2015 Ohio Bowhunter Survey Report

The Ohio Bowhunter Survey is a program the Division of Wildlife uses to track year-to-year changes in furbearer populations, and to record sightings of special interest species such as black bears, bobcats, and river otters, among others. Because bowhunters typically spend many hours in the field observing wildlife, this group of outdoorsmen and women provide some of the best information on certain wildlife species that are difficult to monitor using other survey methods. Survey forms are mailed to participants annually in September. The survey period begins on the first day of bowhunting season and ends on the first day of the deer-gun season. In September 2015, surveys were sent to 3,044 participants. Of these, 681 (22.4%) bowhunters returned their surveys and reported 37,363 hours in the stand.

The information provided by bowhunters includes the number of individuals observed for each species, the amount of time spent bowhunting, and the county in which that person hunted. Sighting information is summarized and reported as the number of each species seen for every 1,000 hours hunted. This provides a measure of relative abundance for certain furbearer species in Ohio through time. The Ohio Bowhunter Survey began in 1990. Trends for raccoons, skunks, opossums, coyotes, red foxes, and gray foxes are presented below.

The raccoon has the largest bowhunter index (37.5 raccoons/1,000 hours) of all the furbearing species monitored by this survey. Raccoon indices have been fairly stable after the initial increase in raccoon numbers the 1980s and early 1990s (Fig. 1). The stability of the raccoon index is seen in the β value or slope of the trend line. The β value represents the expected change in sightings/1,000 hr for each additional year, and the annual % change = (β/bowhunter index) x 100. In the case of raccoons, the annual increase expected is to be less than 1 percent.

Coyotes are the species with the second-highest bowhunter index (14.7 coyotes/1,000 hr; Fig. 2); however, their index is much lower than that of raccoons. Unlike raccoons, the coyote index shows a positive increasing trend (annual % change = 3.5%). However, this apparent trend was largely caused by the initial increase in coyotes in the 1990s. The bowhunter indices for coyotes from the past 10 years results in a β value of 0.1108 and an expected annual percent increase of only 0.7%.

Opossums and striped skunks are generalist mesopredators that occupy a niche quite similar to that of the raccoon. However, they occur at lower densities and their bowhunter indices exhibit a declining trend. Although populations of both of these species are known to fluctuate, sometimes widely between years, the decline in the opossum trend has been consistent. The β value of -0.2138 represents a significant annual decline of 5.2% (Fig. 3). The cause of the decline in opossum numbers is unknown.

Although the yearly bowhunter indices for striped skunks have fluctuated widely, the decline has been relatively consistent albeit less pronounced than that of opossums (Fig. 4). The β for striped skunks is -0.0977 and represents an annual decline of 3.4%. As with opossums, the cause for this decline is unknown, although take by nuisance trappers, as opossums and skunks

are common nuisance species, and competition with the more numerous raccoon may be factors for both species.

Foxes, both red and gray, have exhibited substantial declines. Although the steepness of the curve (i.e., the degree of decline) is greater for the red than the gray fox, the fact that the bowhunter index for red foxes is almost twice that of gray foxes results in a similar percentage for annual decline. The effect of a given β value on expected annual change is inversely related to population size or index value.

The β value for red foxes is -0.4228 representing an annual decline of 10.6% (Fig. 5), whereas the β value for gray foxes is -0.2149 representing an annual decline of 9.8%. Both of the fox species have shown slight upticks in their bowhunter indices over the past two years. This may be related to the habit of having their young near human residences and thereby presumably avoiding coyote predation. This phenomenon has been more pronounced for red foxes, although reports of gray foxes denning near human inhabitations have also occurred. Preliminary results of a gray fox telemetry project suggest that much of their mortality is caused by canine distemper or is otherwise health based. Additional time is needed to determine whether the bowhunter indices will continue to increase or if the results of the past two years were simply stochastic variability.

Of less commonly seen species, mink were seen most often (n = 48), followed by bobcats (n = 41). No black bears were reported, and badger and feral swine were seen only in Defiance and Vinton counties, respectively (Table 1).

Participation in the bowhunter survey has been falling annually, as has the return rate for surveys. New participants are needed for this vital furbearer survey. Increased efforts to recruit new members will occur over the next several years. Soliciting volunteers through Facebook and other social media will be of paramount importance. In addition, sign up cards will be available for dissemination at wildlife events.

Table 1. Bowhunter sightings of less commonly observed species by county in 2015.

County	River Otter	Bobcat	Mink	Badger	Feral Swine
Allen			2		
Ashtabula			1		
Belmont		2			
Champaign			1		
Columbiana			1		
Coshocton		4	2		
Defiance				1	
Delaware			4		
Fairfield			2		
Gallia		1			
Geauga	1				
Guernsey		6			
Harrison		8			
Hocking			1		
Holmes			1		
Huron			2		
Jackson		2			
Licking			6		
Miami			4		
Monroe		3			
Morgan		1			
Morrow		3	1		
Muskingum		2	1		
Noble		3			
Ottawa			1		
Perry	3		2		
Richland			1		
Ross		1			
Sandusky			2		
Shelby			2		
Stark			3		
Summit		1			
Trumbull	1		2		
Tuscarawas		2	3		
Vinton					26
Washington		2	1		
Williams			1		
Wyandot			1		
TOTALS	5	41	48	1	26

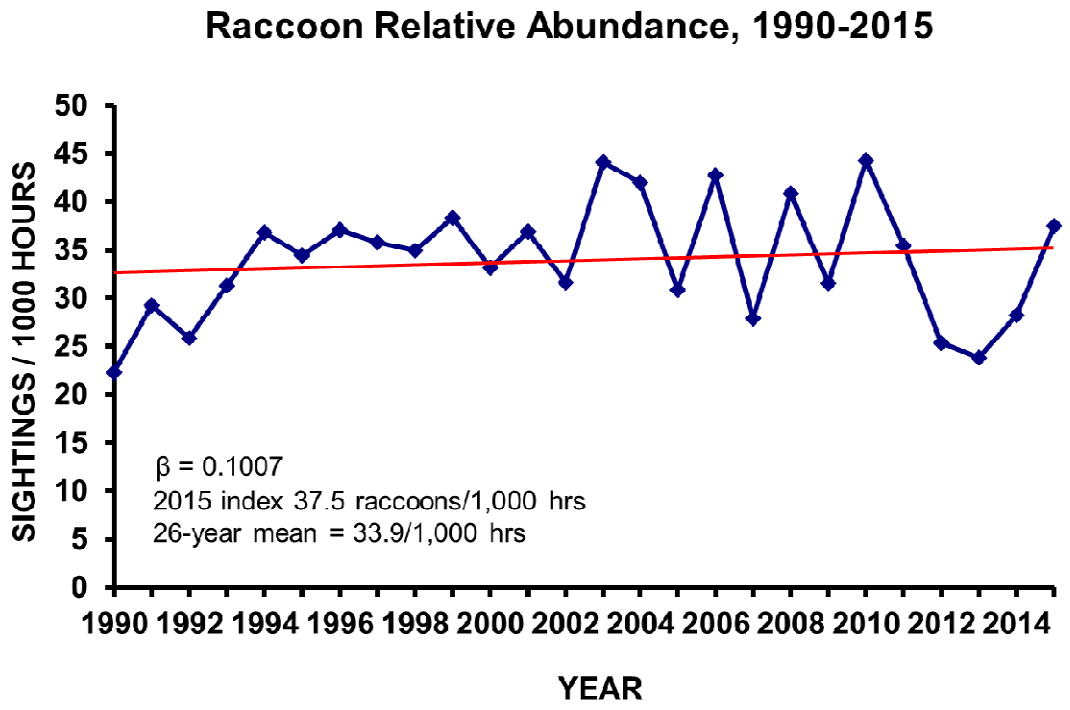

Figure 1. Raccoon relative abundance based on bowhunter survey indices, 1990-2015.

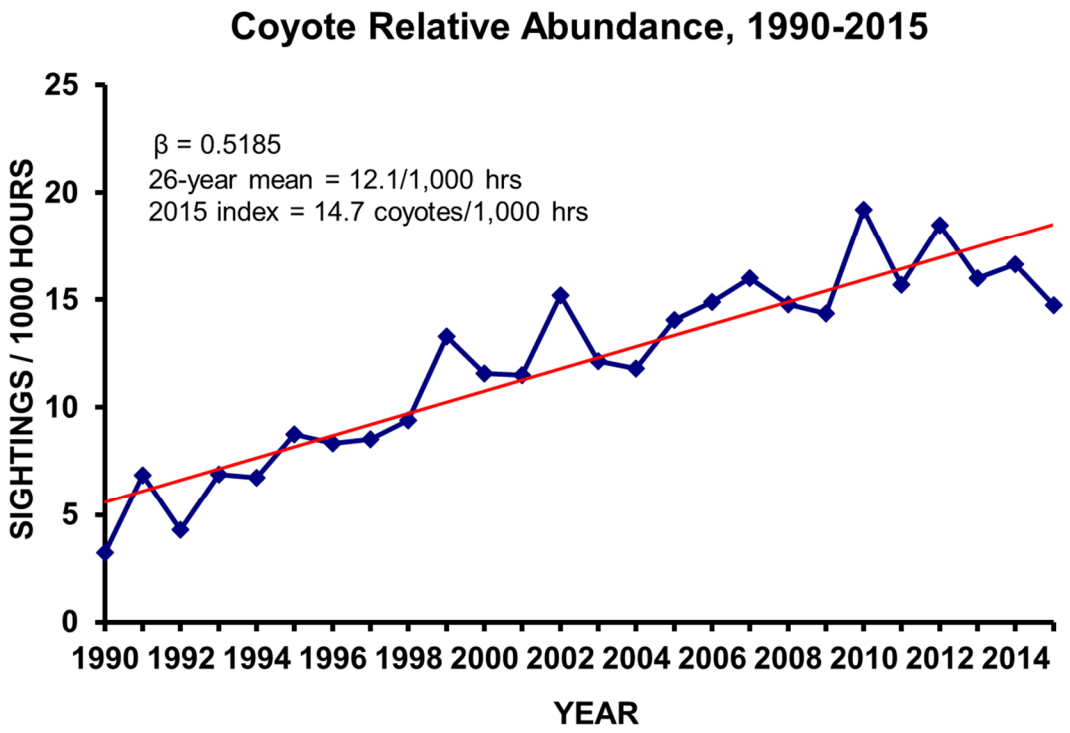

Figure 2. Coyote relative abundance based on bowhunter survey indices, 1990-2015.

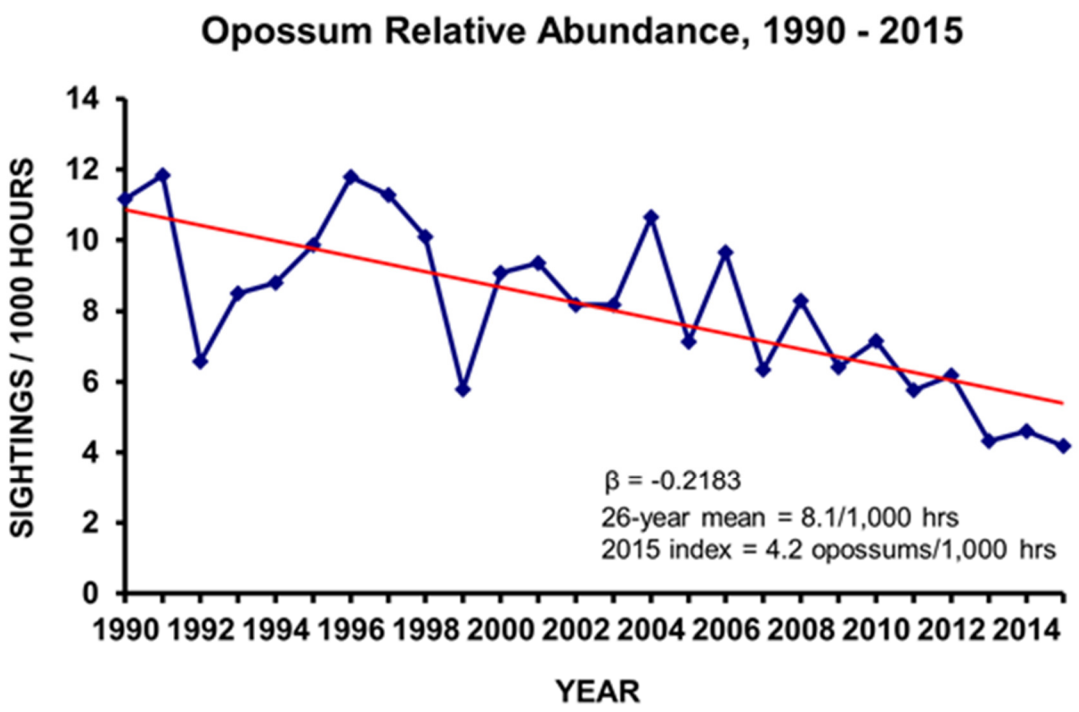

Figure 3. Opossum relative abundance based on bowhunter survey indices, 1990-2015.

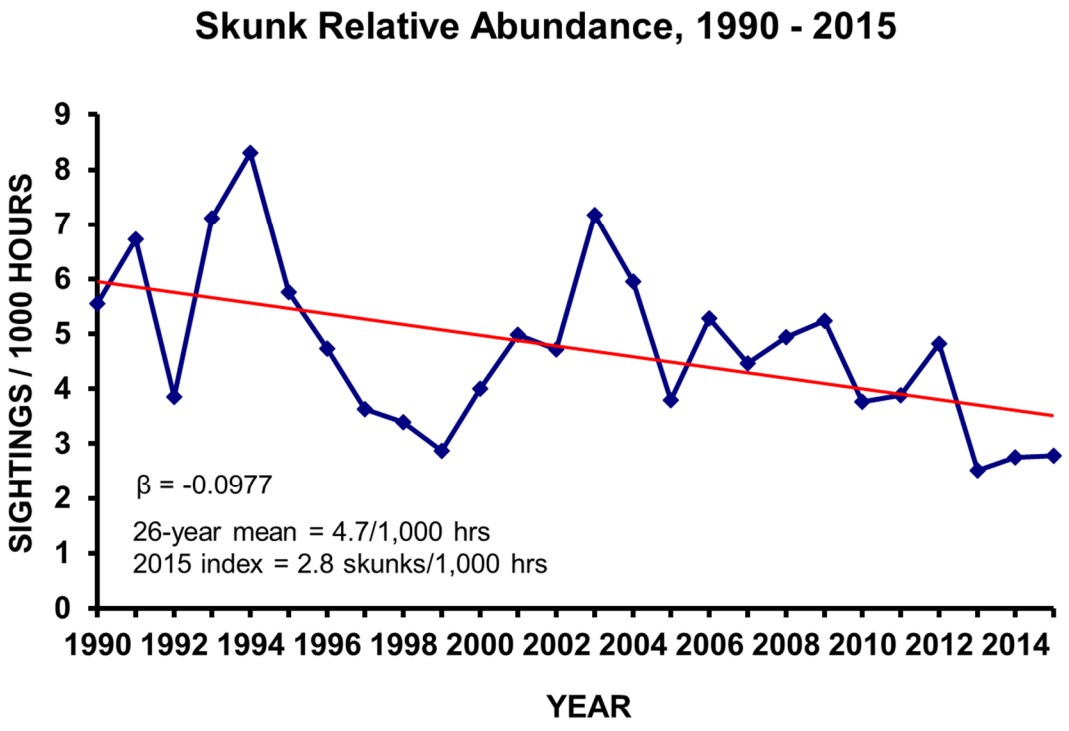

Figure 4. Skunk relative abundance based on bowhunter survey indices, 1990-2015.

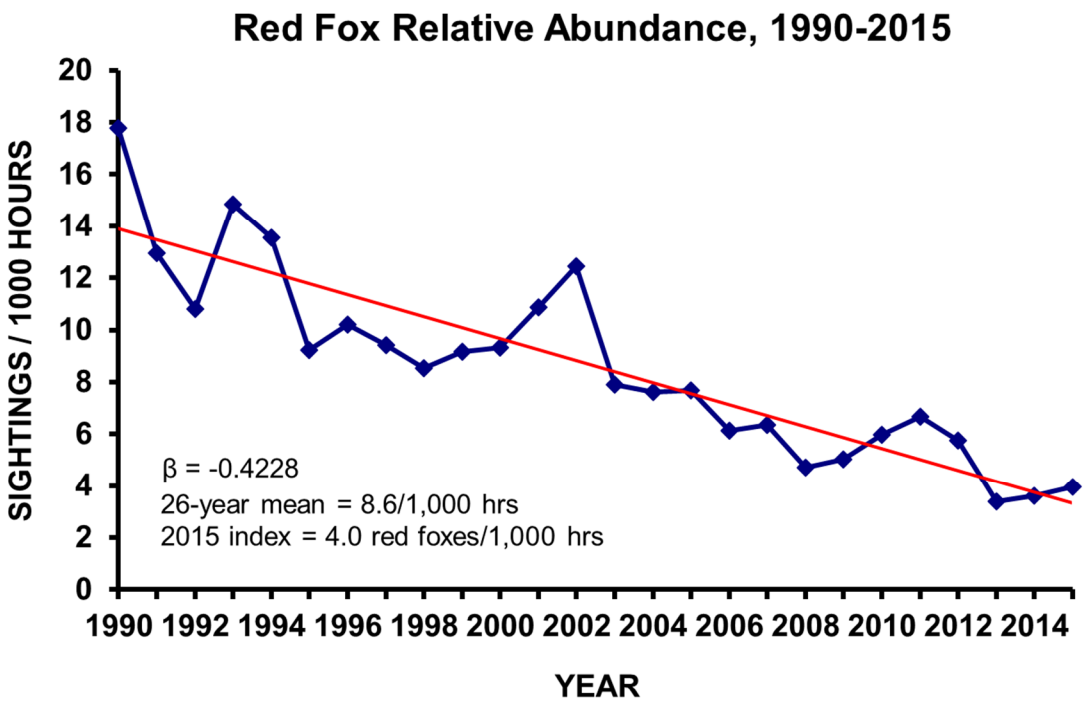

Figure 5. Red fox relative abundance based on bowhunter survey indices, 1990-2015.

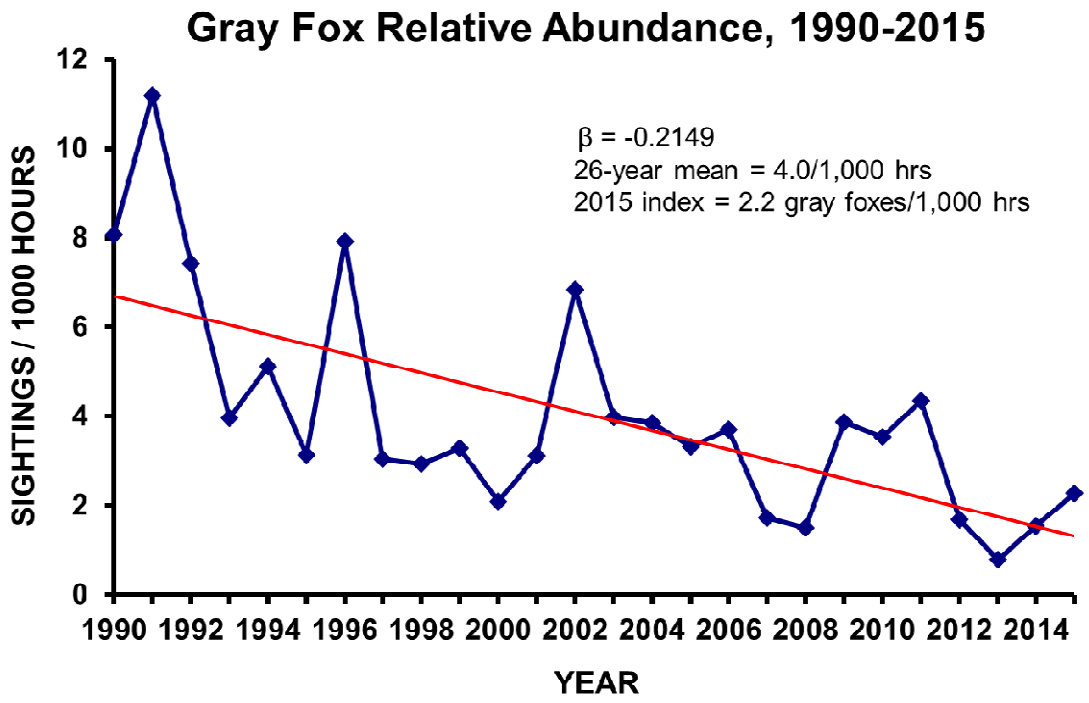

Figure 6. Gray fox relative abundance based on bowhunter survey indices, 1990-2015.