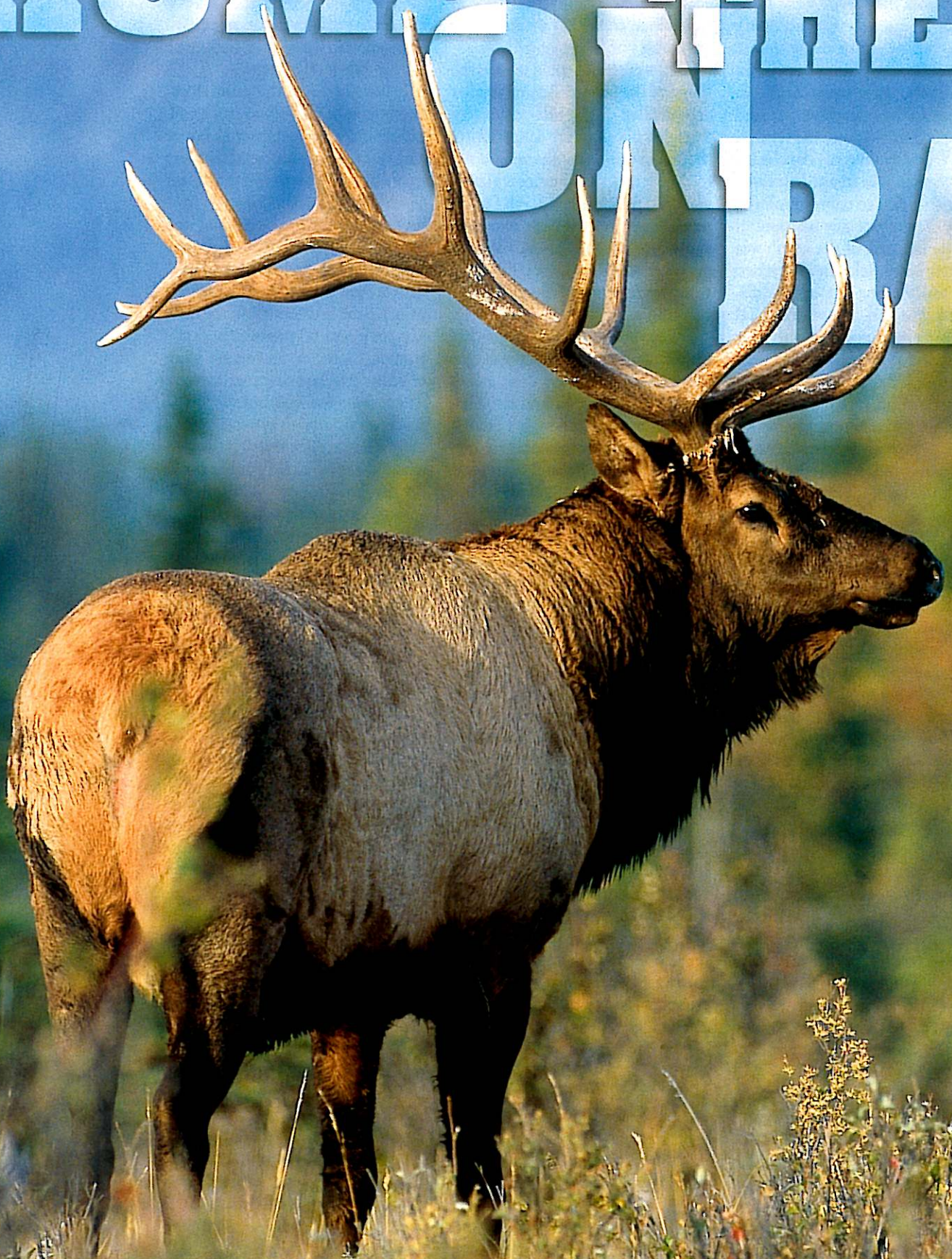


HOME ON THE RANGE



INCH

Elk Find Refuge on Private Lands

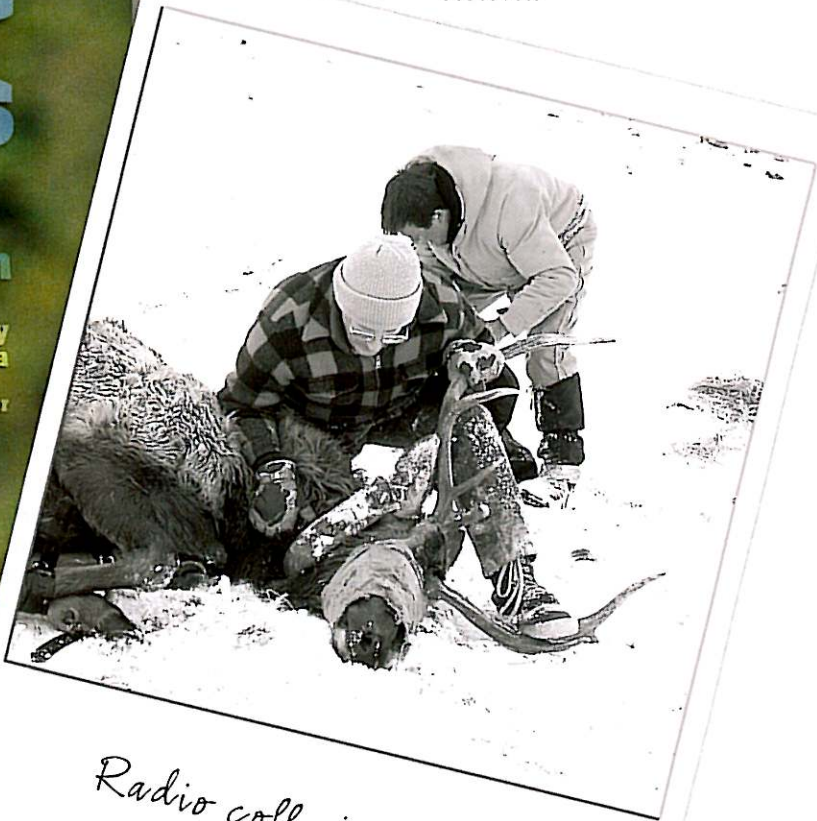
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Photos by Author

Over 75 elk, mostly cows and calves, were bedded in the field. It was not an unusual sight for western Montana but considering the season and proximity to a main highway, these elk could not help but draw attention to themselves. These elk were bedded in an alfalfa field, in clear view of Montana Highway 200, right in the middle of hunting season. Two hunters pulled off the side of the road, and drooled over the "No Trespassing" sign on the fence in front of them. Having just spent 8 hours hiking into prime, roadless elk habitat nearby... and not even seeing a fresh elk track... the sight of these elk lounging in the alfalfa field added insult to their aching feet. Aren't elk creatures of the wilderness? Don't they prefer areas far from open roads with thick forest cover during the hunting season? Why do we bother closing roads and providing security cover if elk really don't need it?

All of these are valid questions that seem contrary to traditional elk management, at least as it has developed through research



*Radio collaring bull elk
November 96*

and innovative land management over the last 20 years. But, elk aren't dumb. They are capable of solving their security problems in more than one way, or so it seems to us after completing 11 years of elk research in the Chamberlain Creek area of the Garnet Mountains in western Montana. Elk in this area were first studied between 1977 and 1983 as part of the Montana Cooperative Elk Logging Studies. Those studies were implemented to evaluate the immediate effects of road building and timber harvest on elk, and develop management recommendations to help mitigate the effects. Ten years after those studies were completed, from 1993-1996, I was hired by the University of Montana to help investigate how elk in the same area have adapted to continuing change in their environment. This was a cooperative study supported by the Boone and Crockett Club, in addition to the Bureau of Land Management, Rocky Mountain Elk Foundation, U.S. Forest Service research branch, University of Montana, Plum Creek Timberlands, and Montana Department of Fish, Wildlife, and Parks. Although we were looking for information that would help forest managers plan for quality elk habitat, we discovered another pattern unfolding.

THE ELK RUN THROUGH IT

This research took place in the Garnet Mountains, about 30 miles east of Missoula, Montana. The most notable feature in the area is the Blackfoot River, recently popularized by the movie, "A River Runs Through It". Well, elk run through it too, and although the area may be popular with fly fisherman in the summer, it is equally popular with elk hunters in the fall. At the center of the study area, and making up most of it, lies the Blackfoot Special Management Area. This roughly 100 square mile area is the result

of cooperative management between many different land owners. The Bureau of Land Management (BLM, federal), Plum Creek Timberlands (PCT, private timber company), Lubrecht Experimental Forest (University of Montana), Montana Department of Natural Resources (state), and numerous private landowners in conjunction with Montana Department of Fish, Wildlife, and Parks have agreed to



*Releasing bull elk
December 93*



*Airplane used for Radiotelemetry
Chamber Creek Elk Study
September 94*



**Aren't elk creatures
of the wilderness?**

**Don't they prefer areas
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with thick forest cover
during the hunting season?**

...all radio-collared Lindbergh elk spent at least part of the rut and hunting season on private land refuge...

allow public hunting, in a walk-in setting. This is quite admirable, considering that the private land owners do not have to allow public hunting at all. The resulting framework, in place since 1974, has been immensely successful and boasts a healthy elk population as a result.

The productive benches bordering the Blackfoot River and the adjacent forested foothills are mostly owned by private ranches. Sage brush prairies, irrigated hay fields, and ponderosa pine forest cover this area. The agricultural use of the area is predominantly cattle grazing and associated forage production such as irrigating alfalfa to cut and bale as hay. Housing for the ranching families is widely dispersed. A key to making this cooperative walk-in area work was to provide the ranchers with a "safety zone" around home sites and sensitive grazing or agricultural areas. Most of their properties, however, were opened to public hunting.

KEEPING TRACK OF ELK

For both the early and the more recent studies elk were captured and radio collared. Elk were generally captured in winter using either corral traps capable of catching several elk at once, Clover traps capable of catching one elk at a time, or a helicopter and net gun. During the first study 66 female elk were radio collared and located over 2,837 times while during the second study, 39 female elk were radio-collared and located 2,021 times. That's a lot of elk locations, and the type of sample necessary to objectively evaluate what elk are really doing.

It became clear that the study area was inhabited by



Clearcut in upper Chamber
Creek with ranch land visible
in upper right
November 95

two elk herds, that we called the Lindbergh and Chamberlain herds. These herds had separate wintering areas at low elevations near the Blackfoot River. In the spring through fall, they generally moved to higher, forested grounds. These two herds, although adjacent to each other, seldom mixed and rarely exchanged members. Also, over the course of almost 20 years, their herd range boundaries changed very little.

Flying in a small airplane and locating the elk has always been one of the high points of the job... except for the occasional "bad air" day when I lost my breakfast. Luckily, those days have been few and far between. The chances to view the elk in their habitat and seeing who went where, were extremely rewarding. Elk become conditioned to the fixed-wing airplane, and at most, briefly stare up as you circle to acquire their location. One summer morning I recall seeing three bull elk approach a bull moose in a high mountain meadow. Necks outstretched as they approached each other, the animals finally stood only a few feet apart as they examined each other in mutual curiosity. Not all elk locations during the two studies, however, came from the high forested mountains of the study area. We started finding some of them on the private ranches not far from the Blackfoot River, nearer to beef cows than Bullwinkles. And not just in winter. In fact towards the end of the second study, often an entire herd including all of our radio-collared animals for that herd, would be standing in one place.

THE ELK MOVE IN

As we were collecting our elk locations for these studies we noticed this increasing use of private property by elk. Specifically, they were using the relatively small "safety zones" that were closed to hunting within these private ranches. As we began exploring our data, the increased use of private land by elk became problematic. Since we had set out to determine how elk responded to changes in forested habitat, and

develop recommendations for forest land managers, we opted to eliminate these private land elk locations from our analyses. With these troublesome locations removed from our data sets, our findings reflected those of other elk studies: basically, that elk despised roads, especially ones open to vehicle traffic, and other, more complex habitat relationships. BUT, it was pretty hard to ignore what more than half of our radio-collared elk were doing! With that, we set out to investigate the trend of this private land use.

No use of private lands by radio-collared elk was recorded during the beginning of the first study (1977-1979). However, by the end of that study, up to 80% of radio-collared elk were spending 40% of the rut and hunting season on the private land refuge. Within three years, elk use changed from never having been observed on these private lands, to the levels just described. During the second study period this pattern continued, and in fact, grew to include more seasons and a greater proportion of each herd.

At the end of the second study in 1996 all radio-collared Lindbergh elk spent at least part of the rut and hunting season on private land refuge accounting for 50% of hunting season locations and over 80% of rut locations for that herd. Use of this refuge area has expanded to include summer and calving seasons, which was never documented during the first study. Similarly, approximately half of all radio-collared Chamberlain elk spent at least part of the rut and hunting season on another private land refuge accounting for 30% of locations for those seasons. Summer use of private lands by radio-collared elk of the Chamberlain herd was first observed at the end of the second study in 1996.

So what brought elk to these areas with little forest cover and very near open roads? Initially, at least for the Lindbergh herd, it was food that brought them there. Elk have used the safety zone portion of the ranch as winter range for many years, in fact, it is where winter elk trapping took place for

both studies. This ranch was put up for sale in the early 1980s, and an alfalfa field, which was normally fertilized and grazed by cattle, went un-grazed after the first cutting. This was analogous to dropping a scrap from your dinner plate with a dog in the room. It did not take long before elk discovered this food source and utilized it through the rut and hunting season of that year.

For the Chamberlain herd the result has been the same, but the situation seems to have developed for a different reason. The ranch upon which the Chamberlain herd has taken up part-time residence did not have an irrigated forage resource. Use of this property seems to have developed mostly as a response to the lack of hunting pressure. Elk were most often located on a small hill near Highway 200, with bunch grasses on one side and forest on the other. This owner was a bowhunter and hunted white-tailed deer on his property, but allowed the elk to remain on the property undisturbed, fostering the refuge effect. Elk at this site would often bask in the sun all day long during the hunting season, while elk hunters on nearby public lands could stare down at them from a nearby mountaintop.

Why the continued or even increased use of the area? Once discovered, several factors probably led to the continued use of private property. Hunter numbers in the Blackfoot River Drainage, as counted at the Bonner Check Station, have increased from 250 hunters/day in 1980 to over 800 hunters/day in 1993 and 1994. That's greater than a threefold increase. With hunter increases like these, elk in even the most secure habitat within their home ranges will encounter hunters. Increases in roads and decreases in dense forest cover, on the portion of their home ranges open to public hunting, has probably made it harder for elk to win the hide and seek "game" with hunters. Although some doe hunting takes place on the private land refuges, disturbance from hunters occurs much less frequently on

the refuges than on adjacent public lands.

WEARING OUT THEIR WELCOME

The forage value of the agricultural lands have made these lands attractive to elk at other times of the year as well. Irrigated alfalfa fields provide nutritious forage throughout the spring, summer and fall. Even in the heat of the summer, this is a great temptation for elk, especially if it is combined with a relative lack of disturbance and shade during the heat of the day. Having the Blackfoot River nearby makes all this even more appealing to elk.

The implications of this development depend on your point of view. If you are a landowner trying to produce forage for cattle, the elk could compete directly, and wear out their welcome in a hurry. If you are a hunter, it may mean decreased opportunity to find elk on public lands. If you are a land or wildlife manager, it could mean headaches!

Landowners throughout the west are experiencing problems with elk. Getting into haystacks, grazing forage intended for cattle, or breaking fences are some of the ways that elk can become pests. Most ranchers are relatively tolerant of elk but there are limits. Recent years, with elk populations at very high levels, have pushed these limits considerably. And although one rancher may enjoy the company of elk and harbor them by day, their neighbors may not feel the same way, and be powerless to stop the invasion of elk by night.

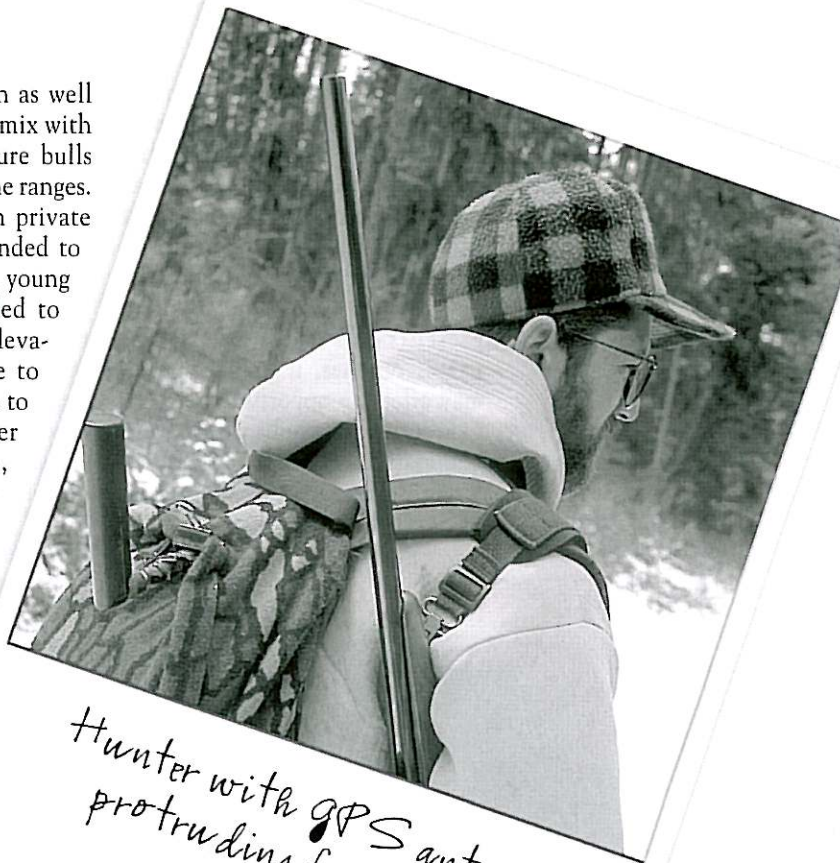
Naturally, as elk spend more of their time on private property, there are implications for hunters as well. At times during the elk hunting season, all of the Lindbergh elk herd and up to half of the Chamberlain elk herd were unavailable to hunters on public land. Hence, the long faces on the hunters by the "No Trespassing" sign. But, this is not to say that there were zero elk available to the hunters on public land. When we refer to an elk herd, we are referring to cows and calves. Bulls are

present in the population as well and although young bulls mix with the cow/calf herds, mature bulls tend to have separate home ranges. The gatherings of elk on private property in this study tended to include cows, calves and young bulls. Older bulls tended to find security at higher elevations and were available to hunters who knew where to look. But, to have older bulls in a population, young ones need to survive.

Neither of the two ranches used by elk in this study were large enough to hold the animals all of the time, and were not guarantees of safety. Even light hunting pressure, such as by ranch owners or employees, may be enough to impact the male segment of the population. Elk become habituated to routine ranch traffic and spend much of their time away from cover, further increasing their vulnerability. When elk did leave these "refuges," they had to pass through easily accessed public lands where elk hunting season security was low and hunter densities were high. For both of these reasons, mortality was high for the young bulls that traveled with the cow/calf herds using these private lands. As just mentioned, survival of young bulls is necessary to maintain mature bulls in a population. Just because elk used these private lands as refuges did not mean it was good for them. Herein lies the headaches for managers.

FINDING SOLUTIONS, TOGETHER

Managers face credibility challenges from those who have heard for years the importance of security cover and closed roads to elk habitat management, yet see elk lounging in the open near a highway during hunting season. Managers must also deal with complaints from landowners who are having to bear an increasing share



*Hunter with GPS antenna protruding from pack
March 94*

of the burden for these elk populations and at the same time, listen to the woes of unhappy sportsmen who can no longer find elk in their favorite hunting places. But these challenges have workable solutions and creative managers have options.

Research has shown, time and again, that elk avoid roads and seek hiding cover during the hunting season. Our research results, barring those "problematic" elk locations, showed the same pattern. But perhaps our research revealed a bigger lesson, namely that elk can be innovative at solving their problems. Therefore, maybe we need to be innovative at solving ours. Each situation will be different and require different solutions. The ranches we witnessed in our research were relatively small, from an elk's point of view, and staying there may have done the elk population more harm than good—an attractive nuisance. As mentioned, mortality rates of young bulls that used private land as refuge were high, when hunting by ranch hands was combined with

the heavy hunting pressure on surrounding public lands. It is possible that the male segment of the population would have fared better if they remained in portions of their home ranges further from roads and containing better hiding cover. Not all private property presents this same risk to elk. Larger ranches, if well managed, may offer the opportunity to provide security for bulls within their boundaries. A nearby and much larger ranch, occasionally visited by some of our radio-

and even supervised hunts are possible near residences or sensitive agricultural or grazing areas. Through consistent hunting pressure, elk use of these private lands can be discouraged. Although cause and effect were not conclusive, it appeared during our study that light hunting pressure on female elk (as few as 5 hunters/week) helped reduce elk use of one ranch. Such pressure needs to be consistent, so that elk associate private lands with risk. "Firing line" situations, that can serve as examples of bad sportsmanship and expose elk to extreme vulnerability, can be avoided if hunting pressure on private property is consistent and elk begin to avoid these areas. Ideally, elk on private property would behave with the same amount of wariness of humans that they do within the rest of their home ranges.

The best alternative is to not let this situation develop in the first place. Elk have good memories and pass on traditional use patterns to their offspring. Old patterns could be difficult to reestablish, especially if many years pass. Responding quickly to elk use of private lands offers the most flexibility, and hopefully can prevent elk use from spreading to seasons other than fall.

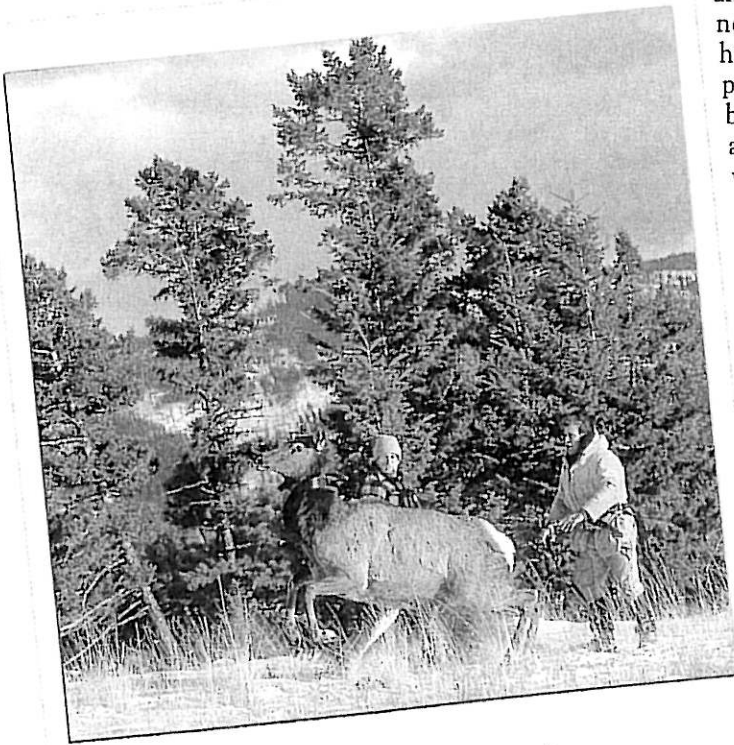
Elk that did not use private lands as refuge showed a distinct aversion to roads. Open roads were avoided at all seasons, but increases in closed road densities resulted in decreased use of an area as well. During the hunting season, elk showed a preference for closed canopy coniferous forests and even though elk spent little time in open canopy coniferous forest during hunting season, most of the hunter kills occurred here. Elk appear to be very vulnerable to hunters when they pass through these more open forest types, such as occurred at lower elevations of the study area nearest the private lands. Without quality security

habitat, elk may try to reduce encounters with hunters in other ways—for example, by using private lands as refuge.

Solutions to reverse this trend include making certain that quality security habitat is available within the home ranges of elk herd units, reducing hunter densities such as through road closure systems, and permitting limited hunting within these refuge areas to discourage elk use. Making all this work, however, requires a cooperative approach between land management agencies, wildlife managers, private landowners, and sportsmen.

Meanwhile, the old adage that research raises more questions than it answers seems to apply in this case. Elk are a high profile species, attracting most of the attention from hunters, managers, and researchers in western Montana. But moose also occur within the Garnet Mountains, and during our investigations of elk, we could not help but wonder how moose fit into the overall picture.

A study was initiated in January 1998 by the Boone and Crockett Professor, Jack Ward Thomas, working with Les Marcum and me to extend our investigations to the moose of the Chamberlain Creek area. If habitat guidelines are developed and implemented with elk in mind, what might be the effects on the moose population that also inhabits the area? What are the relationships between the two species, and what are the implications for habitat management? Such questions interest a variety of agencies and organizations. Cooperators in the study include the Boone & Crockett Club; Bureau of Land Management; U.S.D.A. Forest Service, Rocky Mountain Research Station; Rocky Mountain Elk Foundation; Montana Department of Fish, Wildlife, and Parks; Safari Club International; and, Plum Creek Timber Company. Such cooperation reflects a trend in which, increasingly, the responsibility for informed and effective management must be shared by land management agencies, wildlife managers, private landowners, and sportsmen. ▲▲▲



Releasing cow elk
April 95

collared animals, seemed to provide that opportunity and boasted excellent bull to cow ratios, but no public hunting opportunities.

Potentially, the landowner and hunter problems can be worked out together. In Montana, for instance, the Block Management Program encourages landowners to allow public hunting in return for payments that are derived from non-resident hunting license fees. Specially controlled