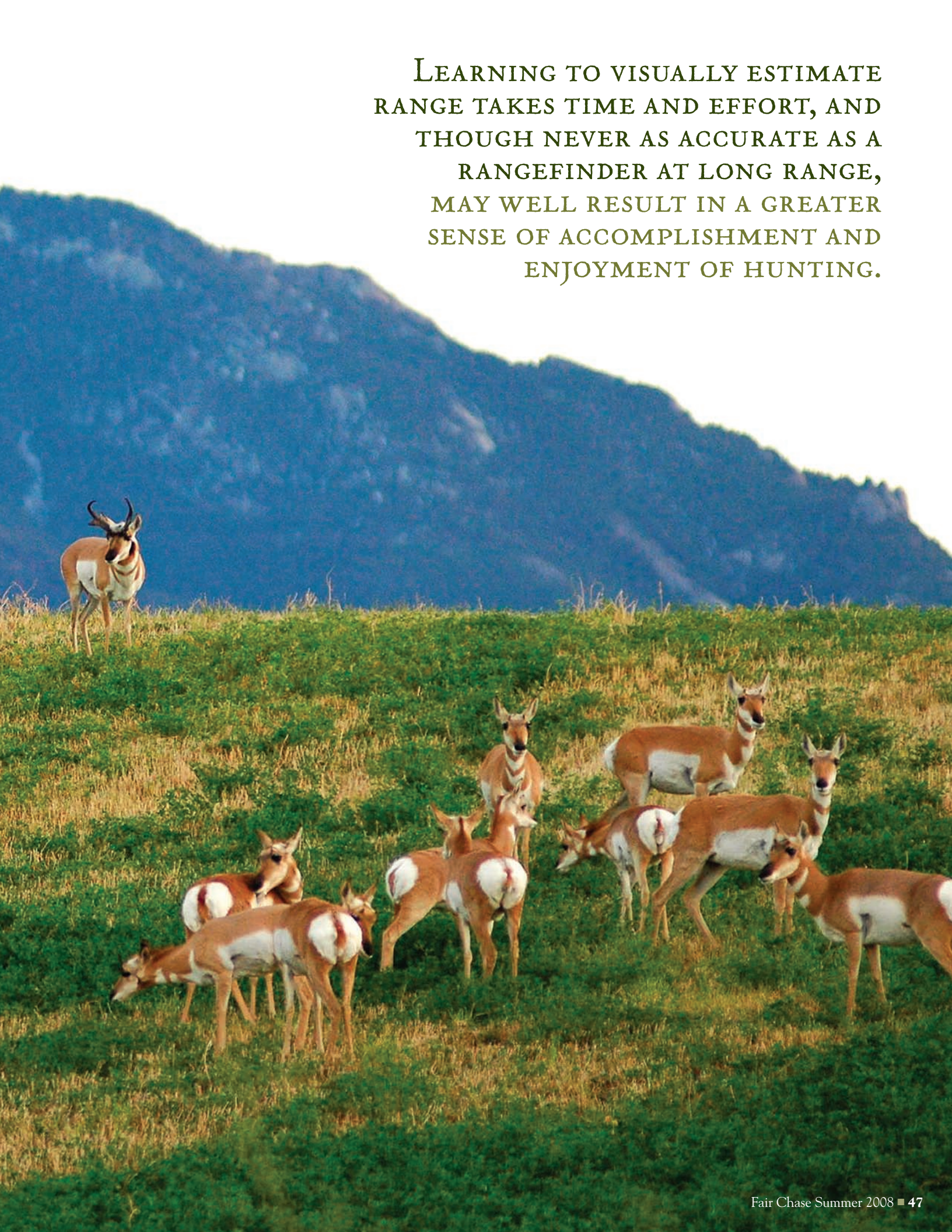
# RANGE DETERMINATION

## A Key to Effective Shooting

**By Eldon L. "Buck" Buckner**
Vice President, Big Game Records Committee
B&C Regular Member

The first-time pronghorn hunter I was guiding was from Connecticut where he had successfully hunted whitetail deer. Most of his shooting had been in thick cover at less than 100 yards. On this second morning of the Oregon season we were nearing the end of a two-hour stalk on a record-class buck and his harem of eleven does. We had belly-crawled down slope through three-foot-high sage for the past hour, but now had run out of cover.

Learning to visually estimate range takes time and effort, and though never as accurate as a rangefinder at long range, may well result in a greater sense of accomplishment and enjoyment of hunting.



I raised my binoculars and quickly located the buck standing broadside at the edge of the herd. As I sized up the situation, I had great confidence he would soon be ours.

My hunter had purchased a new Sako .270 with a 3x9 variable scope for Western hunting. I knew he could shoot because I had helped him sight the rifle in and saw the tight groups centered 3 inches high at 100 yards. With the 130-grain factory loads, he should be able to hit a pronghorn at 300 yards with a center chest hold.

The angle between the slope we were on and the level bench below would prevent a prone shot, but a steady sitting position would work fine. There was no wind to worry about, and the pronghorn were relaxed and undisturbed. I estimated the range at 200 yards, and knew from 30 years of checking myself, that the actual distance was probably within 25 yards of that. "We can't get any closer. What do we do now?" my hunter asked in a low voice.

"We're within good range—about 200 yards," I replied. "Just sit up very slowly and get ready to shoot. The does will spot us, but they'll likely just stand and look at us long enough to give you a good shot. Aim right behind the foreleg where the tan and white markings meet. I'll call your shot."

At the rifle blast my great expectations vanished when I saw dust fly just beyond the buck's back. The herd raced over the edge of the bench and out of sight.

"Your shot went high. Where did you aim?" I asked.

The hunter looked at the ground sheepishly and hesitated before answering. "Well, I just knew that pronghorn was farther away than you thought, so I held just over his back," he said. "I guess I was wrong."

This hunter's inability to confirm his guide's range estimation cost him a record-book buck. Although this incident occurred before the popular laser rangefinders were available, a hunter more accustomed to the West's wide open spaces would generally recognize when an animal was well within the point blank range of his rifle or exceptionally far away. In the incident described, a range error of 50 percent would still have resulted in a hit if the hunter had aimed center of chest.

Obviously, the distance or range of a shot can be critical to a hunter's success whether he uses a rifle or bow. Both bullets and arrows are projectiles subject to the laws of gravity. Their shape, weight, velocity and other factors determine the horizontal distance they may travel in a given time period, from a given elevation, before striking the ground. This flight path, or trajectory, combined with the size of target, determines the practical range of a particular bullet or arrow. It is usually best to sight in a rifle for the longest range that will not result in a mid-range miss while aiming at center of target. For example, rifles of the .270 to .300 Win. Mag. class with medium weight bullets have trajectories that allow hits out to about 300 yards on deer-size game without holding over if they are sighted in to hit 3 inches high at 100 yards. So sighted, the bullets are about 4 inches high at 200, dead on at 275 and about 4 inches low at 300. So sighted, range judgment does not become critical until the actual range exceeds 300 yards.

As was mentioned in Mark Steffen's introductory article to this series on basic hunting skills, many hunters now face a quandary: whether to dedicate time to skill development or to leapfrog ahead by embracing the latest technology. Perhaps in no other skill is the choice so defined as in judging distance. Laser rangefinders are now affordable and accurate, with some incorporated in telescopic sights. Over-dependence on them does have a downside, and some systems do not meet Boone and Crockett Club's Fair Chase standards for big-game records entry. More on this subject later.

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Many of the younger computer-oriented, high-tech generation have already adopted laser rangefinders for range determination without a second thought. Others feel that such devices have no place in B&C's philosophy of Fair Chase hunting. There are logical arguments for both sides of the issue, and indeed, both sides have been argued in this publication in years past. I do not intend to re-visit this controversial issue here, other than include some quotes from Boone and Crockett Club's Bylaws, which may aid some hunters in making their own personal decisions.

**Some general rules of thumb to keep in mind when estimating range are:**

**Animals appear closer on bright sunny days than they do on dark gloomy ones.**

**Animals appear closer when viewed across a canyon or on a level flat plain with no vegetation.**

**Animals will appear farther away when viewed from above or below.**

**Animals appear farther away when viewed from above or below. Use a rangefinder for comparing actual distance with that estimated to hone your own skills. You don't want to miss an opportunity for a shot because you're trying to use your rangefinder. You may discover that the rangefinder between your ears is fast and quite adequate with a little training.**

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Article 1, Section 1, includes the following words in the Club's mission statement: "…to maintain the highest standards of fair chase and sportsmanship in all aspects of big game hunting…." Other pertinent language is found in Section 3, Definitions. "(2) Fair Chase: The ethical, sportsmanlike and lawful pursuit and taking of any free-ranging wild game animal in a manner that does not give the hunter an improper or unfair advantage over the game animals."

Hunter ethics are defined in Item 4 and state that hunters should be guided by a hierarchy of ethics, which includes the following tenets:

1. Obey all applicable laws and regulations.
2. Respect the customs of the locale where the hunting occurs.
3. Exercise a personal code of behavior that reflects favorably on your abilities and sensibilities as a hunter.
4. Attain and maintain the skills necessary to make the kill as certain and quick as possible.
5. Behave in a way that will bring no dishonor to either the hunter, the hunted, or the environment.

Recognize that those tenets are intended to enhance the hunter's experience of the relationship between predator and prey, which is one of the most fundamental relationships of humans with their environment.

In addition to the Club's philosophy as expressed in its Bylaws, the Records of North American Big Game Committee addressed the issue of increasing technology related to trophies eligible for inclusion in its Awards Program. Hunters must sign an entry affidavit stating that none of nine forbidden methods or conditions apply to their trophy. Item III was modified a few years ago to read: "use of electronic communication devices to guide hunters to game, artificial lighting, electronic light intensifying devices (night vision optics), ***sights with built-in electronic range-finding capabilities***, thermal imaging equipment, electronic game calls or cameras/timers/motion tracking devices that transmit images and other information to the hunter."

As can be seen, trophies taken by use of some sights now on the market are ineligible for entry. Much of the recent technology in sighting, range, and ballistic compensation systems was developed primarily for military and law enforcement application. It is considered by the Records Committee to be against the spirit of Fair Chase when used in hunting as it takes unfair advantage of the animal.

Too much dependence on gadgetry is not a good thing. Rangefinders are not always 100-percent dependable, and under some light and terrain conditions may not read accurately. Then, too, I've been told by two different guides of hunters who missed shooting opportunities at trophies well within range because they spent critical minutes trying to use rangefinders first. This is akin to many youngsters today who have become so dependent on calculators that they cannot do simple math in their head.

I began competition shooting and big-game hunting in the early 1950s when barely a teenager. I learned about judging range, trajectories, and practical shooting by reading *Outdoor Life* columns and books on the subject written by Jack O'Connor, a family friend. As far as technology went, fixed-power hunting and target scopes were just becoming popular.

My personal experience with official long range (1,000 yards) shooting competition began at age 18 when I shot in the National Matches at Camp Perry, Ohio, as a member of the Arizona high power rifle team. I had previously done a lot of shooting at 600 yards and knew that mastery of fundamental shooting skills such as proper sight picture, breath, and trigger control, were critical at long range. The major external factor, however, was wind. It remains so today. A light crosswind of 5 mph will drift a 172-grain .30-06 match bullet 30 inches at 1,000 yards. At 20 mph, the bullet will land nearly 12 feet from the aiming point. Even at 600 yards, a modest 10-mph wind will move the bullet 24 inches—enough to change a good lung shot on an elk or deer into a gut shot, wounded animal. Even with the aid of spotting scopes and wind flags on known-distance target ranges, it is difficult to make correct sight corrections for wind changes for each shot. Under hunting conditions, it can be nearly impossible.

My experience as both an Army and NRA certified rifle instructor for 47 years has convinced me that the average hunter does well if he can keep five out of five shots in a 16-inch circle (approximate chest area of a deer) at 200 yards from a relatively steady sitting position.

Hunters have long been fascinated by long-range shooting. This interest has increased in recent years with the development of powerful, long-range cartridges, better designed bullets, specialized long-range rifles, and equally specialized telescopic sights. Long-range shooting clinics are now conducted where hunters may learn techniques adapted from military sniper training. We

have more sophisticated and more knowledgeable hunters than we did 50 years ago. However, human beings are still the same twitching, trembling, palpitating bundles of nerves, blood vessels, and assorted muscles as always and are poor shooting platforms. In addition, very few spend adequate time actually shooting their rifles at various ranges and from different positions to know with confidence their limits.

In my opinion, hunters should regard shooting at game farther than 400 yards as long range and should attempt such shots only under the following conditions:

- Stalking to closer range is not feasible.
- The hunter is intimately familiar with his rifle and trajectory of the load he's using.
- The hunter has actually shot at the determined range and knows he can shoot a 12-inch group at such range.
- There is opportunity to shoot from a steady rest.
- There appears to be little or no wind between the hunter and the game.
- The game is located so the hunter will have opportunity for a follow-up shot if it is needed.

With practice, the hunter who decides not to use laser rangefinders can learn or improve distance-judging skills so as to readily determine the difference between a reasonable 250-yard shot or a questionable one at 450. How does one do this?

As rangefinders did not exist when I was a young hunter, I constantly practiced estimating the distance to various objects, then checked my estimates by stepping it off. It is a simple matter to measure off 100 feet, then count the number of normal steps you take to cover that distance.

Another very useful method is to look at distances that are 100 yards, as most city blocks are, and commit to memory the visualization of that distance. Then, when viewing an object, you can mentally divide the distance into 100-yard increments.

Some reticules in telescopic sights can be very useful in verifying range estimates if you know approximate size of the target. For example, if the thin part of the common duplex reticule in your scope spans a distance of 8 inches at 100 yards and you later find that same reticule neatly brackets the chest of a whitetail buck (about 16 inches) the deer is about 200 yards away. For years I've used dot reticules in fixed power scopes as range estimates just as O'Connor did back in the 1940s. A 4-minute dot covers four inches at 100 yards. Thus, if it covers a deer's chest, the deer is about 400 yards. Leupold's Boone and Crockett reticule includes range estimation aids as well as aiming points for use out to 500 yards. I used one to take a mule deer buck at over 450 yards a couple years ago.

Some general rules of thumb to keep in mind when estimating range are:

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- Animals appear closer when viewed across a canyon or on a level flat plain with no vegetation.
- Animals will appear farther away when viewed from above or below.

During my lifetime of hunting on three continents I've kept a detailed record of every game animal I've taken. Most were taken at 200 yards or less with a single shot. A few were taken at over 400 yards. I've used a variety of firearms from handguns to traditional muzzleloaders. I get the most satisfaction from employing my own skills and using traditional equipment while hunting. I enjoy stalking and using wood-stocked rifles; and I've been a handloader since age 14. Although I don't own a rangefinder nor permit a guide to use one before the shot, I think they are a great tool for comparing actual distance with that estimated. Use one as a training device to help hone your own skills and you may discover that the rangefinder between your ears is fast and quite adequate in most cases. ■