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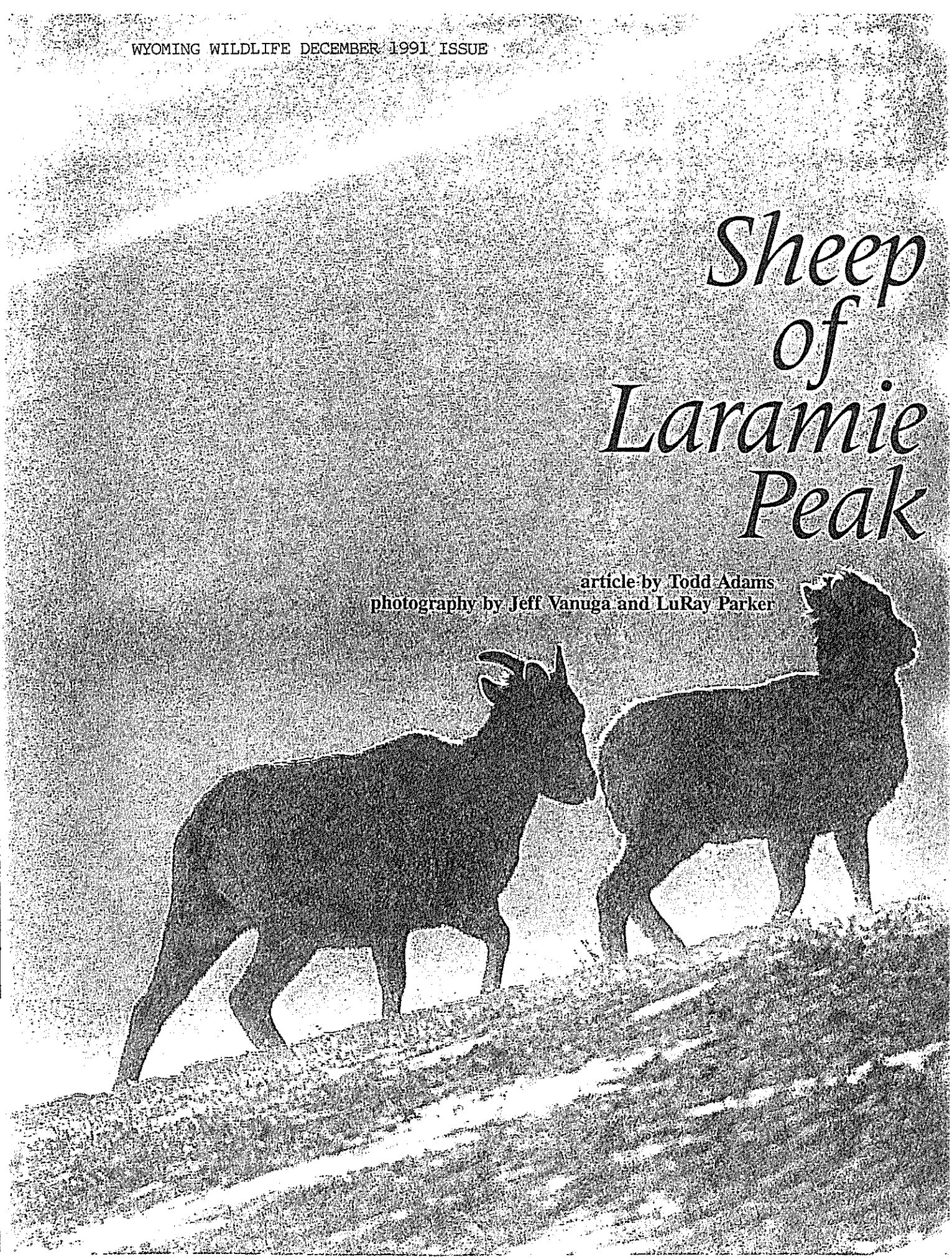
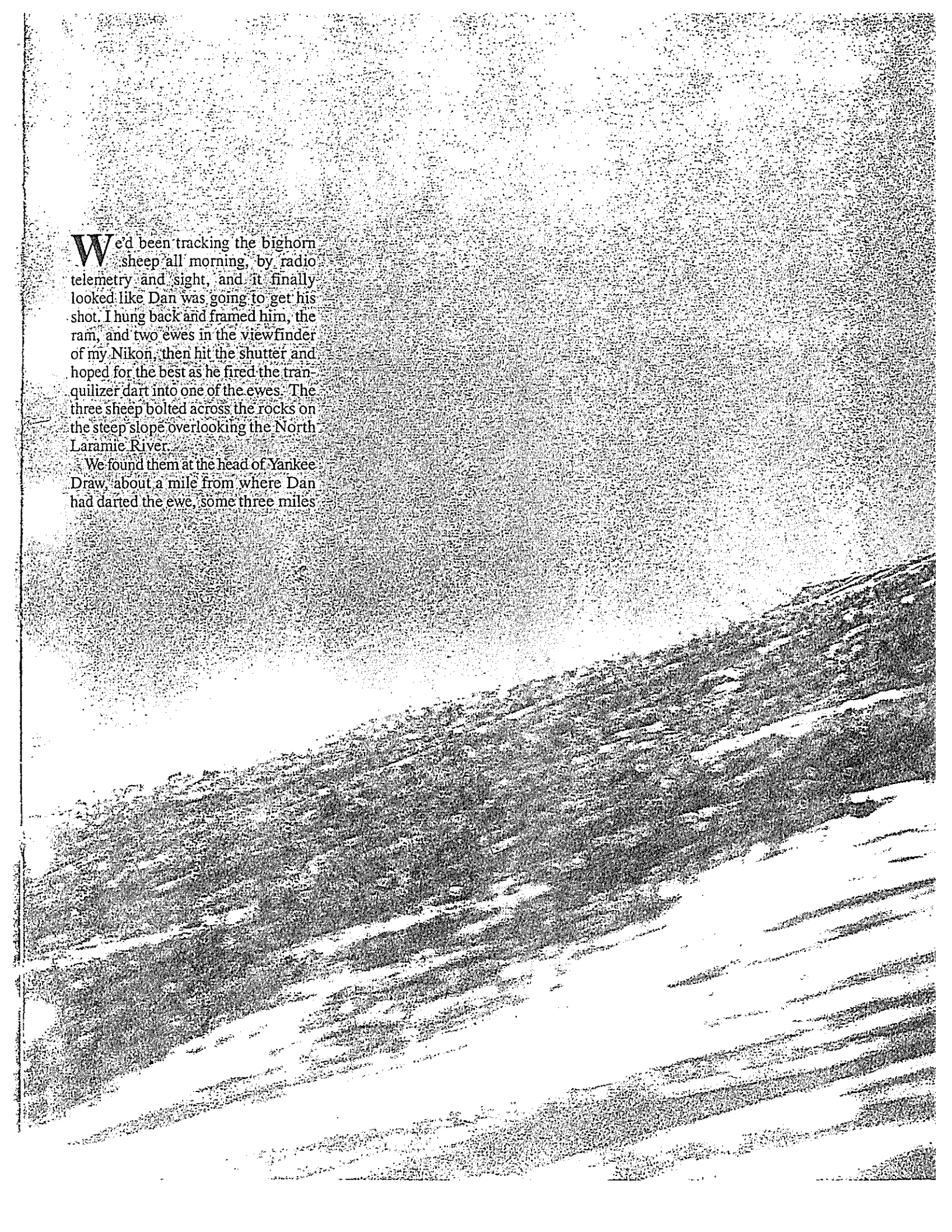
Sheep of Laramie Peak

article by Todd Adams
photography by Jeff Vanuga and LuRay Parker





We'd been tracking the bighorn sheep all morning, by radio telemetry and sight, and it finally looked like Dan was going to get his shot. I hung back and framed him, the ram, and two ewes in the viewfinder of my Nikon, then hit the shutter and hoped for the best as he fired the tranquilizer dart into one of the ewes. The three sheep bolted across the rocks on the steep slope overlooking the North Laramie River.

We found them at the head of Yankee Draw, about a mile from where Dan had darted the ewe, some three miles

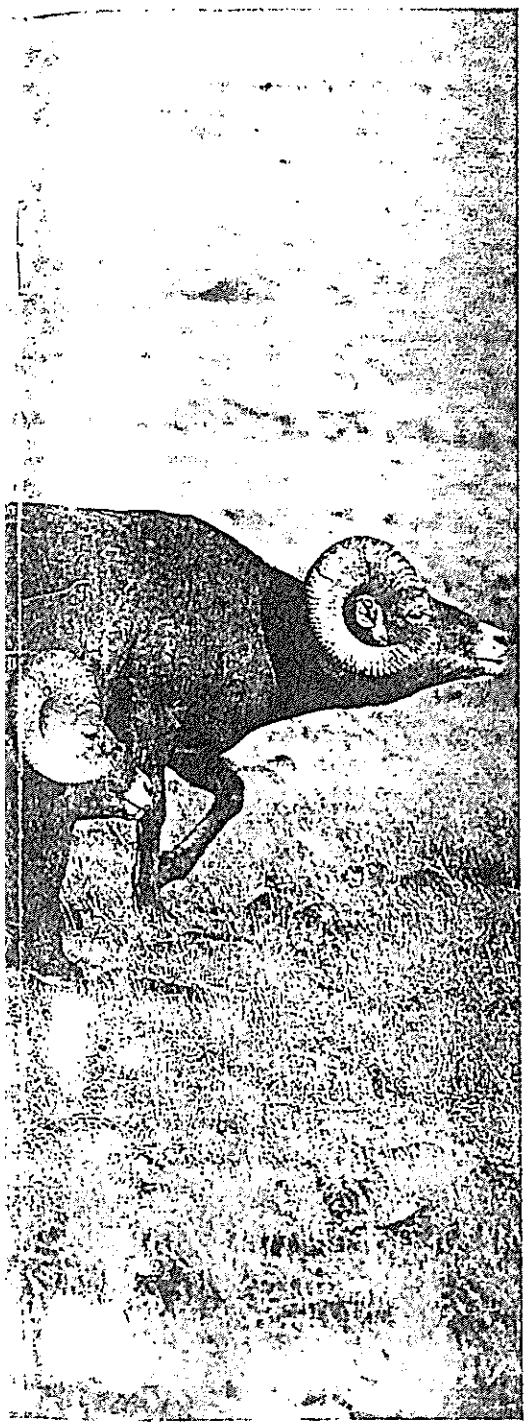
The dominance of a small number of rams in a bighorn sheep population can exaggerate genetic problems in isolated sheep populations. The vigor of adults in the population may eventually be affected as a result of inbreeding (Rams by LuRay Parker; ewe and lamb on previous page by Jeff Vanuga).

downstream from the abandoned town of Garret, Wyoming. The two ewes and the ram were beautiful in their light winter coats but tough to see against the snow.

The ram and the other ewe took off at our approach, leaving their fallen companion. It wasn't long before we'd collected blood samples, attached a radio collar, and recorded figures on age, weight, and condition.

Dan Hengel has been studying six herds of sheep in the Laramie Peak area since July 3, 1989, for the University of Wyoming's Cooperative Fishery and Wildlife Research Unit. Dan said our day of darting over the weekend of Feb. 24-25 was a "typical" one.

"It takes you forever to get a shot, seems like," he said.



We hadn't seen a single sheep the day before, in an even more rugged area inhabited by another herd.

Half of the time, Dan never gets a shot. Seven of the fourteen radio collars placed on the sheep to track their movements were bolted on after the sheep had been captured with a net gun fired out of a helicopter in August of 1989.

"Chasing sheep (on the ground) is pretty tough," Dan said. "This is neat country geographically. Topographically speaking, it'll kill you."

Bighorn sheep were native to the Laramie Peak area before they were extirpated in the nineteenth century, known as the Age of Exploitation among wildlife biologists and symbolized by the wholesale slaughter of American bison by hired hunters like Buffalo Bill Cody.

The Wyoming Game and Fish Department has transplanted 168 bighorns from the 1,000-member Whiskey Mountain herd to the Laramie Peak area since 1964. The last group of twenty was transplanted in 1989 and collectively make up the Marshal herd. Five other herds have been established in the Duck Creek, Upper North Laramie, Lower North Laramie, Black Mountain, and LaBonte Canyon areas of Laramie Peak.

Bighorn sheep transplants have been going on in Wyoming since 1934 when twenty sheep were moved from Flat Creek Canyon in Teton County to the Big Horn Mountains, said John Emmerich, a Wyoming Game and Fish Department biologist in Lander. The first bighorns were transplanted from Whiskey Mountain in 1949, Emmerich said.

Dan Hengel's study runs from 1989 to 1992. Thirty radio collars will allow him to collect data on seasonal movements of the bighorns and to follow them around and collect population data on lambing rates, survival rates, sex ratios, numbers of animals lost to predation, accidents, and disease. The study's other objectives include collecting data on seasonal diet and habitat use.

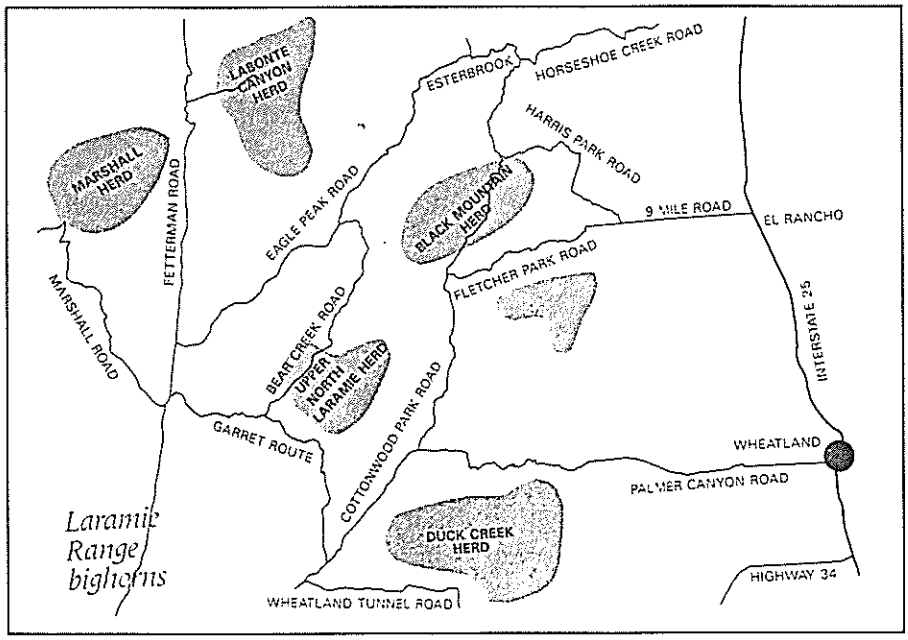
Ultimately, the study will try to determine how successful the transplanting of sheep to the Laramie Peak area has been. Preliminary population data indicate that the herd recently has been declining in numbers, Hengel said.

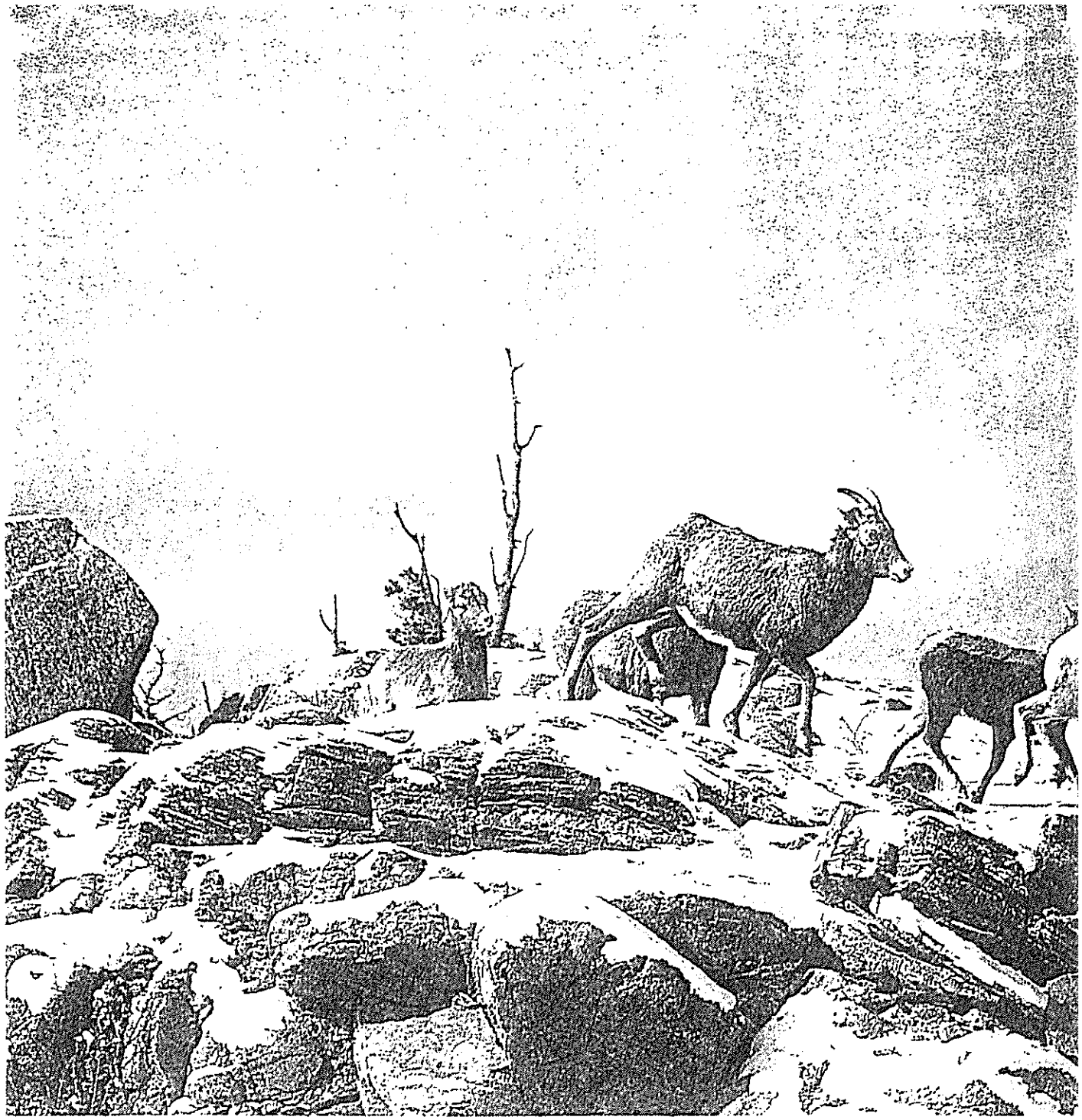
A population model used by biologists Joe Bohne and Rich Guenzel estimates the 168 transplanted animals should have grown to about 225 individuals. Hengel's low population estimate is 181, his high, 235.

Dan Hengel's toughest work is tracking the Duck Creek herd. So far, only two radio collars have been attached to ewes there, via the helicopter net gun technique.

"Finding them's one thing—getting up on 'em so you can get a shot's another," he said.

The ratio of lambs to ewes in the Duck Creek area has declined from





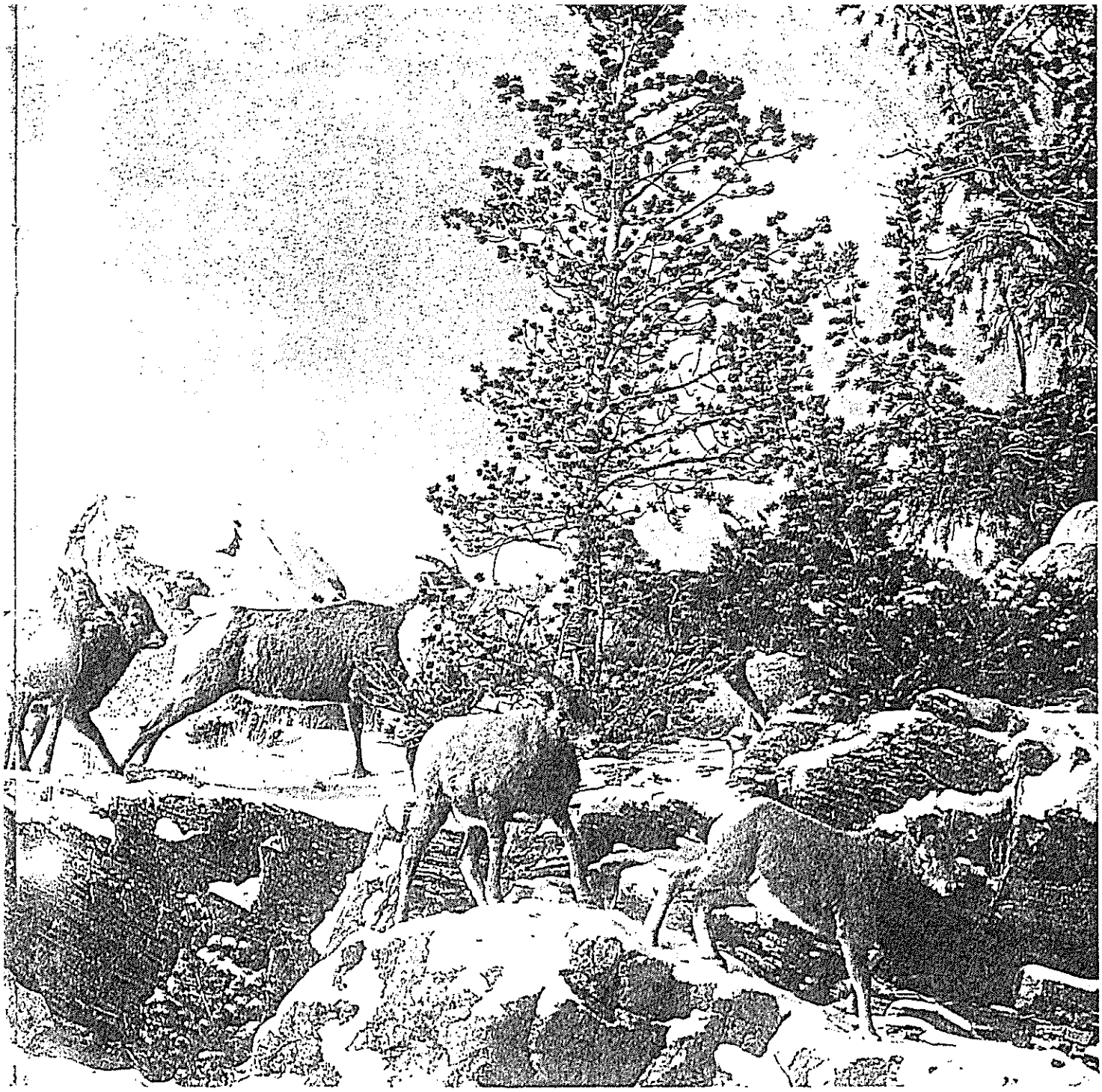
five lambs per ten ewes in June to about two lambs to ten ewes now, Dan said. In the herd overall, it would be good to see one lamb per ewe and a survival rate of fifty to sixty percent instead of the fifteen to twenty-five percent Dan now estimates.

According to reports given at symposia of the Northern Wild Sheep Council, transplanting bighorn sheep has become a common method to try to increase bighorn sheep herds in the Rocky Mountain region. Populations of Rocky Mountain bighorn sheep have steadily decreased since the turn of the century due to the social and agricultural activities of man, deterioration of habitat and range, and various diseases, according to researcher Terry Spraker.

Not much information is available on what leads to success or failure in bighorn sheep transplants.

But in an earlier study of several bighorn herds near Encampment, Wyoming, John Cook concluded that the main limiting factor on bighorn populations is the availability of quality forage, particularly during the summer lambing season. Juveniles were most vulnerable to a lack of quality food.

Infrequent dispersal and specific habitat requirements also limit sheep populations. Researchers agree fire suppression during the last century has probably worsened forage and habitat



The relationship between births and deaths determines the rate of growth or decline in any population. The health and productivity of the female is generally the key to this relationship. Laramie Peak's bighorn ewes are having trouble bearing enough lambs to stabilize the herd. The question is: Why?

conditions for bighorns.

The timing of lamb births and the green-up of annual grasses is critical and must occur simultaneously to maximize lamb survival. Cook hypothesized that genetic differences may be among the reasons bighorns have disappeared from many low-elevation areas where they thrived during the nineteenth century. The earlier bighorns, which had no access to alpine ranges, probably adapted to the lower altitudes by timing their birth pulses with the annual green-up of grasses, making lots of high-quality forage available for lactating ewes when they needed it most to produce milk for hungry lambs. But transplanted bighorns from alpine ranges such as Whiskey Mountain may be less adapted to the dry, low-elevation ranges where they are released than were nineteenth-century sheep.

Although forage may be abundant,

the specific plants needed to meet bighorn nutrient requirements may not. Cook found that only five to fifteen percent of plants met the needs of adult ewes with lambs.

Precipitation is critical to plant growth and sheep survival; Cook predicts that a minimum of sixteen inches per year is needed, and that levels less than ten inches per year will prohibit the successful establishment of a transplanted herd.

Hengel, Cook, and other researchers agree on many of the criteria a potential transplant site should have in order to establish successful bighorn herds. Two primary limiting factors affecting transplant success are escape terrain and high-quality summer forage.

Transplant sites should have average slopes of thirty-five to forty percent or more; some studies show bighorns like slopes two to three times steeper. Sheep like rock outcrops ten to 100 feet high and some larger rock walls of 160 feet or more, open ridges which blow free of snow in the winter, and open travel corridors from one seasonal habitat type to another. Sheep prefer particularly rugged escape terrain for lambing and raising lambs, but water also must be available through late summer.

Why were the sheep extirpated from their historic range? Have these problems been corrected? Can a particular reintroduction site support a minimum of fifty transplanted sheep to establish a viable population? These are critical questions to answer, if possible, before reintroducing sheep, Hengel said.

Cook said forested areas should be avoided because sheep prefer open habitats with good visibility. Bighorns tend to cluster around isolated "islands" of suitable habitat within larger areas of unsuitable habitat. But concentrating sheep facilitates the spread of disease and increases competition for high-quality forage. Hengel added that competition with other wild ungulates and domestic livestock should be avoided, where possible.

Cook listed several management recommendations for Rocky Mountain bighorn sheep. Controlled burns increase forage quality and should be done on lambing-nursery areas, preferably within 200 to 300 yards of rugged escape terrain to benefit summering sheep. The idea is to decrease sagebrush, increase forbs, and maintain deciduous browse.

Deforestation may actually help bighorns, but clearcuts should be near escape terrain.

Techniques of transplanting should be carefully planned to place sheep in areas near the most suitable habitat and to spread sheep throughout a potential range, Cook wrote. Sheep transplanted to southcentral Wyoming sites have been reluctant to disperse very far from release sites, and some have failed to occupy better ranges than those they colonized. Therefore, Cook said multiple release sites should be considered. This would encourage bighorn migrations between alpine summer ranges and low-elevation winter ranges. Both size and distribution of bighorn herds can be increased with multiple release sites.

Drug treatment of diseases such as lungworm and a summer feeding program to supplement diets when ewes are lactating should be considered, Cook said.

The jury is still out on the success of the Laramie Peak transplant, until sometime after Dan Hengel's field work is completed in 1992 and he's analyzed the population data.

But whatever the results, it's certain that simply transplanting bighorn sheep to a site, even one they historically occupied, isn't enough to ensure their success. A bighorn reintroduction requires careful management. □ □ □

Todd Adams is a student at the University of Wyoming.

Quality forage is critically important to bighorn sheep. Primarily grazers, the sheep require plenty of grass near steep escape cover in order to prosper. Snow-free slopes or windswept ridges are critical to overwinter survival. (Ram and ewe by LaRay Parker).