BIG GAME HARVEST SURVEY RESULTS 2000-01 THRU 2016-17

WHITE-TAILED DEER

MULE DEER

JAVELINA

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SURVEY PURPOSE

The main purpose of the survey is to track hunter and harvest trends for white-tailed deer (*Odocoileus virginianus*) at the statewide level, as well as unit (n = 44) and ecoregion (n = 12) levels. Mule deer (*Odocoileus hemionus*), and javelina (*Pecari tajacu*) are also tracked, but because of the smaller number of hunters, estimates below the statewide level may lack statistical power. The survey asks if the recipient hunted the targeted species, unit and county/counties hunted in, number of days spent hunting in each county, and sex and date of harvest of each individual harvested. Additionally, weapon usage is tracked for all species, and the harvest tag for mule deer and white-tailed deer. Harvest chronology and the demographics of license buyers and survey respondents are also analyzed.

HISTORIC SURVEY CHANGES

Prior to the 1972-73 deer hunting season, harvest estimates for white-tailed deer and mule deer were derived from a variety of methods including landowner surveys, game warden estimates, shooting preserve record books, and antlerless deer permit utilization. The one historic method that utilized statistical theory was based on interviews with randomly selected landowners who provided harvest estimates for their property.

The big game harvest survey in its current format was first done after the 1972-73 hunting season. Through the 1977-78 season, harvest data on white-tailed deer, mule deer, and the fall season of wild turkey (*Meleagris gallopavo*) was collected. Starting with the 1978-79 hunting season, harvest data on javelina was also collected. Wild turkey was removed after the 2004-05 hunting season, as it was also being surveyed on the Game Bird Harvest Survey, and the duplication was seen as unnecessary. Starting with the 1999-00 hunting season, a question regarding types of weapons (rifle, archery, muzzleloader, and other) used in white-tailed deer hunting was added to the survey. Starting in 2015-16, the type of hunting tag used on white-tailed deer was asked.

Prior to the 1997-98 hunting season, the sample frame was license buyers from the previous year. Since the 1997-98 season, the point-of-sale license database has allowed us to draw the sample from the current year's buyers. There is a correction factor built into the analysis that accounts for this change in order to make the historic and current estimates comparable. Telephone follow-up of a limited number of non-respondents was performed in 1973, 1974, 1975, and 1977, and again in 2006 and 2007 in order to correct for non-response bias. The correction calculated in 2007 was retroactively applied back to the 2000-01 hunting season data, and thus data before the 2000-01 season is not strictly comparable with that from later seasons.

All data has been lost for the 1975-76 season. In order to give a continuous trend line, estimates before the 1976-77 season are not reported unless specifically requested. Similarly, most reports start with the 2000-01 hunting season so that all estimates are comparable.

CHANGES IMPLEMENTED FOR THE 2016-17 SEASON

Starting with the 2016-17 season, the management unit that mule deer and white-tailed white were hunted in was asked. As these are not based on county boundaries, a map was added to the survey for each. This required a change in the survey form, and they are now printed on a custom form by a contract printer. Because the form change meant more space was available, the hunting tag use was added to mule deer, and weapon use added to mule deer and javelina. The area available for comments was also expanded.

Due to interest in moving the survey to an online format, parallel mail and online surveys were run after the 2016-17 season. The instructions and questions were the same; the only difference was that the online survey skipped certain questions if they did not hunt one of the three species.

While updating the code to handle the new questions and the online survey, the code underwent a significant review. Portions that were no longer needed were removed, and many sections were rewritten for clarity, conciseness, and to take advantage of improvements in SAS. Numerous additional analyses were added, and a

more accurate manner of calculating confidence interval computations was introduced. The code was also moved from SAS 9.2 to SAS Enterprise Guide 6.1 at this time. This platform change affected code layout, and how the data was imported and exported, but did not change the actual analysis.

SURVEY METHODOLOGY

The mail survey form was developed by Big Game and Technical Programs staff with assistance from TPWD Creative Services. It is printed by a contract printer on a custom form, and a post-paid envelope is supplied in which to return the survey. The last day of the white-tailed deer season was 28 February 2017, and the survey was to be sent out as soon as possible after that. In order to get the contact information to the printer in time for a 2 March 2017 mailing date, the sample was drawn on 23 February 2017. The sample frame was all 2016-17 hunting season license buyers that had bought a license that qualified them to hunt deer or javelina. Of the 1,195,657 that had bought a license by this date, 25,000 with a U. S. mailing address were randomly chosen to receive a survey. Due to a much lower response rate than expected, not enough survey forms were printed to send all non-respondents a second survey. The expense of making a small print run to cover the shortage was deemed not worth it. Thus, 22,000 random non-respondents were sent a second survey on 31 March 2017. Non-respondents were not contacted through other means. The survey was closed on 23 June 2017. Technical Program staff entered the data from returned mail surveys using custom data entry programs written in Delphi XE6. The data was stored in an MS-SQL 2008 database (server = tpwd-aav-sqlpro\wltech; database = Surveys; tables = BGSample, BGHunted, BGHarvest, BGWeaponUse). All cleaning, parsing, and analysis was done using custom programs written in SAS EG 6.1.

ANALYSIS METHODOLOGY

An analysis of the complete sample frame was performed. This includes purchase chronology, number of each license purchased, demographics (gender, age distribution, mean age, and youth or adult) and location (TX county, state, and country of residence, TX residential status, and urban or rural county for US residents) and submission of an email address. The demographic and location analysis was also run on the respondents to check for potential bias.

The statewide daily and weekly harvest chronology for each species and sex was calculated, as well as the distribution of days hunted and total harvest by species. No analysis of the comments written on the surveys were made, but all comments were given to staff.

Harvest analysis was done at the statewide level for all species. Analyses at the mule deer management unit (n = 4) and white-tailed deer management units (n=44) were also made; there are no javelina management units. Javelina and mule deer were analyzed at the traditional ecoregion level (n = 10), which is based on county aggregations. White-tailed deer were analyzed at a separate ecoregion level (n = 12) that is based on management unit aggregation. For mule deer and white-tailed deer, an analysis by the antler restriction group (n = 11) was made. An additional analysis based on the hunter gender, youth or adult status, and Texas resident or non-resident status was performed at the statewide level.

For each species and analysis unit combination, 11 estimates and the 95% confidence intervals on the estimates were computed. The estimates are: hunters, hunter days, days per hunter, male game harvest, percent male harvest, female game harvest, percent female harvest, total harvest, mean kill per hunter, mean kill per day per hunter, and success rate. At the statewide level only, hunters, days, and kill per 1,000 acres of deer habitat were also calculated.

The subunit estimates of hunter days and kill are a portion of the statewide estimate and sums up to statewide estimate at each level. These estimates are calculated by proportioning out the statewide estimate based on statistics of returned survey samples. Subunit hunter estimates are calculated differently because many hunters hunt in more than one subunit. To calculate the correct hunter estimate for each subunit, the number of hunters

from returned survey samples for a subunit was divided by total number of hunters in the survey sample and then multiplied by the statewide hunter estimate.

The percent of hunters using each of four weapon types (archery including crossbows, muzzleloader, rifle, and other), mean number days each was used, and percent killed by weapon type was calculated for each species at the statewide level. These were then expanded by the total number of hunters, days, or kills to get the weapon use estimates. The percent usage of each tag type used on mule deer (antlerless, hunting license, managed lands deer permit, and public hunting tag) and white-tailed deer (hunting license, landowner assisted management permit, managed lands deer permit, and public hunting tag) was calculated at the statewide level and expanded to get an estimate of total kill by tag type.

NON-RESPONSE BIAS CORRECTION

To correct non-response biases generally associated with mail-out surveys, telephone follow-ups were performed during the 1972-73, 1973-74, 1974-75, and 1976-77 hunting season surveys. Correction factors were developed based on the information obtained through the returned survey questionnaires and telephone follow-ups during those years and incorporated into the analysis. A telephone follow-up was also done after the 2005-06 and 2006-07 seasons and the correction factor was recalculated. This recalculation has caused a small, but noticeable change, in some estimates from the previous years. It was decided that the correction factor calculated in 2007 would be used for the data starting with the 2000-01 season, while the older correction factor would be used through the 1999-00 season. This methodology change means the two periods are not strictly comparable.

Before 1997, survey samples were selected from previous year's licensed hunters. The implementation of electronic point-of-sale license system in 1997 made current year license data available. A study was conducted for 2 years during which dual sampling using current year and previous year license data was performed. Using data from the 2 sampling regime, regression adjustment formulas were derived for subsequent use with surveys using current year license data to ensure consistency and comparability with historical survey estimates.

RESULTS

Selected results are placed in this report; the most recent report can be downloaded from our website at (http://tpwd.texas.gov/publications/huntwild/hunt/). For other results, or to have special analyses performed, contact Wildlife Technical Programs at hunt@tpwd.texas.gov.

KNOWN BIASES

1. The sample size of 25,000 was chosen when the return rate was much higher. Because the rate has been dropping steadily, we are getting far fewer returns now. This has caused the precision and power to drop. In 2004 an external review determined that the statistical power at the reporting unit and county level was poor. Those estimates are no longer calculated as part of the normal analyses, but could be for special projects. As the number of white-tailed deer management units is only slightly smaller than the number of reporting units, it is likely that the statistical power for those is poor as well.

2. This survey is conducted as a post-season survey and as such is fraught with the usual problems of memory bias and prestige bias associated with post-season surveys.

3. Historically, hunters were only allowed to harvest five deer per year, and this report would estimate the legal harvest by ignoring any deer harvested after the fifth one. Starting with the 2006-07 season, hunters harvesting deer with a Managed Lands Deer Permit (MLDP) were no longer required to tag the deer with a tag from their license. This means that any number of deer can be legally harvested. If they do not note the type of tag used to harvest a deer, then we have no way of knowing if it is illegal overharvest, or harvest using MLDP tags. Please note that in some cases over 70 deer have been taken legally by a single hunter on an MLDP property.

This has little effect on the statewide estimates, but can cause a significant jump in harvest at small geographical scales. It is unknown if those harvesting large numbers of deer are more or less likely to report their harvest, and thus whether any bias is happening. Requesting the tag used on each deer is a result of this problem.

PROBLEMS SEEN AND RECOMMENDED CHANGES

Return rate

Survey design can dramatically affect the return rate. For example, the perceived length and complexity of the survey can be more important than the actual length and complexity. The changes to the form from the 2015-16 season required the inclusion of maps so that respondents could pick out the unit in which they hunted. Because of this change, a new form design was chosen that also increased the font size and white space, as well as space for comments. These should have increased the return rate, and may have done so.

However, return rates have been steadily decreasing through time at a rate of 2-5% a year, and it was expected this would offset any gains seen. However, the return rate dropped to 13.85%, a reduction of 12.86% from that seen with the 2015-16 survey. This came as a surprise, and has not been seen in other surveys conducted by Technical Program staff this year. While we cannot be sure, the most likely reason for the low return rate on the mail survey is the perceived survey length. The change from a single page to three pages, as well as three pages of maps, made the survey seem much longer, when in fact these changes only added a couple minutes to the time necessary to complete the survey.

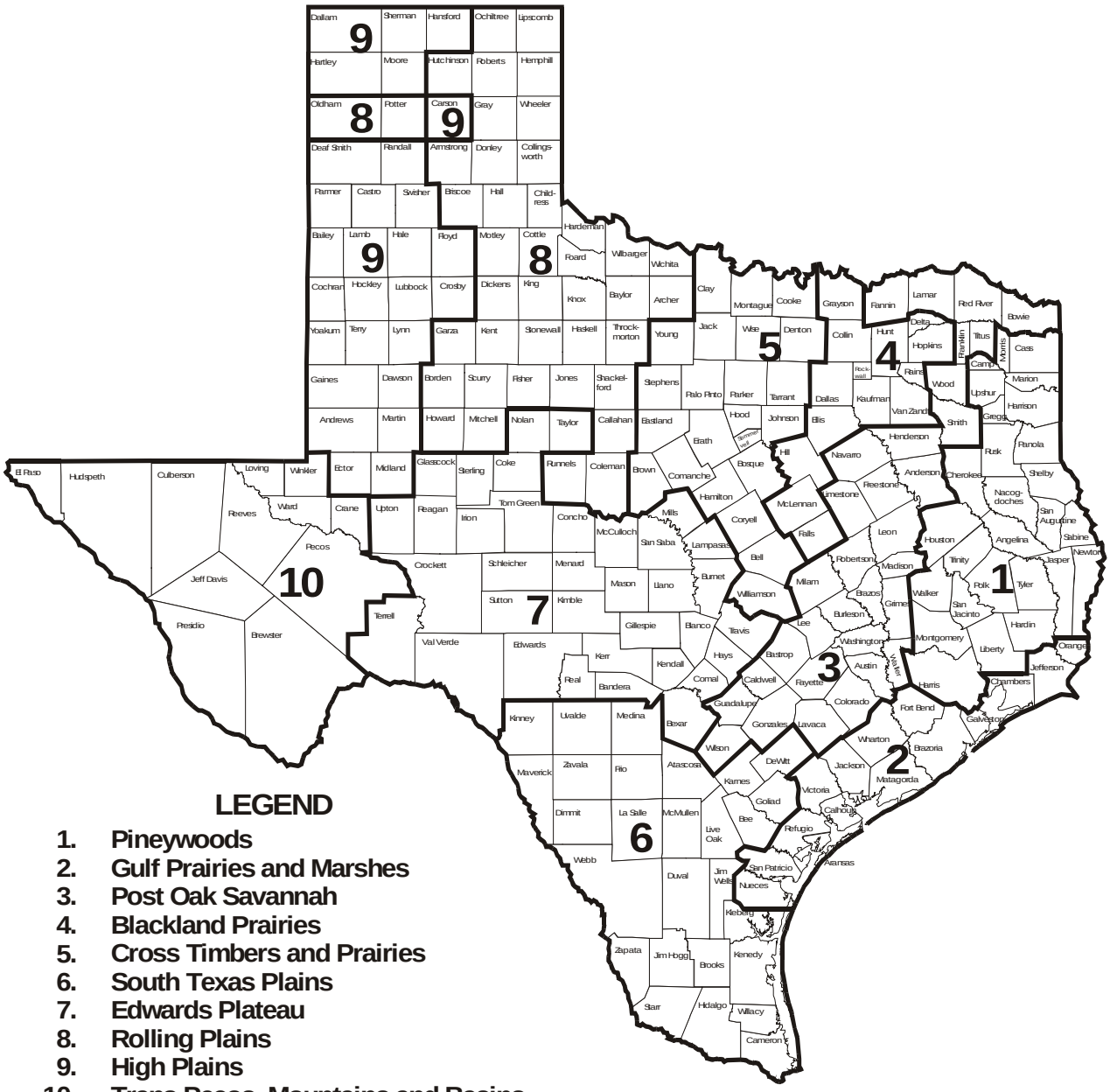
Staff need the management unit data, and to get this requires a map. The map cannot be shrunk further, as it is already too small and cluttered for some to read. Thus, two choices are left. First, the lower return rate is accepted, and analysis suffers a loss in statistical power. This is not recommended, as the original survey design assumed a return rate of >50% would be seen. Second, the number of surveys sent out can be increased to offset the lower return rate. To get just the number of returns seen in the 2015-16 survey, the sample size would need to be increased by 92.85%, or 23,212 surveys.

Survey Design

160 partial surveys were returned that were unusable. In every case, the respondent returned only the page with the white-tailed deer questions. 121 of the 160 were from hunters; the remaining 39 said they did not hunt white-tailed deer. Unfortunately, we cannot know who returned these surveys, as the survey ID number is not printed on this page. Those that did this with the first mailing would have received a second survey when the reminder mailing went out. It is hoped that they did fill out and return the second form, but there is no way to know if they did or not. As 3,365 mail surveys were returned, the 160 would not have made a significant difference in the accuracy or precision of the estimates, but the expense and potential lost data is still troubling. With every survey that is sent out, some are returned damaged, and receiving some partial forms is to be expected. However, these were intentionally separated from the other pages before being placed in the envelope. It can be assumed that the 121 that hunted did not hunt the other species, and so did not see a need to return that portion of the survey. Why the 39 non-hunters would return the white-tailed deer page, but not the others, cannot be easily explained.

Unfortunately, rearranging the form so that the white-tailed deer questions are opposite the survey ID number on the mail indicia is not possible. The two white-tailed deer unit maps need to be placed in the middle so that both are visible at once, and the white-tailed deer questions need to be immediately before or after the maps. Placing the survey ID number on each page of questions is possible, but would greatly increase the cost of printing, and so is not recommended. It is recommended that in the future the instructions request that they return the entire survey, rather than just a portion.

Ecological Areas of Texas



LEGEND

1. Pineywoods
2. Gulf Prairies and Marshes
3. Post Oak Savannah
4. Blackland Prairies
5. Cross Timbers and Prairies
6. South Texas Plains
7. Edwards Plateau
8. Rolling Plains
9. High Plains
10. Trans Pecos, Mountains and Basins

Table 1. Statewide javelina harvest estimates. Estimates are not comparable to those before 2000-01 due to methodology changes.

Season	Successful			Hunters			Days			Harvest		
	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI
2000-01	58.47%	53.32%	63.63%	38,803	34,841	42,764	283,601	232,680	334,521	34,089	28,967	39,211
2001-02	52.90%	46.98%	58.81%	33,449	29,570	37,328	261,981	213,174	310,788	25,450	20,852	30,048
2002-03	50.94%	44.91%	56.96%	32,656	28,802	36,509	232,611	186,220	279,002	26,173	21,096	31,251
2003-04	57.02%	50.66%	63.38%	28,864	25,226	32,501	221,449	173,351	269,547	23,705	19,172	28,238
2004-05	53.28%	46.99%	59.57%	29,603	25,942	33,265	201,597	161,031	242,163	23,537	18,990	28,085
2005-06	59.24%	52.57%	65.91%	27,898	24,185	31,612	231,057	171,176	290,939	33,055	20,028	46,082
2006-07	51.60%	44.94%	58.25%	28,415	24,703	32,127	198,734	150,545	246,922	20,760	16,392	25,127
2007-08	56.73%	49.96%	63.50%	27,962	24,212	31,712	176,465	136,616	216,315	25,408	19,667	31,148
2008-09	56.28%	49.85%	62.71%	31,056	27,109	35,002	203,414	157,997	248,831	33,207	24,784	41,629
2009-10	57.95%	51.97%	63.94%	32,990	29,072	36,908	241,804	186,587	297,022	28,367	23,188	33,546
2010-11	54.11%	47.65%	60.57%	28,656	25,009	32,303	198,579	155,531	241,628	24,811	19,609	30,012
2011-12	57.41%	50.78%	64.04%	27,578	23,948	31,209	195,349	148,842	241,856	26,174	20,219	32,129
2012-13	61.35%	53.82%	68.88%	22,912	19,430	26,393	184,135	140,194	228,076	21,225	16,420	26,030
2013-14	62.12%	53.77%	70.47%	22,590	18,772	26,407	151,327	110,050	192,604	24,472	14,644	34,300
2014-15	54.82%	47.19%	62.45%	28,427	24,153	32,701	178,599	135,161	222,038	22,776	17,791	27,761
2015-16	51.53%	43.80%	59.26%	30,104	25,541	34,667	256,428	188,613	324,244	22,717	17,147	28,287
2016-17	51.69%	41.16%	62.21%	31,624	25,139	38,108	314,815	219,929	409,701	24,873	17,350	32,395
Average	55.73%	48.84%	62.62%	29,623	25,627	33,619	219,526	168,688	270,365	25,929	19,783	32,075

Table 2. 2016-17 javelina harvest estimates by ecoregion.

Ecoregion	Successful			Hunters			Days			Harvest		
	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI
Gulf Prairies	100.00%	0.00%	100.00%	355	1	4,616	711	2	2,104	711	2	2,104
Post Oak Savannah	0.00%			355	1	4,616	1,421	4	4,208	0		
South Texas Plains	58.73%	42.64%	74.82%	22,386	4,005	40,766	243,751	155,720	331,782	19,898	13,177	26,620
Edwards Plateau	41.18%	1.78%	80.57%	6,041	17	21,929	50,456	18,970	81,942	3,909	874	6,943
Trans-Pecos	14.29%	0.00%	100.00%	2,487	7	13,368	18,477	1,307	35,646	355	1	1,052

Table 3. 2016-17 javelina hunter weapon usage, regardless of success.

Weapon	Reported Use				Estimated Hunters
	Count	Percent	L95CI	U95CI	
Archery	15	14.42%	7.56%	21.29%	4,561
Muzzleloader	2	1.92%	0.00%	4.61%	608
Other	2	1.92%	0.00%	4.61%	608
Rifle	98	94.23%	89.67%	98.79%	29,800

Table 4. 2016-17 javelina mean weapon days, regardless of success.*

Weapon	Reported Use				Estimated Days
	Count	Mean	L95CI	U95CI	
Archery	15	6.13	3.63	8.64	193,961
Muzzleloader	2	4.50	0.00	36.27	142,308
Other	2	5.50	0.00	62.68	173,932
Rifle	98	9.56	7.49	11.63	302,364

* Of those that reporting using it at least one day.

Table 5. 2016-17 javelina harvest weapon.

Weapon	Reported Use				Estimated Harvest
	Count	Percent	L95CI	U95CI	
Archery	4	7.14%	0.00%	14.57%	1,777
Muzzleloader	0	0.00%	0.00%	0.00%	0
Other	2	2.86%	0.00%	6.93%	711
Rifle	44	90.00%	81.65%	98.35%	22,386

Table 6. Statewide mule deer harvest estimates. Estimates are not comparable to those before 2000-01 due to methodology changes.

Season	Successful			Hunters			Days			Harvest		
	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI
2000-01	31.82%	24.89%	38.75%	19,292	16,469	22,114	87,996	66,604	109,388	6,467	4,740	8,194
2001-02	26.57%	19.27%	33.88%	17,330	14,515	20,146	86,296	64,026	108,565	4,605	3,144	6,066
2002-03	39.38%	31.75%	47.00%	19,569	16,566	22,572	90,336	71,036	109,635	8,072	6,017	10,127
2003-04	36.91%	29.10%	44.73%	18,301	15,389	21,213	78,497	56,926	100,067	6,878	5,051	8,706
2004-05	35.06%	27.47%	42.66%	18,684	15,760	21,609	78,785	61,683	95,887	7,037	5,024	9,050
2005-06	39.75%	32.13%	47.37%	21,287	18,033	24,542	101,516	80,082	122,950	9,652	7,030	12,274
2006-07	35.56%	28.52%	42.60%	23,355	19,981	26,728	82,861	65,851	99,871	8,563	6,444	10,683
2007-08	36.52%	29.39%	43.64%	23,929	20,453	27,405	105,542	85,278	125,806	9,141	6,883	11,399
2008-09	37.02%	29.93%	44.10%	24,334	20,829	27,839	121,654	89,911	153,398	9,276	7,034	11,519
2009-10	42.51%	35.74%	49.29%	25,618	22,153	29,082	118,592	94,968	142,215	12,371	9,393	15,350
2010-11	43.67%	37.21%	50.13%	28,408	24,777	32,039	126,252	100,497	152,007	13,150	10,522	15,777
2011-12	30.27%	23.61%	36.93%	23,493	20,135	26,850	118,414	94,136	142,692	7,916	5,684	10,148
2012-13	34.07%	26.01%	42.14%	18,976	15,802	22,150	94,811	73,747	115,875	10,261	3,074	17,448
2013-14	35.88%	27.59%	44.17%	22,418	18,615	26,222	114,138	82,338	145,938	8,386	5,951	10,820
2014-15	30.34%	22.80%	37.89%	24,831	20,830	28,832	124,382	98,651	150,113	8,562	5,842	11,282
2015-16	35.43%	27.03%	43.83%	23,455	19,416	27,495	129,114	92,756	165,473	9,789	6,539	13,038
2016-17	43.75%	32.71%	54.79%	28,426	22,269	34,582	142,129	104,876	179,381	12,436	8,336	16,537
Average	36.15%	28.54%	43.76%	22,453	18,941	25,966	105,960	81,374	130,545	8,974	6,277	11,672

Table 7. 2016-17 mule deer management unit harvest estimates. Note - units are based on deer density.

Unit	Successful			Hunters			Days			Harvest		
	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI
High	62.50%	15.04%	100.00%	2,773	8	14,766	16,345	3,932	28,758	1,727	170	3,284
Medium	38.71%	9.91%	67.50%	10,746	31	30,345	60,405	35,638	85,171	4,145	1,736	6,555
Low	33.33%	0.00%	71.07%	7,280	21	24,922	31,624	14,834	48,414	2,418	577	4,260
Very Low	54.55%	25.11%	83.98%	7,626	22	25,535	33,756	15,107	52,404	4,145	1,736	6,555

Table 8. 2016-17 mule deer harvest estimates by ecoregion.

Ecoregion	Successful			Hunters			Days			Harvest		
	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI
Edwards Plateau	45.45%	0.00%	94.27%	3,813	11	17,588	24,873	7,321	42,424	1,727	170	3,284
Rolling Plains	39.29%	9.00%	69.57%	9,706	28	28,873	43,705	25,422	61,988	3,800	1,493	6,107
High Plains	46.15%	2.44%	89.87%	4,507	13	19,269	24,517	6,841	42,194	2,073	367	3,778
Trans-Pecos	46.67%	19.54%	73.80%	10,400	30	29,868	49,035	29,200	68,869	4,836	2,235	7,438

Table 9. 2016-17 mule deer hunter weapon usage, regardless of success.

Weapon	Reported Use				Estimated Hunters
	Count	Percent	L95CI	U95CI	
Archery	7	8.97%	2.49%	15.46%	2,551
Muzzleloader	0	0.00%	0.00%	0.00%	0
Other	1	1.28%	0.00%	3.83%	364
Rifle	74	94.87%	89.87%	99.88%	26,968

Table 10. 2016-17 mule deer mean weapon days, regardless of success.*

Weapon	Reported Use				Estimated Days
	Count	Mean	L95CI	U95CI	
Archery	7	6.71	2.39	11.04	190,860
Muzzleloader	0	0.00	0.00	0.00	0
Other	1	1.00	0.00		28,426
Rifle	74	4.58	3.83	5.34	130,222

* Of those that reporting using it at least one day.

Table 11. 2016-17 mule deer harvest weapon.

Weapon	Reported Use				Estimated Harvest
	Count	Percent	L95CI	U95CI	
Archery	2	5.71%	0.00%	13.80%	711
Muzzleloader	0	0.00%	0.00%	0.00%	0
Other	0	0.00%	0.00%	0.00%	0
Rifle	33	94.29%	86.20%	100.00%	11,725

Table 12. 2016-17 tags usage on mule deer.

Tag	Reported Use				Estimated Harvest
	Count	Percent	L95CI	U95CI	
Hunting License	29	85.29%	72.75%	97.84%	10,607
LAMP	0	0.00%	0.00%	0.00%	0
MLDP	5	14.71%	2.16%	27.25%	1,829
WMA	0	0.00%	0.00%	0.00%	0

Table 13. Statewide white-tailed deer harvest estimates. Estimates are not comparable to those before 2000-01 due to methodology changes.

Season	Successful			Hunters			Days			Harvest		
	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI
2000-01	59.78%	58.52%	61.04%	639,036	629,366	648,706	5,319,977	5,122,768	5,517,187	561,534	540,873	582,196
2001-02	57.04%	55.65%	58.42%	596,021	585,603	606,439	5,437,732	5,204,715	5,670,749	515,215	492,923	537,507
2002-03	59.83%	58.50%	61.17%	635,498	624,960	646,037	5,647,206	5,415,482	5,878,929	575,317	551,749	598,885
2003-04	61.14%	59.79%	62.48%	616,576	606,015	627,137	5,493,294	5,266,838	5,719,751	570,706	546,093	595,320
2004-05	60.54%	59.19%	61.88%	616,698	605,917	627,480	5,102,990	4,892,789	5,313,192	566,482	539,119	593,845
2005-06	61.16%	59.77%	62.54%	628,043	616,913	639,173	3,798,828	3,575,200	4,022,456	441,877	413,178	470,576
2006-07	61.00%	59.62%	62.38%	621,105	609,936	632,274	3,943,244	3,724,310	4,162,179	471,755	446,337	497,173
2007-08	60.45%	58.99%	61.91%	578,864	567,230	590,499	4,707,551	4,480,504	4,934,598	512,852	489,491	536,213
2008-09	62.30%	60.93%	63.67%	645,450	634,005	656,896	5,439,386	5,193,205	5,685,566	619,700	591,135	648,266
2009-10	56.89%	55.54%	58.23%	648,686	637,658	659,714	6,059,605	5,802,909	6,316,302	559,357	530,587	588,128
2010-11	60.88%	59.58%	62.18%	673,730	662,712	684,749	6,144,311	5,891,786	6,396,837	637,500	611,613	663,386
2011-12	58.45%	57.10%	59.79%	658,819	647,690	669,947	5,970,036	5,729,868	6,210,204	574,810	546,638	602,982
2012-13	60.33%	58.90%	61.75%	636,325	624,217	648,434	5,661,106	5,407,347	5,914,865	546,360	520,627	572,094
2013-14	58.39%	56.88%	59.90%	700,449	686,614	714,284	6,595,096	6,283,697	6,906,494	625,577	559,778	691,375
2014-15	56.27%	54.76%	57.79%	704,510	690,539	718,480	6,710,307	6,393,632	7,026,982	590,271	555,388	625,154
2015-16	56.97%	55.34%	58.60%	655,461	641,062	669,859	5,568,958	5,284,530	5,853,387	547,655	505,326	589,984
2016-17	61.83%	59.74%	63.92%	738,713	719,076	758,351	7,259,736	6,780,494	7,738,979	720,645	655,316	785,974
Average	59.60%	58.16%	61.04%	646,705	634,677	658,733	5,579,963	5,320,593	5,839,333	566,918	535,069	598,768

Table 14. 2016-17 white-tailed deer management unit harvest estimates.

Unit	Successful			Hunters			Days			Total Harvest		
	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI
1	33.33%	0.00%	100.00%	912	3	2,332	3,727	14	10,966	256	1	952
2	0.00%			304	1	1,124				0		
3	70.59%	43.65%	97.52%	5,170	1,801	8,540	35,139	5,579	64,700	3,323	629	6,017
4	78.33%	66.42%	90.24%	18,247	11,974	24,521	142,687	80,200	205,174	18,917	10,662	27,173
5	80.41%	73.24%	87.57%	45,010	35,342	54,678	351,660	237,486	465,833	63,398	34,978	91,819
6	80.35%	73.71%	86.98%	52,613	42,218	63,009	423,269	295,555	550,984	70,301	51,597	89,004
7 North	79.80%	70.88%	88.71%	30,108	22,116	38,100	258,753	158,871	358,636	33,489	21,832	45,146
7 South	77.63%	66.90%	88.36%	23,113	16,077	30,150	174,898	101,222	248,574	27,098	14,351	39,844
8 East	77.44%	70.14%	84.74%	49,876	39,734	60,018	512,449	355,229	669,669	68,255	44,773	91,738
8 West	86.25%	78.06%	94.44%	24,330	17,116	31,543	200,454	95,472	305,436	52,917	13,414	92,420
9	62.50%	43.12%	81.88%	12,165	7,021	17,309	132,837	51,440	214,235	10,737	3,581	17,893
10	73.53%	55.87%	91.19%	10,340	5,592	15,089	110,210	47,326	173,093	9,203	3,734	14,672
11	66.08%	57.31%	74.85%	52,005	41,665	62,345	617,867	452,801	782,933	43,714	29,227	58,202
12	55.74%	38.79%	72.69%	18,551	12,227	24,876	195,662	100,951	290,373	13,293	6,354	20,233
13	54.17%	34.63%	73.71%	14,598	8,972	20,223	185,546	96,948	274,145	13,038	4,441	21,634
14	51.79%	41.22%	62.35%	51,093	40,837	61,348	630,112	457,223	803,002	33,489	22,042	44,936
15	56.45%	39.78%	73.12%	18,856	12,481	25,230	235,327	114,853	355,802	10,481	5,433	15,530
16	52.17%	22.64%	81.70%	6,995	3,080	10,909	75,869	22,664	129,075	3,579	467	6,690
17	41.46%	24.65%	58.28%	24,938	17,638	32,238	288,835	178,548	399,121	10,992	5,399	16,586
18	46.94%	26.08%	67.80%	14,902	9,219	20,585	178,891	92,965	264,817	7,669	2,957	12,381
19 North	45.61%	26.08%	65.15%	17,335	11,216	23,454	145,349	77,181	213,517	7,925	3,479	12,371
19 South	59.02%	42.72%	75.32%	18,551	12,227	24,876	180,488	99,773	261,204	15,338	7,488	23,188
20	48.15%	19.87%	76.43%	8,211	3,974	12,449	103,288	20,436	186,141	5,880	1,010	10,749
21	53.85%	13.94%	93.75%	3,954	1,005	6,903	41,262	155	84,179	2,556	10	5,341
21 North	33.33%	0.00%	100.00%	912	3	2,332	5,058	19	15,128	511	2	1,905
22	37.50%	0.00%	79.95%	4,866	1,596	8,136	31,146	117	64,189	2,045	8	4,457
23	67.44%	57.53%	77.35%	39,232	30,168	48,296	430,989	280,858	581,121	37,068	22,606	51,529
24	60.61%	48.13%	73.08%	30,108	22,116	38,100	347,667	223,823	471,510	21,474	13,115	29,832
25	63.37%	51.46%	75.27%	30,716	22,648	38,785	308,800	199,769	417,831	26,331	15,953	36,709
25 South	80.00%	63.65%	96.35%	9,124	4,660	13,588	85,453	30,454	140,451	10,737	3,858	17,616
26	47.83%	16.85%	78.80%	6,995	3,080	10,909	70,012	27,627	112,398	3,835	355	7,314
27	84.51%	75.27%	93.74%	21,593	14,784	28,401	180,755	99,319	262,191	26,331	15,860	36,802
28	73.91%	52.39%	95.44%	6,995	3,080	10,909	40,197	8,725	71,670	8,436	2,256	14,616
29 North	60.71%	36.78%	84.65%	8,515	4,201	12,830	77,999	26,318	129,680	6,647	1,931	11,362
29 South	75.00%	59.99%	90.01%	13,381	7,991	18,772	101,957	45,708	158,206	14,827	6,495	23,159
30	59.30%	45.68%	72.92%	26,155	18,685	33,624	228,938	133,231	324,646	20,707	11,331	30,082
31	76.92%	57.97%	95.87%	7,907	3,748	12,066	52,443	15,777	89,109	5,880	2,138	9,622
31 East	90.91%	77.98%	100.00%	6,691	2,862	10,520	54,040	10,769	97,312	8,692	2,552	14,832
31 West	0.00%			1,216	4	2,855	6,655	25	17,557	0		
32	0.00%			0			0			0		
33	80.00%	34.72%	100.00%	1,521	5	3,353	8,785	33	23,577	1,023	4	2,415
Urban Houston	50.00%	0.00%	100.00%	608	2	1,768	4,259	16	12,383	256	1	952
Urban San Antonio	0.00%			0			0			0		
Urban Valley	0.00%			0			0			0		

Table 15. 2016-17 white-tailed deer harvest estimates by ecoregion.

Ecoregion	Successful			Hunters			Days			Harvest		
	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI	Estimate	L95CI	U95CI
Pineywoods	50.00%	42.73%	57.27%	116,338	101,615	131,061	1,419,514	1,164,744	1,674,283	71,877	55,694	88,061
Gulf Coast & Prairies	73.53%	55.87%	91.19%	10,807	5,954	15,660	111,896	49,013	174,780	9,619	4,150	15,089
Post Oak Savannah	58.10%	51.65%	64.55%	123,649	108,560	138,738	1,333,024	1,103,155	1,562,893	90,582	71,874	109,289
Blackland Prairies	48.84%	26.92%	70.75%	13,668	8,221	19,115	151,898	58,156	245,639	9,352	3,580	15,125
Cross Timber	63.71%	57.48%	69.94%	114,748	100,108	129,389	1,192,208	971,111	1,413,304	98,598	77,992	119,203
South Texas Plains	76.95%	71.20%	82.70%	85,505	72,574	98,436	832,734	627,674	1,037,795	131,731	85,477	177,985
Edwards Plateau	78.45%	74.54%	82.36%	172,599	155,496	189,703	1,391,675	1,174,739	1,608,611	215,632	177,715	253,550
Eastern Rolling Plains	72.39%	64.29%	80.50%	51,812	41,490	62,134	435,152	316,044	554,259	53,173	38,738	67,609
Southern High Plains	66.67%	13.30%	100.00%	1,907	6	3,958	8,919	33	23,716	1,069	4	2,462
Trans Pecos	65.00%	38.00%	92.00%	6,357	2,624	10,091	39,461	9,035	69,887	3,741	959	6,523
Western Rolling Plains	63.28%	52.71%	73.85%	40,686	31,466	49,907	338,932	226,491	451,372	35,004	23,263	46,744
Urban	50.00%	0.00%	100.00%	636	2	1,821	4,324	16	12,448	267	1	964

Table 16. 2016-17 white-tailed deer weapon usage, regardless of success.

Weapon	Reported Use				Estimated Hunters
	Count	Percent	L95CI	U95CI	
Archery	428	20.77%	19.01%	22.52%	153,406
Muzzleloader	72	3.49%	2.70%	4.29%	25,807
Other	18	0.87%	0.47%	1.28%	6,452
Rifle	1,943	94.27%	93.27%	95.28%	696,419

Table 17. 2016-17 white-tailed deer mean weapon days, regardless of success.*

Weapon	Reported Use				Estimated Days
	Count	Mean	L95CI	U95CI	
Archery	428	9.40	8.54	10.27	6,947,009
Muzzleloader	72	4.51	3.60	5.42	3,334,468
Other	18	7.78	3.91	11.64	5,745,546
Rifle	1,942	11.26	10.78	11.74	8,316,798

* Of those that reporting using it at least one day.

Table 18. 2016-17 white-tailed deer harvest weapon.

Weapon	Reported Use				Estimated Harvest
	Count	Percent	L95CI	U95CI	
Archery	175	8.06%	6.78%	9.34%	58,097
Muzzleloader	15	0.71%	0.32%	1.10%	5,117
Other	14	0.63%	0.29%	0.96%	4,515
Rifle	1,792	90.60%	89.22%	91.98%	652,915

Table 19. 2016-17 tag usage on white-tailed deer.

Tag	Reported Use				Estimated Harvest
	Count	Percent	L95CI	U95CI	
Hunting License	1,624	77.02%	73.14%	80.90%	555,046
LAMP	10	0.55%	0.17%	0.93%	3,965
MLDP	332	22.13%	18.24%	26.03%	159,500
WMA	5	0.30%	0.00%	0.60%	2,135

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