Kinzua Quality Deer Cooperative

Annual Report

December 2020

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KQDC Coordinator – John Dzemyan

KQDC Partners – USFS, Allegheny National Forest; USFS, Northern Research Station; Allegheny National Forest Visitors Bureau; Bradford Municipal Water Authority; Conservation Forestry; Forecon; Generations Forestry Inc.; Kane Hardwood (a Collins Pine Company); RAM Forest Products; Sand County Foundation of Madison, WI; Penn State Cooperative Extension; Pennsylvania Hunters. AHUG: Allegheny Hardwoods Utilization Group. University of Pittsburgh, Bradford Pa. campus.

Leadership Team – Ken Kane, Susan Stout, Collin Shephard, Alex Royo, Mary Hosmer, Mike Bleech, David deCalesta, Linda Devlin, Brad Nelson, Kevin McAleese, Tom Kase, Scott Knapp, Barry Cunningham, John Dzemyan.

Check Stations for 2020 - Mary Hosmer, Emily Reams, Lisa Barlow, Larry Wise, Wendy Anderson, Matt O'brien, John Dzemyan,

Pellet Group Transects for 2020 – John Dzemyan, Brad Nelson, (ANF Lab Routes) Dan Imbrogono and Chuck Kirkpatrick on Collins Pine Kane Hardwood Lands, and Gunner Emburg for Generations Forestry on Bradford Watershed

Trail Cameras for 2020 – Mike Bleech, John Dzemyan

Hunter Car Count Surveys for 2020
North Route = Scott and Regina Knapp,
South Route = Larry Wise, Wendy Anderson, Lisa Barlow.

Executive Summary
This year marks the 20th year for the KQDC.

In 2000 a group of private landowners, public land managers, scientists, hunters, and others came together to form the 74,000 acre Kinzua Quality Deer Cooperative (KQDC) in McKean County, PA. Common goals included improving deer herd quality, forest ecosystem health, and the hunting experience.

Annually, a report is issued that includes a summary of all data collected that year and trends that may be evident. This year's report covers the progress of work beginning in January of 2020 to December 2020. The report includes an analysis of deer density and habitat conditions from transects that were accomplished, deer herd sex and age composition drawn deer harvest information obtained from check station, hunter numbers from annual car counts during the first two days of the rifle season along with other endeavors of the KQDC for 2020.

As everyone knows for the year 2020, the world wide Covid-19 Pandemic impacted the normal work functions of just about everyone. KQDC work was no exception. Normally 26 transect routes are completed to gather important data about deer populations and habitat conditions. This year only 50% of the routes were completed. (13 of them) Staff that normally completes them was reduced due to Covid – 19 which limited who could work or ride in vehicles, limited numbers of people working in ANF and Timber Company offices, limited the ability to have training sessions for new and part time staff. Many people ended up working from their homes to reduce human contacts that could spread the virus, which in turn limited some of the work that could be completed. Also, some of the lowest timber prices in 50 years reduced some timber company staffs which also reduced people available to do some of their parts of the annual KQDC work.

The annual KQDC October Deer Season Kickoff which would have been in its sixth year was cancelled due to Covid-19. This event has been the main outreach to the public by KQDC and is a great source of information to local and visiting hunters and the general public.

In spite of the impacts, the limited KQDC staff and volunteers were still able to gather enough information from enough of the landscape to update deer numbers and habitat conditions with reliable, although reduced, amounts of data.

Yet there were bright spots in 2020.

A heartfelt thanks to this year's Check Station staff and volunteers and to the car count staff and volunteers. 57 deer were brought into the check station which is the highest number of deer brought in by hunters since 2009. Mary Hosmer again led the check station work all four days this year while still meeting the requirements of social distancing due to Covid-19 with masks, gloves, hand sanitizer and social distancing. And nearly all of the hunters were

courteous, respectful and cautious and we thank them for their extra effort bringing their deer to the check station.

Car counts were completed the first two days as usual. The south route was done the first two days plus the first Monday by ANF workers. The north route was done by volunteer husband and wife team Scott and Regina Knapp. Another heartfelt thank you to those who did the car counts in 2020. Car counts have been slowly trending upward since 2016 until 2020.

Another bright spot this year was a capstone paper done by a student at the University of Pittsburgh Bradford Pa. Campus. KQDC leadership team member Ken Kane made arrangements with UPB college student Emily Reams to do the paper as part of her college requirements. The group decided that a 20 year summary of KQDC data and accomplishments would be a good paper for her to work on. (as of December 27th she is working on the final draft of her report) Emily also spent three days working the Timberdoodle Deer Check Station in 2020 and has become one of the quality deer agers in the process. Numerous parts of her twenty year report are included in this annual KQDC report.

And there are more bright spots.

Information KQDC presented to the Pa. Game Commission by letters and in person testimony at the January meeting. Some of the suggestions by KQDC and many others (including ANF and SAF) were approved, and for the first time Pennsylvania Hunters had a Saturday and Sunday to hunt for the opening of the two week rifle season. No doubt this helped increase the harvest of deer because this year's third day, Monday, which would normally have been either the opener or the second day, (in 2019 for the first time in over 60 years the season opened on Saturday, but did not include hunting on Sunday) the first Monday was a wash out with rain all day. Only two deer were brought to the check station that whole day, imagine if that would have been the regular first day of the season!

KQDC also created, updated and purchased 10,000 new brochures for 2020. They are being spread out via the ANF Tourist Agency and numerous other outlets. There are some other bright spots (positive things) noted in the rest of the report also.

With all things considered, KQDC survived 2020 along with the rest of the world and is looking forward to 2021 with hopes to continue accomplishing the goals set 20 years ago which included, but was not limited to,

Improving deer herd quality, improving forest ecosystem health, and improving the hunting experience!

Summary of data recorded in 2020 shows us that deer density is increasing on the KQDC by about three deer per square mile in 2019 and three deer per square mile again in 2020.

The vegetation data shows that the understory and forest regeneration is beginning to show increased impacts by deer since 2019 even after years of improving. This is happening while vegetation treatments continue to increase the amount of acres that can support naturally occurring regeneration. One of KQDC goals was to reduce the need for fencing to get adequate and diverse regeneration of the native trees and shrubs and other plants that make up a healthy forest ecosystem, this same growth also makes up healthy deer habitat. Presently there is concern about maintaining the improvements that have occurred in the forest regeneration since 2006.

During 2019 and 2020 regeneration harvests 491 more acres and partial harvests 2551 acres. In 2019 one area of 57 acres had to be fenced. In 2020 three separate locations (20 acres, 42 acres, and 73 acres) needed fenced for a total of 135 acres more fencing. All three locations had shelter wood cuts (thinning) prior to being herbicided and fenced. All three had white ash salvaged out of them also. Prior to the fences being installed in 2020 all three locations were receiving heavy deer browsing on existing regeneration. A total of 13,965 acres have had vegetation treatments since 2013. Partial harvests were done on 7923 acres and regeneration harvests were done on 2693. That's a total of 10,616 acres with timber harvests that can improve deer habitat and forest diversity during the last eight years. Deer numbers respond to better habitat conditions by increasing their numbers. In turn, land managers need to find ways to increase harvests to keep them in balance with the habitat.

Check station data also shows us that for the past four years deer weights, both males and females are trending downward. Antler spread and beam diameter is also trending down ward. These are also worrisome indicators for deer health and forest health.

In 2020 of the forty one bucks checked, 21 of them were 3.5 years or older. Their average weight of the 41 bucks was 131 pounds. (down from the 2016 high of 143) The average weight of the does were 95 lbs. (down from the 2016 high of 123 lbs.)

In 2020 DMAP permits were increased on Units 1981 and 1996.

The 2020 annual report covers from September of 2019 to the end of December 2020.

During 2020 KQDC increased its efforts to use Facebook and updated its website to reach out to hunters and the public since meetings and tours were prevented by Covid-19. New contacts were made with Penn State Dubois Campus to arrange for college student to become involved with KQDC.

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INTRODUCTION AND FRAMEWORK OF KQDC

In 2000 a group of private landowners, public land managers, scientists, hunters, and others with the support and guidance of the Sand County Foundation (SCF) came together to form the 74,000 acre Kinzua Quality Deer Cooperative (KQDC Figure 1). Common goals included improving deer herd quality, forest ecosystem health, and the hunting experience. An extensive monitoring program was established to track changes in deer density and habitat, deer harvest, hunter satisfaction, and deer condition (body weights, buck/doe ratios, and antler characteristics). The success of the program has been enhanced by deer management regulations enacted by the Pennsylvania Game Commission that include a three point antler restriction, presently a week of concurrent antlerless and antlered deer seasons, and the Deer Management Assistance Program (DMAP) which started in 2004, Saturday opener in 2019, and in 2020 a Saturday opener with the next day, Sunday, being open to deer hunting for the first time in Pennsylvania's modern hunting history.

Annually a report is issued that includes a summary of all data collected that year and trends that may be evident. Protocols have been described in detail in these past reports. In an effort to streamline the report and reduce the size, this year's report will not repeat the description of protocols and will primarily describe important trends and new findings.

This year's report includes an analysis of deer density and impact from transects that were completed, deer harvest data collected at the check station, and vehicle counts compared to prior years. Some data and information in this year's report 2020 report covers the time period from late fall of 2019 to the end of December 2020.

The 2020 hunting season marked the 19th year under the three-point antler restriction rule and the 17th year of DMAP. Cumulatively, these annual reports provide a record of changes in deer quality (age, weight, antler size), habitat quality (browse impact, tree regeneration), and deer density as DMAP, antler restrictions, and hunting regulations that have changed.

Presently the KQDC is made up of the following landowners as shown in Figure #1.

The KQDC initially participated in DMAP by creating north and south DMAP units as divided by State Route 59. In order to achieve a better distribution of hunters and ultimately a better distribution of deer harvest, the Bradford Water Authority and Collins Pine properties were designated as a separate DMAP unit from the Allegheny National Forest (ANF) in 2012. The result is that the KQDC is now divided into three DMAP Units each with a separate DMAP permits request (Figure 2).

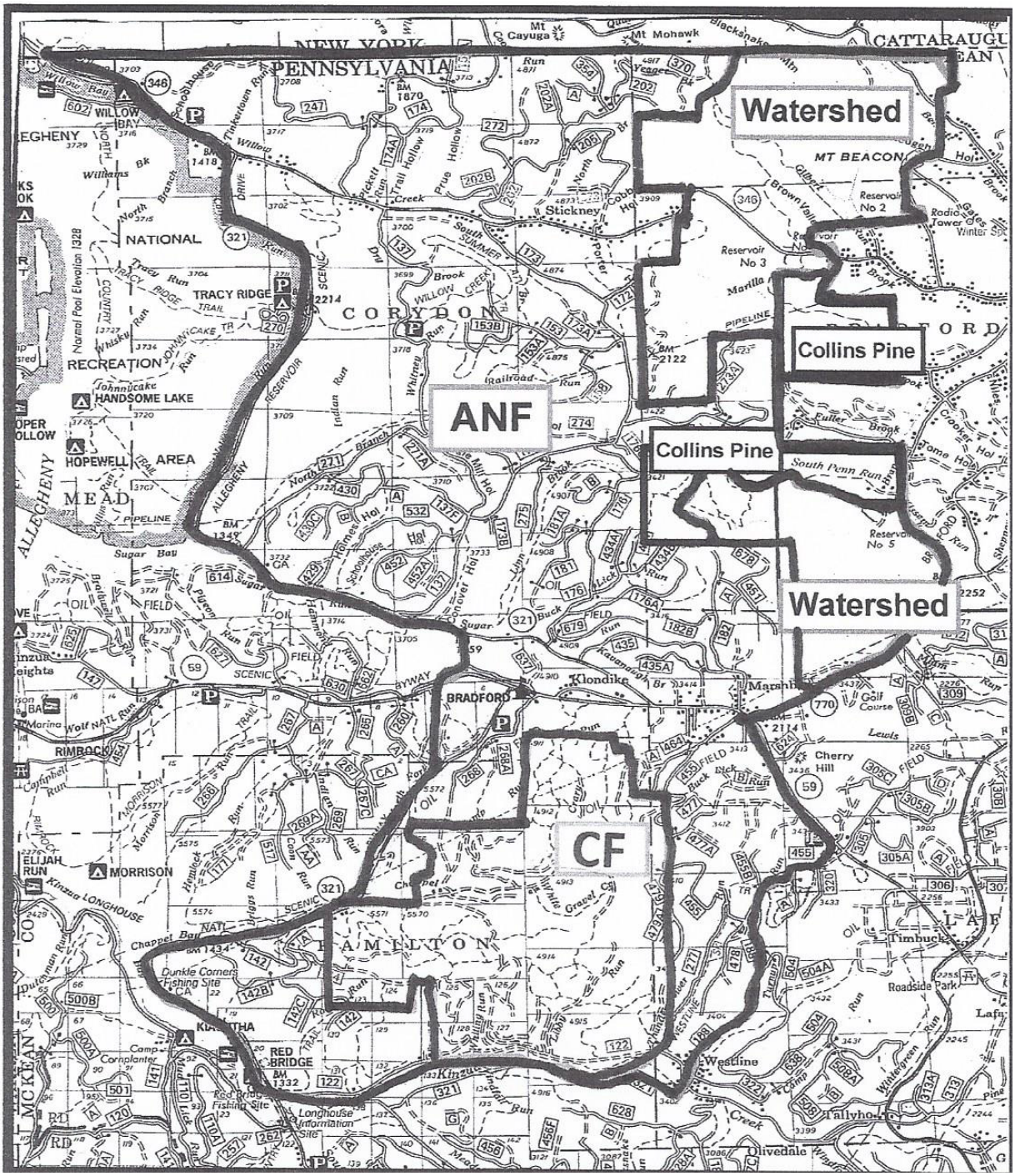


Figure 1. Landowners of the KQDC Project Area. ANF = Allegheny National Forest. CF = Conservation Forestry. Watershed = Bradford Watershed Authority. Collins Pine = Collins Pine

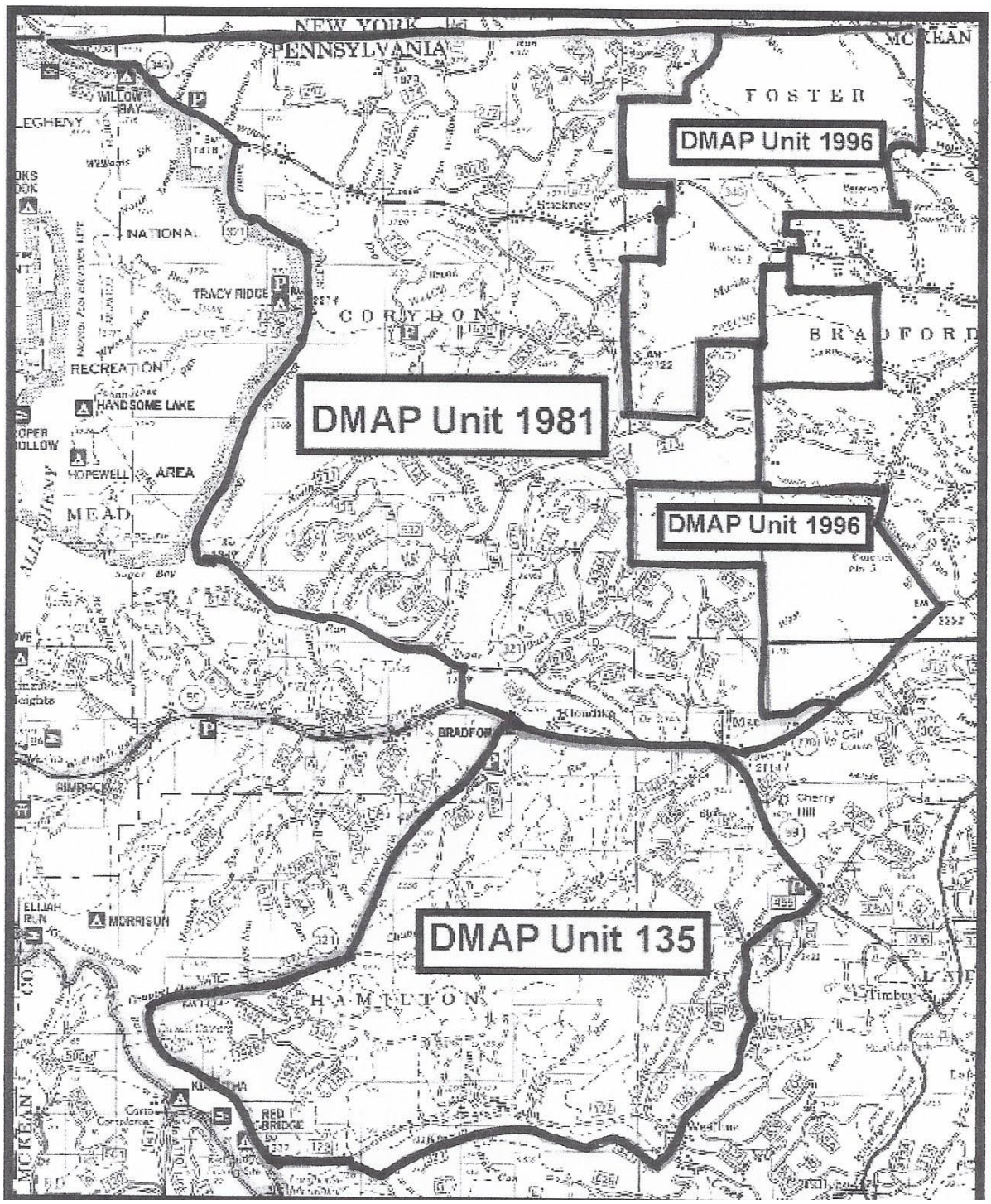


Figure 2. DMAP units within the KQDC: DMAP Unit 1981 (Allegheny National Forest- north), DMAP Unit 1996 (Bradford Water Authority and Collins Pine), and DMAP Unit 135 (Conservation Forestry and Allegheny National Forest-south).

Deer Density and Habitat Conditions

In 2020 only 13 of the 26 transects were able to be completed. DMAP UNITS #1981 and UNIT #1996 were partly completed, but due to lack of available personnel, UNIT 135 was not done. DATA from these two UNITs showed that mean deer density increased to about 26.8 deer per square mile by 2020 compared to the 23 d/psm for those two in 2019 (15.7 d/psm in 2018) (Table 1). Even if we use last year's deer density number from UNIT 135 the KQDC over all density would increase to 22.5 (For UNIT 135 Information from Barry Cunningham of Conservation Forestry is that deer numbers on their tract shows signs of increasing even though they were not able to complete their transects.)

Either way, with or without this year's UNIT 135 data, the rest of the data shows deer population continues to increase, and data about vegetation shows deer impacts on habitat are also increasing. (Table 2) The increase this year was about 3 more deer per square mile. Similar to 2019 data when all 26 transects were completed. This is the highest the deer density has been since 2004 (Table 1).

We can speculate why UNIT 1981 went down slightly and why Unit 1996 went up as much as it did. Reasons are transects done in UNIT 1981 have more of an oak component and in the fall and winter of 2019 to 2020 acorns were scarce. This is from personal observations as well as talking to bear and deer hunters. When acorns are scarce transects with little browse under the oaks carry much lower deer numbers, while transects in northern hardwoods with more browse and more timber salvage harvests can attract and hold more deer.

Hopefully in 2021 we can get all 26 transects completed and return to the larger data base for deer density and vegetation conditions.

When one looks at the deer density in KQDC over the past 20 year's one sees that since 2016 deer numbers overall show a continued increase over the past five years.

Numerous factors can cause this. Such as, the lower deer numbers during the years 2005 to 2014, (those 11 years average 13.8 deer per square mile) which would allow the forest to recover some with browse quantity and some diversity that enable deer to have more feed year round. Also this same increase in browse provides more brushy cover for deer, making seeing them and harvesting them more difficult to do. And those same years (2005 to 2014) had a declining number of hunters using the KQDC according to car counts. (Figure #9) Factors like these allow deer numbers to increase. The result is from 2016 to 2020 increases occurred.

My own observations in 2020 are that even more hunters are commenting they are seeing more deer then the last couple of years. Conversations with hunters, foresters, landowners and others at the check station and in the woods on KQDC and throughout McKean County and the ANF and many areas of northern Pennsylvania are hearing the same thing. Just about everyone I talk to says they are seeing more deer.

Table 1. Mean deer density (deer/square mile) by DMAP Unit

2002 to 2020

YEAR	DMAP Unit 1981	DMAP Unit 1996	Unit 135	Whole KQDC	95% C.I.	Antlerless tags WMU 2F	DMAP Tags
2002	20.8	33.7	32.0	27.3	+ - 3.3	By county	0
2003	27.0	35.6	25.3	28.7	+ - 3.0	44,000	0
2004	22.9	29.1	23.8	24.7	+ - 3.7	44,000	3000
2005	12.1	20.3	13.2	14.4	+ - 1.4	30,000	3000
2006	7.4	14.0	15.1	11.6	+ - 1.8	28,000	700
2007	9.8	17.0	11.9	12.2	+ - 1.2	28,000	150
2008	9.3	24.7	15.3	14.9	+ - 1.3	28,000	300
2009	10.0	22.2	17.3	15.4	+ - 1.3	28,000	550
2010	8.4	26.8	15.8	15.3	+ - 2.7	22,148	800
2011	16.3	25.2	15.6	17.2	+ - 3.5	34,000	800
2012	8.2	13.4	8.9	9.6	+ - 3.7	27,000	800
2013	12.2	22.7	10.7	13.7	+ - 3.2	29,000	905
2014	12.3	18.9	10.9	13.4	+ - 2.2	27,000	1067
2015	12.0	20.2	12.1	14.0	+ -3.1	22,000	1067
2016	10.3	15.2	10.7	11.4	+ - 2.7	22,000	1067
2017	7.7	20.6	12.4	12.2	+ - 3.0	24,000	1067
2018	17.9	18.4	11.2	15.7	+ - 2.5	23,000	967
2019	22.3	24.2	13.9	19.8	+ - 1.0	31,000	1117
2020	18.6	35.1	n/a	26.7	n/a	36,000	1517

Deer density was estimated using the pellet transect methodology described in previous annual reports and published in a peer reviewed journal (deCalesta 2013).

TABLE 2. Over winter deer density for the past 12 years based on spring pellet group transects.

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Site												
A	8.7	7.2	7.4	8.2	7.3		5.6	13.6	6.2	22.7	23.5	18.5
B	4.7	9.9	8.6	8.5	9.1	11.9	17.9	4.0	8.0	28.6	40.0	
C	22.4	4.5	30.3	6.1	10.9	9	10.7	6.8	14.4	19.5	25.3	24.8
D	24.6	14.8	15.8	7.9	8.6	9.5	9.7	12.3	13.0	18.2	17.9	20.0
E	14.0	23.3	5.4	2.8	9.4	4.4	18.1	4.0	5.9	18.0	20.3	
F	17.3	16.2	22.7	4.3	10.6	18.9	10.2	4.9	9.6	10.9	16.9	52.8
G	3.6	4.1	7.5	5.7	24.5	11.3	5.5	5.2	10.5	6.8	7.1	6.8
H	11.2	1.0	17.4	9.8	2.4	6.2	5.1	4.6	6.8	15.6	21.2	13.4
I	26.3	27.3	51.4	13.6	34.3	15.3	22.2	8.1	22.6	16.0	16.2	36.2
J	11.1	29.1		17.9	30.8	19.8	31.7	23.2	16.0	23.9	39.0	48.1
K	26.3	37.0		21.9	29.1	28.3	22.3	27.6	37.6	27.4	37.2	33.0
L	16.7	21.4	28.1	9.3	10.4	12.7	15.6	13.3	3.0	11.7	17.9	30.7
M	10.8	6.8	18.6	10.3	18.6	22.6	18.9	7.1	5.9	15.4	31.9	
N	8.2	5.2	25.7	8.0	19.6	10.5	11.3	11.2	5.3	21.3	27.9	20.9
O	17.3	18.7	9.1	15.3	14.3	18.3	21.5	29.7	10.4	23.5	14.3	
P	27.4	36.3	10.7	15.0		21.5	25.3	23.9	24.9	14.0	17.8	21.3
Q	2.7	8.7	11.2	3.9	9.6	9.7	11.1	8.7	7.7	11.5	17.1	
R	4.3	5.1	8.9	5.5	7.8	10.5	9.1	8.9	6.3	20.0	19.5	20.8
S	4.1	6.0	10.9	7.9	6.4	7.6	2.1	8.8	5.0	19.8	8.3	
T	8.7	4.9	8.7	4.8	6.8	12.7	3.3	8.3	7.4	7.4	12.3	
U	20.2	26.6	17.2	12.2	9.2	9.3	7.3	9.4	6.6	8.5	15.9	
V	24.6	20.4	15.6	11.7	10	10.2	10.8	7.8	17.9	6.8	15.4	
W	22.2	10.5	12.2	8.0	5.8	13.1	17.0	11.7	14.0	10.7	10.0	
X	25.6	17.8	28.2	13.7	16.2	17.3		10.2	18.3	9.9	14.6	
Y	20.1	19.3	14.1	7.7	14.1	14.8	11.5	8.9	16.9	5.7	13.1	
Z	16.2	13.8	27.7	11.5	18.8	8.8	26.3	13.7	19.2	13.8	15.0	
mean	**15.3**	**15.3**	**17.2**	**9.6**	**13.7**	**13.4**	**14.0**	**11.4**	**12.2**	**15.7**	**19.8**	
95% C.I.	**+ - 1.3**	**+ - 2.7**	**+ - 3.5**	**+ - 1.8**	**+ - 3.2**	**+ - 2.2**	**+ - 3.1**	**+ - 2.7**	**+- 3.0**	**+- 2.5**	**+ - 1.0**	
Antlerless WMU 2F (1000s of permits)	**28**	**22.1**	**34**	**27**	**29**	**27**	**22**	**22**	**24**	**23**	**31**	**36**
DMAP	**550**	**800**	**800**	**800**	**905**	**1067**	**1067**	**1067**	**1067**	**967**	**1117**	**1517**

FIGURE 3. TRANSECT LOCATIONS 2001 to 2020

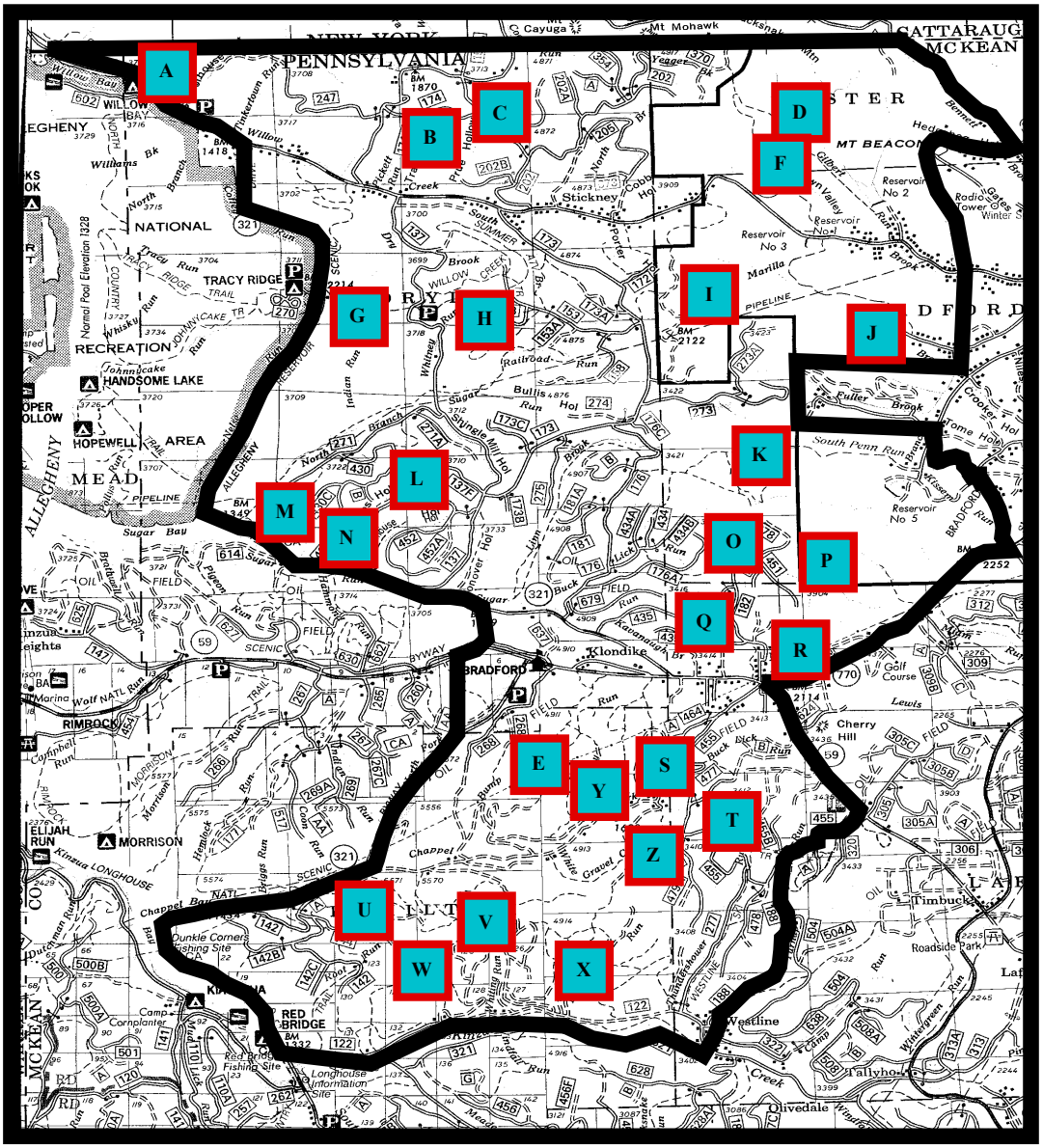


Figure 3. Location of 26 sites where deer density and impact estimates are collected.

Note: In 2020 only 13 sites were completed.

They were sites A, C, D, F, G, H, I, J, K, L, N, R, P.

Data (Table 1) shows the trend from 2016 to 2020 is deer numbers are increasing. This lines up with the PGC information which is why they have increased the total allocation for antlerless deer in 2F four out of the last five years since 2016. KQDC has also started to increase the total DMAP permits when it became apparent that the increased allocations for 2F still allowed deer populations to increase on the KQDC. (Regular antlerless licenses are not legal to use the first five days (now seven days) of the regular two week rifle deer season)

The 2019 and 2020 spring deer densities represent levels approaching levels last seen in 2004 when the DMAP program was first initiated on the KQDC.

For the 2020 hunting season DMAP licenses were increased on UNIT 1981 from 200 (for 2019) to 300 (for 2020). On Unit 1996 they were increased from 500 (for 2019) to 800 (for 2020). On Unit 135 they DMAP permits remained the same for 2020 as they have been the last two years. (417 permits were issued, all sold). In wildlife Management Unit 2F total number of regular antlerless licenses were increase from 23,000 in 2018, to 31,000 in 2019 and to 36,000 in 2020. All DMAP permits for the KQDC sold out in again 2020.

HABITAT and FOREST CONDITIONS

(TABLE 3) Below shows another factor increasing the potential for more deer to live on the KQDC. It is the cumulative number of acres treated over the last 8 years. A total of 14,303 acres have been treated. Of which 10,676 acres had partial harvests or regeneration harvests.

As one can see from the chart of Total Acres treated, Forest Management continues and is increasing to improve forest conditions for forest diversity and wildlife habitat, two of the original and ongoing goals of the KQDC.

Table 3. Vegetation Treatments on the KQDC over the past 8 years (acres)

	2013	2014	2015	2016	2017	2018	2019	2020
Regeneration Harvest	161	381	528	640	279	175	307	222
Partial Harvest	675	807	1061	295	1214	1020	1239	1612
Herbicide	123	101	49	705	0	449	821	868
Fence Removal	100	0	0	219	0	0	52	0
Fence Construction	0	0	0	0	0	0	57	143
Total acres treated	1059	1289	1638	1859	1,493	1644	2476	2507

Table 4. Habitat variables on the KQDC by year.

2002 to 2020

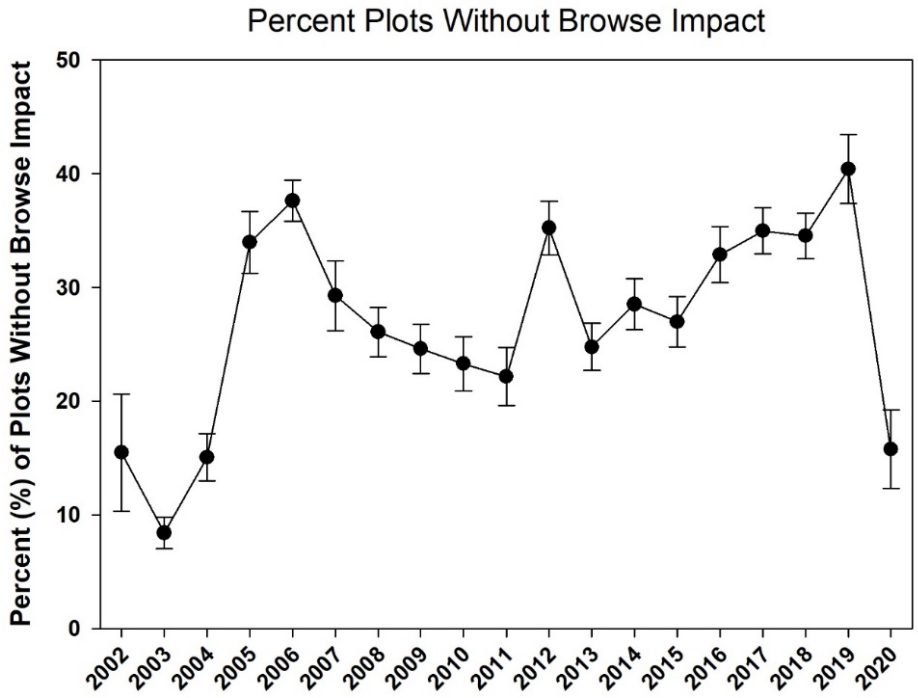
Year	Percent plots without regeneration	Percent of plots with regeneration & no browsing impact	Percent of plots with a closed canopy
2002	59	15	N/A
2003	63	8	N/A
2004	60	15	N/A
2005	53	34	N/A
2006	52	38	N/A
2007	55	28	N/A
2008	53	26	78
2009	55	25	75
2010	55	24	79
2011	50	22	84
2012	41	35	79
2013	49	25	87
2014	43	29	86
2015	58	27	84
2016	53	33	87
2017	50	35	87
2018	50	35	86
2019	44	41	77
2020	52	16	81

Data for several habitat variables and deer densities on those habitats have been collected over the years. (See Figures #1 through #4) Percent of plots with no browse impact, **GRAPH 1**, Percent of plots without regeneration, **GRAPH 2**, Deer Density over time **GRAPH 3**, Percent of plots with open canopy conditions. **GRAPH 4**. (Graphs developed by Alejandro A. Royo, Ph.D. Research Ecologist, USA Forest Service Northern Research Station Forestry Sciences Lab.)

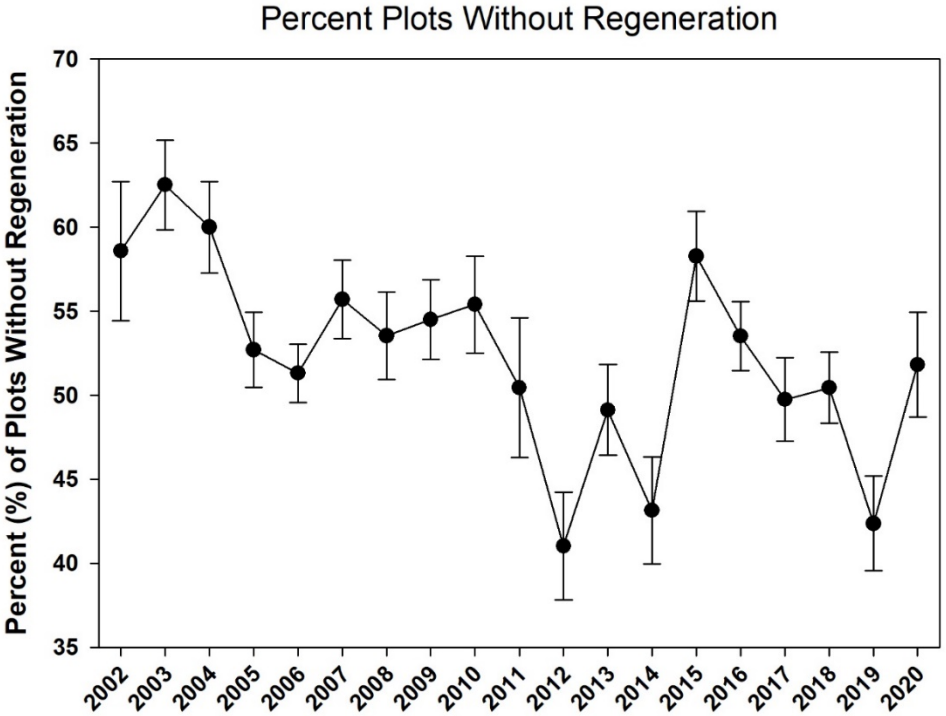
Both understory habitat variables had trended favorably from 2015 – 2019. The percentage of plots lacking regeneration had dropped from 58% to 42% over that period and the percentage of plots with woody regeneration not showing any browse impact increased from 27% to 40%. Both metrics deteriorated in 2020, with plots lacking regeneration increasing to 52% and plots with unbrowsed regeneration dropping to a mere 16%. Over the same period, the percentage of plots with open canopies increased from 12% to a high of 21% in 2019, followed by a slight decline to 18% in 2020. (This may be because plots with more timber operations were in the transects that were not completed in 2020)

Basically, these three variables indicate that increased timber harvesting activity promoted woody regeneration and, at least initially, less browsing impacts were occurring due to reduced deer numbers and increased timber management. Even plots in understory conditions were showing some improvement. Therefore, some of the improvement in understory conditions from 2015 – 2019 are likely attributable to an overall improvement in forest understory conditions across the landscape. Over the last five years the continued rise in deer densities is starting to reverse what had been a positive trend in understory woody regeneration conditions up to this point. In 2020 the data is beginning to show this.

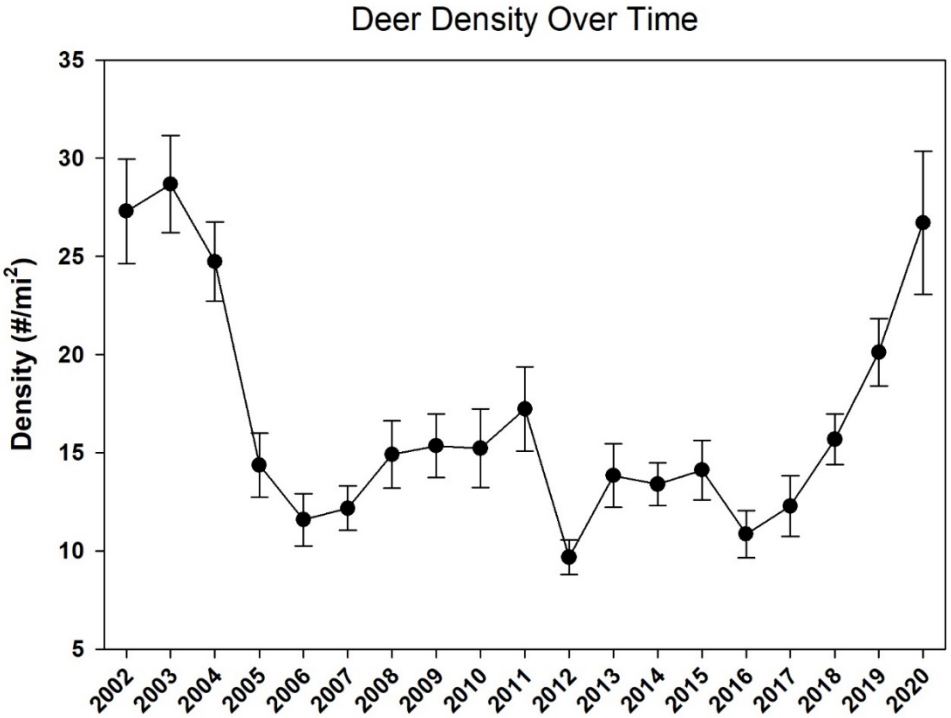
Graph 1



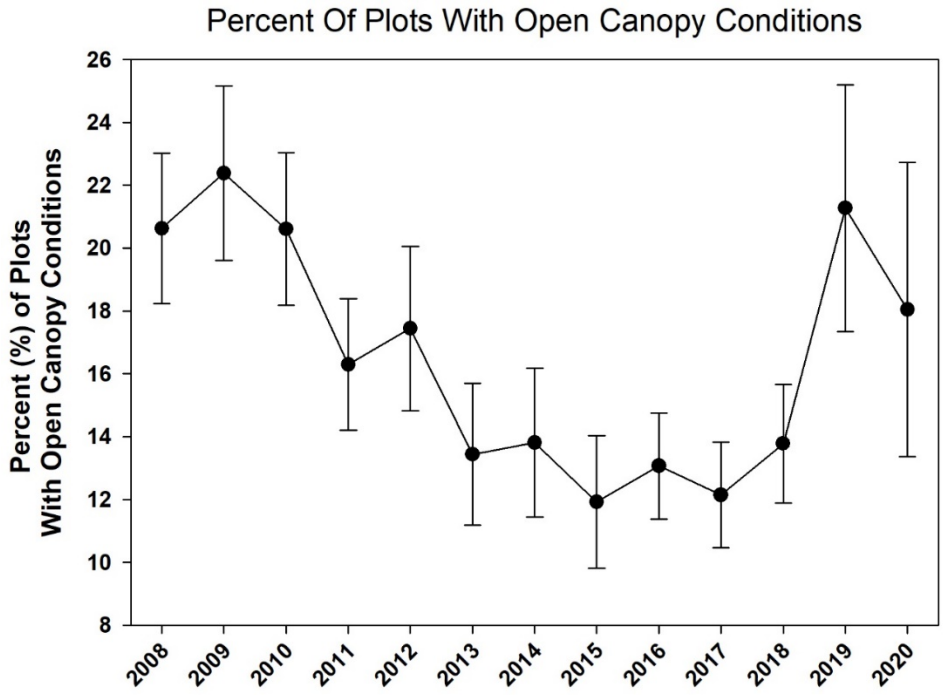
Graph 2



Graph 3



Graph 4



If these trends continue the quality of the deer and the quality of the forest ecosystem will reverse the trend of improving and once again go back to declining. When this happens the number of deer eventually declines also. The quality of the habitat will decline, and future deer hunters will have less deer to see and hunt because there will be less quality deer habitat for the deer to live in. That is exactly what happened from the 1930's and 40's until the present.

At times one hears an argument from some hunters that they would rather see more deer even if the deer are smaller. However, deer that are impacting the habitat to the degree that numerous species of preferred plant foods no longer exist reduce the landscapes ability to maintain a stable number year after year. Deer do not voluntarily decide to eat less on their own. They eat less and are smaller because that's all there is to eat. And they continue to eat as much as they can find under those conditions in an attempt to reach their normal adult sizes in weight, in antler size, in reproductive and recruitment capabilities. The extreme example of this is when deer starve to death in late winter and spring. But long before starvation becomes common there are plenty of other indications of a declining herd. Low weights, small antlers, and low recruitment are all signs that the population is going to decline. (Pennsylvania Game News, Special Issue #1, September 1960.) Having more deer that are smaller than they should be is always accompanied by a long term decline in the deer population.

TABLE # 5 Year 2020 Timberdoodle Check Station Data

DEER #	GENDER	POINTS RIGHT	POINTS LEFT	SPREAD	WEIGHT (gutted out)	AGE	Beam diameter right	Beam diameter left
1	male	3	4	12.5	111	2.5	23	24
2	female	0	0	0	60	7 mo	0	0
3	male	4	4	15	122	3.5	29	29
4	male	3	2	14.5	141	2.5	26	27
5	male	4	6	15.5	133	3.5	30	27
6	male	4	4	17.25	12.7	3.5	29	28
7	male	4	4	15.5	136	2.5	31	30
8	male	4	4	11.25	109	2.5	23	24
9	female	0	0	0	119	2.5	0	0
10	female	0	0	0	47	7 mo	0	0
11	female	0	0	0	90	3.5	0	0
12	female	0	0	0	106	2.5	0	0
13	male	4	4	16.5	171	3.5	39	41
14	male	4	4	18.5	152	4.5	32	31
15	male	4	4	9.75	120	2.5	23	22
16	male	5	5	16.75	*70	n/a	33	34
17	male	4	4	14.5	120	2.5	25	24
18	male	4	4	12.75	144	3.5	23	23
19	male	3	4	8.25	101	1.5	19	20
20	male	7	5	19	149	5.5	38	43
21	male	4	4	12.5	130	2.5	26	24
22	male	4	4	12	146	4.5	37	34
23	male	3	3	15.5	130	3.5	26	25
(Day 2)24	male	4	3	13	121	2.5	21	23
25	male	5	5	15.25	132	3.5	34	31
26	male	4	4	19	134	5.5	31	33
27	female	0	0	0	93	2.5	0	0
28	male	2	3	10	128	2.5	22	24
29	male	4	0	n/a	136	2.5	n/a	23
30	female	0	0	0	120	6.5	0	0
31	male	5	5	18	151	4.5	37	37
32	female	0	0	0	99	7.5	0	0
33	male	4	4	19	162	4.5	30	31

DEER #	GENDER	POINTS RIGHT	POINTS LEFT	SPREAD	WEIGHT (gutted out)	AGE	Beam diameter right	Beam diameter left
(Day 3)34	male	4	4	12.25	122	2.5	26	27
35	female	0	0	0	54	6 mo	0	0
(day 4)36	male	4	4	14.5	115	2.5	34	35
37	male	4	4	16	149	3.5	44	49
38	female	0	0	0	54	7 mo	0	0
39	male	1	1	5.75	83	1yr5mo	13	15
40	male	3	1	7.75	122	1yr7mo	22	22
41	male	4	4	13	134	3.5	41	35
42	male	3	3	15.5	140	3.5	26	27
43	male	4	4	16.6	143	3.5	30	31
44	male	0	0	0	51	7 mo	0	0
45	male	4	5	10.75	n/a	2.5	24	22
46	female	0	0	0	n/a	3.5	0	0
47	male	0	0	0	50	7 mo	0	0
48	female	0	0	0	79	6.5	0	0
49	female	0	0	0	9	1yr5mo	0	0
50	female	0	0	0	71	7 mo	0	0
51	male	0	0	0	62	7 mo	0	0
52	male	3	4	12	101	3.5	22	22
53	female	0	0	0	91	5 mo	0	0
54	female	0	0	0	55	6 mo	0	0
55	male	4	4	12.25	117	2.5	23	24
56	male	5	5	15.75	139	3.5	32	33
57	male	4	4	13.25	141	4.5	28	27

(*deer # 16 was deboned, only the meat was brought in, which was 70 pounds)

In 2020 the number of deer brought to the check station was 57. That is the highest number of deer brought to the check station since 2009.

Numerous factor played a part in this year's increase. 1) It was the first year with a Sunday open for deer hunting. 2) It was the second year with the two week season opening on Saturday. 3) The check station was open four days instead of three. (However, the third day it was open it rained all day, hunters were almost nonexistent as proven by the third days car count. And only two deer were brought in that day. 4) There were more antlerless permits available with and without DMAP permits. 5) Deer populations have been increasing so hunters are seeing more deer. 6) Car counts showed the highest numbers of hunters here over the last seven years. The result is good news.

Hunters brought in more deer which makes the data that is collected more representative of what's out there.

Table 6. Number of antlered and antlerless (male & female) brought to the check stations (2001-2020).

Year	Antlered Deer	Antlerless Deer	Total	Female Antlerless	Male Antlerless	Unsexed
2001	104	48	152	39	9	
2002	71	62	133	48	11	3
2003	87	168	255	145	23	
2004	57	86	143	76	10	
2005	47	44	91	36	8	
2006	54	35	89	30	5	
2007	32	26	58	24	2	
2008	57	28	85	21	7	
2009	44	31	75	26	4	1
2010	40	13	53	10	3	
2011	22	5	27	5	0	
2012	37	4	41	3	1	
2013	31	10	41	8	2	
2014	15	4	19	3	1	
2015	19	7	26	4	3	
2016	21	4	25	3	1	
2017	26	10	36	10	0	
2018	24	15	39	10	5	
2019	21	11	32	8	3	
2020	38	19	57	16	3	

(Tables 5, 6, 7 developed by Emily Reams)

Note, from2001 to 2009 there were three check stations, The Warehouse, RT 59, The Willows, RT 346, and Bobs Trading Post, RT 321) From 2010 to 2015 there were two check stations, (The Warehouse (Harrisons) and the Willows, (in 2011 there was also a roving check station) (in 2012 Marshburg one was at USFS Bradford Ranger Station)

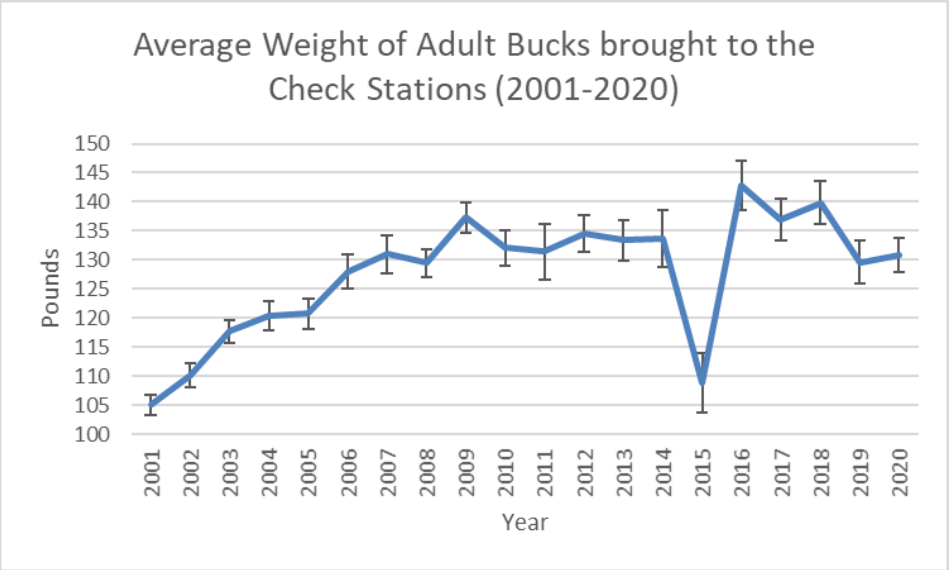
Since 2016, there has been one check station located at ANF's Timberdoodle Flats Trail Head Parking Lot on RT 59.

Table 7. Average weight of adult bucks, average antler spread of all bucks, and average weight of all does brought to the check stations (2001-2020).

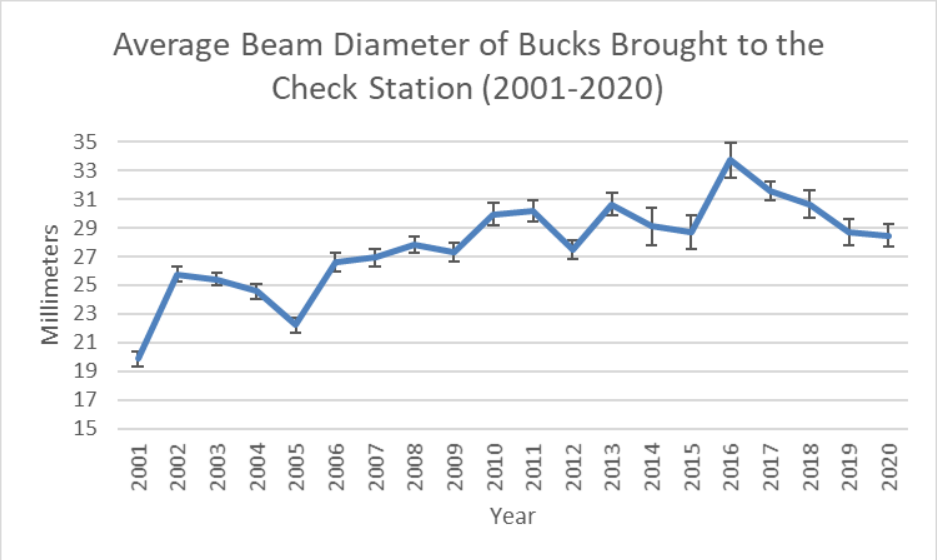
Year	Average Weight of Adult Bucks	Average Antler Spread	Average Weight of Adult Does
2001	105	10.0	96
2002	110	13.9	92
2003	118	13.2	92
2004	120	13.0	96
2005	121	14.3	100
2006	128	13.6	101
2007	131	13.2	99
2008	129	13.9	107
2009	137	13.8	107
2010	132	14.2	106
2011	131	14.4	98
2012	134	14.8	105
2013	133	15.0	102
2014	134	14.9	108
2015	109	14.8	121
2016	143	16.4	123
2017	137	16.7	106
2018	140	15.5	104
2019	130	15.1	97
2020	131	14.0	95

Figures # 7 through #10 on the next two pages all illustrate that since 2016 the trend is a decline in average weights of adult bucks, average spread of adult buck antlers, average beam diameters, and average weights of does.

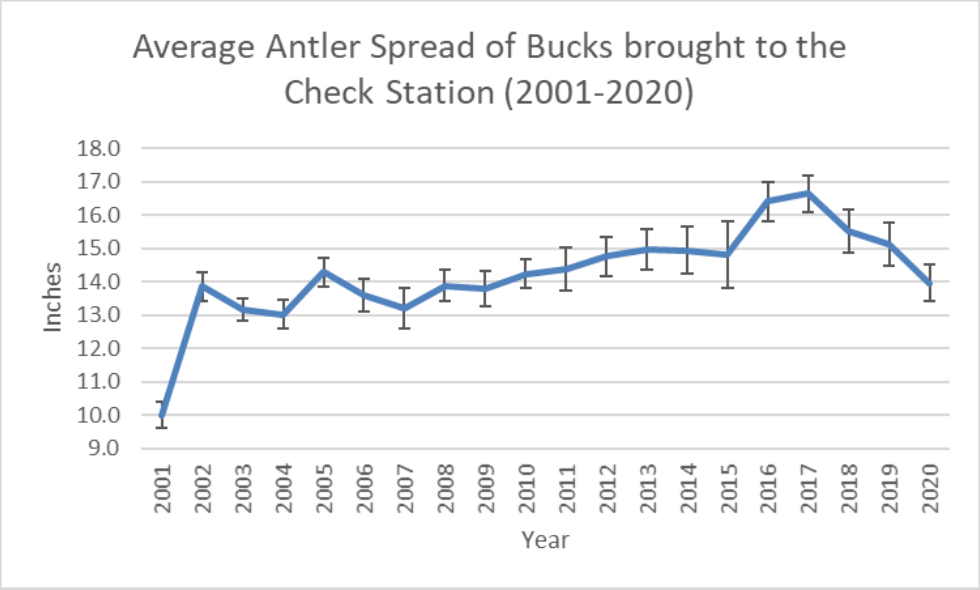
GRAPH 5. Average Weight of Adult Bucks Brought to the check stations (2001-2020). (Graph supplied by Emily Reams, Student, University Pittsburgh Bradford Pa.)



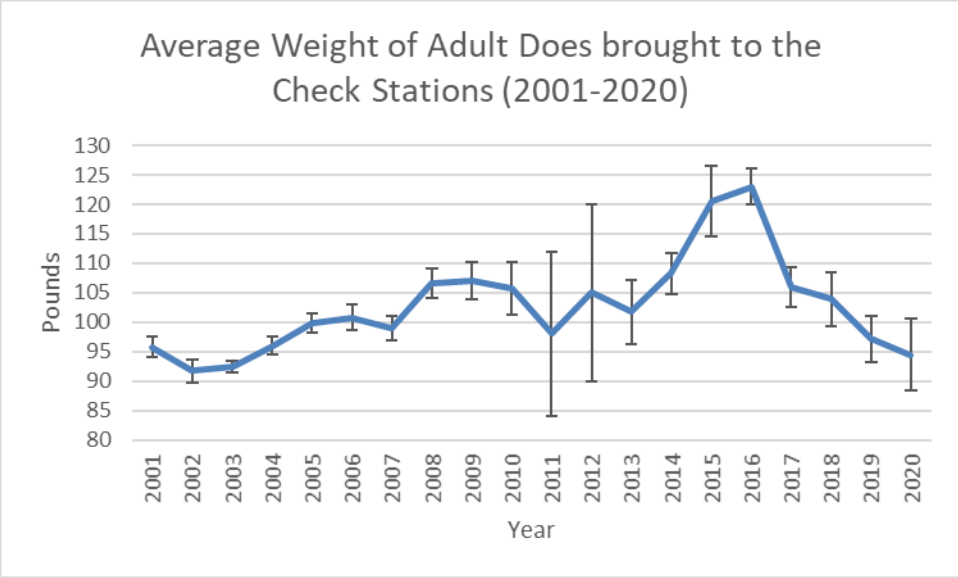
GRAPH 6. Average beam diameter of all bucks brought to the check stations (2001-2020). (Graph supplied by Emily Reams, Student, University Pittsburgh Bradford Pa.)



GRAPH 7. Average antler spread of all bucks brought to the check stations (2001-2020). (Graph supplied by Emily Reams, Student, University Pittsburgh Bradford Pa.)



GRAPH 8. Average weight of all does brought to the check stations (2001-2020). (Graph supplied by Emily Reams, Student, University Pittsburgh Bradford Pa.)



DMAP, KQDC and the Pennsylvania Game Commission

In addition to the data presented thus far in this report, more data for year 2020 season and harvest will be received in the coming months from the Pennsylvania Game Commission about all the DMAP permits, the reported harvest with them, and the reported rate of all DMAP permit holders. The overall reporting rate by Pennsylvania deer hunters has dropped over the last 50 years, but PGC biologists, foresters and other employees continue to inspect over 20,000 harvest deer per year in the field and at butcher shops. They compare their data to what gets sent in by hunters and come up with the reporting rate for each WMU (Wildlife Management Unit) in the state. By checking that large amount of deer the PGC harvest numbers are considered accurate by biologists and peers nationwide.

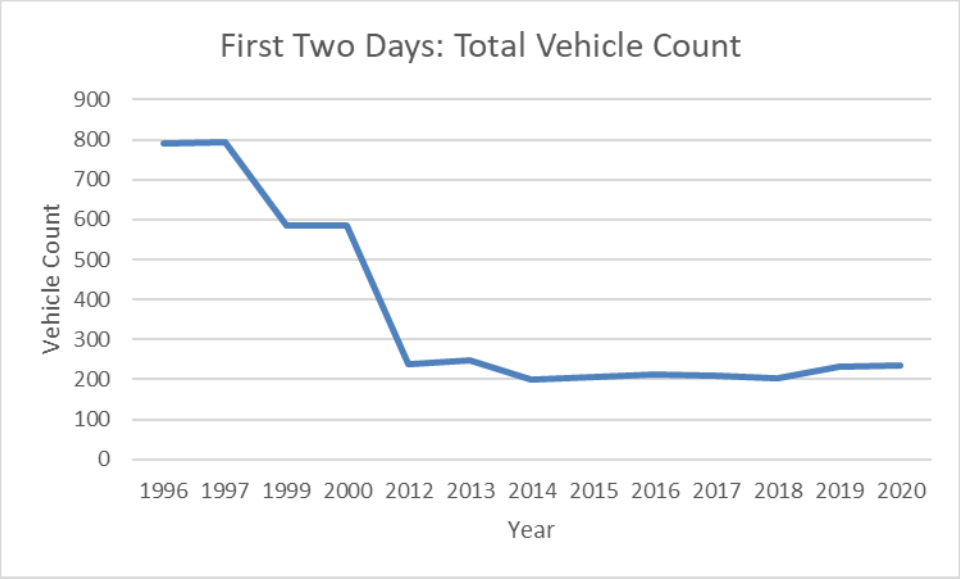
CAR COUNTS, HUNTER NUMBERS

The number of hunters that hunt on the KQDC during the first two days of the firearms season declined from levels in 2000 as measured by the number of vehicles parked along the road. However, the number of hunters seems to have leveled off between 2012 and 2018, and showed a slight increase from 2014 to 2018 and is trending upward more in 2019 and 2020.

Number of vehicles counted the last 7 years are as follows:

(2014 = 199) (2015 = 206) (2016 = 214) (2017 = 210) (2018 = 204) (2019 = 232) (2020 = 234)

Graph #9 Total number of vehicles counted on the first two days of the firearms deer season 1996-2020



While doing the car counts each person records all the vehicles parked along certain annual routes. They also stop at each vehicle and place the Check Station Flyer on the windshield. This year they also placed the new KQDC Brochure on the vehicles. Normally two people ride together to do the car counts. This year due to Covid -19 the routes were done by one person alone except for volunteer couple (Scott and Regina Knapp) that could ride together. Thank you Scott and Regina!)

2020 Car Count Data.

South Deer Driving Route.

11-28= 44 (8 to 10 am, temp 35 to 40 degrees, overcast, no snow)
11-29= 43 (8 to 10 am, temp 25 to 30 degrees, overcast, no snow)
11-30= 9 (8 to 10 am, temp 30 to 40 degrees, rainy, no snow)

Northern Driving Route

11-28 = 97 (7:45 to 9:30 am, temp 35 to 41 degrees, overcast, no snow)
11-12 = 50 (7:45 to 9:30 am, temp 25 to 30 degrees, clear skies, no snow)
11-30 = 12 (8 to 10 am, temp 30 to 40 degrees, rain heavy at times, no snow)
12- 05 = 43 (7:30 am to 9:00 am, 30 to 35 degrees, cloudy, overcast, snow 2 to 6 inches deep)

As one can see, weather conditions are an enormous factor in deer hunter participation and success. Lack of snow makes it harder to see or track or find deer. Rain makes it very difficult.

Had the PGC Commissioners not implemented changes to allow the Saturday opener and the Sunday to hunt for 2020, the traditional Monday opener would have been a washout.

2020 Weather, Hunters, Hunting and Tradition.

Inclement weather during the opening week of rifle season can adversely affect the annual total deer harvest.

Detailed weather analysis for Bradford can be obtained from the National Weather Forecast Office in State College, PA. In general, the 2019/2020 winter conditions were not severe enough to cause any appreciable amount of deer mortality. In 2020 no dead deer were found during spring pellet transects.

In 2020 first two days of the firearms deer season, November 28 and 29, (the first ever Saturday and Sunday opening two days to hunt) the temperature ranged from 35 to 45 degrees Fahrenheit with no snow on the ground. The second day , which was the first Sunday ever for rifle deer hunting in Pennsylvania, only 10 deer were brought in, but that's ten that would not have been taken had the hunters not been allowed to hunt Sunday. Of that ten, only two were does. The third day (Monday, Nov. 30) cold 40 degree rain fell throughout the day and hunters were hard to find.

Snow did not arrive until late Tuesday night with a big snow storm that covered the KQDC with anywhere from 6 to 12 inches of fresh fluffy snow by Wednesday morning. (Further east and south in Pennsylvania depths of 2 and 3 feet were recorded.) However, Wednesday, Thursday and Friday there are far fewer hunters out. Saturday was a good day for hunters on the KQDC. Snow levels were melting down to barely an a couple inches or none on some sunny hillsides, but remained 3 to 6 or more inches deep on the majority of the KQDC, especially on the high flat portions and the shady portions.

Snow cover helped hunters on Saturday December 5th because one could now use their regular antlerless license on the KQDC, and antlered season was still in also. That day 22 deer were brought to the check station of which 10 were antlerless and 12 were antlered. As one can see, even when the regular doe season opens, hunters still prefer to take bucks over does. It's a Pennsylvania tradition that is alive and well. On the first day of the season, when it's was "bucks" only except for DMAP permit holders and 23 deer were brought to the check station, only 5 of them were antlerless. Even though no doubt many of the hunters who brought in a buck had a DMAP permit and may have had an opportunity to shoot a doe.

And the third day, as we have already stated, was a washout, and only two deer were brought in all day. One buck, one doe. And the car count showed that during an all-day rain, from sunrise to sunset, far less hunters go out in the woods hunting, and success rates for them goes way down.

One can see that as much as weather can affect hunting, 100 year old traditions practiced by generations of hunters have a big effect also.

Trail Camera Information 2020

10 trail cameras were place throughout the KQDC on September 1st and were retrieved December 10th. Camera cards were collected and analyzed three times during that period. However, On October 1st only nine cameras were out there as one had been stolen. And the next month at another location, the camera was in place, but the card was stolen, and one other site someone had placed a large piece of bark over the lens so no pictures could be taken. The pictures retrieved actually represent 9 cameras, and instead of 909 possible camera days there were approximately 848 camera days that can be verified.

During that time period approximately 467 different deer were photographed. Every camera location recorded legal bucks and does on it.

Table 8. All Wildlife Photographed on Trail Cameras (2020)

Antlerless deer	**265**
Fawns	**42**
Spike bucks (1 or 2 pts)	**18**
Older bucks (3+ pts)	**98**
Unknown deer	**44**
Turkey	**18**
Grouse	**0**
Black bear	**7**
Bobcat	**2**
Fisher	**0**
Coyote	**7**

A more scientific system to use the trail cameras would have to be implemented to use the photos obtained for accurate data. None the less, the photos give some insight as to what is out there. The photos are actual proof of deer and other wildlife that people can see. Counting the deer one sees while out in the woods or driving roads through the woods is always a difficult way to estimate populations. Today's visibility is reduced compared to years ago when there was a lot less brush along roads and throughout the woodlands. Trail cameras help people see what is out there way more than walking or driving. And the pictures are very useful to use on Facebook and with other outreach efforts by the KQDC.

OUTREACH EFFORTS BY KQDC

ANNUAL DEER SEASON KICK OFF

Starting in 2015 the KQDC has sponsored a program open to the public at the University of Pittsburgh Bradford. Called the KQDC Annual Deer Season Kick Off it brings in between 50 to 100 people each fall to hear a one or two featured speakers, as wells as KQCD updates, reports, trail cam pictures, and more. It's been held the last Saturday in October.

2015 Program = Karl Miller – "Where do deer go and why, what do they see"? Deer biologist from University of Georgia. KQDC also had an antlered deer measuring program plus updates.

2016 Program = Matt Lovello from PGC with power point program on Coyotes in Pennsylvania. Second speaker = Boone and Crocket Deer from McKean county, plus film about ANF area by local Filmmakers, Wild at Heart Outdoors. KQDC program on using interactive maps and had lunch served to all who attended.

2017 Program = Duane Dieffenbaugh on Pennsylvania's Deer Research power point program with PSU Wildlife Coop and PGC. Second speaker did a program on trial cameras used in research on the program. KQDC program on using interactive maps and had lunch served to all who attended.

2018 Program = Kip Adam, Chief of QDMA Education Programs did a power point on Deer Management data from Pennsylvania hunting seasons compared to surrounding states and USA. Second Speaker was Courtney Colley from PGC on CWD in Pennsylvania and USA. KQDC did program on interactive maps and had lunch served to all who attended**. As of 2020 CWD has not been found in any of the KQDC area. (nearest area with CWD is near Brockway PA.)**

2019 Program = Ben Moyer program on "Woods Butchering" How to debone your deer in the woods. Second speaker was Merlin Benner who did a live presentation on deboning a deer out on the campus lawn. KQDC program on using interactive maps and had lunch served to all who attended. Plus KQDC live streamed program to FACEBOOK on video.

2020 Program = canceled due to Covid -19. Tentative Plans were for speaker to be new PGC Game Commissioner Kristen Schnepp-Giger. Program was to be Women and Hunting and Outdoor Involvement. Second Speaker was to be a hands on program outside for women hunting with archery equipment with outdoor target shooting. Would have been the Sixth Annual KQDC Deer Season Kickoff.

Along with the Kickoff Programs and KQDC handouts Sportsman's and other conservation groups are invited and have had displays for the attendees. (EX: Pennsylvania Federation of Sportsmen's and Conservationists, Allegheny National Forest, Collins Pine, etc.)

KQDC FACEBOOK SITE AND KQDC WEBSITE

For the past three or more years KQDC has had a Facebook Page where it an easily post information and pictures for public and hunter use. Site Managers are Collin Shephard and John Dzemyan (who replaced Brad Nelson in January 2020 who kept the site going since it started) Hundreds of hunters follow the site. www.facebook.com > KQDC

The KQDC website is easily reached at kqdc.com on line. It was set up about ten years ago but with changing personnel at the lab and ANF it became out of date without a webmaster. This summer Sue Stout, Todd Ristau and John Dzemyan reactivated it and updated it to current 2020 information. It still needs some attention from its administrators, but its total cost per year is less than $200 so the decision to maintain it was approved. It has the potential to post information in way that Facebook does not offer.

Both sites need people with more website skills and Facebook skills than this coordinator, but in the meantime, both sites do get information out to hunters and others.

Links to KQDC with other Facebook sites such as the Hunting 2F Facebook site and some Ruffed Grouse sites are being developed.

KQDC BROCHURE

Late in 2019 KQDC leadership team approved the new brochure and in January they were acquired and delivered to numerous locations. The ANF Visitors Bureau located in Bradford Pa. has a supply of them and takes them to tourist and trade shows throughout Pennsylvania and bordering states. One can view and print their own copy from the KQDC.com website.

Brochures are also on display and available in numerous public locations such as local State Parks and other public offices. Plus the ANF Visitors Bureau Website also has a link to the KQDC Facebook page and posts KQDC news releases. Tens of thousands of people access that site daily.

KQDC NEWS RELEASES

Over the past six years and probably more Mary Hosmer has taken on the role of sending out news releases. She has developed a standard news release form which works well with local newspaper, radio stations and other media outlets. She has a standard list of over 80 some places that get the KQDC News Releases. Other KQDC leadership staff assist with the editing and content, and Mary gets it out there.

KQDC DEER CHECK STATION RAFFLE

Every deer check station season the KQDC holds a raffle whereby any hunters who bring their deer in form the KQDC to have it recorded for data receives a raffle ticket. Former years each antlered deer brought in would receive one raffle ticket and each antlerless deer brought in would receive two tickets for a chance to win a rifle. In 2020 the leadership team tried a new idea. Two prizes instead of one. Each hunter who brought in an antlerless deer got a chance to win $500 and each hunter who brought in an antlered deer got a chance to win $250. The idea was to get more hunters to use their DMAP permits early in the season when the check station is open. And the buck hunters would still have a chance to win a prize to. Not sure if it made much of difference but both categories had higher numbers than any year over the past 10 years.

Fluorescent Orange hats with the KQDC logo are also given to each hunter who has a deer checked. This year we had 50 hats available and ran out of them. More will be need next year. We did find a local business who can embroider the hats for us right in Kane.

College Students Involvement, University of Pittsburgh and Penn State Dubois

Contacts have been made with both colleges to encourage student to get involved with KQDC. This year's involvement with Emily Reams from the University of Pittsburgh with her capstone paper and check station work is a good example. Another student friend of Emily's also spent a day assisting with the check station.

New contacts were made this year with two professors at the Pen State Dubois Campus. Kelly Tolley Roen, Associate Professor of Wildlife Technology and Michael C. Eckley, CF Lecturer are working to find ways with Alex at the USFS Lab to get student involved in numerous aspects of KQDC work from data input and analyzation to field work with pellet counts and vegetation impact and inventory work. Covid -19 prevented much from happening during 2020 but hopes are up that sometime in 2021 involvement will occur.

Deer Health and CWD (Chronic Wasting Disease)

Chronic Wasting Disease is a serious threat to deer all over North America including Pennsylvania. The KQDC has gone on record in letter form to support efforts to stop CWD from spreading to this area or other areas and to control and eradicate CWD. The best know way to slow the spread, to stop the spread, and to keep deer on the KQDC safe from CD is to keep deer populations on the KQDC under control and in balance with the forest deer habitat. The best way to handle any new areas that are documented to have deer with CWD is to increase deer harvests in that locality. Educational Postings on Facebook and the Website will continue. As of December of 2020 no cases of CWD have been documented in KQDC.

AHUG Allegheny Hardwood Utilization Group

AHUG provides bookkeeping and financial services to the KQDC. Based in Kane Pennsylvania they serve a 14 – county region bringing together the timber processing industries and other related industries and agencies, public and private, to further sustainable forests through wise management of the area's natural resources.

(DRAFT)

Leadership Team Recommendations

1) Continue to survey the established 26 pellet group/browse transects every year to obtain deer density data and vegetative changes.

2) Continue to operate the Timberdoodle deer check station a minimum of four days during the regular two week rifle season.

3) Continue to do the car counts the first two days of the two week rifle season. Try to expand the car count to include more days in the two week season as well as possibly starting car counts for other seasons. (such as special youth/senior seasons and or early muzzleloader season)

4) Implement programs/activities to involve college students of appropriate majors with all aspects of KQDC work.

5) Continue collecting, analyzing and maintaining the annual data that documents deer density and forest and habitat conditions. Improve the present system to store the data, both in digital formats and the raw data forms themselves.

6) Continue to compile and document forest treatment activities on the KQDC and include the results on the on-line interactive map system.

7) Continue to treat about two percent of the KQDC annually. Along with maintaining deer at sustainable levels vegetative treatments that open the overstory and allow sunlight to stimulate vegetative growth on the forest floor must continue.

8) Continue to update and develop on-line interactive maps that hunters and others can use to better acquaint themselves with the KQDC forest conditions.

9) Expand the on-line interactive maps coverage to include the private lands of the KQDC

10) Work to keep the deer population density at or below 15 dpsm level for deer and forest health. Do this by using proper levels of DMAP and through making recommendations for the Wildlife Management Unit antlerless allocations and seasons.

11) Continue the annual KQDC Deer Season Kickoff program

12) Discuss and develop more ways to encourage hunter participation in deer hunting on the KQDC or working with KQDC projects.

13) Annually, conduct field tours for hunters, legislators, students, landowners, commissioners, the general public and other appropriate groups.

14) Publicize and advertise KQDC results and activities using a variety of formats to reach out to hunters, land managers, public officials, researchers and others.

15) Continue using the KQDC Facebook Page and the KQDC webpage as part of this outreach.

16) Continue to use trail cameras to obtain up to date pictures of deer on the KQDC. Pictures can be used on Facebook and Website and with other KQDC Functions. The pictures are presently more valuable in keeping hunters and others interested than in actually determining buck /doe/ fawn ratios. Research some scientific studies to find out if such population data is being successfully done with trail cameras in a way that could be applied to the KQDC.

17) Continue and expand education programs highlighting the KQDC area and deer management.

Consider projects such as:

Develop a power point program that can be shown to sportsmen's and other outdoor organizations, schools, agencies, etc.

Develop a KQDC Display that can be used at various conservation functions, (county fairs, outdoor shows, etc.)

18) Search for additional funding through grants or other means to fund KQDC activities.

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A FEW THANK YOUS ARE NEEDED IN THIS REPORT

For the KQDC to last 20 years I would like to thank everyone who was involved with it from the start to the present whether they were involved for 20 years or just a few days. It's been a collaborative effort, and I'm not sure anyone could even find the names of all the people who have helped the KQDC project during that time.

Special Thank you goes to the major landowners, private and public, that have put efforts, time and money into this project since day one.

They are: Bradford Watershed Land and those who manage it, Conservation Forestry Land and those who manage it, Kane Hardwoods/Collins Pine Land and those who manage it, and Allegheny National Forest Land and those who manage it.

Without these precious tracts of land and the willingness of their owners/managers to get involved, KQDC would not have happened.

The project has been successful in many ways. Deer management has changed dramatically over the past 20 years, and KQDC helped to change it for the better. Forest management has also changed, and the KQDC documentations of how the forest and wildlife habitat responds to these changes will continue to serve the forestry and wildlife profession for decades to come.

Looking forward to the next 20 years. With that in mind.

Sincerely, Thank You.
John Dzemyan
KQDC Coordinator.