trend survey areas increased from 2.8 to 4.0.

Antlered mule deer hunting regulations have remained unlimited one per resident hunter and approximately 25,000 non-resident opportunities valid across much of the state for a number of years. Therefore, antlered mule deer harvest has been viewed as an index of population size and trend. Statewide antlered mule deer harvest has increased annually since 2010 (Figure 2). The 2016 harvest estimate of 45,564 antlered mule deer was just above the 1960-2015 average of 45,362 and was the highest estimated harvest since 1994. However, it remained below the 1960 – 1994 average of 50,042. It is important to note that as antlered mule deer harvest across Montana has trended down, antlered white-tailed deer harvest has trended up, and total antlered deer harvest has shown annual variation but no change in trend since 1960.

Within the state, long-term mule deer populations have varied. Those across the western 1/3 of the state, the mountain/foothill environments, have generally trended down and remain below historic highs and averages (eg. southwestern Montana). Although survey data are not available prior to the 1970s, anecdotal reports suggest mule deer populations across southwest Montana were higher in the 1950s and 1960s than in the 1970s and 1980s. Habitat changes facilitated by conifer forest succession and increased resource competition from growing populations of elk and white-tailed deer are thought to be primary influencers of mule deer trend across the mountain/foothill environments. On the contrary, populations across the eastern 2/3 of the state, the prairie breaks environment, have generally remained stable or increased (e.g., southeast Montana).

The statewide estimate for deer (mule and white-tailed) hunters was 158,896 in 2016. This was the highest deer hunter effort estimate since 2008 when 160,842 hunters pursued deer

across the state, but was below the 1986 – 2015 average of 164,708. The number of deer hunters in Montana peaked at 201,576 in 1994, annually decreased to 148,736 in 1998, and has remained relatively stable since that time.

Since 2001, mule deer harvest regulations across Montana have been determined by following guidelines outlined by the state's Adaptive Harvest Management (AHM) plan. This plan provides harvest regulation guidelines for antlered and antlerless mule deer based on population survey, recruitment, and hunter harvest data for five population management units based on ecotype. Working within these guidelines, biologists have reduced and more recently increased antlerless harvest opportunity as modern populations have trended down and back up, (Figure 2). If populations continue to increase, biologists will likely continue increasing antlerless harvest opportunity – especially across the eastern portions of the state. Beginning with the 2016 hunting season, biologists in a portion of southwest Montana recommended an antlerless harvest season outside of AHM plan guidelines on the liberal side, working within the hypothesis that declining populations are being influenced more by habitat limitations than hunter harvest. This effort is currently being implemented and monitored with an experimental approach that may or may not inform future AHM guidelines for southwest Montana.

Over the past year plus, an FWP mule deer working group has been reviewing the AHM plan and developing recommendations for updates. This review, along with recommended changes, is expected to be completed in 2017.

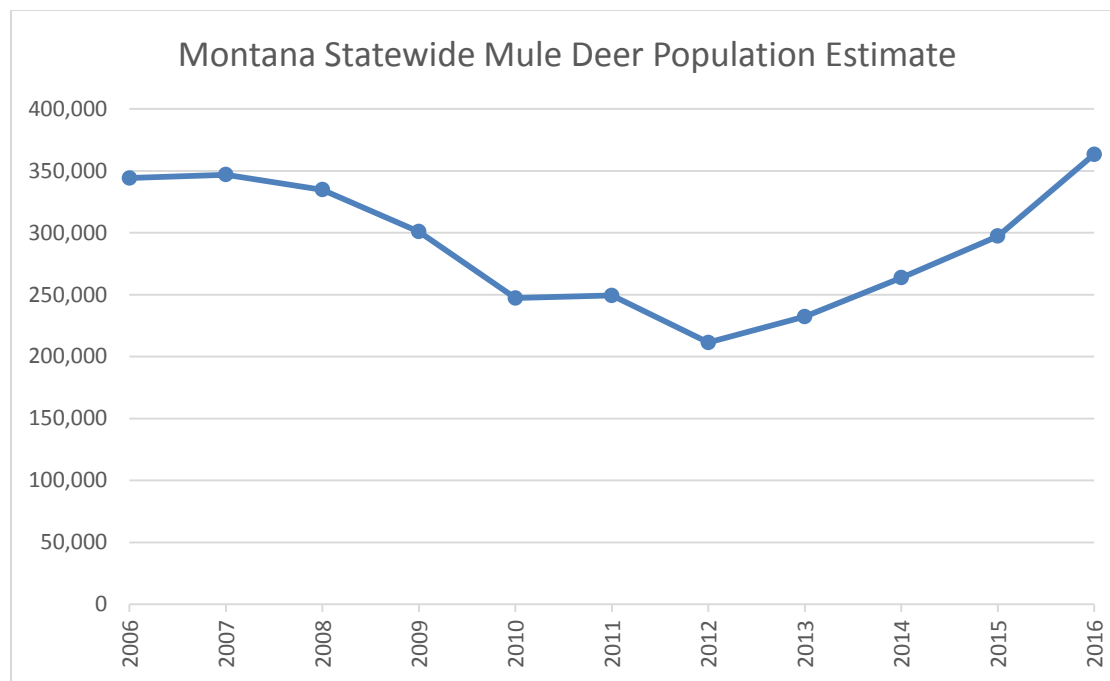


Figure 1. Montana statewide mule deer population estimate, 2006 - 2016.

Note: The estimates for mule deer populations are based upon population modeling with survey and/or harvest inputs.

Mule deer estimates are not comprehensively validated with site specific research or enhanced monitoring efforts.

Mule deer estimates are not framed with confidence intervals and are subject to adjustment.

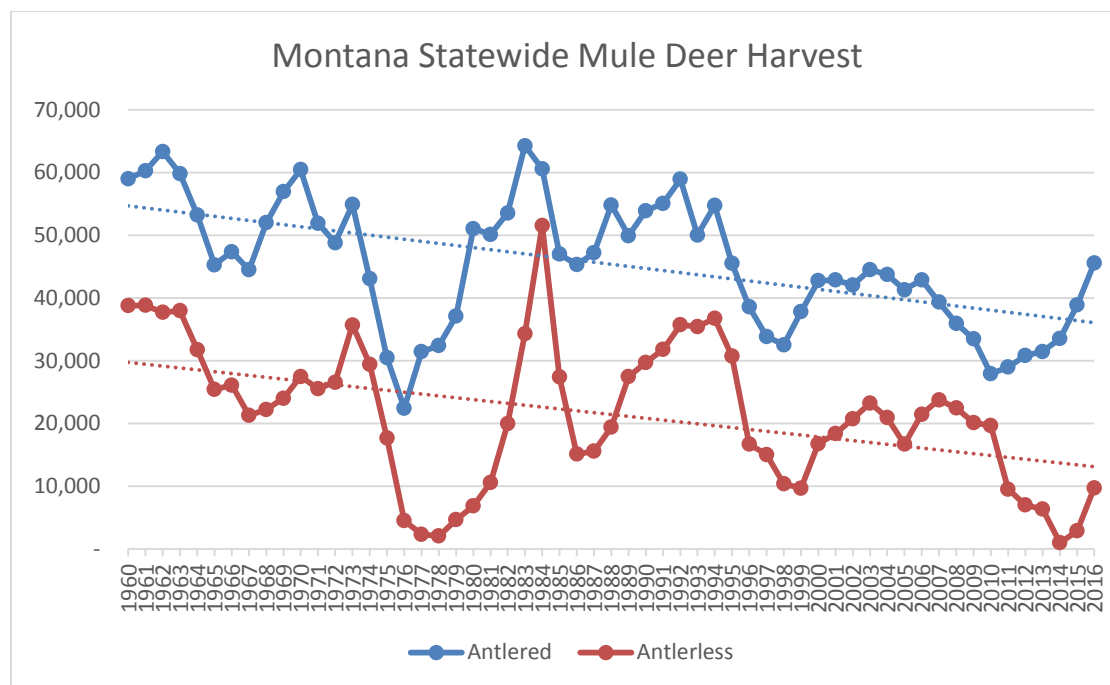


Figure 2. Montana statewide mule deer harvest, 1960 – 2016.

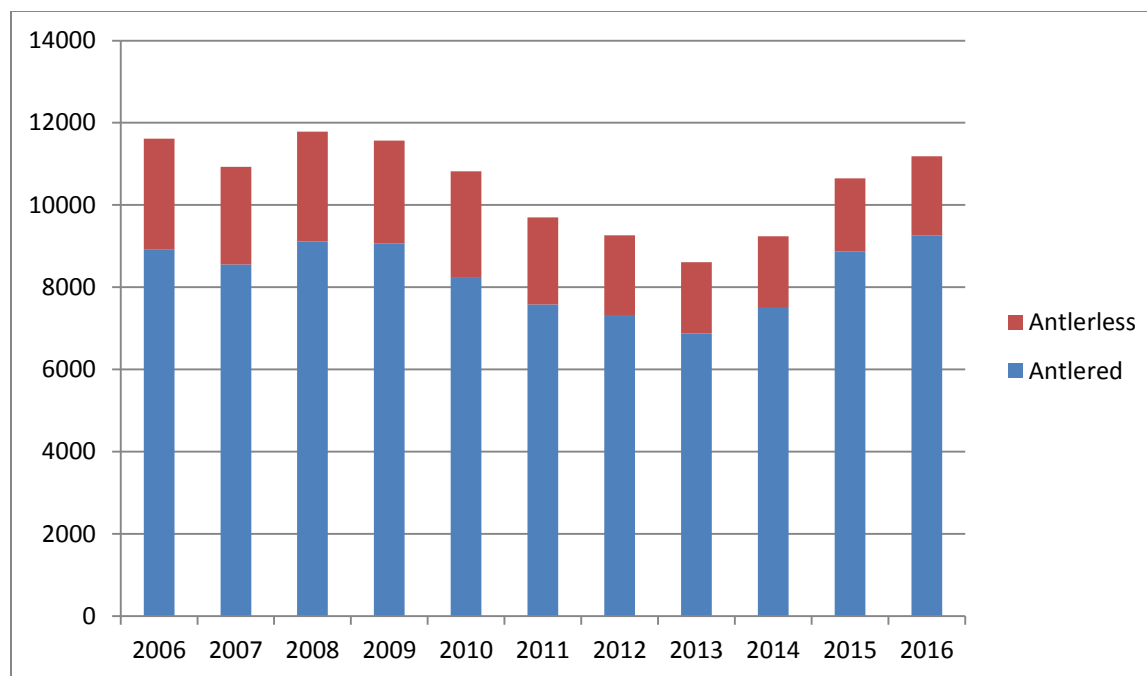
-Dean Waltee, Montana Fish, Wildlife and Parks

Nebraska

Mule deer population trends are based on total adult buck harvest at Deer Management Unit (DMU) level. Mandatory check of all harvested deer is required. More than 4,000 mule deer are examined and aged by staff biologists annually. Barring significant change in buck permit allocations this provides a consistent indicator of annual population and age structure change at DMU level.

Management objectives for each DMU are based on: population trends; agricultural damage complaints; age of harvested bucks; permit demand; deer vehicle collisions and public input.

Harvest of mule deer bucks was 9,257 in 2016, the highest on record. Populations are above desired levels in two units and at record levels in four units. Herd growth is desired in five units where antlerless mule deer restrictions remain in effect. Habitat conditions remain good. Antlerless harvest over the past four years is the lowest recorded since 1980. Buck harvest should increase in 2017.



Trends in mule deer harvested in Nebraska 2006-2016.

-Kit Hams, Nebraska Game and Parks Commission.

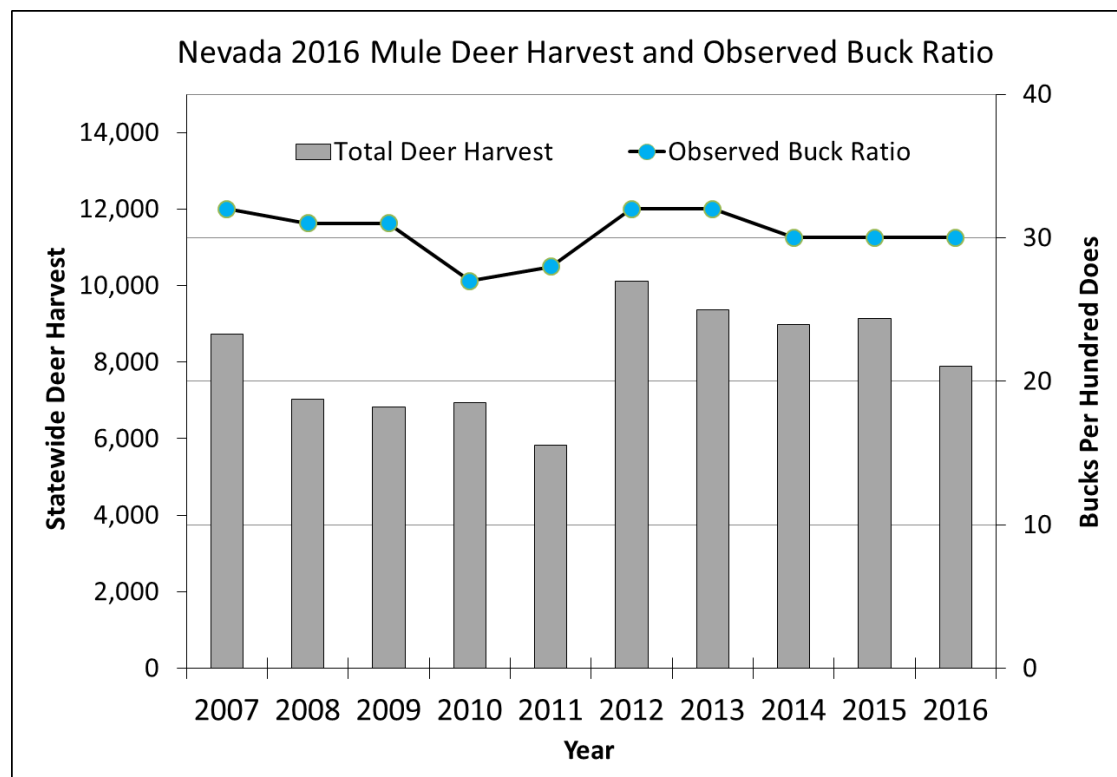
Nevada

Nevada hunters purchased 18,111 mule deer tags in 2016 which was down from the 20,998 sold in 2015. The decrease in tag sales was reflective of a decrease in the 2016 quotas approved by the Nevada Board of Wildlife Commission. Total harvest for 2016 was approximately 7,885 mule deer including bucks and does. Hunt return questionnaires indicated a statewide success rate of 46% for all deer hunters, which was slightly lower than the reported 47% during 2015. Total buck harvest was about 6,750 and of those bucks harvested about 41% had 4 (or greater) antler points on one side.

The 2016 post-season aerial survey resulted in about 31,770 mule deer classified statewide compared to 14,800 in 2015. Statewide fawn production was significantly lower during 2016 with 48 fawns:100 does counted during post-season surveys (compared to 54 fawns:100 does during 2015). The statewide observed buck ratio was 30 bucks:100 does for 2016. The 2016 spring deer surveys classified 31,646 total deer with a ratio of 31 fawns:100 adults statewide, which was below the long-term average of 35: 100 adults.

Nevada's mule deer populations have been stable to declining the past several years. The 2017 population is estimated to be about 92,000 mule deer, slightly lower than the estimated 94,000 in 2016. The above average snowfall across much of northern Nevada during the winter of 2016-17 should help to alleviate previous drought conditions. During the past 4 years, much of Nevada has experienced severe to extreme drought conditions, which has directly impacted mule deer populations across the state. Tag quota recommendations have been lowered again in several areas of the state in response to poor recruitment and lack of more mature deer from

previous years. The state of Nevada uses 30 bucks:100 does as the statewide management objective for mule deer.



Trends in statewide mule deer harvest and observed post-hunt buck ratio for Nevada, 2007 to 2016. Harvest number is from mandatory hunting report system. Observed buck ratios are obtained by directed search helicopter surveys.

-Cody Schroeder, Nevada Department of Wildlife

New Mexico

Prior to the 1990's, all deer licenses were issued over the counter. During the early-1990s, the New Mexico Department of Game and Fish began issuing public land deer hunting licenses through the draw in select areas of the state. Starting in 2005, all public lands deer licenses statewide are issued through the draw system. Private land deer hunting licenses can be obtained over-the-counter most areas of the state except, however.

During the 2016-2017 hunting season, an estimated 32,117 hunters harvested 10,895 deer in New Mexico (Figure 1). Harvest reporting has been mandatory since 2006; unless a hunt is for a specific species, white-tailed deer and mule deer are not reported separately. The majority of deer harvested in New Mexico are mule deer with white-tailed deer comprising of approximately 5% of the harvest. Hunter success was approximately 34% during the 2016-2017. The long-term average success rate for deer hunters in New Mexico is 29% (1953-2016). Except for a few youth antlerless hunts and an antlerless archery hunt to target an urban deer population, New Mexico implements a buck only bag limit.

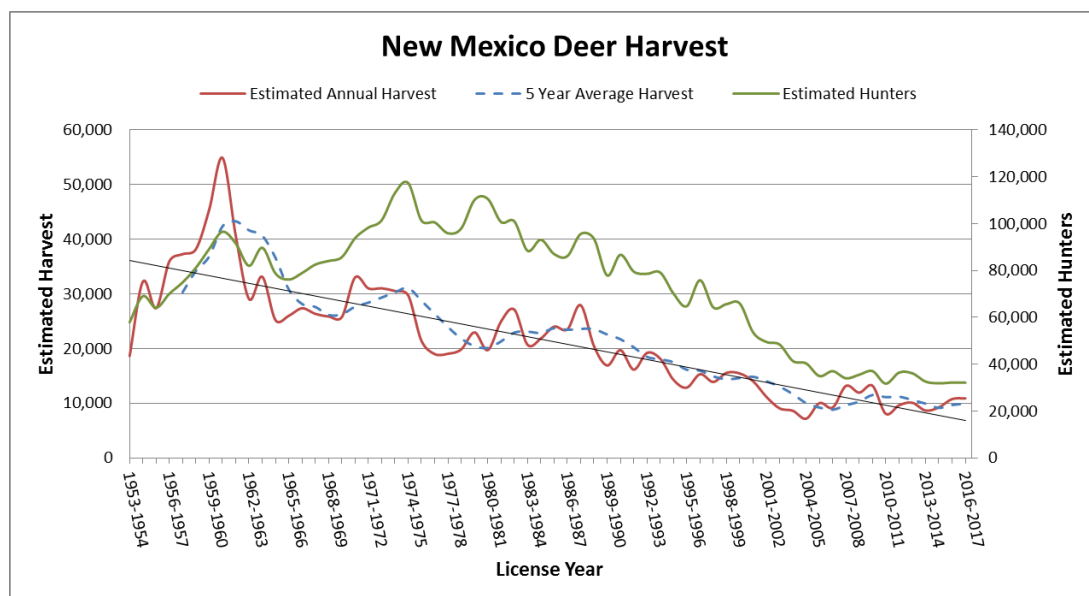


Figure 1. Estimated annual deer hunters and harvest in New Mexico 1953 – 2017.

The Department conducts annual post-hunt surveys in December or January to obtain composition ratios. During winter 2016 surveys, the buck to doe ratio was 33B:100D (Figure 2). Although this is slightly down from the 2015 survey (38B:100D), the long-term trendline continues to increase. The 2016 fawn to doe ratio (25F:100D) was down compared to the 2015 survey (60F:100D); however, the long-term trendline is increasing as well. The increasing trend in composition ratios are likely a result of the increased winter precipitation that New Mexico has experienced in recent years which has improved habitat in many portions of the state.

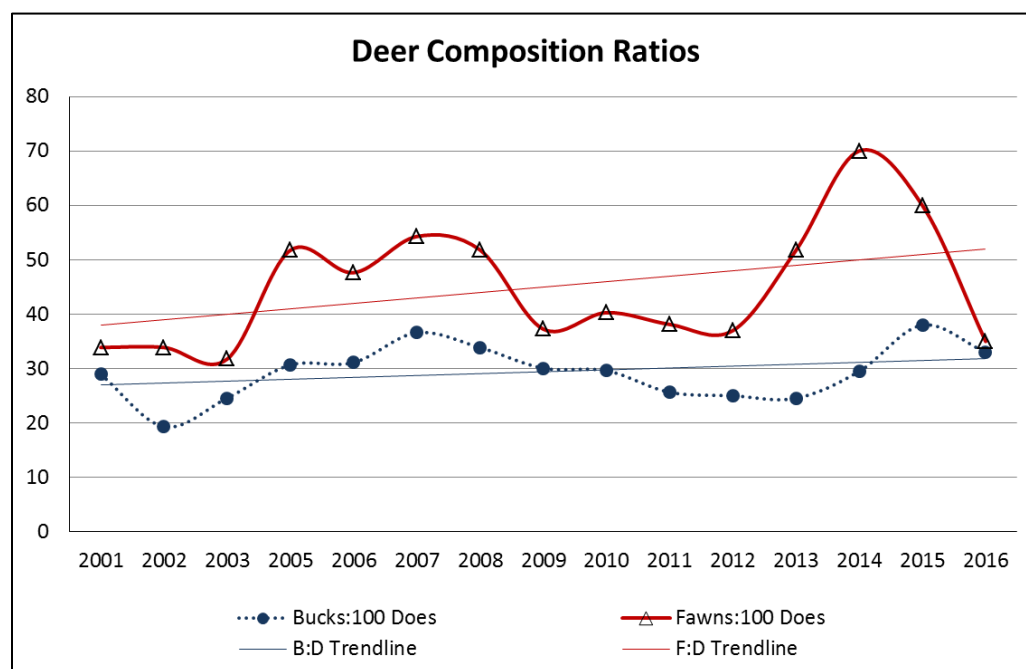


Figure 2. New Mexico statewide composition ratios obtained during post-hunt winter surveys from 2001-2016.

Precipitation for the 2016-2017 winter was good for the majority of New Mexico marking the fourth straight year that the state experienced good moisture. The increased and consistent moisture should help most New Mexico deer populations rebound from recent droughts and to continue to increase, especially in the northern half of the state. Additionally, habitat in areas of New Mexico that experienced wildfires in the last 10 years is rebounding and providing nutritious forage for mule deer; as a result, deer populations in these areas show signs of an increase. Most desert mule deer populations will continue to struggle, however, due to a long-term drought in the southern half of the state.

New Mexico Department of Game and Fish is working to address long-term mule deer population declines through the Department's Stamp Program. Through this program, over 100,000 acres of habitat has been treated to benefit mule deer in the last several years.

Chronic wasting disease (CWD) was first detected in the southern part of the state in 2002. Since this time, 55 ungulates have tested positive. To monitor for CWD outbreaks, the Department conducts annual check stations during the hunting season. The Department also checks for CWD in ungulates suspected to be ill throughout the year. Five mule deer tested positive for CWD in 2015; all of which came from southern New Mexico in GMU 28. Lab results from the 2016 samples are still pending. Tribal biologists detected CWD in 2016 from a single elk on tribal land in the southern part of New Mexico.

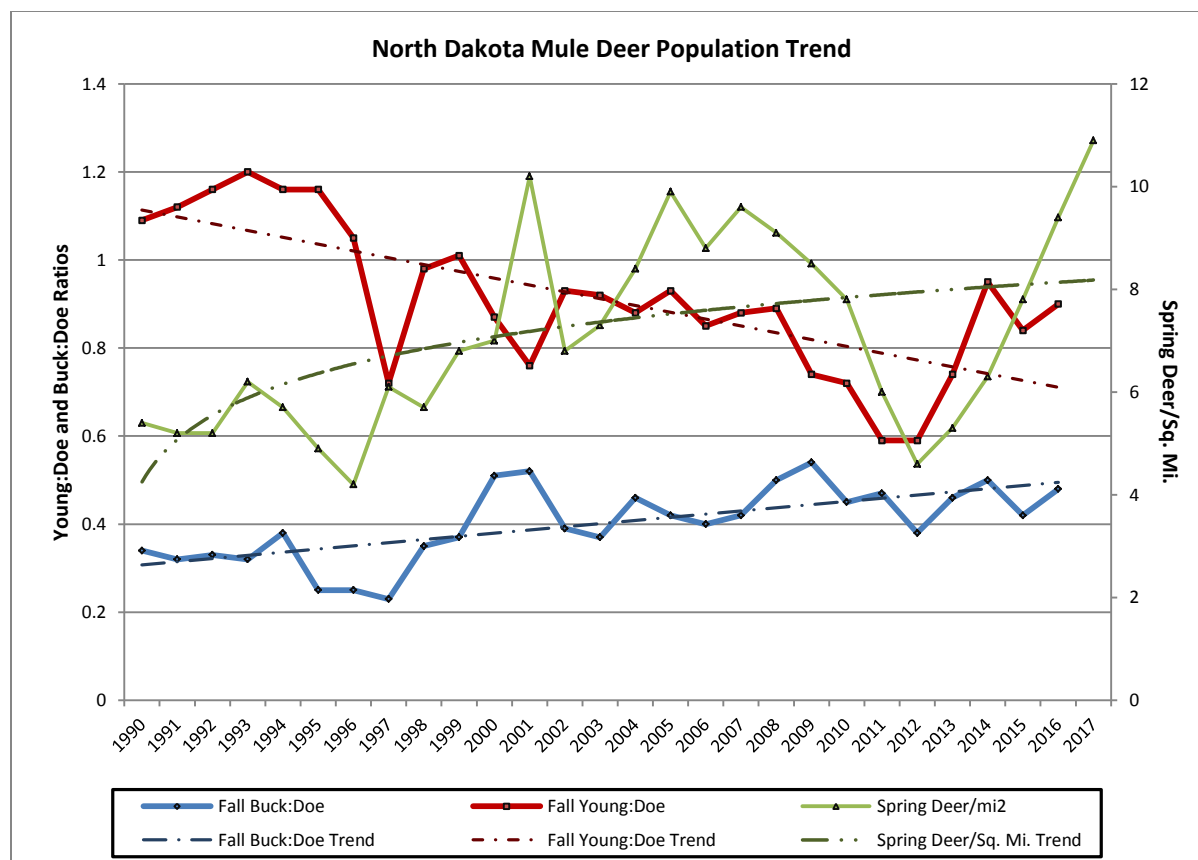
-Orrin Duvuvuei, New Mexico Department of Game and Fish

North Dakota

North Dakota's badlands mule deer population showed an increasing trend with high fawn production from 1990-2007. Mule deer fawn production was typically greater than 90 fawns per 100 does during these years. Winter weather conditions were mild during this time period except in 1996. Mule deer numbers peaked in 2005-2007. Following this population peak, North Dakota experienced three of the most severe winters on record from 2008-2010. Consequently, mule deer abundance in the badlands decreased by 50% and reached a population low in 2012. Record low fawn to doe ratios were recorded in 2009-2012 following these winters. Winter weather conditions moderated in 2011-2015 and mule deer population has increased since 2013. The 2017 spring index was 16% higher than the 2016 index, and 58% higher than the long-term average. This is the fifth year in a row that mule deer densities have increased in the badlands. Fawn production in 2014 was the highest since 1999.

The combination of eliminating antlerless harvest and milder winter weather conditions in 2011-2015 is responsible for mule deer population growth in the badlands. North Dakota has a limited quota license system and a goal of maintaining at least 30 bucks per 100 does prior to the gun season.

Mule deer buck to doe ratio has remained stable and above objective since 1999. Mule deer are currently above the objective of maintaining at least six deer per square mile in the badlands. A conservative harvest strategy with a limited number of antlerless licenses is being used to encourage additional population growth of mule deer in the badlands.



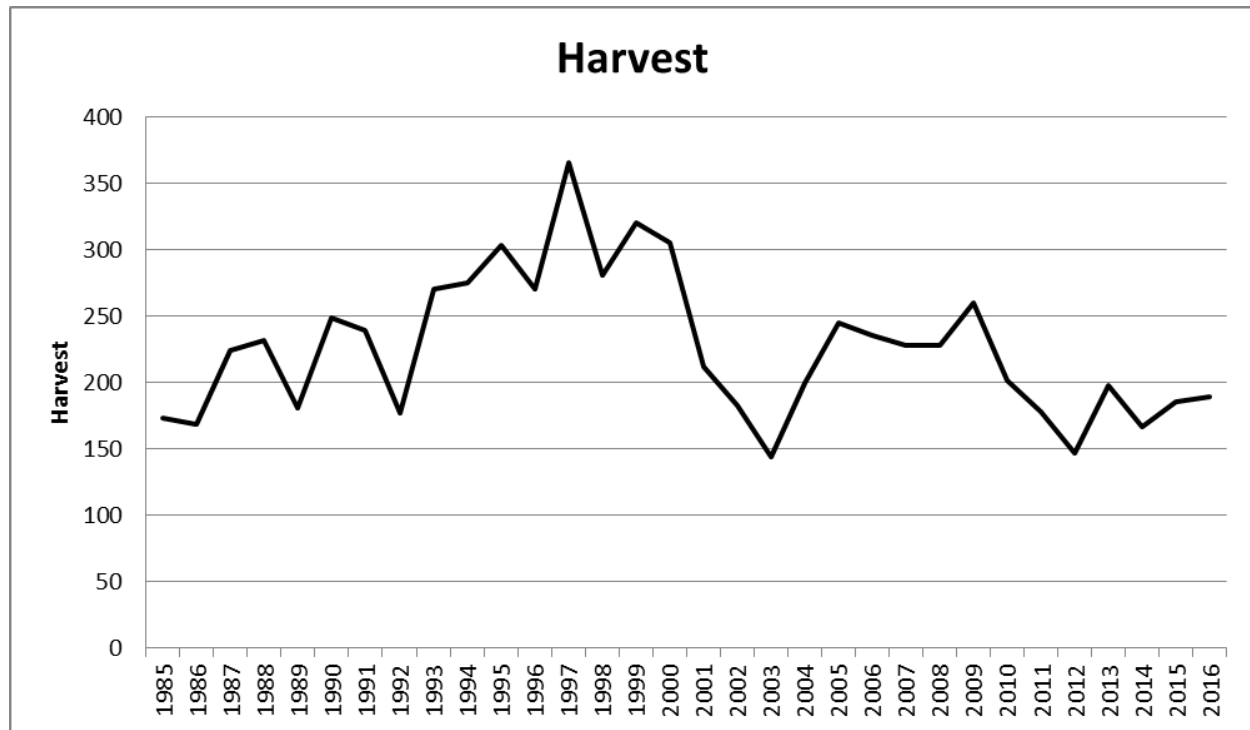
- Bruce Stillings, North Dakota Game and Fish Department

Oklahoma

Oklahoma has very limited mule deer habitat. Occurring in small numbers in the far southwest and in greater numbers in the northwest and panhandle region, we estimate our total mule deer population to be between 1,500 and 2,000 animals pre-hunting season. Most of the mule deer hunting occurs on private lands. Our habitat is rebounding from a prolonged drought having had adequate rainfall in most of the mule deer habitat last year.

Oklahoma does not sell a separate mule deer license instead allowing mule deer to be taken with the statewide deer permit most use for white-tailed deer hunting. We do not have any population monitoring beyond anecdotal field reports, instead we rely on harvest data.

Of note this past year was a new non-typical Cy Curtis (Oklahoma's trophy recognition program) mule deer. The rack scored 226 4/8 and was taken from Cimarron County in the far west end of our panhandle.



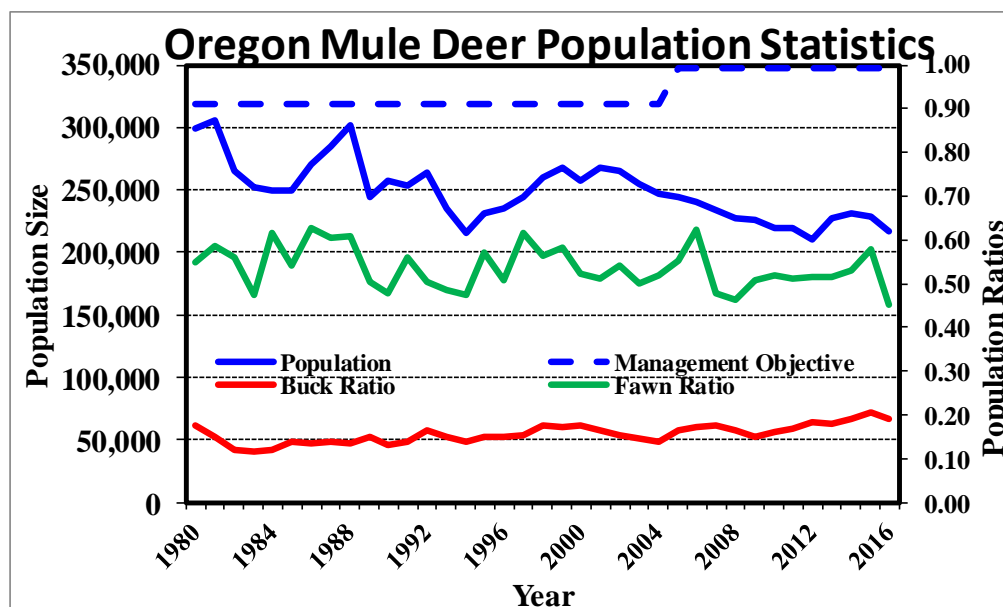
-Jerry Shaw, Oklahoma Department of Wildlife Conservation

Oregon

Both mule deer and black-tailed deer are substantially below the long-term statewide management objectives and benchmarks. Oregon's estimated mule deer population continues to hover around 220,000–230,000. Because of the difficulties with surveying black-tailed deer we have been unable to develop annual population estimates. However, in 1998 the black-tailed deer population was estimated at 387,000, declining to 320,000 in 2004; the population seems to have been relatively stable since that time.

Efforts to more rigorously estimate deer populations in Oregon continue. The Oregon Department of Fish and Wildlife is attempting to implement the mark-resight estimator developed by Brinkman et al. (2010) modified for Oregon to estimate black-tailed deer populations at a unit-wide scale. Over 20,000 samples have been collected in 4 management units stratified by gross land ownership category as a surrogate for habitat quality. Resulting black-tailed deer density estimates vary by land management strategy ranging from a low of about 10 deer per mi² on federal lands with very little forest management to a high of about 26 deer per mi² on heavily managed large commercial forest lands. Additionally, 308 black-tailed deer have been radio-collared in an effort to better understand habit use and movement patterns. Average annual survival in the four areas ranges from 0.79 to 0.87. Average annual home ranges range from 0.3 – 0.5 mi² for non-migratory animals to 3.4 mi² for migratory animals.

During winters of 2015, 2016, and 2017, a total of 792 GPS radio-collars have been deployed on mule deer across much of their eastern Oregon distribution to refine herd range boundaries for data collection and monitoring. Not surprisingly initial results indicate variable survival across the landscape with a number of areas having very low survival (0.5 – 0.79). Preliminary analyses of data analysis units (DAUs) is ongoing at this time.



Trends in Oregon's mule deer population size and structure, 1979 – 2016.

-Don Whittaker, Oregon Department of Fish and Wildlife

Saskatchewan

In Saskatchewan, winter severity is a key driver of mule deer mortality, especially in prairie and farmland regions where winter forage can quickly be made unavailable by a major snow event. Generally speaking, Saskatchewan mule deer populations are considered stable or slightly increasing and are still recovering from a recent series of severe winters (2010-2014), which will take time due to the impact of severe winters on reproductive age classes (i.e., ages 2 through 5). Ground-based spotlight surveys and citizen-science based Cooperative Deer Management surveys from Fall 2016 indicate an improvement in herd structure (Figure 1) and productivity (Figure 2), likely due to another mild winter in 2015/2016.

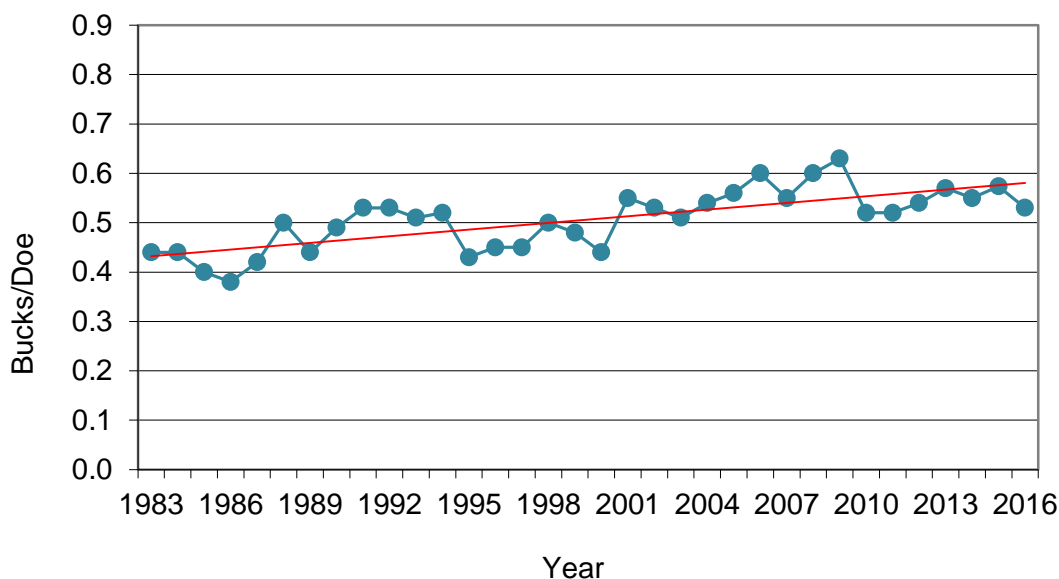


Figure 1. Estimated annual buck:doe ratios for mule deer in Saskatchewan since 1982 based on data from the citizen-science based Cooperative Deer Management Survey. Note the 2016 buck:doe ratio of 0.53 is above the long-term average of 0.50.

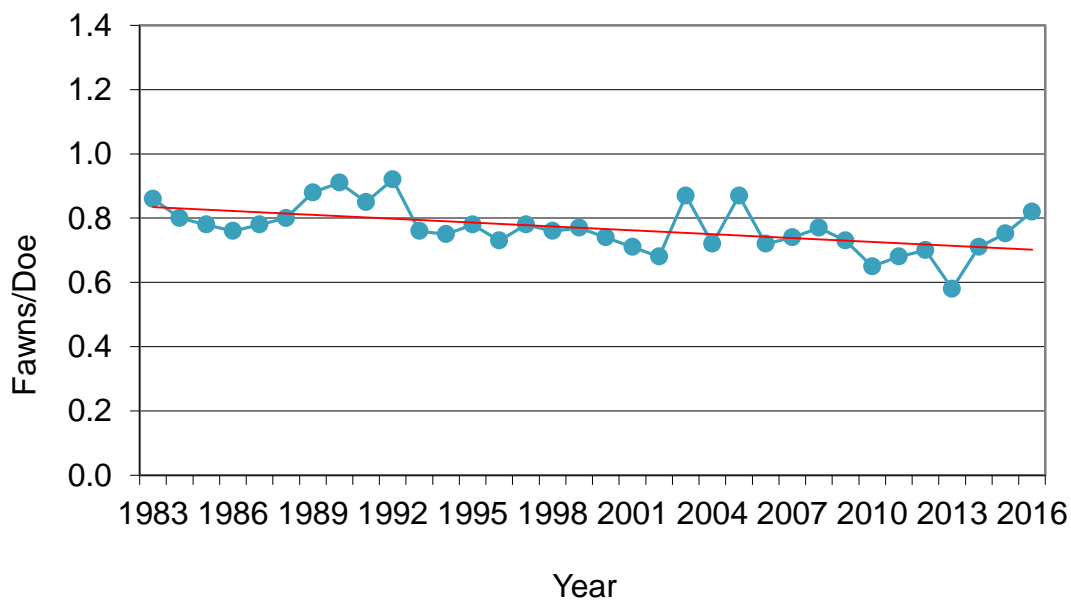


Figure 2. Estimated annual productivity of Mule Deer in Saskatchewan since 1982 based on data from the citizen-science based Cooperative Deer Management Survey as reflected by the fawn:doe ratio. Note the estimated 2016 fawn:doe ratio of 0.82 is above the long-term average of 0.77.

Hunter harvest survey data recorded moderate harvest success for draw hunters in 2016 (79%), on par with draw success rates for 2015 (81%). In 2017, draw mule deer opportunities have been recommended to continue in the same zones as 2016 with small quota adjustments in some zones to reflect increases in local mule deer populations, and as such the Ministry anticipates a similar harvest as 2016. Antlerless mule deer hunting opportunities remain, although bag limits are still reduced to one antlerless mule deer in zones with quotas of 50 or fewer.

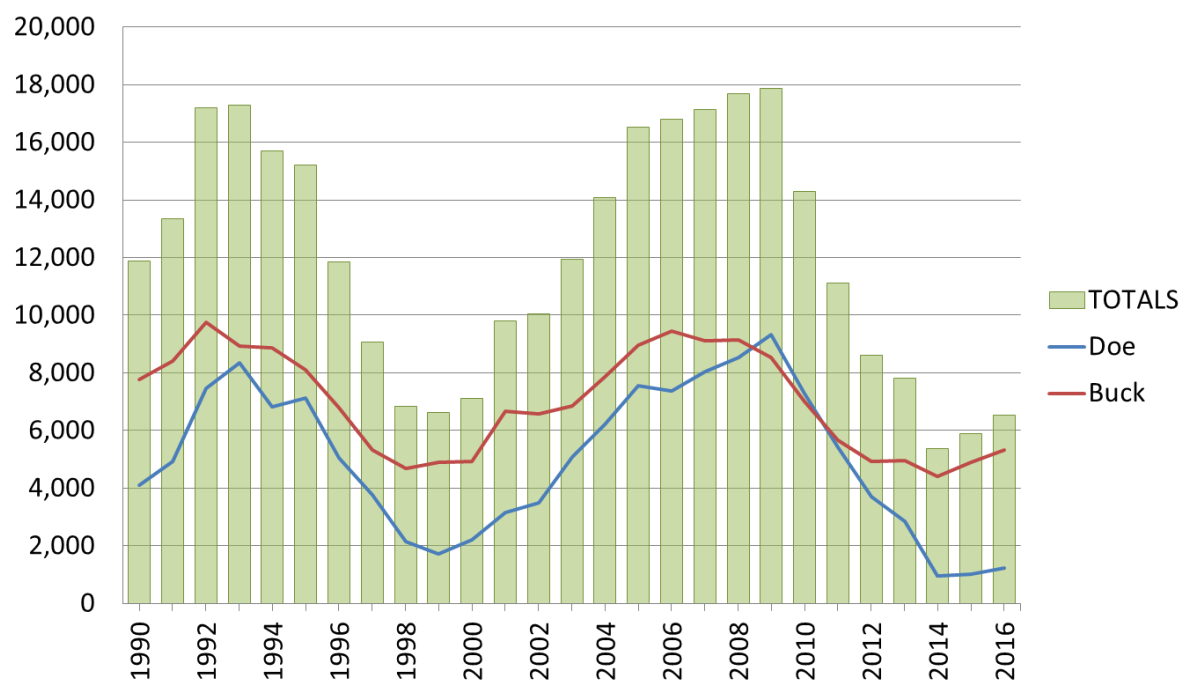
-Allison Henderson, Ministry of Environment, Government of Saskatchewan

South Dakota

Mule deer populations in South Dakota appear to be slowly responding to reduced harvest rates in recent years, and results from several biological surveys provide some cautious optimism for the future. Pre-season herd composition surveys have shown increasing trends in recruitment from 2014-2015, but decreases in almost every Data Analysis Unit (DAU) were documented in 2016. The statewide age ratio average in 2016 was 65 mule deer fawns:100 does, while the pre-season sex ratio was 40 bucks per 100 does.

Hunter survey cards are mailed to selected license holders in order to estimate hunter success, deer harvest, and related information for each season. Hunters may also report harvest information through an internet response. Approximately 6,500 mule deer were harvested in 2016 (5,300 males, 1,200 females; Figure 1). Substantial hunting season changes occurred in recent years to address low deer densities, including the elimination of “any antlerless” firearm, archery, and muzzleloader deer hunting licenses. The current harvest of antlerless mule deer occurs from youth deer hunters or hunters with “any deer” licenses.

Radio collaring and survival monitoring efforts have increased substantially in South Dakota, with approximately 700 collared mule deer being monitored across 3 study areas. Survival rates for 2016 in the Black Hills were 60% for fawns (0-4 months of age; 95% CI 47-73), 56% for juveniles (5-16 months of age; 41-70), and 80% for adult females (17+ months of age; 70-87). In the White River study area, survival rates in 2016 were 55% for fawns (42-68), 89% for juveniles (79-95), and 88% for adult females (80-94). And in the Upper Missouri River study area, survival rates were 66% for fawns (54-77), 86% for juveniles (73-94), and 86% for adult females (77-92). The winter of 2016/17 was severe in many northern and western tier hunting units, and preliminary survival analyses suggest deer survival rates were lower in several areas. These vital rates in conjunction with other survey data are used in an Integrated Population Model to estimate abundance and trends at the DAU level. Pre-season estimates for 2017 are 4,300 (95% CI: 2,400-6,100) mule deer in the Black Hills and 58,000 (38,000-77,000) mule deer on the prairie. Current growth rates in 2017 across DAUs vary from a low 0.93 to a high of 1.05.



Mule deer harvest from all hunting seasons in South Dakota, 2000-2016.

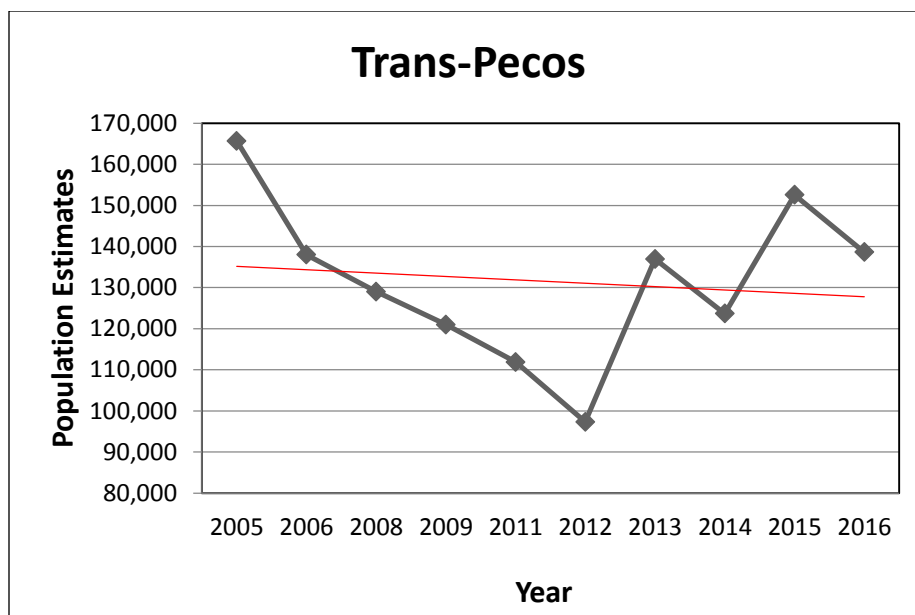
-Andy Lindbloom, South Dakota Department Game and Fish

Texas

Texas Parks and Wildlife Department (TPWD) conducts post-season helicopter surveys for mule deer utilizing a stratified random sampling design within monitoring units. In 2011, a sightability model was initiated to improve population estimates. The data are used to determine population trends, estimate population densities, and document herd composition to evaluate the impacts of regulations and management actions on mule deer at an ecoregion and monitoring unit scale.

Trans-Pecos

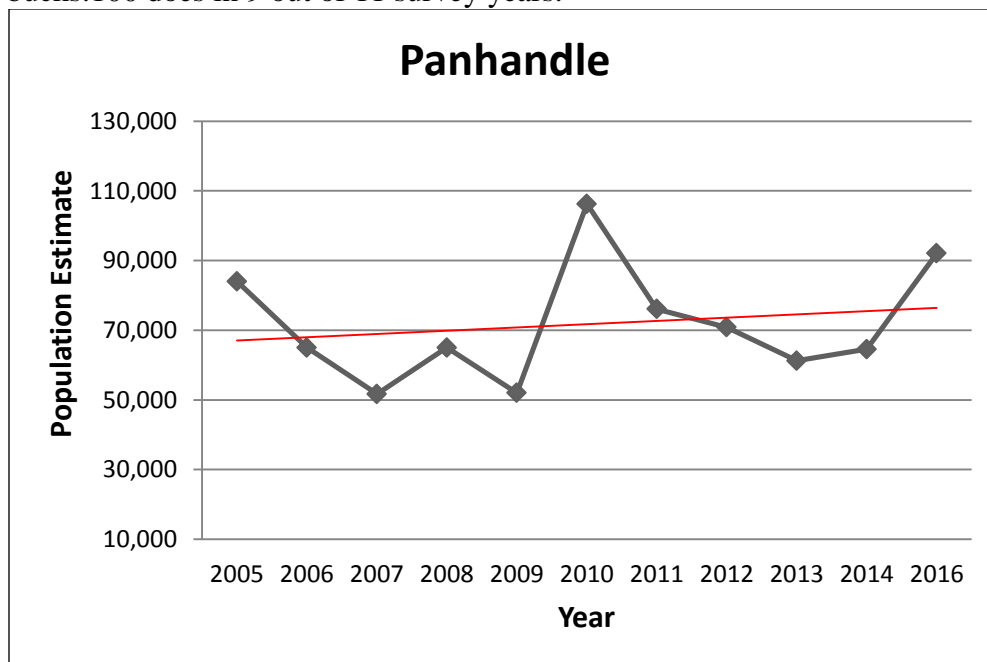
In general, the Trans-Pecos population has been a declining trend, but because of good range conditions and fawn production/recruitment from 2013–2015 is starting to trend upward. The 2016 survey estimate (138,624) indicated a 42% increase from 2012 (97,315). Surveys were not conducted in 2007 and 2010. The estimated 2013–2016 fawn crops of 47, 35, 38, and 40 fawns:100 does, respectively were higher than the 2012 estimate of 32. The sex ratio for 2016 was 34 bucks:100 does, and has remained somewhat stable since 2011.



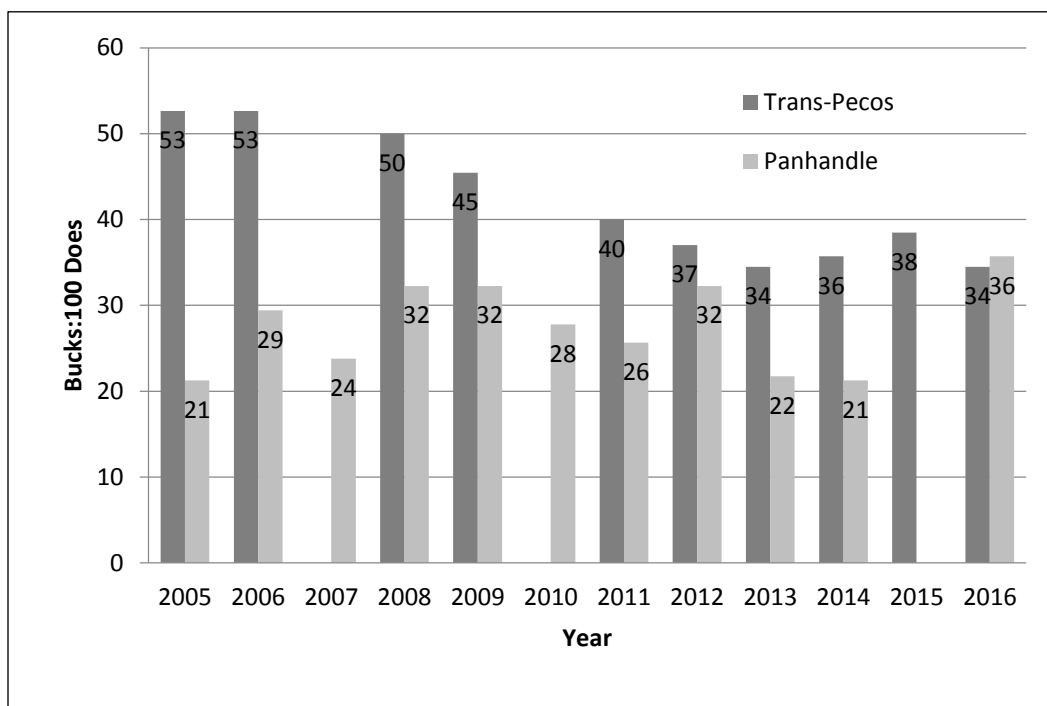
Trends in mule deer population estimates in the Texas Trans-Pecos, 2005 to 2016.

Panhandle

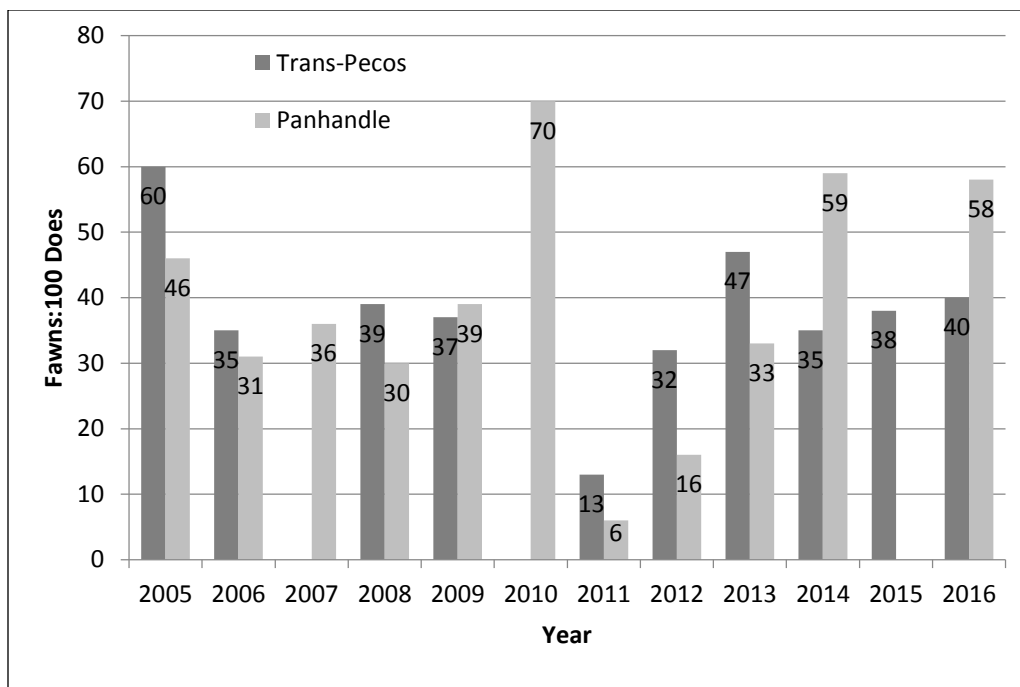
The Panhandle population trend has been stable to increasing since 2005. The 2016 population estimate of 92,049 was highest since 2011 and second only to the 2010 estimate of 106,244. Fawn production has increased significantly since 2013 compared to 2011. The sex ratio for 2016 was 36 buck:100 does. Sex ratios have varied from 21 to 36 bucks:100 does since post-season surveys were initiated in 2005. Sex ratio data indicate a higher harvest rate on mule deer bucks than in the Trans-Pecos in almost all years, but the post-season sex ratio has been above 21 bucks:100 does in 9 out of 11 survey years.



Trends in mule deer population estimates in the Texas Panhandle, 2005 to 2016.



Trends in the number of mule deer bucks per 100 does in the Texas Panhandle and Trans-Pecos area, 2005 to 2016.



Trends in the number of mule deer fawns per doe in the Texas Panhandle and Trans-Pecos area, 2005 to 2016.

-Shawn Gray, Texas Parks and Wildlife Department

Utah

Mule deer populations are estimated using AIC models and have increased over the past several years. The current statewide population estimate is 374,450, and the population objective is 453,100. Fawn to doe ratios have been stable over the past 8 years, and have ranged between 59 and 65 fawns per 100 does. Since 2010, we have radio-collared several hundred does and fawns annually on 7 representative units throughout the state for monitoring purposes and to estimate survival rates. Doe survival has averaged 0.84 and ranged between 0.80 and 0.86. Annual fawn survival has averaged 0.66 and ranged between 0.43 and 0.82. From 2011-2015, mule deer populations in Utah grew by nearly 100,000 animals. In 2016, however, adult and fawn survival rates declined resulting in a decrease of nearly 10,000 deer from 2015 estimates (Figure 1).

Utah manages for diverse hunting opportunities and attempts to balance quality and opportunity. We have 29 general season units that are managed for hunter opportunity with a goal of 15-17 or 18-20 bucks per 100 does. Utah also has limited entry units that are managed for increased quality at 25-35 bucks per 100 does. In addition, we have 2 premium limited entry units that are managed for 40-55 bucks per 100 does with $\geq 40\%$ harvested bucks being 5 years of age or older.

Over the past 25 years, buck to doe ratios have increased as a result of growing populations and decreased buck permits (Figure 2). In 1994, roughly 97,000 public draw permits were issued for general season units, and the post season buck to doe ratio was 8. Last year 90,675 public draw permits were issued, and the post season buck to doe ratio exceeded 21. Additionally in the fall of 2016, hunters in Utah harvested nearly 32,000 bucks on general season units, which is the highest harvest observed since 1996. For the 2017 hunting season, Utah is recommending decreases in general season permits because of severe winter conditions in the northern part of the state.

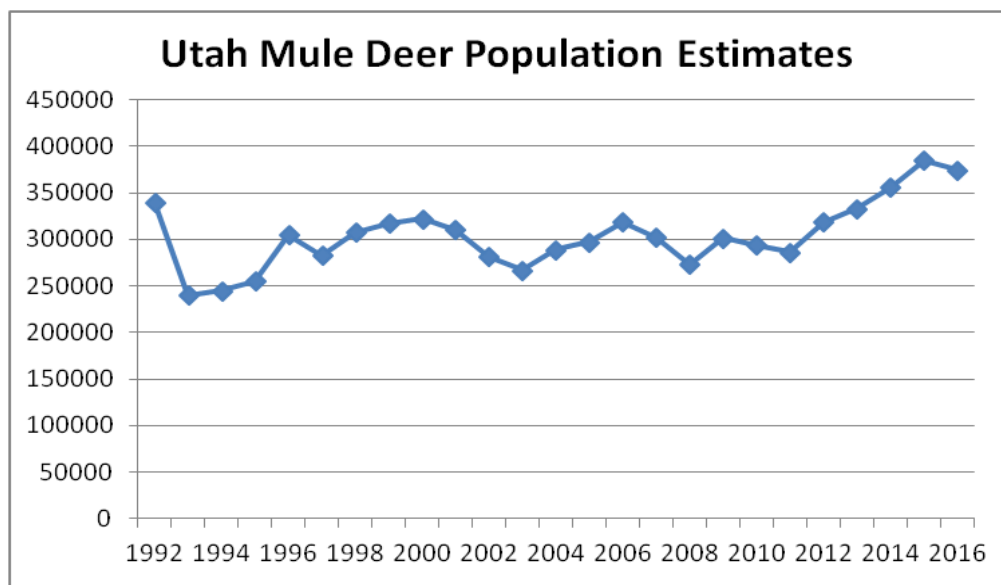


Figure 1. Mule deer population estimates from 1992-2016.

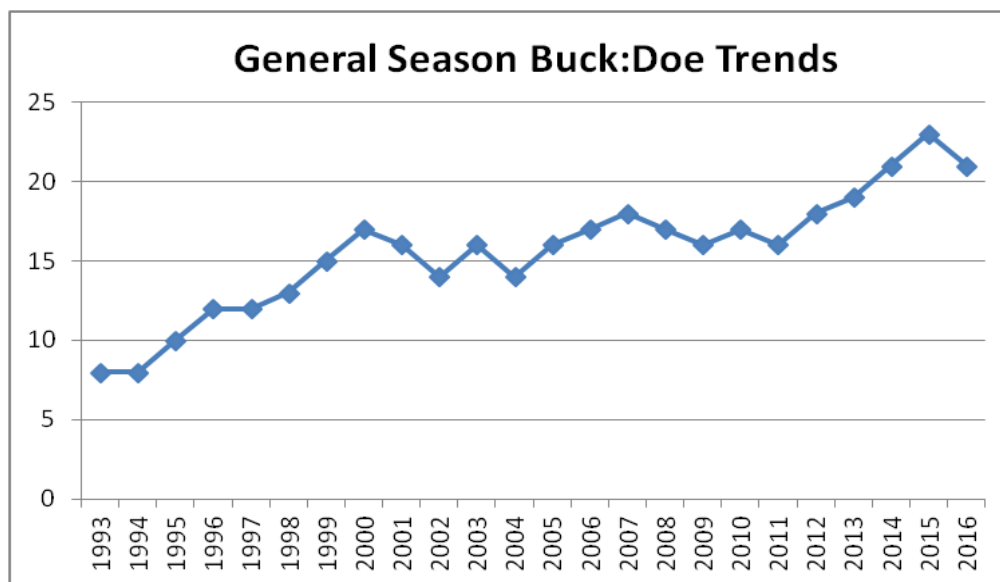
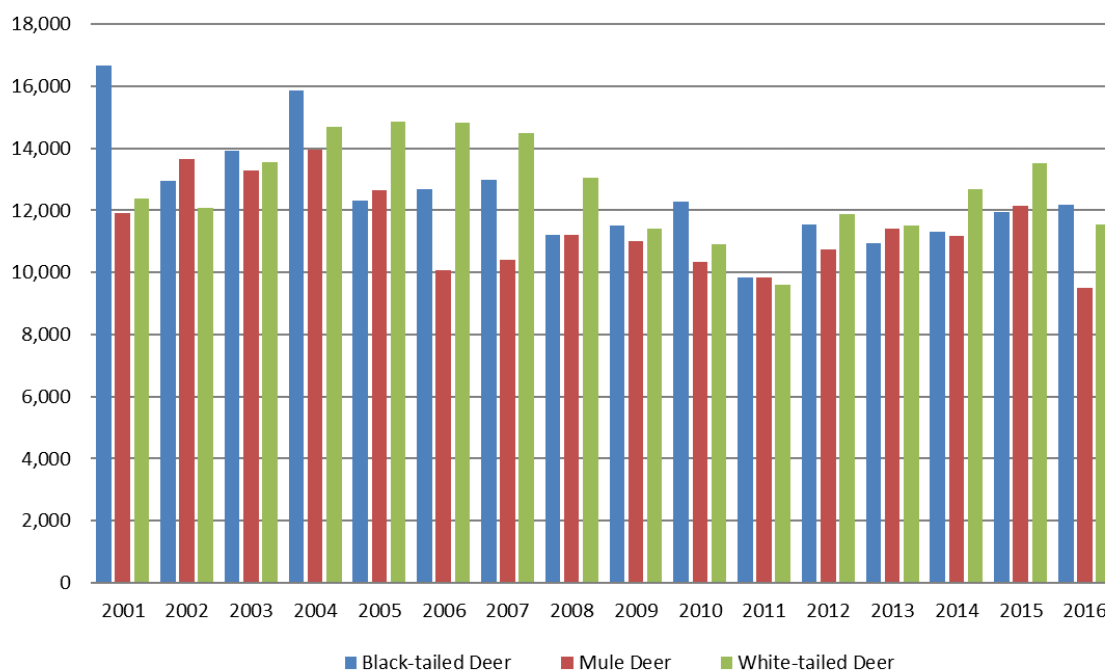


Figure 2. General season buck to doe ratios from 1993-2016.

-Justin Shannon, Utah Division of Wildlife Resources

Washington

Populations within WDFW's 7 mule deer management zones and 5 black-tailed deer management zones are within objective. The statewide harvest estimate (all species, general and permit seasons combined) for 2015 was 40,338 deer, well above the 10-yr mean (2006-2015) of 35,705 deer, and the harvest estimate for 2016 was 35,279 deer. Ground and aerial monitoring efforts indicate mule deer populations experienced severe winter conditions during 2016-2017, likely affecting over-winter survival of fawns to a greater degree than in the past 5 years. In response, WDFW has decreased antlerless permits for mule deer in most management zones. Management activities for mule deer will continue to focus on habitat enhancement, including prescribed burns and thinning, on public lands. Regional harvest trends indicate black-tailed deer in western Washington have been stable. Some localized population segments in each zone fluctuate due to forest production rotations, but potential remains to increase abundance if private and public forests were managed for greater early successional habitat. Loss of black-tailed deer habitat due to encroaching human development continues to be a concern.

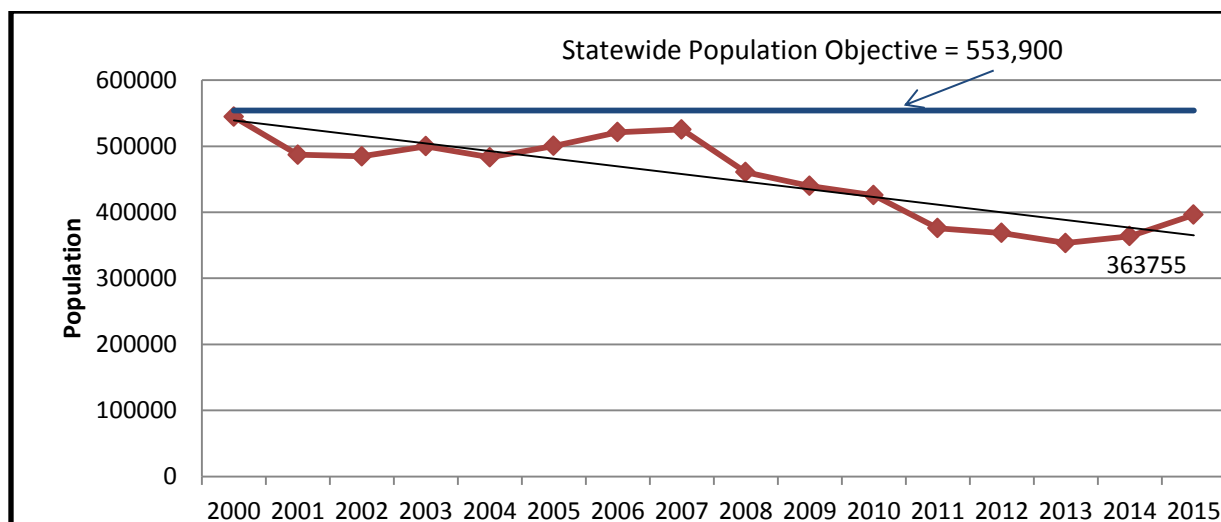


Estimated deer harvest, for general and permits seasons, by species and subspecies in Washington State, 2001 - 2016. Estimates do not include multi-weapon permit harvest.

-Sara Hansen, Washington Department of Fish and Wildlife

Wyoming

Mule deer populations throughout Wyoming have declined since the early 1990s. It is apparent, given declining production of mule deer fawns starting in the late 1980s, populations were responding in a density-dependent fashion to decreasing habitat availability and/or quality. Over the past 30 years, fawn productivity, on average, has decreased statewide by about 11% and has been below 66 fawns:100 does 15 times. Buck:doe ratios have ranged from 27 to 39 and averaged 32/100 since 2000. Throughout Wyoming, mule deer populations have declined by an estimated 148,000 (27%) mule deer since 2000. After the 2015 hunting season, it was estimated there were 396,000 mule deer in the state. This is 28% below the statewide objective of 553,900 mule deer. Population estimates are derived using post-season fawn and buck classifications in concert with measured harvest and synthesized in a spreadsheet based population model. Harvest has been largely limited to bucks the past several years in response to declining deer numbers.



-Daryl Lutz, Wyoming Game and Fish Department

Yukon

There has been no formal inventory work on mule deer in Yukon although a camera-based approach may be initiated in the future. Trends in abundance and distribution are monitored primarily through sighting and motor vehicle collision reports. Numbers and distribution have generally been on the upswing since first reports in the early 1920's. The current population estimate of 1,000 territory-wide is a guess based on observations in agricultural areas and from aerial surveys for other species.

The first deer hunting season was implemented in 2006. Licensed hunters in Yukon must apply for a male-only permit through a lottery system. Interest in the deer hunt continues to be high with 400 to 500 hunters applying for 10 permits issued each year. As of 2010, two additional permits have been available annually to young hunters. First Nation beneficiaries are entitled to harvest deer under their subsistence rights as of the effective date of their settled final agreements. No records of First Nation harvest are available. The licensed harvest in 2016 was 8 deer. Generally, the annual licensed harvest ranges between 4 and 8 deer.

-Sophie Czetwertynski, Yukon Department of Environment

Acknowledgements

Information in this report was provided by MDWG members from the 23 Western Association of Fish and Wildlife Agencies (WAFWA) and compiled by Craig White and Jim Heffelfinger. Contributors are listed after their respective state and province report. We would also like to thank Greg Sheehan, our WAFWA Director Sponsor and Miles Moretti of the Mule Deer Foundation for their support.