

**PENNSYLVANIA GAME COMMISSION  
BUREAU OF WILDLIFE MANAGEMENT  
PROJECT ANNUAL JOB REPORT**

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**TITLE:** Furbearer Research/Management

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**TITLE:** Furbearer Population and Harvest Monitoring

**PERIOD COVERED:** 1 July 2021 to 30 June 2022

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**ABSTRACT** Annual Furtaker Survey and State Game Warden (SGW) Furbearer Questionnaire information has been used to determine trends in the number of furtakers and furbearer harvests since 1990 and monitor furbearer population relative abundance, distribution, nuisance levels, and harvest characteristics since 1995. Furtaker license sales increased steadily, then stabilized since 1999. During the 2021 license year, 46,516 furtaker licenses were sold, a decrease of 3,952 from 2020 (50,468). The estimated statewide harvest decreased for all furbearers except for foxes, muskrats, bobcats, and fishers. Fisher harvest reached a new high within the state at 714 while otter harvest was less than half of the previous year. In general, fur prices remained low for nearly all species. Average pelt values continued to decrease for many furbearer species during 2021 and early 2022.

## **OBJECTIVES**

1. Determine trends in the annual harvest of furbearing animals and numbers of trappers.
2. Monitor changes in furbearer population distribution and abundance.

## **METHODS**

### **Fur Harvest**

The annual fur harvest was estimated from the Furtaker Survey conducted each April. Due to budget constraints, this survey was not conducted during 2004, but has been implemented in subsequent years. Harvest estimates were presented by species and Wildlife Management Unit (WMU). Combination license holders have been extended furtaker privileges since 1999, but harvest totals for each species did not include them during 1999-2010, representing a sampling bias (Boyd and Weaver 2010). Beginning with the 2011-12 season, junior combination license

holders were included in calculating harvest totals. The fur harvest success of both junior and senior combination license holders were included in harvest estimates beginning in 2012 (Johnson 2018).

Average pelt prices of furbearers sold at the Pennsylvania Trappers Association's District fur sales were obtained to monitor trends in pelt value. Pelt values were averaged each year among several districts reporting fur sale results. An estimated minimum 5% of all furbearers harvested in Pennsylvania were sold at these fur sales. Pelt value trends since 1986 were assessed for each furbearer species.

During 2000-2003, the reported estimates of coyote harvest included only those animals recorded by furtakers and did not account for the incidental harvest recorded in the Game Take Survey. Starting in 2005, coyote harvests were combined and represent total take by all hunters and trappers.

To provide all-inclusive furbearer harvest results, harvest totals were included for bobcat, fisher, and river otters. The Furtaker survey does not provide harvest information for these species. Analysis of the bobcat and river otter harvests occurs in annual project reports with job codes 63005 and 70001, respectively.

### **State Game Warden Furbearer Questionnaire**

A mandatory web-based questionnaire is used by all State Game Wardens (SGWs) to collect a variety of furbearer information (Fig. 1). Accidental captures and sightings of otter and fisher and numbers and types of coyote damage complaints during the previous calendar year were reported by SGWs via this survey. Numbers of beaver complaints received, and assessments of beaver, otter, fisher, bobcat, and porcupine populations were also queried. In an effort to monitor the frequency of nuisance complaints of other furbearers, SGWs were asked to record numbers of bobcat, fisher, fox, weasel, river otter, mink, muskrat, raccoon, opossum, and skunk complaints. A reminder to complete the survey was distributed electronically in May 2022.

Vehicle-caused mortalities and incidental trapping mortalities for bobcat, otter, and fisher were recorded annually by SGWs using a newly implemented kill report form. Mandatory SGW reporting of these mortalities was a year-round activity.

## **RESULTS**

### **Fur Harvest**

In 1985, a furtaker license was created with sales of an estimated 64,000 licenses. Furtaker license sales decreased during the late 1980s, fluctuated between 17,591 and 27,413 during 1990-2005, and steadily increased after 2005 (Table 1). Starting in 1999, combination license holders were extended furtaking privileges, which resulted in initial reduced furtaker license sales. Since 1999, the number of furtaker licenses sold increased steadily until this previous year ( $r = 0.97$ ,  $P < 0.01$ ) (Table 1). During the 2021-2022 license year, 46,516 furtaker licenses were sold. Junior and senior combination license holders numbered 138,647 which marked an increase from the 2020-2021 season. Furtaker license sales stabilized at an average of 44,624 during 2012-2021. A general decline in local, and national, pelt prices across furbearers continue to affect the number

of furtakers in Pennsylvania, however the past several years has seen strong license sales.

During the 2021-2022 license year, the estimated statewide furtaker harvest decreased for all furbearers except for foxes, muskrats, bobcats, and fishers (Table 2). Three-year average harvests of all furbearers was -4.9% which reflects declines in harvest in 2021-2022 (Table 2). Otter harvest declined from 62 in 2020-2021 to 31 in 2021-2022 (-50%) while beaver decreased from 18,841 to 8,148 (-57%). Fisher and bobcat harvest increased by 60% and 24% respectively from 2020-21 to 2021-22 seasons (Table 2). The Species harvest totals by WMU were provided for regional comparison of relative species abundance and harvest intensity (Table 3).

During February of the 2015-16 season, the Pennsylvania Game Commission implemented its first regulated otter trapping season in over 50 years. This first season was limited to 2 WMUs, 3C and 3D in the northeastern portion of Pennsylvania. Furtakers were required to purchase an otter permit prior to participating in the season and to report their harvest within 24 hours of trapping an otter. Areas where otter trapping was allowed expanded with the addition of WMUs 1A, 1B, and 2F in 2020-21. During the 2021-2022 season, 2,011 otter permits were purchased which was an increase of 152 permits in 2020-2021. Harvest reports for 31 otters were received among all WMUs open to otter trapping (Table 3).

Historic low pelt values occurred during the 1989 and 1990 trapping seasons. Fur prices during the 1990s were relatively stable with the lowest values observed during the 1998-1999 season. The demand and prices paid for furs recently decreased sharply for nearly all furbearer species. Average pelt values continued to decrease for all furbearer species with little exception during 2021-2022 (Table 4). The 30-year low pelt prices undoubtedly affected trapper and fur hunter effort but have not clearly been correlated to hunters purchasing licenses.

### **Population Monitoring**

*Bobcats.\**--The number of incidental bobcat captures, estimated from the annual Furtaker Survey, increased steadily during 1990-2010 (Table 5). After 2010, incidental bobcat captures decreased slightly then leveled between an estimated 1,300-1,900 captures. During 2021-2022 the 3-year moving average of incidental captures was 1,660; a slight increase from the previous season (Table 5). During 1990-2021 we observed an increasing trend ( $r = 0.77$ ,  $P < 0.05$ ) in incidental bobcat captures (Table 5), but this trend is non-linear and largely explained by the period prior to 2010.

Based on results from the SGW furbearer questionnaire, bobcat populations continue to be well established. State Game Wardens reported increasing or stable bobcat populations in 71% of districts (Fig. 2). Bobcats were absent in 20% of SGW districts in 1995, but were absent in 9% of districts during 2021-2022, primarily those districts located in the northwest and southeast parts of the state. Bobcats continue to slowly expand their range into the northwest and southeast portions of Pennsylvania.

*Fishers.\**--Greater expansion of fisher distribution was observed during the past year especially into the northwestern and southeastern counties. The number of incidental fisher captures reported on the furtakers survey has been increasing steadily since 1999 ( $r = 0.87$ ,  $P < 0.05$ ) (Table 6). The 3-year average estimated number of fisher captured and released during the

2021-2022 season was 1,569.

The annual number of fisher observations and incidental captures reported to SGWs increased in 2021 compared to 2020 (Table 7). State Game Wardens received 59 reports of fishers that were captured and released by licensed trappers and 1,444 reports of fisher observations. During 2021, 91% of SGW respondents reported fisher populations existing within their districts, as compared to only 65% in 2004 (Fig. 3).

*River Otters.*--River otter populations continue to slowly expand throughout Pennsylvania. Numbers of incidental otter captures, primarily by beaver trappers, decreased in 2021 to 33 from 68 in 2020 (Table 7). The majority of these captures occurred in the northeast region. Sustained otter populations continue to exist throughout the Susquehanna River drainage. Based on results of the 1995 SGW furbearer questionnaire, otters occurred in 49% of SGW districts. In 2021, otters occupied 92% of SGW districts (Fig. 4).

Since 2000, the annual hunting and trapping digest has provided trappers with additional information regarding the avoidance of otter while trapping beavers. Reports from SGWs indicate that trappers in high-density otter areas were using these techniques to avoid otter captures.

*Coyotes.*--Reports of coyote-caused damage to livestock and domestic pets have shown a slow, downward trend since 2014. Numbers of coyote complaints during 2021 were down from last year, which follows a decreasing trend in complaints since 2015. State Game Wardens in 55 districts (44%) reported complaints during the most recent survey period. Complaints related to concerns for human safety were most common, comprising 69% of all complaints. In addition to concern for human safety, the public also expressed concern for safety of pets, livestock, and wildlife. Poultry and domestic waterfowl depredation remain the most common livestock loss from coyotes (Table 8).

*Beavers.*\*--The overall status of beaver populations remained relatively unchanged in most areas, with 87% of SGW districts reporting increasing or stable populations in 2021 (Fig. 5). State Game Wardens observed decreases in established populations within 0.8% of districts. Poorly established populations comprised 11.2% of SGW districts during 2021. Beavers appear to have occurred in all SGW districts except for one. Long-term trends (Fig. 5) show stable to increasing populations in all SGW districts. On a statewide basis, beavers have had stable and increasing populations throughout their range and population numbers during 2021 (Fig. 5).

During 2021, beaver damage and nuisance complaints decreased to 421 compared to 544 in 2020. Beaver complaints were highest in 1996 (1,140) but have fluctuated around an average of  $548 \pm 90$  SD complaints per year since their nadir in 2007. State Game Wardens districts in the Northwest, Northcentral, and Northeast Game Commission regions continue to experience relatively high beaver complaint totals.

*Muskrats.*--With a long-term trend of a declining population within the state, this was the first year State Game Wardens were surveyed to better understand where and how populations are dynamically fluctuating (Fig. 6). Populations remain stable within the western/northwestern portion of the state but are variable throughout the rest of the state and are poorly established or

decreasing within the southcentral region and to the east. Distribution of complaints is relatively low within the state (Fig. 7).

*Other furbearers.*--Besides fox and opossum, statewide nuisance furbearer complaints overall decreased in comparison to 2020. Raccoon, skunk, and fox complaints were most common during 2021 (Table 9).

*Porcupines\*.*--State Game Warden survey responses established baseline information on porcupine population status and distribution. In 2021, porcupines remained absent from 19% of SGW districts, located mainly in southwestern and southeastern Pennsylvania. Porcupine populations decreased in 2% of SGW districts (Fig. 8). We will closely monitor statewide porcupine population changes as regulated harvest methods are proposed and implemented.

Officers responded to 14 nuisance porcupine complaints during 2021, which was a decrease from previous years. No porcupines or less than 1 per month were found dead along highways in 56% of SGW districts (Fig. 9). Few officers (8%) reported seeing 1 or more dead porcupines per week.

\*Note that all long-term population trends represented above do not reflect the 2022 State Game Warden survey results as data analysis is ongoing. Results will be presented within the 2022-2023 furbearer annual report.

## RECOMMENDATIONS

1. Fur harvest should continue to be reported by species and WMU to monitor area-specific harvest trends.

2. Pelt price information should be collected annually to monitor trends in fur value relative to regional harvest trends.

3. Current methods for monitoring changes in density and distribution of bobcat, otter, and fisher should be continued to detect population trend changes.

4. Numbers of coyote-related complaints should be addressed through educational programs in rural and suburban communities.

5. Muskrat age ratio and reproductive information should be collected every 5 years to monitor fecundity and recruitment unless noticeable changes in population numbers occur. The next years of sampling should be 2022-2023.

## LITERATURE CITED

Boyd, R. C., and M. Weaver. 2010. Game Take and Furtaker Surveys. Annual Job Report 11101. Pennsylvania Game Commission. Harrisburg, USA.

Johnson, J. B. 2018. Game Take and Furtaker Surveys. Annual Job Report 11101. Pennsylvania

Game Commission. Harrisburg, USA.

Table 1. Number of furtaker and combination (combined hunting and trapping) licenses sold in Pennsylvania.

License Year	Furtaker licenses sold	Combination licenses sold
1985	64,000	
1986	44,087	
1987	42,000	
1988	36,000	
1989	29,000	
1990	20,377	
1991	20,251	
1992	20,345	
1993	19,458	
1994	22,376	
1995	21,376	
1996	25,636	
1997	27,413	
1998	25,877	
1999	17,591 <sup>a</sup>	
2000	18,551 <sup>a</sup>	
2001	19,410 <sup>a</sup>	
2002	20,676 <sup>a</sup>	
2003	22,454 <sup>a</sup>	
2004	24,094 <sup>a</sup>	
2005	23,941 <sup>a</sup>	
2006	26,589 <sup>a</sup>	
2007	28,033 <sup>a</sup>	
2008	29,717 <sup>a</sup>	
2009	31,122 <sup>a</sup>	
2010	35,279 <sup>a</sup>	
2011	36,192 <sup>a</sup>	
2012	39,913	104,883
2013	44,591	112,875
2014	45,069	118,434
2015	44,534	121,767
2016	43,735	123,476
2017	43,329	125,861
2018	43,710	126,141
2019	45,871	129,727
2020	50,468	136,095
2021	46,516	138,647

<sup>a</sup>Combination license holders were extended furtaker privileges since 1999, but the number who pursue furbearers was not determined until the 2012 season. Therefore, prior to 2012, the number of licenses sold misrepresented to an unknown degree the number of furtakers in Pennsylvania.

Table 2. Annual harvest and percent change (% Δ) of 3-year moving average by species in Pennsylvania since 2000.

License	Coyote								Coyote							
Year	Raccoon	% Δ	Red Fox	% Δ	Gray Fox	% Δ	(furtakers <sup>a</sup> )	% Δ	(total <sup>b</sup> )	% Δ	Skunk	% Δ	Opossum	% Δ	Weasel	% Δ
2000	108,890		33,060		24,452		10,383				7,534		29,093		340	
2001	121,810		33,003		23,275		12,363				9,245		27,192		657	
2002	106,485		33,007		18,805		11,444				7,207		34,787		406	
2003	104,781	-4.8	31,592	-1.5	15,956	-12.8	11,697	3.8			9,319	7.4	33,760	5.1	359	1.4
2004 <sup>c</sup>	-		-		-		-		-		-		-		-	
2005	106,082	-4.7	40,551	7.7	17,616	-9.8	9,670	-7.6	20,377		9,997	2.9	43,770	17.3	567	-6.3
2006	138,640	10.1	45,512	11.9	20,754	3.7	11,879	1.3	21,601		10,687	13.1	48,102	11.9	487	6.1
2007	121,466	4.8	52,000	17.3	18,613	4.9	13,360	5.0	28,974		9,818	1.7	41,168	5.9	440	5.7
2008	142,808	10.0	44,745	3.0	20,845	5.7	12,776	8.9	23,699	4.7	12,331	7.7	54,273	7.9	504	-4.2
2009	112,550	-6.5	37,418	-5.7	13,793	-11.6	13,438	4.1	30,386	11.8	8,314	-7.2	37,270	-7.5	468	-1.3
2010	125,423	1.1	54,661	2.0	15,691	-5.5	14,732	3.5	26,658	-2.8	8,935	-2.9	36,188	-3.8	436	-0.3
2011	174,858	8.4	68,214	17.2	19,380	-2.9	15,924	7.7	32,202	10.5	13,057	2.5	49,626	-3.6	652	10.5
2012	210,146	23.6	67,465	18.7	17,415	7.4	19,470	13.7	40,495	11.3	7,329	-3.3	78,024	33.1	604	8.7
2013	197,380	14.1	61,392	3.5	15,700	0.0	16,256	3.0	40,956	14.4	7,733	-4.1	57,138	12.8	110	-19.3
2014	203,311	4.9	55,659	-6.4	21,765	4.5	21,149	10.1	31,675	-0.5	13,969	3.2	59,643	5.4	372	-20.5
2015	149,098	-10.0	65,158	-1.3	16,609	-1.5	25,344	10.3	38,611	-1.7	6,920	-1.4	36,218	-21.5	216	-35.7
2016	92,013	-21.2	47,442	-6.7	10,725	-11.4	17,078	5.3	25,796	-9.1	6,133	-10.2	22,518	-32.4	278	-32.6
2017	89,440	-25.6	65,513	5.9	23,604	-3.7	20,764	-0.6	44,440	-8.4	7,467	-24.1	27,329	-27.3	277	-13.3
2018	93,694	-16.8	46,600	-10.4	11,724	-9.6	20,814	-7.2	31,295	-6.7	4,193	-13.3	26,590	-11.2	296	10.4
2019	109,069	6.2	52,772	3.34	14,616	-8.5	24,136	12.0	35,911	9.9	8,037	10.7	28,812	8.2	98	-21.2
2020	89,061	-0.1	48,653	-10.2	6,710	-33.8	14,899	-8.9	29,634	-13.3	6,251	-6.2	19,949	-8.9	202	-11.2
2021	74,697	-6.5	51,511	-3.3	8,462	-9.8	11,242	-15.9	22,762	-8.8	6,013	-9.8	18,655	-10.5	160	-22.8



Table 2. cont.

<b>License</b>												
<b>Year</b>	<b>Muskrat</b>	<b>% Δ</b>	<b>Mink</b>	<b>% Δ</b>	<b>Beaver<sup>c</sup></b>	<b>% Δ</b>	<b>Bobcat<sup>e</sup></b>	<b>% Δ</b>	<b>Fisher<sup>e</sup></b>	<b>% Δ</b>	<b>Otter<sup>e</sup></b>	<b>% Δ</b>
2000	79,880		8,614		8,408		58					
2001	121,994		13,214		10,934		146					
2002	75,340		10,069		4,538		135					
2003	71,368	-3.1	6,494	-6.6	7,874	-2.2	140	24.2				
2004 <sup>c</sup>	-		-		-		196	11.9				
2005	70,995	-19.0	9,335	-13.0	14,283	14.3	221	18.3				
2006	121,167	21.1	12,680	10.1	14,210	36.2	258	21.2				
2007	121,446	19.0	10,004	12.3	11,542	10.1	356	23.7				
2008	74,059	1.0	8,632	-2.2	9,942	-10.8	487	31.9				
2009	63,988	-18.1	7,261	-17.3	9,704	-12.6	506	22.5				
2010	58,296	-24.3	8,204	-7.0	9,254	-7.3	1,137	57.9	152			
2011	89,274	7.7	11,855	13.4	18,212	28.6	969	22.6	126			
2012	93,153	13.8	12,454	19.0	9,712	0.0	1,056	21.1	228			
2013	83,880	10.6	7,856	-1.1	15,134	15.8	1,164	0.9	341	37.4		
2014	115,742	9.9	14,532	8.3	17,607	-1.4	1,132	5.1	443	45.6		
2015	66,397	-9.1	8,530	-11.3	16,920	17.0	1,034	-0.7	401	17.1	46	
2016	43,436	-20.7	7,801	-16.7	7,888	1.7	844	-6.6	422	19.1	36	
2017	24,792	-40.3	4,263	-33.3	7,417	-24.0	749	-12.7	398	-3.6	35	
2018	33,230	-24.6	4,647	-18.8	11,418	-17.1	925	-4.2	504	8.4	28	-15.4
2019	27,160	-16.0	5,343	-14.7	13,935	22.6	1,053	8.3	700	20.9	28	-8.1
2020	30,955	7.2	5,120	6.0	18,841	34.9	738	-0.4	447	3.1	62	29.7
2021	37,496	4.6	2,797	-12.2	8,148	-7.4	914	-0.4	714	12.7	31	2.5

<sup>a</sup> Coyote harvest by furtaker license holders only (estimated from the Furtaker Survey).

<sup>b</sup> Total coyote harvest by hunters and trappers estimated from the Furtaker Survey and the Game Take Survey.

<sup>c</sup> Furtaker survey was not conducted during the 2004 license year.

<sup>d</sup> Beaver harvest was based on mandatory pelt tagging totals until 2004. Harvest was estimated from furtaker surveys beginning with the 2005 license year.

<sup>e</sup> Bobcat, fisher, and river otter harvests were based on mandatory reporting totals.

Table 3. Estimated harvests of furbearers by WMU during the 2021-22 license year.

<b>WMU</b>	<b>Raccoon</b>	<b>Red Fox</b>	<b>Gray Fox</b>	<b>Coyote<sup>a</sup></b>	<b>Weasels</b>	<b>Skunk</b>	<b>Opossum</b>
1A	4,774	310	101	858	0	0	415
1B	5,733	1,290	152	446	18	225	104
2A	4,567	604	135	2,790	0	175	602
2B	4,060	571	101	1,436	0	100	1,058
2C	3,834	1,192	371	1,964	36	175	394
2D	5,752	294	354	1,502	0	50	955
2E	1,391	294	607	281	0	0	540
2F	921	229	101	380	0	75	249
2G	2,068	343	1,129	1,271	0	25	228
2H	470	16	51	248	0	0	83
3A	489	604	253	198	0	0	166
3B	3,477	1,633	1,298	1,799	71	251	1,805
3C	1,898	1,029	506	990	0	100	830
3D	714	718	287	429	0	0	0
4A	5,150	1,094	556	1,188	0	676	1,598
4B	4,793	3,347	185	792	18	501	1,598
4C	4,868	3,886	118	644	18	376	1,100
4D	1,861	1,845	1,180	2,146	0	150	851
4E	2,782	2,449	489	1,155	0	526	1,453
5A	2,256	5,731	152	578	0	75	311
5B	6,691	11,037	34	561	0	276	1,494
5C	4,229	10,710	0	479	0	1,779	1,577
5D	357	1,323	0	248	0	100	62
UNKNOWN	1,560	963	303	380	0	376	1,183

Table 3. cont.

WMU	Muskrat	Mink	Beaver	Bobcat <sup>b</sup>	Fisher <sup>b</sup>	Otter <sup>b</sup>
1A	4,014	144	2,388	<i>Closed</i>	<i>Closed</i>	4
1B	6,982	259	1,972	<i>Closed</i>	123	5
2A	110	0	123	21	<i>Closed</i>	<i>Closed</i>
2B	825	86	62	4	<i>Closed</i>	<i>Closed</i>
2C	5,086	86	46	64	29	<i>Closed</i>
2D	4,398	115	139	<i>Closed</i>	91	<i>Closed</i>
2E	1,182	0	92	62	33	<i>Closed</i>
2F	660	43	570	92	85	7
2G	220	0	323	93	27	<i>Closed</i>
2H	275	0	246	36	9	<i>Closed</i>
3A	1,429	0	154	41	19	<i>Closed</i>
3B	247	130	339	95	18	<i>Closed</i>
3C	852	86	662	85	25	6
3D	1,182	29	431	37	38	9
4A	467	692	0	74	26	<i>Closed</i>
4B	467	159	62	58	38	<i>Closed</i>
4C	82	72	0	38	46	<i>Closed</i>
4D	412	14	77	83	43	<i>Closed</i>
4E	1,017	144	62	30	63	<i>Closed</i>
5A	5,690	245	0	<i>Closed</i>	<i>Closed</i>	<i>Closed</i>
5B	1,677	303	139	<i>Closed</i>	<i>Closed</i>	<i>Closed</i>
5C	137	72	62	<i>Closed</i>	<i>Closed</i>	<i>Closed</i>
5D	0	86	154	<i>Closed</i>	<i>Closed</i>	<i>Closed</i>
UNKNOWN	82	29	46	<i>Closed</i>	<i>Closed</i>	<i>Closed</i>

<sup>a</sup> Coyote harvest by furtaker license holders only (estimated from the Furtaker Survey).

<sup>b</sup> Bobcat, fisher, and river otter harvests were based on mandatory reporting totals.

Table 4. Average pelt prices paid and percent change (%  $\Delta$ ) of 3-year moving averages for furbearer species in Pennsylvania.

Trapping season	Average pelt price (\$) <sup>a</sup>											
	Raccoon	% $\Delta$	Red Fox	% $\Delta$	Gray Fox	% $\Delta$	Coyote	% $\Delta$	Skunk	% $\Delta$	Opossum	% $\Delta$
1986-87	19.89		29.15		33.76		31.57		1.00		3.05	
1987-88	9.78		17.20		31.93		13.50				1.99	
1988-89	5.29		15.97		11.58		19.00				1.28	
1989-90	3.40	-47.2	9.30	-31.9	8.79	-32.3	11.60	-31.2	1.92		1.11	-30.7
1990-91	3.35	-34.8	8.83	-19.7	8.43	-44.9	10.01	-7.9	1.00		0.96	-23.5
1991-92	7.12	15.2	13.55	-7.1	12.78	4.2	18.37	-1.6	2.25		2.17	26.6
1992-93	6.77	24.3	12.96	11.6	11.32	8.4	25.40	34.5			1.71	14.2
1993-94	8.54	30.1	15.44	18.7	11.02	8.0	24.15	26.3	2.66		1.88	19.0
1994-95	9.15	9.1	18.73	12.3	11.47	-3.7	24.70	9.3	2.21		1.51	-11.5
1995-96	10.27	14.3	16.30	7.1	9.40	-5.7	13.36	-16.2	3.00		1.74	0.6
1996-97	15.34	24.3	18.05	5.2	11.94	2.9	20.68	-5.6	3.92		1.83	-1.0
1997-98	12.07	8.4	13.18	-10.5	9.65	-5.5	9.72	-25.5			1.41	-2.0
1998-99	6.87	-9.0	9.73	-13.8	4.84	-14.7	6.40	-15.9			0.49	-25.1
1999-00	4.94	-30.3	10.72	-17.9	6.19	-21.8	15.43	-14.3			1.47	-9.7
2000-01	7.42	-19.5	16.58	10.1	8.61	-5.0	16.07	20.1			2.47	31.5
2001-02	8.34	7.6	20.14	28.1	10.05	26.5	17.16	28.4			1.54	23.7
2002-03	9.39	21.5	22.84	25.5	12.81	26.6	22.57	14.7			2.12	11.9
482003-04	10.15	10.9	19.92	5.6	18.74	32.2	25.29	16.5			2.03	-7.2
2005-06	10.11	6.3	16.48	-5.8	18.04	19.2	9.37	-12.0	3.14		2.51	17.0
2006-07	17.50	27.4	20.36	-4.2	26.54	27.7	24.50	3.4	4.50		5.05	44.0
2007-08	12.88	7.2	20.84	1.6	43.84	39.6	20.02	-8.9	4.04		2.45	4.4
2008-09	9.79	-0.8	11.58	-8.5	25.11	8.0	12.37	5.6	4.42	11.0	3.45	9.4
2009-10	11.58	-14.7	10.48	-18.7	20.76	-6.1	17.27	-12.7	4.62	0.9	2.62	-22.2
2010-11	12.38	-1.5	14.63	-14.5	19.59	-27.0	18.40	-3.3	3.62	-3.2	1.99	-5.4
2011-12	12.81	8.9	23.48	32.4	23.87	-1.9	15.52	6.6	3.30	-8.8	2.26	-14.8
2012-13	15.14	9.7	41.34	63.5	29.65	13.8	20.62	6.5	3.05	-13.6	3.23	8.9
2013-14	14.67	5.7	38.07	29.5	25.98	8.7	23.15	8.7	3.36	-2.7	4.09	28.0
2014-15	7.83	-11.7	20.80	-2.6	14.46	-11.8	18.82	5.6	4.28	10.1	2.08	-1.9
2015-16	3.61	-30.6	9.28	-32.0	10.24	-27.7	15.62	-8.0	3.14	0.8	1.69	-16.4
2016-17	3.30	-43.5	8.52	-43.4	10.21	-31.1	12.53	-18.4	4.63	11.8	1.60	-31.7
2017-18	4.02	-25.8	9.75	-28.6	11.51	-8.5	13.36	-11.6	4.28	0.0	1.07	-18.8
2018-19	4.55	8.6	7.32	-7.1	13.60	10.5	14.72	-2.2	7.16	33.4	1.27	-9.6
2019-20	3.95	5.5	6.71	-7.9	8.36	-5.3	23.77	27.7	10.48	36.4	0.90	-17.8
2020-21	2.94	-8.6	5.45	-18.1	10.79	-2.2	18.34	9.6	3.93	-1.6	1.00	-2.2
2021-22	3.86	-6.1	6.8	-2.7	10.45	-9.6	15.41	1.2	10.17	13.9	1.09	-5.7

Table 4. Cont.

Trapping Season	Average pelt price (\$)ª									
	Muskrat	% Δ	Mink	% Δ	Beaver	% Δ	Bobcat	% Δ	Fisher	% Δ
1986-87	4.84		24.19		33.00					
1987-88	5.36		31.11		22.60					
1988-89	2.91		29.45		20.22					
1989-90	1.42	-26.1	22.29	-2.2	17.77	-20.1				
1990-91	1.61	-38.7	19.06	-14.5	9.71	-21.3				
1991-92	2.95	0.7	26.23	-4.5	13.14	-14.8				
1992-93	2.25	13.9	19.95	-3.5	10.63	-17.6				
1993-94	2.88	18.6	18.35	-1.1	19.03	27.8				
1994-95	3.09	1.7	14.08	-18.8	19.94	15.9				
1995-96	3.15	10.9	11.88	-15.4	19.65	18.2				
1996-97	6.03	34.5	19.06	1.6	29.37	17.6				
1997-98	3.44	2.9	11.66	-5.4	21.73	2.6				
1998-99	1.87	-10.1	9.48	-5.6	15.29	-6.2				
1999-00	3.16	-25.3	9.75	-23.2	16.08	-20.0				
2000-01	3.40	-0.5	9.64	-6.5	20.00	-3.3				
2001-02	3.85	23.5	8.47	-3.5	15.86	1.1				
2002-03	3.81	6.2	9.69	-0.2	14.33	-3.4				
2003-04	3.33	-0.6	10.50	3.1	15.84	-8.3				
2005-06	2.89	-8.7	12.84	15.2	16.11	0.5				
2006-07	6.10	22.8	17.42	23.4	17.18	6.2				
2007-08	3.20	-1.1	12.88	5.8	22.14	12.8				
2008-09	3.96	8.8	10.06	-6.4	18.05	3.5	26.36			
2009-10	7.35	9.4	11.02	-15.9	18.29	1.9	43.50			
2010-11	6.92	25.6	13.95	3.2	14.90	-12.4	36.83		41.60	
2011-12	11.00	38.6	19.48	26.9	21.36	6.5	46.52	18.9	36.42	
2012-13	13.38	23.9	24.86	31.1	22.32	7.4	76.12	25.7	52.15	
2013-14	12.56	18.0	18.89	8.5	21.26	10.9	81.72	28.2	74.00	24.9
2014-15	5.74	-14.2	10.71	-13.9	13.32	-12.4	60.64	6.9	51.00	9.0
2015-16	3.10	-32.4	5.60	-35.4	10.09	-21.5	43.09	-15.1	52.96	0.5
2016-17	3.14	-44.0	6.61	-34.9	9.15	-27.1	39.78	-22.6	27.78	-26.0
2017-18	2.79	-24.6	6.33	-19.1	8.81	-13.9	35.27	-17.7	28.18	-17.3
2018-19	2.83	-3.0	5.30	-1.6	10.39	1.1	37.71	-4.6	38.00	-13.7
2019-20	3.61	5.4	3.64	-16.3	7.99	-4.1	48.50	7.7	29.75	2.1
2020-21	3.26	5.1	3.74	-17.0	7.68	-4.2	29.78	-4.5	30.14	2.0
2021-22	3.64	8.4	6.05	5.9	9.97	-1.6	28.84	-7.6	24.67	-13.6

<sup>a</sup> Average pelt prices paid at Pennsylvania Trappers Association fur sales. Pelt price information was not collected during 2004-2005.

Table 5. Number of incidental bobcat captures estimated from the annual Furtaker Survey. This survey was not conducted during 2004-2005.

<b>Trapping season</b>	<b>Survey respondents</b>	<b>Furtaker licenses sold<sup>a</sup></b>	<b>Bobcats<sup>b</sup> captured and released</b>	<b>Extrapolated bobcat captures</b>	<b>3-year moving average<sup>c</sup> (bobcat captures)</b>
1990-1991	2,302	20,377	40	354	
1991-1992	2,361	20,215	24	205	
1992-1993	1,652	20,345	26	320	293
1993-1994	2,175	19,246	16	142	222
1994-1995	2,056	21,905	101	1,076	513
1995-1996	2,181	21,840	46	460	559
1996-1997	2,363	25,636	62	673	736
1997-1998	2,233	27,413	46	565	566
1998-1999	2,466	25,877	108	1,133	790
1999-2000	1,557	17,414	62	693	797
2000-2001	1,681	18,551	52	574	991
2001-2002	1,553	19,410	56	700	656
2002-2003	1,779	20,676	45	523	599
2003-2004	2,204	22,454	68	693	639
2005-2006	2,412	23,941	165	1,638	951
2006-2007	2,436	26,589	175	1,910	1,414
2007-2008	2,994	28,033	235	2,200	1,916
2008-2009	2,622	29,717	274	3,105	2,405
2009-2010	3,186	31,122	235	2,296	2,534
2010-2011	4,421	35,279	221	1,764	2,388
2011-2012	4,080	36,192	212	1,881	1,980
2012-2013	3,223	39,913	105	1,300	1,648
2013-2014	4,439	44,591	175	1,758	1,646
2014-2015	4,720	45,069	189	1,805	1,621
2015-2016	4,443	44,506	161	1,613	1,725
2016-2017	4,477	43,735	138	1,481	1,633
2017-2018	4,492	43,329	154	2,098	1,731
2018-2019	4,303	43,710	98	1,284	1,621
2019-2020	3,862	45,871	125	1,854	1,745
2020-2021	3,716	50,468	101	1,708	1,615
2021-2022	3,470	46,516	69	993	1,518

<sup>a</sup> Excludes junior and senior combination license holders.

<sup>b</sup> Does not include bobcats legally harvested by permit holders.

<sup>c</sup>  $r = 0.77$ ,  $P < 0.05$

Table 6. Number of incidental fisher captures estimated from the annual Furtaker Survey. This survey was not conducted during 2004-2005.

<b>Trapping season</b>	<b>Survey respondents</b>	<b>Furtaker licenses sold<sup>a</sup></b>	<b>Fishers<sup>b</sup> captured and released</b>	<b>Extrapolated fisher captures</b>	<b>3-year moving average<sup>c</sup> (fisher captures)</b>
1999-2000	1,557	17,414	5	56	
2000-2001	1,681	18,551	1	11	
2001-2002	1,553	19,410	6	75	47
2002-2003	1,779	20,676	11	128	71
2003-2004	2,204	22,454	10	102	102
2005-2006	2,412	23,941	83	824	351
2006-2007	2,436	26,589	87	950	625
2007-2008	2,994	28,033	105	983	919
2008-2009	2,622	29,717	167	1,893	1,275
2009-2010	3,186	31,122	120	1,172	1,349
2010-2011	4,421	35,279	117	934	1,333
2011-2012	4,080	36,192	163	1,446	1,184
2012-2013	3,223	39,913	118	1,461	1,280
2013-2014	4,439	44,591	104	1,045	1,317
2014-2015	4,720	45,069	92	878	1,128
2015-2016	4,443	44,506	141	1,412	1,112
2016-2017	4,477	43,735	282	3,751	2,014
2017-2018	4,492	43,329	99	2,112	2,425
2018-2019	4,303	43,710	90	1,262	2,375
2019-2020	3,862	45,871	65	2,459	1,944
2020-2021	3,716	48,969	46	993	1,571
2021-2022	3,470	46,516	76	1,255	1,569

<sup>a</sup> Excludes junior and senior combination license holders.

<sup>b</sup> Does not include fishers legally harvested by permit holders.

<sup>c</sup>  $r = 0.87$ ,  $P < 0.05$

Table 7. Reports of otter and fisher captured, and fisher observations estimated from annual State Game Warden (SGW) questionnaires.

<b>Survey Year</b>	<b>No. Districts Reporting</b>	<b>No. Incidental Otter Captures</b>	<b>No. Incidental Fisher Captures</b>	<b>No. Reported Fisher Observations</b>
1995	123	15	-	-
1996	123	15	-	-
1997	123	31	10	60
1998	123	26	9	67
1999	127	30	6	94
2000	123	35	8	82
2001	137	25	6	105
2002	122	27	9	106
2003	133	26	20	206
2004	122	42	31	303
2005	123	50	49	341
2006	118	44	86	385
2007	133	57	132	481
2008	132	47	138	561
2009	125	36	106	615
2010	125	51	101	653
2011	131	59	130	837
2012	131	53	113	808
2013	132	45	94	999
2014	135	40	137	929
2015	136	61	109	1070
2016	130	52	90	881
2017	121	46	96	977
2018	133	45	71	844
2019	127	81	95	872
2020	130	68	50	832
2021	126	33	59	544




Table 8. Types and numbers of coyote-related complaints reported to State Game Wardens (SGW).

Survey Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>Proportion of SGW districts reporting coyote complaints</b>	66	64	44	54	62	50	59	61	58	58	66	61	61	55	66	58	44
<b>Complaint nature/ species affected</b>																	
Cattle	18	24	9	12	12	11	13	13	17	16	11	10	12	14	8	14	6
Sheep	43	29	19	22	29	20	19	26	23	23	24	25	37	20	17	14	8
Goats	5	3	4	7	4	5	4	8	5	5	10	7	9	8	4	5	3
Poultry	24	11	19	16	14	21	24	25	20	35	34	38	44	43	46	43	23
Dogs	12	19	8	9	17	8	12	9	5	15	17	14	23	14	20	16	12
Cats	25	38	28	19	25	29	27	24	17	25	27	34	47	38	29	27	20
Afraid of Coyotes	263	199	155	171	219	193	258	229	221	249	337	320	369	344	313	289	260
Deer	73	36	61	74	39	53	53	65	37	50	63	41	57	32	48	34	26
Turkeys	31	12	12	21	17	14	23	18	15	17	29	13	16	8	14	14	3
Other	32	36	36	32	17	31	48	18	33	26	11	47	18	18	13	38	17
<b>Total Complaints</b>	<b>526</b>	<b>407</b>	<b>351</b>	<b>383</b>	<b>393</b>	<b>385</b>	<b>481</b>	<b>435</b>	<b>393</b>	<b>461</b>	<b>563</b>	<b>549</b>	<b>639</b>	<b>539</b>	<b>512</b>	<b>494</b>	<b>378</b>
<b>Coyote-caused mortalities</b>																	
Cows	2	0	1	1	0	1	0	0	2	2	1	2	1	0	0	0	1
Calves	10	27	7	9	8	7	7	10	12	11	5	5	4	13	3	4	10
Sheep	30	47	28	47	57	25	22	49	41	44	24	42	43	28	32	22	18
Goats	0	2	3	4	3	4	5	6	5	3	7	4	3	9	15	0	4
Poultry	51	71	93	132	76	97	68	106	77	68	74	66	39	56	39	27	62
Dogs	3	3	1	2	1	1	7	3	0	4	6	4	5	4	4	5	6
Cats	16	33	15	34	19	18	53	28	25	23	19	24	33	32	31	18	19
Rabbits	8	12	2	8	16	6	7	5	7	22	4	2	6	3	2	3	0
Deer	13	10	8	10	7	6	8	6	11	18	13	9	10	7	12	10	10
Other	2	1	1	0	1	0	1	0	1	0	1	1	8	0	1	1	0
<b>Total Depredation</b>	<b>135</b>	<b>206</b>	<b>159</b>	<b>247</b>	<b>188</b>	<b>165</b>	<b>178</b>	<b>213</b>	<b>181</b>	<b>195</b>	<b>154</b>	<b>159</b>	<b>152</b>	<b>152</b>	<b>139</b>	<b>90</b>	<b>130</b>

Table 9. Numbers of furbearer complaints received by State Game Wardens from 2009 to 2021.

<b>Species</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Raccoon	763	971	820	942	837	763	723	777	884	744	906	609	475
Beaver	506	521	567	454	488	551	719	681	557	572	674	541	421
Coyote	393	386	481	435	393	595	576	554	632	539	622	500	378
Skunk	488	518	426	471	326	272	354	384	414	350	242	179	169
Fox	235	219	261	301	257	268	331	290	318	276	296	261	286
Opossum	139	121	97	117	90	74	97	140	110	122	97	50	60
Muskrat	73	126	68	73	61	58	43	43	30	27	22	24	6
Bobcat	50	37	52	75	63	62	66	51	78	44	57	52	22
Fisher	23	15	32	52	44	36	52	48	74	38	35	39	25
Mink	27	10	24	13	21	26	24	30	22	30	18	22	17
Weasel	17	15	22	20	26	20	20	30	29	21	8	14	5
Otter	7	10	19	10	18	10	15	15	6	4	14	13	6

 Furbearer Warden Survey Search Survey Reports

All questions pertain to furbearer information within your district during **July 2022 to June 2023**. If you regularly, or for an extended period (>3 months), covered a portion of another district in addition to your own during the survey period, you may be asked to complete a separate (additional) questionnaire pertaining specifically to your added coverage area. If you are new to this district or cannot answer these questions, please electronically submit this form anyway (leaving unknown answers blank) or consult with the SGW who previously occupied or covered your district. Please do not give generic, non-numeric, answers (examples: 'numerous', 'many', or 'a lot') to questions asking "How many?". Provide your best numeric estimates including the minimum number or values of 0 when appropriate. Please note that these types of questions will be asked annually.

Add Survey

Year

2022-2023

SGW

District

Region

County

Beavers

1. How many beaver complaints were serviced within each WMU in your district?

+ Add

Filter:

WMU	# of complaints
No records.	

2. How many problem beavers did you trap and transfer to a new location?

3. How many problem beavers did you dispatch/euthanize?

4. How would you describe beaver populations in your district?

Beaver populations are present each year and are ...

----- or -----

Beaver populations are not present each year and are ...

River Otters

5. How many river otters were accidentally caught by trappers within your district?

Figure 1. State Game Warden Furbearer Questionnaire used for the 2021-22 survey period.

Pennsylvania Game Commission
Keller, Thomas
Furbearer Warden Survey
Search
Survey
Reports

5. How many river otters were accidentally caught by trappers within your district?

6. How would you describe river otter populations in your district?

Otter populations are present each year and are ...

----- or -----

Otter populations are not present each year and are ...

Fishers

7. How many reliable reports of fishers have you received in your district?

8. How many fishers were accidentally caught by trappers in your district?

9. How would you describe fisher populations in your district?

Fisher populations are present each year and are ...

----- or -----

Fisher populations are not present each year and are ...

Bobcats

10. How would you describe bobcat populations in your district?

Bobcat populations are present each year and are ...

----- or -----

Bobcat populations are not present each year and are ...

Muskrats

11. How many muskrat-related complaints did you receive during this period?

Figure. 1 – Cont.

Pennsylvania Game Commission
Keller, Thomas

Furbearer Warden Survey
Search
Survey
Reports

11. How many muskrat-related complaints did you receive during this period?

12. How would you describe muskrat populations in your district?

Muskrat populations are present each year and are ...

----- or -----

Muskrat populations are not present each year and are ...

Coyotes

13. Did you receive any coyote-related complaints during this period?
No

Nuisance Complaints

14. Did you receive any nuisance complaints during this period?
No

Other Mammals - Porcupines

15. How many porcupine complaints did you receive in your district during the past year?

16. Excluding the winter months, approximately how many dead porcupines did you see on average along roadways within your district? (unique/individual porcupines, not counted more than once)

17. How would you describe porcupine populations in your district?

Porcupine populations are present each year and are ...

----- or -----

Porcupine populations are not present each year and are ...

Save

Figure. 1 – Cont.

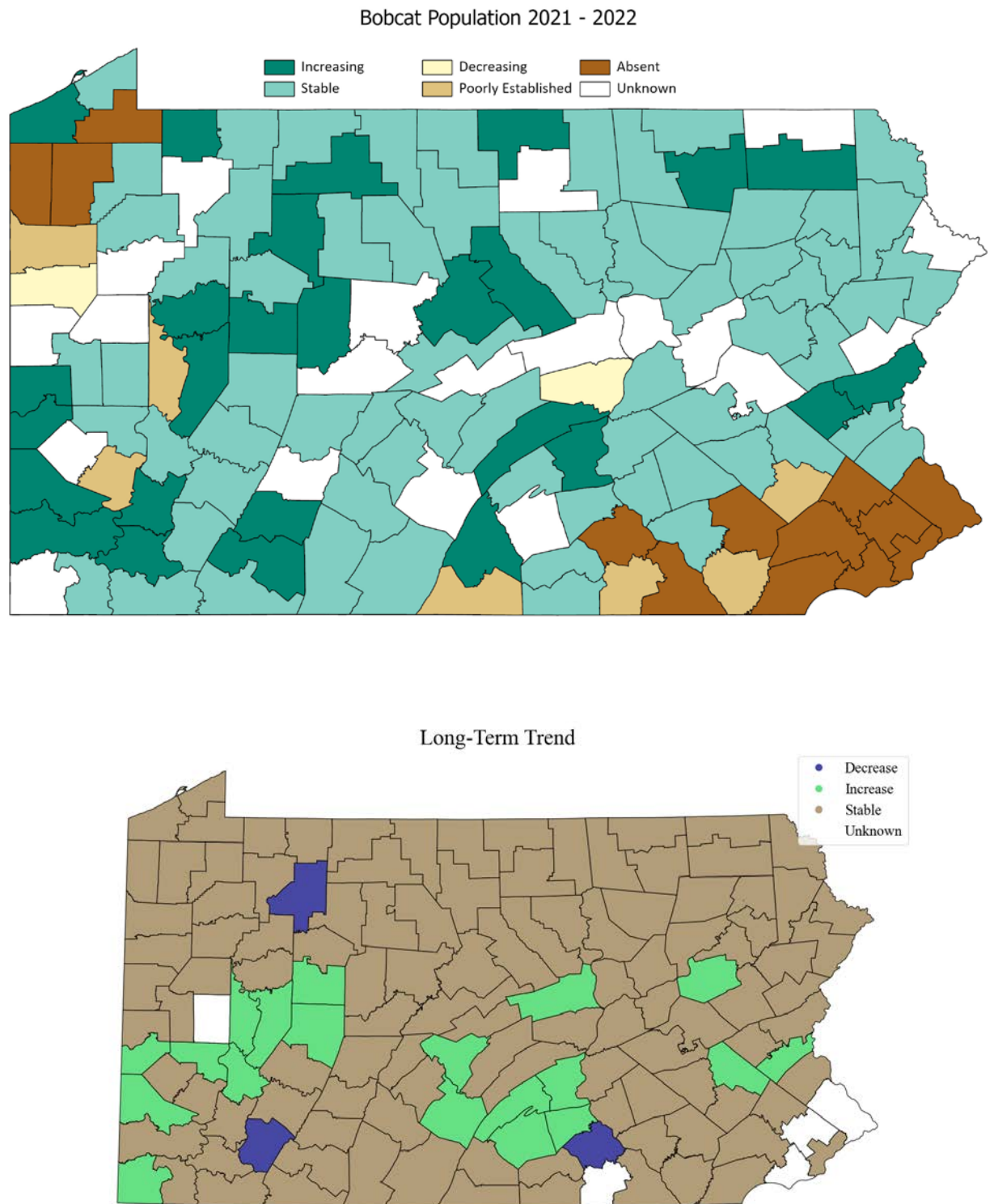


Figure 2. Bobcat population status and distribution based on State Game Wardens observations during 2021-22 and long-term trends for districts based on reports from 2007 to 2021.

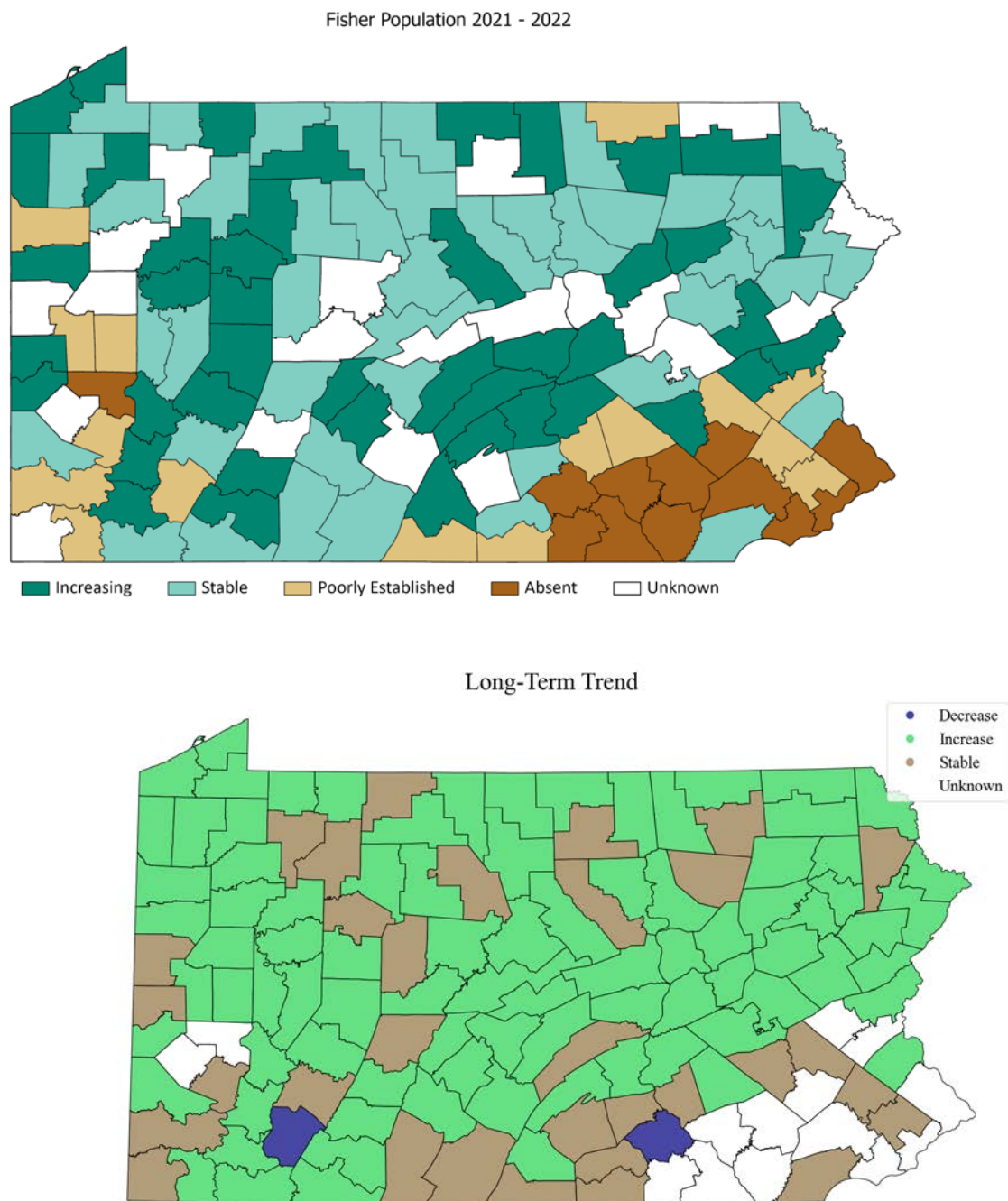


Figure 3. Fisher population status based on State Game Warden observations during 2021 and long-term trends for districts based on reports from 2007 to 2021.

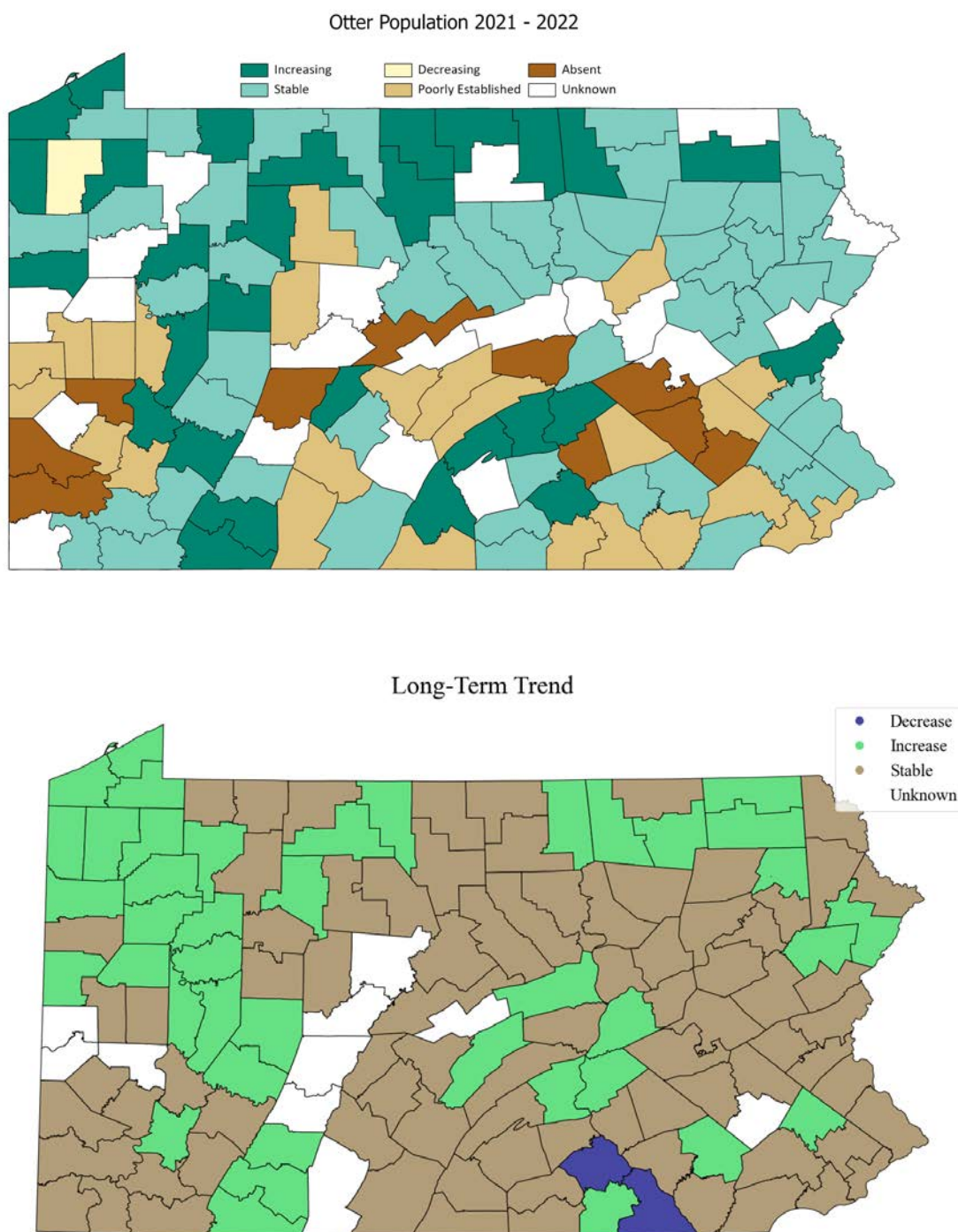


Figure 4. River otter population status based on State Game Warden observations during 2021 and long-term trends for districts based on reports from 2007 to 2021.



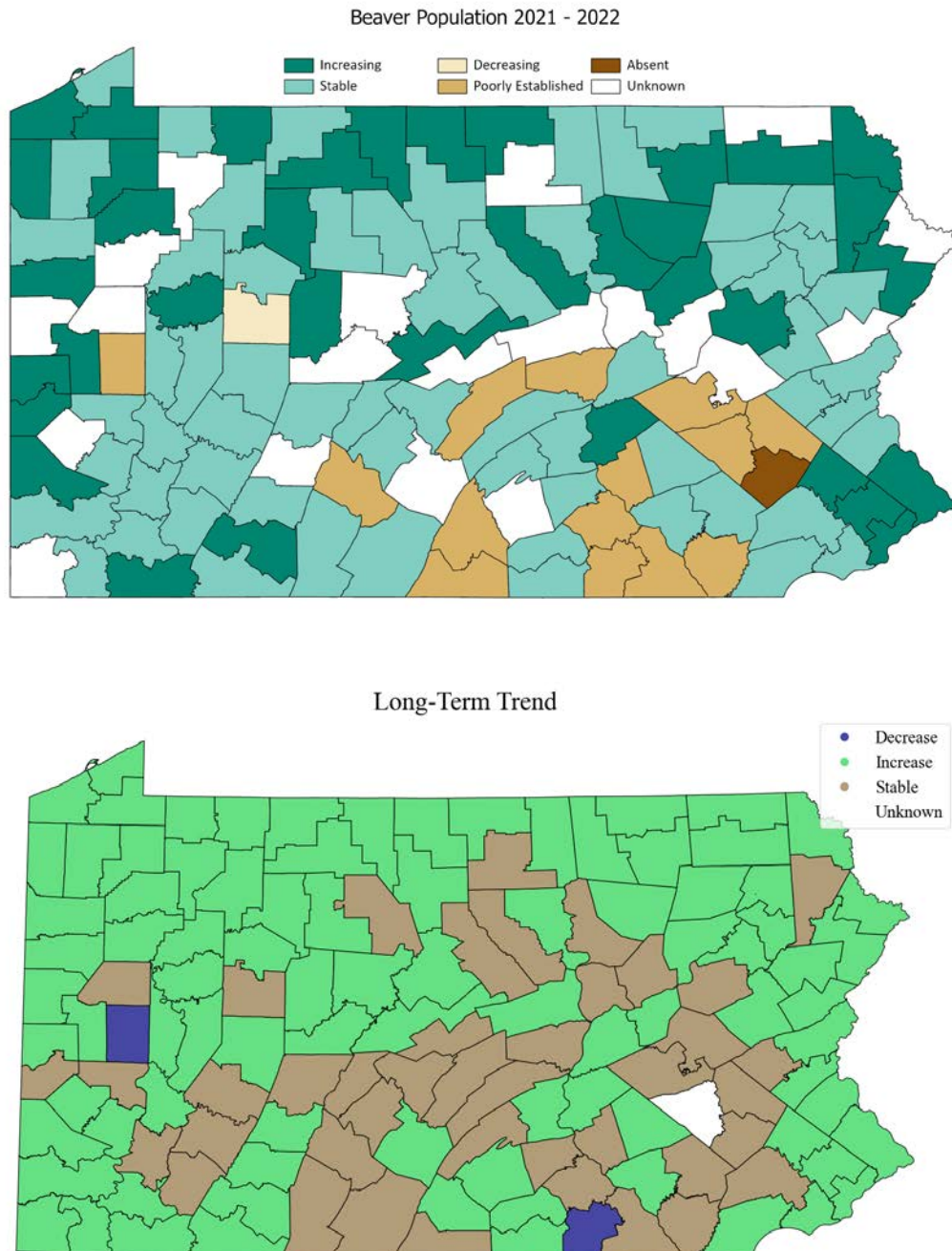


Figure 5. Beaver population status based on State Game Warden observations during 2021-22 and long-term trends for districts based on reports from 2007 to 2021.

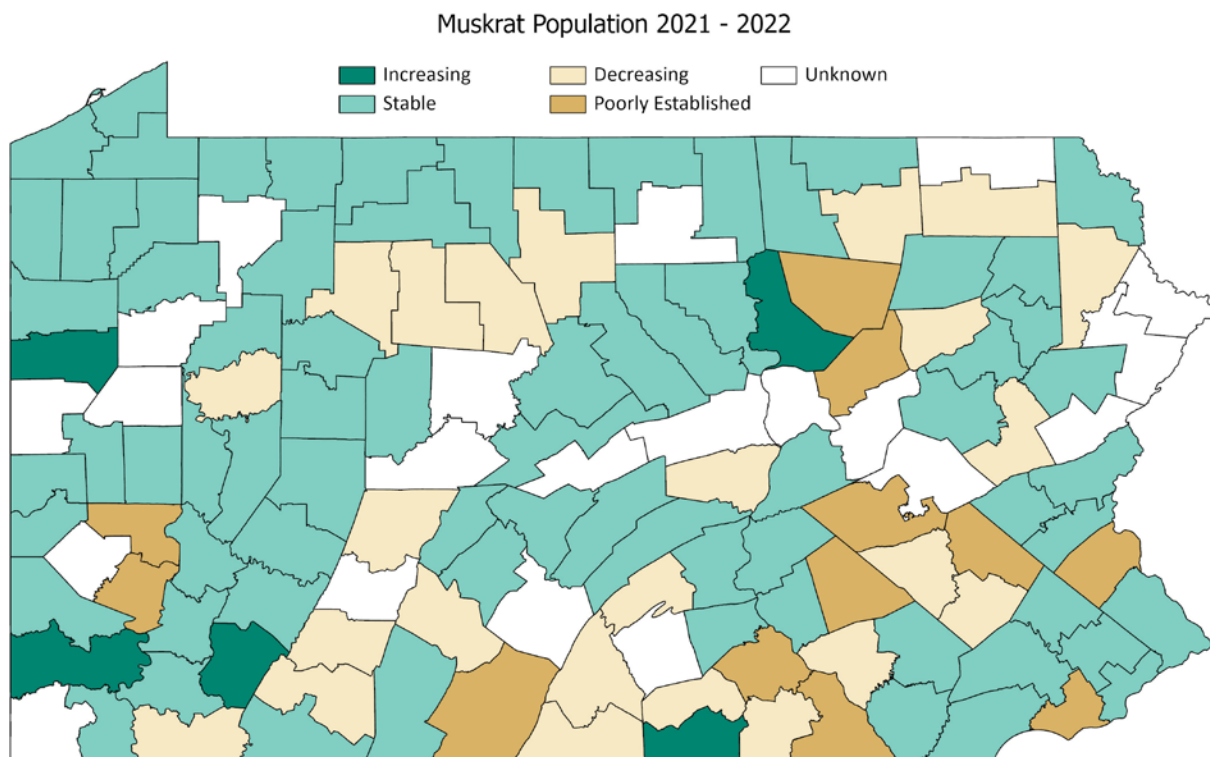


Figure 6. Muskrat population status based on State Game Warden observations during 2021-22.

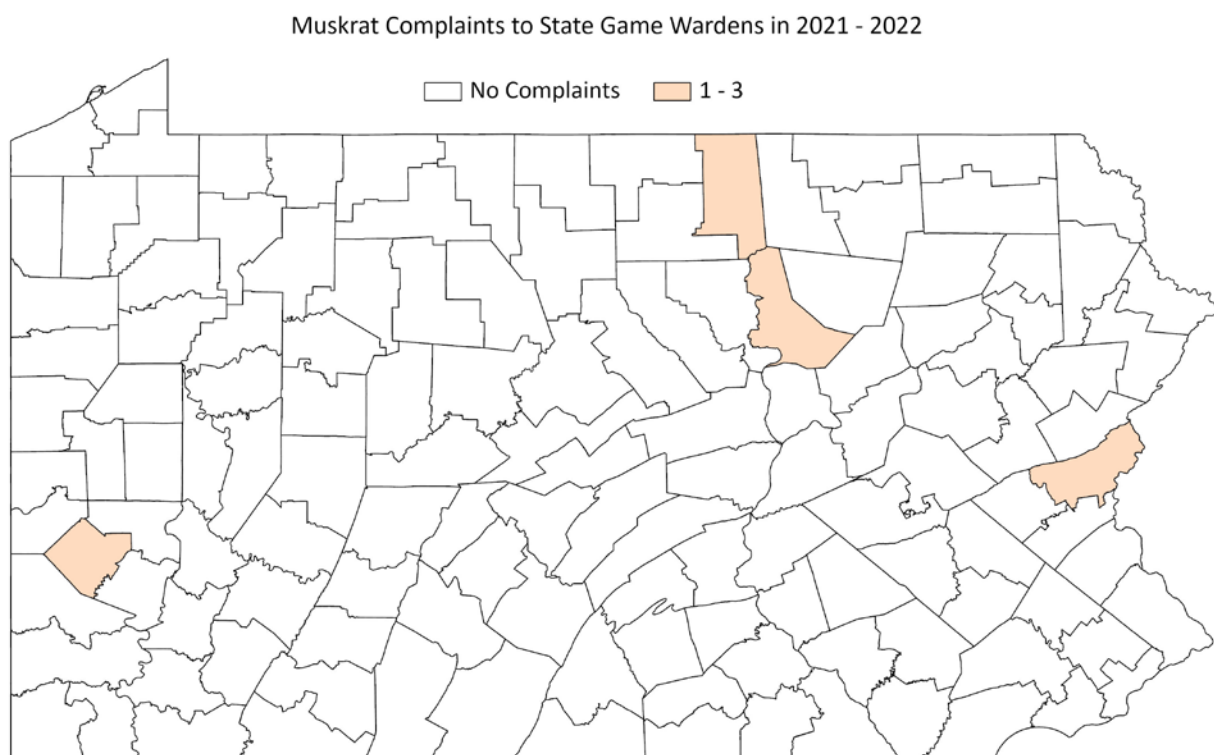


Figure 7. Distribution and status of muskrat complaints reported to State Game Wardens during in 2021-22.

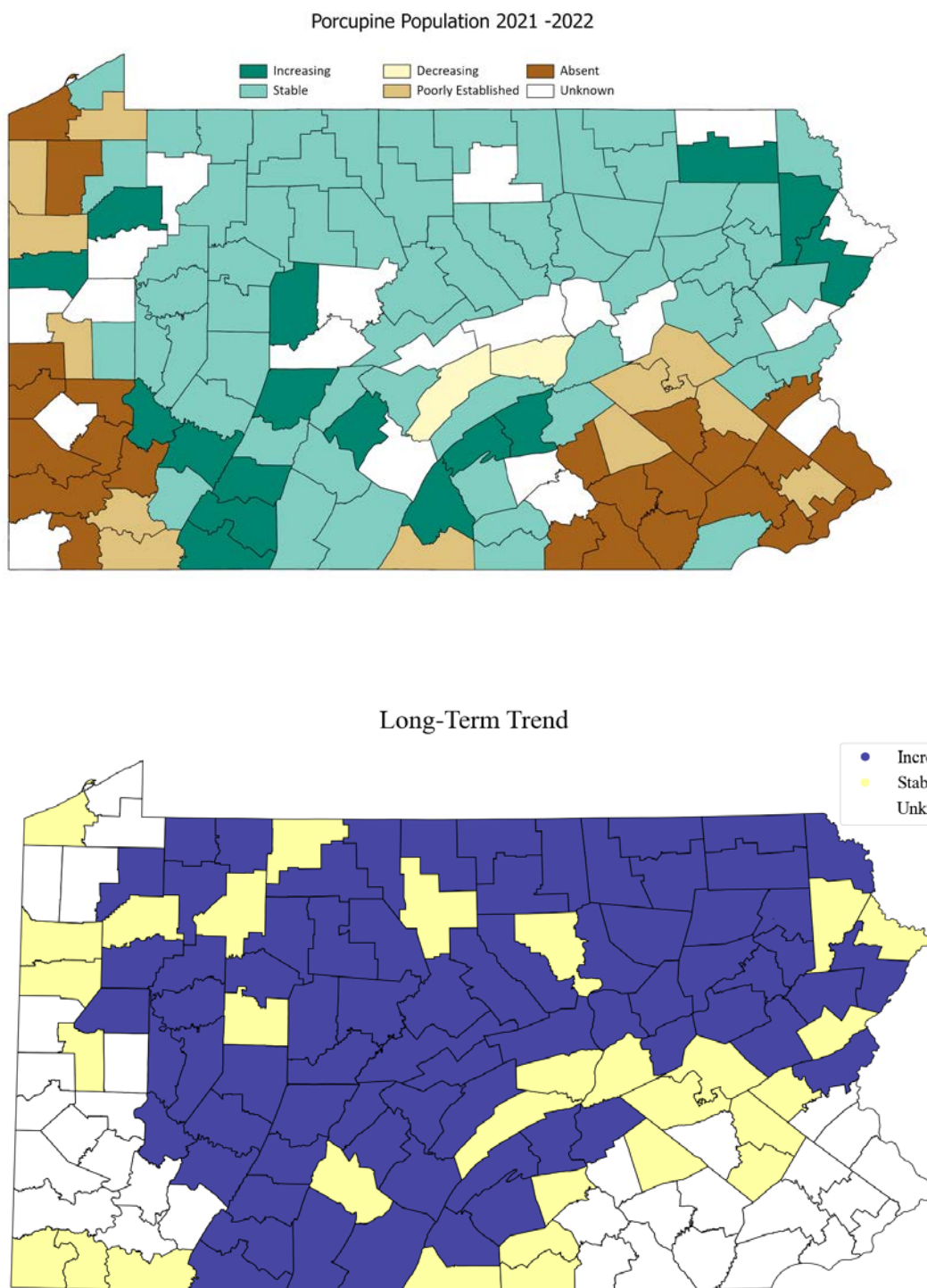


Figure 8. Porcupine population status based on Wildlife Conservation Officer observations 2021-22 and long-term trends for districts based on reports from 2007 to 2021.

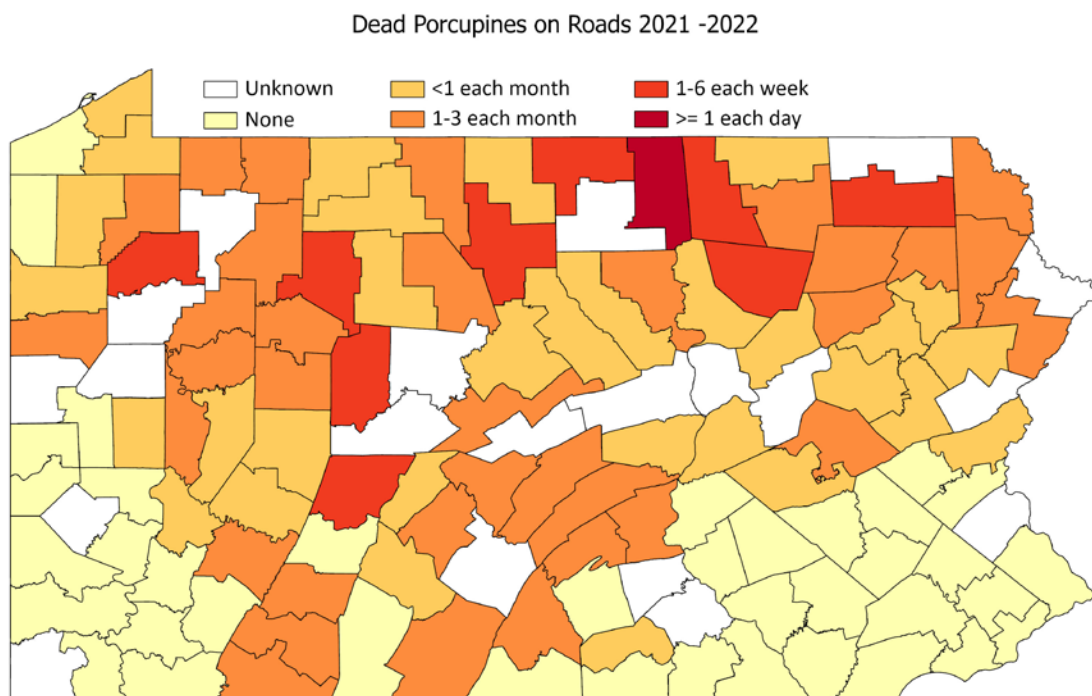


Figure 9. State Game Warden rates of porcupine mortality observation along roadways during 2021.