

ARIZONA GAME AND FISH DEPARTMENT

FY2019/2020 CHRONIC WASTING DISEASE REPORT
Wildlife and Sport Fish Restoration Act Fund

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ARIZONA GAME AND FISH DEPARTMENT

CHRONIC WASTING DISEASE FY2019/2020 REPORT

EXECUTIVE SUMMARY

The Arizona Game and Fish Department (AGFD) has been surveying for chronic wasting disease (CWD) for the past 24 years. The Department continues monitoring efforts to detect the introduction of CWD in the state. During the 2019/2020 collection season, a total of 1,248 samples were tested. To date, CWD has not been detected in Arizona populations.

Over the past several years, the Department has focused on increasing sample size in areas of highest concern and placed less focus on the centralized units in the state. The areas of highest concern include the game management units (GMUs) on the northern (high risk) and eastern (high and medium risk) portions of the state, as well as samples from animals harvested outside of Arizona that are brought into the state. This year, program personnel made efforts to increase sample sizes in these areas by recruiting new businesses in AGFD regions with high risk units and setting up a voluntary check station on the eastern side of the state. Despite these efforts, during 2019/2020, samples collected in high risk units accounted for only 37.4% (n=453) of samples collected from Department GMUs; this is down from 2018/2019 (55.3 %) and well below the average for the previous 5 sampling years (52.6%). We also fell short of the sampling quotas for medium risk units set forth at the beginning of the 2019/2020 season by 16.3% (49 samples). However, we exceeded our quota for sampling efforts in low risk units. The number of samples collected from medium risk GMUs (n = 251) fell short of the sampling quota of 300 by 49 samples. The number of samples collected from the low risk GMUs (n = 508) was the most since the 2011/2012 sampling season. Samples tested from out of state harvests accounted for 1.4% (n = 18), down from 4.8% (n = 63) in 2018/2019.

The Department will continue to conduct surveillance for CWD because of the impact of the disease on deer and elk populations where it currently occurs and the need to rapidly identify introduction of the disease in Arizona's elk and deer. In the event CWD is detected in Arizona, a response plan and subsequent management options are in place.

INTRODUCTION

Chronic wasting disease is a fatal neurologic disease affecting free-ranging and captive cervids and is characterized by progressive weight loss, abnormal behavior, and eventual death. Species affected include mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), red deer (*Cervus elaphus*), elk (*Cervus elaphus canadensis*), moose (*Alces alces*), and reindeer (*Rangifer tarandus*). Chronic wasting disease belongs to a group of diseases called transmissible spongiform encephalopathies (TSE). CWD is similar to scrapie in sheep and bovine spongiform encephalopathy (also known as mad cow disease) in cattle as well as variant Creutzfeldt-Jakob disease (vCJD) in humans. These disease syndromes are associated with the accumulation of abnormal prions, a cell regulation protein, in the brain of affected animals. The youngest animal

diagnosed with clinical CWD was 6 months (Gear et al. 2010), suggesting a minimal incubation period for the disease. However, without knowing when an animal first becomes infected, the length of incubation cannot be known for certain (Williams et al. 2002). Our understanding of the behavior of the disease in free-ranging deer and elk is increasing dramatically. Recent work has shown that does can transmit the disease to fawns at a very early age (Nalls et al. 2013). Most of what is known about the spread of CWD is based on captive animals. The data suggest that in an area where CWD occurs, older animals are more likely to be infected and are the source for lateral transmission in a population (Williams and Young 1980). Chronic wasting disease was first identified in captive deer in Colorado in 1967 and has since been detected in both captive and free ranging cervids in 26 states, four Canadian provinces, Norway, Finland, and Sweden (CDC 2020). Arizona is currently a CWD-free state but it shares borders with three states where CWD occurs: Utah, Colorado, and New Mexico.

The Department began conducting CWD surveillance in 1998 and has since collected over 23,000 samples. Samples are acquired through four different processes: a reimbursement program established with taxidermy and meat processor businesses throughout Arizona, at the check station on the Kaibab Plateau, by regional personnel from hunter-harvested animals, and targeted/opportunistic surveillance.

OBJECTIVES

Surveillance

1. To conduct hunter-harvested and targeted/opportunistic surveillance of both deer and elk throughout the state of Arizona.
2. To maximize surveillance efforts in areas bordering CWD-positive states in Region 1 (FOR1), Region 2 (FOR2), and Region 5 (FOR5) (Figure 1).
3. To maximize sampling of cervids harvested outside of Arizona that are brought back into the state.

Communications

1. To disseminate messages through the news media, Department e-newsletters, websites, and other electronic/print communications to the general public in order to promote understanding of agency actions, provide accurate information about CWD, and gain their cooperation in CWD sample collection.
2. To provide information to hunters going out of state and out of state hunters coming to AZ regarding the regulations for harvest transport across state lines and the need to adhere to the regulations to reduce the possibility of introducing CWD into new areas.
3. To provide training as needed to Department personnel and outside entities on proper sample and data collection.

4. To inform AGFD personnel about CWD sample distribution in the state.

METHODS

Surveillance

Hunter-Harvested Sample Collection

Samples were obtained from hunter-harvested animals by several methods. On the larger deer hunts located in the Kaibab Plateau, Department personnel were present to immediately collect samples. In addition, AGFD law enforcement personnel often collected CWD samples during their hunt patrol duties. Hunters could also directly submit heads of harvested animals to one of seven AGFD locations for testing.

As in previous years, we partnered with various meat processors and taxidermists and trained them to collect samples throughout the state. This collaboration has saved the program a considerable amount of time and money. These businesses collected and stored samples and pertinent information (i.e. hunt number, GMU, date of kill, hunter name and phone number, species, and sex) until they could be picked up. The meat processors and taxidermists were compensated per head or sample submitted. In accordance with surveillance objectives, we asked businesses to focus on collecting samples from animals in Arizona's high risk CWD areas, and also requested samples from deer and elk harvested in out-of-state and tribal lands. Starting in the 2013/2014 sampling season, we increased compensation for animals harvested outside of Arizona to encourage submission and saw a six-fold increase in out-of-state sample submission. The current compensation rates are \$10/head for Arizona animals and \$15/head for out-of-state animals. The testing results of animals harvested out-of-state were communicated to the respective management agency

Due to the discontinuation of federal grant programs, the Department collaborated with tribal wildlife management agencies to cover their CWD testing expenses. Samples collected by tribal wildlife management agencies were shipped directly to Colorado State University Veterinary Diagnostic Laboratory for testing or shipped to AGFD for submission to the diagnostic laboratory.

Targeted and Opportunistic Animal Sample Collection

Wildlife managers in each region were instructed to collect fresh samples from deer and elk killed by vehicle collisions and those found dead of no apparent cause. These animals are grouped together as opportunistic samples. Wildlife managers were also responsible for responding to calls from concerned citizens regarding deer and elk that appeared ill or exhibited abnormal behavior. These animals were often euthanized via gunshot to the heart and lungs. Samples collected from animals displaying symptoms consistent with CWD are categorized as targeted. To date, none of these targeted or opportunistic samples have tested positive for CWD.

Sample Distribution

Arizona has been divided into risk areas since 2010/2011 based on proximity to states where CWD has been found in wild cervid populations. GMUs were grouped based on their locations and categorized as high risk, medium risk, and low risk (Figure 1). For populations within each risk area, rough population size estimates of cervids (estimated from AGFD's survey data) were

used to determine a sample size that would allow for the detection of a 1% prevalence of CWD at a 95% confidence interval. The desired sample size were 650 samples from high risk, 300 samples from medium risk, and 350 samples from low risk areas.

Age of the animal and minimum incubation period of the disease was also taken into account in sampling efforts. Due to the relatively long incubation period of the disease and the low prevalence found in animals under one year of age, focus was placed on properly aging animals prior to sample collection and increasing the number of samples obtained from older age classes. For our surveillance purposes and ease of classification by taxidermists, meat processors, hunters, and wildlife managers, samples were classified into one of three categories: juvenile (<1.5 years), sub-adult (1.5 years to 2.5 years), or adult (>2.5 years).

Diagnostics

In the 2019/2020 season, we contracted Colorado State University Veterinary Diagnostic Laboratory (CSUVDL) to perform our testing. The medial retropharyngeal lymph node was the predominant sample collected and submitted for testing. Medial retropharyngeal lymph nodes are the preferred sample for testing deer. When not obtainable, the tonsil, parotid lymph node, or submandibular lymph node were collected and submitted. Additionally, the obex was collected from elk when available and of good quality because prions may be found there before they are found in the lymphoid tissues in this species. Testing was performed via the Bio-Rad enzyme linked immunosorbent assay (ELISA) and any suspect cases were confirmed by immunohistochemistry (IHC).

Communications

Hunters are informed about CWD as part of the Hunter Education curriculum, the AGFD website, and information inserts in hunting regulations.

The data collection forms (head tag) that were implemented during 2013/2014 sampling season provide unique numbers for sample identification. This identification number (head tag number) was discontinued during the 2018/2019 season. Instead, hunters could access their results by contacting Wildlife Health Program personnel via phone or email. In the case of a CWD detection, AGFD will contact the hunter to inform them of a positive results.

At the start of the sample collection season, Department Wildlife Health staff offered hands-on training sessions in sampling techniques to AGFD personnel. Training was also provided to university students who volunteered with AGFD to collect CWD samples.

At the end of the sampling season an annual report is completed and is made accessible to all Department personnel through the AGFD U-drive (a department-wide shared folder) and to the public on the Department website.

RESULTS

We completed the bulk of our sampling by the end of February 2020. A total of 1,259 samples were collected and 1,248 samples were tested. CWD was not detected in any samples. We received information from Montana Fish, Wildlife, and Parks specifying that an animal harvested in Montana tested positive for CWD. We contacted the hunter who had already been informed by Montana Fish, Wildlife and Parks; the hunter submitted the appropriately packaged meat to the Department for disposal.

Surveillance

Hunter-Harvested Sample Collection

Hunter-harvested animals accounted for 1,226 (98.2%) of the 1,248 submitted samples. The collection of these samples was accomplished by AGFD personnel and participating taxidermists and meat processors. Hunter-harvested samples came from Arizona, tribal lands, and out-of-state hunts.

On the larger deer hunts located on the Kaibab Plateau (FOR2), AGFD personnel were present and collected a total of 250 samples at the Jacob Lake check station. Wildlife Health personnel and volunteers were present at the check station for five weekends from October to December during elk and deer hunts. Across the state, AGFD law enforcement and regional personnel collected samples, from 157 hunter-harvested animals and 8 targeted animals. AGFD personnel as a whole collected 459 samples across the state representing 36.8% of the total samples collected.

The Wildlife Health Program coordinated with 15 businesses and one federal agency during the 2019/2020 sampling season. Taxidermists and meat processors collected a total of 789 samples which accounted for 63.2% of the samples collected. Thirteen of these samples were obtained from tribal lands and those samples are included in the data published in this report.

Of the 789 samples collected by businesses, a total of 17 hunter-harvested animals came from out-of-state (2 from Colorado, 1 from Wyoming, 8 from New Mexico, 1 from Montana, 2 from Texas, and 3 from Utah). This was a sharp decline from the 2018/2019 sampling season when 63 hunter-harvest samples were submitted from out-of-state. Additionally, one opportunistic sample from New Mexico was submitted by New Mexico State University. AGFD will continue to stress the importance of collecting CWD samples from out-of-state harvests as we closely monitor importation of potentially contaminated meat or animal products. All test results and hunt information have been provided to each state.

Tribal wildlife management agencies collected 104 samples during the 2019/2020 CWD season. All 104 samples were shipped to CSUVDL for testing. As in past seasons, AGFD covered the testing expenses for these samples.

Targeted and Opportunistic Animal Sample Collection

Across the state, AGFD personnel collected samples from a total of 22 animals consisting of 5 targeted animals and 17 opportunistic animals (6 roadkill animals and 11 animals that were

found dead). The Wildlife Health Program will continue to collect samples from targeted and opportunistic animals throughout the year.

Sample Distribution

The sampling quotas set forth for this season consisted of 650 samples from high risk areas, 300 samples from medium risk areas, and 350 samples from low risk areas. Overall, we tested a total of 453 samples from our designated high risk areas, including 293 samples from FOR2 on the Kaibab Plateau, 116 samples from FOR1, and 44 samples for FOR5 along the border with New Mexico. A total of 251 samples were tested in the medium risk areas and 508 samples were tested in the low risk areas. Tables 1 and 2 provide species breakdowns by GMU and risk assessment areas, respectively. In addition, Figure 2 shows the number of samples collected in each GMU.

A focus of the past several years has been to increase sample size in areas of highest concern and place less emphasis on the centralized units in the state. This has resulted in a decrease in the total number of samples tested, but an increase in the proportion of samples from high risk regions (Figure 3). The number of samples obtained from high risk areas peaked at 747 (57.6%) during the 2013/2014 season (Figure 3). In 2019/2020 a total of 1212 samples were collected from AGFD GMUs and only 37.4% (453 of 1212) of samples were obtained from high risk GMUs. Although we did not meet our sample quota for this sampling season, this could be partly due to a decrease in available tags in the high risk units. Samples collected in the high risk units on the northern border of the state (GMUs 12A, 12B, 13A, and 13B) accounted for 24.2% (293 of 1,212) of the total samples collected from AGFD units. Samples from the high risk units along the eastern border of the state (GMUs 1, 2A, 2B, 2C, 27, 28, 29 and 30A) accounted for 13.2% (160 of 1,212) of the total samples from AGFD GMUs that were tested. Samples collected from medium risk areas increased only slightly from 245 during the 2018/2019 season to 251 during the 2019/2020 season. Samples from low risk areas were markedly higher in 2019/2020, accounting for 41.9% of the total samples collected from AGFD units. This is notably higher than average proportion of samples collected in low risk areas during the past 5 years (2014/2015 through 2018/2019), when only 25.2% of samples came from low risk GMUs.

An additional focus of the past five years has been to increase the number of samples taken from older animals (sub-adult and adult age classes). In the 2019/2020 sampling season, we remained relatively consistent with the previous year, with 938 samples collected from adult animals, 103 collected from sub-adults, and 151 collected from juveniles. During the 2018/2019 sampling season, 1083 samples were collected from animals in the adult age class, 154 samples were collected from sub-adults, and 60 samples were collected from juveniles. Table 4 provides species breakdowns for each age class for the past six sampling seasons. During the 2019/2020 sample season, we collected samples from 45 animals estimated to be >5 years old (34 mule deer, 10 white-tailed deer, and 1 elk).

Diagnostics

During the 2019/2020 sampling season, we sent 1,248 samples to CSUVDL for testing. All ELISA results were negative (or no detection) for all samples collected from deer and elk within

Arizona (n = 1,230). Of the samples collected from out of state (n = 18), there were no CWD detections.

Miscellaneous Sample Collections

During the 2019/2020 sampling season, an additional 10 samples were collected but not submitted for testing. Eight of these samples were collected during the Kaibab Youth Hunt for training purposes. Since the samples were collected from juvenile mule deer, these samples were not submitted for testing. One sample from a roadkill event was not submitted because it was collected from a juvenile elk. One sample was collected and documented by AGFD Wildlife Health staff but was reported to be missing when the shipment arrived at CSUVDL. Lastly, a sample collected in Unit 3B was submitted by the Pinetop office but contained insufficient data (lacking species, age, sex, type of surveillance). This sample was submitted for testing and resulted in no detection of CWD. These samples were not included in any of the analysis, tables, or figures in this report.

Communications

During the 2019/2020 reporting season, 5 CWD documents (Appendices A, B, C, D, and E) were produced in the format of mailed letters and booklet inserts. Table 3 details document type, distribution date, distribution method, and the number of documents distributed.

In order to gain support from hunters in CWD sample collection, information inserts were placed in the 2019 Pronghorn Antelope and Elk Hunt Draw Information (Appendix A) and in the 2019-2020 Arizona Hunting and Trapping Regulations (Appendix B). These inserts encouraged hunters to submit samples for testing. The AGFD website (<https://www.azgfd.com/wildlife/diseases/>) contains current information about CWD as well as details pertaining to the AGFD's surveillance program.

Hunters were able to contact Wildlife Health personnel if they wanted results for their harvested animal. Personnel responded to CWD result inquiries within 48 hours, or immediately after results became available. All data is available to AGFD personnel through the U-drive. An email was sent out informing AGFD personnel of its availability. This report will be made available in a similar manner.

FUTURE MONITORING EFFORTS

During the 2019/2020 sampling season CWD was not detected in any of the 1,248 samples submitted. This year's sampling efforts remind us that our relationships with taxidermists and meat processors play an irreplaceable role in CWD monitoring in Arizona, and in testing samples from out-of-state harvests. AGFD must continue to ensure that samples are collected from out-of-state harvests and animal carcasses are disposed of at licensed and regulated landfills. The Department has instituted rules regarding the importation of carcasses from outside the state and will be increasing enforcement. The Department needs to continue to monitor for infractions in order to better understand the level of risk this mode of transmission represents for Arizona wildlife. Department personnel will continue to sample targeted and opportunistic individuals throughout the remainder of the year. Sampling efforts will resume in the fall of 2020 on hunter-harvested deer and elk.

The risk based approach will continue for the 2020/2021 sampling season. Efforts for sample collection in high risk GMUs will increase with additional, focused efforts along the eastern and northern border of the state. We will attempt to maintain sample collection efforts in medium and low risk areas based on GMUs with higher cervid densities. As harvest quotas are constantly changing, we will continue to encourage meat processors and taxidermists to collect samples from animals harvested in high and medium risk units, as well as those animals harvested out of state for the protection of Arizona cervids. We will aim to further refine and improve the collection of high quality samples by increasing the proportion of samples collected from older animals. The Department will continue to work with taxidermists and meat processors, recruiting new participants when possible, and hunters will be urged to voluntarily submit samples.

LITERATURE CITED

Centers for Disease Control and Prevention [CDC]. 2020. Chronic Wasting Disease (CWD). <<https://www.cdc.gov/prions/cwd/occurrence.html>>. Accessed 31 Mar 2020. (website)

Grear, D. A., M. D. Samuel, J. A. Langenberg, and D. Keane. 2010. Demographic patterns and harvest vulnerability of chronic wasting disease infected white-tailed deer in Wisconsin. *Journal of Wildlife Management* 70:546-553.

Nalls, A.V., E. McNulty, J. Powers, D.M. Seelig, C. Hoover, N.J. Haley, J. Hayes-Klug, K. Anderson, P. Stewart, W. Goldmann, E.A. Hoover, and C.K. Mathiason. 2013. Mother to offspring transmission of chronic wasting disease in Reeves' muntjac deer. *PLoS ONE* 8(8):e71844. doi: 10.1371/journal.pone.0071844.

Williams, E.S., M.W. Miller, T.J. Kreeger, and T. E. Thorne. 2002. Chronic wasting disease of deer and elk: a review with recommendations for management. *The Journal of Wildlife Management* 66:551-563.

Williams, E.S. and S. Young. 1980. Chronic wasting disease of captive mule deer: a spongiform encephalopathy. *Journal of Wildlife Diseases* 16:89-98.

Table 1. Number of CWD samples collected during the 2019/2020 season in each GMU separated by species.

Game Management Unit	Species			Total Samples Tested	Total Positive
	Elk	Mule Deer	White-tailed Deer		
1	62	5	0	67	0
2A, 2B, 2C	6	1	0	7	0
3A and 3C	6	13	0	19	0
3B	4	0	0	4	0
4A and 4B	10	1	0	11	0
5A and 5B	36	5	3	44	0
6A	54	8	13	75	0
6B	7	6	4	17	0
7	34	3	0	37	0
8	12	6	0	18	0
9	19	3	0	22	0
10	18	4	0	22	0
11M	7	0	0	7	0
12A	0	275	0	275	0
12B	0	11	0	11	0
13A	0	3	0	3	0
13B	0	4	0	4	0
15A and 15B	0	3	0	3	0
16A	0	2	0	2	0
17A, 17B, 19A, 19B	2	12	0	14	0
18B	0	2	0	2	0
20A	0	19	0	19	0
20B	0	5	0	5	0
20C	0	12	0	12	0
21	2	5	30	37	0
22	29	13	37	79	0
23	15	12	19	46	0
24A	0	1	7	8	0
24B	0	0	7	7	0
26M	0	2	0	2	0
27	14	18	10	42	0
28	0	8	0	8	0
29	0	1	17	18	0

Table 1 continued. Number of CWD samples collected and tested during the 2019/2020 season in each GMU separated by species.

Game Management Unit	Species			Total Samples Tested	Total Positive
	Elk	Mule Deer	White-tailed Deer		
30A	0	13	5	18	0
30B	0	25	8	33	0
31	0	3	10	13	0
32	0	12	12	24	0
33	0	5	9	14	0
34A	0	3	31	34	0
34B	0	1	4	5	0
35A	0	1	10	11	0
35B	0	0	12	12	0
36A	0	7	18	25	0
36B	0	6	24	30	0
36C	0	8	9	17	0
37A	0	3	0	3	0
37B	0	3	1	4	0
38M	0	1	0	1	0
39	0	1	0	1	0
41	0	3	0	3	0
42	0	4	0	4	0
43A and 43B	0	11	0	11	0
44A	0	1	0	1	0
45A	0	1	0	1	0
Kaibab	0	3	0	3	0
San Carlos Apache	2	0	8	10	0
Unknown	1	3	1	5	0
Out-of-state	7	9	2	18	0
Total	347	590	311	1248	0

Table 2. Arizona hunter-harvested and targeted CWD samples collected and tested by assessed risk area during the 2019/2020 sampling period.

Region	Species	Hunter Harvested	Targeted/ Opportunistic^a	Total Tested
High Risk - FOR 1	Elk	75	7	82
	Mule Deer	23	1	24
	White-tailed Deer	10	0	10
High Risk - FOR 2	Elk	0	0	0
	Mule Deer	292	1	293
	White-tailed Deer	0	0	0
High Risk - FOR 5	Elk	0	0	0
	Mule Deer	21	1	22
	White-tailed Deer	22	0	22
Medium Risk - FOR 1	Elk	11	1	12
	Mule Deer	12	1	13
	White-tailed Deer	0	0	0
Medium Risk - FOR 5	Elk	0	0	0
	Mule Deer	77	1	78
	White-tailed Deer	148	0	148
Low Risk	Elk	243	1	243
	Mule Deer	139	6	144
	White-tailed Deer	119	0	120
Tribal Lands	Elk	2	0	2
	Mule Deer	2	1	3
	White-tailed Deer	8	0	8
Out-of-state	Elk	6	1	7
	Mule Deer	9	0	9
	White-tailed Deer	2	0	2
Unknown		5	0	5
Total		1,226	22	1,248

^a Targeted/Opportunistic samples include animals displaying clinical symptoms of CWD that were euthanized, roadkill specimens, and animals found dead of no apparent causes.

Table 3. CWD communication documents produced in the 2019/2020 sampling period.

Document Type & Abbreviated Title	Distribution Date	Distribution Method	Distribution Number	Appendix
Statewide media news hunt regulations insert: <i>“Hunters can Help Monitor Arizona Elk Health – Submit Elk Heads for CWD Testing”</i>	Spring 2019	2019 Pronghorn Antelope and Elk Hunt Draw Information	Unknown	A
Statewide media news hunt regulations insert: <i>“Protecting Arizona Deer and Elk from Chronic Wasting Disease”</i>	Spring 2019	2019-2020 Arizona Hunting and Trapping Regulations	Unknown	B
Recruitment letter to area taxidermists and meat processors (did not cooperate in program in past years) asking for CWD sample collection	August 2019	Mailed letter	5	C
Letter to area taxidermists and meat processors (sent with sampling kits) detailing sample emphasis for the 2019/2020 season	August 2019	Mailed letter	15	D
Letter to area taxidermists and meat processors thanking them for their participation in the 2019/2020 sampling season and a certificate of appreciation	April 2020	Mailed letter	15	E

Table 4. Arizona hunter-harvested and targeted CWD samples. Grouped by age class and collected and tested during the 2014/2015, 2015/2016, 2016/2017, 2017/2018, 2018/2019, 2019/2020 sampling periods. Total tested does not include samples with unknown age classification.

Sampling Season	Species	Age Class		
		Juvenile	Sub-Adult	Adult
2014-2015	Elk	14	53	353
	Mule Deer	19	221	424
	White-tailed Deer	5	50	178
	Total Tested	38	324	955
2015-2016	Elk	6	40	347
	Mule Deer	16	245	378
	White-tailed Deer	12	52	191
	Total Tested	34	337	916
2016-2017	Elk	11	36	290
	Mule Deer	26	114	472
	White-tailed Deer	10	33	228
	Total Tested	48	183	994
2017-2018	Elk	10	33	311
	Mule Deer	24	133	502
	White-tailed Deer	21	32	288
	Total Tested	55	198	1101
2018-2019	Elk	21	13	310
	Mule Deer	22	131	512
	White-tailed Deer	17	10	261
	Total Tested	60	154	1083
2019-2020	Elk	36	23	276
	Mule Deer	105	40	410
	White-tailed Deer	10	40	252
	Total Tested	151	103	938

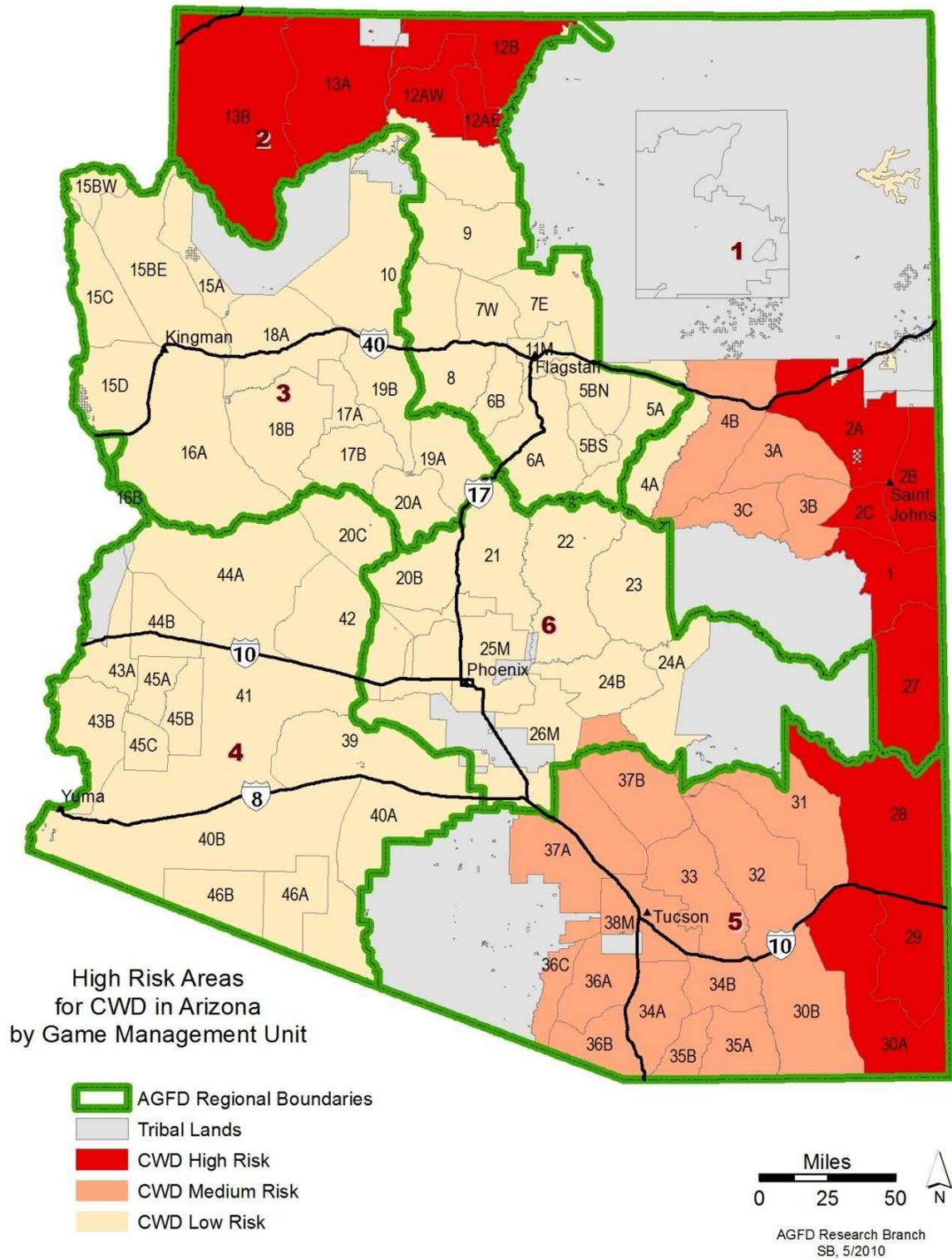


Figure 1. Map of Game Management Units in Arizona classified by risk of CWD occurrence.

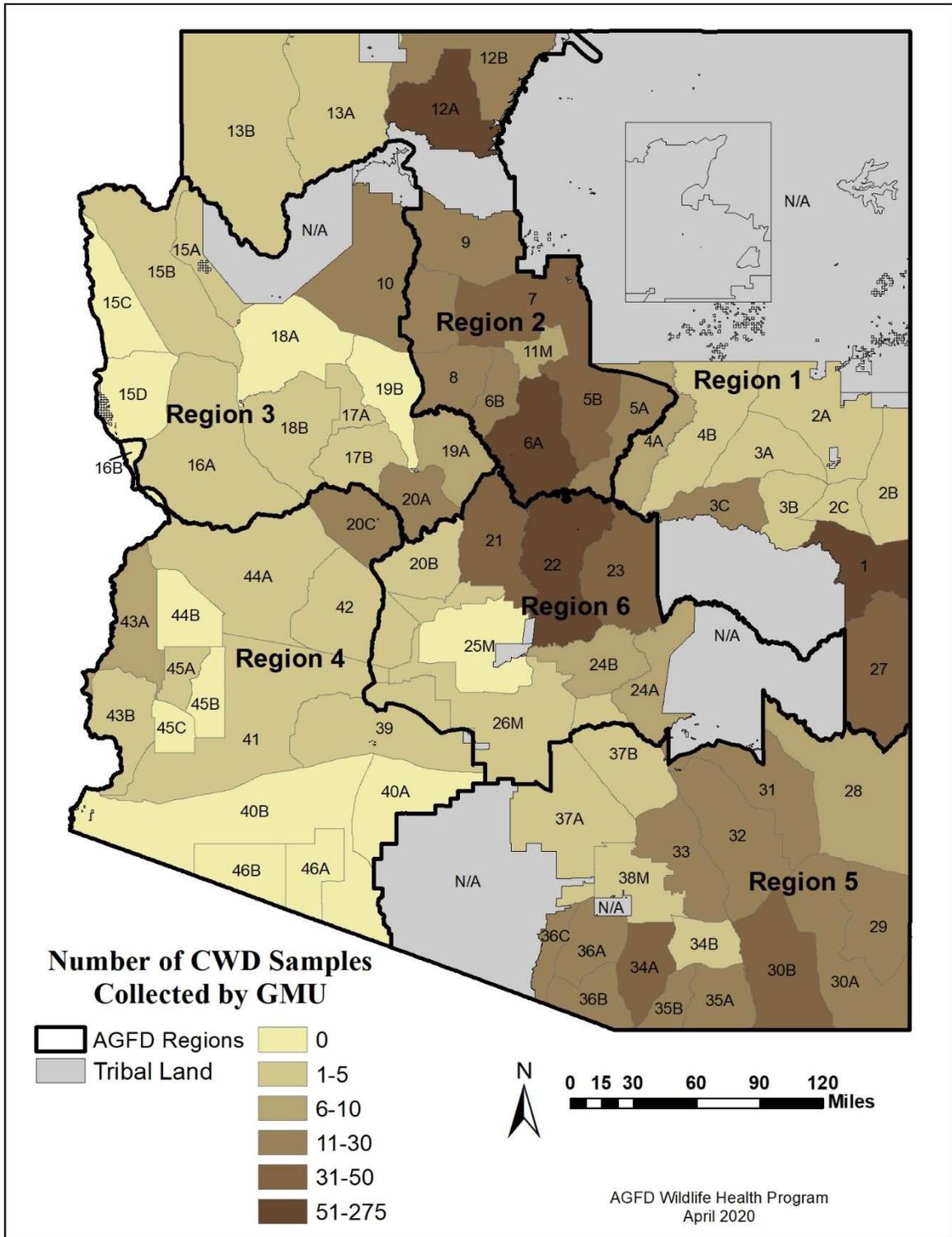


Figure 2. Map showing the number of CWD samples in each Game Management Unit (GMU) during the 2019/2020 sample collection season. For animals harvested during hunts that took place in multiple GMUs, the total number of samples was divided between the possible GMUs. Does not include samples for which the GMU was unknown.

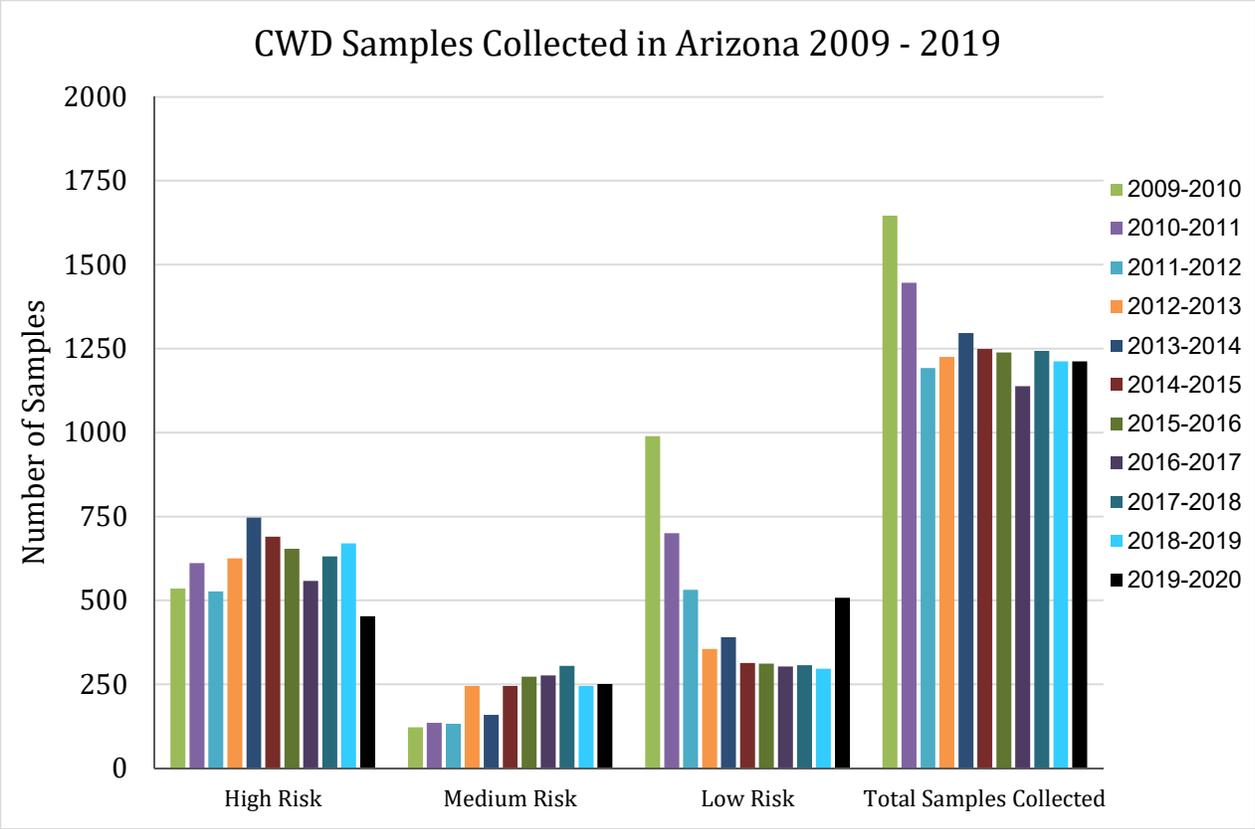


Figure 3. Number of CWD samples collected in Arizona each sampling season since 2009 broken down by designated risk area. Does not include those samples collected from unknown Game Management Units, tribal lands, or out of state.

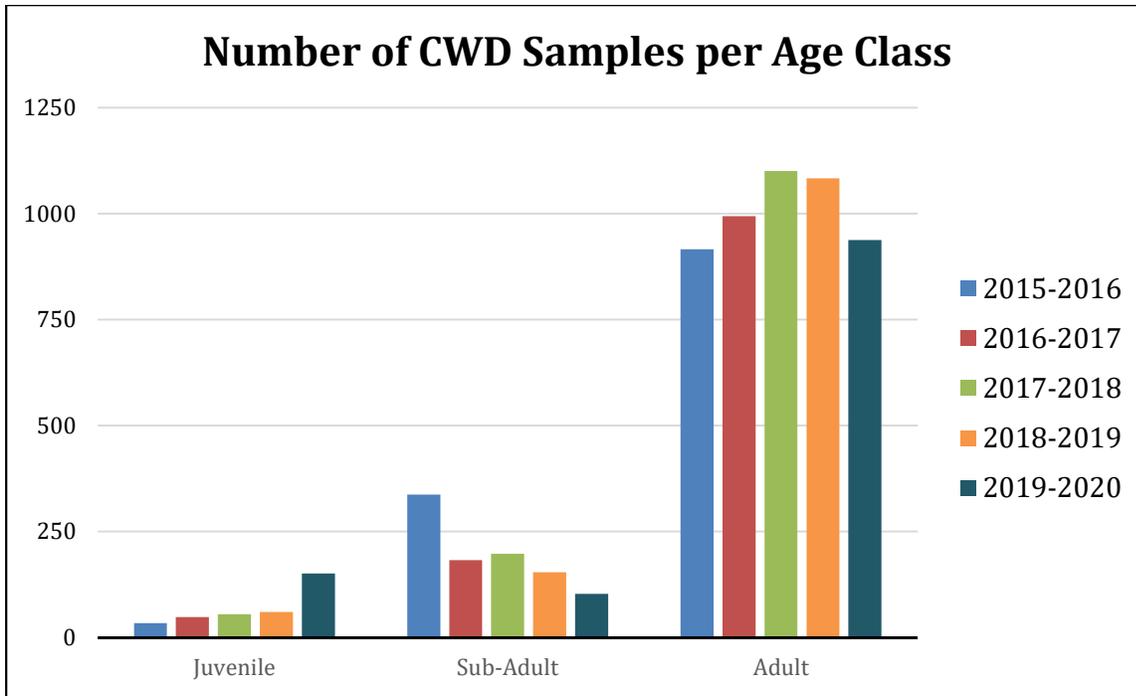


Figure 4. Number of CWD samples collected during the 2015/2016, 2016/2017, 2017/2018, 2018/2019, and 2019/2020 sampling seasons broken down by age class. See Table 4 for species and age classifications.

Elk Hunts

Elk Notes continued:

26. Antelope Mountain Hunt Area in Unit 1 - That portion of Unit 1 beginning at the junction of AZ Hwy 260 and FR 118; north on FR 118 to FR 8911; north on FR 8911 to State Trust Land; continuing north on dirt road through State Trust Land to U.S. Hwy 60 between mile post 374 and 375; east on AZ Hwy 60 to Main Street in Eagar; south on Main Street to U.S. Hwy 260; west on AZ Hwy 260 to FR 118. For a map and more information regarding this hunt go to the Department's website under Where To Hunt, Region, then Unit 1 (www.azgfd.gov/hunting/units/pinetop/1).
27. Coon Canyon Hunt Area in Unit 1 - That portion of Unit 1 beginning at the junction of AZ Hwy 260 and AZ Hwy 373; south on AZ Hwy 373 to Hall Creek; east on Hall Creek to the Little Colorado River; east along the Little Colorado River to Hobson Canyon; southeast along Hobson Canyon to FR 8070A (70A); east on FR 8070A (70A) to AZ Hwy 261; south on AZ Hwy 261 to FR 8070C (70C); east on FR 8070C (70C) to FR 285 (Water Canyon Road); north of FR 285 (Water Canyon Road) to School Bus Road in Eagar; east on School Bus Road to Main Street in Eagar; north on Main Street to AZ Hwy 260; west AZ Hwy 260 AZ Hwy 373. Hunts within this hunt area may overlap with other scheduled hunts of a different weapon-type occurring within the full unit. For a map and more information regarding this hunt go to the Department's website under Where To Hunt, Region, then Unit 1 (www.azgfd.gov/hunting/units/pinetop/1).
28. Flat Top Hunt Area in Unit 1 - That portion of Unit 1 beginning at the junction of Main Street in Springerville and U.S. Hwy 60; south on Main Street to School Bus Road in Eagar; west on School Bus Road to FR 285 (Water Canyon Road) in Eagar; south on FR 285 (Water Canyon Road) to FR 74/76; east on FR 74/76 to Forest Trail 607 (Saffel Canyon Trail); east on Forest Trail 607 to U.S. Hwy 191; southeast on U.S. Hwy 191 to Nutrioso Creek; north along Nutrioso Creek to U.S. Hwy 60; west on U.S. Hwy 60 to Main Street in Springerville. Hunts within this hunt area may overlap with other scheduled hunts of a different weapon-type occurring within the full unit. For a map and more information regarding this hunt go to the Department's website under Where To Hunt, Region, then Unit 1 (www.azgfd.gov/hunting/units/pinetop/1).
29. The following Pima County parks and preserves are open to hunting: A-7 Ranch in Units 32 and 33. Hunting in County Parks, opened by this Commission Order, is not permitted within ¼ mile of any developed picnic area, developed camp ground, shooting range, occupied building, boat ramp, or golf course. Developed areas do not include trails.
30. The elk hunting season in Unit 11M is closed within ¼ mile of an occupied residence or building within the Flagstaff corporate limits.
31. 3B North Hunt Unit - That portion of Unit 3B located north of U.S. Hwy 60.
32. Rogers Lake Coconino County Natural Area in Unit 6B and Observatory Mesa City of Flagstaff Natural Area in Unit 11M are open to elk hunting but are closed to all cross-country vehicle travel; motorized big game retrieval is prohibited as motorized travel is only allowed on open Forest Service roads. Hunting is not permitted within ¼ mile of any occupied building, wildlife viewing platform, picnic area, or trailhead.
33. Unit 4A North - That portion of Unit 4A beginning on the northern boundary of the Apache-Sitgreaves National Forest at East Clear Creek; north along East Clear Creek to the Little Colorado River; east along the Little Colorado River to Chevelon Creek; southerly along Chevelon Creek to the northern boundary of the Apache-Sitgreaves National Forest to East Clear Creek.
34. Hopi Trust Lands in Units 4A, 5A, and 5B North - The Hopi Tribe Wildlife & Ecosystems Management Program requires all AZGFD State Certified/Licensed Outfitters and Guides who conduct business (guide, pre-scout, or request access on behalf of their clients) on the Hopi 3 Canyon Ranches in Units 4A, 5A, and 5B North to contact the Hopi Tribe Office of Revenue Commission at (928) 734-3673, (928) 734-3672 or (928) 734-3671 Monday-Friday 8am-5pm (MST) to obtain an annual Hopi Tribal Business License. Upon approval of a Hopi Tribal Business License, access to the Hopi 3 Canyon Ranch may be obtained via email at hopi-hunts@hopi.nsn.us or by calling numbers listed above.
35. The Arizona Game and Fish Department has entered into a Landowner Compact Agreement with the Boquillas-Diamond A Ranch. The Boquillas-Diamond A Ranch encompasses the entire western half of Unit 10, about 720,000 acres. This hunt may have restricted access. Applicants should secure access before applying; visit the Ranch's website for details, www.Hunt-BigBoRanch.com.
36. For hunts in Units 5A and 5B North, the Arizona Game and Fish Department has entered into

Hunters can Help Monitor Arizona Elk Health – Submit Elk Heads for CWD Testing

Bring the head of your recently harvested elk to any Game and Fish Department office between 8 a.m. and 5 p.m., Monday through Friday (office addresses are listed on page 3). Department personnel will collect a tissue sample for Chronic Wasting Disease (CWD) testing. **Hunters that are successful in Units 1, 2, 3, 27, 28, and 31 are especially encouraged to submit heads because these units are close to New Mexico, a state that has detected CWD in deer and elk.**

It is best if the head has been kept cool and is submitted within a day of harvest. The head may be placed in a garbage bag for delivery. You will be asked to provide information about your harvested elk (hunt number, permit number, game management unit, and date of harvest) and where you can be reached (phone number) in case the test is positive. No CWD has been detected in Arizona's deer or elk to date.

CWD results can be found here:
<http://azgfdeservices.com/cwdlogin.aspx>

Keep CWD out of Arizona

To protect Arizona's deer and elk herds from Chronic Wasting Disease, new regulations have been placed on movement of animal parts into the state.

Hunters are required to take these precautions when hunting deer or elk out-of-state:

- Do not bring the brain, intact skull, or spinal column into Arizona.

The following elk or deer parts harvested out-of-state are OK to bring back into Arizona:

- Boneless portions of meat, or meat that has been cut and packaged;
- Clean hides and capes with no skull or soft tissue attached;
- Antlers, clean skull plates or skulls with antlers attached with no meat or soft tissue remaining;
- Finished taxidermy mounts or products; and
- Upper canine teeth (buglers, whistlers, ivories) with no meat or tissue attached.

CWD is present in the neighboring states of Utah, Colorado, and New Mexico, as well as many other popular hunting destinations for deer and elk. Some states have strict regulations governing carcass movement, so we encourage you to contact the wildlife agency where you travel for any applicable regulations.

Deer Hunts

Deer Notes continued:

38. Hopi Trust Lands in Units 4A, 5A, and 5B North - The Hopi Tribe Wildlife & Ecosystems Management Program requires all AZGFD State Certified/Licensed Outfitters and Guides who conduct business (guide, pre-scout, or request access on behalf

of their clients) on the Hopi 3 Canyon Ranches in Units 4A, 5A, and 5B North to contact the Hopi Tribe Office of Revenue Commission at (928) 734-3673, (928) 734-3672 or (928) 734-3671 Monday-Friday 8am-5pm (MST) to obtain an annual

Hopi Tribal Business License. Upon approval of a Hopi Tribal Business License, access to the Hopi 3 Canyon Ranch may be obtained via email at hophunts@hopi.nsn.us or by calling numbers listed above.

Protecting Arizona Deer and Elk from Chronic Wasting Disease

Chronic Wasting Disease (CWD) has not been detected in Arizona's deer or elk, and we want to do everything we can to keep it that way. CWD has been detected in deer and elk in 26 states and three Canadian provinces, and is having a negative impact on populations in several states. CWD is present in the neighboring states of Utah, Colorado and New Mexico, as well as many other popular hunting destinations for deer and elk.

If you hunt out of state, you may only bring the following animal parts into Arizona (R12-4-305):

- Boneless, packaged meat
- Finished taxidermy mounts
- Cleaned skulls/skull plates and hides without any meat or soft tissue (this includes velvet)
- Teeth (buglers, whistlers, ivories) without any tissue attached

If you are a non-resident coming to Arizona to hunt, check with your state regarding regulations governing carcass movement, and importation of meat and wildlife parts.

The Arizona Game and Fish Department has increased surveillance for CWD and needs your help! Please bring the head of your recently harvested deer or elk to any Game and Fish Department office between 8 a.m. and 5 p.m., Monday through Friday (office addresses are listed on page 3). Department personnel will collect a tissue sample for CWD testing.

Hunters that are successful in Units 1, 2, 3, 27, 28 and 31 are especially encouraged to submit heads because these units are close to New Mexico, a state that has detected CWD in deer and elk. It is best if the head has been kept cool and is submitted within a day of

harvest. The head may be placed in a garbage bag for delivery. You will be asked to provide information about your harvested deer (hunt number, permit number, game management unit and date of harvest) and where you can be reached (phone number) in case the test is positive.

If CWD enters Arizona, our best chance for successful management lies with early detection. Thank you in advance for your assistance in conservation of Arizona wildlife.

For more information on CWD, please visit www.azgfd.com/Wildlife/Diseases/.

DRAW ODDS INFORMATION:

The draw odds tables have been removed from the publication.

Please go to www.azgfd.com/Hunting/surveydata/ to access the information.

Your Hunter Questionnaire is Important!
Be sure to respond at
www.azgfd.gov/huntersurvey

Appendix C. Recruitment letter to new taxidermists and meat processors that had not cooperated in past sampling years asking for CWD sample collection for the 2019/2020 sampling season. Risk area map and data sheet provided.



Month, Day Year

Dear *Name of Business*,

This fall, the Arizona Game and Fish Department (AGFD) will again collect deer and elk lymph nodes for our Chronic Wasting Disease (CWD) Surveillance Program. As in the past, we are soliciting the help of local taxidermists and meat processors in order to attain our target sample size and get a wide geographic representation of samples.

If your business is willing to participate, the Department will provide financial compensation in return for collecting, labeling, and storing the lymph nodes, as well as completing the accompanying CWD data collection form (see attached). The compensation rate for the 2019-2020 sampling season is \$10 for samples collected from animals harvested in-state, and \$15 for samples collected from animals harvested outside of Arizona. The following will be required of all businesses participating in the 2019-2020 sampling season:

1. All individuals who will be sampling lymph nodes must participate in AGFD training, which we will provide at your place of business.
2. Samples must be stored in a freezer until they can be picked up by department personnel. Program personnel will contact businesses every 2 weeks to organize sample pick-ups. Businesses can request additional pick-ups at any time by contacting the Wildlife Health Program.
3. Businesses must be sure that all crucial data (i.e., hunter name; phone number; hunt and permit numbers; and species, harvest date, and animal's approximate age) is complete and legible on the data cards before submitting samples. Reimbursements will not be made for cards missing these data. The bottom portion of the head tag must be torn off and given to the hunter to allow them to view test results online.
4. Both the business and AGFD will keep a written record of samples collected. Businesses must submit an invoice at the end of the sampling season to be reimbursed. Please confirm sample numbers with program personnel before submitting an invoice. Reimbursement typically occurs mid-March to early April.

AGFD has divided the state into high, medium and low risk areas based on proximity to states where CWD has been found in wild cervid populations (see attached map). We ask that businesses concentrate sample collection efforts on animals harvested from the high and medium risk Game Management Units (GMU). However, we encourage businesses to collect all samples received from throughout the state, as well as those brought in from other states or at the hunter's request.

If you decide to participate in the CWD Surveillance Program, AGFD will provide training, sampling kits, sample collection instructions, and a map of risk designations of GMUs. These supplies will be delivered in August. Additional supplies will be provided upon request.

Taxidermists and meat processors play a very important role in our program as they often collect the majority of our samples. We sincerely appreciate the help we receive from our local businesses in keeping Arizona a CWD free state. Thank you for your support of the CWD Surveillance Program, we hope that your business will be interested in participating in the 2019-2020 sampling season. If you have any questions, comments or concerns regarding the program, please feel free to contact me at any time.

Sincerely,

Jon Heale
Wildlife Health Biologist
Arizona Game and Fish Department
5000 W. Carefree Hwy
Phoenix, AZ 85086
jheale@azgfd.gov
Office: 623-236-7227
Cell: 970-570-9154

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5000 W. CAREFREE HIGHWAY, PHOENIX AZ 85086

GOVERNOR: DOUGLAS A. DUCEY **COMMISSIONERS:** CHAIRMAN, ERIC S. SPARKS, TUCSON | KURT R. DAVIS, PHOENIX
LELAND S. "BILL" BRAKE, ELGIN | JAMES E. GOUGHNOUR, PAYSON | JAMES S. ZIELER, ST. JOHNS **DIRECTOR:** TY E. GRAY **DEPUTY DIRECTOR:** TOM P. FINLEY

Appendix D. Letter to area taxidermists and meat processors sent with sampling kits for the 2019/2020 sampling season.



Month, Day Year

Dear *Name of Business*,

I would like to thank you again for your willingness to participate in the 2018/2019 Chronic Wasting Disease (CWD) Surveillance Program. We sincerely appreciate the time and effort that you will be putting forth in sample collection this season.

The Arizona Game and Fish Department continues to place greater emphasis on sample collection from the high and medium risk Game Management Units (GMU) within the state (see enclosed map). This year, our program will also be requesting an increase in sampling efforts along the New Mexico border due to rising concerns over the state's CWD status. We encourage you to collect samples from all animals received from our areas of high and medium risk and especially those brought in from other states. Please collect samples from low risk GMUs as well, but realize that limits will be placed on the number of samples that will be collected from these GMUs later in the sampling season. Compensation will remain at \$10 for all completed data cards and corresponding samples from animals harvested within Arizona. We will continue to pay \$15 for each completed data card and corresponding sample collected from animals harvested outside of Arizona.

In addition to the CWD program, this year the department is seeking your assistance in collecting the unusable portions of bighorn sheep skulls. We are investigating a disease that causes tumors to grow within the sinuses. I have included several informational pamphlets with the enclosed CWD kits. Donated skulls should be kept frozen and labeled with the hunter's name, harvest date, and GMU. We will collect skulls during our bi-weekly CWD pickups.

Thank you again for your support of the CWD Surveillance Program and helping to verify that Arizona remains CWD free. As always, please feel free to contact me with any questions or concerns regarding either of these programs.

Sincerely,

Jon Heale
Fish and Wildlife Health Biologist
Arizona Game and Fish Department
5000 W. Carefree Hwy
Phoenix, AZ 85086
jheale@azgfd.gov
Office: 623-236-7227
Cell: 970-570-9154

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GOVERNOR: DOUGLAS A. DUCEY COMMISSIONERS: CHAIRMAN, JAMES S. ZIELER, ST. JOHNS | ERIC S. SPARKS, TUCSON | KURT R. DAVIS, PHOENIX
LELAND S. "BILL" BRAKE, ELGIN | JAMES R. AMMONS, YUMA DIRECTOR: TY E. GRAY DEPUTY DIRECTOR: TOM P. FINLEY

Appendix E. Letter to area taxidermists and meat processors thanking them for their participation in the 2019/2020 sampling season and a certificate of appreciation.



Month, Day Year

Dear *Business Name*:

I would like to thank you for your participation in our Chronic Wasting Disease (CWD) Surveillance Program during the 2019/2020 collection season. We have submitted XXX deer and elk samples for testing. At this time, Arizona is still a CWD free state.

Participating meat processors and taxidermists collected XXX samples this season. These samples accounted for XX% percent of the total samples collected throughout the state. The Arizona Game and Fish Department could not obtain adequate statewide surveillance without the assistance of meat processors and taxidermists, for which we are very appreciative.

Due to the change to Arizona Game and Fish Commission Rule R12-4-305 we have been asking for increased sampling of harvested animals that are brought in from outside the state. This year, area taxidermists and meat processors collected XX samples from elk and deer harvested in states outside of Arizona. We appreciate your help in ensuring that samples are collected from these individuals and that animal carcasses are disposed of at a licensed and regulated landfill. These efforts prevent the introduction of CWD in Arizona by ensuring that contaminated carcasses do not enter the state and are properly discarded.

We are pleased to present you with the enclosed certificate of appreciation. I look forward to working with you again next year and thank you again for your generous support of the CWD Surveillance Program.

Sincerely,

Jon Heale
Wildlife Health Biologist
Arizona Game and Fish Department
5000 W. Carefree Hwy
Phoenix, AZ 85086
jheale@azgfd.gov
Office: 623-236-7227
Cell: 970-570-9154

cc: Terrestrial Wildlife Branch Chief
Wildlife Health Specialist

azgfd.gov | 602.942.3000

5000 W. CAREFREE HIGHWAY, PHOENIX AZ 85086

GOVERNOR: DOUGLAS A. DUCEY COMMISSIONERS: CHAIRMAN, JAMES S. ZIELER, ST. JOHNS | ERIC S. SPARKS, TUCSON | KURT R. DAVIS, PHOENIX
LELAND S. "BILL" BRAKE, ELGIN | JAMES R. AMMONS, YUMA DIRECTOR: TY E. CRAY DEPUTY DIRECTOR: TOM P. FINLEY

Appendix E. continued, Letter to area taxidermists and meat processors thanking them for their participation in the 2019/2020 sampling season and a certificate of appreciation.

ARIZONA GAME AND FISH DEPARTMENT

Certificate of Appreciation



presented to

Name of Business

*For your assistance during
the 2019-2020 Chronic
Wasting Disease Surveillance
Program.*

Jon Heale, Wildlife Health Biologist



Dr. Anne Justice-Allen, Wildlife Health Specialist