



A lot of work goes into a hunt, and sharing information about that hunt is important to wildlife managers. (Photo by Patrick Owen/WGFD)

MAKE YOUR HUNT COUNT

Hunter harvest surveys
provide critical information
for wildlife management

By Kristy Palmer and Jason Carlisle



Hunters are encouraged to complete harvest surveys to help Game and Fish determine the number of animals harvested and understand hunter satisfaction. (Photo by Stephanie Estell/WGFD)

How does the Wyoming Game and Fish Department know how many animals are harvested? Game and Fish sends nearly 250,000 surveys to hunters each year asking about their hunting experience, yet most hunters do not respond. How, then, does Game and Fish determine harvest numbers, and how can the public trust the validity of them? Game and Fish uses well-established and reliable methods, but also needs your help to ensure wildlife managers have accurate information to manage your wildlife.

AN AGE-OLD NEED

The management of harvested wildlife species depends on a good understanding of the number of animals harvested each year. Wildlife managers aim to provide hunting and trapping opportunities to the public while avoiding the overharvest of wildlife, ensuring future generations get the same opportunity. This balancing act is evident in the mission of Game and Fish: conserving wildlife, serving people. In the early days of the agency,

estimating the number of animals harvested each year might have been as simple as a handful of game wardens tallying up the number of harvested animals they saw at roadside check stations or talking with hunters afield.

While this sort of face-to-face interaction with hunters is still critical, the scope and scale of hunting in Wyoming have drastically changed, necessitating modern approaches to monitoring harvest. For example, Game and Fish records show that 8,258 game animals, including pronghorn, deer, elk, moose, bighorn sheep and black bear, were harvested in Wyoming in 1939. In 2024, the department estimated nearly 10 times as many — 80,732 — of those same species harvested in the state. As the need for reliable harvest estimates became more evident and hunting activity increased, Game and Fish started mailing postcard questionnaires to some hunters who hadn't reported their harvest with the practice starting as early as the 1940s.

In the 1970s, Game and Fish partnered with the University of Wyoming to formalize a more accurate approach to estimating harvest using questionnaires mailed to a random sample of license holders and industry-standard data analysis methods.

A NEW PARTNERSHIP

The need for accurate harvest estimates persists, and Game and Fish continues to enhance its approach to gathering and using this critical information. A key part of the enhanced approach is a new partnership established with the Wyoming Survey and Analysis Center at the University of Wyoming in 2023. WYSAC is a charter member of the Association of Academic Survey Research Organizations and brings decades of experience to the harvest survey program.

“Game and Fish works side-by-side with WYSAC staff throughout each step of the survey process — from writing the survey questionnaire, to analyzing the results, to publishing final reports,” said Embere Hall, supervisor of the Game and Fish Science, Research and Analytical Support Unit. “The Game and Fish-WYSAC partnership has increased the rigor and decreased the cost of the harvest survey program, while also creating opportunities for UW students to get involved with this important part of wildlife management.”

Added Mike Dorssom, who manages the Survey Research Center at WYSAC: “We are excited to bring our survey expertise to the team and help Game and Fish be responsible stewards of Wyoming's amazing wildlife resources.”

WYSAC is helping Game and Fish modernize and improve the harvest survey program, which saves time and resources. For example, mailing survey questionnaires to a large sample of license holders has become cost-prohibitive in an era when more than 250,000 hunting/trapping licenses are valid in Wyoming each year, and printing and postage costs continue to increase. With WYSAC's help, the harvest surveys are now conducted primarily online, with survey participants receiving an emailed link to a questionnaire. When response rates are unacceptably low, WYSAC works with commercial print shops and the U.S. Postal Service to mail targeted reminder postcards and, in some cases, hard copy questionnaires at reduced cost.

For those who prefer to provide their information over the phone, WYSAC operates an on-campus call center where staff, many of whom are University of Wyoming students, call license holders and receive survey information. WYSAC continues to innovate, with plans to send some survey invitations via text message this year and make surveys available directly on the Game and Fish website and within a smartphone app in the future.



Hunters pursuing pronghorn and other game animals may receive a hunter harvest survey. (Photo by Patrick Owen/WGFD)

Check Stations

During the past two years a careful check has been made of the game animals killed in practically all the hunting areas of the state. It is felt that this is necessary in order to learn the number of animals taken from any given herd. It is also necessary to know the sex, age and condition of these animals. This information is just as essential to an intelligent game management plan as it is for a stockman to know the age and kind of animals which he sends to market each year.

The Wyoming Game and Fish Commission Biennial Report for 1939-40 noted the importance of quantifying wildlife harvest. (From the Wyoming Game and Fish Commission, Biennial Report, 1939-1940)

CONTACT WYSAC

For more information or questions about harvest surveys, contact the Wyoming Survey and Analysis Center:

Email: wylhunter@uwyo.edu
Telephone: 1-866-966-2715

FREQUENTLY ASKED QUESTIONS

Game and Fish commonly receives questions about the harvest survey process or hears from stakeholders who question the validity of harvest estimates. The process varies a bit by species, but we use pronghorn as an example to address frequently asked questions.

WHO RECEIVES A SURVEY?

Big game hunter harvest surveys are sent to a random sample of resident and nonresident license holders according to hunt area and license type. The number of licenses surveyed is based on an acceptable margin of error and the expected survey response rate. For example, if 100 survey responses are needed to have a sufficiently precise harvest estimate for a given hunt area and license type, but only 25 percent of survey recipients are expected to respond, 400 license holders should be surveyed. If a hunter has more than one license, they may receive more than one survey. At the same time, not every hunter receives a survey.

HOW DO I KNOW IF A SURVEY IS LEGITIMATE?

Most surveys come in the form of an email signed by a member of WYSAC or Game and Fish. You also may receive a postcard, letter, phone call or text message.

“In this age of telemarketers and phishing emails, it can be tricky to know if an emailed survey or voicemail is legitimate,” said Brittany Cangialosi, assistant research scientist at WYSAC. “If you ever have a question about a survey, we at WYSAC would love for you to call us directly, and we'll help you sort it out: 1-866-966-2715.”

WHAT INFORMATION IS COLLECTED?

Questions vary slightly depending on the species, but for the pronghorn survey example, hunters receiving a survey are asked:

- If they hunted.
- If they harvested a pronghorn.
- Sex and age class of the harvested pronghorn.
- How many days the person hunted regardless of harvest success.
- Hunting method or weapon type.
- Level of satisfaction.
- Any comments for wildlife managers to consider.

WHY DID I RECEIVE A SURVEY BEFORE I WENT HUNTING?

Because hunting season dates vary by species and area, and many licenses are valid for multiple time periods, it is nearly impossible to time survey



A big game hunter completes a harvest survey with his grandson. (Photo by Kristy Palmer/WGFD)

Form No. 1
Laramie, Wyoming 82070
PAID
U. S. POSTAGE
Non-Profit Organization

Box 3275, University Station
Laramie, Wyoming 82070
ANTELOPE HUNTER SURVEY

1970 ANTELOPE HUNTING QUESTIONNAIRE

Did you hunt antelope? _____ Kill an antelope? _____ Sex of Kill: Buck___ Doe___ Fawn___

Date of Kill: _____ No. days hunted _____ No. days traveled _____
Month _____ Day _____ in field? _____ in Wyoming? _____

Antelope Area _____ County _____ Late _____
hunted? _____ hunted? _____ Season? _____

ANY COMMENTS?

Antelope Hunting Questionnaire

Hunting questionnaires have been used by Game and Fish since the 1940s. The example above is from a questionnaire sent to a random sample of pronghorn hunters in 1970 as part of a special survey focused on the Red Desert area. (from the Wyoming Game and Fish Department, Annual Report of Big Game Harvest, 1970)



Scan the QR code to view the most recent hunter harvest reports.

invitations and reminders so they reach everyone after they’ve finished hunting. Most survey invitations are sent in mid-October, and data shows 50-75 percent of the big game harvested each year are harvested by that time. We ask hunters to complete any survey they receive as soon as they are done hunting with that license.

HOW IS THE DATA ANALYZED?

The survey responses are summarized and applied to all license holders following industry-standard methods and best practices for survey research. Because of longstanding differences in resident and nonresident hunter effort, success and survey response rates, data is analyzed separately by residency. For example, using real data from pronghorn Hunt Area 23, license Type 2 during the 2024 hunting season, 47 percent of residents who completed the survey reported successfully harvesting a pronghorn, and they spent an average of 1.9 days per person hunting. Therefore, Game and Fish applied those averages to all resident license holders, resulting in an estimated 612 hunter-days and 151 pronghorn harvested by resident hunters.

WHERE CAN I SEE THE RESULTS?

Results from the hunter harvest surveys are compiled into 18 unique harvest reports each year with information for more than 35 game species. Ranging from two to almost 100 pages long, the reports are publicly available on the Game and Fish website.

HOW CAN I HELP?

The biggest thing you can do to help Game and Fish accurately estimate harvest is to complete any harvest survey you receive, even if you did not hunt or harvest an animal. Game and Fish and WYSAC send nearly 250,000 surveys to hunters and trappers each year, yet response rates commonly hover around 20-40 percent.

- 1. Update your info:** Ensure your email address and contact information associated with your Game and Fish account are up to date so you receive harvest surveys. You can verify your information by logging in at the Game and Fish website or calling Game and Fish telephone support specialists at 307-777-4600.
- 2. Watch your inbox:** Surveys are sent from wylhunter@uwyo.edu or wylhunter@qualtrics-survey.com. Phone outreach comes from a call center at the University of Wyoming with area code 307.
- 3. Let your voice be heard:** If you receive a harvest survey, please complete it accurately, even if you did not hunt or harvest.

HOW DOES GAME & FISH ESTIMATE HARVEST WITHOUT TALKING TO EVERY HUNTER?

Examples using real data from the 2024 pronghorn hunting season.
Resident hunters - Hunt Area 23 - License Type 2

LICENSE INFO & SURVEY EFFORT

- 322 licenses issued.
- 266 licenses randomly selected and surveyed.
- 83 percent of licenses issued.
- 64 completed harvest surveys received.
- 24 percent of licenses surveyed, 20 percent of licenses issued.

SURVEY RESPONSE AVERAGES

- 120 reported days spent hunting.
- 120 days / 64 responses = 1.9 average days spent hunting.
- 30 reported pronghorn harvested.
- 30 pronghorn / 64 responses = 47 percent average harvest success.

ESTIMATED HARVEST STATISTICS

- 322 licenses × 1.9 average days spent hunting = 612 total days spent hunting (hunter-days).
- 322 licenses × 47 percent average harvest success = 151 pronghorn harvested.



(Photo by Jason Carlson)



We need to hear from surveyed hunters on harvest surveys if...

You did not hunt.

You hunted but did not harvest.

You hunted and harvested.



Hunters who complete a harvest survey benefit from improved wildlife management and provide valuable input into management decisions. (Photo by Patrick Owen/WGFD)

WHAT'S IN IT FOR ME?

Better wildlife management: By completing a harvest survey, your voice gets heard and you are improving the accuracy of harvest information that Game and Fish uses to ensure sustainable hunting opportunities for current and future hunters in Wyoming.

Input into management decisions: In addition to collecting information on hunter success and effort, you can submit comments and feedback Game and Fish biologists and wardens review and consider in their decision-making processes.

Prizes: For many surveys, hunters who complete them are entered into a raffle for free hunting gear or other prizes.

CRITICAL INFORMATION

Game and Fish monitors harvest levels to ensure harvest is consistent with management objectives set by the Wyoming Game and Fish Commission based on public input. Harvest survey information, including harvest quantity by age/sex, hunter effort expended, hunter satisfaction and more, are critical to responsible management of Wyoming's wildlife resources.

"Hunter harvest surveys identify essential data such as the number of hunters and animals harvested in a given area, and provide that key informational link to

department managers and the public, which guides the management of a species," said Gary Fralick, Game and Fish wildlife biologist in the Jackson Region. "Especially in a place like the Wyoming Range where the mule deer herd is subject to periodic, extreme winter mortality, it is vital that we track harvest-related statistics not only on an annual basis, but consistently over time. These harvest datasets are essential in the cycle of adjusting hunting seasons and engaging with the public."

In addition to the hunter harvest numbers, Game and Fish also compiles hunter satisfaction ratings and hunter comments. These results give a useful window into hunters' experiences that go beyond numerical data. Game and Fish is indebted to the many sportspersons who complete survey questionnaires and share valuable information about their hunting experience. Game and Fish urges you to lend a hand and let your voice be heard by completing any hunter harvest surveys you receive from Game and Fish and partners at WYSAC. As hunting seasons wrap up around the state, please watch your inbox. We look forward to hearing from you.

— Kristy Palmer is the human-dimensions specialist for the Wyoming Game and Fish Department in a joint position with the Wyoming Survey and Analysis Center at the University of Wyoming. Jason Carlisle is a quantitative biologist for the Wildlife Division of the Wyoming Game and Fish Department.