

Maryland's Archery Hunter Survey

Final Report

2019-2020

written by
Joshua Tabora, Furbearer Biologist
Harry Spiker, Associate Director
Brian Eyler, Game Mammal Section Leader
Bob Long, Upland Game Bird Project Leader

July 2021





Larry Hogan, Governor



Jeannie Haddaway-Riccio, Secretary

Brian Eyler
Game and Mammal Section Leader
301-842-0332

Wildlife & Heritage Service
580 Taylor Ave, E-1
Annapolis, MD 21401
Toll free in Maryland: 877-620-8367
Out of state call: 410-260-8540
TTY Users call via the MD Relay 711
dnr.maryland.gov/wildlife

The facilities of the Department of Natural Resources are available to all without regard to race, color, religion, sex, sexual orientation, age, national origin, or physical or mental disability. Accommodations for individuals with disabilities will be provided upon request. Seven days advance notice is requested. This document is available in alternative format upon request from a qualified individual with a disability.

This document is available in alternative format upon request from a qualified individual with disability.

This program receives federal assistance from the U.S. Fish and Wildlife Service, and thus prohibits discrimination on the basis of race, color, national origin, disability, age, and sex in educational programs, pursuant to Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Educational Amendments of 1972. If you believe that you have been discriminated against in any program, activity, or service, please contact the Office of Fair Practices-MD Department of Natural Resources, Tawes Building, 580 Taylor Ave., D-4, Annapolis, MD, 21401. The telephone number is 410-260- 8058. You may also write to the U.S. Fish and Wildlife Service, Division of Policy and Programs, Wildlife and Sport Fish Restoration Program, 4401 N. Fairfax Drive, Mail Stop: WSFR-4020, Arlington, Virginia 22203.



Survey and inventory results reported in this publication were funded by the Federal Aid in Wildlife Restoration Act.

DNR 03-061121-280



*Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary
Allan Fisher, Acting Deputy Secretary*

Dear Sportspersons,

The attached report summarizes the Archery Hunter Survey data for the 2010-11 through 2019-2020 archery seasons. I hope that you will take a chance to read the report and participate in future surveys. Your participation is critical as we continue to monitor Maryland's diverse wildlife resources.

I would like to personally thank each and every individual who took the time to fill out and return the Archery Hunter Survey form. Your efforts will contribute greatly to our overall knowledge and conservation of Maryland's wildlife resources. If you have not, or do not receive a survey, but are interested in participating, the form can be found at: <https://dnr.maryland.gov/wildlife/documents/BowHunterSurvey.pdf>

Respectfully,

Joshua Tabora
Furbearer Biologist

Introduction

Archery hunters annually spend a large number of days in the field and tend to be quite observant while on-stand. These two traits enable these individuals to be ideal participants in structured observational surveys like the Archery Hunter Survey.

In an effort to gain insight into furbearer and other wildlife populations across Maryland, the Archery Hunter Survey was established in 2002 and has been conducted annually since. During the 2019-2020 survey period, more than 300 cooperative archery hunters from across the state returned survey forms that were used to conduct the assessments in this report.

Survey participants were asked to complete the survey forms and record any observations of wildlife while they were archery hunting. They were also asked a myriad of other questions, including number of hours hunted, county hunted, if the hunt occurred on public or private land and if bait, cover scent, an elevated stand or lure was used.

Survey participants recorded information at the county level. Counties were then split into their respective physiographic provinces (Figure 1). In some instances, it was necessary to include a county in only one physiographic province despite two provinces occurring in that county (ex. Frederick and Cecil).

For this survey, the Appalachian Plateau Province consisted of Garrett County. The Ridge and Valley Province included Allegany, Frederick and Washington counties. The Piedmont Province was comprised of Baltimore, Carroll, Cecil, Harford, Howard and Montgomery counties. The Western Coastal Plain Province consisted of Anne Arundel, Calvert, Charles, Prince George's and St. Mary's counties. The Eastern Coastal Plain Province included Caroline, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico and Worcester counties.

The resulting data was then tabulated and reduced to a standard unit of measurement (observations per 100 hours of hunting). This standard unit of measurement was then used to analyze a number of different variables (e.g. elevated stand, lure, month, region, etc.). Standard errors (SE), where provided, were calculated using ratio estimates and provided a measure of variability in the results.

It should be noted that different species have varying susceptibility to surveillance. Therefore, variations in observation rates between different species may not be an accurate reflection of comparative densities.

Aquatic species, nocturnal species and species that utilize inaccessible areas or habitat types that hunters do not frequent, will normally have a lower probability of being observed than do other species.

Although vulnerability to observation varies among species, it remains consistent for individual species during successive years. For example, some species, such as beaver, have a low probability of being observed. However, that probability remains the same from year to year. As a result, you can still detect beaver population changes over a period of years.

The inherent value of this type of survey is to accurately track wildlife population trends through time on a statewide scale. It is important to note that data from a number of successive years is necessary before you can begin to accurately assess these trends. With the 2019-2020 season marking the 18th year that the survey has been completed, observation trends for certain species have developed nicely. As the body of data from this survey continues to increase in future years, the results will supply one of the cornerstones for the conservation and management of many of Maryland's wildlife species.

Furbearers By Joshua Tabora

Thirteen of Maryland's species of furbearers were observed by Archery Hunter Survey participants this year. Although regional observations for some species varied between individual survey periods, statewide observation rates remained relatively consistent (Table 1, Figures 2 and 3).

Red fox continued to be the most frequently observed furbearer during the 2019-2020 hunting season by a wide margin. The greatest number of red fox sightings occurred in the Piedmont Province. Red fox observations did not fluctuate significantly between the 2009-10 and 2019-20 survey periods in any region of the state with the exception of the Appalachian Plateau Province. (Table 1, Figures 4 and 5).

Gray fox observations remained fairly steady in all provinces during the 2019-20 survey period (Table 1, Figure 5).

Coyotes are found statewide and were observed in every province but the Eastern Coastal Plain during the 2019-20 survey period. The highest observation rates occurred on the Appalachian Plateau (Table 1, Figures 4, 5 and 6).

Bobcat numbers have historically been centered in the Appalachian Plateau and Ridge and Valley Provinces. That trend has continued for the last two seasons, with all bobcat observations occurring in the two western-most physiographic regions. (Table 1, Figure 7).

Raccoons were observed statewide with high concentrations occurring on both the Appalachian Plateau and the Western Coastal provinces. During the 2019-2020 archery season, both striped skunks and opossums were observed in all provinces, with observations remaining consistent from past years (Table 1, Figures 7 and 8). Weasels were reported in the Ridge and Valley, and were also observed in both the Eastern and Western Coastal Plain for the first time since the 2011-2012 season (Table 1, Figures 7 and 8).

Aquatic furbearer (beaver, mink, muskrat, nutria and otter) observation rates are typically lower than many of the terrestrial furbearer species due to the nature of archery hunting and the habitat types that these animals occupy. During the 2019-2020 hunting season, mink were reported only in the Ridge and Valley. Muskrat and beaver were both reported in the Ridge and Valley, the Piedmont and the Western Coastal Plain (Table 1, Figures 9 and 10). Otter were reported in the Ridge and Valley, Piedmont and Eastern Coastal Provinces (Table 1, Figures 9 and 10). No nutria were observed during the 2019-2020 observation period.

Rabbits and Squirrels **By Joshua Tabora**

Cottontail rabbits and all three harvestable species of squirrel (eastern fox, gray and red) were observed during the 2019-2020 survey period (Table 1, Figure 12 and 13).

Gray squirrels were by far the most commonly observed species and appeared in every province. The eastern fox squirrel was observed in all provinces except the Western Coastal and red squirrels were encountered only in the Appalachian Plateau province during the 2019-20 season. Archery hunters observed 45 Delmarva fox squirrels, a non-game species unique to Maryland's Eastern Coastal Province (Table 8). Cottontail rabbits were once again observed statewide during the sampling period (Table 1, Figures 13 and 14).

White-tailed Deer **By Brian Eyler**

Archery hunters observed 3,059 whitetail bucks, 7,179 whitetail does, 4,184 whitetail fawns and 1,643 whitetails

of unknown sex and age (16,065 total) statewide during a reported 16,442 hours of archery hunting during the 2019-20 season. Archers statewide observed a mean of 18.6 whitetail bucks, 43.7 whitetail does, 25.5 whitetail fawns and 10.0 unknown whitetails per 100 hours of archery hunting (Table 1). For 2019-20, the average hunter who participated in the survey spent a total of 55.6 hours archery hunting with an average hunt length of 3.7 hours.

The number of white-tailed deer observed by archery hunters continues to be stable across the state. Archery hunters in 2019-20 statistically observed the same number of bucks, does and fawns as they did in 2018-19. Yearly fluctuations in deer observations often are related to the amount of natural forage and mast available during the hunting season. When more natural forage and mast is available, deer do not have to move as much seeking food, and therefore are not observed as often by hunters. They also do not respond to bait like they do when mast is limited. Likewise, warm weather, which has been prominent during recent hunting seasons, also alters deer movements and can reduce sightings and harvests.

Physiographic Province Results

Archers in 2019-20 observed a high mean of 21.9 white-tail bucks per 100 hours in the Piedmont Province and a low mean of 15.5 bucks per 100 hours in the Western Coastal Plain Province (Table 1). Archery hunters reported the most whitetail does per 100 hours (66.4) in the Appalachian Plateau Province and the fewest whitetail does per 100 hours (27.8) in the Western Coastal Plain Province. Fawn observations ranged from a high mean of 38.5 in the Appalachian Plateau Province to a low mean of 21.8 in the Western Coastal Plain Province. The number of unknown whitetails observed per 100 hours ranged from a high mean of 13.1 in the Ridge and Valley Province to a low mean of 6.3 in the Eastern Coastal Plain Province (Table 1).

Archers in the Western Coastal Plain Province spent the most time bowhunting in 2019-20 (67.2 hours/hunter) whereas archers in the Appalachian Plateau Province spent the least amount of time archery hunting (32.2 hours/hunter). Average hunt length ranged from 4.1 hours/hunt in the Eastern Coastal Plain Province to 3.4 hours/hunt in the Appalachian Plateau Province (Table 1).

Regional deer observation data collected by archery hunters during 2019-20 suggest that the deer population in Maryland has been relatively stable (Fig. 15). Yearly

fluctuations within regions can be attributed to deer population changes, availability of mast, and individual hunter effort and skill of those completing the surveys (Fig. 16). Observation rates were statistically similar for the regions when compared to 2018-19.

Measures of standard error presented in the data tables provide additional insight into statewide and regional observation differences. Small differences in standard error indicate most hunters in the region are observing similar numbers of deer. Larger differences in standard error suggest that some hunters are observing many more deer per hour than other hunters in the region. Differences can be attributed to public land vs. private land hunting, varying degrees of management for deer and hunter effort.

Lures, Cover Scents and Bait

Like previous years, archery hunters observed similar numbers of bucks in 2019-20 regardless of whether they were using lures to attract deer (Table 2). Archers observed 20.5 bucks per 100 hours when using lures compared to 18.1 bucks per 100 hours when not using lures. Statistically there was no difference in these observation rates. Similarly, archers observed 40.2 does per 100 hours when using lures compared to 44.5 does per 100 hours when not using lures (statistically no difference).

The use of cover scent in 2019-20 also did not appear to appreciably change how many bucks or does archers observed. Archers observed 17.8 bucks per 100 hours when using cover scent compared to 19.2 bucks per 100 hours when not using cover scent. Archers observed 41.5 does per 100 hours when using cover scent compared to 45.2 does per 100 hours when not using cover scent (statistically no difference; Table 2).

Similar to lures and cover scents, the use of bait also did not significantly alter how many deer archers observed in 2019-20 (Table 3). Archers observed 16.8 bucks per 100 hours when using bait compared to 19.6 bucks per 100 hours when not using bait (significantly not different). Likewise, they observed 45.5 does per 100 hours when using bait versus 42.6 does per 100 hours when not using bait (not significantly different).

Attractants such as lures, cover scents and bait, while sometimes useful, are not a substitute for knowledge concerning deer behavior and effective hunting techniques. Understanding deer habitat use, wind and weather effects and deer movement patterns for a given hunting area can significantly increase deer hunting suc-

cess rates. While using attractants at times can increase the odds of observing and harvesting deer, hunters are more successful when they first place themselves in the proper location at the proper time based on normal deer behavior, and follow up with the use of attractants in needed situations. This is particularly true with bait, which has the added negative effect of encouraging deer to increase their nocturnal movements and minimize their movements during legal hunting hours.

Elevated Stand Use

Elevated stands (trees, ladders, tripods, etc.) continue to offer an advantage in many instances for observing deer. Archers in 2019-20 observed 19.9 bucks per 100 hours from elevated stands compared to 13.0 bucks per 100 hours when ground hunting (Table 3). Archers observed 43.3 does per 100 hours from elevated stands vs. 45.4 per 100 hours from the ground (not significantly different). Elevated stands, in most cases, enable hunters to see further distances and remain undetected longer compared to hunting on the ground.

Deer hunters are strongly encouraged to always wear a full body safety harness while in a stand and to use a fall restraint system while climbing and entering and exiting the stand. Additional information on tree stand safety is available on the DNR website at https://dnr.maryland.gov/nrp/Pages/treestand_tips.aspx.

Monthly Results

Archery hunters observed an average of 23.6 and 19.0 whitetail bucks per 100 hours for the periods Oct. 15 – Nov. 14 and Nov. 15 – Dec. 14, respectively in 2019-20 (Table 4). Like previous years, they reported fewer whitetail bucks per 100 hours for the periods Sept. 9 – Oct. 14 and Dec. 15 – Jan. 31 (15.0 and 9.0 per 100 hours, respectively). Archers observed similar numbers of does for all four time periods. They observed the fewest number of does (39.0 per 100 hours) during the period Dec. 15 – Jan. 31, and the most does (45.9 per 100 hours) for the period Sept. 6 – Oct. 14.

Deer Management Region Results

Archers hunting in Deer Management Region A in 2019-20 observed a mean of 15.5 whitetail bucks per 100 hours and 52.8 does per 100 hours. Archers in Region B reported a mean of 19.1 bucks per 100 hours and 42.2 does per 100 hours (Table 5).

Archery hunter observation trends for the deer management regions continue to follow harvest and population

trends for those areas. The Region A deer population was reduced in the early 2000s via liberal antlerless bag limits after reaching an all-time (and unhealthy) high. Seasons and bag limits were restricted shortly thereafter and the Region A deer population was stabilized. In recent years, archery hunter observation trends in Region A have increased, suggesting the population is growing (Fig. 17). The deer population in Region B has been stable for the duration of the Archery Hunter Survey, suggesting the population is healthy in the region (Fig. 17).

Public and Private Land Results

As in previous years, archery hunters observed more deer on private lands than on public lands in 2019-20. Archers reported seeing 20.0 bucks, 47.1 does and 27.7 fawns per 100 hours on private land compared to 11.1 bucks, 25.6 does and 13.3 fawns per 100 hours on public land (Table 6).

Deer observation rates tend to be higher on private lands because private land deer habitat often is available in better and greater quantities than habitat on public lands. Likewise, private lands most often do not receive the hunting pressure that public lands do, and deer populations are therefore higher.

Doe:Buck and Fawn:Doe Ratios

Archers observed approximately 2.4 adult does for every 1 adult buck statewide in 2019-20 (Table 7). Provincially, adult doe:adult buck ratios ranged from 1.8:1 in the Eastern Coastal Plain and Western Coastal Plain provinces to 3.8:1 in the Appalachian Plateau Province in 2019-20 (Table 7). Adult doe:adult buck ratios observed during the survey continue to be similar to ratios observed when yearly deer biological data are collected from processors.

Archery hunters in 2019-20 observed approximately 0.58 fawns for every adult doe statewide. Fawn:adult doe ratios were similar across the regions and within the expected range. The ratio ranged from a low of 0.46 fawns per adult doe in the Ridge and Valley Province to a high of 0.78 fawns per adult doe in the Western Coastal Plain Province (Table 7).

Sika Deer

A total of 31 hunters reported archery hunting sika deer in 2019-20 and observed 288 sika deer. Hunts were recorded primarily in Dorchester County, with several additional hunts reported for Somerset and Wicomico

counties. Archers observed 7.4 stags, 14.1 hinds, 8.1 calves, and 4.8 unknown sika deer per 100 hours of bowhunting.

Archers in 2019-20 observed the most sika stags during the period Sept. 9 – Oct. 14 (9.3 per 100 hours). They observed the most sika hinds during the period Dec. 15 – Jan. 31 (27.8 per 100 hours).

Upland Game Birds **By Bob Long**

Archery hunters observed an average of 19.5 wild turkeys per 100 hours in the 2019-20 season (Table 1, Figure 18). This is higher than the 2018-19 observation rate (12.5 turkeys per 100 hours) and the long-term average (16.3 turkeys per 100 hours). Archers reported the most turkeys in the Ridge and Valley Province (24.8 turkeys per 100 hours), followed by the Appalachian Plateau Province (22.1 per 100 hours). Observation rates were lower in the rest of the state, ranging from 16.0 - 19.3 turkeys per 100 hours. The results suggest that wild turkey numbers increased in all regions of the state. Turkey populations had previously declined due to three consecutive summers of poor reproductive success as documented by the annual DNR Wild Turkey Observation Survey. However the summer of 2019 was an excellent year for turkey production, resulting in a population increase and increased observation rates throughout the state. Turkey observation rates may also vary due to annual fall mast production. In years of poor hard mast production, wild turkeys tend to frequent open fields more often and may be more visible to hunters.

Ruffed grouse are only found in the western mountains. The archery hunter survey continues to show that grouse are more abundant in the Appalachian Plateau Province than in the Ridge and Valley Province (Table 1, Figure 19). The 2019-20 observation rate of 1.0 per 100 hours in the Appalachian Plateau Province was below the 2018-19 observation rate (1.4 per 100 hours) and the long-term average (2.4 per 100 hours). Although sample size is low, the data suggest that grouse numbers have likely declined in recent years. Habitat loss and disease issues are thought to be negatively impacting grouse populations throughout the Mid-Atlantic Region.

Bobwhite quail are most common in the Eastern Coastal Province where archers reported observing 0.9 quail per 100 hours. While this is the highest observation rate since 2011-12, it is still well below the average of 1.5 since the survey began. Quail populations have declined significantly over the past several decades due to a combination of factors including habitat loss and severe winter weather.

Black Bear

By Harry Spiker

Since the establishment of Maryland's Archery Hunter Survey in 2002, black bears have been observed across all four counties of Maryland's occupied black bear range (Allegany, Frederick, Garrett and Washington). This data provided by hunters is especially valuable as the bear population grows and bear densities increase throughout the region. During the 2019-20 archery season, bears were once again observed across all four occupied counties. Observations continue to be highest in Garrett County (Table 1, Figure 21).

Other species

Bowhunters reported a myriad of other species while bowhunting. Geese, crows, mourning doves and ducks were observed most frequently (Table 8).

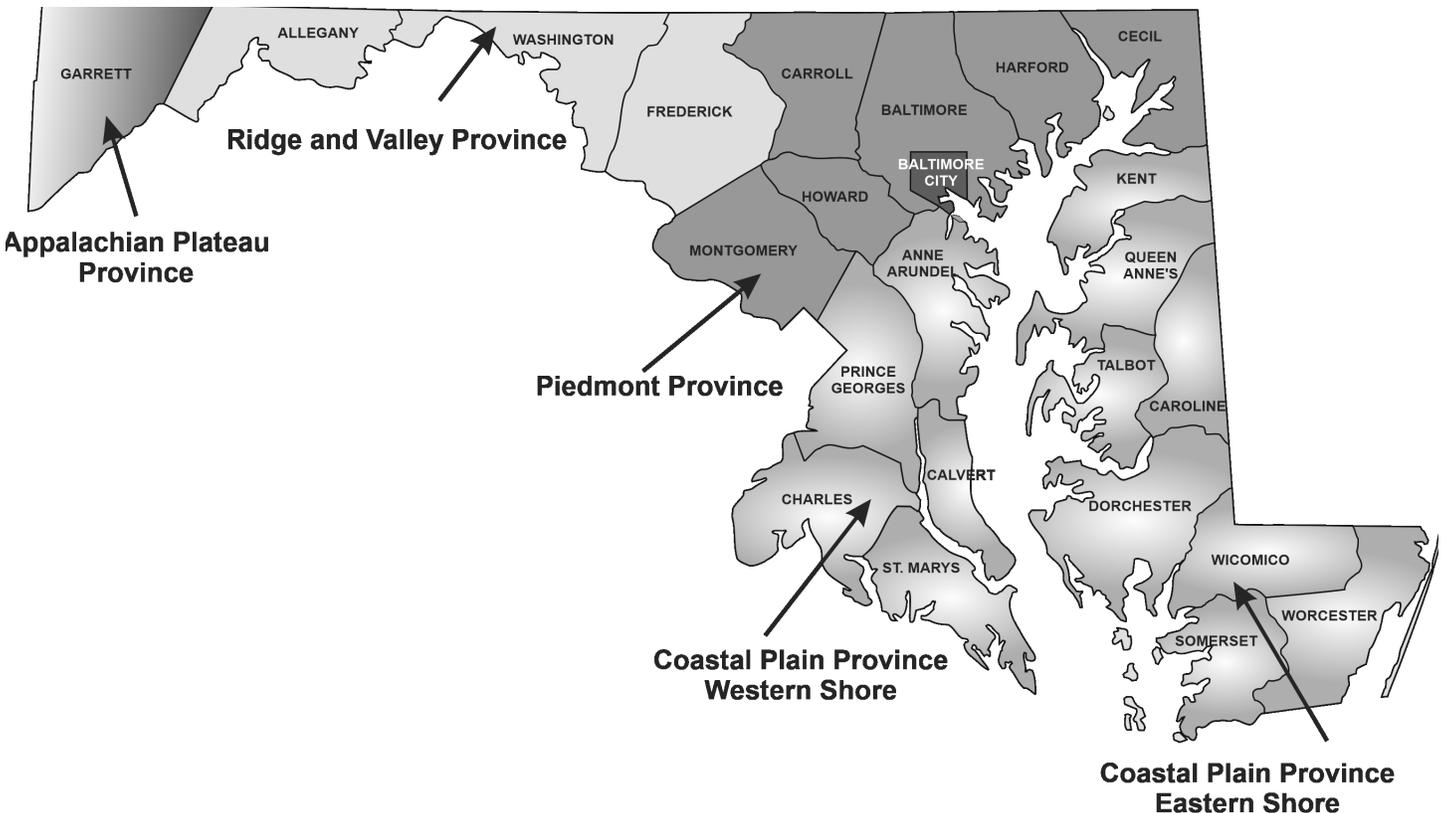
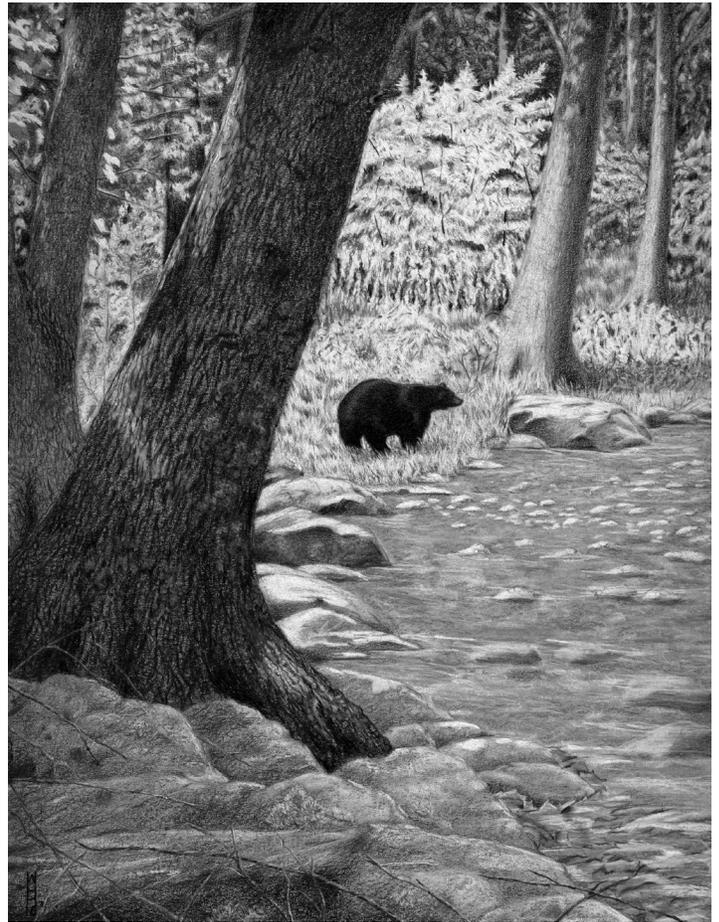


Figure 1. Physiographic provinces for the annual Archery Hunter Survey.

Table 1. Observations of select species per 100 hours (SE in parentheses) by archery hunters statewide and provincially during the 2019-20 Maryland archery season.

Species	Number Observed Per 100.0 Hours Hunted					
	Statewide	Appalachian Plateau	Ridge and Valley	Piedmont	Western Coastal	Eastern Coastal
Furbearers						
Beaver	0.04 (0.03)		0.13 (0.13)	0.04 (0.03)	0.03 (0.03)	
Bobcat	0.07 (0.06)	0.85 (0.77)	0.07(0.05)			
Coyote	0.6 (0.15)	1.13 (0.38)	0.98 (0.45)	1.17 (0.41)	0.08 (0.06)	
Fisher	0.03 (0.02)		0.17 (0.11)			
Gray Fox	0.92 (0.64)	0.19 (0.13)	0.34 (0.16)	0.53 (0.30)	2.95 (2.78)	0.08 (0.06)
Mink	0.05 (0.04)		0.30 (0.21)			
Muskrat	0.04 (0.03)		0.07 (0.05)	0.08 (0.08)	0.03 (0.03)	
Opossum	0.20 (0.05)	0.19 (0.14)	0.30 (0.14)	0.17 (0.06)	0.11 (0.05)	0.25 (0.12)
Otter	0.07 (0.04)		0.07 (0.07)	0.08 (0.07)		0.15 (0.15)
Raccoon	2.22 (0.3)	3.02 (1.26)	1.65 (0.43)	1.80 (0.31)	2.98 (1.05)	2.21 (0.45)
Red Fox	4.79 (0.38)	0.66 (0.28)	2.49 (0.55)	7.66 (0.74)	3.51 (0.62)	5.42 (0.86)
Striped Skunk	0.13 (0.04)	0.28 (0.16)	0.10 (0.10)	0.19 (0.09)	0.11 (0.07)	0.08 (0.04)
Weasel	0.02 (0.01)		0.03 (0.03)	0.05 (0.05)		0.03 (0.03)
Forest and Upland Game						
Black Bear	0.52 (0.25)	5.65 (3.14)	0.84 (0.29)			
Bobwhite Quail	0.21 (0.13)					0.86 (0.56)
Cottontail Rabbit	0.75 (0.14)	1.22 (0.61)	0.61 (0.18)	0.95 (0.35)	0.77 (0.23)	0.48 (0.24)
Eastern Fox Squirrel	1.35 (0.29)	1.22 (0.34)	4.01 (1.05)	0.3 (0.16)		1.93 (0.83)
Gray Squirrel	111.41 (5.61)	28.55 (7.59)	96.01 (8.46)	114.09 (7.49)	146.27 (13.64)	108.81 (14.18)
Red Squirrel	0.23 (0.19)	3.58 (2.77)				
Ruffed Grouse	0.10 (0.05)	1.04 (0.66)	0.17 (0.07)			0.03 (0.03)
Wild Turkey	19.53 (2.03)	22.14 (6.14)	24.76 (5.45)	16.03 (3.37)	19.26 (4.96)	19.33 (3.6)
White-tailed Deer						
Buck	18.60 (1.15)	17.43 (2.24)	16.95 (1.99)	21.88 (1.89)	15.54 (1.83)	19.17 (3.39)
Doe	43.66 (2.86)	66.43 (17.68)	51.75 (6.21)	53.04 (5.15)	27.84 (5.10)	35.32 (5.81)
Fawn	25.45 (1.70)	38.45 (6.98)	23.78 (2.72)	32.49 (3.69)	21.76 (4.16)	18.28 (2.67)
Unknown	9.99 (0.88)	13.00 (3.36)	13.11 (2.31)	11.96 (1.53)	8.05 (1.58)	6.33 (1.41)
Hunt Information						
No. Of Hunters Who Reported At Least One Hunt In The State or Province	296	33	62	113	56	82
No. Of Hunts Logged	4406	312	813	1,291	1,034	956
Total Hrs. Hunted	16442.05	1061.25	2968.30	4,715.75	3,764.25	3,932.50
Avg. Total Hrs. Per Hunter	55.55	32.16	47.88	41.73	67.22	47.96
Avg. No. Of Hrs. Per Hunt	3.73	3.40	3.65	3.65	3.64	4.11
Total No. Of Deer Observed	16,065	1,436	3,134	5,629	2,755	3,111

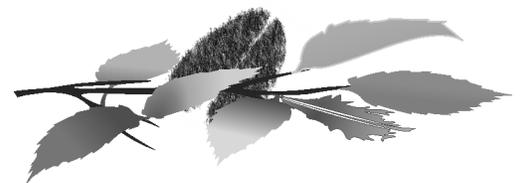


Table 2. Observations of select species per 100 hours (SE in parentheses) by archery hunters who used or did not use lures or cover scents during the 2019-20 Maryland archery season.				
Species	Number Observed Per 100.0 Hours Hunted			
	Lures		Cover Scents	
	Used	Not Used	Used	Not Used
Furbearers				
Beaver		0.05 (0.03)	0.07 (0.06)	0.02 (0.01)
Bobcat	0.28 (0.24)	0.02 (0.01)	0.16 (0.13)	
Coyote	0.56 (0.19)	0.61 (0.18)	0.59 (0.18)	0.61 (0.19)
Fisher	0.03 (0.03)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)
Gray Fox	0.25 (0.14)	1.08 (0.79)	1.8 (1.53)	0.29 (0.13)
Mink	0.03 (0.03)	0.06 (0.05)	0.09 (0.09)	0.03 (0.02)
Muskrat	0.12 (0.12)	0.02 (0.01)		0.07 (0.05)
Opossum	0.19 (0.09)	0.20 (0.05)	0.34 (0.09)	0.10 (0.04)
Otter	0.06 (0.04)	0.08 (0.05)	0.01 (0.01)	0.11 (0.07)
Raccoon	2.24 (0.57)	2.22 (0.3)	2.70 (0.58)	1.88 (0.3)
Red Fox	4.91 (1.09)	4.76 (0.35)	4.93 (0.67)	4.69 (0.42)
Striped Skunk	0.19 (0.08)	0.12 (0.04)	0.15 (0.06)	0.12 (0.05)
Weasel		0.02 (4)		0.04 (0.02)
Forest and Upland Game				
Black Bear	0.90 (0.76)	0.42 (0.14)	0.89 (0.53)	0.25 (0.09)
Bobwhite Quail		0.26 (0.17)	0.03 (0.03)	0.33 (0.23)
Cottontail Rabbit	0.93 (0.27)	0.71 (0.16)	0.76 (0.17)	0.75 (0.20)
Eastern Fox Squirrel	1.77 (0.65)	1.25 (0.28)	1.50 (0.52)	1.25 (0.31)
Gray Squirrel	114.01 (13.11)	110.78 (5.63)	110.85 (8.27)	111.81 (6.87)
Red Squirrel	0.56 (0.45)	0.15 (0.12)	0.48 (0.43)	0.05 (0.03)
Ruffed Grouse	0.22 (0.14)	0.08 (0.03)	0.07 (0.04)	0.12 (0.08)
Wild Turkey	25.27 (5.2)	18.13 (2.01)	19.88 (3.05)	19.28 (2.54)
White-tailed Deer				
Buck	20.52 (2.2)	18.14 (1.23)	17.76 (1.54)	19.20 (1.52)
Doe	40.24 (4.11)	44.5 (3.13)	41.53 (3.99)	45.18 (3.81)
Fawn	20.93 (2.19)	26.55 (1.89)	25.11 (2.43)	25.68 (2.17)
Unknown	9.87 (1.00)	10.02 (1.03)	9.61 (0.92)	10.27 (1.31)
Hunt Information				
No. Of Hunters Who Reported At Least One Hunt	123	284	150	233
No. Of Hunts Logged	789	3,617	1,701	2,705
Total Hrs. Hunted	3,220.75	13,221.30	6,817.30	9,624.75
Avg. Total Hrs. Per Hunter	26.18	46.55	45.45	41.31
Avg. No. Of Hrs. Per Hunt	4.08	3.66	4.01	3.56
Total No. Of Deer Observed	2,949	13,116	6,409	9,656



Table 3. Observations of select species per 100 hours (SE in parentheses) by archery hunters who used or did not use elevated stands or bait during the 2019-20 Maryland archery season.

Species	Number Observed Per 100.0 Hours Hunted			
	Bait		Elevated Stand	
	Used	Not Used	Used	Not Used
Furbearers				
Beaver		0.07 (0.04)	0.05 (0.03)	
Bobcat	0.12 (0.12)	0.04 (0.02)	0.07 (0.06)	0.03 (1.00)
Coyote	0.32 (0.14)	0.77 (0.23)	0.65 (0.15)	0.40 (0.24)
Fisher	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.03)
Gray Fox	2.04 (1.72)	0.27 (0.12)	1.08 (0.78)	0.20 (0.11)
Mink	0.05 (0.03)	0.06 (0.06)	0.06 (0.05)	0.03 (0.03)
Muskrat	0.08 (0.07)	0.02 (0.01)	0.04 (0.03)	0.03 (0.03)
Opossum	0.35 (0.1)	0.12 (0.04)	0.20 (0.05)	0.20 (0.1)
Otter	0.03 (0.03)	0.10 (0.06)	0.07 (0.05)	0.07 (0.07)
Raccoon	3.07 (0.72)	1.73 (0.21)	2.39 (0.35)	1.45 (0.48)
Red Fox	4.17 (0.58)	5.15 (0.42)	5.10 (0.43)	3.41 (0.62)
Striped Skunk	0.02 (0.02)	0.20 (0.06)	0.13 (0.05)	0.13 (0.07)
Weasel	0.03 (0.03)	0.02 (0.01)		0.03 (0.02)
Forest and Upland Game				
Black Bear	0.76 (0.41)	0.37 (0.17)	0.46 (0.26)	0.76 (0.29)
Bobwhite Quail	0.53 (0.36)	0.02 (0.02)	0.25 (0.16)	
Cottontail Rabbit	0.70 (0.16)	0.79 (0.2)	0.81 (0.16)	0.50 (0.19)
Eastern Fox Squirrel	1.06 (0.42)	1.52 (0.39)	1.48 (0.34)	0.79 (0.25)
Gray Squirrel	125.98 (10.24)	102.98 (6.24)	115.95 (6.08)	91.28 (9.75)
Red Squirrel	0.43 (0.39)	0.12 (0.08)	0.16 (0.11)	0.53 (0.53)
Ruffed Grouse	0.05 (0.03)	0.13 (0.07)	0.08 (0.04)	0.20 (0.11)
Wild Turkey	20.34 (3.49)	19.06 (2.41)	21.04 (2.34)	12.83 (3.05)
White-tailed Deer				
Buck	16.81 (1.51)	19.64 (1.46)	19.86 (1.27)	13.03 (1.70)
Doe	45.52 (5.14)	42.59 (3.08)	43.26 (3.02)	45.43 (7.09)
Fawn	27.18 (2.80)	24.44 (2.01)	26.02 (1.92)	22.91 (2.35)
Unknown	7.30 (1.12)	11.55 (1.18)	9.79 (0.96)	10.88 (1.84)
Hunt Information				
No. Of Hunters Who Reported At Least One Hunt	172	241	267	133
No. Of Hunts Logged	1767	2639	3603	803
Total Hrs. Hunted	6026.15	10415.90	13417.35	3024.70
Avg. Total Hrs. Per Hunter	35.04	43.22	50.25	22.74
Avg. No. Of Hrs. Per Hunt	3.41	3.95	3.72	3.77
Total No. Of Deer Observed	5,834	10,231	13,275	2,790

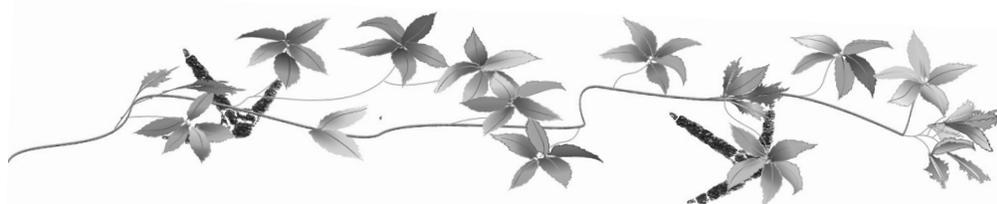


Table 4. Observations of select species per 100 hours (SE in parentheses) by archery hunters during four monthly periods of the 2019-20 Maryland archery season.				
Species	Number Observed Per 100.0 Hours Hunted			
	9/6 – 10/14	10/15 – 11/14	11/15 – 12/14	12/15 – 1/31
Furbearers				
Beaver	0.13 (0.09)	0.02 (0.01)		
Bobcat	0.06 (0.06)	0.08 (0.08)	0.09 (0.05)	
Coyote	0.45 (0.16)	0.59 (0.15)	0.70 (0.30)	0.85 (0.50)
Fisher	0.02 (0.02)	0.05 (0.03)	0.03 (0.03)	
Gray Fox	0.53 (0.39)	1.57 (1.31)	0.38 (0.14)	0.57 (0.47)
Mink	0.02 (0.02)	0.11 (0.09)	0.03 (0.03)	
Muskrat	0.02 (0.02)	0.06 (0.06)		0.11 (0.08)
Opossum	0.21 (0.07)	0.23 (0.07)	0.18 (0.08)	0.11 (0.11)
Otter	0.13 (0.13)	0.06 (0.05)		0.11 (0.11)
Raccoon	3.15 (0.41)	2.36 (0.55)	1.26 (0.34)	1.08 (0.36)
Red Fox	3.72 (0.42)	5.37 (0.51)	4.13 (0.48)	6.75 (0.97)
Striped Skunk	0.21 (0.08)	0.15 (0.05)	0.06 (0.04)	4.13 (0.48)
Weasel	0.06 (0.05)	0.21 (0.08)	0.03 (0.03)	5.37 (0.51)
Forest and Upland Game				
Black Bear	1.02 (0.46)	0.43 (0.19)	0.26 (0.24)	
Bobwhite Quail	0.55 (0.44)		0.23 (0.23)	
Cottontail Rabbit	0.68 (0.16)	0.95 (0.22)	0.59 (0.17)	0.57 (0.23)
Eastern Fox Squirrel	1.02 (0.28)	1.59 (0.47)	1.52 (0.43)	1.02 (0.59)
Gray Squirrel	88.91 (4.56)	117.39 (7.58)	114.97 (7.9)	142.31 (11.48)
Red Squirrel	0.04 (0.03)	0.40 (0.31)	0.29 (0.27)	
Ruffed Grouse	0.09 (0.04)	0.15 (0.11)	0.09 (0.07)	
Wild Turkey	15.35 (2.09)	23.39 (3.36)	18.54 (3.62)	18.26 (5.12)
White-tailed Deer				
Buck	14.96 (1.19)	23.59 (1.64)	19.04 (1.59)	8.96 (1.56)
Doe	45.91 (3.27)	44.29 (3.62)	41.79 (3.78)	38.95 (6.47)
Fawn	30.29 (2.22)	25.17 (1.99)	21.38 (2.41)	21.43 (3.37)
Unknown	8.69 (1.01)	9.64 (0.88)	11.04 (1.45)	12.76 (3.09)
Hunt Information				
No. Of Hunters Who Reported At Least One Hunt During The Time Period	236	269	215	121
No. Of Hunts Logged	1,303	1,700	887	516
Total Hrs. Hunted	4,705.00	6,558.55	3,414.70	1,763.80
Avg. Total Hrs. Per Hunter	19.94	24.38	15.88	14.58
Avg. No. Of Hrs. Per Hunt	3.61	3.86	3.85	3.42
Total No. Of Deer Observed	4,698	6,735	3,184	1,448

Table 5. Observations of white-tailed deer per 100 hours (SE in parentheses) by archery hunters in Deer Management Region A and Region B during the 2019-20 Maryland archery seasons.

Sex/Age Class	Number Observed Per 100.0 Hours Hunted	
	Region A	Region B
Buck	15.50 (1.93)	19.11 (1.30)
Doe	52.77 (9.26)	42.17 (2.98)
Fawn	28.37 (3.92)	24.97 (1.87)
Unknown	12.48 (2.10)	9.58 (0.96)
Hunt Information		
No. Of Hunters Who Reported At Least One Hunt In The Region	58	252
No. Of Hunts Logged	633	3,773
Total Hrs. Hunted	2315.75	14126.30
Avg. Total Hrs. Per Hunter	39.93	56.06
Avg. No. Of Hrs. Per Hunt	3.66	3.74
Total No. Of Deer Observed	2,527	13,538



Table 6. Observations of white-tailed deer per 100 hours (SE in parentheses) by archery hunters on private and public lands during the 2019-20 Maryland archery seasons.

Sex/Age Class	Number Observed Per 100.0 Hours Hunted	
	Private Land	Public Land
Buck	20.01 (1.29)	11.09 (1.44)
Doe	47.05 (3.28)	25.55 (2.76)
Fawn	27.72 (1.94)	13.26 (1.64)
Unknown	10.86 (1.02)	5.37 (0.81)
Hunt Information		
No. Of Hunters Who Reported At Least One Hunt	270	83
No. Of Hunts Logged	3,867	539
Total Hrs. Hunted	1,3854.80	2,587.25
Avg. Total Hrs. Per Hunter	51.31	31.17
Avg. No. Of Hrs. Per Hunt	3.58	4.80
Total No. Of Deer Observed	14,635	1,430

Table 7. Number of adult does per one adult buck and number of fawns per one adult doe observed provincially by archery hunters during the 2019-20 Maryland archery season.

Region	Adult does/Adult buck	Fawns/Adult doe
Appalachian Plateau	3.81	0.58
Ridge and Valley	3.05	0.46
Piedmont	2.42	0.61
Western Coastal	1.79	0.78
Eastern Coastal	1.84	0.52
Statewide	2.35	0.58

Table 8. Statewide observations of miscellaneous animals reported by Maryland archery hunters during the 2019-20 Maryland archery seasons.

Animal	Total Observed	Observations Per 100 Hours
American Crows	787	4.79
Bats	2	0.01
Delmarva Fox Squirrels	45	0.27
Domestic Cats	2	0.01
Domestic Dogs	1	0.01
Ducks	234	1.42
Eagles	141	0.86
Eastern Chipmunks	54	0.33
Geese	2,620	15.93
Mourning Doves	568	3.45
Other Raptors	76	0.46
Owls	36	0.22
Porcupines	8	0.05
Snakes	1	0.01
Song Birds	7	0.04
Swans	7	0.04
Turtles	8	0.05
Vultures	83	0.5
Waterbirds (herons, egrets, etc.)	19	0.12
Woodchucks	59	0.36
Woodcock/Snipe	15	0.09
Woodpeckers	42	0.26



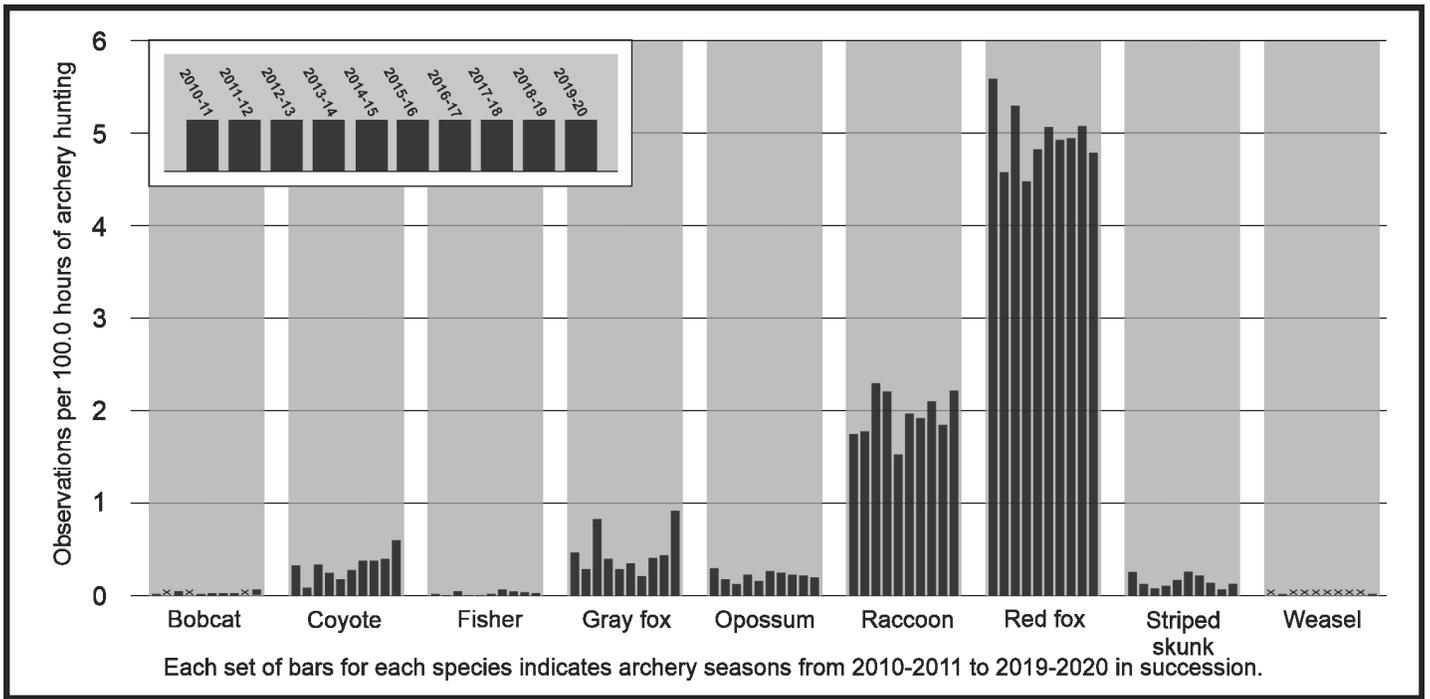


Figure 2. Terrestrial furbearer observation rates by archery hunters during the Maryland archery seasons (2010-11 – 2019-20).

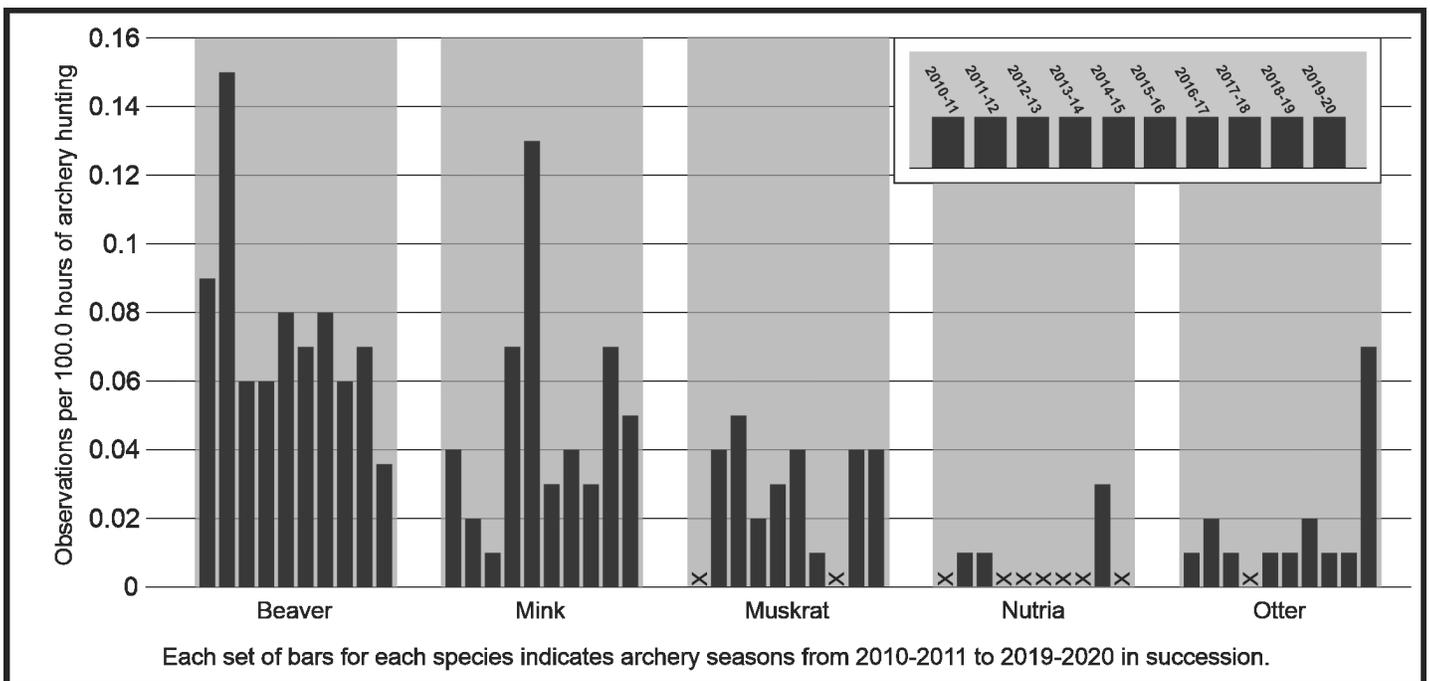


Figure 3. Aquatic furbearer observation rates by archery hunters during the Maryland archery seasons (2010-11 – 2019-20).

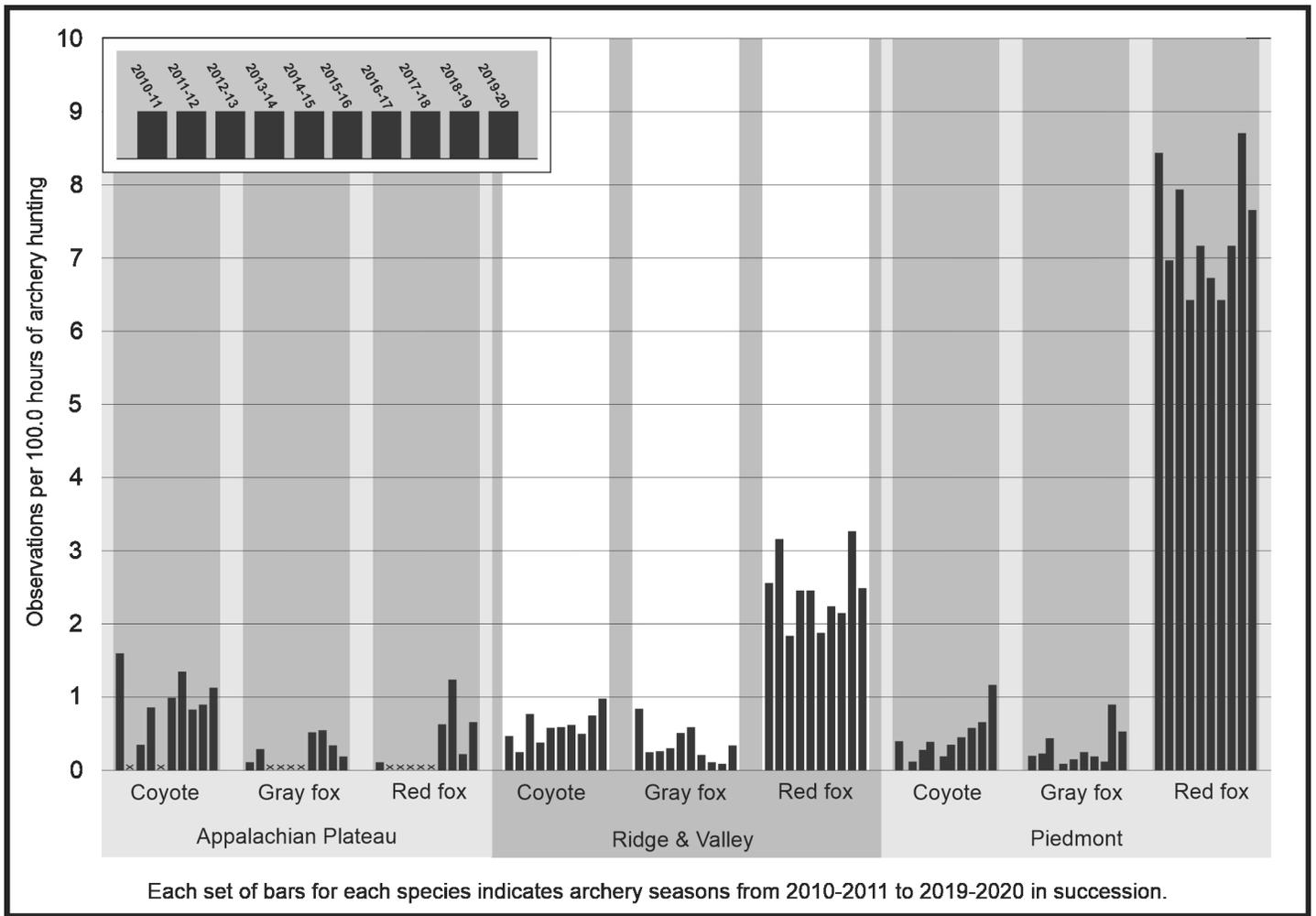


Figure 4. Canine furbearer observation rates by archery hunters in three Maryland physiographic provinces during the Maryland archery seasons (2010-11 – 2019-20).



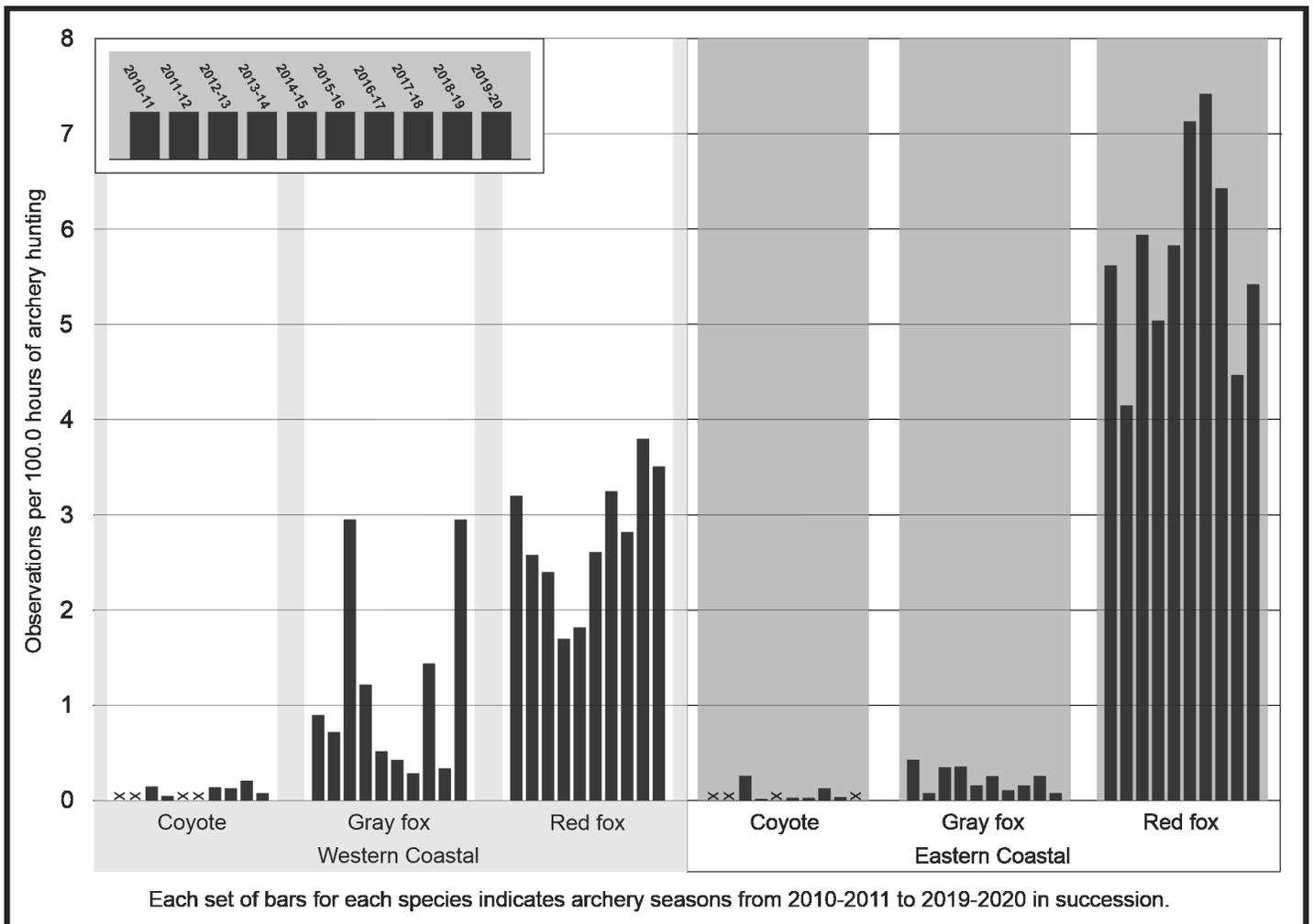


Figure 5. Canine furbearer observation rates by archery hunters in the two Maryland coastal physiographic provinces during the Maryland archery seasons (2010-11 – 2019-20).



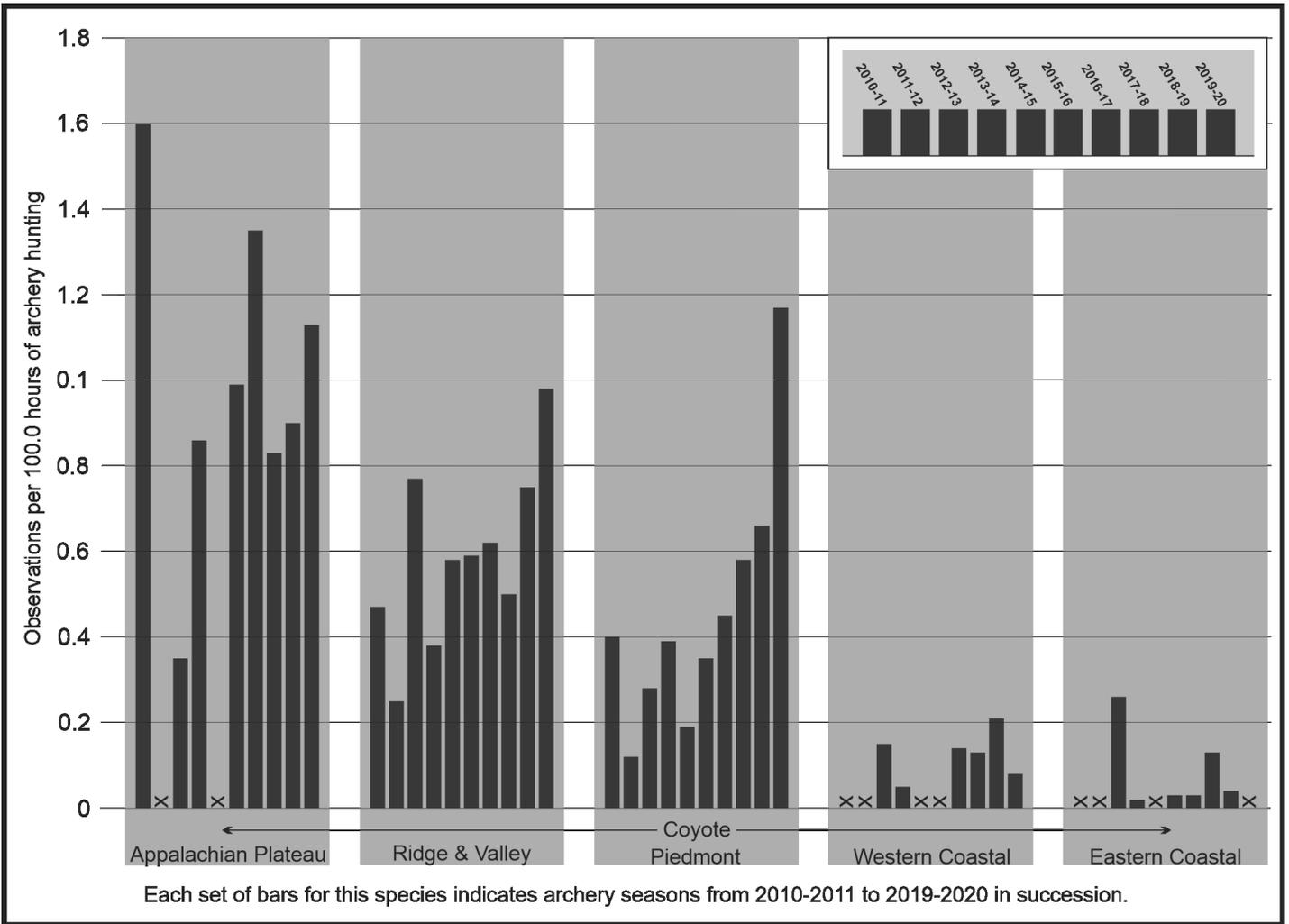


Figure 6. Coyote observation rates by archery hunters in the five Maryland physiographic provinces during the Maryland archery seasons (2010-11 – 2019-20).



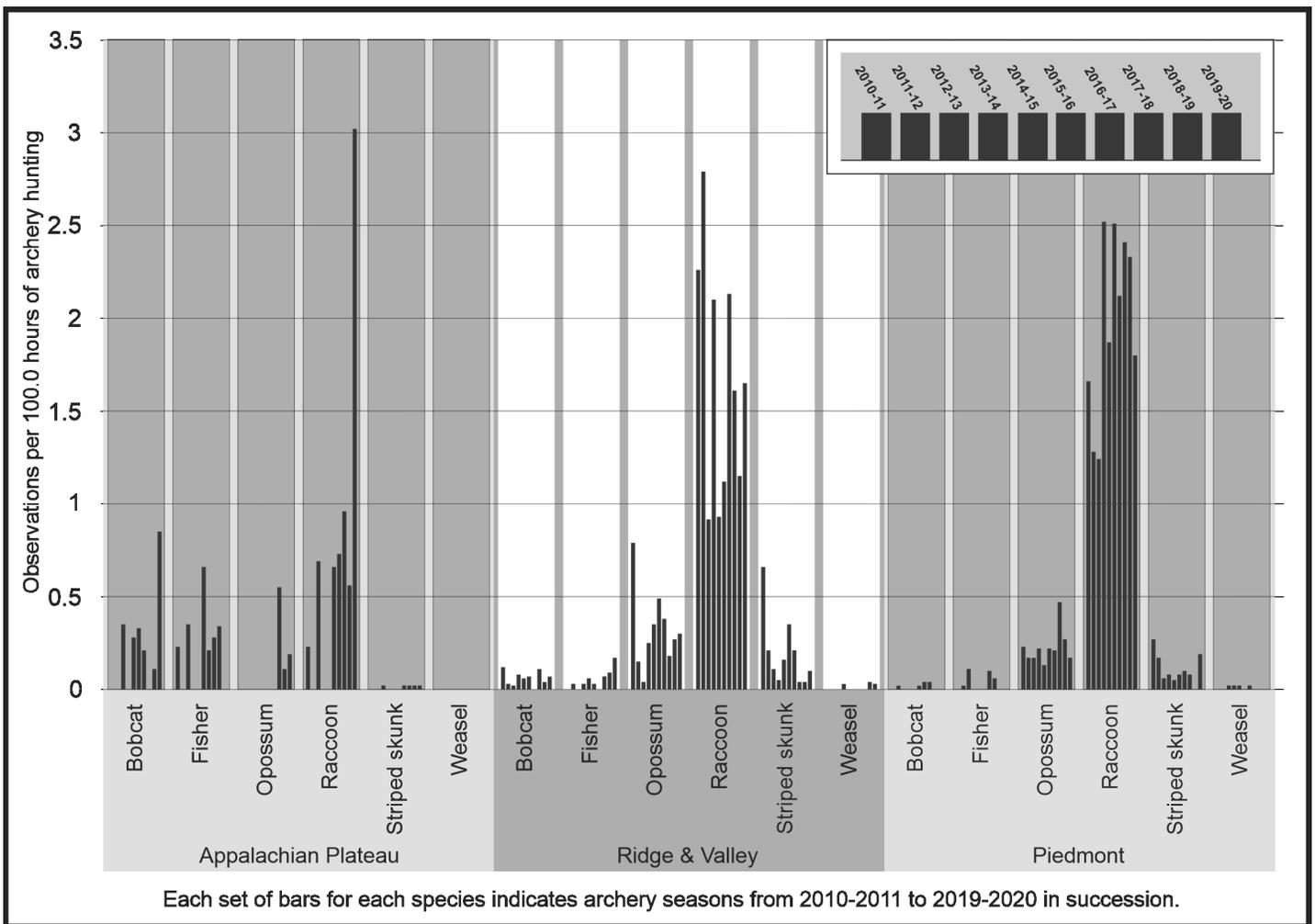
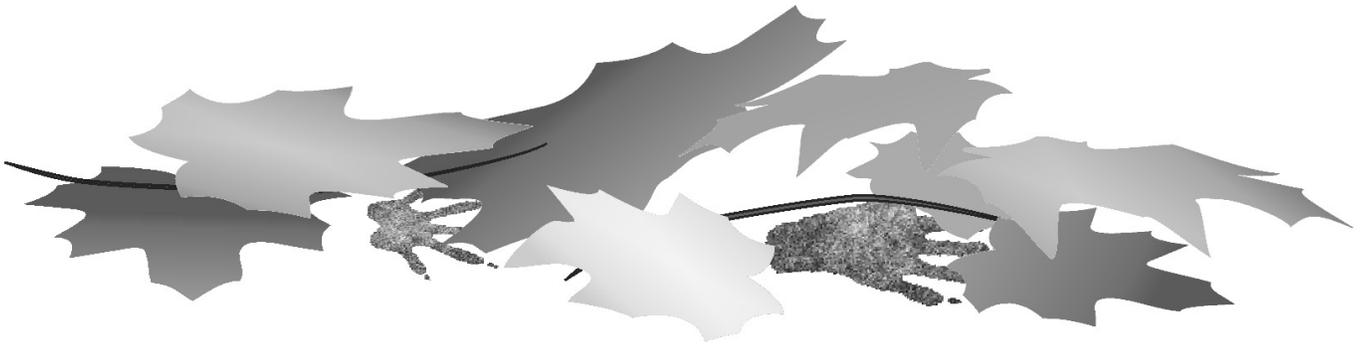


Figure 7. Terrestrial furbearer observation rates by archery hunters in three Maryland physiographic provinces during Maryland archery seasons (2010-11 – 2019-20).

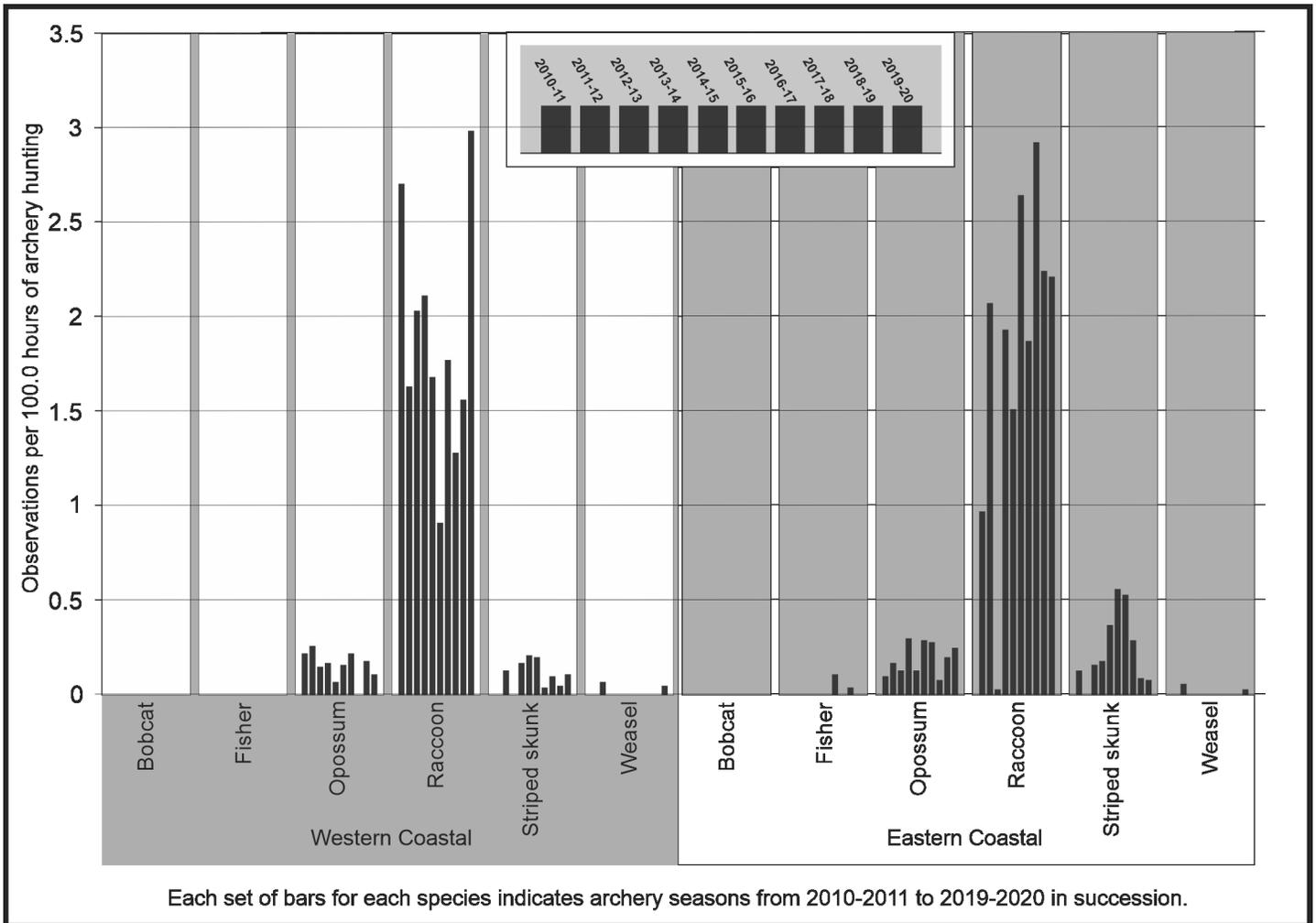


Figure 8. Terrestrial furbearer observation rates by archery hunters in the two Maryland coastal physiographic provinces during the Maryland archery seasons (2010-11 – 2019-20).

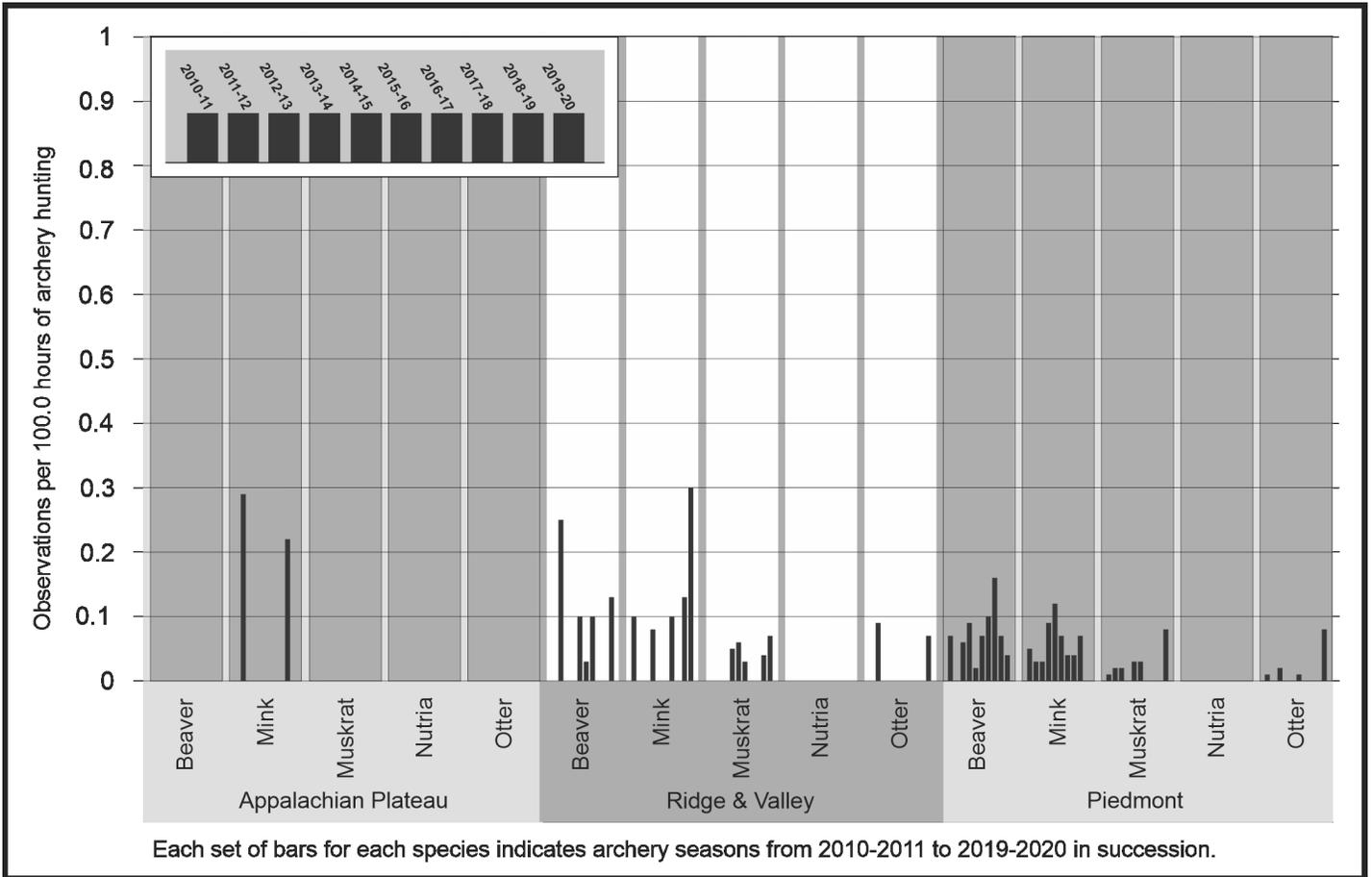


Figure 9. Aquatic furbearer observation rates by archery hunters in the three Maryland physiographic provinces during the Maryland archery seasons (2010-11 – 2019-20).



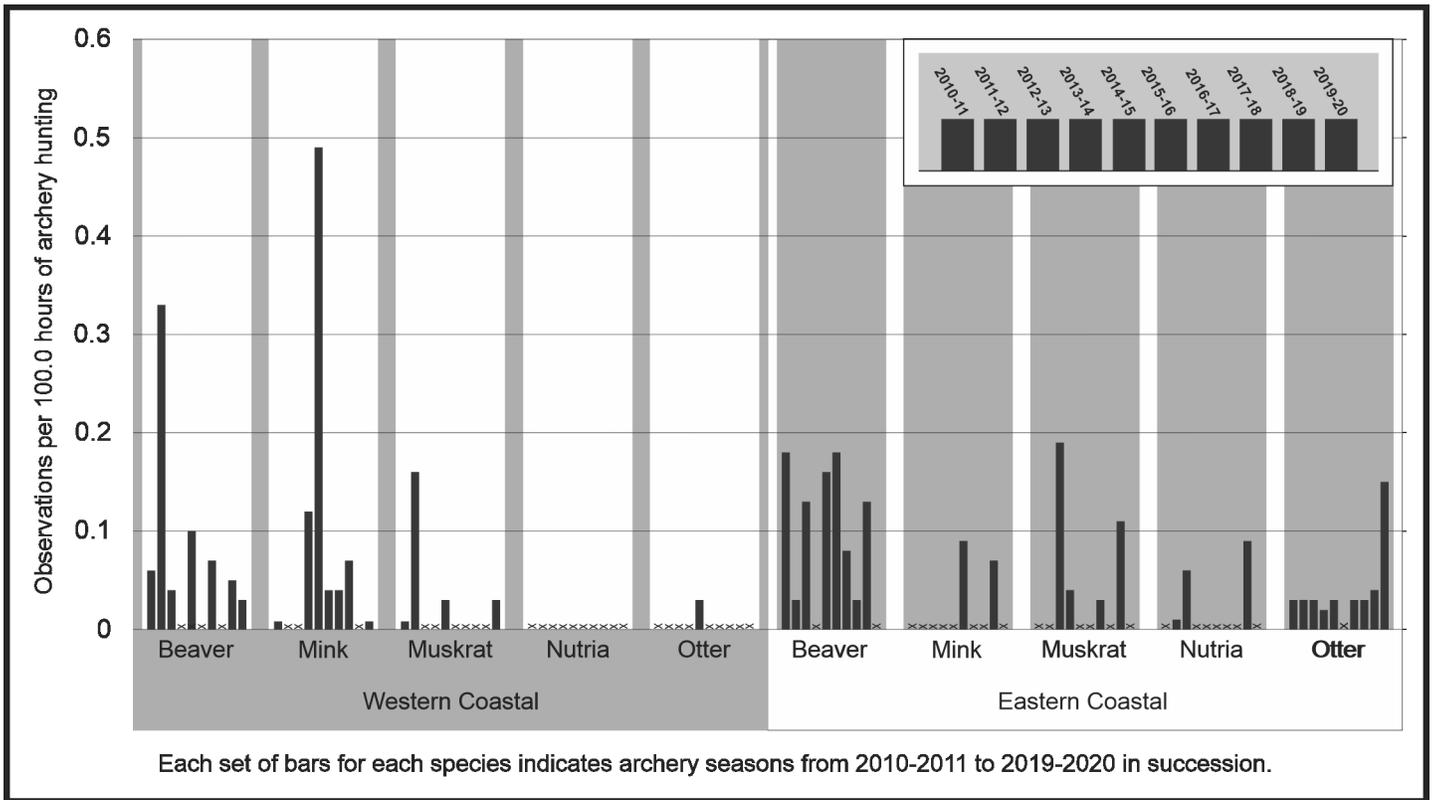


Figure 10. Aquatic furbearer observation rates by archery hunters in the two Maryland coastal physiographic provinces during the Maryland archery seasons (2010-11 – 2019-20).

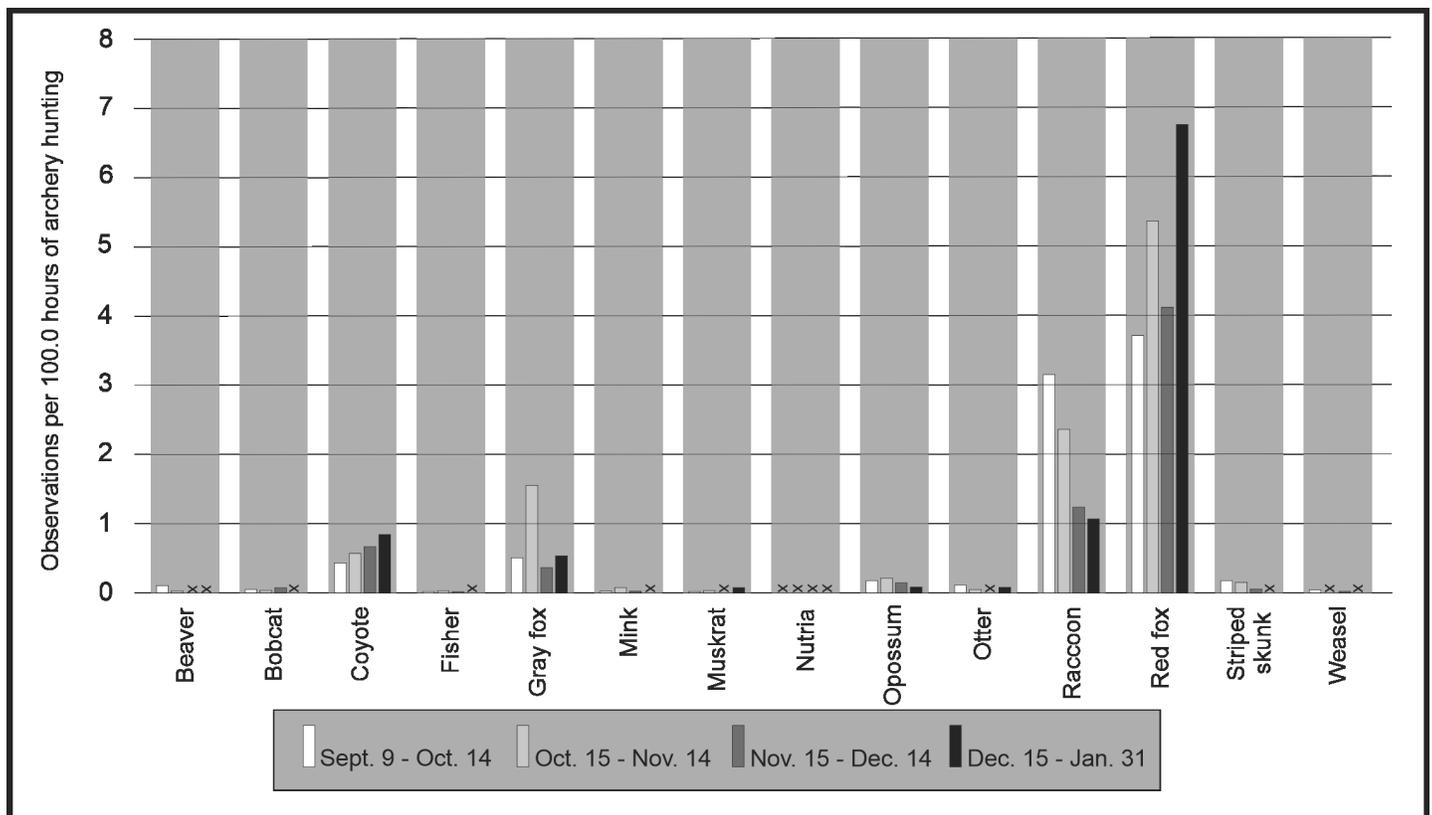


Figure 11. Furbearer observation rates during four monthly periods of the Maryland 2019-20 archery season.

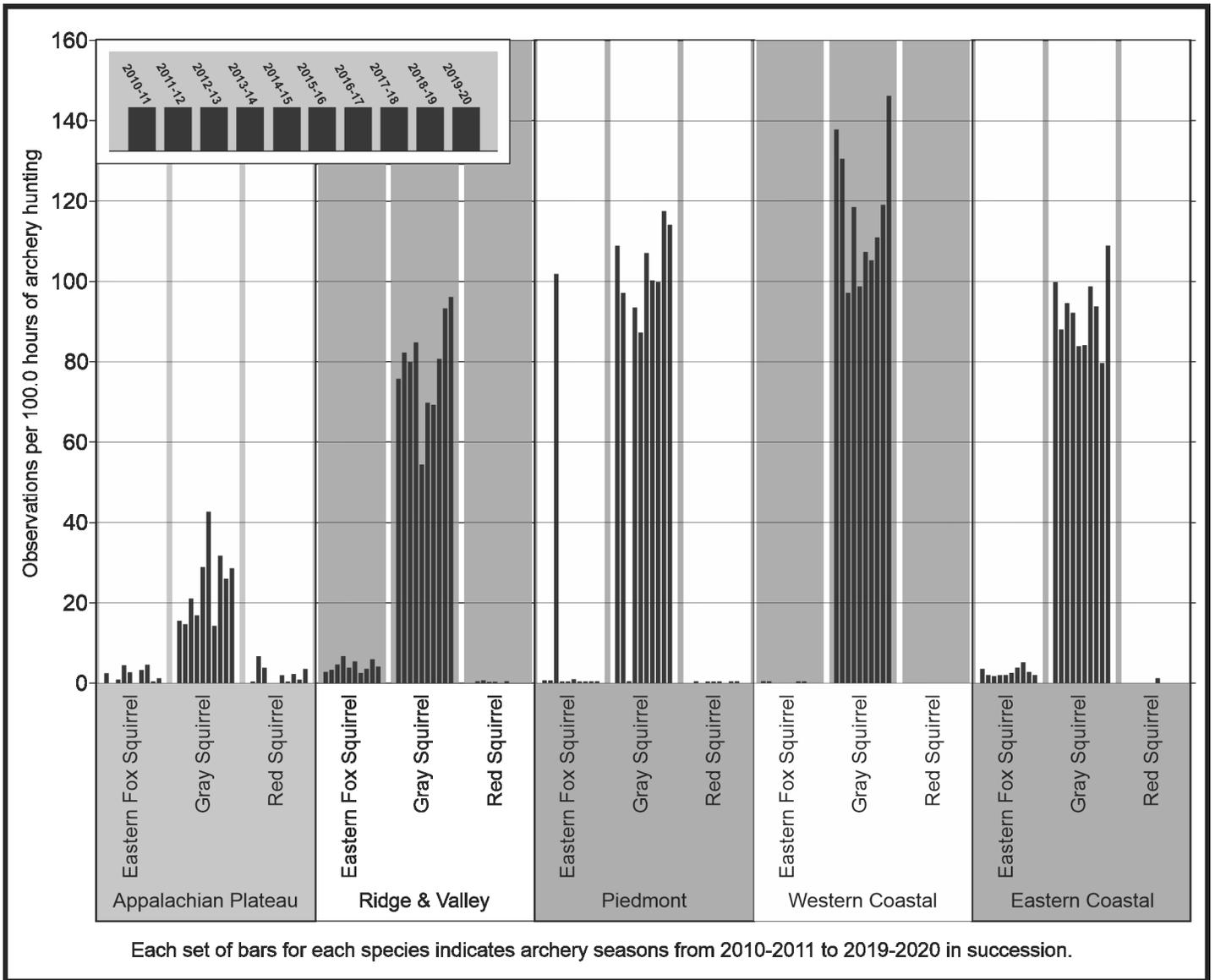
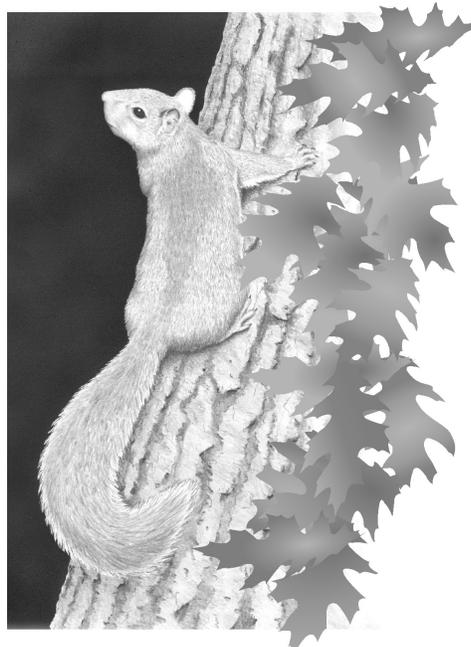


Figure 12. Squirrel observation rates by archery hunters in the five Maryland physiographic provinces during the Maryland archery seasons (2010-11 – 2019-20).



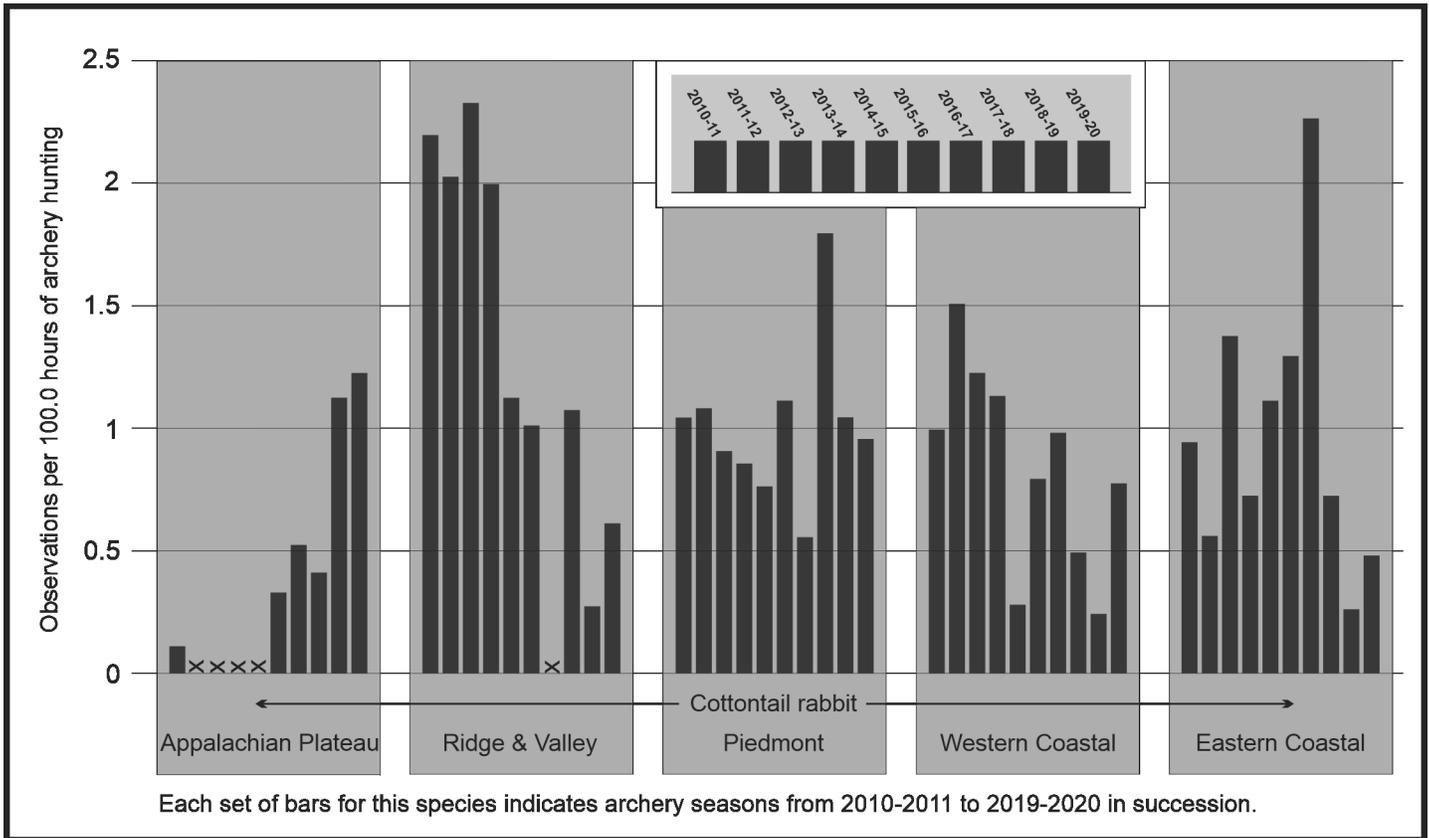


Figure 13. Rabbit observation rates by archery hunters in the five Maryland physiographic provinces during the Maryland archery seasons (2010-11 – 2019-20).

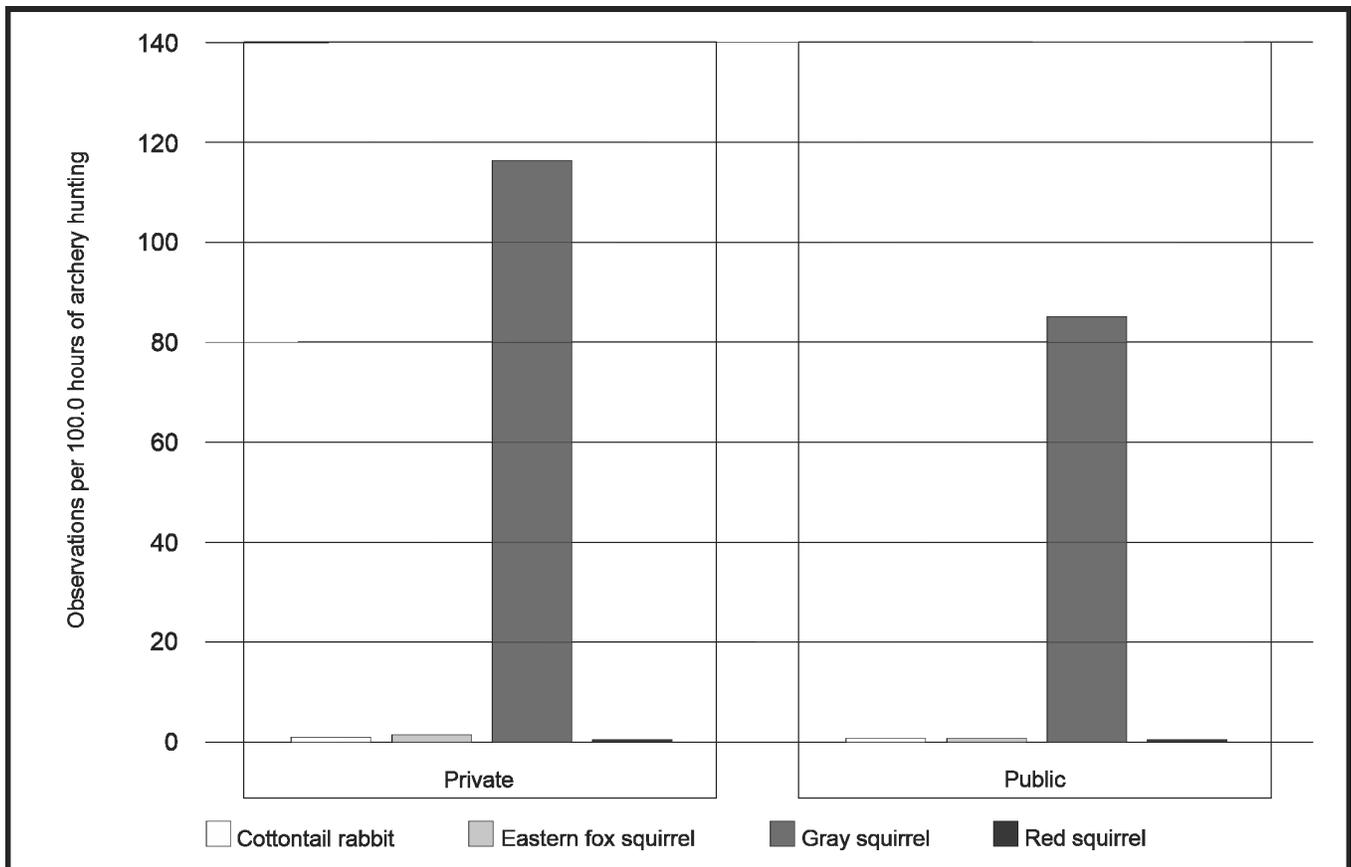


Figure 14. Rabbit and squirrel observation rates by archery hunters on private and public lands during the 2019-20 Maryland archery season.

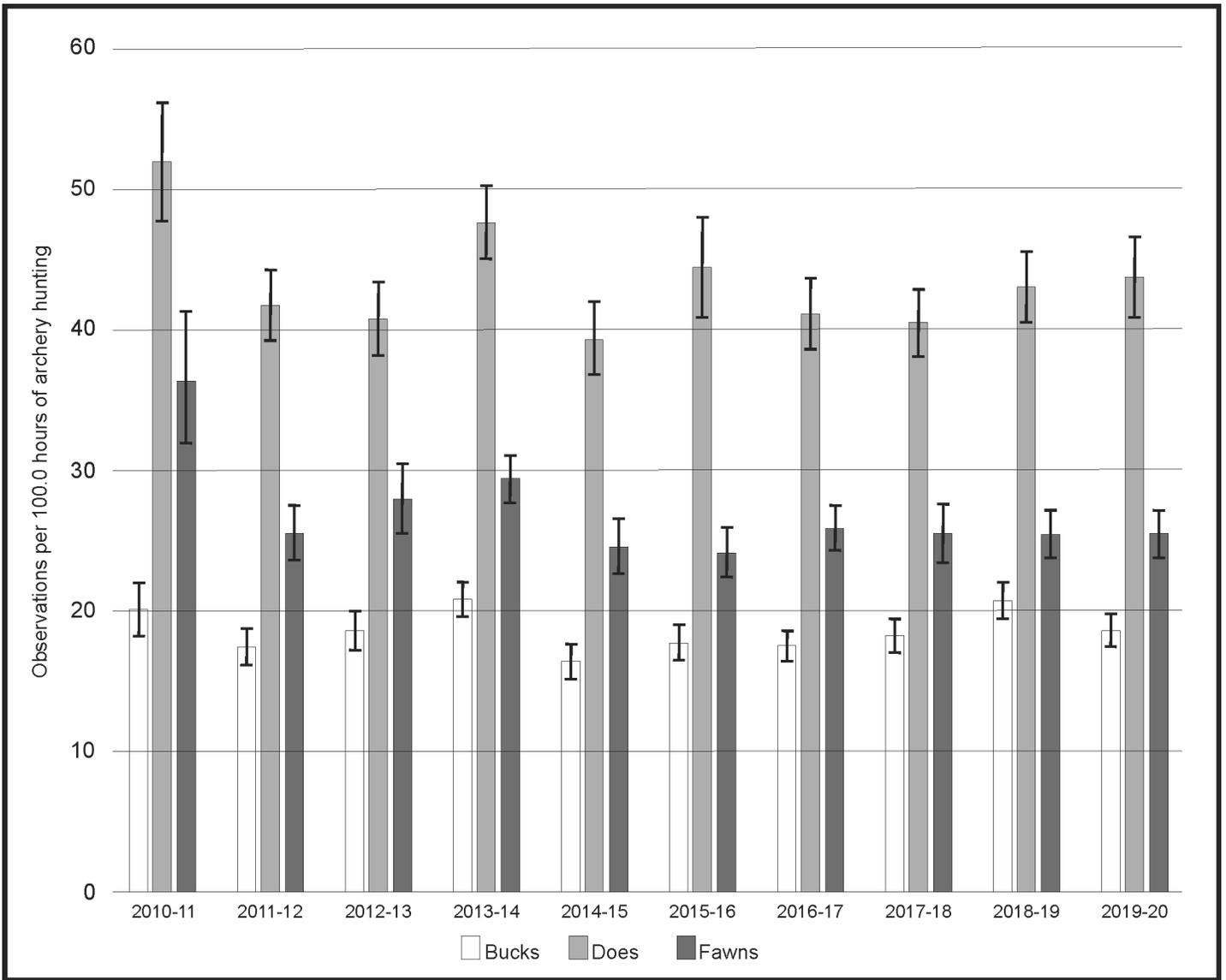


Figure 15. Statewide deer observation rates by archery hunters in Maryland (2010-11 – 2019-20).



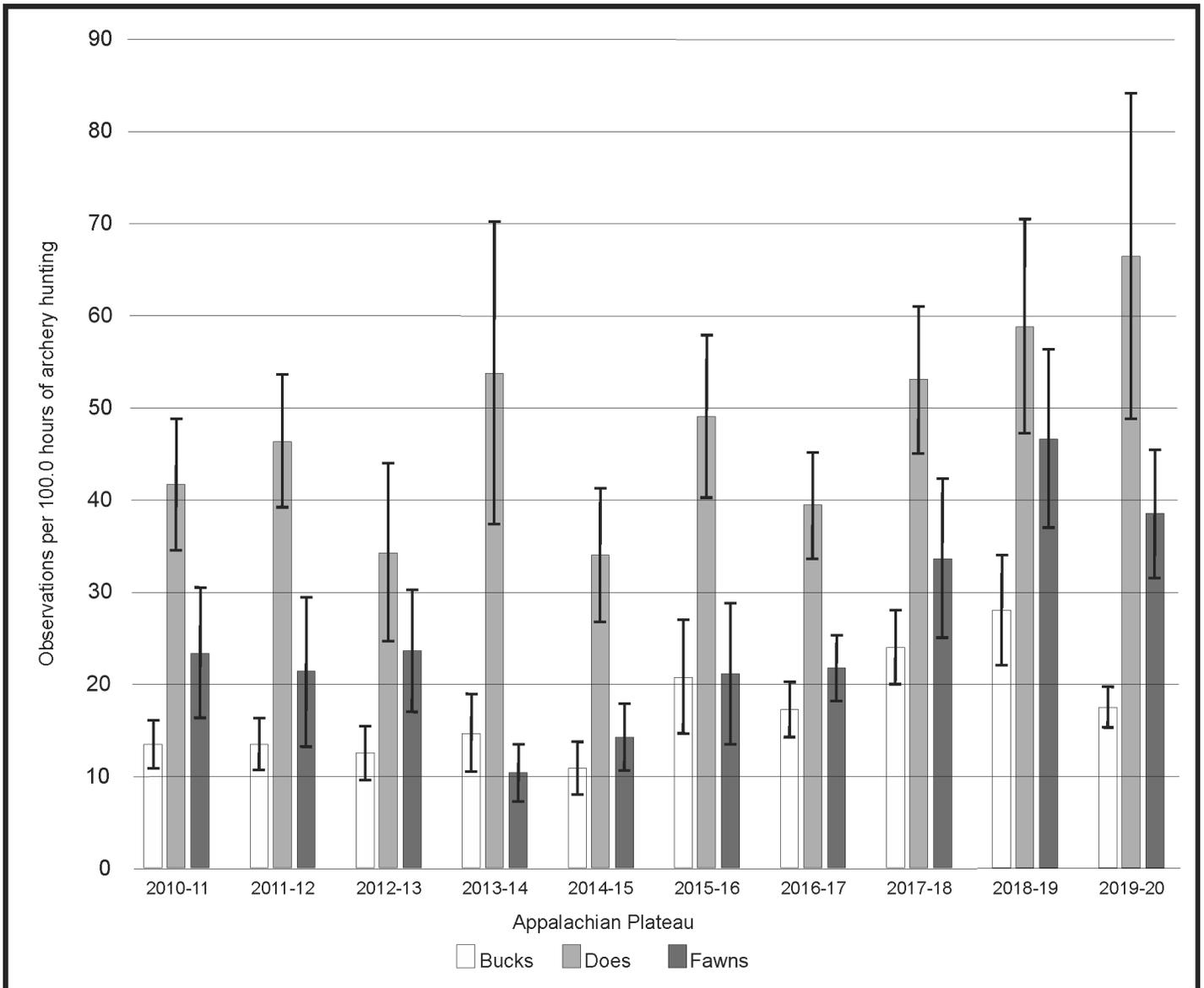


Figure 16a. Deer observation rates by archery hunters in the Appalachian Plateau Province of Maryland (2010-11 – 2019 -20).



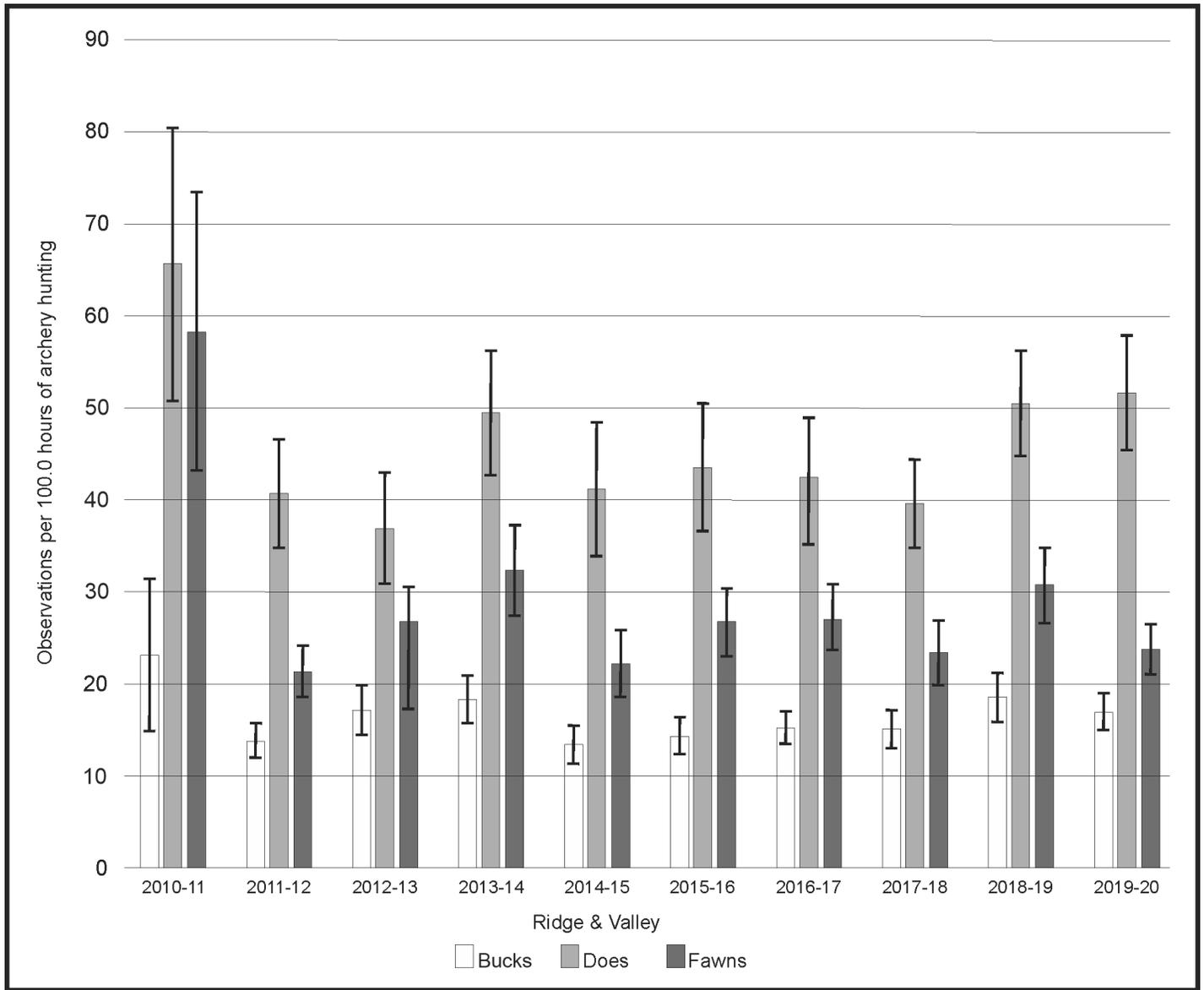


Figure 16b. Deer observation rates by archery hunters in the Ridge and Valley Province of Maryland (2010-11 – 2019-20).



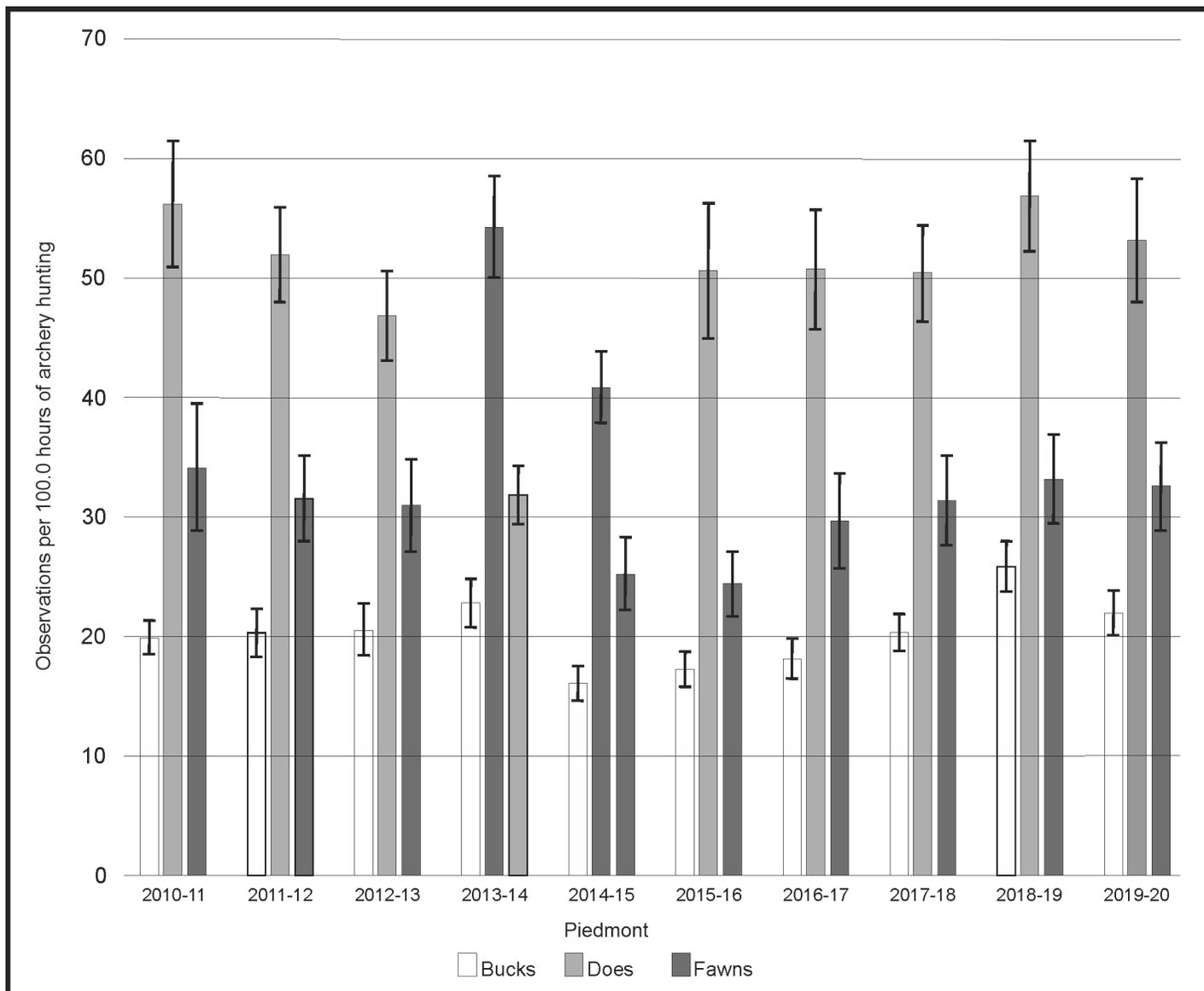


Figure 16c. Deer observation rates by archery hunters in the Piedmont Province of Maryland (2010-11 – 2019-20).



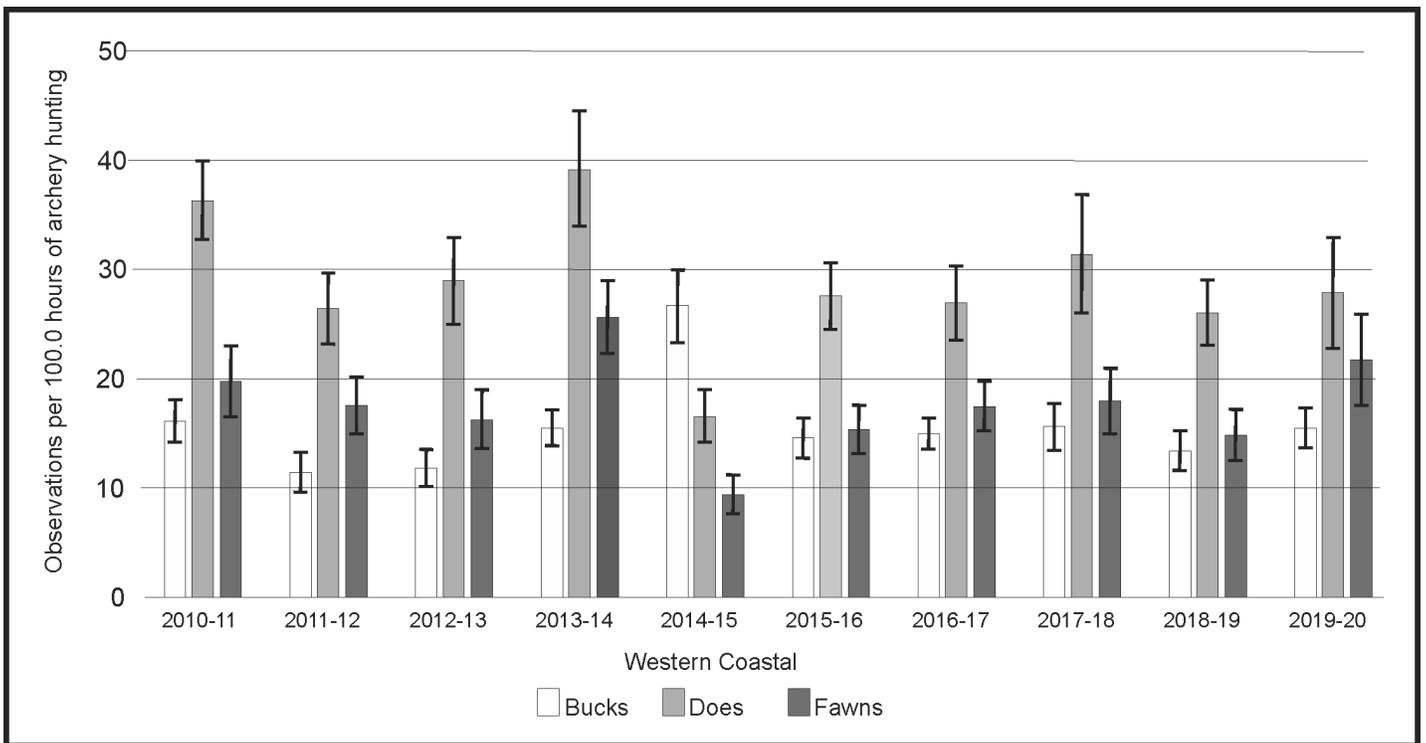


Figure 16d. Deer observation rates by archery hunters in the Western Coastal Plain Province of Maryland (2010-11 – 2019-20).

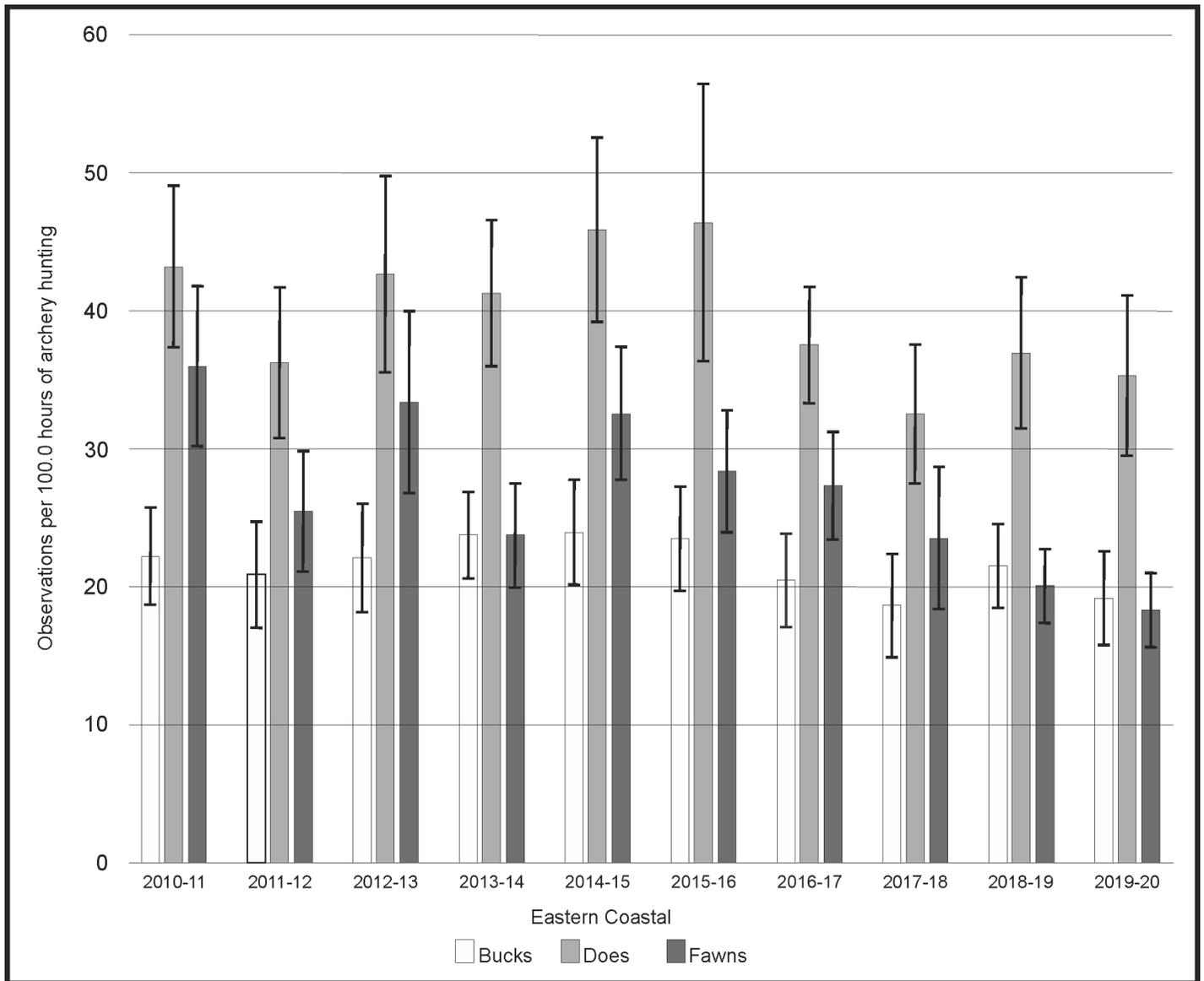
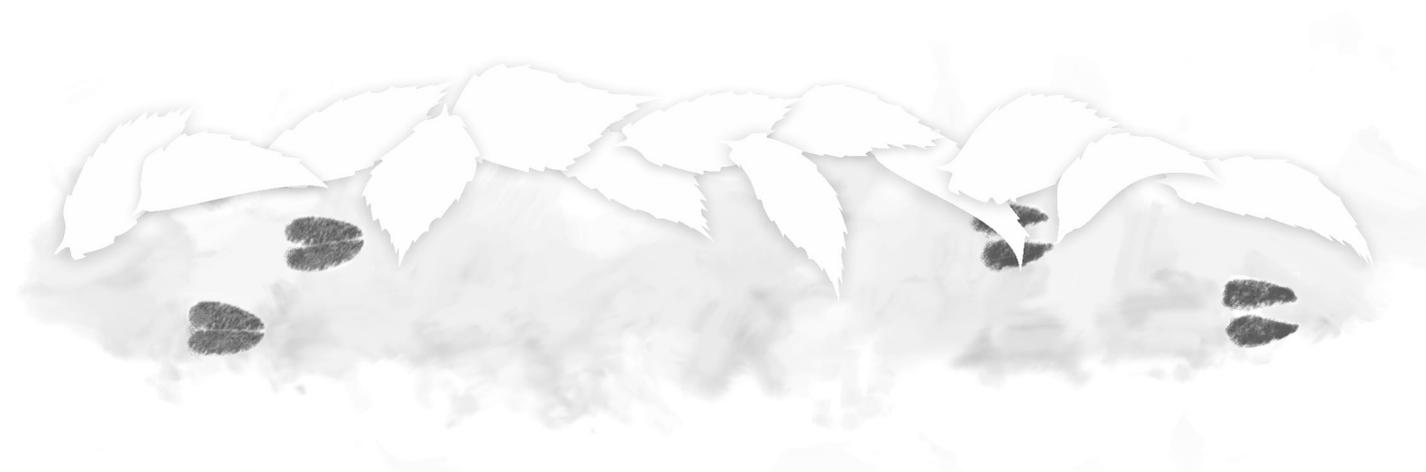


Figure 16e. Deer observation rates by archery hunters in the Eastern Coastal Plain Province of Maryland (2010-11 – 2019-20).



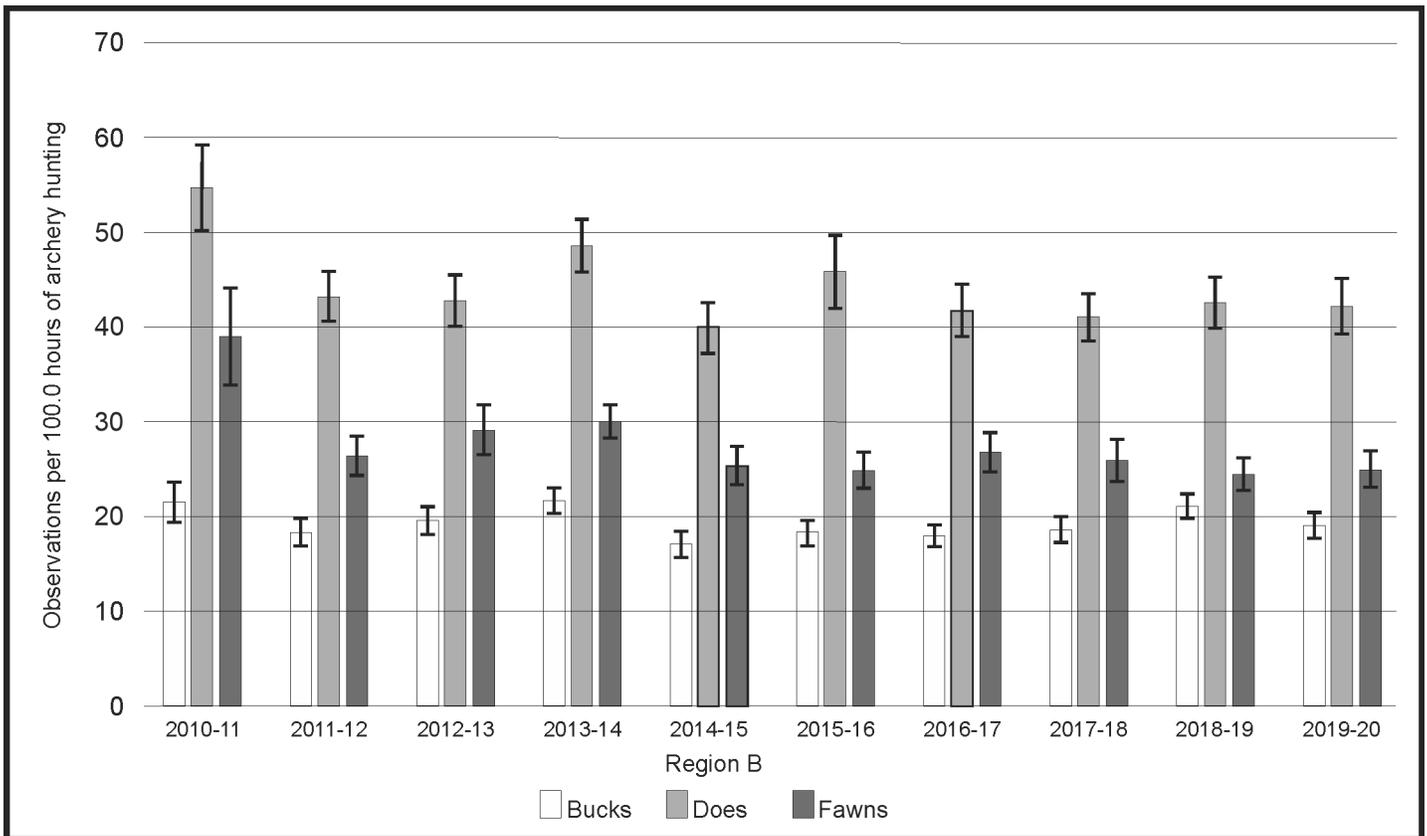
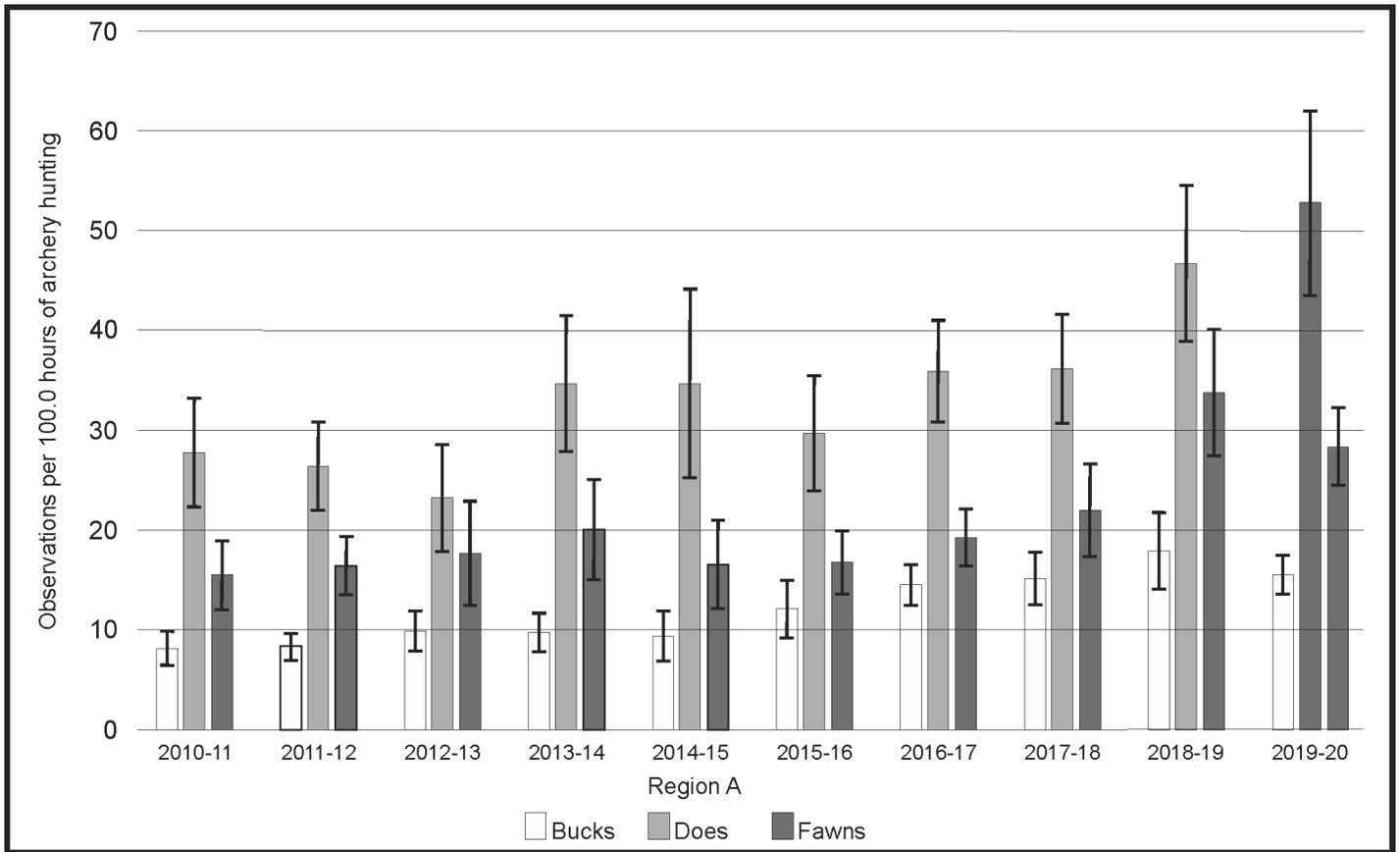


Figure 17. Deer observation rates by archery hunters in Maryland Deer Management Regions A and B (2010-11 – 2019-20).

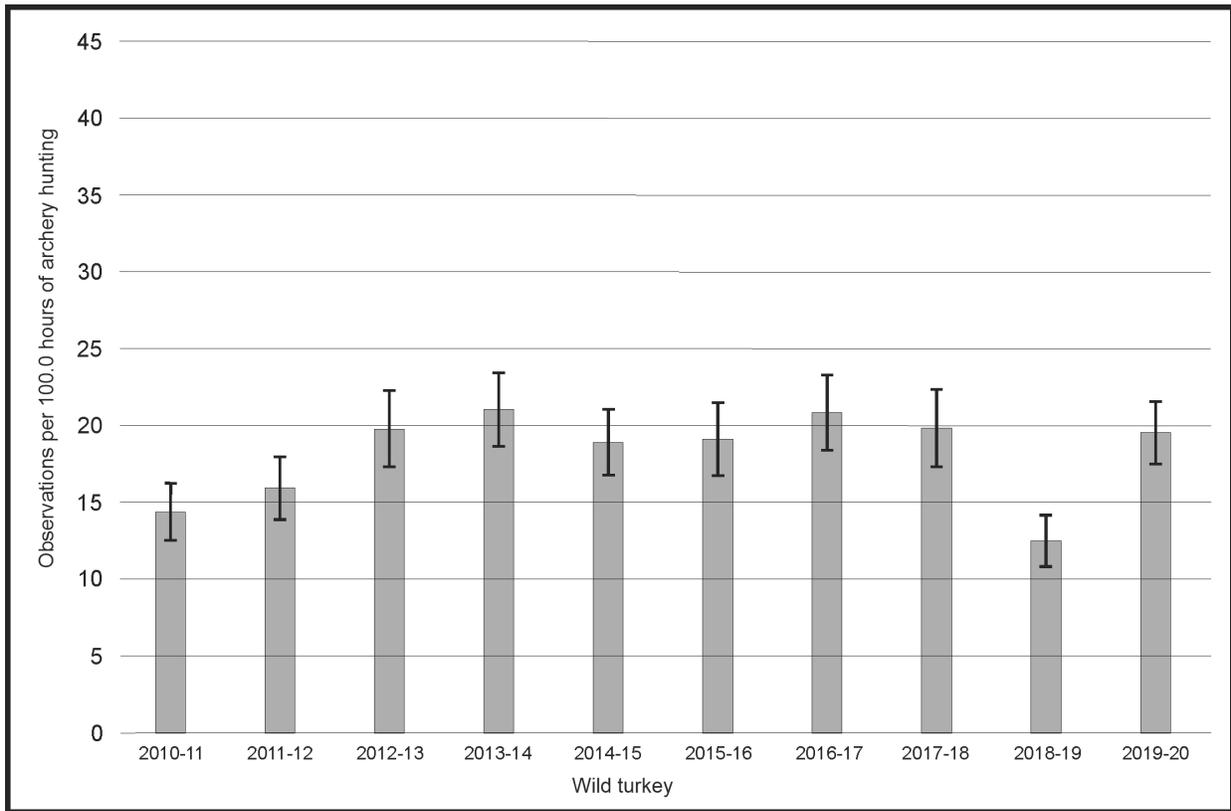


Figure 18. Wild turkey observation rates by archery hunters in Maryland (2010-11 – 2019-20).

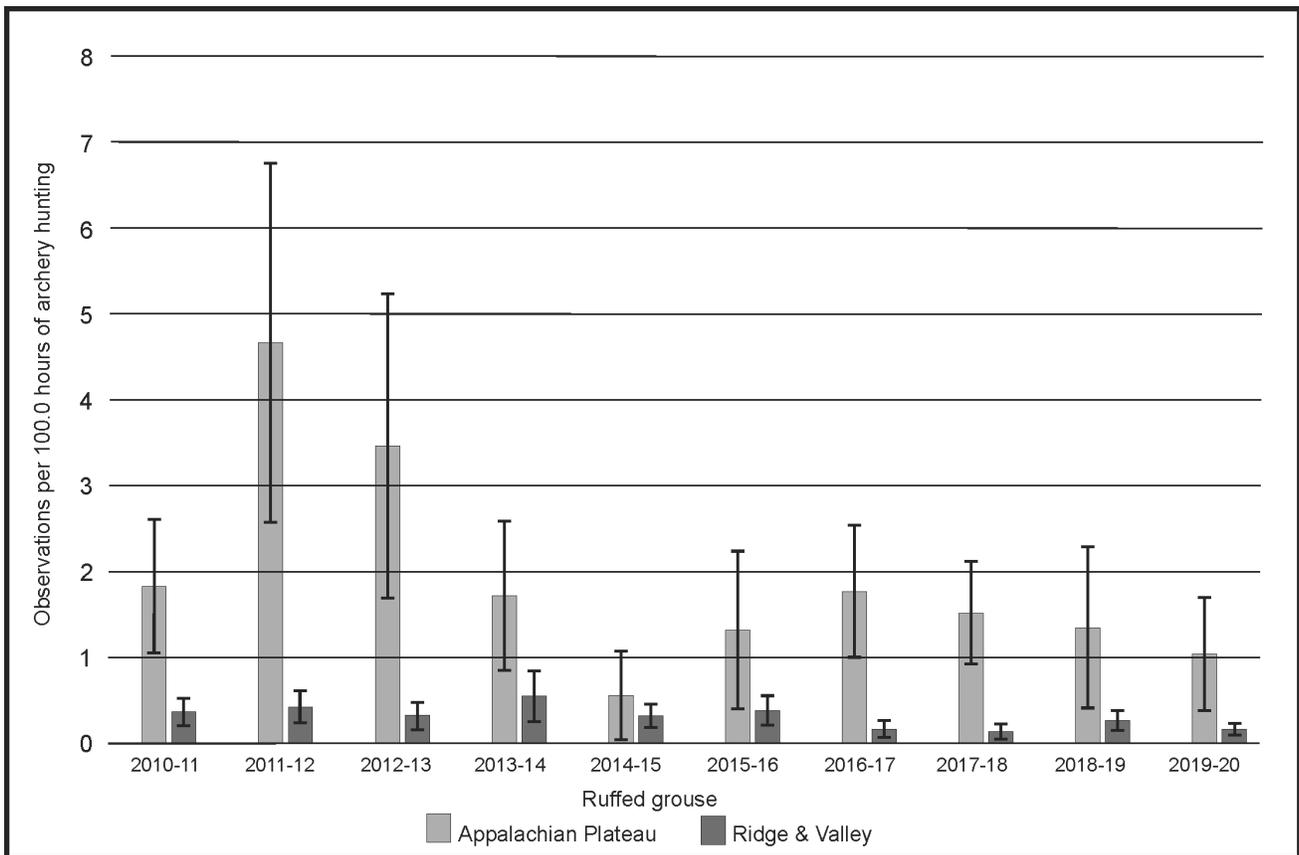


Figure 19. Ruffed grouse observation rates by archery hunters in the Appalachian Plateau and Ridge and Valley provinces of Maryland, (2010-11 – 2019-20).

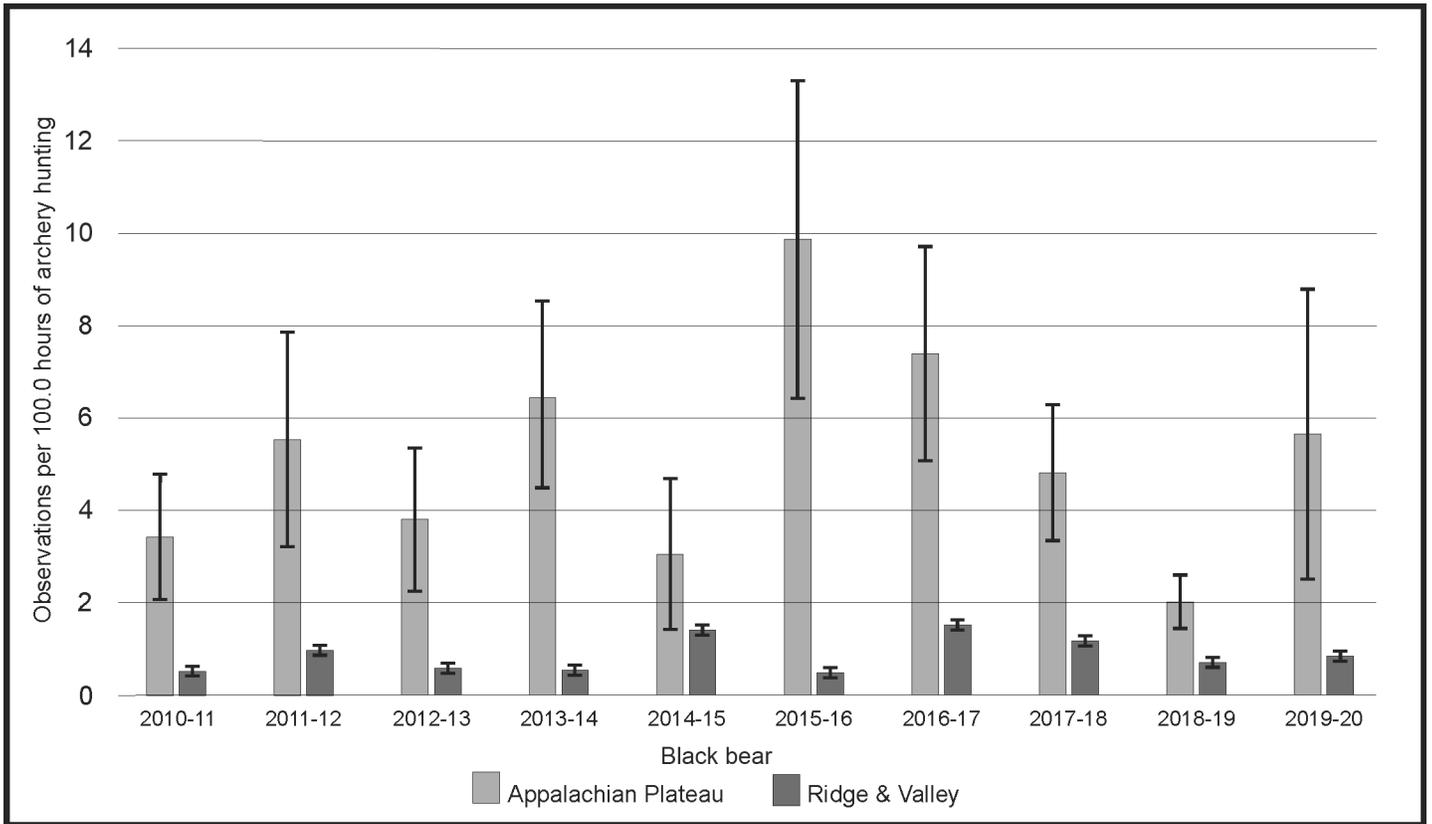
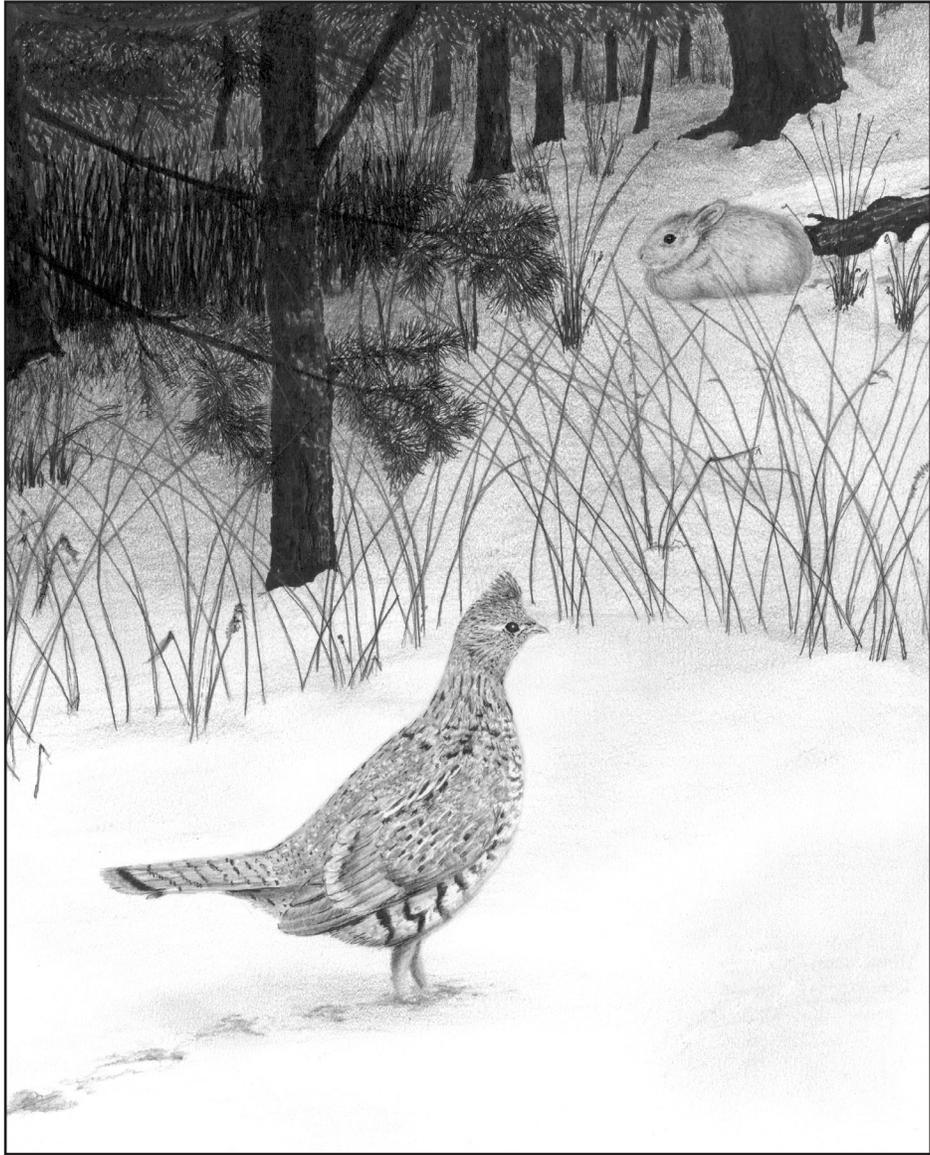


Figure 21. Black bear observation rates by archery hunters in the Appalachian Plateau and Ridge & Valley Provinces of Maryland (2010-11 – 2019-20).







Survey and inventory results reported in this publication were funded by the Federal Aid in Wildlife Restoration Act.