

The Terrible Lesson of the Kaibab

by James B. Trefethen



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WHEN PRESIDENT THEODORE ROOSEVELT created the Grand Canyon National Game Preserve on November 28, 1906, he set aside the finest deer herd in America. But in doing so, he unintentionally wrote the first chapter of a harsh lesson whose impact is felt to this day in every deer management plan on the continent.

The million-acre game preserve included and roughly outlined the Kaibab North Plateau just north of the Colorado River in northwestern Arizona. This enormous mesa was home to some 3,000 Rocky Mountain mule deer, splendid animals, outstanding in their large size and massive antlers. The deer had evolved in almost genetic isolation; their range, devoid of flowing streams, was buffered by deep canyons and open desert. The plateau had been the traditional hunting grounds of the Navajos and Paiutes, who in earlier days had gathered there each autumn to collect their winter supplies of deerhides. In those days the Kaibab was a botanist's paradise. Groves of pine, fir, and aspen bordered broad grassy meadows that sparkled in the warmer months with patches of wild flowers.

Heavily grazed. Well before 1906, much of this had changed. In 1893, when the Kaibab and surrounding lands were set aside as the Grand Canyon National Forest Reserve, at least 200,000 sheep, 20,000 cattle, and 2,000 horses were pastured on the plateau. By 1906, overgrazing had eliminated most of the tall perennial grasses, and gullies had begun to scar the once picturesque glades.

TR's mandate to the infant Forest Service was to give priority to the "propagation and breeding" of mule deer on the new National Game Preserve. The foresters turned to the task with enthusiasm. But scientific wildlife management was then in its infancy. Ecological relationships were not completely understood, and no one knew much about managing deer.

Unrestricted market hunting during the previous half century had all but eliminated the buffalo, elk, moose,

and antelope from the West. Deer were so scarce nationwide that only a few states could afford more than a limited open season. The first and most logical way to protect the deer, therefore, was to ban all hunting. This was easy on the Kaibab; the few roads and trails leading to the plateau made it easy to block access to hunters. But in banning hunters, no one seemed to recall that for centuries, Indian hunters had probably taken more than ten percent every year without damaging the herd.

The second logical step was to declare war on predators. Coyotes, mountain lions, and bobcats abounded, and there were a few gray wolves. Like the Indians, those predators had been there for centuries. The Indians had bothered them little. Navajo religion held the coyote sacred, and Indian hunters rarely went out of their way to kill lions or wolves. But with the establishment of the Game Preserve, systematic removal of predators began. Government hunters moved into the Kaibab with poison, traps, snares, and guns. In the next 25 years they killed 4,889 coyotes, 781 lions, 554 bobcats, and 20 wolves. Many others were killed by hunters employed by the private livestock operators.

This was the extent of the early management of the Kaibab deer. Use of the range by livestock actually increased, from 13,000 permits in 1906 to more than 16,000 in 1913. In theory, livestock and deer can use the same range without competition. Cattle and sheep are grass-eaters; deer are predominantly browsers and feed largely on the leaves and twigs of woody plants. But there were many more cattle on the plateau than those covered by permits. Half-wild range stock from the adjacent desert was attracted to the plateau by its better forage, and many of the legal operators exceeded their quotas as well.

Appeared successful. For the first few years, the Kaibab experiment seemed a magnificent success. Deer increased with every breeding season. Within less than ten years the herd doubled and, two years later, doubled

again. In 1918, their numbers were estimated at 15,000.

But danger signs began to appear, too. In spite of a reduction in livestock permits to 10,000, the range was beginning to deteriorate. The better forage grasses had disappeared, and the cattle were driven to feed heavily on woody plants, in direct competition with the deer, especially on the winter range. Gullies were appearing on the slopes. In 1919, Forest Supervisor J. C. Roak reported that cliffrose, an important winter food of the deer, was being seriously overbrowsed. In the same year, W. A. Goldman, a leading federal mammalogist, began a study that lasted several years. Each of his annual reports expressed growing alarm. By 1922, he believed, the deer exceeded 20,000. "Unless the number of deer is controlled," Goldman wrote, "serious damage to summer range and parts of the winter range is to be expected." This was the first clear-cut call for population control.

But in 1923, there were at least 30,000 deer, and the herd was still growing. Unofficial but competent estimates placed their numbers at 100,000. Former Congressman George Shiras 3rd, one of the leading deer experts in America, inspected the range and reported that "from 30,000 to 40,000 deer are on the verge of starvation." He described range conditions as "deplorable".

As a result of these reports, Secretary of Agriculture Henry C. Wallace appointed a non-governmental Kaibab Deer Investigating Committee made up of leading conservationists. The Committee inspected the plateau in late summer; its members were appalled at the conditions they found.

Under traditional patterns of use, there were about 700,000 acres of deer range on the Kaibab — 300,000 each of good summer and winter range and 100,000 more of intermediate value. Under normal conditions, the deer spent the spring and summer in the forest margins of the upper slopes; with the approach of winter they moved into the brush-filled canyons on the east and west sides of the plateau. Browsed in seasonal cycles, the range

Overprotected,
both deer and
range suffered.



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1929 when the Kaibab deer range was deplorable.

Black and white photographs from the archives of the U.S. Forest Service

had the opportunity to recover between seasons.

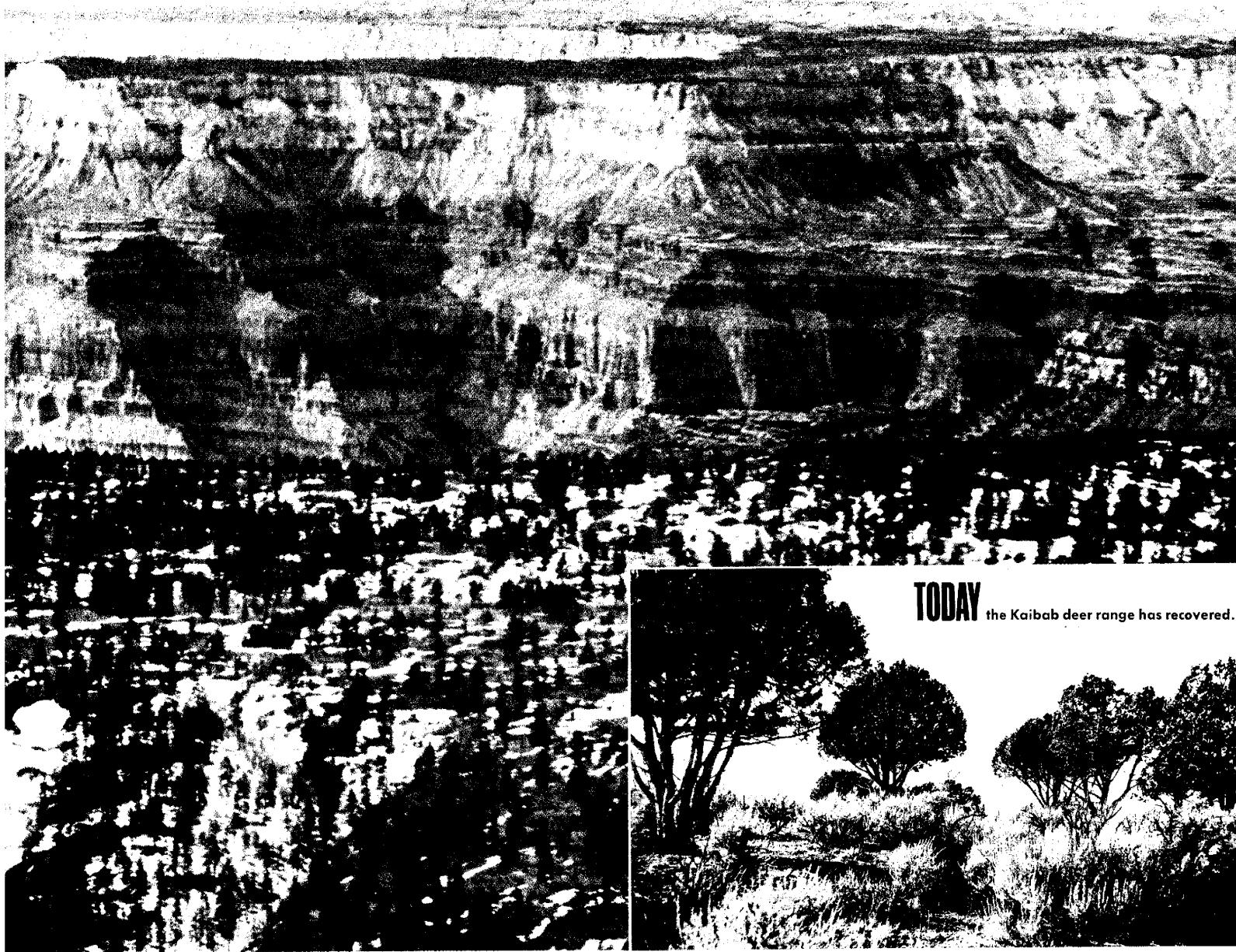
Overuse, by both deer and cattle, had upset the traditional pattern. Deer concentrations were so heavy on the summer range that some favorite plants, like the snowberry, had practically disappeared. Aspens and Douglas firs had been stripped of leaves and twigs as high as a tall man's head. Young trees and shrubs had been killed or damaged so badly that their survival was doubtful. Pines looked as though they had been attacked with pruning shears. Scrawny deer were chewing hungrily on dead leaves and on spindly clumps of weeds that had pushed their heads through the hard, bare soil.

Alarm over winter range. But conditions on the winter range were even more alarming. Long before cold weather, swarms of deer were already in the canyons feeding on forage that would be needed to carry them through the winter. Many of the cliffroses and junipers

were dead; branches of others had been nibbled back to nubs the size of a man's finger. Sagebrush had been heavily damaged, and hungry deer were searching the thickets for any green vegetation.

The Committee recommended immediate and drastic action: All livestock not owned by local residents should be removed immediately; the number of deer should be halved as quickly as possible. It suggested a three-phase program; livetrapped the deer and move them to new range; institute regulated sport hunting; or, if necessary, hire professional hunters to shoot the surplus animals.

The Forest Service acted promptly. It announced a faster reduction of grazing quotas, and it built traps to catch deer, which were offered for sale at \$35 a head. But the traps caught few deer, and there were fewer people interested in buying them. There was no railroad near the Kaibab, and the deer had to be carted out over some of the most rugged country in America.



The Kaibab National Forest with the Grand Canyon in the background, photographed for National Wildlife by James Tallon.

When trapping failed, the Forest Service asked Arizona to open a special hunting season on the Kaibab. Governor George Hunt personally inspected the range, and in the late autumn of 1924, for the first time in nearly 20 years, it became legal to shoot deer on the Kaibab. The terms of the hunt were a real bargain — for five dollars, any hunter, resident or non-resident, could take three deer of either sex. But the offer came too late in the season. The 100-mile trip from Flagstaff over a dirt road, across the unbridged Colorado and up steep grades, discouraged all but a hardy few. The hunters killed 675 deer, only one-tenth of the number that had been born that spring.

Zane Grey to the rescue. As a last resort, the Forest Service decided on direct action; surplus deer would be killed by government hunters. But Zane Grey, the novelist, came forward with an alternative proposal. As part of their job, Grey argued, Arizona cowboys drove half-

wild cattle from the chapparal at roundup time. Why couldn't they do the same with half-tame deer? If the deer could be driven from the plateau, they would move into good range beyond the Colorado. They would stay in the state, and the distasteful need for killing would be eliminated. Optimistically, the state contracted with George McCormick, a native cattleman, to drive "not less than 3,000 nor more than 8,000 deer" across the Colorado.

The great deer drive was the worst — if best-publicized — fiasco in wildlife history. McCormick enlisted 125 men — cowboys and Navajo Indian hunters — to do the work. On a cold morning in early winter his horsemen deployed in a great crescent that half surrounded a big patch of winter range. At a signal they advanced. Deer flushed before them, bounding down the slope toward a pass near Saddle Mountain. The first were joined by others. Soon there were hundreds of deer ahead of the advancing cowboys. The excited riders closed in at a gallop,

TODAY the Kaibab deer range has recovered.



whooping and beating the brush with coiled lariats. Success seemed within reach.

But as the drivers neared the pass, some deer checked their flight and dodged back. They raced along the line and cut around its ends. They broke through thickets that the horsemen could not cross. They outmaneuvered the cow ponies in the open. As the drive converged on the pass, men stationed on high ground to count the deer stood with pencils poised. But no mark went on the paper. When the drive reached the pass, every one of the deer was back on the plateau, searching hungrily for a mouthful of browse!

Paid hunters were the only unexplored alternative. But if there had been action, there had also been reaction. Many sportsmen opposed the inevitable waste of deer. Publicists in Arizona had been touting the Kaibab deer herd as "the biggest in the world" as a potential tourist attraction; for them there could *never* be too many deer. The State Game Department objected bitterly on jurisdictional grounds. The outcry of these forces was swelled by well-intentioned humanitarians repelled by the thought of cold-blooded shooting. To them, any shooting was too cruel. Few of them had ever seen the cruelty of nature herself in dealing with surplus deer!

Opposed federal control. But the biggest stumbling block to herd control turned out to be Governor Hunt himself. Although he recognized the need for control, Hunt bitterly opposed control by a federal agency. Henceforth, he announced, the Kaibab was to be treated as any other deer range in Arizona — one buck per hunter per season; all hunters to hold statewide licenses; non-residents at \$20 each. He threatened to call out the National Guard to enforce the game law if the foresters killed any deer, and he secured an injunction to block any killing except by licensed hunters. Over the next four years, hunter kill averaged fewer than 700 bucks.

Meanwhile, deer by the thousands starved and froze to death every winter. But each spring, the losses were largely replaced by new fawns. For practical purposes the Kaibab had become a desert, populated with gaunt, parasite-ridden animals that were caricatures of the once proud Kaibab mule deer.

The first break in this grim pattern came in 1928. Governor Hunt's suit against the Forest Service finally reached the Supreme Court, which ruled that the federal foresters had both a right and an obligation to protect the range in their charge. That winter, government hunters shot nearly 1,200 deer. Then, a few months later, Arizona's State Legislature created the Arizona Game and Fish Commission and freed the state's game administration from its political shackles. This ushered in a long overdue era of state-federal cooperation in efforts to cure the massive ills of the Kaibab.

One of the first acts of the new commission was to declare special any-deer hunting seasons. In the fall of 1929, nearly 3,500 hunters took 4,000 deer; in 1930 the legal kill rose above 5,000. The Forest Service, on its part, began fencing the entire plateau to keep out stray cattle. It tightened control over livestock operators, and it built and improved hunter access roads.

By 1931, starvation, disease, malnutrition, and shooting reduced the herd to less than 20,000. Relieved of the

intolerable pressures of the recent past, the range began to improve. New grass and herbs reclothed the denuded slopes; in the canyons the cliffroses, junipers, and sage put on real spring growth for the first time in years. And with the recovery of the range, the deer, too, began to recover both in health and in reproductive vigor. By 1945, conditions were so favorable that the state decided to reinstate the buck-only law for hunting.

This was another major mistake. In 1946, the Game and Fish Commission and the Forest Service initiated a five-year study of deer-livestock relationships. The survey was the first phase of a formal arrangement by the two agencies for joint management of the Kaibab deer. As a result of its findings, which recommended a reduction of both domestic livestock and deer, the state dropped its buck-only law. But the action came too late. The scars of overuse were still deep. At the end of the cooperative study the deer numbered 25,000. In spite of heavy hunting each season, the deer population continued to climb; in 1954 it approached 37,000. Browse lines again began to climb the trees on the uplands. Conditions were aggravated by drought, and the browse plants on the winter range put on little growth. Most of the does, fawns, and yearlings entered the winter in poor condition. In spite of a record hunter take that autumn, winter brought another disastrous dieoff; in 1955 the prehunt deer population plummeted to 12,000, the lowest since 1916.

Hunters are selective. One of the problems that the deer managers faced was that hunters, even under an any-deer season, tend to be selective. Any hunter will take a buck rather than a doe if he has a choice. And if he must choose between a forkhorn yearling and a big six-pointer, he will take the larger trophy. And big bucks remained common enough on the Kaibab to satisfy the hunters' seeking them out. Under hunters-choice seasons the sportsmen were not taking enough of the does that were contributing most to the overpopulation problem.

As a result of bitter past experience, Arizona's game commission began to manage the Kaibab and other segments of its deer range under regulations geared to specific local needs. A whole kit of regulatory tools — special antlerless deer hunts, hunter-choice hunts, multiple deer and area permits to exert hunting pressure where needed — are used today to keep the deer in balance with their range. All of the western states and most of those in the East and Midwest have adopted comparable systems.

The convulsive history of the Kaibab deer was unique; but, in capsule, the problems were those that had to be faced by nearly all states as they struggled with the problems of expanding deer herds. The lessons apply equally to the forests of Pennsylvania, Wisconsin and Michigan as they do to a remote plateau overlooking the Grand Canyon of the Colorado. They apply equally to elk, moose, and bighorn sheep.

Lesson 1: Inviolable refuges for grazing or browsing animals can become death traps unless predators are protected with the plant-eaters to keep herds in balance with their food supplies. In most parts of North America the larger predators — wolves and mountain lions — have been eliminated; in others they are incompatible with a livestock-based economy and are kept under rigid control.

Only in the largest wilderness areas can traditional predator-prey relationships be maintained

Lesson 2: Where man upsets the natural balance between plants and plant-eaters and between predators and prey, he must assume the function of a controlling agent if he wants healthy animals and a healthy range. He can have more deer by expanding or improving existing habitat. But wild populations can expand almost explosively to fill even the best available range. When this happens, as it did on the Kaibab in 1923 and 1954, the food plants suffer, the animals lose weight, parasites and disease run rampant, fertility falls off, and many deer die during the lean winter months.

Tragic winter losses can be checked only by keeping the number of deer below the carrying capacity of the range. This is best and most economically done by regulated sport hunting with some of the pressure — or in some cases much of it — applied against the does through special antlerless deer hunts.

Scientific wildlife management best serves the sportsman and the general public when it keeps winter deer numbers just below the point of explosive spring increase. Many people consider hunting inhumane, but death by the hunter's bullet is swifter than death by starvation and disease. Some have suggested that, if herds need control, the killing be done by paid hunters. But there is no assurance, if this were done, that it would be any more humane or any more efficient. Except on limited areas, the opposite is probably true. Moreover, the adoption of such a system would eliminate millions of dollars in license fees and special hunter-paid taxes that are now used to protect and manage deer, as well as other wildlife, for all to enjoy. To control deer herds by any means except through sport hunting would reduce the animals from an important economic and recreational asset to a public liability.

The point of view of those who object to sport hunting on moral grounds is respected by the sportsman. All the hunter asks is that when a surplus wildlife population exists, regulated hunting be recognized as a proper and humane management tool that is vital to the preservation of the habitat on which all wildlife depends.

A lesson for all. The lessons of the Kaibab were bitter, and were a long time in their teaching. They helped form Aldo Leopold's philosophy of game management, a keystone of modern professional wildlife techniques. They explain what happened in Pennsylvania in the early 1920's when nearly a half-million deer died in a single winter; they cast light on the perennial problem of the Yellowstone Park elk herd. They are the basis of the reasoning behind increasingly liberalized deer seasons in most states. They explain the doggedness of game administrators in Michigan, Wisconsin, and elsewhere in their efforts to expand antlerless deer seasons, often in the face of stubborn political and public resistance.

Fortunately, our professional wildlife managers have learned the lessons well. The sportsmen and general public in most states now accept them, usually without knowing their source. Those who reject them with the intent of "saving the deer" do so at the peril of losing exactly what they most want to save. □

With population control, deer and range prosper.

