THE TECHNOLOGY CONUNDRUM

"A peculiar virtue in wildlife ethics is that the hunter ordinarily has no gallery to applaud or disapprove of his conduct. Whatever his acts, they are dictated by his own conscience, rather than by a mob of onlookers. It is difficult to exaggerate the importance of this fact."

- Aldo Leopold

Hunting regulations can't keep pace with advancing technology. What does that mean for the future of Fair Chase hunting?

Aldo Leopold's quote about wildlife ethics being dictated by a hunter's own conscience has been referenced widely. The quote, pulled from Leopold's renowned book, *A Sand County Almanac*, is part of an essay titled "Wildlife in American Culture." What many who haven't read the treatise in years (or ever) may not realize is that this quote immediately follows a paragraph focused on technology.

"There is value in any experience that exercises those ethical restraints collectively called 'sportsmanship.' Our tools for the pursuit of wildlife improve faster than we do, and sportsmanship is a voluntary limitation in the use of these armaments. It is aimed to augment the role of skill and shrink the role of gadgets in the pursuit of wild things."

Even in the 1940s, conservationists grappled with the development of new technologies designed to improve the hunting experience. While the technology of Leopold's day pales in comparison to the tools that are now available to the hands of hunters, the vision of self-restraint and ethics remains the same.

Do these tools take unfair advantage of the wildlife that we seek? Does our use of these "gadgets"

JODI STEMLER
B&C PROFESSIONAL MEMBER
DIRECTOR OF COMMUNICATIONS

increase our success rates possibly leading to even greater restrictions on the number of tags available? Are we losing the fundamental skills of the hunter by relying on technology?

As we look forward to a future with an even greater variety of gadgets at the ready—as well as a generation that has grown up with technology in their hands starting as young children—our role as mentors and advocates for Fair Chase and hunter ethics will become even more important.

TECHNOLOGY CREEP

While many of us today think about technology in our digital world, the truth is technology has always been around us and has been constantly advancing throughout history.

Today, we have technical clothing that allows us to stay out longer in variable weather, electric bikes and ATVs that take us deeper into the landscape, handheld devices and apps that pinpoint our exact location, and much more. But the development of new technologies in hunting certainly did not start with the rise of satellites, drones, and long-range shooting equipment. From humans' first days of different knapping techniques to improve spear points through the creation of bows and then to the invention of the first firearms, humans have been innovating techniques that would make them more successful in their hunts. And such advancements are both expected and adopted without much consideration of their consequences—both intended and unintended.

B&C Professional Member Tony Wasley, former director of the Nevada Department of Wildlife and current president of the Wildlife Management Institute, refers to this as technology creep. Throughout history we have become comfortable with new technologies that are taken for granted now, and with it develops a rise in even greater advancements at our fingertips.

Looking back to the beginning of the last century reminds us of what unrestricted use of these technologies can do to wildlife. Punt guns mounted to the bow of boats in the Chesapeake Bay could kill hundreds of ducks with one shot. Trains advancing into the West opened access to these vast herds that hastened the demise of the buffalo as did rifles mounted with optics.

Technology advancements in our not-so-distant past aided the rapid decimation of wildlife. It was at this time that the Club spearheaded and galvanized the rise of hunting ethics and personal restraint among hunters across the nation, which drove the recovery of wildlife populations.

Read more about the punt gun.

RESPECT FOR WILDLIFE

One of Fair Chase's foundational tenets is to "enhance the hunter's experience of the relationship between predator and prey, which is one of the most fundamental relationships of humans and their environment."

Respect for wildlife includes the methods and means with which we choose to kill them. Technology has the potential to improve that deeply personal connection, but it also has the potential to fundamentally alter the playing field in our favor. This choice also affects the social acceptability of hunting—anything that gives the impression of unfair advantage in hunting may tip the scales against public support for our pursuits.

This issue gets to the core of the Boone and Crockett Club's Technology and Hunting Position Statement that states that the Club "supports the use of legal technology to the extent it does not take an unfair advantage over the animal." However, it continues to note that making these decisions is both personal and complex.

"Hunting, at its most fundamental level, is defined by the unpredictable relationship between predator and prey. This relationship is built upon many complex components that differentiate hunting from simply shooting or killing. It is a profoundly personal and human connection with wildlife that cannot be shortchanged, manipulated, or otherwise compromised if the hunter is to maintain the sanctity of this relationship and any credible claim that hunting is challenging, rewarding, respectful of wild creatures, and a positive force for wildlife conservation."

Mary Webster, the Club's executive vice president of conservation, co-leads the subcommittee that develops position statements. She notes that the Records Committee develops the Fair Chase guidelines for entry into the B&C records, but the Technology and Hunting position statement helps explain how the Club generally approaches this issue. She notes, "It's not so much about the technology or piece of equipment itself being unethical—a lot of times it's about how it's used. Some uses of technology in some situations just create too much advantage, and we need to think about where that line is drawn."

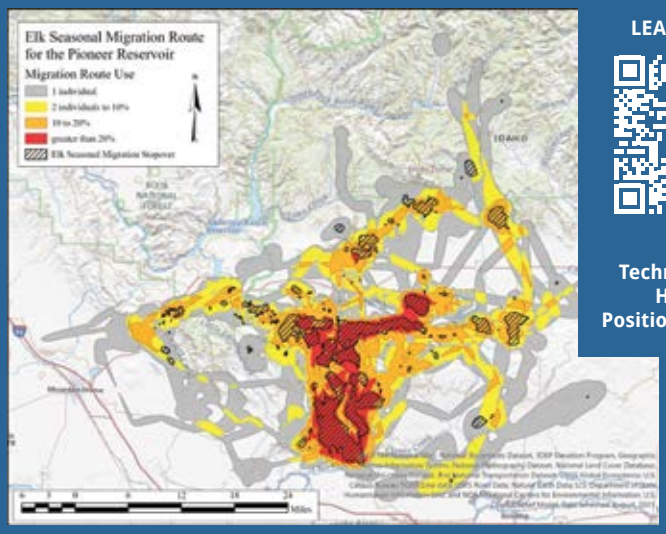
An essential element in this decision-making process is the potential implications for individual animals as well as the population as a whole. Improvements in rifles, scopes, and ballistics mean we can take a shot at an animal over 1,000 yards away, but is this the right choice? The Club has taken the position that long-range shooting takes unfair advantage of the game animal because it effectively eliminates the natural capacity of an animal to use its senses and instincts to detect danger, thereby diminishing the importance and relevance of the animal and the hunt.

Club executive vice president of administration and president of Boyt Harness Company, Tony Caligiuri, notes, "Having optics technology that enables me to be proficient at ranges that were unheard of ten years ago has undoubtedly made me a better shot at more normal hunting ranges. Even though I routinely practice out to 700 yards, I would never under any circumstances shoot at a game animal anywhere close to those distances."

While we often lament the potential downsides of technology for wildlife, there is no doubt that it can also be a boon for conservation. The rise of ever-faster, more powerful computers has improved modeling capabilities. Machine learning and artificial intelligence algorithms can help process millions of data points into patterns to understand wildlife conservation needs. Researchers use GPS collars to pinpoint big game migration corridors and wildlife seasonal use, allowing managers to direct limited funding to the most critical areas. Managers use drones to spray invasive weeds or plant seed, and researchers use them for population surveys. Camera traps (trail cameras) provide information on when elusive animals use certain areas. Thermal imaging devices help find newborn fawns bedded in hay fields before harvest and help identify and control feral animals devastating landscapes. Satellite imagery, remote sensing, and GIS applications allow for critical evaluation of ecosystem management or habitat fragmentation. For conservationists, these technological revolutions have opened a much greater understanding of wildlife species and improved habitat management options.

We live in a time when the cell phones we carry daily offer even greater computing power than would have fit in an entire room at the end of the last century. Our children don't know what it was like to live without them—not to mention the information available with just a click. Technology can be used for good in many ways, but the future of our outdoor experience depends on how we use these technologies to sustain or even improve our wildlife and wild places.

A map of an elk herd's winter migration route for the Pioneer Reservoir in Idaho. This analysis was done by the Idaho Department of Fish and Game and used location data collected on elk that were fitted with GPS collars in Idaho from 2007 to 2019



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Technology and Hunting Position Statement

As Leopold's essay notes, "contraptions... are offered as aids to self-reliance, hardihood, woodcraft, or marksmanship, but too often function as substitutes for them." The practice and skill development of shooting, coupled with improvements in ammunition, can ensure a clean, quick kill—but overconfidence in this technology can result in wounding an animal.

CJ Buck, vice president of communications of the Club and fourth-generation owner of Buck Knives, says that taking a longer shot comes with the ethical component of being willing to ensure the shot. "If you're considering taking a shot at a distance that you're not willing to walk to in order to verify whether you hit the animal, then it's probably too far."

The Club takes the view that long range is "more defined by a hunter's intent than any specific distance at which a shot is taken. If the intent of the individual is to test equipment and determine how far one can shoot to hit a live target and if there is no motivation to risk engagement with the animal being hunted, this practice is not hunting and should not be accorded the same status as hunting."

OPPORTUNITY IMPLICATIONS

If technology is making us more effective in the field, hunters need to recognize that it could ultimately affect our hunting opportunity. Wildlife professionals manage populations based on the concept of a "harvestable surplus" of animals and make decisions about tag allocations based on hunter success. For example, if they believe 100 deer can be harvested out of a population and data from previous years of hunter success shows a 10 percent success rate, they will issue 1,000 tags. So, what happens if hunter success increases to 50 percent? Those managers will have to reduce the total tags allocated to 200, meaning a significant decrease in hunter opportunity.

Another example is with early archery or muzzleloader seasons where harvest allocations are set recognizing the challenge of having to get close enough to an animal to take a shot with the more primitive tool. What happens when crossbows or muzzleloaders can be lethal at over 100 yards? This might not be an issue in areas where managers are trying to reduce populations. Still, higher success rates in other areas might result in regulation changes prohibiting technology within those seasons or reducing tags overall.

B&C's position statement speaks to this challenge: "From a wildlife management perspective, if technology increases hunter success rates too much, it will limit the options wildlife managers have to stay within harvest objectives. This could mean shorter seasons, fewer tags, or both, which will reduce hunting opportunities. This in turn, will likely decrease hunter participation, hunter retention, and new hunter recruitment, which will threaten the funding model on which wildlife management relies."

This is the pivotal issue for Buck. "We have to look at everything through the lens of wildlife health," he says. "There isn't a better tool to manage wildlife than hunting, so we need to be mindful of and responsive to anything that changes that balance."

The Western Association of Fish and Wildlife Agencies' Mule Deer Working Group is chaired by B&C Professional Member Jim Heffelfinger, the wildlife science coordinator for Arizona Game & Fish. This committee of the top deer biologists in all the Western states and Canadian provinces recently released a fact sheet on technology and the effects on hunting mule deer and black-tailed deer. Their summary notes:

"Hunters must understand that improved hunting success from advances in technology may reduce future hunting opportunities. How agencies manage technological advancement will continue to be an issue for mule deer hunters across the West. In addition to what is legal, hunters must consider what is ethical and considered fair chase. With inevitable increases in technology, we will need to determine the right mix of hunting opportunity versus freedom to use technology."

This is not new and not unique to the West. State wildlife management agencies have passed regulations on using certain technologies since their beginning. For example, we don't use punt guns anymore. And, of course, different technologies have different implications in different parts of the country. In the West, one tree near a watering hole on public land might be strapped with dozens of trail cameras, which is very different from the use of trail cameras on private lands in the dense forests of the upper Midwest.

But as Heffelfinger notes, the rate of technological change in the last 20 years has been almost exponential, and it's difficult to put the genie back in the bottle once it has been released. Former agency director Wasley agrees, noting that technology creep is here to stay. "If people invest the time, money, and effort in gear, it is very difficult to come in later and take them away," he says.

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> -Mary Webster, Boone and Crockett Club Executive Vice President of Conservation

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Professional Member and renowned outdoor writer Andrew McKean is no stranger to technology. His position with *Outdoor Life* magazine allows him to test some of the latest and greatest gear introduced to the market. To him, the overall question is what we owe to the animals we hunt and our overall experience.

Hunting is profoundly personal, and most hunters note that spending time in nature to enjoy the peace of the outdoors, where they can disconnect from the pressures of technology in their everyday lives, is a core part of their experience in the field. Does the use of technology defeat this quest?

Leopold's essay ponders this challenge for the American sportsman. "Bigger and better gadgets are good for industry, so why not for outdoor recreation? It has not dawned on him that outdoor recreations are essentially primitive, atavistic; that their value is a contrast-value; that excessive mechanization destroys contrasts by moving the factory to the woods or to the marsh."

He also notes: "I do not pretend to know what is moderation, or where the line is between legitimate and illegitimate gadgets."

What do we, as conservationists, owe the subjects of our pursuits? What gained advantage crosses that line of respect and begins to look more like disrespect for the life of our prey? What will widespread use of any particular technology mean for the future of hunting, our ability to recruit new hunters, or the social acceptability of hunting?

This is the ultimate conundrum of technology in hunting—the choices that we make to hunt Fair Chase and our respect for wildlife may be the most important way that we can preserve our traditions. ■

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