CHAPTER THREE

Historic herds
Reintroducing native large animals into today’s limited space.

At one time, bison, antelope, and bighorn sheep were abundant in the Intermountain West. By 1900, however, most of the herds had disappeared from overhunting. When wildlife biologists attempt to reintroduce these native grazing animals into our transformed modern environment, they aren’t sure how many will live—or for how long.

BISON
The stout, white buffalo bones littering a ravine bottom near Woodruff, Utah, look five, rather than fifteen hundred, years old. But on closer inspection you can see that many of the hefty vertebrae and femurs have fine grooves cut across tendon attachment points—a sure sign these bison were butchered with flint blades.

Hidden among the convoluted grassy buttes near the Wyoming border, Woodruff is Utah’s only known buffalo jump. Here, around A.D. 500, a gutsy band of Fremont Indians stampeded 350 bison off a 30-foot cliff, launching bulls, cows, and calves headfirst into a steep draw. The skeletal remains of this herd of grass-powered locomotives—identical to modern bison—are now eroding from the remote hillside in mint condition.

Bison were once common in this part of Utah, arriving long before the first humans. Ancestors of modern bison lived here more than a million
years ago, during a time when mammoths, giant bears, and saber-toothed cats prowled what is now the Beehive State.

A living relic of the Ice Age, bison are the only surviving large mammals from that era. Though smaller than their Pleistocene ancestors, a modern bison bull may grow to seven feet tall and twelve feet long and weigh one ton. These North American bison, usually mistakenly called buffalo, are a different species than the water buffalo and Cape buffalo of Asia and Africa.

The bison’s silhouette has not changed from that of its Ice Age forebears. A massive, shaggy-maned head and heavy forequarters are surmounted by a hump, which then tapers down to narrow hips. The bushy, dark hair in front and the contrasting short, light brown hair on its rear half exaggerate the narrowing effect of its profile. Bison have short, curved horns above brown-button eyes and they hold their heads low, at grass-top height.

In the same family as domestic cattle, bison are grass eaters, and their reddish-brown calves are nearly indistinguishable from the calves of domestic cows. Bison cows are smaller than bison bulls, averaging about seven feet long and one thousand pounds. A bison cow produces her first calf at the age of three or four after a nine-and-a-half month pregnancy.

Because bison are large enough to stand in groups and defend themselves against packs of wolves, yet swift enough to outrun human hunters on foot, they are superbly adapted to life on open grasslands. For protection, they graze in herds composed of cows, calves, and young bulls. Mature bulls keep to the outside of the herd—or go off to graze with other bulls—except during the summer breeding season. The summer rut is Bigtime Wrestle-mania, as bulls impress cows by showing off their long shaggy hair and compete with other suitors by snorting, pawing, rolling in the dust, charging, and colliding head on.

In Utah and in most of North America, human history is tightly linked with bison. Human hunters first arrived on this continent over 40,000 years ago by following herds of bison.

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**BISON IN UTAH**

**Status:** Once extinct in Utah, the state now has two free-roaming herds.

**Estimated Number:** Antelope Island herd numbers between 550 and 700, the Henry Mountain herd numbers between 300 and 400.

**Tips for Viewing:** In open country, look for the dark silhouette of a huge, shaggy head and shoulders tapering to narrow hips. Keep a safe distance away.
across a bridge of land that once connected Siberia with Alaska. The early, giant-sized species of bison died out in North America at the end of the Ice Age. This left the grassy range open for a smaller species of bison that spread northward—from what is now Mexico—into the Great Plains east of the Rockies.

These modern bison eventually migrated into the Intermountain West from passes in the upper Missouri River drainage, traveling into southeastern Idaho. There, halted by desert to the west, they spread south and filled the valley of the Bear River and the Salt Lake Valley. At the time, they were the most widely distributed mammals on earth, aside from humans.

Archeological discoveries show that Utah’s prehistoric inhabitants used bison parts for everything from clothing and armament to tools. For example, a stash of over two hundred pairs of bison- and deer-hide moccasins, 1,000 years old, was found near Promontory Point, west of Salt Lake City. Three shields made of bison leather—the oldest ever discovered in North America—were found near what is now Capitol Reef National Park. A hollowed-out bison horn, still full of rust-red paint, was unearthed in Hogup Cave on the Great Salt Lake. Utah’s prehistoric artists decorated cliff walls with bison images in both Nine Mile Canyon, near Price, and in Horseshoe Canyon, further south.

The bison’s range in the state may have been limited mostly to the northern half. “In prehistoric sites in northern Utah, like the Bear River marshes, we find a substantial number of bison bones,” observes Duncan Metcalfe, curator of archaeology for the Utah Natural History Museum at the University of Utah. “Around Utah Lake, we do find some bison bones, but in southern Utah, we find only an occasional bison bone.”

Mountain man Jim Bridger reported seeing herds of bison when he first explored the Salt Lake Valley in 1824. But by the time Mormon pioneers arrived here, the bison were gone.

Elsewhere, in the Great Plains, the U.S. Army began exterminating bison herds as a strategy to cut off the economic lifeline of the Indian nations blocking westward expansion of European-Americans. By the
beginning of the twentieth century, bison were nearly extinct in North America. But small groups survived, and today, Utah has herds that have been transplanted on both Antelope Island and in southern Utah’s Henry Mountains.

“Summer is the best time to catch a glimpse of the Henry Mountain bison,” says Rod Hodson, wildlife biologist for Utah’s Division of Wildlife Resources, who works with the herd. But you won’t get too close. After a million years of coevolution, when an open-country bison catches a whiff of a human, it usually turns and runs, and it may not stop for miles. “Bison are built for walking and you’ll wear out a good pair of hiking boots if you try to follow them,” Hodson notes. And bison can go almost anywhere. “They use all of the habitat in the Henrys,” Hodson says. “They range from the canyon bottoms all the way up the extremely steep mountain slopes that domestic cattle are too lazy to get to.”

Some ranchers are switching from raising domestic cattle to raising bison for this and other reasons. Unlike cattle, bison can take care of themselves in extreme weather, such as deep snow and subzero temperatures. They are not prone to overgraze pasture, and bison meat packs a nutritional wallop. It’s three times as nutritious as beef and leaner than skinless chicken. The drawbacks to raising them, though, will make even a seasoned cowboy pause. Fences and handling facilities for bison need to be stout and high. A bison bull can top a standing six-foot fence without a running start. Also, if a rancher needs to capture an individual bison, he will find they’re wild and fast. Imagine trying to tackle an angry linebacker who weighs 2,000 pounds and has horns.

It makes you appreciate the task a small band of Fremont Indians accomplished 1,500 years ago at the Woodruff buffalo jump. The ledge over which the Woodruff bison were spooked is not broad. In order to get them to go over the cliff, several people had to risk being trampled while keeping the hysterical, charging beasts within a 100-foot wide path over the last 100 yards. Otherwise, that bison herd would have avoided the precipice, thundered down an adjacent hillside, and never looked back.

**SONORAN PRONGHORN**
It must be thirsty work, being the fastest land animal on Earth in any race longer than a sprint. But so little is known of the fleet pronghorn antelope that
live in the desert no-man’s-land where southwestern Arizona meets Mexico that, until recently, scientists were not sure if Sonoran pronghorn drink standing water—ever.

Sonoran pronghorn are a subgroup of the unique and adaptable North American pronghorn. And the possibility that they could metabolize all of the water they need from the plants they munch—a well-documented talent of such desert-adapted neighbors as the kangaroo rat—was not out of the question.

Pronghorn are singular animals. Though we call them antelope, they are as closely related to goats; antelope occur naturally only in Africa and Asia. Pronghorns are the sole members of their own biological classification—neither goat nor antelope—and are native only to North America.

Shaped like a torpedo with long skinny legs attached, a pronghorn has a supercharged cardiovascular system—oversized windpipe, lungs, and heart—allowing it to consume oxygen three times better than animals of comparable size. Pronghorn can explode into a mile-a-minute run for short distances, then cruise for longer periods at 40 miles per hour. They take fluid, 20-foot leaps over rugged terrain.

Compared to elk or to deer, pronghorn are not large. A mature pronghorn buck stands slightly over three-and-a-half feet high at the shoulder and weighs about 100 pounds. But while elk are at home in the forest, and deer adapt to farmland, pronghorns are built to run in open range. Because they can outrace anything on four legs, pronghorn don’t rely on blending in with their surroundings. Consequently, their colors are dazzling. They have rusty brown and tan body hair with splashes of white at the throat, underbelly, and neck. Their faces are a vigorous black and white.

**PRONGHORN**

**Status:** Sonoran subspecies of pronghorn is Endangered in U.S.

**Estimated Number:** 172.

**Tips for Viewing:** Usually seen in small groups in open country; look for white patches on rumps and two short horns on head.
Pronghorn.
But pronghorn have more than quickness going for them; their vision is exceptionally keen. They have eyes the size of golf balls that scientists believe are the equivalent of a human looking through a pair of eight-power binoculars. These oversized peepers are set on either side of their head for superb peripheral vision.

Pronghorn get their name from their inward curved horns, which, on bucks, have a stubby branch, or prong. Unlike the antlers of elk or deer, pronghorn have true horns—bones covered with sheaths of fused hair. Antlers, on the other hand, are all bone. Pronghorn are the only animals in the world that shed horns each year. Both sexes have them, but the female’s horns are seldom longer than her ears while a male’s may grow to a foot and a half long.

Active in morning and evening, pronghorns graze leafy plants, shrubs, and grass—in that order of preference. They don’t compete for the same forage as cattle.

In the fall, while female pronghorns load up on the leafy forage that is critical to a successful pregnancy, males joust with each other for mating privileges. The most aggressive buck breeds with a group of females, who then give birth in the spring, usually to twins. Pronghorn moms eat the afterbirth and then tongue-bathe their newborn fawns until they are odorless. Fawns instinctively lie motionless and are nearly invisible to predators.

No western desert is too parched and few places are too frigid for the adaptable pronghorn. Their bristly hair is hollow for insulation during cold weather yet can be erected in patches to cool down. The pronghorn’s historic range stretched from what is now Mexico City to present Alberta, Canada—more than a million square miles of grassy prairie, sagebrush scrub, and rocky desert.

Like the bison, tens of millions of pronghorns once roamed the American West. And like the bison, pronghorn were nearly snuffed out by large numbers of migrating European-Americans in the nineteenth century. By the 1920s only about 30,000 pronghorn survived. Since then, their numbers have rebounded to about a million, most of which are the type of pronghorn frequently seen in Wyoming, Montana, and parts of Utah.
While these common pronghorn are not in danger of extinction, the number of the Sonoran subspecies is low, and it has been listed as endangered since 1967. “Our latest aerial survey, in 1998, counted 172 individuals,” reports Laura Thompson-Olais, the U.S. Fish and Wildlife Service ecologist who wrote the Endangered Species Recovery Plan for the Sonoran pronghorn. “That includes 12 fawns from last year.”

It’s a modest increase in numbers. Most of the Sonoran pronghorn on the U.S. side of the border live in the rugged Cabeza Prieta National Wildlife Refuge. Across the border in Mexico live about 300 more, Thompson-Olais believes.

The Sonoran subspecies is visibly different from the pronghorn we see further north. “Sonoran pronghorn are smaller, lighter colored, and have smaller horns” than common pronghorn, Thompson-Olais says, but little specific research has been done on them. “Sonoran pronghorn have not gotten the attention that better-known species, like the Mexican wolf, have, so funding for research and recovery efforts has been difficult to come by.” However, she adds, “We did just discover that they do drink standing water.” Thirteen Sonoran pronghorn were recently videotaped drinking from a well on Luke Air Force Range, which is adjacent to the Cabeza Prieta Wildlife Refuge.

BIGHORN SHEEP
Two dusty livestock trailers—call them “Ewe-Hauls”—towed by Ford Broncos from the Utah Division of Wildlife Resources, rolled to a stop beneath Antelope Island’s Frary Peak. One trailer gate dropped open and nineteen bighorn sheep ewes pounded down the ramp. In a dead run, the wild sheep zigzagged up the mountain in a tight, fluid pack like a school of fish. Out from the second trailer, four rams squirted up the hillside, their tan and buff rumps flashing. Within minutes, all twenty-four bighorn sheep had melted into the mountainside, invisible against the rocky cliffs.

With the addition of bighorn sheep, Antelope Island has become a sanctuary and showcase for all of the Great Basin’s native, large prey mammals. Bison, pronghorn antelope, mule deer, and one cow elk live on the treeless, windswept Great Salt Lake island.

If all goes well with the bighorn sheep reintroduction, wildlife watchers will get a close look at one of the rarest large mammals in North America.
Natural resource officials and wild sheep hunters hope the herd will thrive so that, over time, extra bighorns can be moved to start new herds elsewhere. All 19 of the released ewes appeared pregnant.

Bighorn sheep lived on Antelope Island in prehistoric times—DWR and state park officials are guessing—so their reintroduction here is fitting. Archaeologists have found the bones of desert bighorn sheep on neighboring Stansbury Island; but little is known of Antelope Island’s prehistory. Serious archaeological work didn’t begin there until 1995.

Because they have stomachs tougher than trash compactors, superbly camouflaged coats, and agility on cliffs, bighorn sheep thrived in the Great Basin from the last Ice Age until about 1900. Then their populations plummeted as they were overhunted, caught domestic sheep diseases, and lost their water sources to mining operations.

Reintroducing and transplanting wild animals is tricky. Only four years earlier, wildlife officials released 18 elk on Antelope Island. Once out of their trailers, the elk spotted the distant, snow-capped Wasatch peaks and raced straight for them, plunging into the Great Salt Lake. All but one drowned. However, the transplanted bighorn sheep headed for high ground—a relief to the project’s organizers.

“We think this is good habitat for bighorn sheep,” says Tim Smith, Antelope Island State Park manager. “It’s high elevation [up to 6,300 feet], rocky cliffs, and has good—mostly native—grass. There aren’t as many exotic plants up here as there are at lower elevations where there’s been more cattle and sheep grazing in the past.” The steep range of the newly placed bighorns is rarely used by antelope or mule deer. The island has good water sources as well, noted Smith. Though it seems parched, Antelope Island has over 40 freshwater springs.

“The two major problems with bighorn sheep reintroductions are predators and domestic sheep diseases,” Lou

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<th>BIGHORN SHEEP</th>
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<td><strong>Status:</strong> Desert bighorn are a U.S. Subspecies of Special Concern.</td>
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<td><strong>Estimated Number:</strong> In 1960, Utah had only a remnant population of desert bighorn sheep; by 1993, there were approximately 2,200.</td>
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<td><strong>Tips for Viewing:</strong> Near cliffs in steep canyons, listen for rocks falling as they climb. They’re tough to spot because the color of their coats blends perfectly with the surrounding rock, but look for a light-colored rump patch.</td>
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Cornicelli, wildlife supervisor for DWR, points out. “On Antelope Island, we think we have both of those under control.” No sheep or cattle graze on Antelope Island. Also, the bighorn’s most avid predator—the cougar—does not live here. And don’t expect DWR trailers to chauffeur a couple of them over.

“We want this to be a nursery for bighorn sheep,” one DWR official states. “The island already has coyotes and bobcats; we’re not interested in more predators.” A cougar could still cross to Antelope Island from the Oquirrh Mountains during a low water year. “The problem with cougars is that one may set up house right where the bighorns live and wipe them out,” Cornicelli worries. But does prey behavior change permanently in areas where large carnivores are absent? Growing up without cougars, how will the bighorns learn to escape them when they are later transplanted to riskier locations? Cornicelli says a bighorn’s predator evasion behavior is genetic.

That’s one theory. Biologists from the University of Nevada are testing another. The researchers played wolf calls near moose in Wyoming, where
wolves are rare and not a common predator of moose. They did the same to moose in southeast Alaska, where wolves often prey upon them. The Wyoming moose failed to respond to this cue of a predator's presence, but the Alaska moose reacted by cutting their feeding time in half. Because many remaining natural areas are losing or have lost their large carnivore populations, scientists say it's important to find out how prey behavior changes in response. A report on the wolf-moose study is in the February 1997 *Scientific American*.

Bighorns prefer habitat that gives them a clear field of vision, allowing them to spot and escape predators, so Antelope Island works well for them. The lack of cover is helpful for wildlife watchers too; humans will be able to get a relatively close look at these elusive ovines.

“But we have an important rule for bighorn sheep watchers on Antelope Island,” Smith continues. “Stay on the trails. A vital part of the habituation of bighorns to humans is that they expect to see people on the trails and not in other places.” Island hiking trails will close briefly each year during the sheep's critical lambing season.

“If you look at it from a historical perspective,” Smith notes, “the most limited large native mammals from the scene today are bison and bighorn sheep”; now Antelope Island has both. The island is famous for its bison, which were absent from the island when European-Americans arrived. Bison were reintroduced in 1893 after they were nearly exterminated everywhere else in the United States. The Antelope Island herd, numbering 550 to 700 individuals, is the largest publicly owned herd in the U.S. and one of the oldest in the country.

Pronghorn antelope were reintroduced successfully onto Antelope Island in 1993 after a failed transplant 65 years earlier. Mule deer also live on the island. After the unsuccessful transplant in 1993, Smith says the idea of bringing elk onto the island was reconsidered. “The elk's summer range here is not that great. In addition, we have the problem of what to do with excess animals.” Most remaining areas of elk habitat have as many elk as they can support. Hunting elk to reduce the herd is not a practical option on Antelope Island. Only bison are hunted there. Six licenses are sold for
the once-a-year bison hunt. Proceeds from the sale of the licenses go to pay part of the state park’s wildlife expenses.

Bighorns will not be hunted here; the island will act as a rookery. Excess bighorns produced will be relocated to other places, such as the Stansbury Mountains to the southwest or the Newfoundland Mountains to the northwest. Transplants may be ten years down the road, however.

State officials chose the intermediate-sized variety called California bighorn sheep to introduce on Antelope Island. California bighorns are larger than desert bighorns but smaller than the Rocky Mountain variety. Desert bighorns once lived on Stansbury Island to the west and Rocky Mountain bighorns lived in the Wasatch Mountains on the east, so wildlife scientists believe the medium-sized California type will adapt to Antelope Island well. Genetically, all three kinds of wild sheep are closely related. Most of the size difference results from harsh desert environments yielding smaller sheep, and better feed in the Rocky Mountains growing larger ones.

Herd size matters. Transplanted wild sheep herds often flourish for a few years, then their populations crash and stabilize at very low levels,
experts find. Researchers say groups of less than 50 bighorn sheep rarely last 50 years. “Anything can happen,” Cornicelli notes. “But these Antelope Island bighorns came from two different groups, and so they have some hybrid vigor.” Because one dominant ram impregnates all the ewes in a herd, genetic variation may always be a problem in small groups of wild sheep. A group of scientists from Weber State University, led by Sue Fairbanks, will monitor the island’s population of bighorns for genetic changes over time.

“A herd of 100 to 150 wild sheep is a prime group and may be the minimum viable size, says Lee Howard of the Utah Foundation for North American Wild Sheep (UFNAWS), which funded part of the bighorn transplant. “But in Montana they’re having success keeping groups of bighorns smaller and transplanting the excess animals.” A group of conservationist-hunters, the UFNAWS auctioned bighorn hunting licenses given to them by Utah’s wildlife board. In return, the nonprofit foundation pledged to spend the proceeds on promoting the well-being and habitat of wild bighorn sheep. Utah State Parks Division and DWR employees took on the paperwork and transportation tasks of moving the bighorns from their former home in western Canada to Antelope Island. This year, UFNAWS’s parent organization sold one desert bighorn hunting license for $47,000 and a Rocky Mountain bighorn permit for $39,000.

Wild bighorn sheep tend to catch a fatal pneumonia-lungworm complex from their domestic cousins, Howard said, so UFNAWS works with sheep ranchers operating near wild sheep herds, helping them convert from raising domestic sheep to cattle. The Forest Service asked UFNAWS to study the possibility of reintroducing Rocky Mountain bighorns onto Mount Timpanogos. Howard said the existing Timpanogos herd of mountain goats can live alongside wild sheep, but a domestic-sheep grazing allotment would need to be moved.

Not long after the “Ewe-Hauls” discharged their precious cargo, DWR’s Cornicelli made an airplane overflight to check on them. He reported that Antelope Island’s new bighorns seemed to be doing well. 🦌
The alpine zone of a Wasatch peak.