Annual Deer Population Report & 2022-23 Antlerless License Allocation Recommendations

April 8, 2022

Pennsylvania Game Commission
Bureau of Wildlife Management
Deer and Elk Section

Summary of 2022-23 Antlerless Allocations to Achieve Deer Plan Goals

WMU	Population Trend	Deer Plan Population Objective	2020-21 Approved Allocation	2021-22 Approved Allocation	2022-23 Deer Plan Recommendation	Comments
1A	Stable	Stabilize	49,000	40,000	**43,000**	
1B	Stable	Stabilize	41,000	32,000	**34,000**	
2A	Stable	Stabilize	46,000	39,000	**39,000**	
2B	Stable	Stabilize	49,000	49,000	**49,000**	
2C	Stable	Reduce	58,000	67,000	**67,000**	Maintaining antlerless harvest levels to reduce population because of CWD.*
2D	Stable	Reduce	60,000	74,000	**74,000**	Maintaining antlerless harvest levels to reduce population because of CWD.*
2E	Stable	Reduce	39,000	42,000	**42,000**	Maintaining antlerless harvest levels to reduce population because of CWD.*
2F	Stable	Reduce	36,000	32,000	**37,000**	Increase harvest by 1.0 antlerless deer/mi^2 because of CWD (new).
2G	Stable	Stabilize	27,000	23,000	**25,000**	
2H	Stable	Stabilize	7,000	9,000	**6,000**	
3A	Stable	Stabilize	21,000	19,000	**19,000**	
3B	Stable	Stabilize	33,000	30,000	**33,000**	
3C	Stable	Stabilize	49,000	33,000	**37,000**	
3D	Stable	Reduce	36,000	36,000	**41,000**	Increase harvest by 1.0 antlerless deer/mi^2 because of forest impacts.
4A	Stable	Reduce	49,000	50,000	**50,000**	Maintaining antlerless harvest levels to reduce population because of CWD.*
4B	Decreasing	Reduce	33,000	34,000	**34,000**	Maintaining antlerless harvest levels to reduce population because of CWD.*
4C	Stable	Stabilize	32,000	29,000	**31,000**	
4D	Stable	Reduce	45,000	55,000	**55,000**	Maintaining antlerless harvest levels to reduce population because of CWD.*
4E	Stable	Reduce	37,000	42,000	**42,000**	Maintaining antlerless harvest levels to reduce population because of CWD and forest impacts.*
5A	Stable	Reduce	26,000	31,000	**31,000**	Maintaining antlerless harvest levels to reduce population because of CWD.*
5B	Stable	Stabilize	60,000	60,000	**60,000**	
5C	Stable	Stabilize	70,000	70,000	**70,000**	
5D	Stable	Stabilize	29,000	29,000	**29,000**	

*The deer plan objective is to increase antlerless harvest to reduce the population for WMUs where CWD has been detected in wild deer (pages 7 and 19). Antlerless allocations were increased in WMUs 2C, 2D, 2E, 4A, 4B, 4D, 4E, and 5A in recent years to levels that would reduce the population because of CWD. The recommendation for 2022-23 is to allocate the same number as the 2021-22 season in these WMUs, which will maintain the antlerless harvest levels from previous years. Due to recent changes in concurrent season length, antlerless license purchase limits, and increased allocations in previous years, we are recommending consistent allocations to evaluate the effect of these actions on the population.

Data presented in this report represent collaborative efforts between the U.S. Forest Service, Pennsylvania's Department of Conservation and Natural Resources, the Pennsylvania Cooperative Fish and Wildlife Research Unit at Penn State University, Responsive Management, and the Game Commission's bureaus of Information and Education, Wildlife Habitat Management, and Wildlife Management. *For more information on the deer management program and data and methods used to assess progress towards management goals, visit the Game Commission's website, www.pgc.pa.gov, to find the "2009-2018 White-tailed Deer Management Plan".*

Deer Management Goals

Deer management goals direct Game Commission staff in formulating deer management recommendations. Current management goals that directly affect antlerless allocations are to manage deer for healthy deer, healthy forest habitat, and acceptable levels of deer-human conflicts. These goals were identified by a group of public stakeholders in 2002 and continue to be supported by a clear majority of Pennsylvania citizens and hunters (Figure 1).
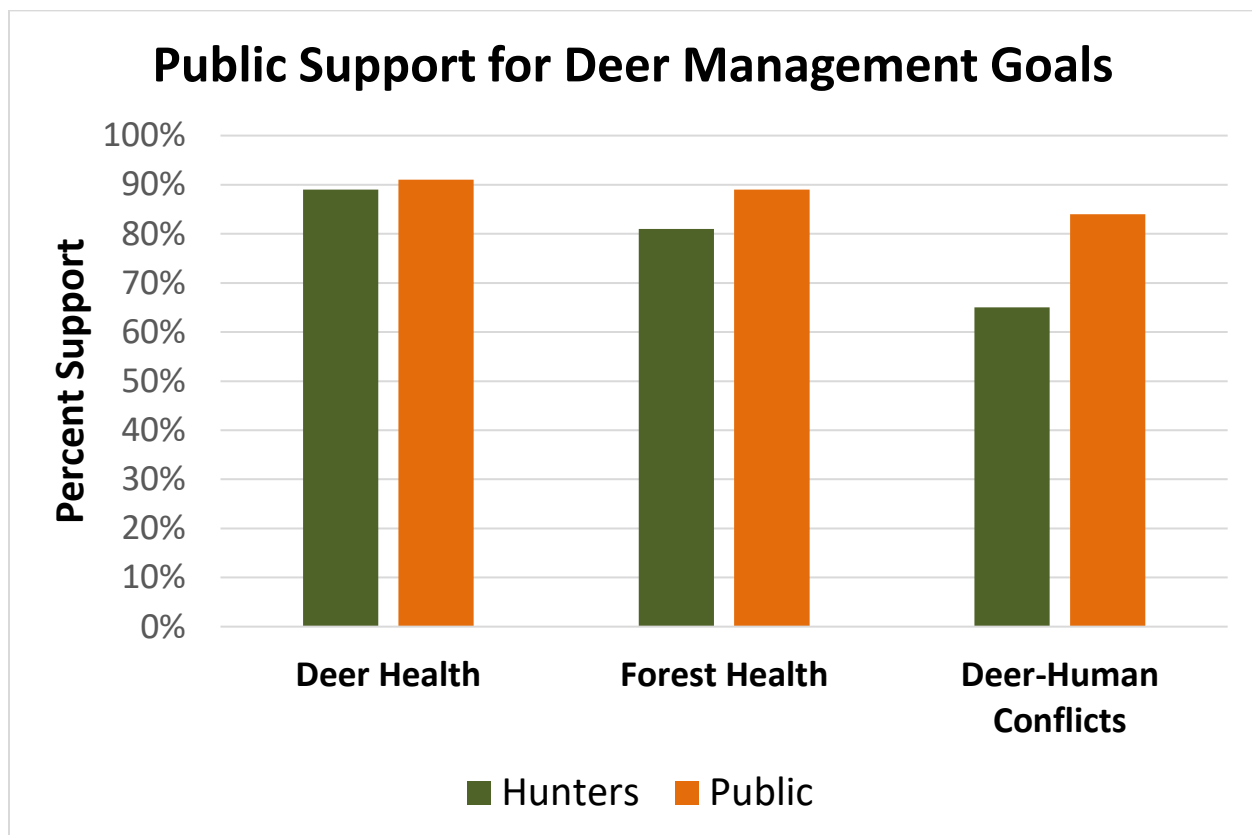

Figure 1. Percent of respondents that agree with deer management goals. The public values come from a citizen survey completed by Responsive Management in 2012 (link), and the hunter values come from the most recent deer hunter survey completed by the Deer and Elk Section and Bureau of Wildlife Management in 2020 (not yet published), with results similar to previous deer hunter surveys in 2011 (link), 2014 (link), and 2017 (link).

Step-by-Step Deer Management Recommendation Guide

The deer management program considers data for each goal to arrive at a deer population recommendation in a defined process (see pages 7 and 8). This process has been revised as new data are incorporated into the program and will continue to evolve as more data and understanding are gained. Decision points (i.e., fawn to doe ratio declining?) are based on published protocols from the wildlife and forestry professions.

Do PA residents want fewer or more deer?

This question is answered using results of the most-recent survey conducted by Responsive Management of Pennsylvania residents (2019). If most surveyed residents in a WMU want less deer, the recommendation would be to reduce the deer population. If the deer health goal is met, forest habitat is good, and WMU residents want more deer, the recommendation would be to increase the deer population.

Is CWD present in free-ranging deer?

This question is answered using results from the thousands of deer tested annually for chronic wasting disease (CWD). If CWD is present in free-ranging deer, then management recommendations are to stabilize or reduce WMU populations. Additional antlerless deer can be removed using Deer Management Assistance Program permits in accordance with the CWD response plan. Increasing the antlerless harvest serves 2 purposes that are important to efforts to contain CWD; (1) increased antlerless harvest removes more deer from the population and allows the Game Commission to test more deer in our efforts to obtain the best information on the extent of the disease, and (2) increased antlerless harvest can reduce deer populations and spread of CWD.

Is fawn to doe ratio declining?

This question is answered using results from the age structure of the antlerless harvest. These data are collected each year by trained Game Commission deer agers from across the state. If the proportion of fawns in the antlerless harvest (hereafter referred to as fawn to doe ratio) is declining and the population is not achieving its objective (i.e., population is declining and objective is to maintain a stable deer population), then the antlerless allocation would be reduced to stop the population decline. The antlerless harvest will have the greatest influence on the population because hunting accounts for most deer mortalities in Pennsylvania. If the fawn to doe ratio is stable or if the population is meeting its objective (i.e., population is stable and objective is stable), no management action is taken.

Has deer population been stable or increasing for 6 years?

This question is answered using results from the Pennsylvania Sex-Age-Kill deer population model and deer harvest indices (i.e., antlered harvest, antlerless catch-per-unit-effort). The 6-year time period is necessary because of the 5-year time period to collect the forest data. The sixth

year is added because only 2nd year seedlings are counted in the forest data. As a result, a complete forest data set includes effects of deer from the previous 6 years.

If the deer population is decreasing the recommendation is to stabilize the population at the lower level to see if forest habitat improves given the lower deer population. If the deer population is stable or increasing, the process continues to the next step.

Is forest habitat good?

This question is answered using results from the Pennsylvania Regeneration Study. If 70% of forested plots have adequate regeneration, forest habitat is considered good. If less than 50% of forested plots have adequate regeneration, forest habitat is considered poor. If 50% to 70% of forested plots have adequate regeneration, forest habitat is considered fair.

Is plot to plot regeneration improving?

This question is answered using results from the Pennsylvania Regeneration Study. In this step, results from individual plots are compared in a paired analysis. For example, plot measurements from 2005 are compared to their remeasured results in 2010 to see if regeneration has improved on individual plots. All plots with 2 measures are included in this analysis. If regeneration is improving, then the deer population trend can be stabilized. If regeneration is not improving, the process continues to the next step.

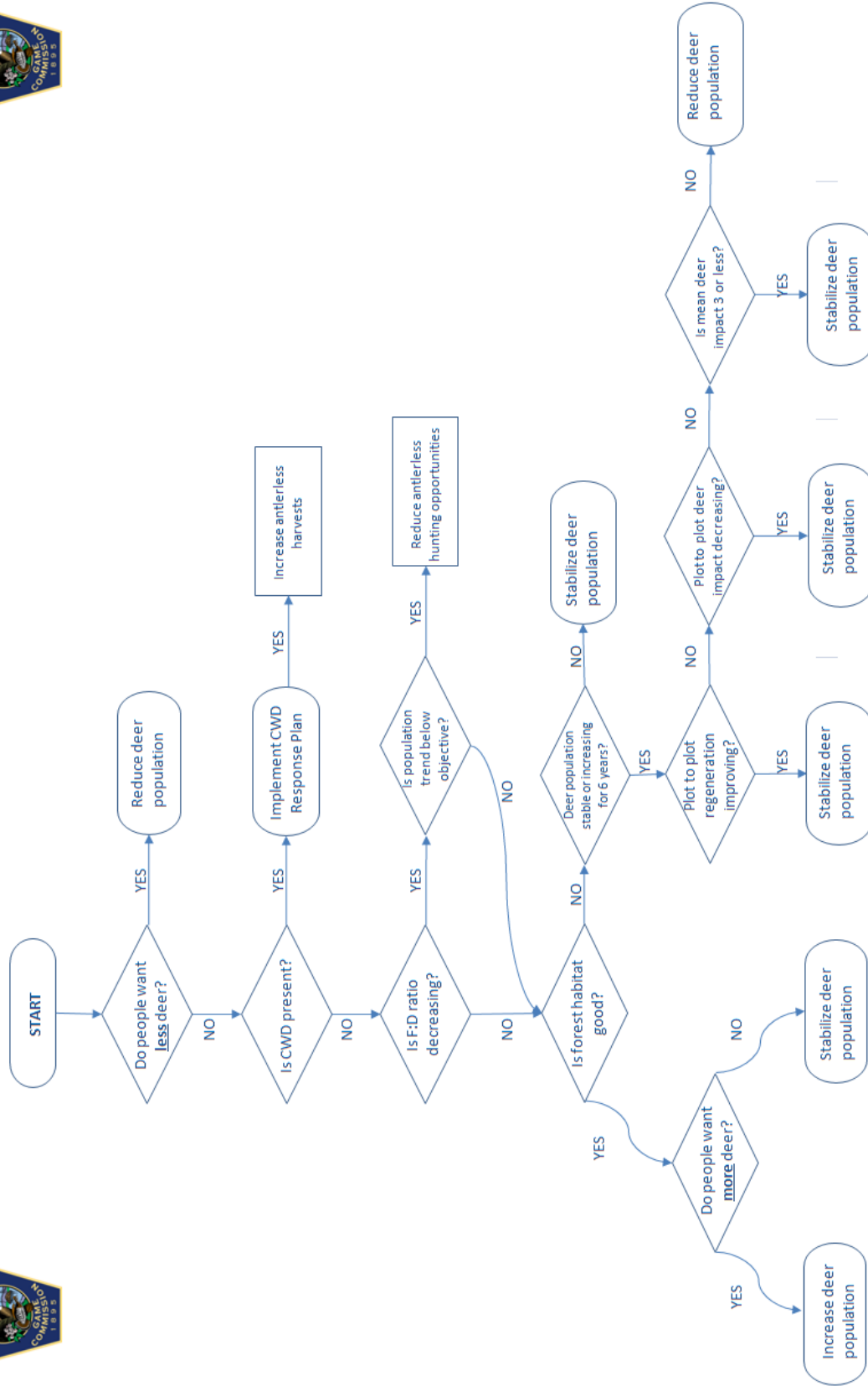**Is plot to plot deer impact improving?**

This question is answered using results from the Pennsylvania Regeneration Study. In this step, results from assessments of deer impact on a scale from 1 (very low) to 5 (very high) are compared in the same way as the plot to plot regeneration analysis. If deer impact is improving (i.e., going from a 4 [high] to 3 [moderate]) on enough plots, then the deer population trend can be stabilized. If deer impact is not improving, the process continues to the next step.

Is mean deer impact 3 or less?

This question is answered from the Pennsylvania Regeneration Study. In this step, the mean deer impact for all plots measured in the most recent 5-year period is statistically compared to an objective of 3 (i.e., moderate impact). If deer impact is significantly greater than 3 (moderate), then the deer impact is too high and the deer population should be reduced. If deer impact is less than or not different from 3 (moderate) then the deer population trend can be stabilized.
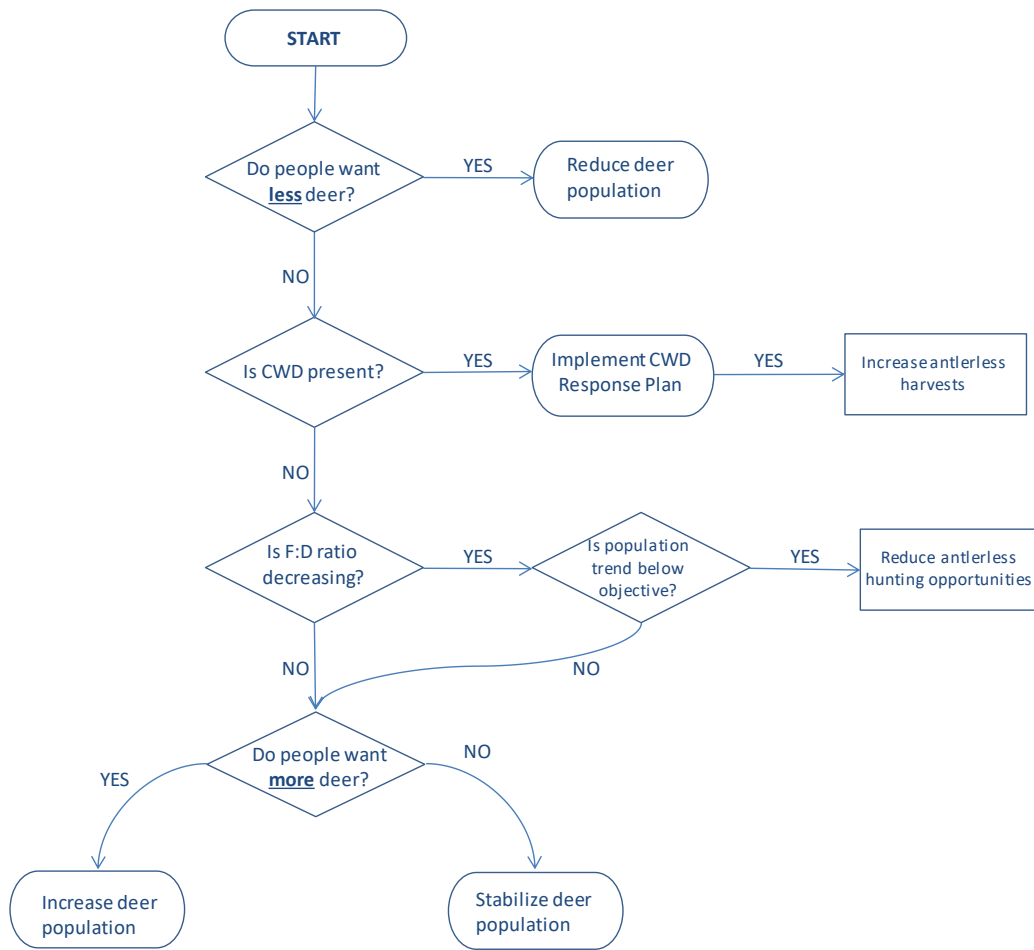
Guides on pages 7 and 8 are used to develop deer population recommendations based on goals and objectives of deer management plan. Recommendation guide for WMUs 2B, 5C, and 5D differs because of lack of forest data in these highly developed WMUs.

Deer Management Recommendation Process

START

Do people want **less** deer?
- YES → Reduce deer population
- NO ↓

Is CWD present?
- YES → Implement CWD Response Plan → YES → Increase antlerless harvests
- NO ↓

Is F:D ratio decreasing?
- YES → Is population trend below objective?
  - YES → Reduce antlerless hunting opportunities
  - NO ↓
- NO ↓

Is forest habitat good?
- NO → Deer population stable or increasing for 6 years?
  - NO → Stabilize deer population
  - YES → Plot to plot regeneration improving?
    - YES → Stabilize deer population
    - NO → Plot to plot deer impact decreasing?
      - YES → Stabilize deer population
      - NO → Is mean deer impact 3 or less?
        - YES → Stabilize deer population
        - NO → Reduce deer population
- YES → Do people want **more** deer?
  - NO → Stabilize deer population
  - YES → Increase deer population

Deer Management Recommendation Guide

FOR WMUs 2B, 5C, and 5D

```
START
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Do people want *less* deer? — YES → Reduce deer population

NO ↓

Is CWD present? — YES → Implement CWD Response Plan — YES → Increase antlerless harvests

NO ↓

Is F:D ratio decreasing? — YES → **Is population trend below objective?** — YES → Reduce antlerless hunting opportunities

NO ↓   NO ↓

Do people want *more* deer?

YES → Increase deer population

NO → Stabilize deer population

Step-by-Step Antlerless License Allocation Calculations

Antlerless allocations are calculated by referring to results from previous seasons. For example, if a population has remained stable with an annual harvest of 3,000 antlerless deer, the same level of harvest would be expected to maintain the stable population. If it has taken 3 antlerless licenses to harvest 1 antlerless deer over the last 3 years, the allocation to stabilize this population would be 3,000 antlerless deer harvested x 3 licenses/antlerless deer harvested = 9,000 antlerless licenses.

The 3-year mean was used for calculations in WMUs 2B, 5C, and 5D, where the concurrent season has been 2 weeks for the previous 3 years. For WMUs 2C, 2D, 2E, 4A, 4B, 4D, and 5A, the concurrent season was increased from 1 week to 2 weeks in 2020, thus a 2-year average was used in the calculation. For WMUs 1A, 1B, 2A, 2F, 2G, 2H, 3A, 3B, 3C, 3D, 4C, 4E, and 5B, the concurrent season was increased from 1 week to 2 weeks in 2021. Rather than relying only on 2021-22 licenses/deer for the 2022-23 calculations in those WMUs, we incorporated the licenses per deer used in last year's calculations in the average.

Table 1. Antlerless licenses needed to harvest 1 antlerless deer (license/deer) based on historic results for each WMU, March 2021.

| WMU	2019-20	2020-21	2021-22	3-year Average
1A	3.7	2.8	3.0	3.2
1B	2.8	2.3	2.6	2.6
2A	4.4	3.9	3.7	4.0
2B	4.3	3.3	4.0	3.9
2C	4.1	3.7	4.3	4.0
2D	3.8	3.2	3.7	3.6
2E	4.2	3.4	4.4	4.0
2F	3.5	3.6	3.2	3.5
2G	4.3	4.0	5.1	4.4
2H	5.6	4.5	4.7	4.9
3A	3.5	3.1	3.6	3.4
3B	3.7	3.9	4.0	3.9
3C	3.6	3.4	3.6	3.5
3D	5.1	5.7	5.7	5.5
4A	5.8	4.0	4.7	4.8
4B	4.4	3.1	4.1	3.9
4C	4.3	4.0	4.6	4.3
4D	4.5	3.7	5.4	4.5
4E	3.6	3.3	3.6	3.5
5A	4.4	4.3	4.3	4.3
5B	4.5	3.6	3.5	3.9
5C	4.8	4.6	4.8	4.7
5D	4.3	4.4	4.6	4.4

Trend in Fawn to Doe Ratios, 2016 to 2021

(Supporting data in WMU worksheets, pages 24 to 69)
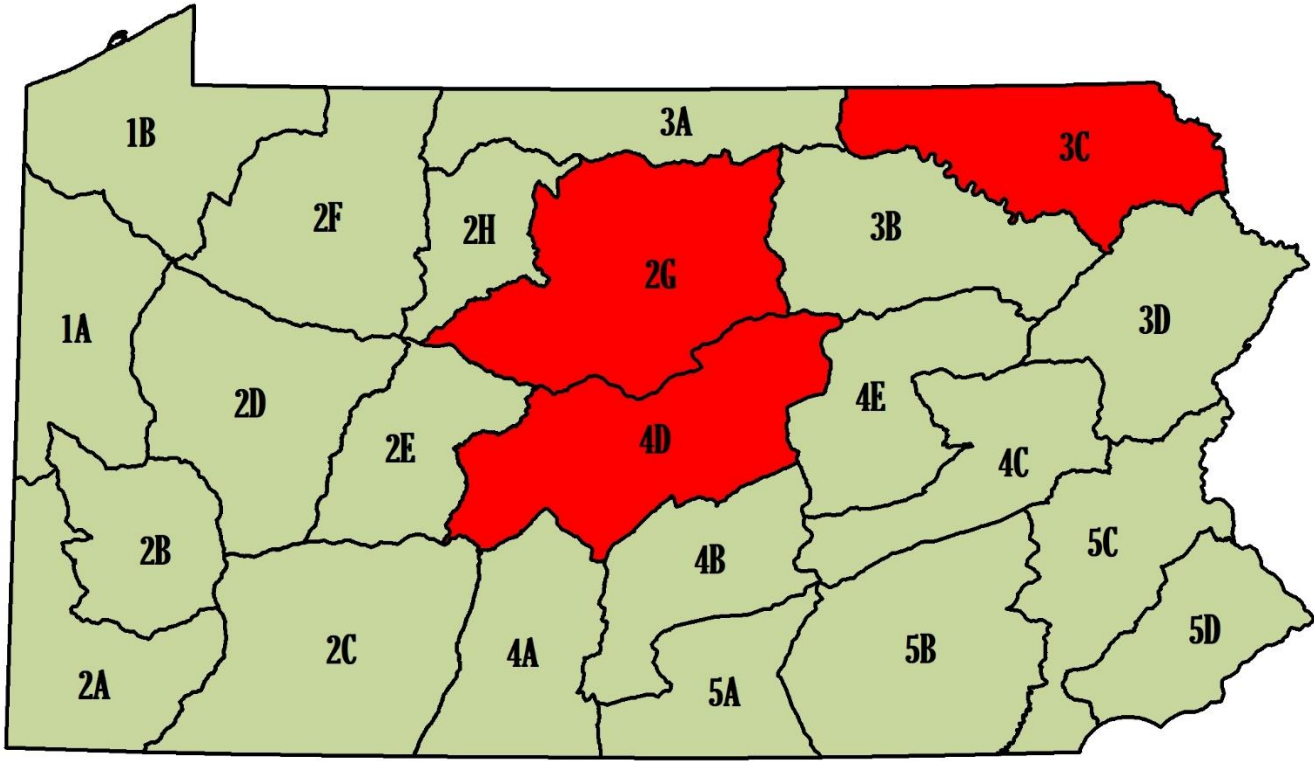
Legend

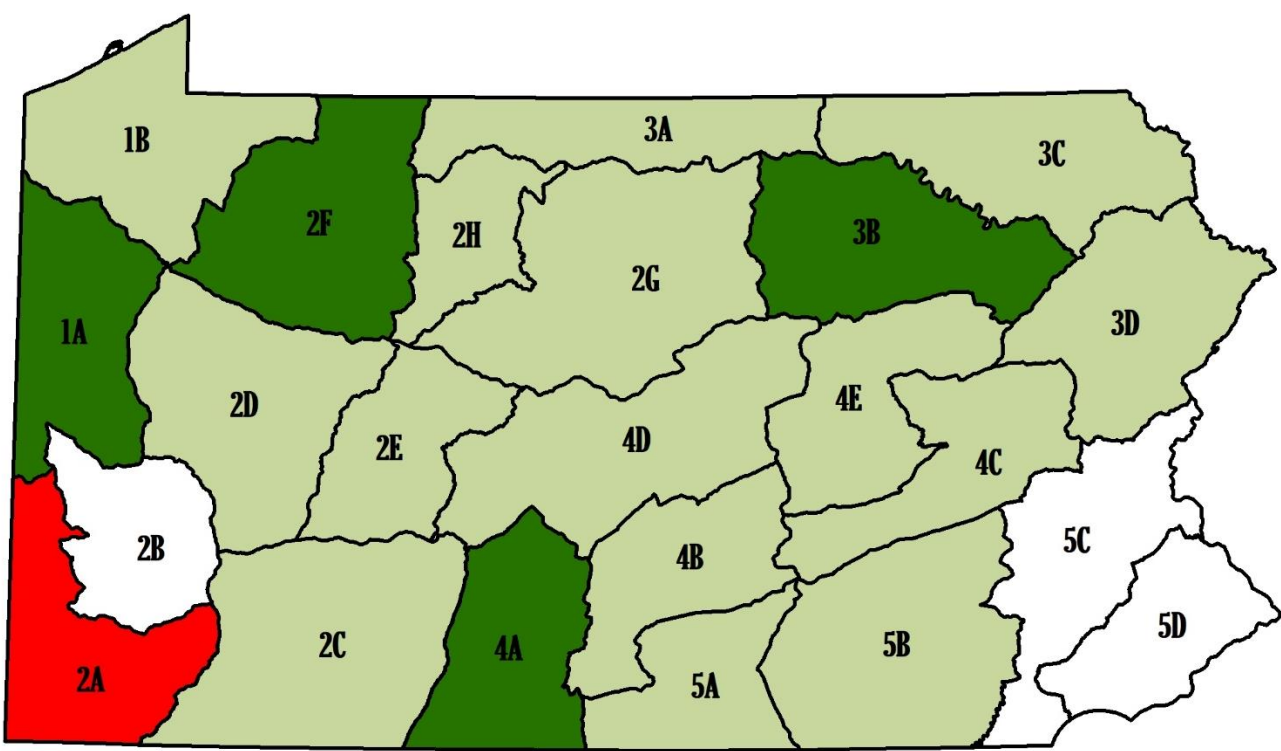|	
Decreasing Fawn to Doe Ratio	🟥
Stable Fawn to Doe Ratio	🟩
Increasing Fawn to Doe Ratio	🟩
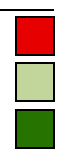
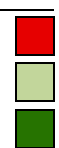*Bureau of Wildlife Management, Deer and Elk Section*
March 2022

Forest Regeneration, 2015 to 2019*

(Supporting data in WMU worksheets, pages 24 to 69)

Legend

Poor Forest Regeneration Levels

Fair Forest Regeneration Levels

Good Forest Regeneration Levels

(White areas have insufficient data for analysis)

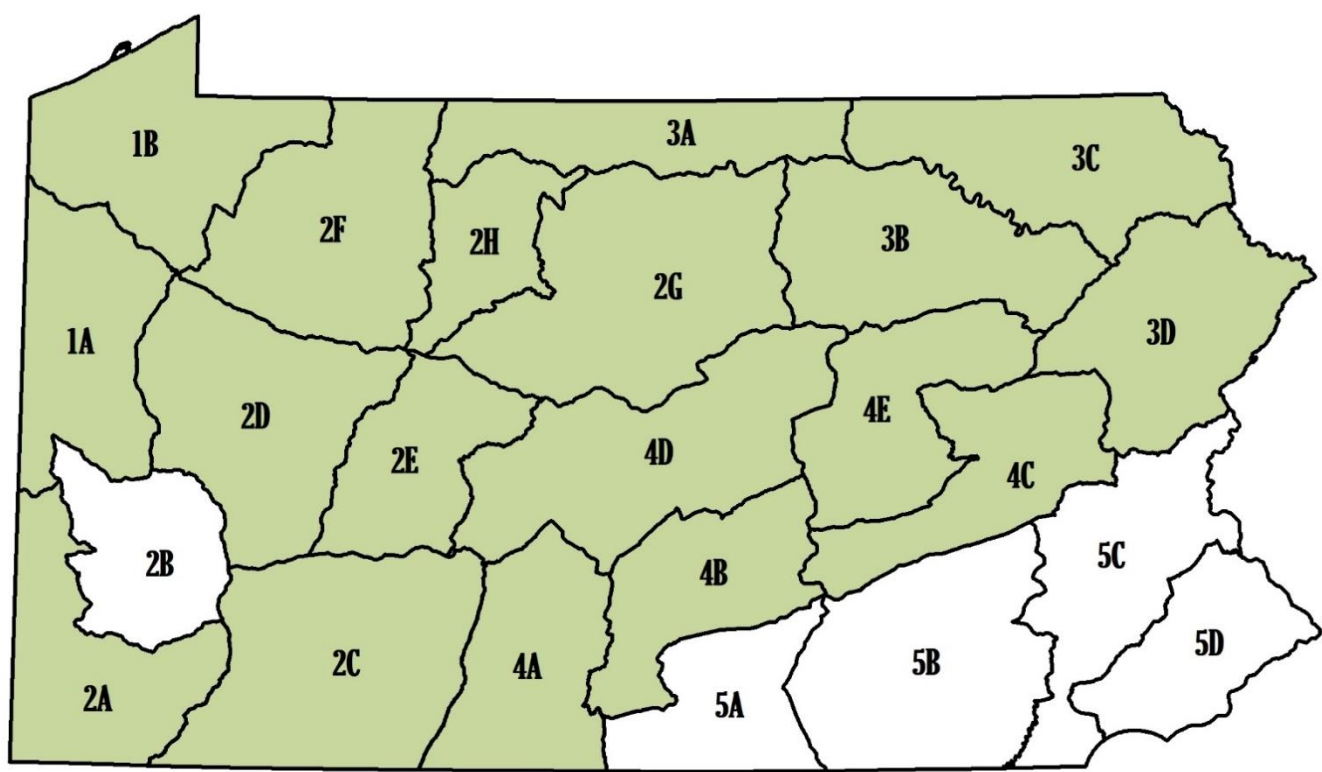*Forest Inventory and Analysis (FIA) data not available for 2020 or 2021.

Bureau of Wildlife Management, Deer and Elk Section
March 2022

Plot to Plot Change in Regeneration, 5-year Change*

(Supporting data in WMU worksheets, pages 24 to 69)

Legend

Declining Regeneration

No Change in Regeneration

Improving Regeneration

(White areas have insufficient data for analysis)

*Forest Inventory and Analysis (FIA) data not available for 2020 or 2021.
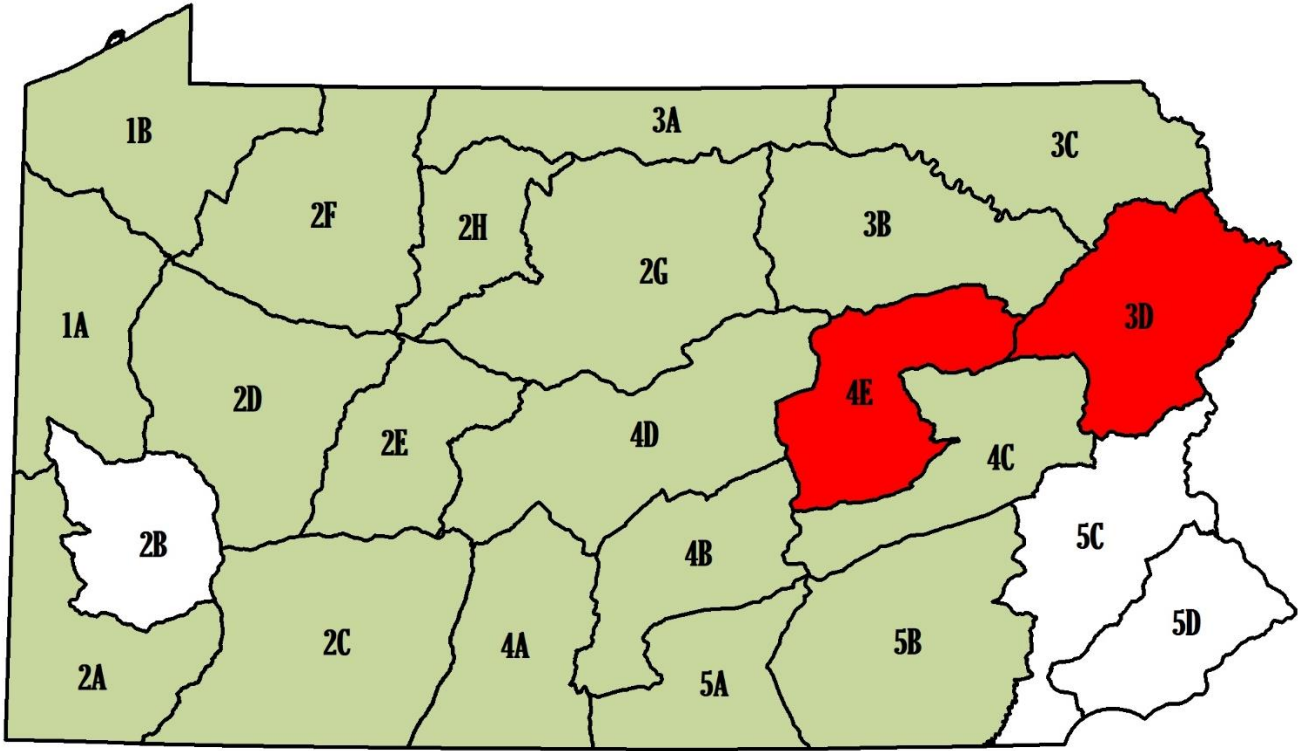
Bureau of Wildlife Management, Deer and Elk Section
March 2022

Deer Impact Level, 2015 to 2019*

(Supporting data in WMU worksheets, pages 24 to 69)

Legend

Deer Impact is Too High (> 3)

Deer Impact is Acceptable (3 or less)

(White areas have insufficient data for analysis)

*Forest Inventory and Analysis (FIA) data not available for 2020 or 2021.
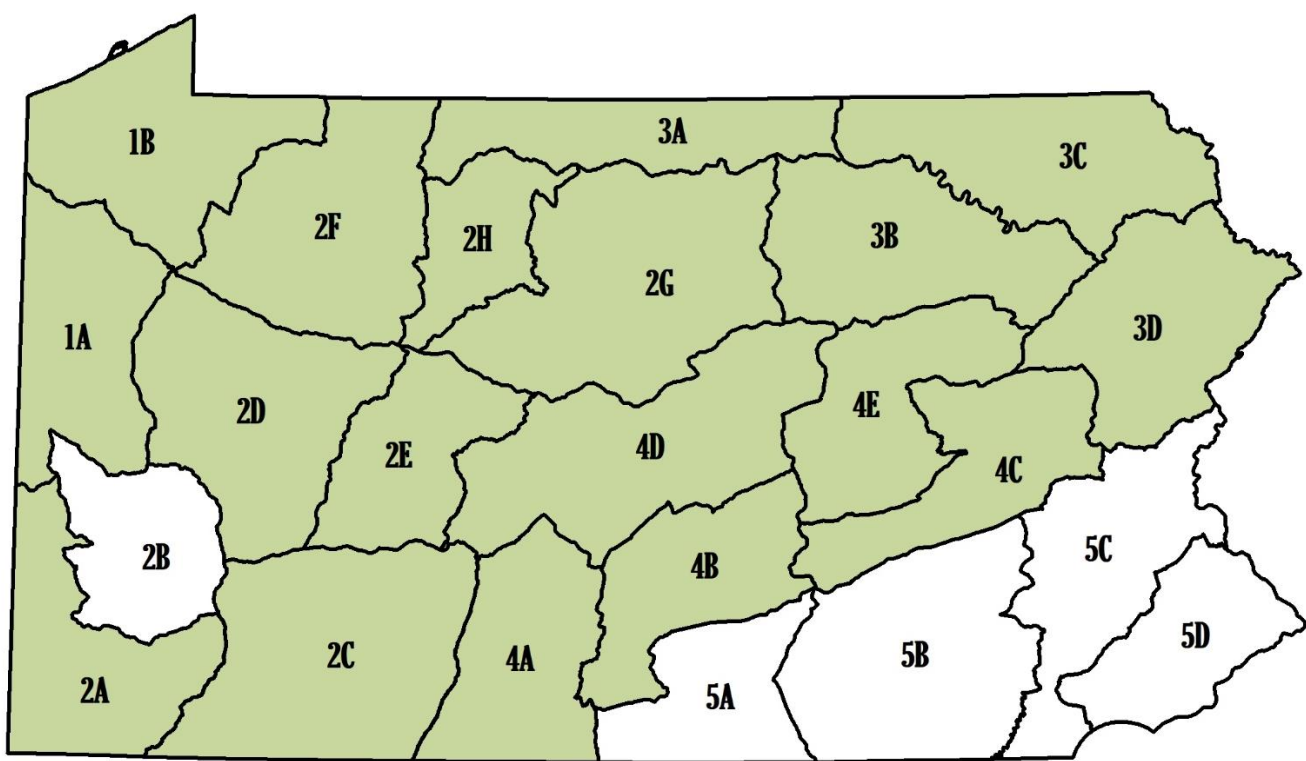
Bureau of Wildlife Management, Deer and Elk Section
March 2022

Plot to Plot Change in Deer Impact, 5-year Change*

(Supporting data in WMU worksheets, pages 24 to 69)

Legend	
Increasing Deer Impact	
No Change in Deer Impact	
Improving Deer Impact	

(White areas have insufficient data for analysis)

*Forest Inventory and Analysis (FIA) data not available for 2020 or 2021.
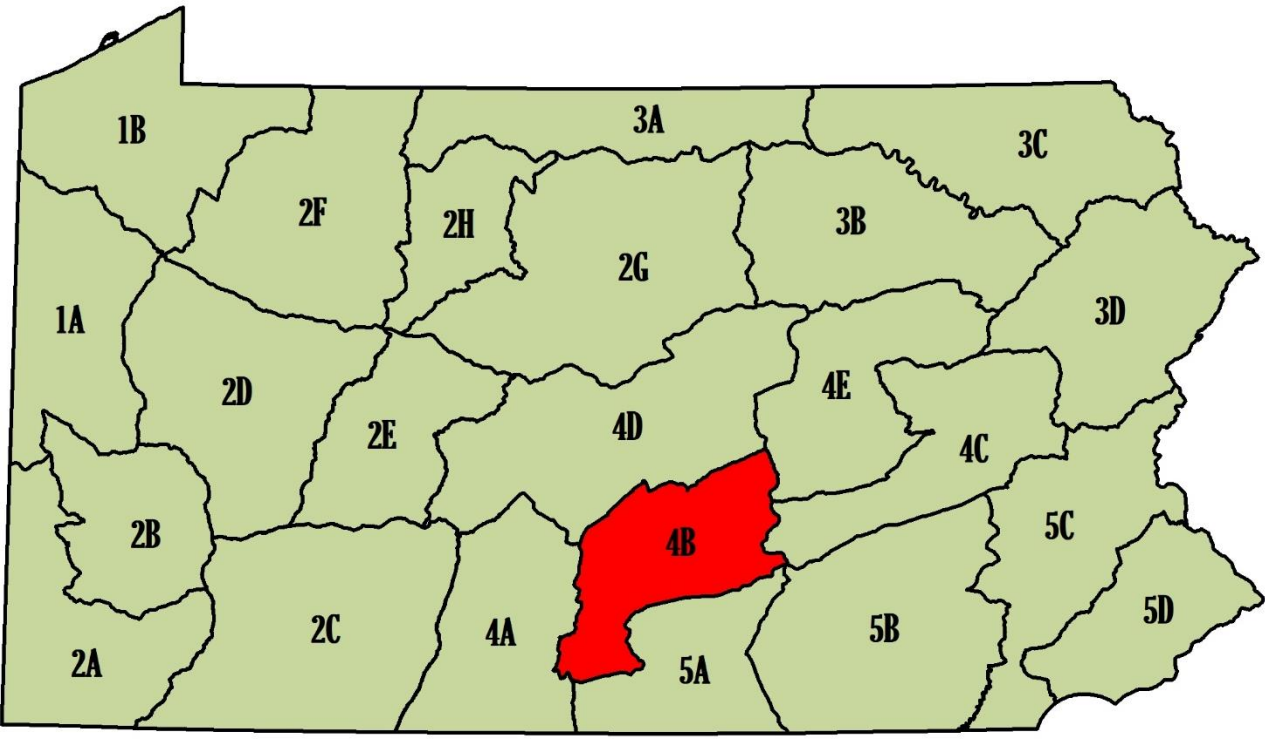
Bureau of Wildlife Management, Deer and Elk Section
March 2022

Post-Hunt Deer Population Trends, 2017 to 2022

(Supporting data in WMU worksheets, pages 24 to 69)

Legend

Declining Deer Population	🟥
Stable Deer Population	
Increasing Deer Population	🟩

Bureau of Wildlife Management, Deer and Elk Section
March 2022

Pennsylvania Residents Opinions on Deer Populations, 2019

(Supporting data in WMU worksheets, pages 24 to 69)

Legend

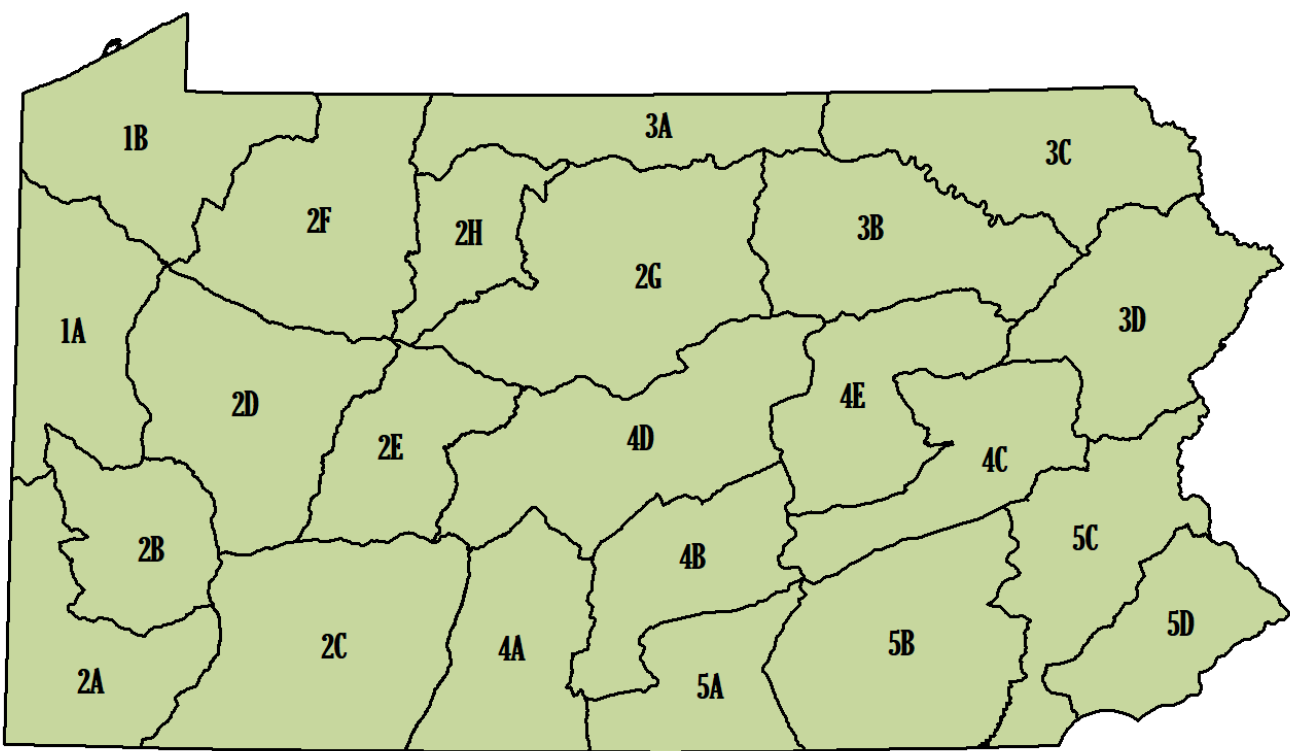|	
Most Residents Say Deer Population Too High	🟥
Most Residents Say Deer Population Just Right	🟩
Most Residents Say Deer Population Too Low	🟩

Bureau of Wildlife Management, Deer and Elk Section
March 2022

Residents Opinions on Deer Populations 2011 vs. 2019
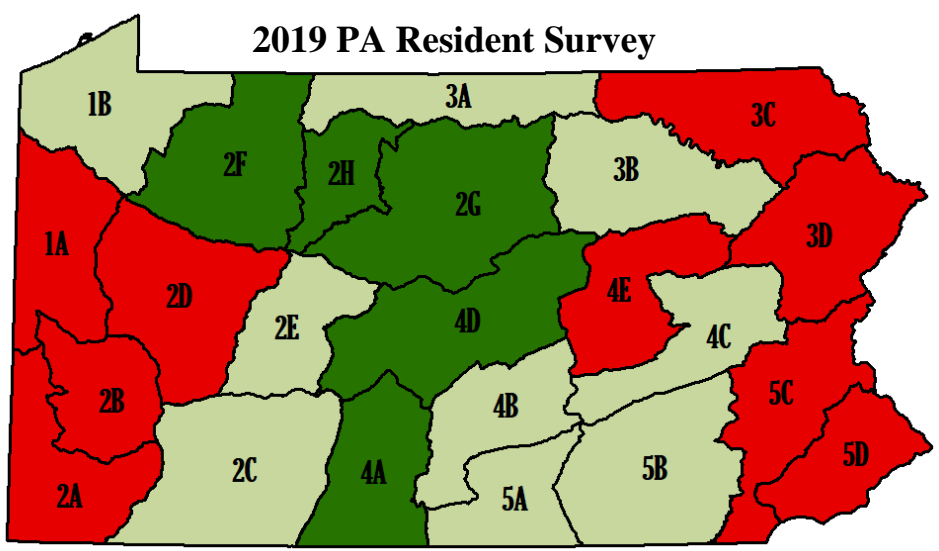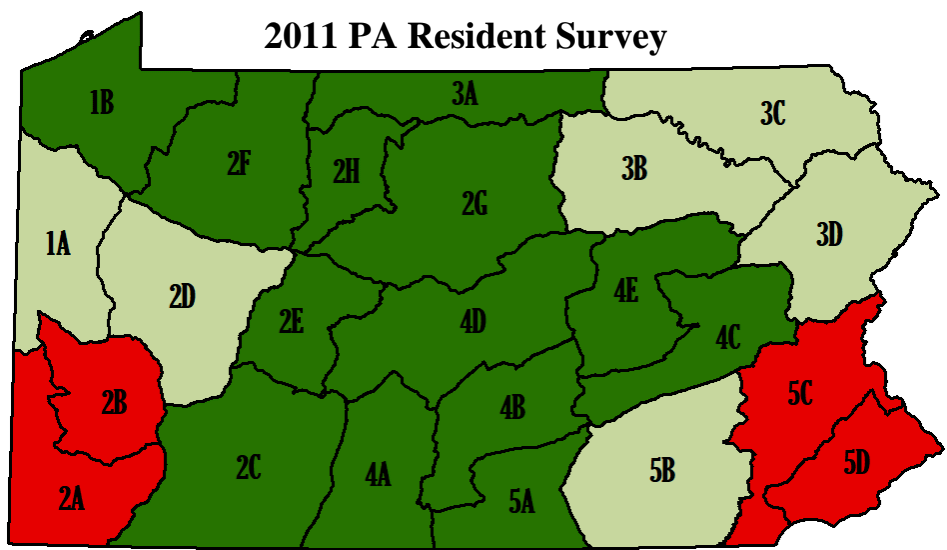
2011 PA Resident Survey

2019 PA Resident Survey

Legend

More than 25% say Deer Population Too High	🟥
Less than 25% say Deer Population Too High and less than 25% say Too Low	⬜
More than 25% say Deer Population Too Low	🟩

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March 2022

Deer Hunters Opinions on Deer Populations 2011 vs. 2020

2011 Deer Hunter Survey
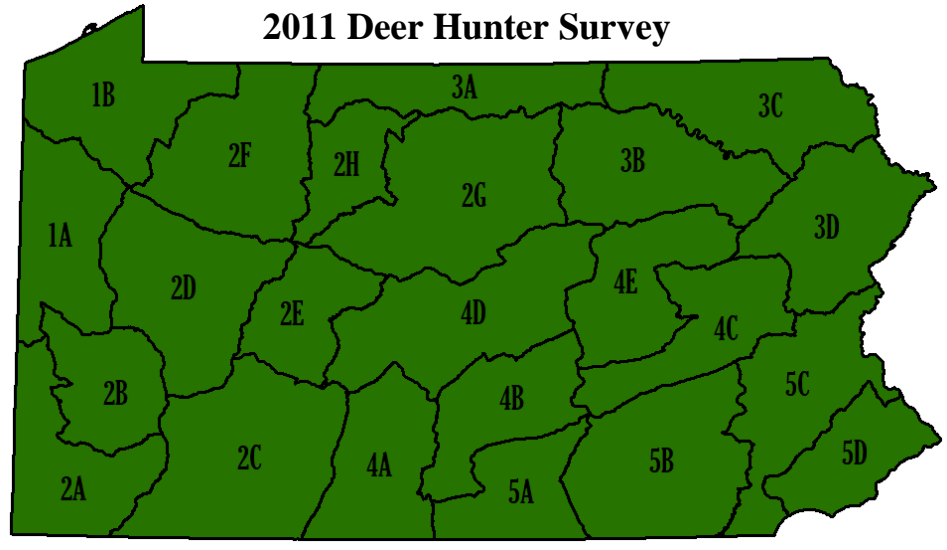
2020 Deer Hunter Survey
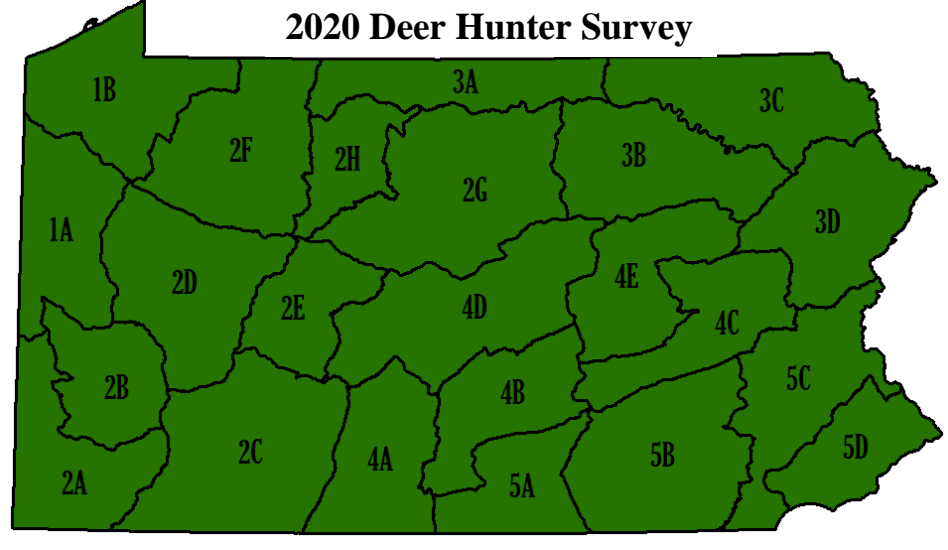
Legend

More than 25% say Deer Population Too High

Less than 25% say Deer Population Too High and less than 25% say Too Low

More than 25% say Deer Population Too Low
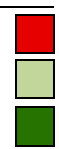
Bureau of Wildlife Management, Deer and Elk Section
March 2022

Chronic Wasting Disease (CWD), as of March 2022
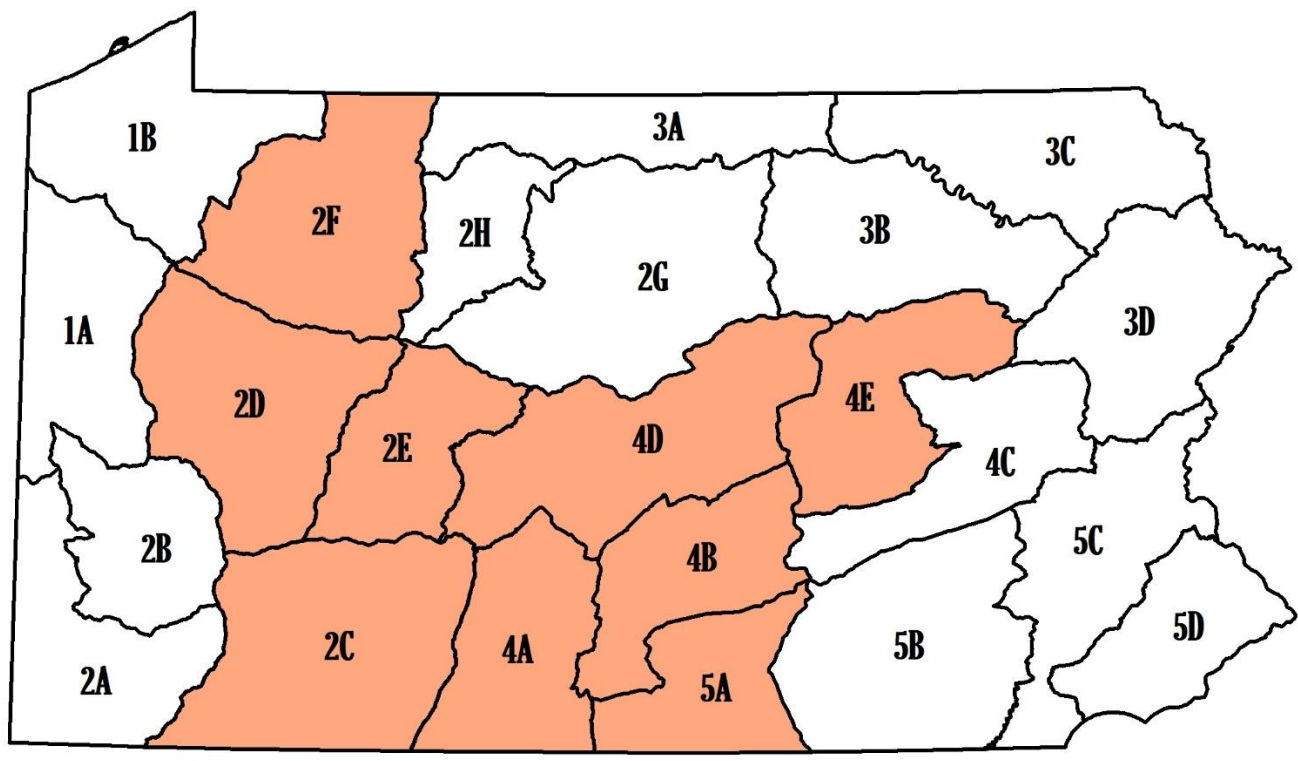
Legend

WMUs with CWD Detected in Wild Deer

WMUs with No CWD Positive Wild Deer Detected

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2021-22 Regular Firearms Season and Other Changes

In 2001, a 12-day concurrent antlered and antlerless firearms season began. The objectives of this longer antlerless season were to give hunters more time to hunt antlerless deer and to create a more consistent harvest from year to year. Antlerless allocations in each WMU determined antlerless harvest. Beginning in 2008, some WMUs were changed to a 5-day antlered only season followed by a 7-day concurrent antlered and antlerless season. In 2010, 2011, 2014, 2015, and 2017 additional WMUs were changed to the 5/7 season format. By 2019, only WMUs 2B, 5C, and 5D had a two-week concurrent antlered and antlerless firearms season. For the 2020-21 regular firearms season, a two-week concurrent antlered and antlerless firearms season was in place for WMUs 2B, 5C, and 5D as well as WMUs where CWD was detected in wild deer and all other WMUs were a 5-day antlered only season followed by a 7-day concurrent antlered and antlerless season. For the 2021-22 season, all WMUs had a two-week concurrent antlered and antlerless firearms season and antlerless allocations were adjusted to account for the additional days.

In 2019, a Saturday was added to the regular firearms season as the opening day of the season, instead of the Monday which was historically the opening day. Additionally, in 2020, a Sunday was added to the regular firearms season after the opening day (Saturday), allowing for an opening weekend. Further, in 2021, the cap on the number of WMU antlerless licenses hunters could purchase was changed from 3 to 6 with the option to purchase more if they filled one of those and reported it, given WMU licenses were still available.

2021-22 Antlered Deer Harvest Density

(Estimated antlered deer harvested per square mile of area)
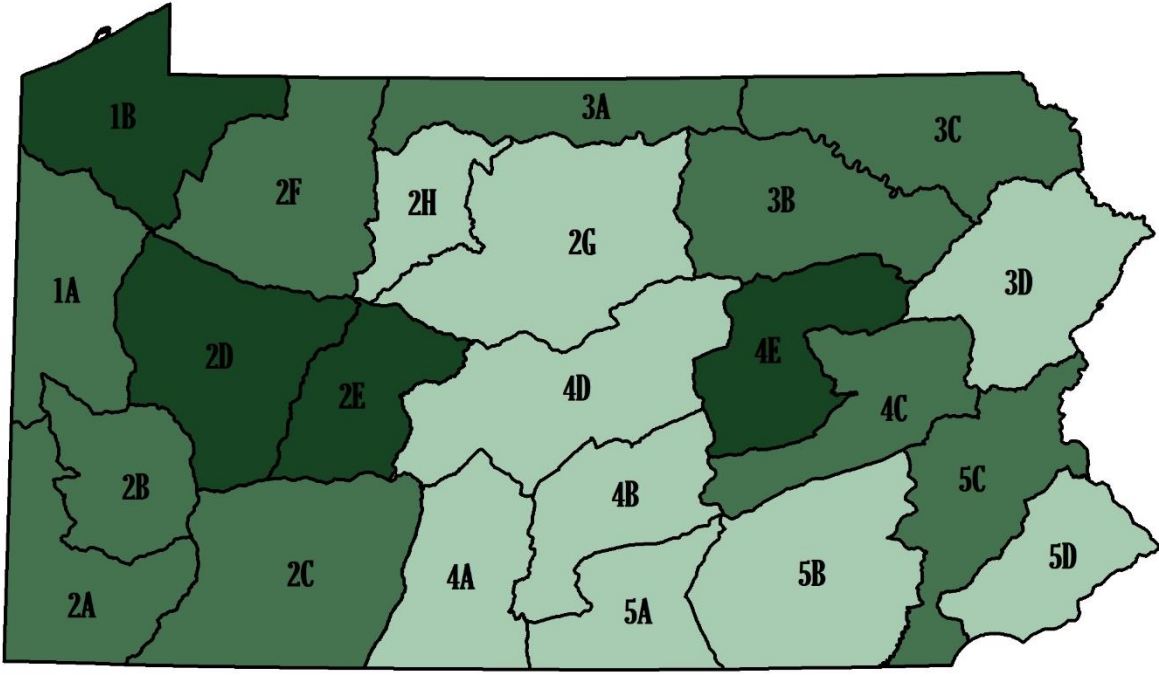
Legend

Less than 2.0 antlered deer harvested per square mile

2.0 to 3.0 antlered deer harvested per square mile

3.1 to 4.0 antlered deer harvested per square mile

4.0 to 4.6 antlered deer harvested per square mile

Bureau of Wildlife Management, Deer and Elk Section
March 2022

Recommendation Guides and

Deer Population Datasheets

Recommendation guides (see pages 7 and 8) provide a step-by-step progression through the deer plan goals and measurable objectives to arrive at a deer population recommendation.

Supporting data for these guides are found in the individual WMU datasheets that follow.

WMU Antlerless Allocation Worksheets

Example

WMU →

2015-16 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU Characteristics

WMU		% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
	1A	9%	45%	36%	3%	1,846

WMU Characteristics (Including CWD DMA) ←

Antlered and antlerless harvests point estimates will differ from those in news releases. Estimates in news releases are rounded to the nearest 100 or 1,000 based on precision of the estimate. Antlerless harvests only include deer taken with WMU licenses.

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	5,468	13,427	40,000	2.9
2006	5,791	13,214	42,000	3.1
2007	4,896	12,490	42,000	3.3
2008	5,392	12,611	42,000	3.3
2009	5,500	10,689	42,000	4.0
2010	5,918	11,940	41,705	3.5
2011	5,171	9,839	42,000	4.3
2012	6,078	11,859	42,000	3.5
2013	6,420	13,915	49,000	3.8
2014	5,131	10,792	47,000	4.4

Antlered Harvest

Antlered Harvest ←

POST-HUNT Deer Population — Trend — STABLE

Year	Total
2008	34,007
2009	36,152
2010	44,148
2011	41,549
2012	42,420
2013	48,472
2014	55,114
2015	49,169
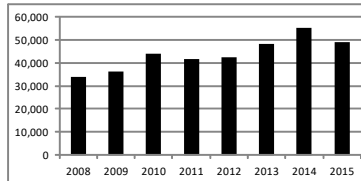
Deer Population ←

For information on the proper use and interpretation of deer population estimates, please see the document, "Monitoring deer populations in Pennsylvania" on the white-tailed deer page of the Game Commission's website, www.pgc.state.pa.us.

DEER HEALTH: Fawn to Doe Ratio[2] — Trend — STABLE

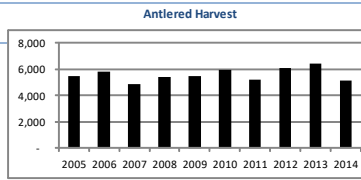| Year	Total
2003	0.44
2004	0.44
2005	0.48
2006	0.48
2007	0.48
2008	0.44
2009	0.45
2010	0.46
2011	0.46
2012	0.48
2013	0.41
2014	0.46
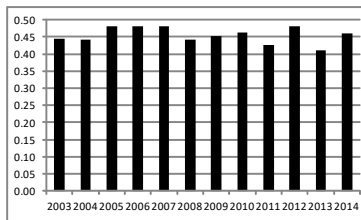
Fawn to Doe ←

Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

FOREST HEALTH — Regeneration Assessment — Fair

| | Plot - Plot Regeneration | No Change | Plot - Plot Deer Impact | No Change | Mean Deer Impact | 3 or less |

Year	% Adequate
2003-07	53%
2004-08	54%
2005-09	55%
2006-10	57%
2007-11	55%
2008-12	53%
2009-13	57%
2010-14	55%
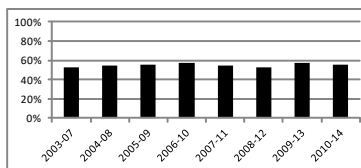
Regeneration ←

Citizen Survey Results

| | Too High | 16% | Just Right | 54% | Too Low | 23% |
| Do a significant number of hunters want more deer? | NO | | | | | |

Antlerless Allocation Options

Firearm Season	Decrease Deer Population	Keep Deer Population the Same	Increase Deer Population
5 day antlered & 7 day concurrent	62,000	**54,000**	46,000

The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will slightly differ from the allocation. Red Lic/Deer indicates 7-day concurrent seasons.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **1A**

WMU Characteristics				
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
9%	45%	36%	3%	1,846

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	5,468	13,427	40,000	2.9
2006	5,791	13,214	42,000	3.1
2007	4,896	12,490	42,000	3.3
2008	5,392	12,611	42,000	3.3
2009	5,500	10,689	42,000	4.0
2010	5,918	11,940	41,705	3.5
2011	5,171	9,839	42,000	4.3
2012	6,078	11,859	42,000	3.5
2013	6,420	13,915	49,000	3.5
2014	5,131	10,792	47,000	4.4
2015	6,031	9,122	46,000	5.0
2016	6,500	10,377	46,000	4.4
2017	6,279	12,612	52,000	4.1
2018	5,802	12,442	48,000	3.8
2019	6,416	13,160	49,000	3.7
2020	9,210	17,509	49,000	2.8
2021	5,962	13,238	40,000	3.0

Antlered Harvest Estimate

RED=7 day concurrent season

POST-HUNT Deer Population   **Trend**   **Stable**

Year	Total
2008	34,007
2009	36,152
2010	44,148
2011	41,549
2012	42,420
2013	48,472
2014	55,114
2015	49,169
2016	62,237
2017	65,707
2018	53,244
2019	46,208
2020	51,804
2021	99,568
2022	57,982

WMU   1A

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.44
2009	0.45
2010	0.46
2011	0.43
2012	0.48
2013	0.41
2014	0.46
2015	0.42
2016	0.43
2017	0.40
2018	0.39
2019	0.37
2020	0.35
2021	0.39
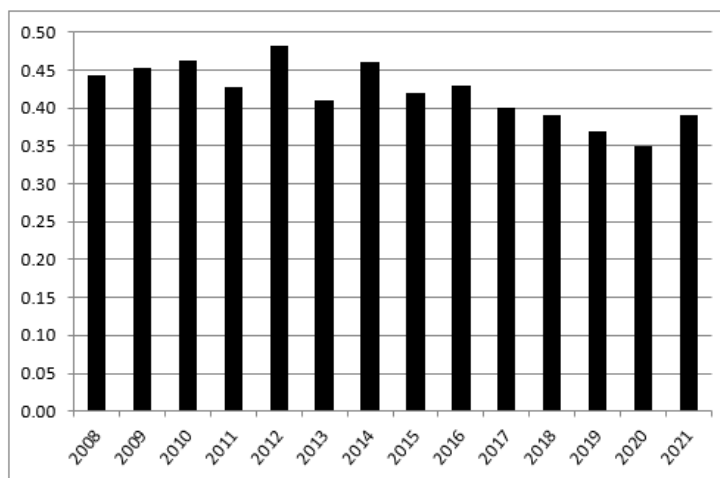
			Regeneration Assessment	Good
FOREST HEALTH	**Plot - Plot Regeneration** No Change	**Plot - Plot Deer Impact** No Change	**Mean Deer Impact**	3 or less

Year	% Adequate
2003-07	53%
2004-08	54%
2005-09	55%
2006-10	57%
2007-11	55%
2008-12	53%
2009-13	57%
2010-14	55%
2011-15	54%
2012-16	53%
2013-17	50%
2014-18	64%
2015-19	67%
2016-20[*]	-
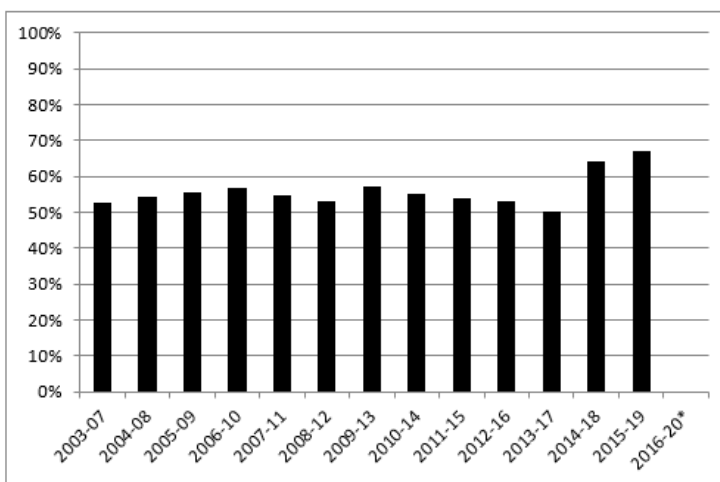
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High**   26%(16%)   **Just Right**   55%(54%)   **Too Low**   13%(23%)

Antlerless Allocation Recommendation			
	Increase	**Stable**	**Decrease**
Firearm Season Option	**Harvest**	**Harvest**	**Harvest**
14 day concurrent	48,000	**43,000**	37,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **1B**

WMU Characteristics				
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
7%	54%	32%	4%	2,115

Approximately 5% of WMU 1B is within CWD DMA 5 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	6,382	10,707	27,000	2.5
2006	6,773	11,974	30,000	2.5
2007	6,010	11,400	30,000	2.6
2008	7,507	13,390	30,000	2.2
2009	5,089	9,474	30,000	3.2
2010	5,470	9,233	27,844	3.0
2011	6,021	9,508	30,000	3.2
2012	6,978	11,086	33,000	3.0
2013	6,835	10,760	31,000	2.9
2014	5,766	8,788	30,000	3.4
2015	6,895	7,671	29,000	3.8
2016	7,948	8,243	29,000	3.5
2017	8,300	13,047	35,000	2.7
2018	7,971	15,765	37,000	2.4
2019	8,658	12,738	35,000	2.8
2020	11,671	17,758	41,000	2.3
2021	9,274	12,596	32,000	2.6

Antlered Harvest Estimate
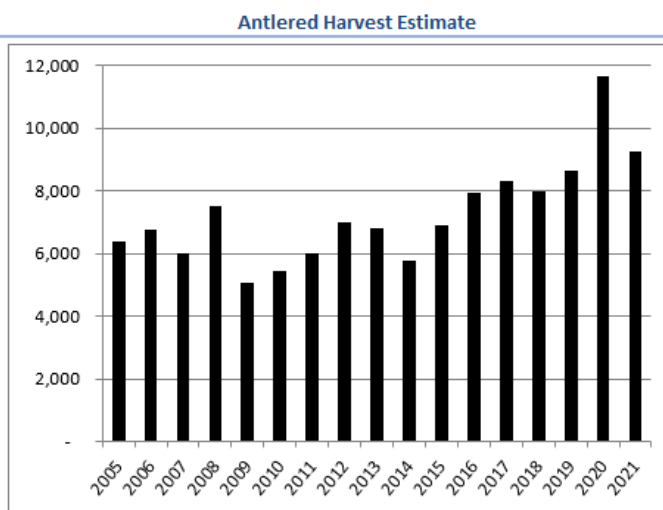
RED=7 day concurrent season

POST-HUNT Deer Population

Trend   **Stable**

Year	Total
2008	52,810
2009	58,926
2010	44,469
2011	46,503
2012	51,697
2013	55,713
2014	53,799
2015	47,438
2016	71,669
2017	74,053
2018	81,376
2019	60,756
2020	81,659
2021	95,277
2022	74,887
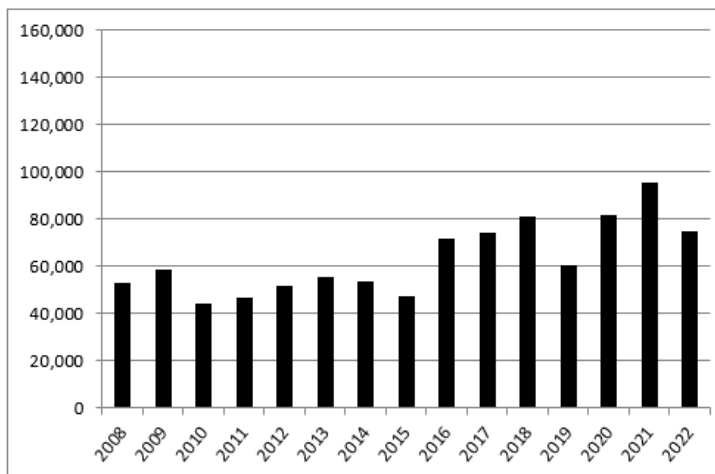
WMU   1B

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.41
2009	0.43
2010	0.44
2011	0.40
2012	0.37
2013	0.38
2014	0.39
2015	0.40
2016	0.37
2017	0.39
2018	0.35
2019	0.33
2020	0.31
2021	0.34
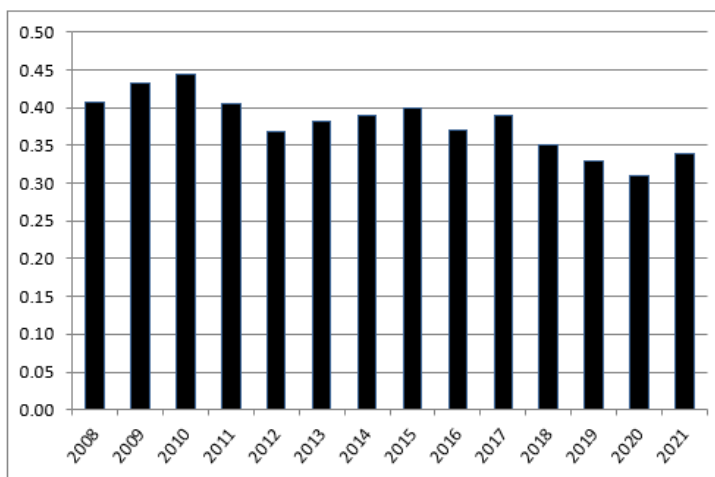
FOREST HEALTH	**Regeneration Assessment**	**Fair**

Plot - Plot Regeneration No Change   **Plot - Plot Deer Impact** No Change   **Mean Deer Impact** 3 or less

Year	% Adequate
2003-07	41%
2004-08	46%
2005-09	48%
2006-10	54%
2007-11	57%
2008-12	60%
2009-13	55%
2010-14	56%
2011-15	53%
2012-16	48%
2013-17	49%
2014-18	51%
2015-19	50%
2016-20[*]	-
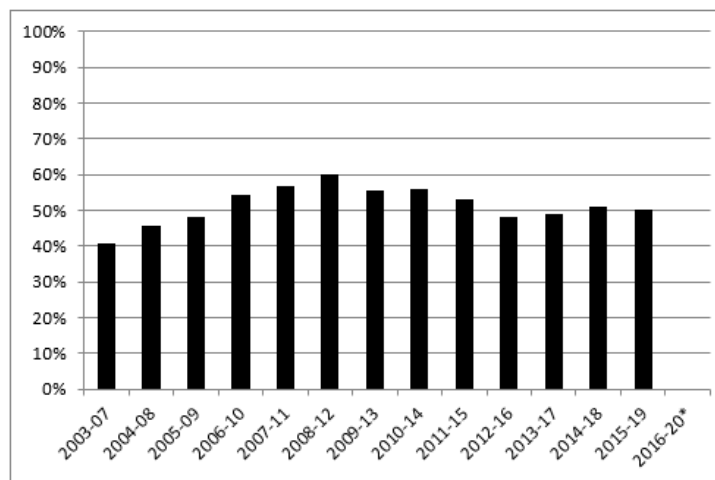
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High** 24% (11%) **Just Right** 47% (56%) **Too Low** 23% (26%)

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	39,000	**34,000**	29,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU **2A**

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
7%	61%	29%	3%	1,811

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	8,510	19,649	55,000	2.7
2006	8,104	16,987	55,000	3.2
2007	6,560	14,322	60,000	3.9
2008	6,714	15,255	55,000	3.5
2009	6,829	13,920	55,000	4.0
2010	5,830	13,463	54,879	4.1
2011	7,142	12,677	65,000	4.4
2012	6,683	12,694	59,000	4.5
2013	6,836	13,241	49,000	3.7
2014	5,131	9,580	46,000	4.8
2015	6,511	10,507	43,000	4.1
2016	7,027	9,235	43,000	4.6
2017	6,134	10,866	50,000	4.6
2018	6,036	10,950	49,000	4.2
2019	6,929	9,918	46,000	4.4
2020	8,128	11,835	46,000	3.9
2021	6,846	10,590	39,000	3.7

Antlered Harvest Estimate
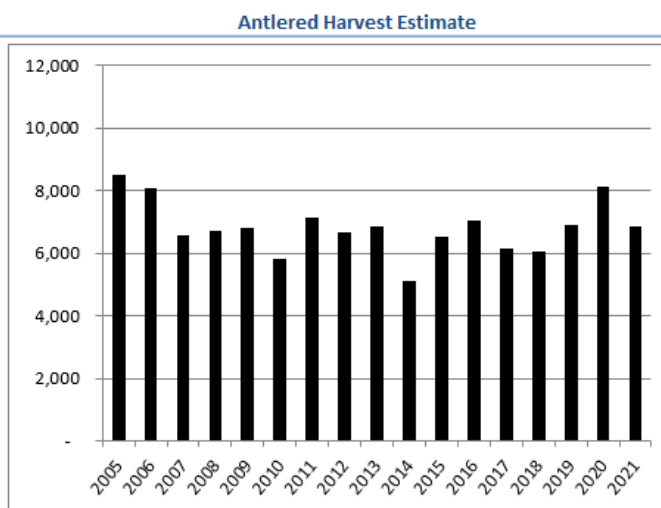
RED=7 day concurrent season

POST-HUNT Deer Population   **Trend**   Stable

Year	Total
2008	45,462
2009	50,336
2010	56,286
2011	49,033
2012	68,080
2013	53,996
2014	43,379
2015	30,033
2016	48,723
2017	57,963
2018	46,361
2019	44,587
2020	61,486
2021	72,156
2022	65,676
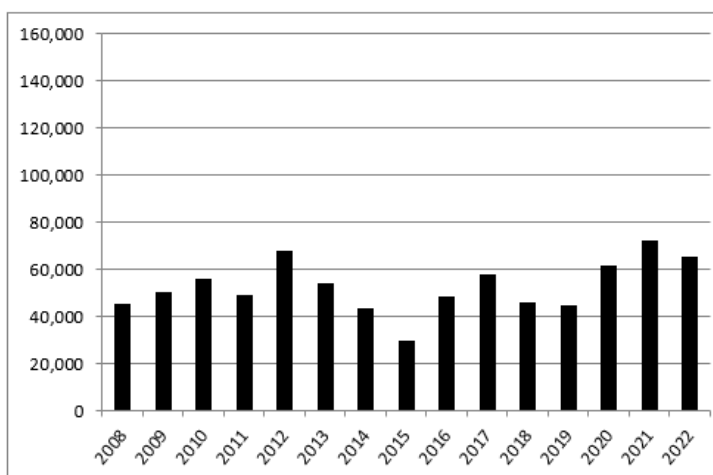
WMU   2A

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.40
2009	0.38
2010	0.36
2011	0.39
2012	0.38
2013	0.39
2014	0.38
2015	0.31
2016	0.36
2017	0.39
2018	0.32
2019	0.32
2020	0.32
2021	0.29
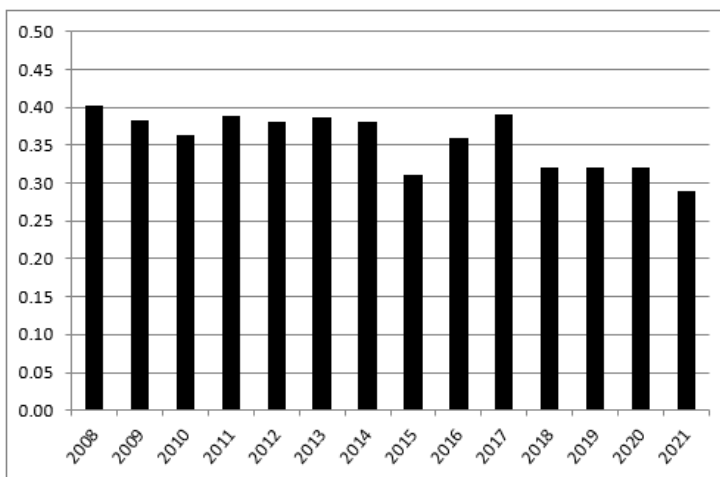
FOREST HEALTH

	Regeneration Assessment	**Poor**
Plot - Plot Regeneration No Change	**Plot - Plot Deer Impact** No Change	**Mean Deer Impact** 3 or less

Year	% Adequate
2003-07	46%
2004-08	47%
2005-09	46%
2006-10	45%
2007-11	44%
2008-12	42%
2009-13	43%
2010-14	39%
2011-15	43%
2012-16	41%
2013-17	41%
2014-18	31%
2015-19	28%
2016-20•	-
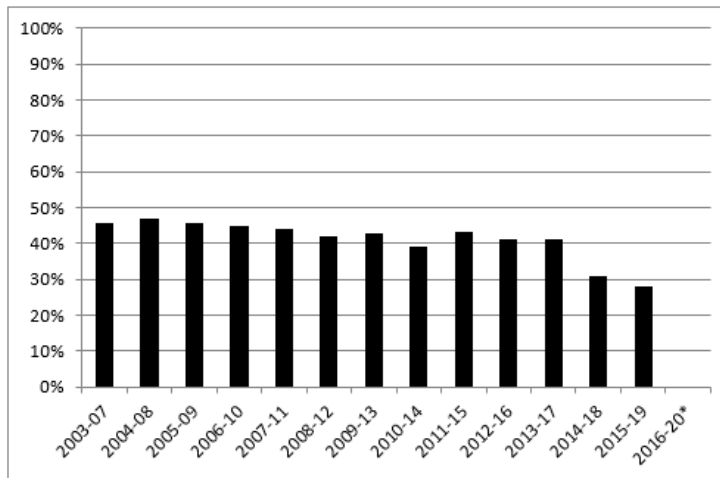
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High   28% (25%) Just Right   50% (56%) Too Low   19% (13%)**

Antlerless Allocation Options			
Firearm Season Option	**Increase Harvest**	**Stable Harvest**	**Decrease Harvest**
14 day concurrent	46,000	**39,000**	33,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU **2B**

WMU Characteristics				
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
30%	44%	21%	0%	1,363

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	5,182	14,459	68,000	4.4
2006	5,759	16,505	68,000	3.9
2007	4,372	15,332	68,000	3.9
2008	3,964	15,251	68,000	4.1
2009	4,297	19,866	68,000	3.3
2010	3,976	13,008	68,000	4.8
2011	4,472	16,550	71,000	3.6
2012	4,837	15,955	67,000	3.8
2013	5,610	14,389	62,000	4.3
2014	4,267	13,165	60,000	4.5
2015	5,191	15,379	61,000	3.9
2016	5,801	14,317	60,000	4.2
2017	4,458	13,930	60,000	3.9
2018	5,036	12,318	58,000	3.8
2019	5,503	10,374	54,000	4.3
2020	6,201	14,746	49,000	3.3
2021	5,189	12,095	49,000	4.0

Antlered Harvest Estimate

RED=7 day concurrent season

POST-HUNT Deer Population   **Trend**   Stable

Harvest indices (i.e., antlered harvest, antlerless lic/deer), not PASAK model, used to monitor population trend

WMU 2B

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.43
2009	0.48
2010	0.47
2011	0.41
2012	0.45
2013	0.44
2014	0.44
2015	0.37
2016	0.41
2017	0.45
2018	0.36
2019	0.37
2020	0.38
2021	0.35
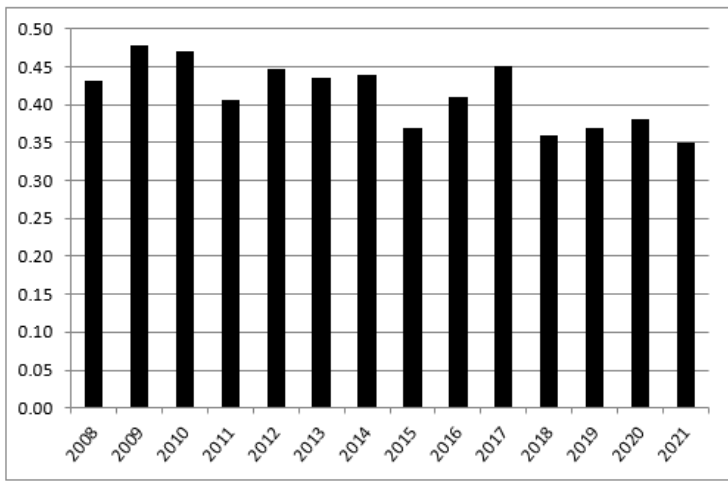
FOREST HEALTH			**Regeneration Assessment**
	Plot - Plot Regeneration	**Plot - Plot Deer Impact**	**Mean Deer Impact**

Forest data not considered in this developed WMU

Citizen Survey Results	**2019 (2011)**	**Too High**	38%(32%)	**Just Right**	51% (52%)	**Too Low**	8% (9%)

Antlerless Allocation Options			
Firearm Season Option	**Increase Harvest**	**Stable Harvest**	**Decrease Harvest**
14 day concurrent	54,000	**49,000**	44,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **2C**

WMU Characteristics				
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
6%	68%	24%	10%	2,934

Approximately 54% of WMU 2C is within CWD DMA 2 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	7,413	13,683	53,000	3.8
2006	9,049	12,094	49,000	4.0
2007	8,441	11,619	49,000	4.1
2008	7,476	12,752	49,000	3.8
2009	6,508	10,870	49,000	4.5
2010	8,528	9,579	44,107	4.6
2011	8,249	12,793	58,000	4.5
2012	7,600	10,822	50,000	4.6
2013	7,219	10,957	43,000	3.9
2014	7,016	8,985	38,000	4.5
2015	9,134	7,269	31,000	4.3
2016	8,300	6,869	31,000	4.6
2017	9,792	7,724	31,000	4.0
2018	9,572	11,134	44,000	4.0
2019	9,426	12,743	52,000	4.1
2020	8,441	15,744	58,000	3.7
2021	9,330	15,415	67,000	4.3

Antlered Harvest Estimate
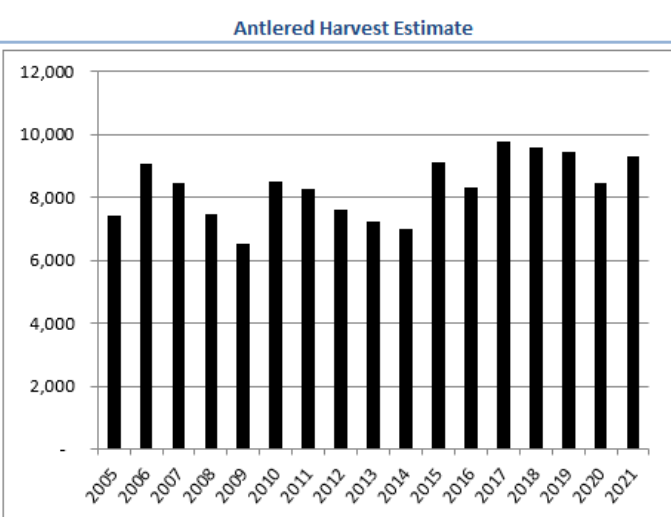
RED=7 day concurrent season

POST-HUNT Deer Population   **Trend   Stable**

Year	Total
2008	87,046
2009	72,402
2010	62,340
2011	66,729
2012	64,888
2013	61,386
2014	68,683
2015	66,027
2016	83,350
2017	69,034
2018	113,659
2019	86,087
2020	97,246
2021	76,365
2022	73,906
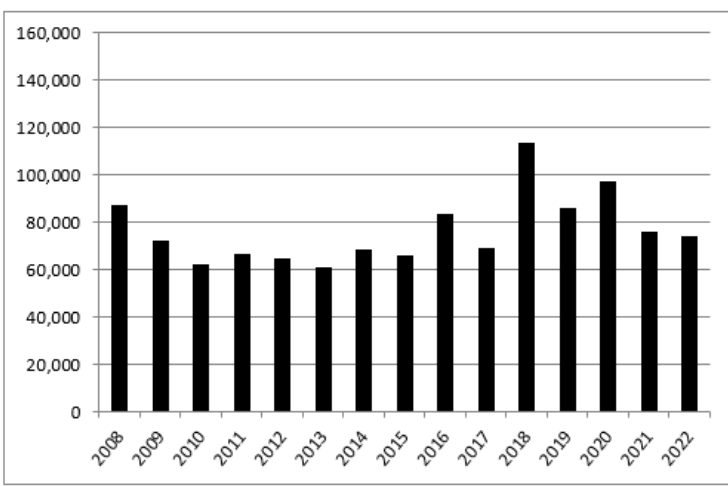
WMU 2C

DEER HEALTH: Fawn to Doe Ratio[2]

Trend **Stable**

Year	Total
2008	0.43
2009	0.43
2010	0.40
2011	0.40
2012	0.38
2013	0.44
2014	0.42
2015	0.37
2016	0.35
2017	0.37
2018	0.34
2019	0.35
2020	0.33
2021	0.34
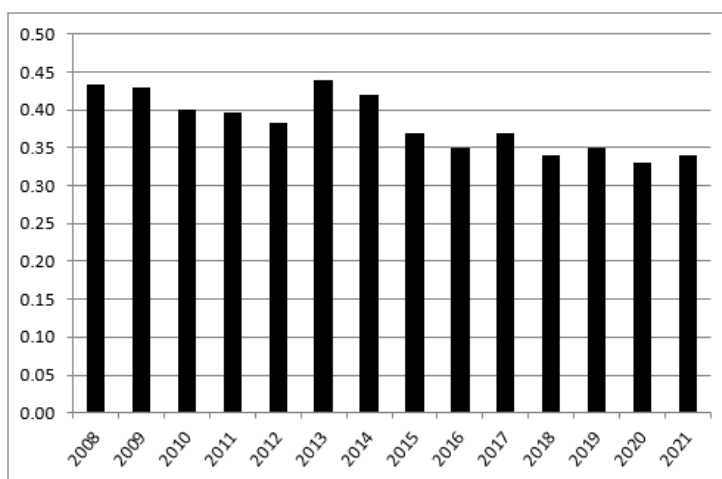
FOREST HEALTH

Regeneration Assessment **Fair**

Plot - Plot Regeneration **No Change**   Plot - Plot Deer Impact **No Change**   Mean Deer Impact **3 or less**

Year	% Adequate
2003-07	54%
2004-08	59%
2005-09	58%
2006-10	58%
2007-11	59%
2008-12	56%
2009-13	57%
2010-14	58%
2011-15	62%
2012-16	63%
2013-17	60%
2014-18	58%
2015-19	57%
2016-20*	-
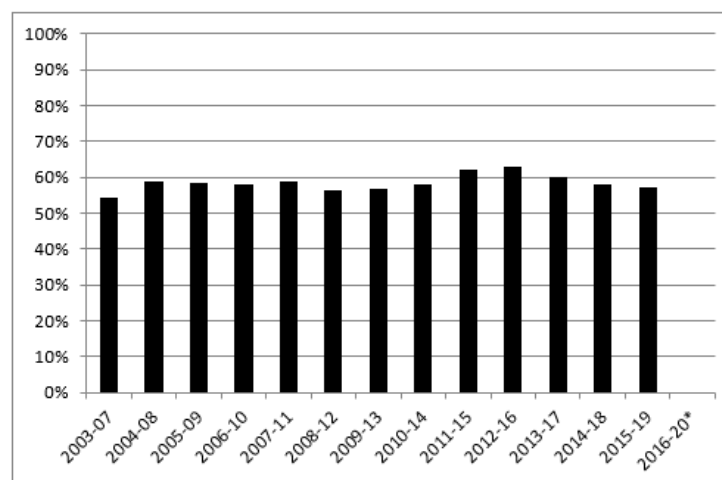
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   Too High   19%(13%)   Just Right   52%(50%)   Too Low   23%(26%)

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	72,000	61,000	49,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

CWD has been detected in wild deer in this WMU (page 19), thus the objective is to increase antlerless harvest to reduce the population (page 7). The recommendation for 2022-23 is to allocate the same number as the 2021-22 season (page 2), which will maintain the antlerless harvest levels from previous years. Due to recent changes in concurrent season length, antlerless license purchase limits, and increased allocations in previous years, we are recommending consistent allocations to evaluate the effect of these actions on the population.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   2D

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
5%	60%	31%	2%	2,486

Approximately 19% of WMU 2D is within CWD DMA 3 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	9,975	22,054	56,000	2.5
2006	10,896	20,437	56,000	2.7
2007	9,118	18,099	56,000	3.1
2008	9,508	15,591	56,000	3.5
2009	9,977	15,962	56,000	3.5
2010	11,540	18,046	50,123	2.8
2011	11,130	19,257	60,000	3.1
2012	13,660	20,839	62,000	3.0
2013	13,704	21,614	61,000	2.8
2014	11,417	16,441	61,000	3.7
2015	12,292	15,728	55,000	3.5
2016	12,843	16,447	55,000	3.3
2017	14,716	17,033	55,000	3.2
2018	11,847	20,345	63,000	3.1
2019	12,971	17,472	66,000	3.8
2020	12,121	18,726	60,000	3.2
2021	11,486	19,908	74,000	3.7

Antlered Harvest Estimate
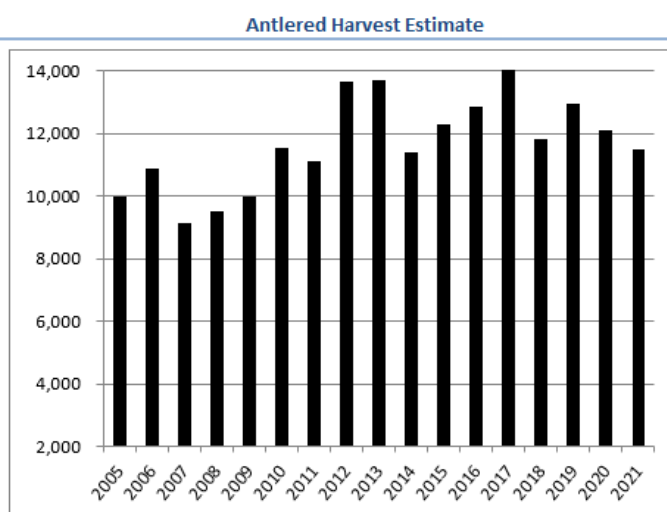
RED=7 day concurrent season

POST-HUNT Deer Population **Trend** **Stable**

Year	Total
2008	69,732
2009	88,666
2010	86,493
2011	101,182
2012	102,440
2013	113,774
2014	144,084
2015	110,214
2016	117,823
2017	112,499
2018	140,281
2019	105,280
2020	114,679
2021	93,498
2022	99,753
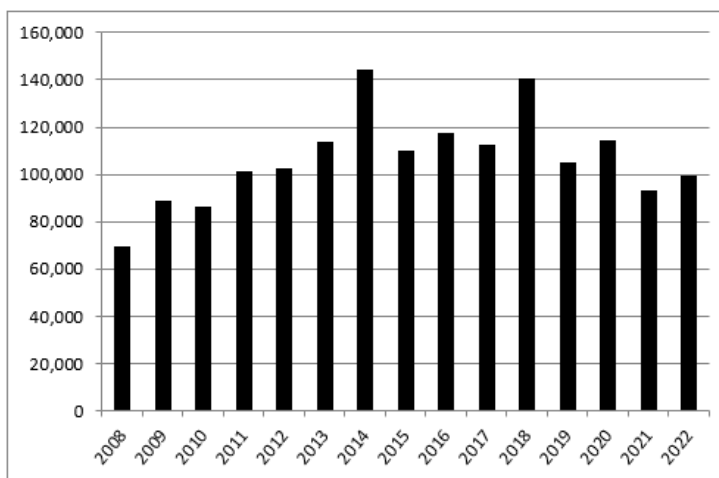
WMU 2D

DEER HEALTH: Fawn to Doe Ratio[2] **Trend** Stable

Year	Total
2008	0.44
2009	0.39
2010	0.42
2011	0.44
2012	0.42
2013	0.42
2014	0.40
2015	0.37
2016	0.36
2017	0.37
2018	0.34
2019	0.33
2020	0.32
2021	0.33
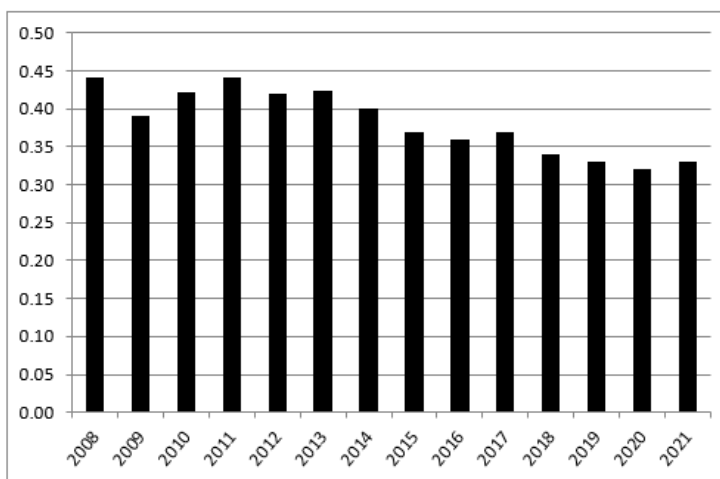
FOREST HEALTH **Regeneration Assessment** Fair

Plot - Plot Regeneration No Change Plot - Plot Deer Impact No Change **Mean Deer Impact** 3 or less

Year	% Adequate
2003-07	52%
2004-08	54%
2005-09	51%
2006-10	52%
2007-11	49%
2008-12	46%
2009-13	50%
2010-14	45%
2011-15	44%
2012-16	50%
2013-17	48%
2014-18	41%
2015-19	45%
2016-20 •	-
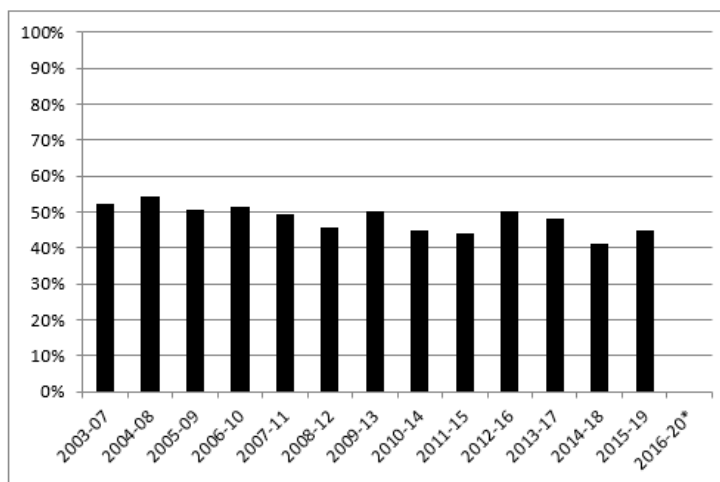
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results 2019 (2011) **Too High** 26%(23%) **Just Right** 57%(52%) **Too Low** 13%(19%)

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	75,000	66,000	58,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

CWD has been detected in wild deer in this WMU (page 19), thus the objective is to increase antlerless harvest to reduce the population (page 7). The recommendation for 2022-23 is to allocate the same number as the 2021-22 season (page 2), which will maintain the antlerless harvest levels from previous years. Due to recent changes in concurrent season length, antlerless license purchase limits, and increased allocations in previous years, we are recommending consistent allocations to evaluate the effect of these actions on the population.

# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **2E**

		WMU Characteristics		
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
5%	65%	26%	6%	1,427

Approximately 62% of WMU 2E is within CWD DMAs 2&3 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	4,093	7,471	21,000	2.8
2006	5,358	7,360	21,000	2.8
2007	3,642	6,398	21,000	3.2
2008	4,984	6,179	21,000	3.3
2009	3,673	5,298	21,000	4.0
2010	4,178	5,952	20,407	3.5
2011	4,116	7,073	25,000	3.5
2012	4,785	5,561	21,000	3.8
2013	4,883	7,973	22,000	2.8
2014	4,440	5,593	21,000	3.8
2015	4,742	5,263	21,000	4.0
2016	5,221	5,215	21,000	4.1
2017	6,929	6,214	22,000	3.5
2018	6,274	8,693	27,000	3.1
2019	6,370	7,641	32,000	4.2
2020	6,515	11,348	39,000	3.4
2021	5,917	9,488	42,000	4.4

Antlered Harvest Estimate

RED=7 day concurrent season

POST-HUNT Deer Population   **Trend**   **Stable**

Year	Total
2008	32,623
2009	42,709
2010	38,317
2011	38,134
2012	30,384
2013	44,546
2014	45,529
2015	50,549
2016	43,081
2017	43,144
2018	56,635
2019	47,171
2020	62,753
2021	52,578
2022	54,143
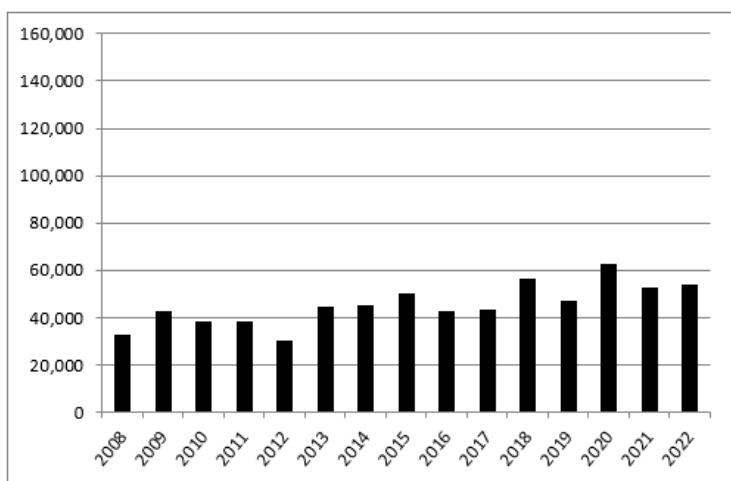
WMU 2E

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend** **Stable**

Year	Total
2008	0.40
2009	0.37
2010	0.46
2011	0.41
2012	0.43
2013	0.40
2014	0.36
2015	0.36
2016	0.36
2017	0.33
2018	0.31
2019	0.33
2020	0.32
2021	0.34
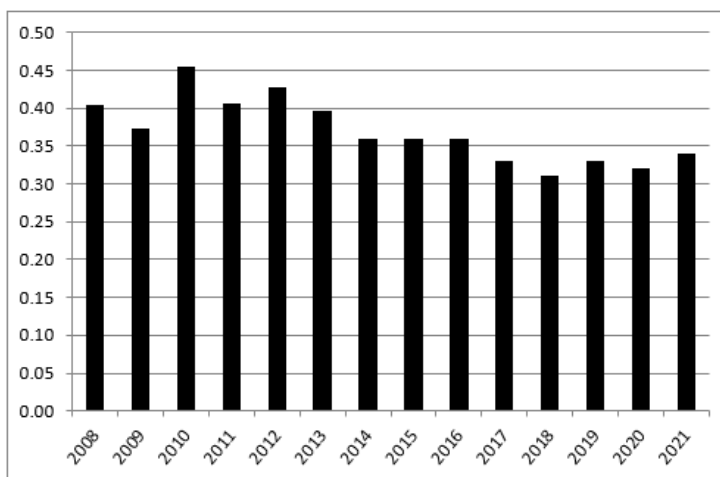
	FOREST HEALTH	**Regeneration Assessment**	**Fair**
		Plot - Plot Regeneration No Change Plot - Plot Deer Impact No Change	**Mean Deer Impact** 3 or less

Year	% Adequate
2003-07	53%
2004-08	50%
2005-09	47%
2006-10	50%
2007-11	52%
2008-12	52%
2009-13	56%
2010-14	61%
2011-15	63%
2012-16	56%
2013-17	60%
2014-18	56%
2015-19	54%
2016-20[*]	-
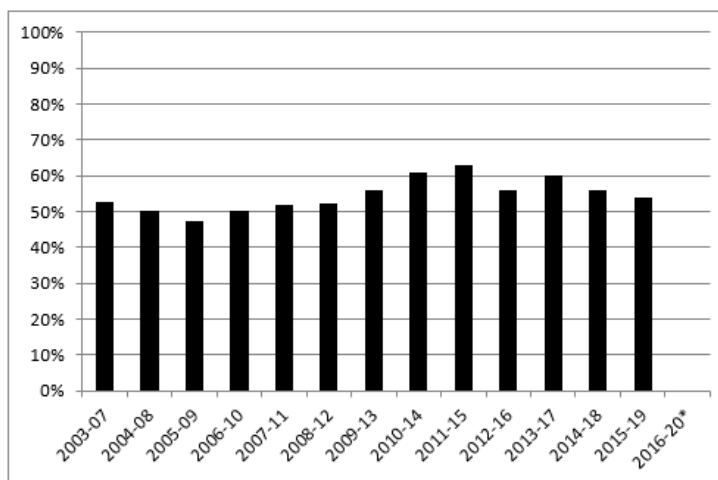
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High** 20%(13%) **Just Right** 56%(48%) **Too Low** 22%(31%)

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	45,000	40,000	34,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

CWD has been detected in wild deer in this WMU (page 19), thus the objective is to increase antlerless harvest to reduce the population (page 7). The recommendation for 2022-23 is to allocate the same number as the 2021-22 season (page 2), which will maintain the antlerless harvest levels from previous years. Due to recent changes in concurrent season length, antlerless license purchase limits, and increased allocations in previous years, we are recommending consistent allocations to evaluate the effect of these actions on the population.
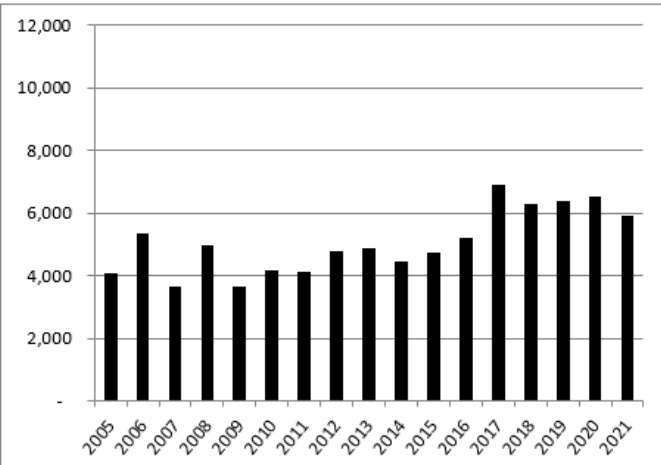
2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **2F**

WMU Characteristics				
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
2%	88%	7%	56%	2,409

Approximately 17% of WMU 2F is within CWD DMAs 3&5 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	6,013	8,322	30,000	3.5
2006	7,153	8,030	28,000	3.5
2007	4,795	7,132	28,000	3.9
2008	6,990	9,117	28,000	3.0
2009	5,167	6,648	28,000	4.3
2010	6,403	5,657	22,148	4.0
2011	5,393	6,737	34,000	5.0
2012	7,139	6,067	27,000	4.5
2013	6,607	8,008	29,000	3.6
2014	5,979	5,915	27,000	4.6
2015	6,989	5,434	22,000	4.1
2016	7,678	6,718	22,000	3.3
2017	9,489	7,200	24,000	3.3
2018	7,665	7,533	23,000	3.1
2019	9,014	8,816	31,000	3.5
2020	10,686	9,953	36,000	3.6
2021	8,897	10,241	32,000	3.2

Antlered Harvest Estimate
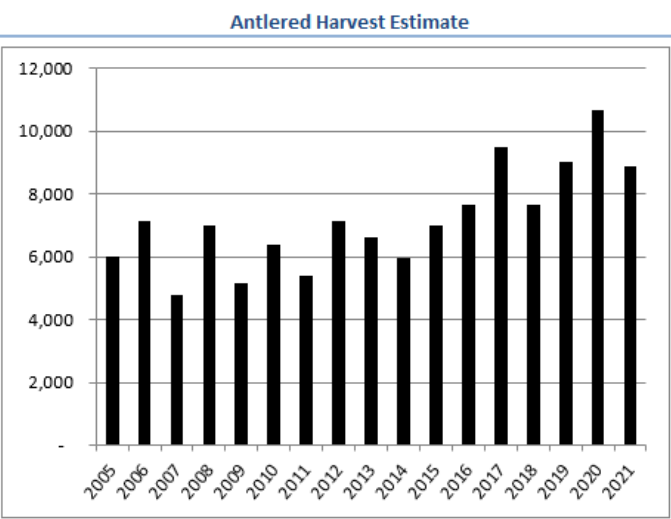
RED=7 day concurrent season

POST-HUNT Deer Population   **Trend**   **Stable**

Year	Total
2008	47,288
2009	67,724
2010	46,887
2011	70,765
2012	53,210
2013	83,063
2014	65,614
2015	61,020
2016	67,152
2017	74,387
2018	108,575
2019	87,309
2020	98,104
2021	112,840
2022	86,470
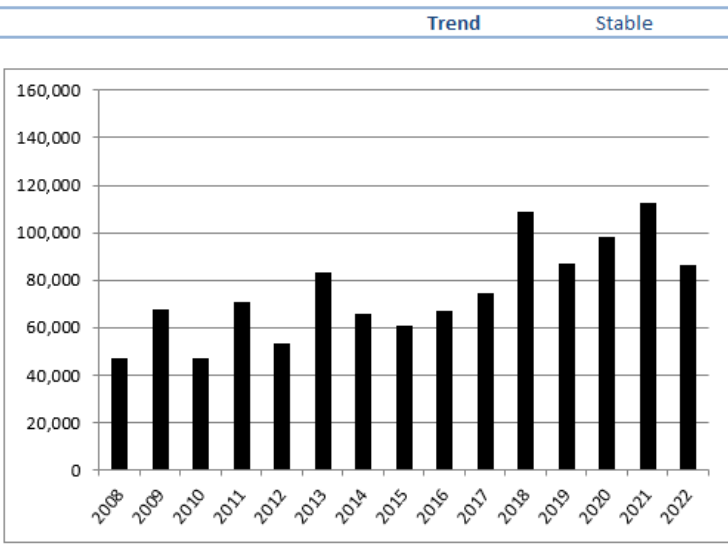
WMU   2F

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.35
2009	0.34
2010	0.39
2011	0.40
2012	0.39
2013	0.38
2014	0.37
2015	0.34
2016	0.33
2017	0.36
2018	0.37
2019	0.28
2020	0.27
2021	0.31
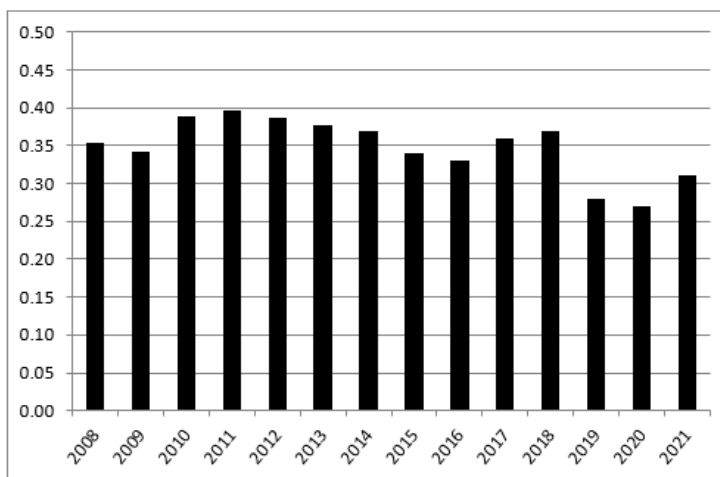
FOREST HEALTH

	Regeneration Assessment	Good
Plot - Plot Regeneration No Change Plot - Plot Deer Impact No Change	Mean Deer Impact	3 or less

Year	% Adequate
2003-07	47%
2004-08	50%
2005-09	50%
2006-10	54%
2007-11	54%
2008-12	54%
2009-13	54%
2010-14	58%
2011-15	61%
2012-16	65%
2013-17	69%
2014-18	71%
2015-19	69%
2016-20 *	-
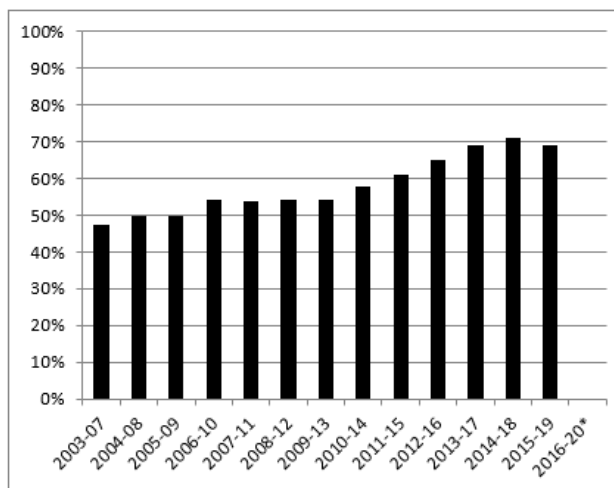
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High   19%(10%)   Just Right   48%(39%)   Too Low   26%(42%)**

Antlerless Allocation Options			
Firearm Season Option	**Increase Harvest**	**Stable Harvest**	**Decrease Harvest**
14 day concurrent	37,000	29,000	22,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

CWD has been newly detected in wild deer in this WMU (page 19), thus the objective is to increase antlerless harvest to reduce the population (page 7).

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **2G**

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
4%	82%	7%	57%	3,117

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005				
2006				
2007				
2008				
2009	3,802	1,046		
2010	5,088	2,627		
2011	4,957	4,117		
2012	4,976	4,915		
2013	5,018	6,881	28,000	4.1
2014	4,839	4,671	22,000	4.7
2015	6,073	4,143	22,000	5.4
2016	6,201	3,996	21,000	5.3
2017	8,193	5,516	25,500	4.6
2018	6,296	7,372	30,000	4.1
2019	8,062	6,123	26,000	4.3
2020	7,505	6,806	27,000	4.0
2021	6,159	4,758	23,000	5.1

Antlered Harvest Estimate
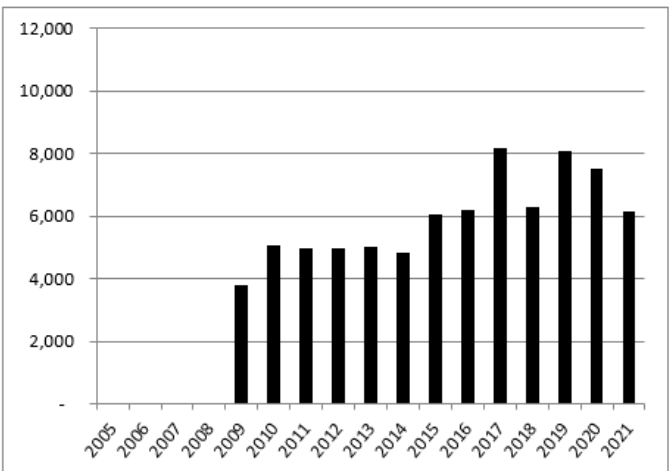
RED=7 day concurrent season

Deer Population   **Trend**   **Stable**

Year	Total
2008	
2009	55,234
2010	41,008
2011	45,743
2012	55,997
2013	57,014
2014	49,313
2015	40,343
2016	65,521
2017	67,942
2018	81,757
2019	55,221
2020	70,946
2021	85,558
2022	59,211
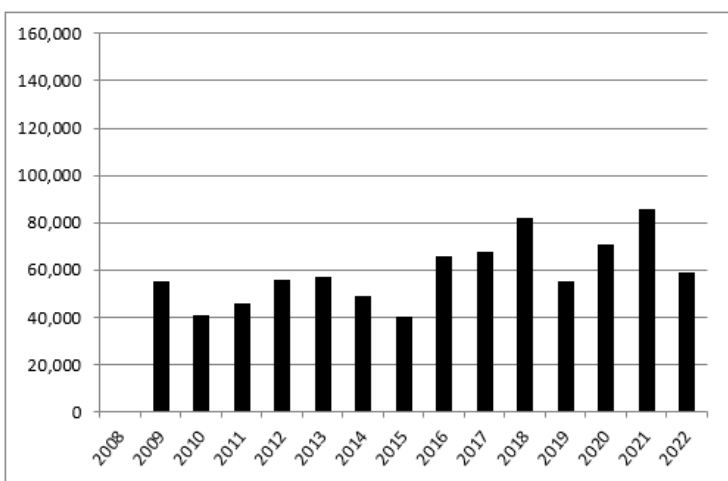
WMU   2G

DEER HEALTH: Fawn to Doe Ratio[2]				Trend	Declining

Year	Total
2008	0.34
2009	0.35
2010	0.39
2011	0.35
2012	0.25
2013	0.35
2014	0.30
2015	0.34
2016	0.31
2017	0.29
2018	0.35
2019	0.26
2020	0.24
2021	0.23
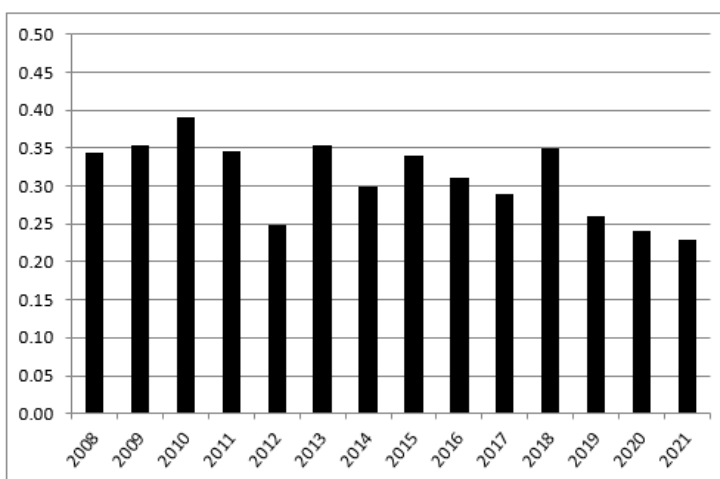
FOREST HEALTH		Regeneration Assessment	Fair
	Plot - Plot Regeneration No Change Plot - Plot Deer Impact No Change Mean Deer Impact 3 or less		

Year	% Adequate
2003-07	53%
2004-08	53%
2005-09	54%
2006-10	54%
2007-11	55%
2008-12	56%
2009-13	55%
2010-14	54%
2011-15	56%
2012-16	52%
2013-17	55%
2014-18	52%
2015-19	50%
2016-20*	-

*Not available from the U.S. Forest Service for 2020

Citizen Survey Results 2019 (2011)		Too High	13%(3%)	Just Right	49%(39%)	Too Low	35%(55%)

Antlerless Allocation Options			
Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	38,000	25,000	12,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **2H**

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
4%	86%	6%	27%	1,001

Approximately 10% of WMU 2H is within CWD DMA 6 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005				
2006				
2007				
2008				
2009	1,471	1,046		
2010	1,670	990		
2011	1,323	1,321		
2012	1,565	1,459		
2013	1,475	1,657	6,000	3.7
2014	1,670	1,064	5,500	5.2
2015	1,426	1,419	6,500	4.6
2016	1,867	1,861	6,000	3.2
2017	1,726	1,889	7,000	3.7
2018	2,478	1,812	6,000	3.3
2019	2,404	1,086	6,000	5.6
2020	2,855	1,563	7,000	4.5
2021	2,545	1,931	9,000	4.7
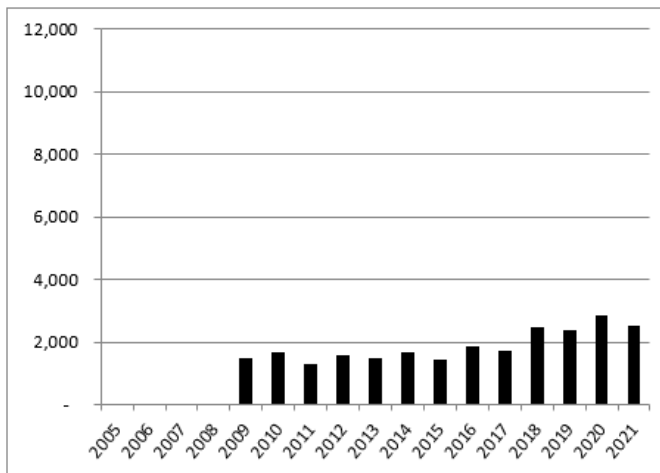
Antlered Harvest Estimate

RED=7 day concurrent season

Deer Population   **Trend**   **Stable**

Year	Total
2008	
2009	19,730
2010	11,565
2011	18,952
2012	13,917
2013	16,895
2014	16,537
2015	16,872
2016	15,430
2017	15,704
2018	38,649
2019	18,919
2020	25,314
2021	42,858
2022	39,712
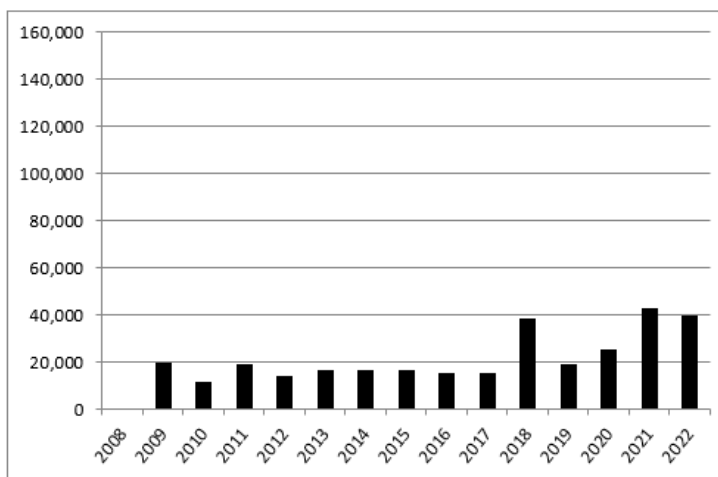
WMU   2H

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.43
2009	0.40
2010	0.35
2011	0.33
2012	0.39
2013	0.23
2014	0.33
2015	0.33
2016	0.24
2017	0.40
2018	0.35
2019	0.32
2020	0.22
2021	0.28
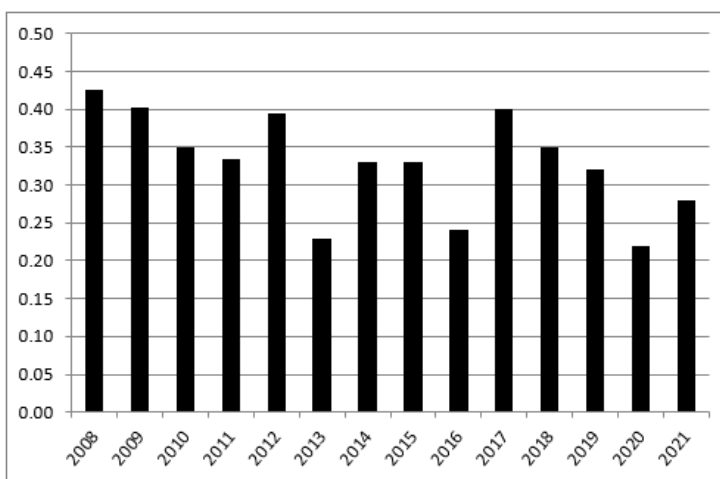
FOREST HEALTH

| | | | | **Regeneration Assessment** | Fair |
| **Plot - Plot Regeneration** | No Change | **Plot - Plot Deer Impact** | No Change | **Mean Deer Impact** | 3 or less |

Year	% Adequate
2003-07	44%
2004-08	43%
2005-09	47%
2006-10	52%
2007-11	51%
2008-12	51%
2009-13	57%
2010-14	56%
2011-15	57%
2012-16	55%
2013-17	62%
2014-18	54%
2015-19	50%
2016-20[•]	-
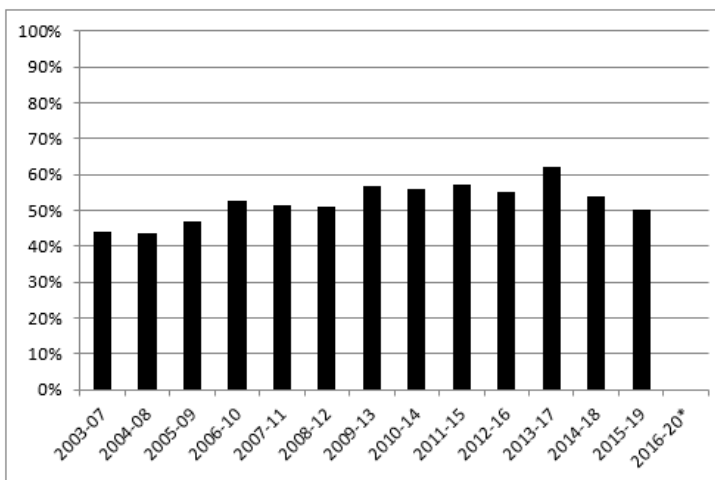
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High   13%(3%)   Just Right   49%(39%)   Too Low   35%(55%)**

Antlerless Allocation Options			
Firearm Season Option	**Increase Harvest**	**Stable Harvest**	**Decrease Harvest**
14 day concurrent	11,000	6,000	2,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   3A

WMU Characteristics				
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
2%	78%	17%	10%	1,506

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	3,981	8,657	27,000	3.1
2006	4,527	8,818	29,000	3.2
2007	3,359	7,803	29,000	3.6
2008	4,132	7,478	26,000	3.4
2009	3,310	5,998	26,000	4.4
2010	3,751	6,469	25,247	3.9
2011	3,345	6,672	26,000	3.9
2012	4,278	6,673	26,000	3.9
2013	4,177	5,430	23,000	4.2
2014	3,308	4,253	18,000	4.2
2015	4,314	4,005	19,000	4.8
2016	5,432	3,776	15,000	4.0
2017	5,419	5,014	20,000	4.0
2018	4,825	7,430	22,000	3.0
2019	5,704	5,663	20,000	3.5
2020	6,968	6,694	21,000	3.1
2021	5,442	5,441	19,000	3.6

Antlered Harvest Estimate
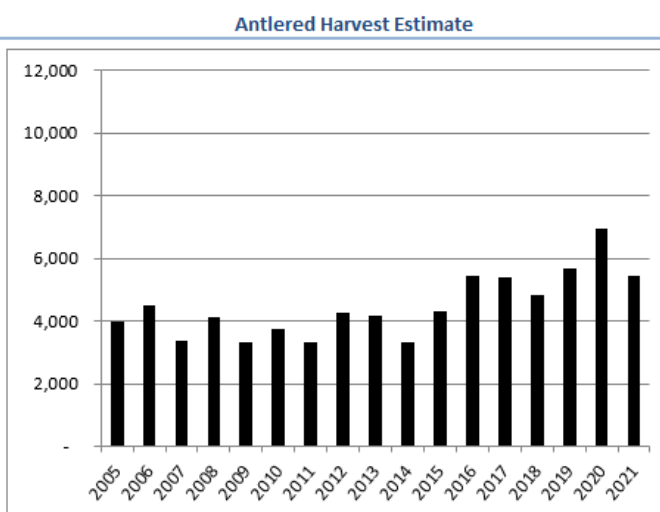
RED=7 day concurrent season

POST-HUNT Deer Population   **Trend   Stable**

Year	Total
2008	32,425
2009	32,513
2010	31,412
2011	39,532
2012	31,224
2013	41,358
2014	45,317
2015	36,181
2016	49,307
2017	49,426
2018	55,441
2019	39,832
2020	54,040
2021	71,376
2022	55,494
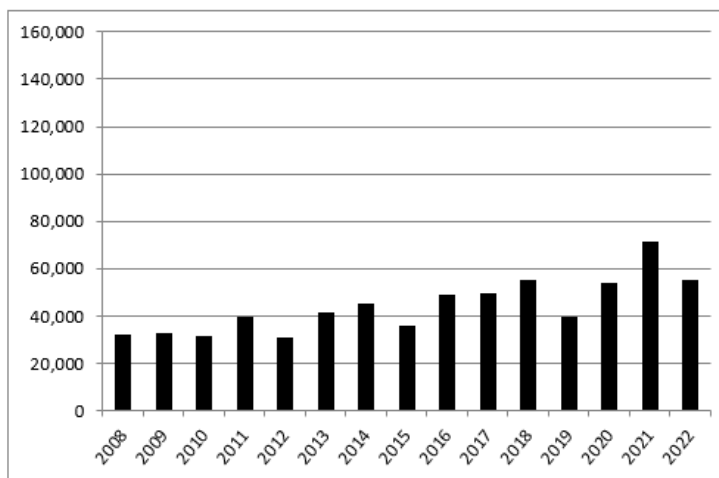
WMU   3A

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.33
2009	0.35
2010	0.42
2011	0.36
2012	0.34
2013	0.36
2014	0.36
2015	0.36
2016	0.27
2017	0.32
2018	0.33
2019	0.32
2020	0.26
2021	0.26
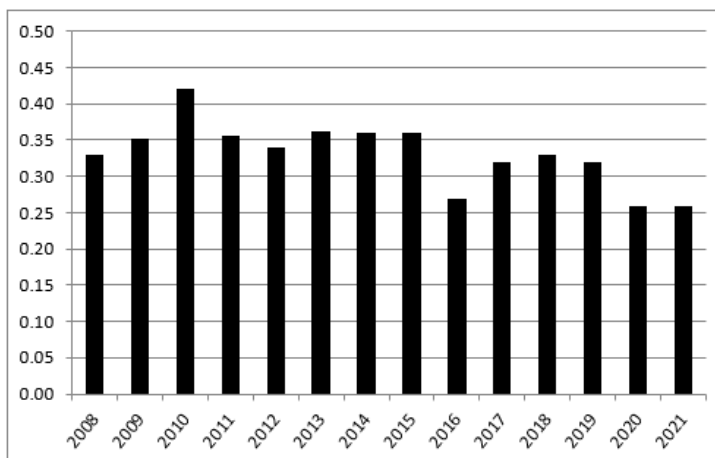
FOREST HEALTH

Regeneration Assessment   Fair

Plot - Plot Regeneration No Change   **Plot - Plot Deer Impact** No Change   **Mean Deer Impact** 3 or less

Year	% Adequate
2003-07	65%
2004-08	63%
2005-09	62%
2006-10	61%
2007-11	63%
2008-12	60%
2009-13	66%
2010-14	66%
2011-15	67%
2012-16	65%
2013-17	69%
2014-18	64%
2015-19	61%
2016-20*	-
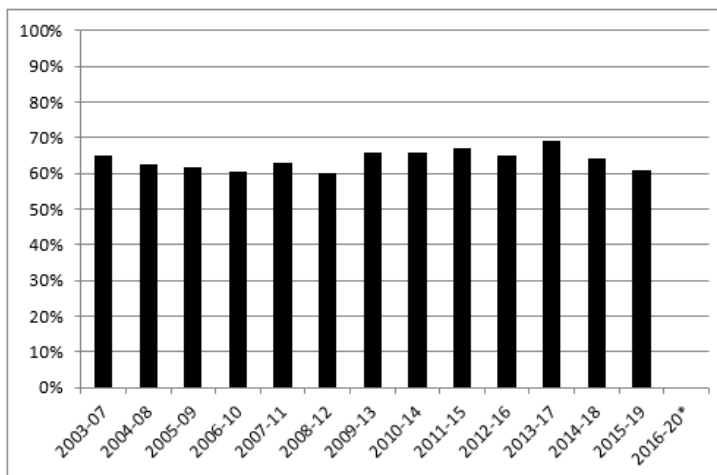
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High   18(3%)   Just Right   57%(32%)   Too Low   21%(59%)**

Antlerless Allocation Options			
Firearm Season Option	**Increase Harvest**	**Stable Harvest**	**Decrease Harvest**
14 day concurrent	24,000	19,000	14,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **3B**

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
6%	79%	11%	21%	2,218

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	5,980	10,871	41,000	3.7
2006	6,530	10,563	43,000	4.0
2007	5,933	10,177	43,000	4.2
2008	5,469	9,857	43,000	4.3
2009	4,865	9,112	43,000	4.7
2010	5,369	7,585	33,761	4.5
2011	5,935	7,707	40,000	5.2
2012	5,752	8,701	40,000	4.6
2013	6,153	8,718	39,000	4.5
2014	6,039	8,055	33,000	4.1
2015	6,840	7,359	28,000	3.8
2016	7,481	7,290	28,000	3.8
2017	8,945	6,970	30,000	4.3
2018	6,977	8,354	29,000	3.5
2019	7,558	10,264	38,000	3.7
2020	9,090	8,507	33,000	3.9
2021	6,708	7,650	30,000	4.0

Antlered Harvest Estimate

RED=7 day concurrent season

Deer Population

Trend   **Stable**

Year	Total
2008	56,162
2009	46,869
2010	48,895
2011	49,768
2012	58,481
2013	53,709
2014	63,803
2015	55,249
2016	76,808
2017	80,598
2018	76,249
2019	51,976
2020	62,489
2021	90,795
2022	56,589

WMU 3B

DEER HEALTH: Fawn to Doe Ratio[2]   Trend   Stable

Year	Total
2008	0.37
2009	0.40
2010	0.40
2011	0.38
2012	0.39
2013	0.39
2014	0.38
2015	0.38
2016	0.37
2017	0.33
2018	0.31
2019	0.30
2020	0.35
2021	0.27
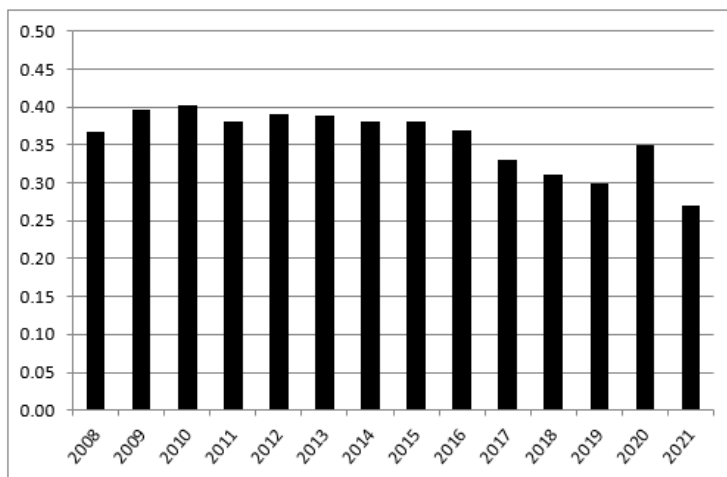
FOREST HEALTH

Regeneration Assessment   Good

Plot - Plot Regeneration No Change   Plot - Plot Deer Impact No Change   Mean Deer Impact   3 or less

Year	% Adequate
2003-07	58%
2004-08	59%
2005-09	62%
2006-10	62%
2007-11	60%
2008-12	65%
2009-13	67%
2010-14	65%
2011-15	61%
2012-16	64%
2013-17	57%
2014-18	63%
2015-19	66%
2016-20•	-
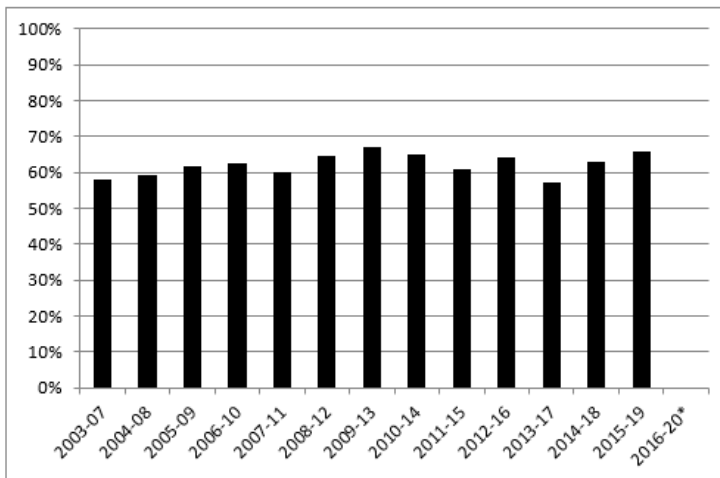
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   Too High   20%(7%)   Just Right   55%(59%)   Too Low   17%(24%)

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	41,000	**33,000**	24,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **3C**

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
4%	75%	16%	3%	2,187

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	5,821	11,198	32,000	2.8
2006	6,673	9,248	27,000	2.9
2007	5,278	9,586	27,000	2.8
2008	6,288	7,258	27,000	3.7
2009	6,196	7,084	27,000	3.9
2010	6,211	8,309	26,358	3.2
2011	7,103	9,943	29,000	2.9
2012	7,854	10,508	35,000	3.3
2013	7,004	12,683	35,000	2.8
2014	6,526	10,302	32,000	3.1
2015	7,614	10,460	36,000	3.4
2016	8,629	10,968	36,000	3.3
2017	8,703	11,860	42,000	3.5
2018	7,739	12,172	38,000	3.1
2019	9,382	12,808	46,000	3.6
2020	10,843	14,538	49,000	3.4
2021	7,569	9,366	33,000	3.6

Antlered Harvest Estimate
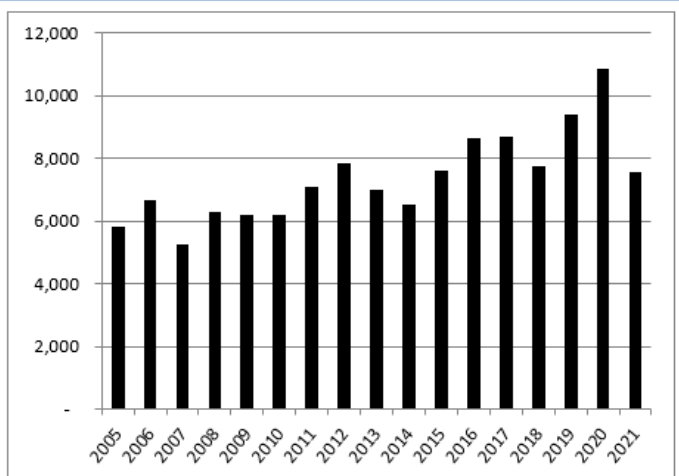
RED=7 day concurrent season

POST-HUNT Deer Population   **Trend**   Stable

Year	Total
2008	45,511
2009	54,141
2010	65,624
2011	59,245
2012	64,359
2013	67,720
2014	58,925
2015	67,997
2016	83,206
2017	85,083
2018	79,925
2019	57,169
2020	75,360
2021	94,807
2022	61,771
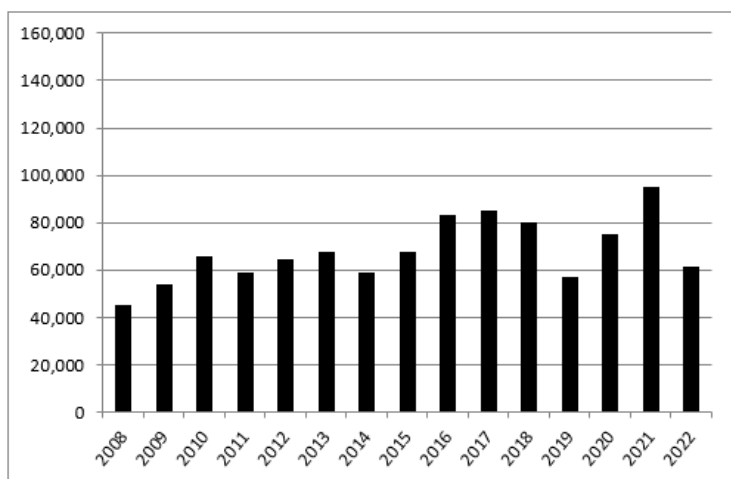
WMU   3C

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend**   **Declining**

Year	Total
2008	0.31
2009	0.35
2010	0.32
2011	0.34
2012	0.32
2013	0.35
2014	0.36
2015	0.34
2016	0.38
2017	0.33
2018	0.32
2019	0.27
2020	0.29
2021	0.26
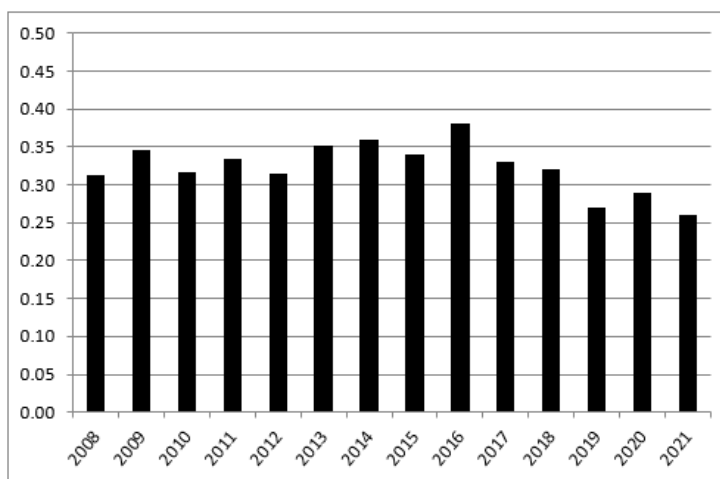
	Regeneration Assessment	**Fair**
FOREST HEALTH		
Plot - Plot Regeneration No Change **Plot - Plot Deer Impact** No Change	**Mean Deer Impact**	**3 or less**

Year	% Adequate
2003-07	49%
2004-08	53%
2005-09	53%
2006-10	51%
2007-11	51%
2008-12	54%
2009-13	56%
2010-14	55%
2011-15	53%
2012-16	53%
2013-17	50%
2014-18	44%
2015-19	46%
2016-20*	-
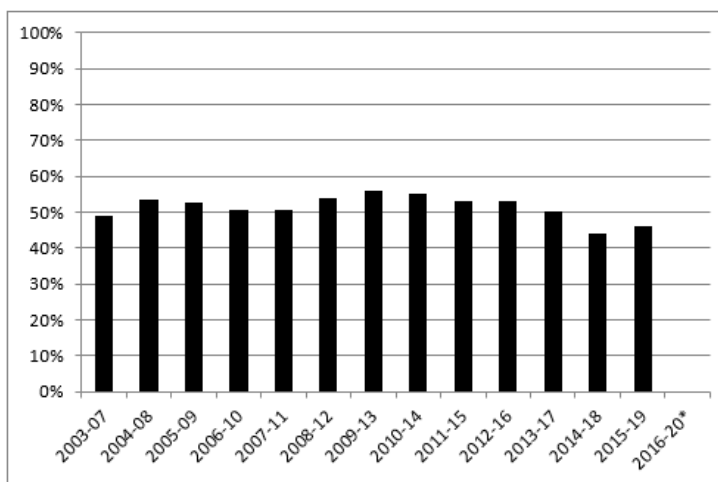
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High**   30%(10%)   **Just Right**   55%(61%)   **Too Low**   11%(20%)

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	44,000	**37,000**	31,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   3D

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
11%	74%	6%	16%	2,101

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	3,865	7,254	38,000	5.1
2006	4,969	7,445	38,000	5.0
2007	3,647	7,017	38,000	5.3
2008	3,899	6,925	37,000	5.3
2009	3,096	6,265	37,000	5.9
2010	3,884	5,509	31,622	5.8
2011	4,509	7,163	39,000	5.4
2012	4,039	6,010	39,000	6.5
2013	3,446	4,986	32,000	6.4
2014	4,155	5,203	25,000	4.8
2015	3,500	3,655	25,000	6.9
2016	4,272	4,235	25,000	5.9
2017	4,656	4,187	25,000	5.9
2018	5,189	5,690	25,000	4.4
2019	6,016	4,932	25,000	5.1
2020	6,180	6,366	36,000	5.7
2021	4,729	6,338	36,000	5.7

Antlered Harvest Estimate

RED=7 day concurrent season

POST-HUNT Deer Population   **Trend   Stable**

Year	Total
2008	31,623
2009	37,563
2010	25,378
2011	30,250
2012	31,299
2013	29,225
2014	25,127
2015	33,778
2016	28,957
2017	33,302
2018	30,727
2019	33,798
2020	48,663
2021	45,355
2022	32,058

WMU   3D

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.32
2009	0.35
2010	0.31
2011	0.34
2012	0.34
2013	0.30
2014	0.29
2015	0.27
2016	0.31
2017	0.24
2018	0.30
2019	0.27
2020	0.29
2021	0.27
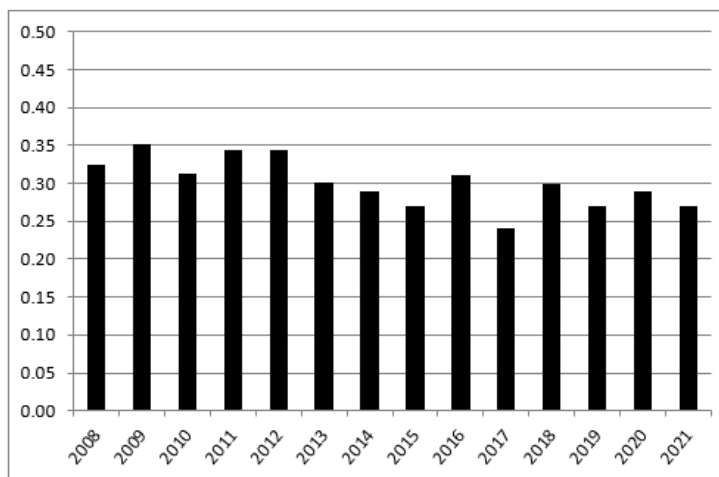
FOREST HEALTH

		Regeneration Assessment	Fair
Plot - Plot Regeneration No Change	**Plot - Plot Deer Impact** No Change	**Mean Deer Impact**	>3

Year	% Adequate
2003-07	56%
2004-08	54%
2005-09	55%
2006-10	58%
2007-11	57%
2008-12	59%
2009-13	61%
2010-14	61%
2011-15	57%
2012-16	63%
2013-17	57%
2014-18	59%
2015-19	58%
2016-20*	-
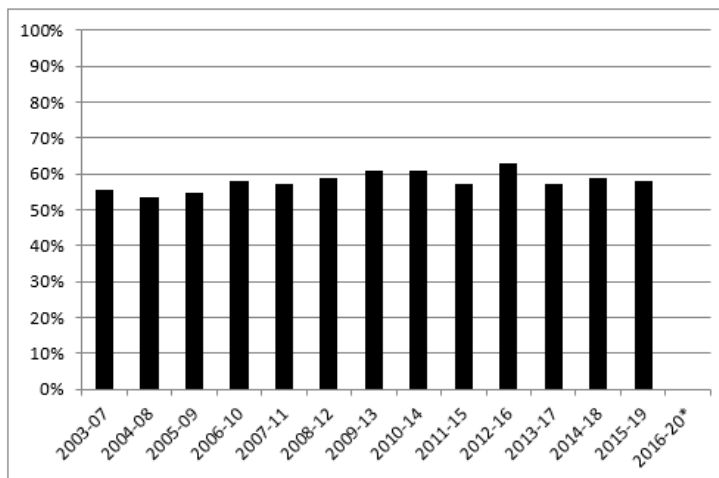
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High   30%(13%)   Just Right   52%(57%)   Too Low   13%(24%)**

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	**41,000**	31,000	20,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

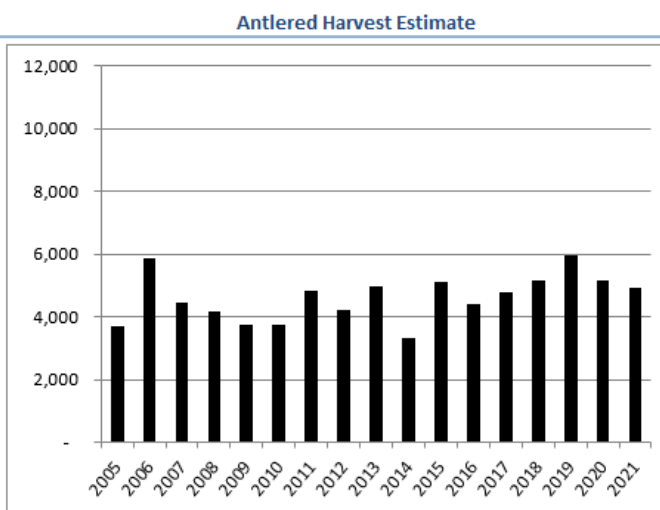# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **4A**

WMU Characteristics				
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
4%	70%	24%	15%	1,736

100% of WMU 4A is within CWD DMA 2 and the Established Area

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	3,714	7,578	35,000	4.5
2006	5,871	7,827	29,000	3.6
2007	4,477	6,735	29,000	4.2
2008	4,187	6,874	29,000	4.2
2009	3,733	7,414	29,000	3.9
2010	3,761	6,401	27,521	4.3
2011	4,849	6,527	28,000	4.3
2012	4,245	6,463	29,000	4.5
2013	4,961	5,981	28,000	4.7
2014	3,317	6,802	28,000	5.6
2015	5,095	6,360	30,000	4.7
2016	4,423	5,726	30,000	5.2
2017	4,810	6,475	30,000	4.6
2018	5,142	6,395	38,000	5.5
2019	5,981	5,250	41,000	5.8
2020	5,183	10,849	49,000	4.0
2021	4,909	10,266	50,000	4.7

Antlered Harvest Estimate

RED=7 day concurrent season

POST-HUNT Deer Population

Trend

Year	Total
2008	47,414
2009	34,628
2010	30,789
2011	38,125
2012	49,191
2013	36,579
2014	42,196
2015	23,772
2016	48,538
2017	29,746
2018	39,238
2019	42,174
2020	47,047
2021	39,911
2022	35,442
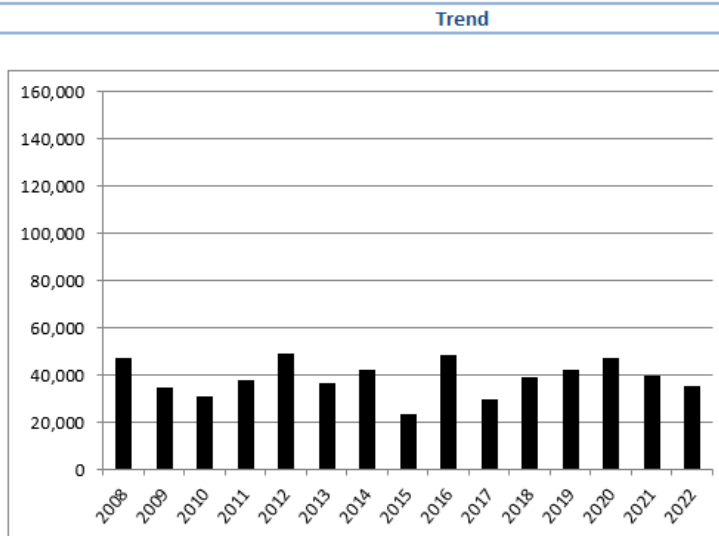
WMU 4A

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend**

Year	Total
2008	0.34
2009	0.34
2010	0.32
2011	0.38
2012	0.32
2013	0.30
2014	0.32
2015	0.37
2016	0.29
2017	0.30
2018	0.30
2019	0.30
2020	0.29
2021	0.27
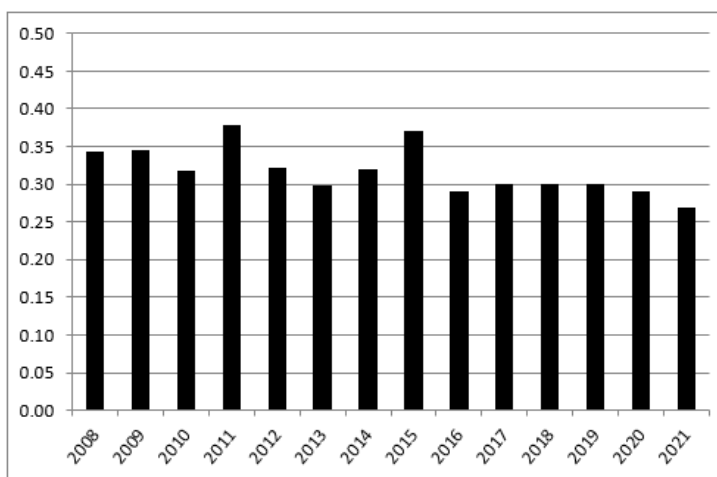
FOREST HEALTH	**Regeneration Assessment**	**Good**
Plot - Plot Regeneration No Change	Plot - Plot Deer Impact No Change	Mean Deer Impact 3 or less

Year	% Adequate
2003-07	60%
2004-08	64%
2005-09	64%
2006-10	61%
2007-11	63%
2008-12	60%
2009-13	59%
2010-14	61%
2011-15	63%
2012-16	67%
2013-17	68%
2014-18	75%
2015-19	67%
2016-20 *	-
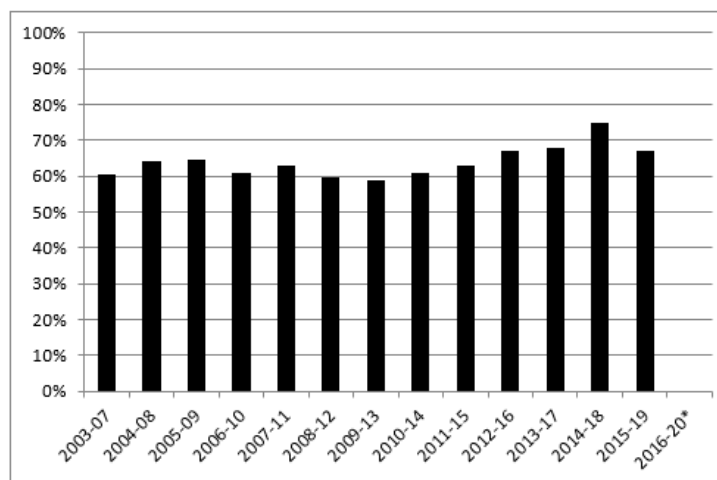
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results	**2019 (2011)**	**Too High**	**14%(4%)**	**Just Right**	**45%(45%)**	**Too Low**	**37%(42%)**

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	49,000	42,000	34,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

CWD has been detected in wild deer in this WMU (page 19), thus the objective is to increase antlerless harvest to reduce the population (page 7). The recommendation for 2022-23 is to allocate the same number as the 2021-22 season (page 2), which will maintain the antlerless harvest levels from previous years. Due to recent changes in concurrent season length, antlerless license purchase limits, and increased allocations in previous years, we are recommending consistent allocations to evaluate the effect of these actions on the population.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **4B**

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
6%	65%	27%	15%	1,591

100% of WMU 4B is within CWD DMA 2 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	3,571	6,644	35,000	5.2
2006	5,026	6,626	31,000	4.6
2007	3,472	4,509	23,000	5.0
2008	3,917	3,846	23,000	5.9
2009	4,011	4,061	23,000	5.7
2010	4,458	5,113	22,148	4.4
2011	5,341	5,498	23,000	4.2
2012	5,622	5,636	26,000	4.6
2013	5,312	5,769	24,000	4.2
2014	4,611	5,630	26,000	4.6
2015	5,701	6,961	26,000	3.8
2016	5,164	6,151	26,000	4.2
2017	5,602	7,061	26,000	3.7
2018	5,273	6,757	26,000	3.9
2019	5,722	7,305	32,000	4.4
2020	5,034	10,770	33,000	3.1
2021	3,522	8,446	34,000	4.1

Antlered Harvest Estimate
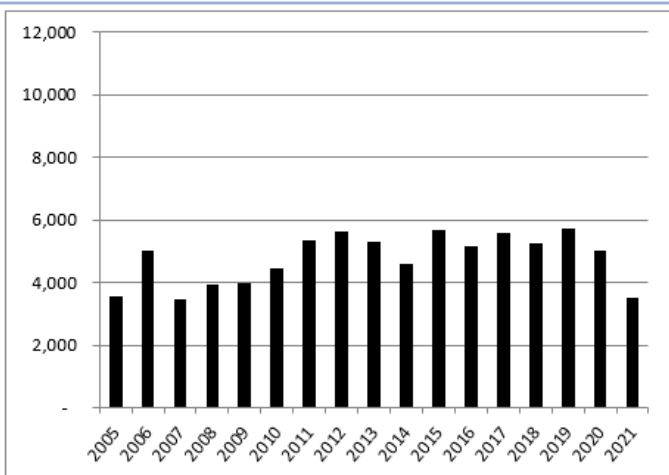
RED=7 day concurrent season

POST-HUNT Deer Population

Trend   **Declining**

Year	Total
2008	30,479
2009	39,044
2010	43,550
2011	37,273
2012	60,340
2013	52,903
2014	50,517
2015	45,362
2016	57,846
2017	55,941
2018	52,407
2019	50,252
2020	54,044
2021	44,691
2022	26,808
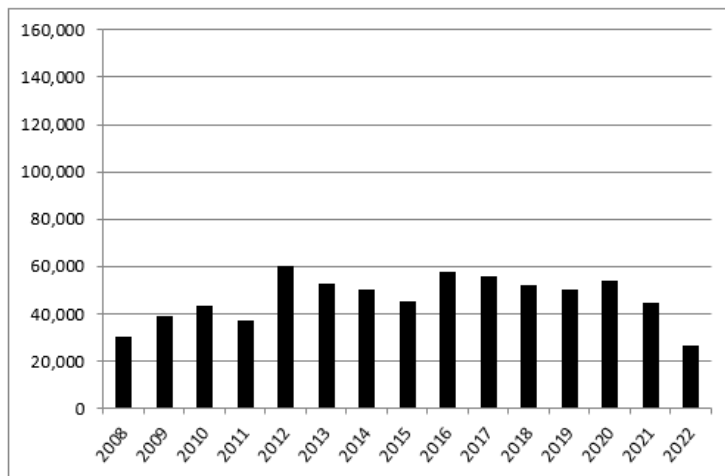
WMU   4B

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.38
2009	0.44
2010	0.38
2011	0.41
2012	0.33
2013	0.31
2014	0.40
2015	0.36
2016	0.35
2017	0.34
2018	0.30
2019	0.29
2020	0.32
2021	0.30
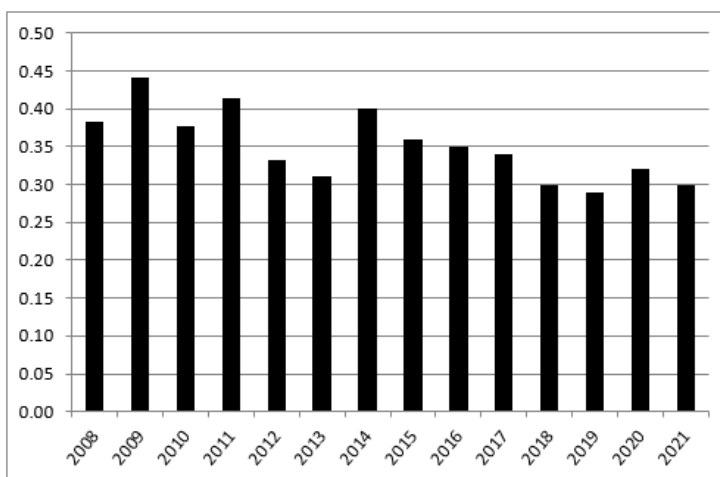
FOREST HEALTH   **Regeneration Assessment   Fair**

Plot - Plot Regeneration No Change   Plot - Plot Deer Impact No Change   Mean Deer Impact   3 or less

Year	% Adequate
2003-07	61%
2004-08	60%
2005-09	58%
2006-10	60%
2007-11	64%
2008-12	61%
2009-13	59%
2010-14	60%
2011-15	63%
2012-16	68%
2013-17	59%
2014-18	57%
2015-19	58%
2016-20[*]	-
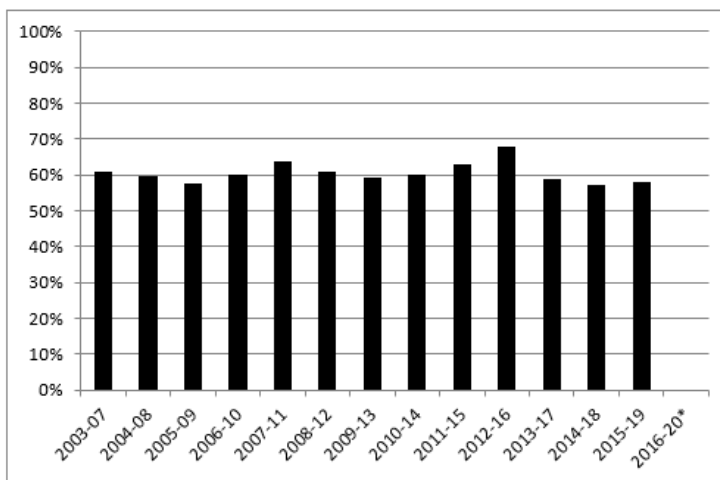
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High   16%(6%)   Just Right   53%(53%)   Too Low   21%(33%)**

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	39,000	33,000	27,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

CWD has been detected in wild deer in this WMU (page 19), thus the objective is to increase antlerless harvest to reduce the population (page 7). The recommendation for 2022-23 is to allocate the same number as the 2021-22 season (page 2), which will maintain the antlerless harvest levels from previous years. Due to recent changes in concurrent season length, antlerless license purchase limits, and increased allocations in previous years, we are recommending consistent allocations to evaluate the effect of these actions on the population.

# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   4C

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
8%	71%	17%	15%	1,717

**Approximately 2% of WMU 4C is within CWD DMA 2 (as of March 2022)**

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	5,891	9,805	39,000	3.9
2006	6,115	8,883	39,000	4.2
2007	4,828	9,375	39,000	4.1
2008	5,015	8,027	35,000	4.3
2009	4,745	7,163	35,000	4.9
2010	5,724	8,357	34,351	4.2
2011	5,525	7,392	35,000	4.7
2012	5,335	7,823	35,000	4.5
2013	5,180	6,922	27,000	3.9
2014	4,830	4,996	25,000	5.1
2015	5,381	4,976	25,000	5.1
2016	6,381	5,273	25,000	4.8
2017	6,799	6,464	29,000	4.5
2018	5,781	7,155	30,000	4.2
2019	6,975	8,328	36,000	4.3
2020	6,998	8,055	32,000	4.0
2021	5,713	6,425	29,000	4.6

Antlered Harvest Estimate
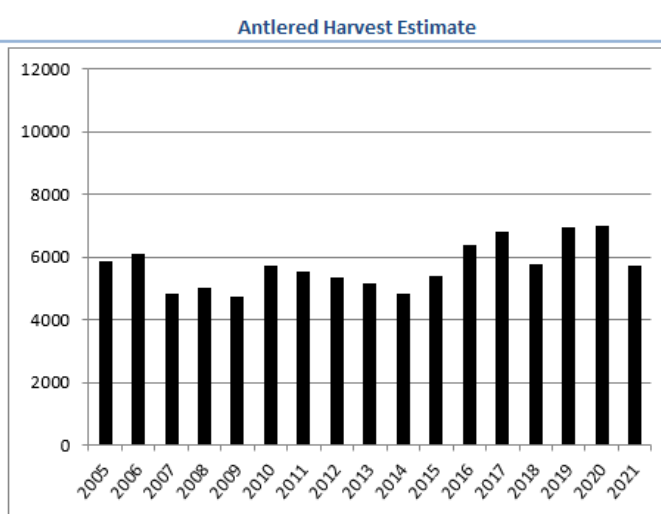
RED=7 day concurrent season

POST-HUNT Deer Population   **Trend   Stable**

Year	Total
2008	44,569
2009	45,224
2010	44,256
2011	58,091
2012	45,093
2013	45,586
2014	49,072
2015	50,265
2016	55,068
2017	55,311
2018	61,317
2019	55,122
2020	55,238
2021	77,639
2022	52,314
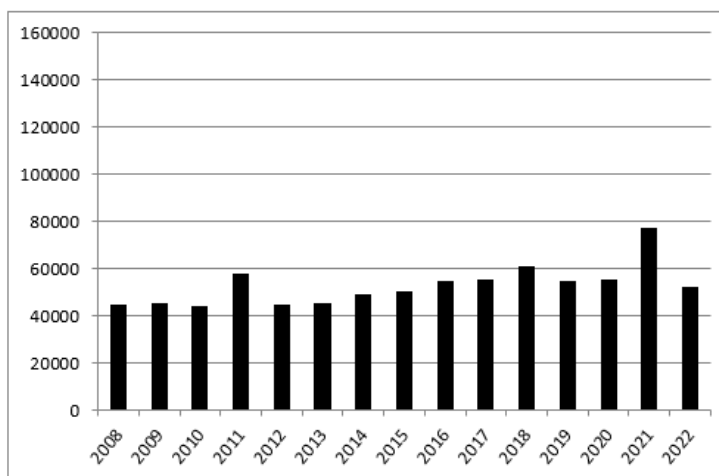
WMU   4C

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.42
2009	0.41
2010	0.42
2011	0.38
2012	0.39
2013	0.40
2014	0.40
2015	0.37
2016	0.36
2017	0.37
2018	0.37
2019	0.33
2020	0.34
2021	0.34
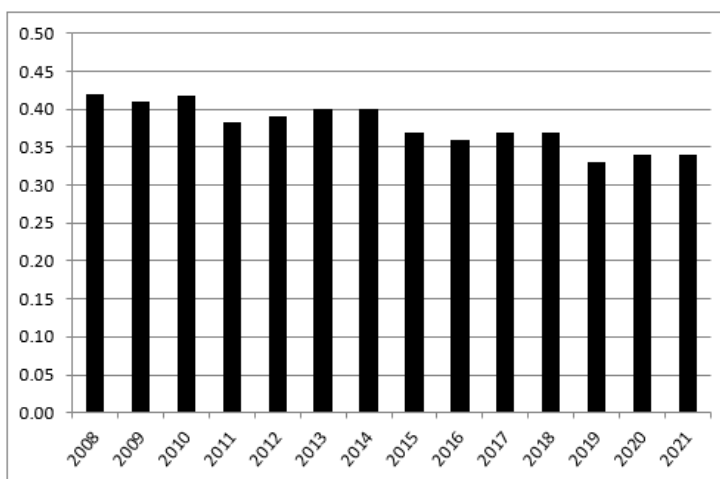
FOREST HEALTH

		Regeneration Assessment	**Fair**
Plot - Plot Regeneration No Change	**Plot - Plot Deer Impact** No Change	**Mean Deer Impact**	**3 or less**

Year	% Adequate
2003-07	66%
2004-08	63%
2005-09	63%
2006-10	63%
2007-11	60%
2008-12	61%
2009-13	62%
2010-14	58%
2011-15	60%
2012-16	59%
2013-17	60%
2014-18	61%
2015-19	59%
2016-20.	-
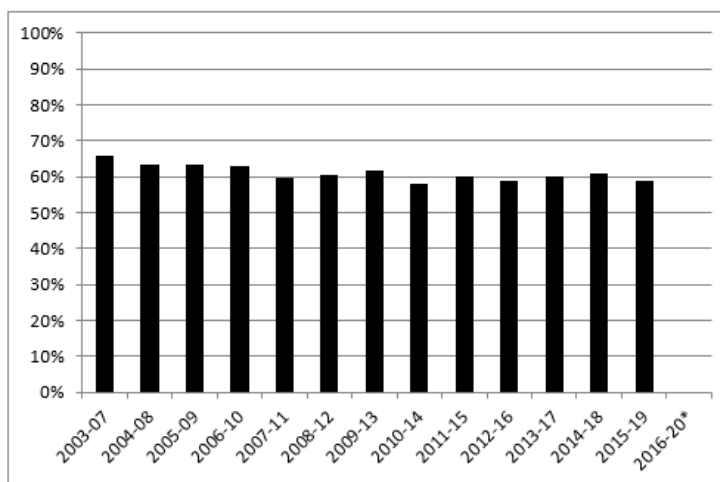
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results	2019 (2011)	**Too High**	23%(7%)	**Just Right**	52%(56%)	**Too Low**	21%(26%)

Antlerless Allocation Options			
Firearm Season Option	**Increase Harvest**	**Stable Harvest**	**Decrease Harvest**
14 day concurrent	38,000	**31,000**	24,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **4D**

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
6%	70%	22%	28%	2,743

Approximately 51% of WMU 4D is within CWD DMA 2 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	5,591	8,354	40,000	4.7
2006	6,776	9,878	40,000	4.0
2007	5,765	8,073	40,000	4.9
2008	6,593	9,310	40,000	4.2
2009	4,971	7,192	40,000	5.6
2010	6,321	5,472	30,052	5.6
2011	7,144	6,561	37,000	5.7
2012	6,922	6,325	36,000	5.7
2013	7,165	8,225	35,000	4.3
2014	6,461	6,832	33,000	5.0
2015	7,240	7,197	33,000	4.6
2016	7,921	7,234	34,000	4.7
2017	10,594	8,381	34,000	4.0
2018	8,299	8,703	34,000	3.9
2019	8,740	10,266	46,000	4.5
2020	9,141	12,256	45,000	3.7
2021	7,196	10,293	55,000	5.4

Antlered Harvest Estimate
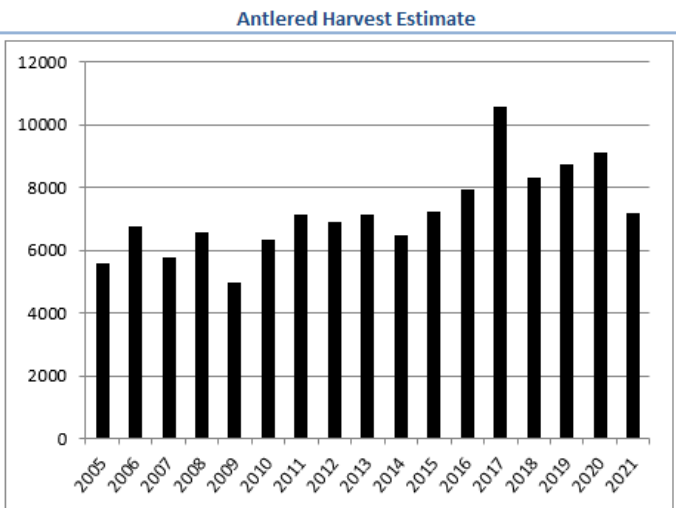
RED=7 day concurrent season

POST-HUNT Deer Population   **Trend**   **Stable**

Year	Total
2008	43,299
2009	62,529
2010	46,284
2011	73,017
2012	70,495
2013	67,011
2014	61,428
2015	56,905
2016	60,398
2017	63,984
2018	99,997
2019	61,822
2020	71,983
2021	89,963
2022	66,855
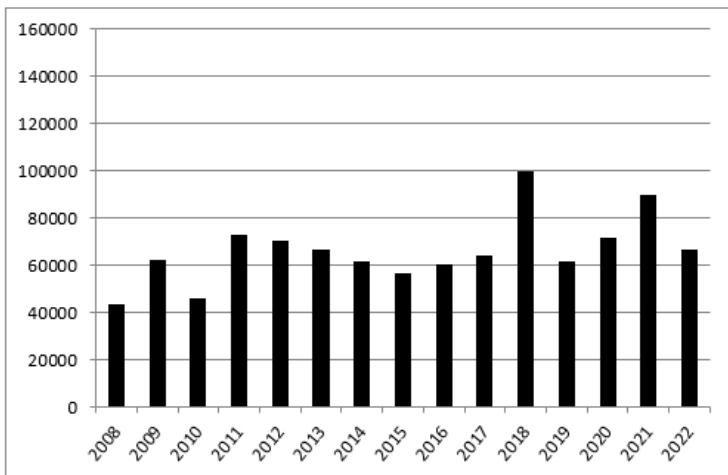
WMU   4D

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Declining**

Year	Total
2008	0.34
2009	0.31
2010	0.39
2011	0.36
2012	0.37
2013	0.36
2014	0.31
2015	0.32
2016	0.31
2017	0.31
2018	0.29
2019	0.30
2020	0.29
2021	0.28
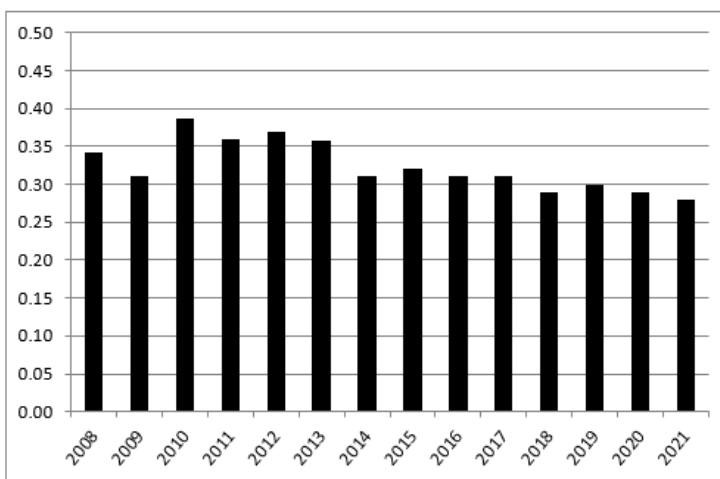
FOREST HEALTH

					Regeneration Assessment	Fair
Plot - Plot Regeneration	No Change	Plot - Plot Deer Impact	No Change	Mean Deer Impact	3 or less	

Year	% Adequate
2003-07	43%
2004-08	43%
2005-09	43%
2006-10	44%
2007-11	43%
2008-12	48%
2009-13	49%
2010-14	48%
2011-15	52%
2012-16	53%
2013-17	48%
2014-18	50%
2015-19	52%
2016-20*	-
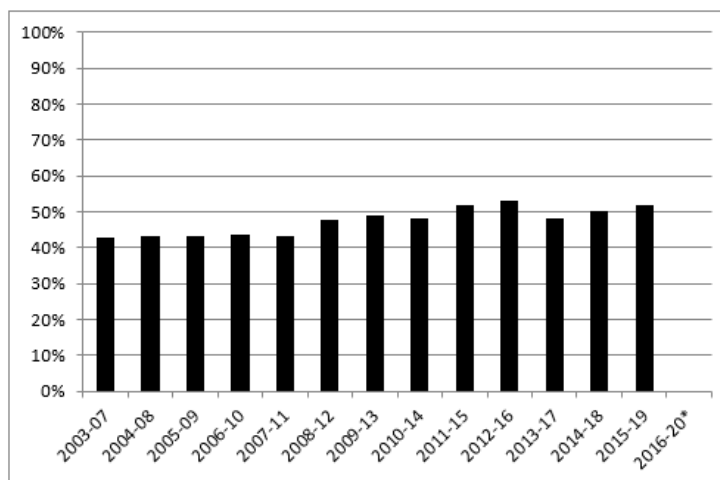
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   Too High   20%(8%)   Just Right   48%(46%)   Too Low   26%(38%)

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	63,000	50,000	38,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

CWD has been detected in wild deer in this WMU (page 19), thus the objective is to increase antlerless harvest to reduce the population (page 7). The recommendation for 2022-23 is to allocate the same number as the 2021-22 season (page 2), which will maintain the antlerless harvest levels from previous years. Due to recent changes in concurrent season length, antlerless license purchase limits, and increased allocations in previous years, we are recommending consistent allocations to evaluate the effect of these actions on the population.

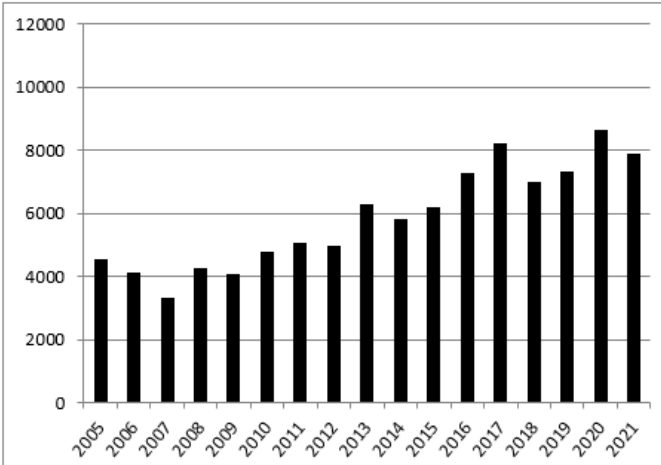# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **4E**

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
8%	54%	34%	4%	1,736

Approximately 12% of WMU 4E is within CWD DMA 2 (as of March 2022)
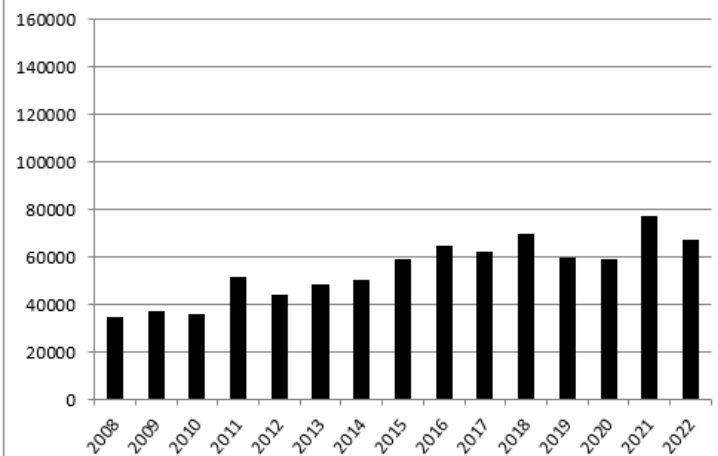
Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	4,544	9,130	38,000	4.1
2006	4,134	8,975	38,000	4.2
2007	3,314	8,119	38,000	4.6
2008	4,270	7,193	30,000	4.1
2009	4,064	6,287	30,000	4.8
2010	4,768	5,923	26,899	4.6
2011	5,076	6,054	29,000	4.8
2012	4,960	6,079	28,000	4.6
2013	6,287	7,707	26,000	3.4
2014	5,847	5,919	21,000	3.6
2015	6,202	6,914	25,000	3.6
2016	7,294	7,474	25,000	3.4
2017	8,241	8,735	27,500	3.1
2018	6,980	9,345	32,000	3.4
2019	7,314	9,513	34,000	3.6
2020	8,625	11,209	37,000	3.3
2021	7,894	11,778	42,000	3.6

Antlered Harvest Estimate

RED=7 day concurrent season

POST-HUNT Deer Population

Trend   **Stable**

Year	Total
2008	35,121
2009	37,339
2010	36,311
2011	51,706
2012	44,225
2013	48,318
2014	50,707
2015	59,206
2016	64,923
2017	62,285
2018	70,064
2019	60,055
2020	59,120
2021	77,399
2022	67,325

WMU   4E

| DEER HEALTH: Fawn to Doe Ratio[2] | | | Trend | Stable |

Year	Total
2008	0.44
2009	0.44
2010	0.44
2011	0.42
2012	0.45
2013	0.32
2014	0.38
2015	0.40
2016	0.35
2017	0.34
2018	0.33
2019	0.29
2020	0.34
2021	0.31
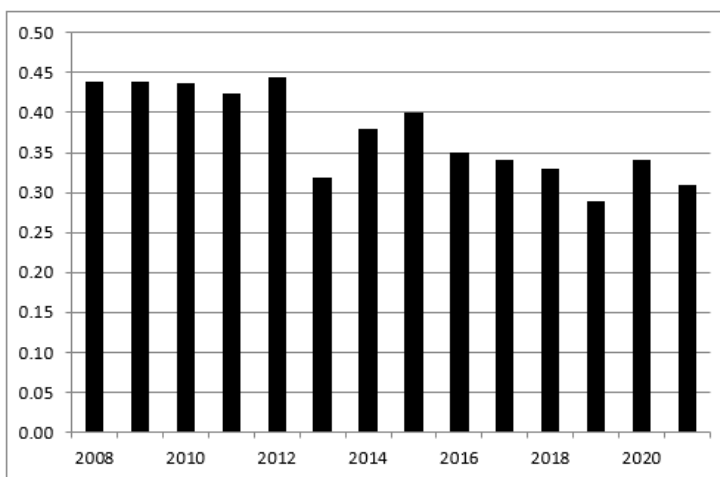
FOREST HEALTH

	Regeneration Assessment	Fair
Plot - Plot Regeneration No Change Plot - Plot Deer Impact No Change	Mean Deer Impact	>3

Year	% Adequate
2003-07	68%
2004-08	68%
2005-09	65%
2006-10	66%
2007-11	65%
2008-12	60%
2009-13	64%
2010-14	56%
2011-15	56%
2012-16	67%
2013-17	69%
2014-18	65%
2015-19	64%
2016-20[•]	-
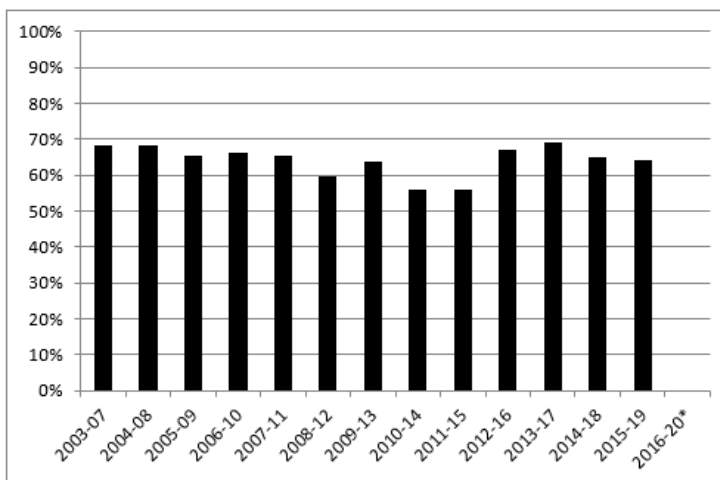
*Not available from the U.S. Forest Service for 2020

| Citizen Survey Results   2019 (2011) | | Too High | 30%(8%) | Just Right | 50%(58%) | Too Low | 16%(28%) |

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	44,000	38,000	32,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

CWD has been detected in wild deer in this WMU (page 19), thus the objective is to increase antlerless harvest to reduce the population (page 7). The recommendation for 2022-23 is to allocate the same number as the 2021-22 season (page 2), which will maintain the antlerless harvest levels from previous years. Due to recent changes in concurrent season length, antlerless license purchase limits, and increased allocations in previous years, we are recommending consistent allocations to evaluate the effect of these actions on the population.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   **5A**

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
14%	35%	49%	11%	1,301

Approximately 70% of WMU 5A is within CWD DMA 2 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	2,396	4,690	28,000	5.8
2006	2,155	5,207	25,000	4.7
2007	2,433	3,881	22,000	5.5
2008	2,057	3,778	19,000	4.9
2009	2,237	4,194	19,000	4.6
2010	2,442	3,398	18,269	5.4
2011	3,575	3,573	19,000	5.3
2012	2,795	3,596	19,000	5.3
2013	2,825	4,098	19,000	4.6
2014	2,377	3,282	19,000	5.8
2015	2,862	4,631	19,000	4.1
2016	3,017	4,047	19,000	4.7
2017	2,925	3,811	22,000	5.7
2018	3,091	4,649	23,000	4.9
2019	3,406	4,951	22,000	4.4
2020	3,522	6,087	26,000	4.3
2021	3,144	7,226	31,000	4.3

Antlered Harvest Estimate

RED=7 day concurrent season

POST-HUNT Deer Population   **Trend**   **Stable**

Year	Total
2008	22,602
2009	20,504
2010	20,512
2011	21,098
2012	35,598
2013	28,014
2014	29,715
2015	25,032
2016	20,081
2017	28,581
2018	33,243
2019	25,162
2020	49,801
2021	28,772
2022	20,313

WMU   5A

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.40
2009	0.37
2010	0.43
2011	0.32
2012	0.35
2013	0.38
2014	0.34
2015	0.31
2016	0.33
2017	0.35
2018	0.28
2019	0.28
2020	0.30
2021	0.33
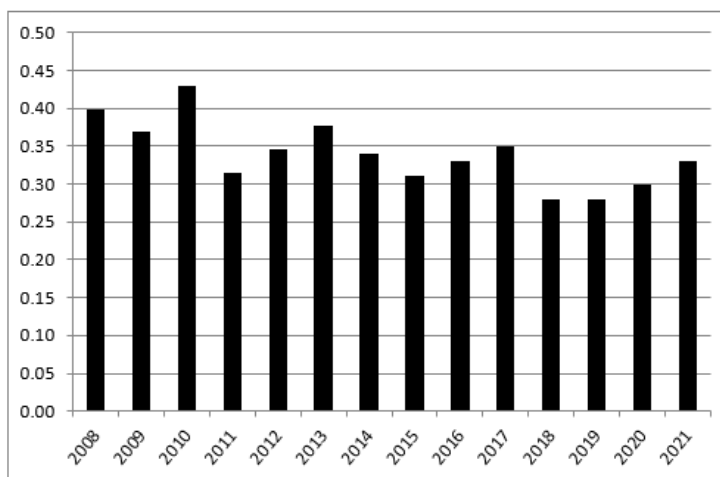
FOREST HEALTH

Regeneration Assessment	**Fair**

Plot - Plot Regeneration   -   **Plot - Plot Deer Impact**   -   **Mean Deer Impact   3 or less**

Year	% Adequate
2003-07	75%
2004-08	74%
2005-09	72%
2006-10	73%
2007-11	72%
2008-12	66%
2009-13	67%
2010-14	75%
2011-15	58%
2012-16	52%
2013-17	60%
2014-18	65%
2015-19	63%
2016-20*	-
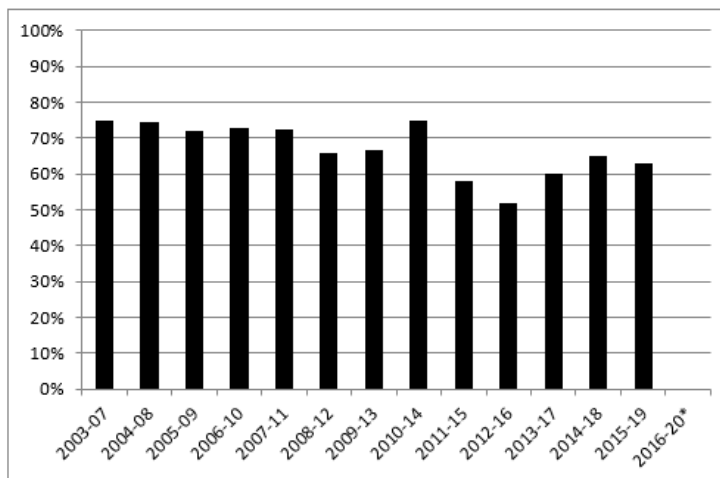
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High   19%(5%)   Just Right   53%(58%)   Too Low   23%(25%)**

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	32,000	26,000	20,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

CWD has been detected in wild deer in this WMU (page 19), thus the objective is to increase antlerless harvest to reduce the population (page 7). The recommendation for 2022-23 is to allocate the same number as the 2021-22 season (page 2), which will maintain the antlerless harvest levels from previous years. Due to recent changes in concurrent season length, antlerless license purchase limits, and increased allocations in previous years, we are recommending consistent allocations to evaluate the effect of these actions on the population.

# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   5B

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
19%	28%	49%	2%	2,640

Approximately 27% of WMU 5B is within CWD DMA 4 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	7,381	11,717	56,000	4.6
2006	6,995	11,384	53,000	4.5
2007	5,974	11,143	53,000	4.6
2008	6,762	11,184	51,000	4.4
2009	6,007	11,321	51,000	4.5
2010	6,902	12,543	50,812	4.1
2011	7,174	12,943	50,000	3.9
2012	8,503	12,519	51,000	4.1
2013	7,443	12,847	50,000	3.9
2014	6,908	12,368	49,000	4.0
2015	8,009	11,451	50,000	4.4
2016	8,886	12,364	50,000	4.1
2017	8,990	12,794	57,000	4.4
2018	9,165	14,191	58,000	4.1
2019	10,151	14,844	67,000	4.5
2020	9,556	16,407	60,000	3.6
2021	7,793	17,099	60,000	3.5

Antlered Harvest Estimate
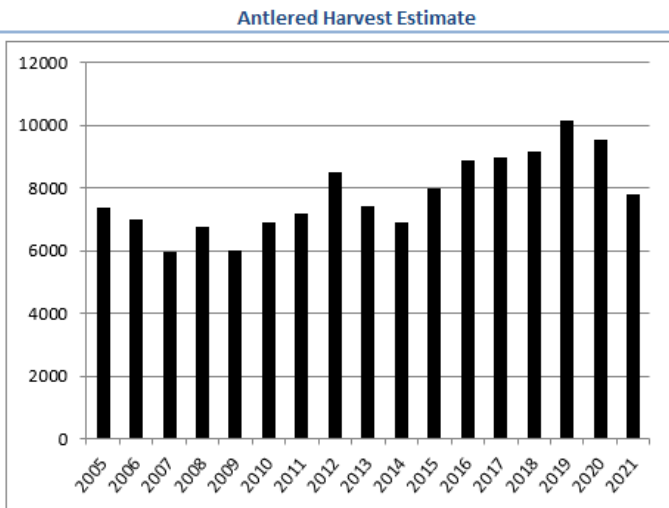
RED=7 day concurrent season

POST-HUNT Deer Population   **Trend   Stable**

Year	Total
2008	54,020
2009	59,568
2010	53,213
2011	55,951
2012	60,723
2013	75,260
2014	63,591
2015	60,538
2016	66,282
2017	73,573
2018	85,790
2019	77,893
2020	76,623
2021	91,713
2022	62,401
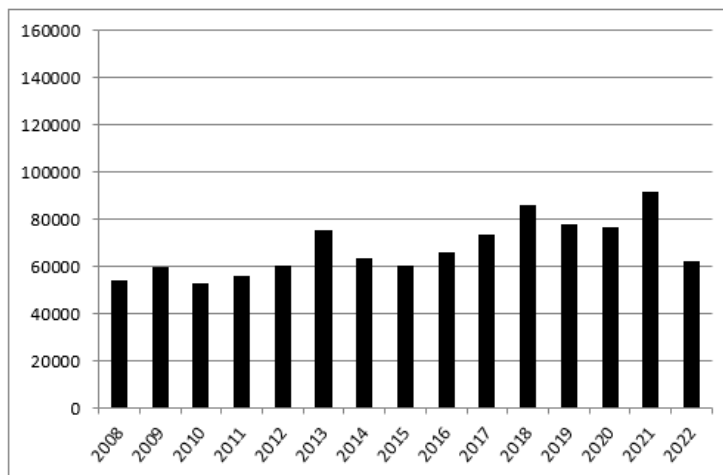
WMU   5B

DEER HEALTH: Fawn to Doe Ratio[2]   **Trend   Stable**

Year	Total
2008	0.44
2009	0.42
2010	0.41
2011	0.40
2012	0.42
2013	0.41
2014	0.40
2015	0.37
2016	0.37
2017	0.41
2018	0.37
2019	0.33
2020	0.36
2021	0.35
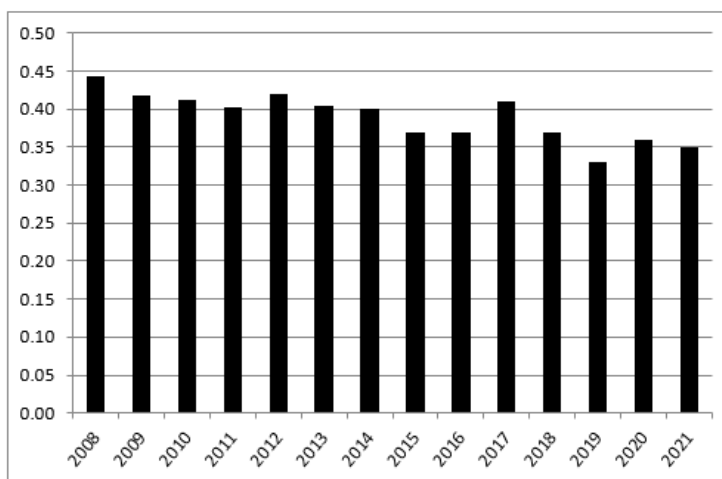
				Regeneration Assessment	**Fair**
FOREST HEALTH	**Plot - Plot Regeneration**	-	**Plot - Plot Deer Impact**	-	**Mean Deer Impact 3 or less**

Year	% Adequate
2003-07	53%
2004-08	52%
2005-09	48%
2006-10	46%
2007-11	47%
2008-12	52%
2009-13	54%
2010-14	38%
2011-15	55%
2012-16	51%
2013-17	49%
2014-18	52%
2015-19	46%
2016-20•	-
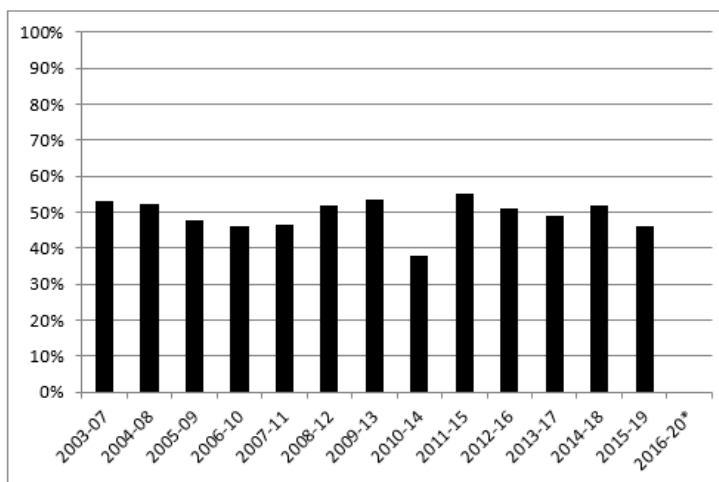
*Not available from the U.S. Forest Service for 2020

Citizen Survey Results   2019 (2011)   **Too High   19%(13%)   Just Right   51%(58%)   Too Low   20%(21%)**

Antlerless Allocation Options			
Firearm Season Option	**Increase Harvest**	**Stable Harvest**	**Decrease Harvest**
14 day concurrent	70,000	**60,000**	50,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

# 2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   5C

	WMU Characteristics			
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
27%	37%	31%	1%	1,982

Approximately 1% of WMU 5C is within CWD DMA 4 (as of March 2022)

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	7,701	17,589	71,000	3.9
2006	7,708	16,123	79,000	4.8
2007	6,526	18,864	84,000	4.3
2008	8,729	20,238	92,000	4.4
2009	7,566	23,214	113,000	4.8
2010	9,400	23,977	121,960	4.7
2011	8,928	24,234	117,000	4.4
2012	7,825	23,648	111,000	4.5
2013	8,096	21,711	103,000	4.7
2014	8,035	22,152	95,000	4.3
2015*	7,416	13,551	70,000	5.1
2016	8,328	15,643	70,000	4.4
2017	8,846	15,644	70,000	4.4
2018	7,584	16,400	70,000	4.2
2019	7,646	14,364	70,000	4.8
2020	8,352	15,194	70,000	4.6
2021	6,580	14,665	70,000	4.8
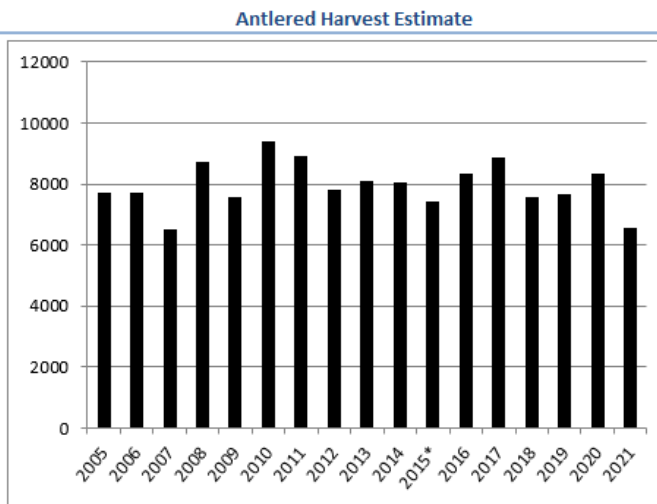
Antlered Harvest Estimate

* WMU Boundary Change

POST-HUNT Deer Population   **Trend   Stable**

Harvest indices (i.e., antlered harvest, antlerless lic/deer), not PASAK model, used to monitor population trend

WMU   5C

DEER HEALTH: Fawn to Doe Ratio[2]

Trend   Stable

Year	Total
2008	0.44
2009	0.47
2010	0.43
2011	0.46
2012	0.49
2013	0.43
2014	0.42
2015	0.40
2016	0.44
2017	0.40
2018	0.38
2019	0.32
2020	0.36
2021	0.37
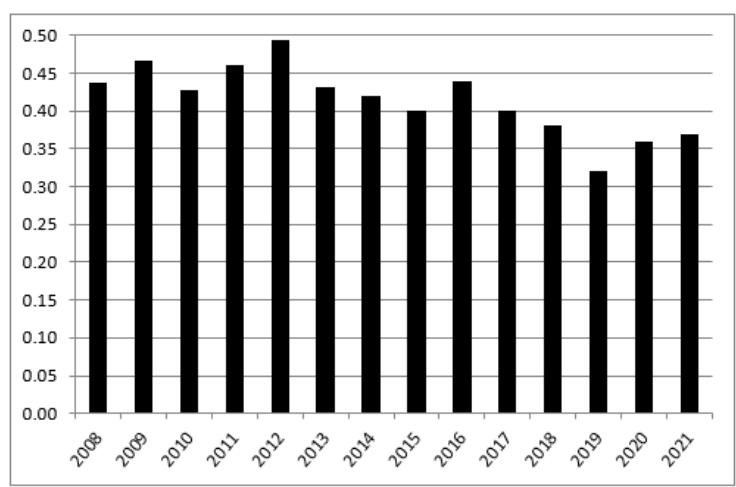
FOREST HEALTH

	Regeneration Assessment	
Plot - Plot Regeneration	Plot - Plot Deer Impact	Mean Deer Impact

Forest data not considered in this developed WMU

Citizen Survey Results   2019 (2011)   Too High   33%(30%) Just Right   51%(55%) Too Low   8%(9%)

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	79,000	**70,000**	60,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.

2022-23 Pennsylvania Game Commission Antlerless Allocation Worksheet

WMU   5D

WMU Characteristics				
% Developed	% Forest	%Ag/Field	%Public	Area (sq mi)
61%	18%	11%	0%	1,327

Deer Harvest

Year	Antlered	Antlerless	Allocation	Lic/Deer[1]
2005	1,460	4,166	20,000	4.5
2006	1,315	4,074	20,000	4.7
2007	977	5,185	20,000	3.8
2008	1,343	4,533	22,000	4.7
2009	1,130	3,911	22,000	5.2
2010	1,144	3,721	22,000	5.1
2011	1,156	3,827	22,000	4.7
2012	1,325	3,766	19,000	4.7
2013	1,589	4,483	18,000	4.0
2014	1,317	3,788	18,000	4.7
2015*	2,191	5,172	24,000	4.6
2016	2,908	6,452	30,000	4.6
2017	3,327	7,526	30,000	3.9
2018	2,631	6,001	28,000	4.6
2019	2,488	6,721	29,000	4.3
2020	2,164	6,479	29,000	4.4
2021	2,636	6,273	29,000	4.6
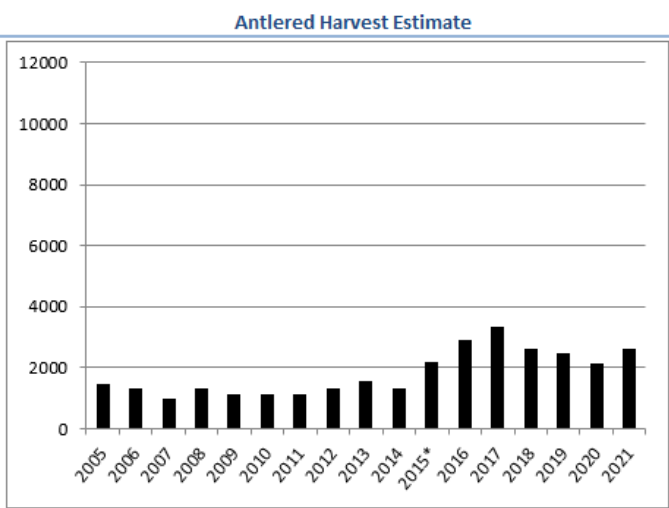
Antlered Harvest Estimate

* WMU Boundary Change

POST-HUNT Deer Population   **Trend**   Stable

Harvest indices (i.e., antlered harvest, antlerless lic/deer), not PASAK model, used to monitor population trend

WMU   5D

DEER HEALTH: Fawn to Doe Ratio[2]

Year	Total
2008	0.41
2009	0.49
2010	0.48
2011	0.49
2012	0.44
2013	0.41
2014	0.48
2015	0.42
2016	0.42
2017	0.40
2018	0.46
2019	0.33
2020	0.44
2021	0.34
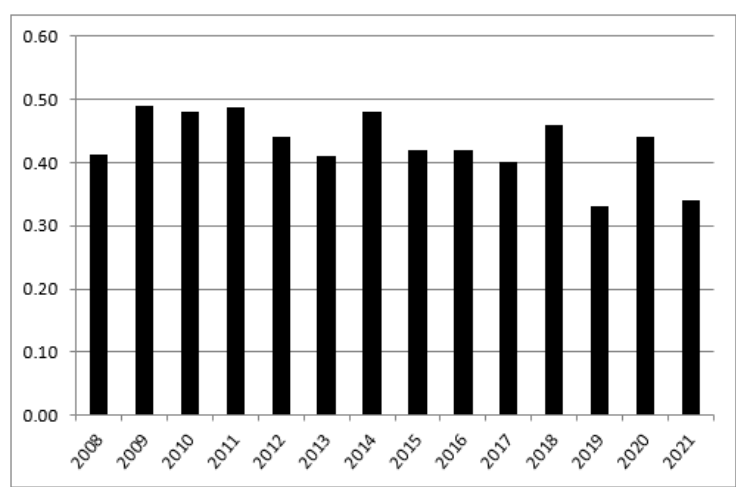
Trend   Stable

FOREST HEALTH			Regeneration Assessment
	Plot - Plot Regeneration	Plot - Plot Deer Impact	Mean Deer Impact

Forest data not considered in this developed WMU

Citizen Survey Results	2019 (2011)		Too High	33%(25%)	Just Right	51%(55%)	Too Low	8%(18%)

Antlerless Allocation Options

Firearm Season Option	Increase Harvest	Stable Harvest	Decrease Harvest
14 day concurrent	35,000	**29,000**	23,000

[1] - The number of antlerless licenses sold that it takes to harvest an antlerless deer. The number sold will differ from the allocation.

[2] - Harvest fawn to doe ratio is calculated as percent of fawns in the antlerless harvest.