# THE BULLetin

## PENNSYLVANIA'S ELK NEWSLETTER

May 2025

Pennsylvania Game Commission

WILDLIFE RESTORATION

# THE BULLetin

The Bulletin is the Game Commission's periodic update on all things elk. Our hope with this newsletter is to share current and interesting information on elk biology, behavior, and management in Pennsylvania. Each issue will cover a variety of elk-related topics, but we plan to keep the subsections similar from issue to issue. Under *Just the Numbers*, we'll provide up-to-date data on things like the overall population, the number of hunting licenses released, and estimates of people engaged in elk viewing, just to name a few. For more details on how those data are collected and used, check out the *Deep Dive* section, where we provide a more detailed explanation of some specific topics. In each issue, we'll provide a seasonal recap (*Fall & Winter Recap*) with summaries of pertinent events/activities, and we have to share at least a short blurb on elk biology under the *Biology Lesson*. Finally, we'll close out each issue with what to expect in the next issue under *Coming Up*.

Happy reading!

# FALL & WINTER RECAP

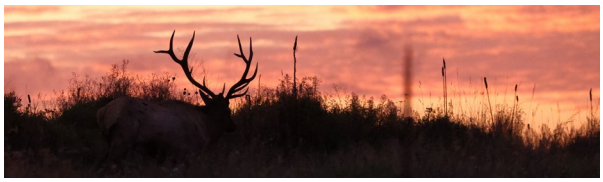
So much has happened since our last update!  We'll try to just give you the highlights...

## HUNTING SEASON

There are three separate elk hunting seasons, archery season in the latter half of September, general season the first full week of November, and late season in the first full week of January (2025). Everything went well for the hunters this year, with success rates of 78% for archery, 68% for general, and 87% for the late season. The overall success rate was 76%, which is close to the long-term average. Remember, this is hunting — success is never guaranteed.

## AERIAL SURVEY

The aerial survey is the root of how we develop our annual population estimate. It's also the subject of the Deep Dive in this issue, so check that out for a detailed description. But here's the short version. The flight crew and plane fly over 11,000 miles from Jan. 21-Feb. 11, surveying just over 1,000,000 acres. They counted almost 900 elk in 74 separate groups. This information was then combined with locational data from 106 radio collared elk to estimate the overall population. This year, we estimated the elk population at 1,342 +/- about 150 animals.



## WINTER CAPTURES

Winter is the time for capturing and collaring elk. We use radio collared animals for three primary reasons 1) they help in estimating the overall population; 2) they provide data on what habitats elk are using and when, so we can constantly fine tune our habitat management efforts; and 3) they help us calculate annual survival rates. Starting after deer season in late January, biologists and technicians captured 56 elk and fit 52 with radio collars. Most of these were yearlings (1-2 years old) that will be part of a yearling survival study (look for these results in coming issues) with 19 females and 15 males. But we also captured 22 adults (10 females/12 males) in an effort to maintain a sample of marked elk in the population.

## DID YOU KNOW....

The dates of the elk hunting season and the number of licenses issued each year are set by the Game Commission's Board of Commissioners. In early April of each year, the season dates and number of licenses are presented to the Board, who then approve them. Then this information is published in the Hunting & Trapping Digest. These meetings are open to the public and take place at the Game Commission Headquarters in Harrisburg. The season dates and licenses for the upcoming season (2025) were approved on April 12, 2025, and are shown in the table below under *Just the Numbers*.

# JUST THE NUMBERS

## AERIAL SURVEY:

Check the Deep Dive Section to learn more about how all these numbers are used to estimate the population.

| YEAR | COLLARS | COLLARS SEEN | TOTAL OBSERVED | ESTIMATE | DETECTION RATE |
|---|---|---|---|---|---|
| **2021** | 78 | 46 | 880 | 1,480 | 59% |
| **2022** | 103 | 61 | 777 | 1,304 | 59% |
| **2023** | 116 | 99 | 1,092 | 1,278 | 85% |
| **2024** | 87 | 54 | 935 | 1,497 | 62% |
| **2025** | 106 | 68 | 865 | 1,342 | 64% |

## 2025 ELK HUNTING SEASONS:

2025 Hunting Licenses/Season Dates

| SEASON | SEASON DATES | BULL LICENSES | COW LICENSES | TOTAL |
|---|---|---|---|---|
| **ARCHERY** | Sept. 13-27, 2025 | 16 | 11 | **27** |
| **GENERAL** | Nov. 3-8, 2025 | 30 | 38 | **68** |
| **LATE** | Dec. 27, 2025-Jan. 3, 2026 | 19 | 26 | **45** |

# DEEP DIVE: POPULATION ESTIMATING

This is by far one of the most common questions we get: how many elk are in Pennsylvania? Keeping track of population trends and where elk are concentrated (distribution) helps guide management decisions related to habitat improvements, hunting licenses, and disease management. Let's get into the nitty gritty of how the PGC estimates the elk population.

We have to estimate the population; it's impossible to count every single elk at any given moment in time so we use a combination of observations from the field as well as statistical calculations to produce an estimate with a margin of error (+/- so many animals). There are several methods of estimating wildlife populations; finding the best one depends on many different factors, such as how big of an area you're trying to cover, the size and behavior (nocturnal versus diurnal) of the animals you're trying to count, reproductive cycles, the list goes on and on. For elk, we use an aerial survey combined with individually radio collared animals to calculate an overall estimate of the population.

Each year during the mid-winter months (usually January and February), we partner with Owyhee Air Research to "survey" the elk population. They fly over a predesignated area (the area where our elk population lives), and using a sophisticated camera mounted to the belly of the plane, they count every elk they encounter along the way. The camera can "see" the infrared spectrum, meaning it can detect heat as well as the color spectrum you and I can see. The name of the game is to quickly pick out warm-bodied animals against a colder landscape

# DEEP DIVE: POPULATION ESTIMATING (CONT.)

using thermal imaging, and then if needed, switch over to the high-definition color camera to see exactly what they're looking at. All this video is recorded, and the position of the plane and where they're looking on the ground is overlaid in the video. Add in the date and time, and we always know the location of the plane and, more importantly, whatever they are looking at, both in space and time. The result is a map showing how many elk were seen at a specific location at a certain date and time. Obviously, flying over hundreds of thousands of acres with flight paths only separated by 500 meters is a colossal effort, but this is only half of the data needed to estimate the population.

No matter how well the plane covers the survey area and how amazing the camera they use is, they're still going to miss some elk. How do we account for this? In come the radio collared elk. If you've spent some time in elk country, you've likely seen an elk sporting a radio collar. These collars allow our biologists to track elk across the landscape at regular intervals (every 2-3 hours during the aerial survey), providing precise locations of where elk are spending time. By comparing the observations collected during the aerial survey with the locations of the radio collared elk, we can estimate what proportion of the elk population was seen and what was missed. The plane crew has no knowledge of where the collared elk are or how many there are.

For example, let's say we have 100 radio collared elk scattered across the entire elk range, and because we know where they are in space and time, we can just add these to the same map of all the elk observed during the aerial survey. If they match, that elk was seen by the plane; If they don't, that elk was missed. If we have 65 matches of the 100 radio collared elk, we can deduce they missed about 35% of the overall population during the flight. This ratio of seen:missed (called the detection ratio) is basically used as a correction factor to the overall number of elk counted during the aerial survey. The formula is a little more complicated, but that's the basic theory behind the scenes.

This year, our aerial survey began Jan. 21 and was finished by Feb. 10. The plane and crew traveled more than 11,000 miles and observed 74 different groups of elk. There were 106 radio collared elk during the survey and 68 (64%) were seen. The final estimate was 1,342 +/-150. Statistically speaking, the actual population is somewhere between 1,200-1,500 elk. This is similar to the previous year's estimates and suggests the population is relatively stable overall. We conduct the aerial survey to estimate the population every year in January and February because the trees are leafless, elk are generally in larger, more concentrated groups in winter, and the landscape is colder which makes it easier to distinguish warm bodied elk.

# BIOLOGY LESSON #2

## PREGNANCY, GESTATION & CALVING

The rut or breeding season always gets lots of attention, but what happens after that is arguably one of the most important parts of the elk's life cycle: pregnancy and the birth of the next generation. The rut occurs in September and October, with over 70% of the cows bred by Oct. 15. Gestation for cows is about 245 days (+/-10 days) or about 8 months. That puts the calving season around the last week of May through the first 2 weeks of June, with a peak around June 7. Newborn calves typically weigh 25-30 pounds and can walk within 30 minutes. They'll then gain over a pound a day from mom's milk and begin eating vegetation around 4-6 weeks old. Twins are extremely rare, occurring in less than 1% of births and have never been documented in Pennsylvania.

# COMING UP...

In the next issue of the Bulletin, we'll be through the annual Elk Expo (July 25-26) and winding up for the autumn viewing season and the archery hunting season. We'll cover highlights from the expo, summarize some basic stats on the lucky 140 people who will be drawn for an elk license, and provide some tips for being ELK SMART during the rut and the elk viewing season. As always, thank you for your interest in Pennsylvania's elk and your passion for wildlife and wild places.