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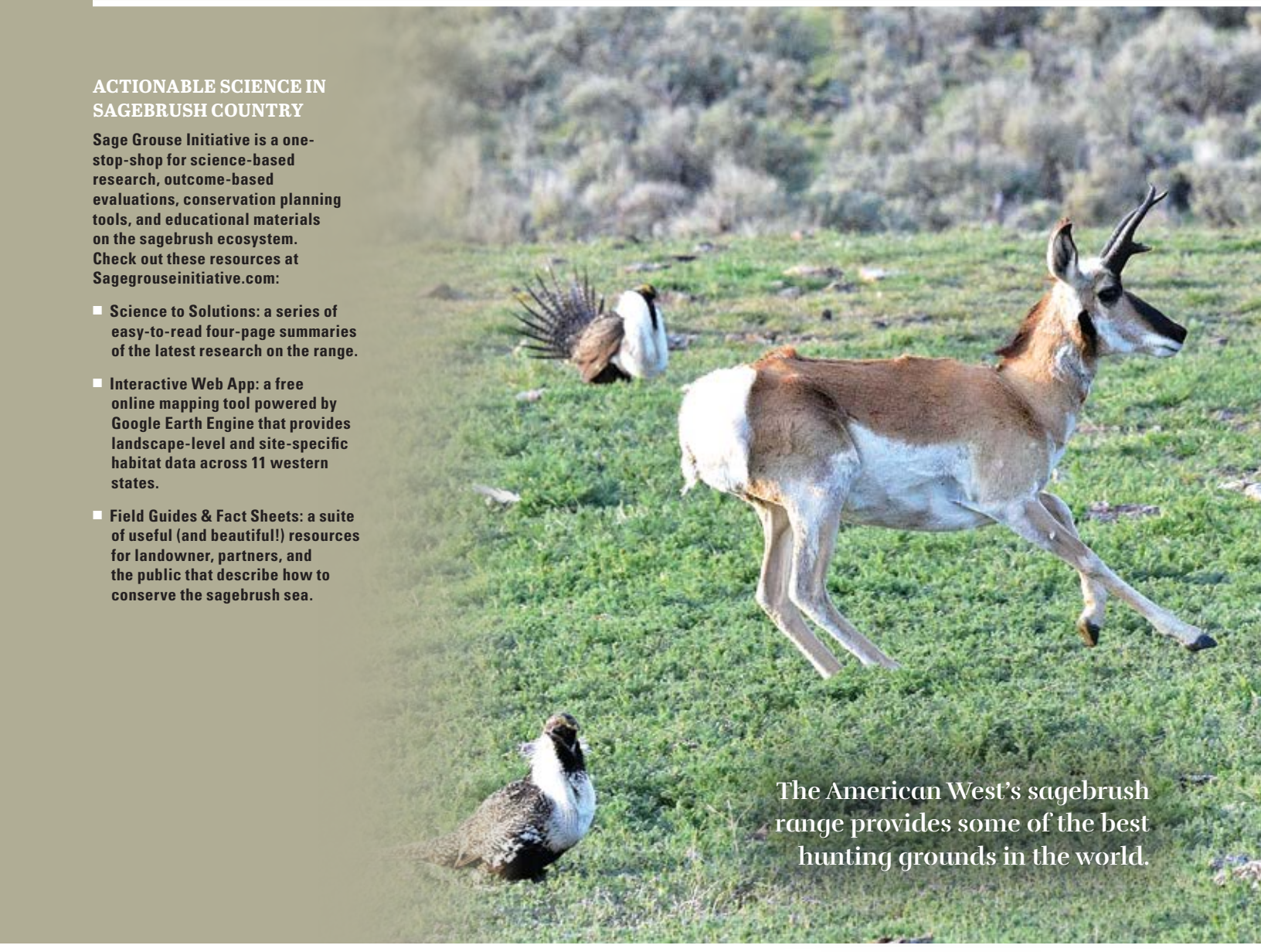
THE VALUE OF *Sagebrush Country*

ACTIONABLE SCIENCE IN SAGEBRUSH COUNTRY

Sage Grouse Initiative is a one-stop-shop for science-based research, outcome-based evaluations, conservation planning tools, and educational materials on the sagebrush ecosystem. Check out these resources at Sagegrouseinitiative.com:

- **Science to Solutions: a series of easy-to-read four-page summaries of the latest research on the range.**
- **Interactive Web App: a free online mapping tool powered by Google Earth Engine that provides landscape-level and site-specific habitat data across 11 western states.**
- **Field Guides & Fact Sheets: a suite of useful (and beautiful!) resources for landowner, partners, and the public that describe how to conserve the sagebrush sea.**



The American West's sagebrush range provides some of the best hunting grounds in the world.

Stalking through the sage, I heard a sparrow trill as dawn pinkened the horizon. The pronghorn was grazing on waving bunchgrass as I lifted my rifle. Crack! He fell after a single leap. I inhaled the sharp, clean scent of sagebush as I knelt beside the antelope, appreciative of the wide-open rangeland that fed this animal that would now feed me.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SAGE GROUSE INITIATIVE BY THE NUMBERS

- 5.6 million acres conserved since 2010
- 8 million acres projected to be conserved by 2018
- More than 1,500 ranchers enrolled in conservation programs

After growing up in the forests of upstate New York, my first impression of the West's vast sea of sage was "monotonous." It's proven me wrong again and again.

What looks homogeneous at first glance is actually filled with extraordinary wildflowers, lush riparian areas, and all sorts of wildlife species that are uniquely adapted to live in a harsh, open environment. My favorite part about sagebrush country is the surprising diversity of animals and plants that live there. The more I've learned about this dynamic and diverse ecosystem, the more I've come to value it—both as a hunter and as a scientist.

The American West's sagebrush range provides some of the best hunting grounds in the world. This ecosystem—which spans 13 western states—shelters and feeds pronghorn, mule deer, elk, and a host of upland birds. It also supports thousands of working ranches and hundreds of rural communities.

I've conducted wildlife research in many parts of the United States and in several places in South Africa, and I can vouch for the fact that the sagebrush sea is special. I first spent significant time out West while researching elk in the Black Hills of South Dakota—close to where I shot the pronghorn. After that, I came to know sagebrush ecosystems while overseeing a sage grouse research project that took place on a vast private ranch in southcentral Wyoming.

I distinctly remember having lunch one day in the field after tracking sage grouse that morning. We were hunkered in a small aspen grove to catch a break from the high-elevation sun. All of a sudden, I saw movement out of the corner of my eye—an elk! It was an unexpected encounter, as I hadn't considered seeing elk in this very small patch of forest surrounded by sage.

But like 350 other species, elk rely on sagebrush habitat, especially during the winter months when they seek out nutritious sage leaves and other easy-to-access forage on the range. Given 40 percent of sage grouse range overlaps with elk range, it made sense that we saw elk while searching for the West's iconic upland bird.

THE BIGGEST UPLAND BIRD

I've had a soft spot for upland birds ever since I was a young boy, when I hunted pheasants and ruffed grouse with my family. In particular, I've always been fascinated by the elaborate mating rituals of grouse species. Communal lekking is one of the most interesting behaviors in the animal world.

Needless to say, I was excited to lead a long-term study researching the largest—and most famous—upland bird in the nation: the greater sage grouse.

The first time I held a sage grouse, I was blown away: it was bigger than I'd imagined. I was driving across the ranch on an ATV one night with my graduate student and research assistant, searching for a sage grouse to tag. The Wyoming sky was bright with stars above us, and our spotlight uncovered all sorts of nocturnal critters amidst the sage.

We finally found one, capturing the wily bird in a hoop-net. Since I'd mainly worked with mammals, putting the small GPS transmitter on the hen was trickier than expected, to say the least. She was quite an armful!

Over the next six years, I oversaw two graduate student projects researching different aspects of greater

sage grouse ecology and management on the ranch. The goal of this year-round study—which was a partnership between private industry, state and federal agencies, non-government organizations, and a university—was to establish comprehensive baseline information about the bird before a wind energy project was constructed in order to better evaluate potential impacts post-construction.

In the summer, we measured the type of vegetation used by sage grouse. We also followed broods and monitored chick survival. In the winter, we relied on satellites or fly-overs to track the birds' movements and survival rate. And in the spring, we monitored attendance on mating leks, as well as the males' movements among leks.

I grew more and more impressed by the birds' ability to make a living in such an extreme environment where it's hot in summer, frigid in winter, wide open, and hard to raise young. As if that isn't enough, sagebrush-dependent wildlife face a bigger risk: the loss of their habitat.

SAVING SAGEBRUSH RANGE

The once-vast sagebrush sea is getting chopped up by invasive weeds, energy and housing developments, cropland conversion, encroaching conifers, and more extreme wildfires.

Sage grouse are the "canary in the coal mine" that herald how this vital ecosystem is faring. These birds rely entirely on sagebrush-dominated landscapes: it's their primary food source, their breeding grounds, their chick-rearing sites, their safe zones from hungry predators.

Unfortunately, sage grouse populations have dwindled to just 10 percent of their historic numbers. This decline led the U.S. Fish and Wildlife Service to add the greater sage grouse to its candidate list in 2010 for potential listing under the federal Endangered Species Act. That same year, the U.S. Department of Agriculture's Natural Resources Conservation Service launched the Sage Grouse Initiative to focus Farm Bill resources on voluntary, proactive conservation on private agricultural lands.

Although some human-generated intrusions have been linked to the decline of the bird, sustainable ranching can actually improve habitat. I saw first-hand the environmental benefits of wildlife-friendly grazing on the vast Wyoming ranch where I researched sage grouse. Since half of all remaining sage grouse reside on private lands, ranchers are the linchpin for maintaining healthy, intact range that these birds—and all sagebrush-dependent wildlife—rely upon.

Through the Sage Grouse Initiative, ranchers, industry leaders, nonprofit organizations, and local, state and federal government agencies are banding together under a shared vision: wildlife conservation through sustainable ranching. Conservation practices put in place on private rangelands include implementing sustainable grazing systems, removing invading conifers, keeping lands intact through conservation easements, restoring and protecting wet meadows, and marking fences to prevent bird collisions.

SAGE GROUSE INITIATIVE'S PRIVATE LAND CONSERVATION PRIORITIES

- Remove encroaching conifers to prevent the loss of native understory shrubs, grasses and forbs that feed big game animals and upland birds.
- Implement prescribed grazing strategies on working lands to promote plant health and range productivity by adjusting timing, intensity, and duration of livestock use.
- Control weeds and seed new plants to restore healthy vegetative communities and reduce the risk of large wildfires.
- Secure conservation easements to permanently conserve intact, native rangelands that support both people and wildlife.
- Enhance and conserve wet, green areas like streambanks, swales, and wet meadows that provide critical wildlife habitat.

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Elk rely on sagebrush habitat, especially during the winter months when they seek out nutritious sage leaves and other easy-to-access forage on the range.

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Since 2010, the Sage Grouse Initiative has partnered with more than 1,500 ranchers to conserve over 5 million acres.

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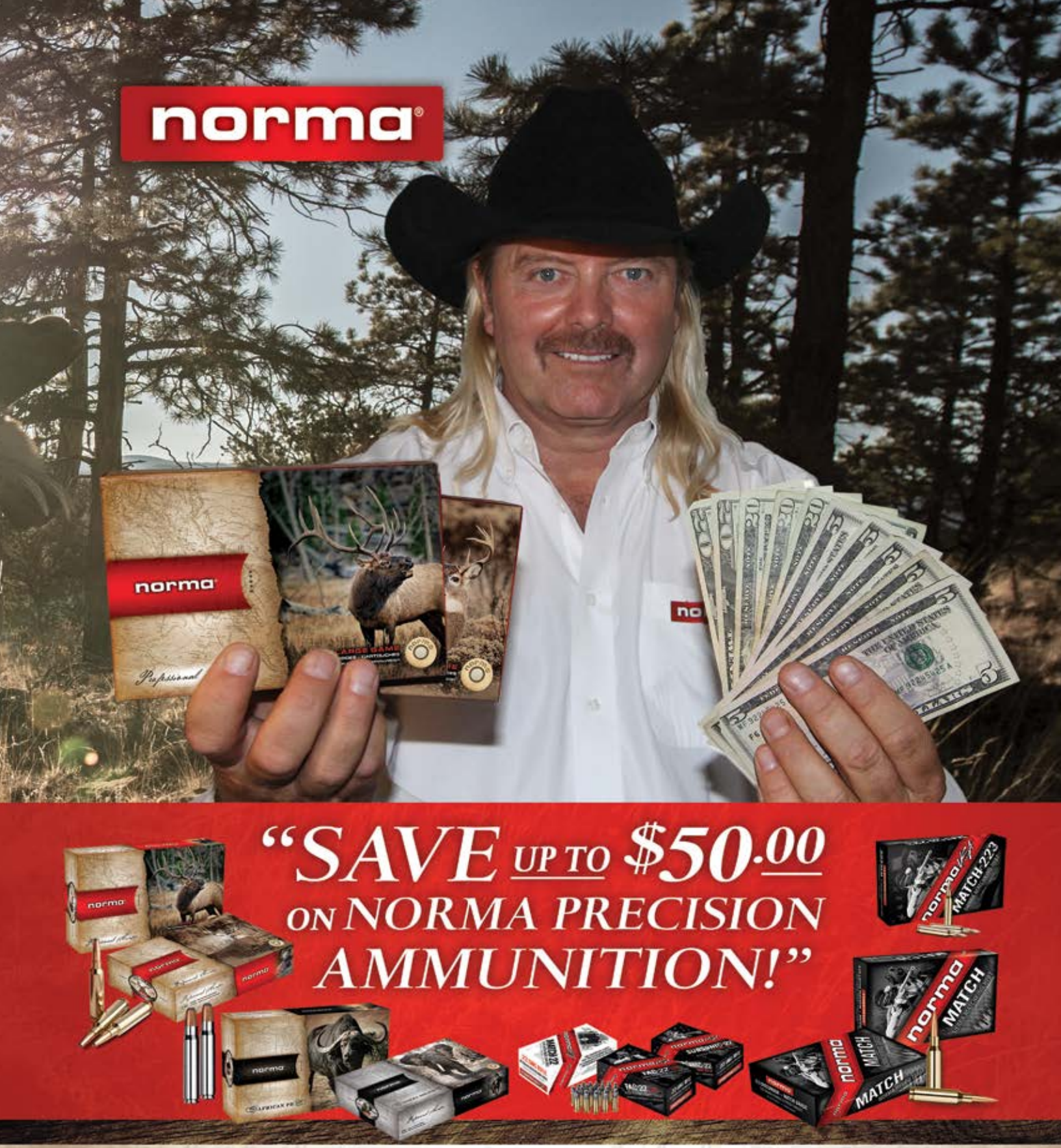

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Since 2010, the Sage Grouse Initiative has partnered with more than 1,500 ranchers to conserve over 5 million acres, an area twice the size of Yellowstone National Park.

In fact, this collaborative effort has proven so successful that the Natural Resources Conservation Service has since scaled-up its proactive, incentive-based sage grouse conservation model, and is now focusing Farm Bill funds in several other key landscapes across the nation. From salmon to cottontail rabbits, NRCS' Working Lands for Wildlife is accelerating conservation on working farms and ranches in 30 states and across eight ecosystems.

SCIENCE-BASED SUCCESS FOR MULTIPLE SPECIES

Part of the Sage Grouse Initiative's recipe for success stems from the group's reliance on applied science to guide project investments. By partnering with reputable scientists from universities and agencies across the nation—including scientists like my colleagues at the University of Montana (UM)—the Sage Grouse Initiative is able to strategically target conservation practices where they're needed most. Plus, scientists also evaluate the resulting outcomes, helping to ensure conservation investments that yield the most ecological benefits.

Co-producing science with organizations like the Boone and Crockett Club allows the Sage Grouse Initiative to do more with less, maximizing Farm Bill dollars. The resulting science-based outcomes and targeting tools we produce together also make it easier for landowners and resource managers to plan and prioritize their next conservation projects.

Since sage grouse are considered an "umbrella species," the Sage Grouse Initiative's win-win conservation model extends benefits to a host of other wildlife, too—which, in turn, benefits hunters who enjoy hunting big game across sagebrush country.

For instance, in Wyoming, researchers found that conservation easements funded in part by the Sage Grouse Initiative also protect migratory pathways for mule deer, which also are affected by habitat conversion. One study showed that 75 percent of mule deer habitat is conserved through sage grouse conservation investments.

The same goes for elk. Of the 550,000 acres permanently protected by Sage Grouse Initiative-funded conservation easements, 52 percent of the land is within elk range. In particular, the Sage Grouse Initiative uniquely contributes to elk habitat conservation by protecting lower-elevation sagebrush rangelands that elk use during the winter months.

As for pronghorn, University of Montana researchers recently discovered that antelope living along the border of Montana and Canada share their migratory pathways with sage grouse. Once again, Sage Grouse Initiative has cost-shared conservation easements that keep private working ranches intact to maintain this key migration corridor. These private lands provide stepping stones to adjacent public lands, which ensures these animals can access the habitat they need to survive and thrive on the range.

Researchers from the University of Montana also found that the abundance of songbird species, like the Brewer's sparrow, increases by 50-80 percent in areas where expanding conifers are removed. Sage Grouse Initiative and its partners have removed juniper and pinyon-pine from over a half million acres in the West, opening up prime sagebrush habitat for all sorts of upland birds and songbirds in addition to sage grouse.

Collaborative science like these studies in the sagebrush ecosystem are what teach us more about how the animals use the landscape and illustrate the value of partnerships with ranchers and the Sage Grouse Initiative.

HOPEFUL HUNTING ON THE RANGE

This past June, I took my 7-year-old son, Owen, to B&C's Theodore Roosevelt Memorial Ranch for a weekend of fieldwork setting up wildlife cameras for a project intended to advance approaches for integrating ranching and wildlife management. As we entered a grove of aspen, we spotted a ruffed grouse who was content to sit on a tree branch as we slowly went by. Owen reminded me that I promised to take him and his bird dog grouse hunting again, just like last year. He was already as excited as me about chasing upland birds. I hope Owen also has the opportunity to hunt sage grouse as well as ruffed grouse with his own children someday.

Thanks to the success of landscape-level conservation partnerships like the Sage Grouse Initiative, I'm hopeful that day will come sooner than later. Meanwhile, I'll keep stalking the range for pronghorn, deer, and elk, grateful for the fact that the West still has healthy swaths of its beautiful sagebrush sea. ■

BOONE AND CROCKETT CLUB'S RESEARCH PROJECT: RANCHES AS WILDLIFE HABITAT

In spring 2017, Christopher Hansen, a doctoral student, and Dr. Joshua Millspaugh at the University of Montana, initiated a research project at the Theodore Roosevelt Memorial Ranch (TRMR) in Dupuyer, Montana, to study ranch management approaches that integrate wildlife sustainability with an emphasis on large mammals.

Ranch managers play an important role in determining how wildlife habitat is utilized on a ranch. The goal of this research project is to provide information to help the ranch develop policies that guide management of the ranch's wildlife habitat. Additionally, the project includes developing related K-12 educational opportunities and university teaching modules.

Here are details on the study:

- **TRMR will serve as one of several study sites in the research project.**
- **Research is non-invasive and uses motion-triggered digital cameras to capture wildlife pictures.**
- **Cameras are moved monthly, and will be run year-round in different habitats to study seasonal changes in wildlife use of TRMR.**
- **Each issue of *Fair Chase* will contain the best images collected during the previous quarter.** ***(See page 86.)***

The project is funded by the Boone and Crockett Club University Program endowment at the University of Montana and the National Science Foundation (NSF). Collaborators include Luke Coccoli and Mike Briggs with the Boone and Crockett Club and co-investigator on the NSF grant, Dr. Roland Kays, a professor at North Carolina State University.