

## OVERPOPULATIONS

The best methods for managing overpopulations of deer have been a matter of controversy between game men and the general public for many years. Game men have leaned toward herd regulation, while the public threw up their hands in horror at the thought of shooting a doe and demanded artificial feeding. While deadlocks continued over these controversial management methods deer starved by the thousands in many states.

Even foreign countries have their surplus deer problems. In 1935, Ward Shepard, discussing foreign game policies before the Conservation Committee, of the 73rd United States Congress, reported that the fundamental fact of game management in state forests in Bavaria and Baden, Germany, is simple, direct, absolute quantitative and qualitative regulation of kill. He said, "There is now a strong reaction against the pure spruce forest in favor of a mixed growth \*\* strongly influenced by the difficulty of feeding an abundant supply of game where there is little natural browse or grass." (Evidently feeding surpluses of deer is not looked upon with favor in thrifty Germany.)

A note from New Zealand calls deer New Zealand's enemy number 1, (this statement might be modified under 1942 conditions) because deer have become so plentiful they are destroying the vitally important forests. No mention is made of feeding.

In connection with the spread of disease, E. C. O'Roke, parasitologist from the University of Michigan, stated that overpopulations of deer should be avoided to retard the rapid spread of lung worms among the animals.

In January, 1940 issue of Nature Magazine, Wm. H. Rush discussed carrying capacities and increases in game populations. His summary was that the numbers of big game animals must be restricted to those the available winter range would support.

Here in the United States, Arizona and Pennsylvania were probably among the first to have "deer trouble." In 1905 a big game refuge was established on the Kaibab National Forest in Arizona. By 1915 mule deer were very plentiful and increasing rapidly. By 1920, according to R. P. Boone in a report made in 1938, it was apparent that the winter range was overpopulated, and steps were taken to reduce the herd. Public sentiment retarded these management measures until the starvation loss was appalling. Between 1920 and 1924 natural food production had been reduced 80 to 90% through overbrowsing. The deer population reached its peak in about 1922. As starvation increased a committee of nationally known wildlife men made a thorough investigation. They recommended immediate reduction of the deer herd. But the damage had been done. Desirable food plants had been killed out or practically eliminated from much of the area, and by 1930 the herd had been reduced to only 10 to 20% of its peak numbers mainly through starvation. Public sentiment made it impossible to put adequate controlled hunting into effect until too late.

Finally after organized drives, catching new born fawns, live-trapping, and ordinary hunting had proved futile and thousands of deer continued to starve, public sentiment capitulated and the herd was reduced to its desired level by controlled hunting. Final plans included - first, the restoration and perpetration of the range at its maximum carrying capacity \*\*\*, second, the maintenance of as many deer in their natural wild state as the permanent welfare of the range justifies without artificial feeding. Mr. Boone further states that the key to the success of any game management plan is to take care of the range and have an efficient and flexible method for removing the animal surpluses.

During the same period Pennsylvania was going through a similar experience. In 1907 Pennsylvania hunters killed only 200 deer and realized that their deer herd was very low. In the years immediately following, hundreds of deer were imported, hunting restricted, refuges set up, and educational campaigns were inaugurated to reduce illegal killing of deer. All these things produced the desired results and Pennsylvania's deer herd increased enormously. But Pennsylvania had its far-seeing conservationists as well as other states. Dr. Joseph Kalbfus, a pioneer executive officer of the Pennsylvania Game Commission, after having watched the deer herd increase for 10 years, in 1917 told Seth Gordon, "Well, Gordon, watch the fur fly ten years from now. We killed 1,722 bucks this past season, a high record since we began bringing the deer herd back. But mark my word, we oversold our customers. The volcano of sentiment we built is likely to blow up. Without broad regulatory powers, and plenty of courage, we are sunk. I'm glad I won't be here in 1927."

As Mr. Gordon reviews this in his article "Conservation Madness" in the May 1937 issue of Country Gentleman, he states that Dr. Kalbfus' prediction developed with amazing accuracy. By 1922 a shortage of winter food was apparent and later after futile attempts at live-trapping and transfer had failed as they had at Kaibab, and losses through starvation were enormous, killing of surplus animals was recommended. It was then that Dr. Kalbfus' "volcano of sentiment" blew up, and thousands of deer were wasted through starvation because public sentiment would not allow the taking of does to reduce the surplus. Such losses, however, finally had their effect, and in 1928 in spite of strong but decreasing opposition, a season on antlerless deer was declared in Pennsylvania. Since that time and with increasing efficiency Pennsylvania has declared open seasons on antlerless deer, some years killing as many as 180,000 bucks, does, and fawns, and has reduced starvation losses almost to a minimum.

All through this hectic period conservationists and game men were trying to tell the general public what was really happening, what would result if conditions were not changed, and recommending things to be done.

Fred W. Johnson reported that weights and measurements of deer killed in various parts of Pennsylvania demonstrated that density of population, food shortage, and physical deterioration are correlated.

Barry C. Park says of deer in the Allegheny National Forest, "Reduction of the herd is necessary to stabilize it at a level consistent with the winter food supply."

Nicholas Biddle believes that failure to keep the Pennsylvania deer herd under reasonable control has impaired the environment of these animals, and also for grouse, snowshoe hare, and other species. Richard Gerstell, head of Game Investigations for Pennsylvania, said in 1935 that Pennsylvania deer had been decreasing in weight for 15 years, and that this decrease in weight was not due to inbreeding or distorted sex ratio, but was due to a shortage of winter food. The average weight of bucks taken from good food areas was 116 lbs., while those from poor food areas average 94 lbs. Even as late as 1938 after a number of antlerless seasons Gerstell still recommended a 40% reduction in the herd.

Mr. Gordon summarizes his article on "Conservation Madness" with, "What conservation needs most is to rid itself of the blind spot which balks sensible management. More protection and more and more restocking, where not needed, will never assure a proper abundance of wildlife. Without a favorable habitat, proper food and cover, and the application of sensible management, we shall never attain our common goal of a well rounded conservation program."

Oregon also seems to be having deer, elk, and antelope trouble. Edward P. Cliff in reporting on elk and deer in the Blue Mountains, says that the total population should be kept at all times below the sustained carrying capacity of the range. Arthur S. Einarsen, who after working on the overpopulated antelope range, recommended that the regulations should be adjusted annually in accordance with existing conditions. On the Malheur National Forest in 1938, overpopulations of deer had become serious, and O. T. Edwards stated that an immediate reduction in the herd is essential to prevent further range damage and a heavy winter loss.

Whitetailed deer in heavy concentrations in the Kanihsu National Forest in Idaho were completely pauperized by feeding, according to David McClay. According to him the deer hung around the feeding grounds, scarcely foraging for themselves, and rapidly lost condition. I. M. Varner, writing on the same subject, says of the overpopulated areas in the National Forests of southern Idaho, "The great difficulty is shortage of winter range. Feeding animals on that range aggravates overbrowsing, is too expensive to continue indefinitely, and is otherwise undesirable. One of the most needed things at the present time is a state game law under which it would be possible to take prompt action in managing all game wherever the need arises."

The Wyoming Fish and Game Commission reports in 1939 that overpopulations of deer are present in the state. Recently revised hunting regulations had not been sufficiently drastic and it was recommended that the kill be doubled.

Overpopulations of mule deer in Utah had been fed artificially. D. I. Rasmussen, reporting on this work, says that considerable feeding did not completely check winter losses from malnutrition, and did not prevent over-utilization of browse. He says herd regulation is necessary.

The deer herd in the Zion Canyon Region of southern Utah was reduced after a high loss resulting from malnutrition was discovered.

In Montana Richard M. Bond asserted after feeding big horn sheep on depleted winter ranges in the Glacier National Park, that he believed artificial feeding will result in pauperization, decline in health, spread of disease, and will increase predation.

The herds of elk in Yellowstone Park have caused a game management problem for nearly 50 years. Artificial feeding has been carried on to some extent since 1895. Ranchers moved in and took over large areas of the winter range at the same time that the herd was increasing through protection. Mr. Baggley, in summarizing the artificial feeding of elk, says that the production and purchase of food crops has been extremely expensive and is undesirable from the standpoint of maintaining animals in their natural condition.

The Elk Commission, a group of local authorities appointed to handle the situation, have recommended the purchase of additional winter range, an increased kill by hunters, and as a last resort, live-trapping, and possibly slaughter for meat. Harold B. Mills who studied diseases and parasites of the Yellowstone elk herd, believes that nine of the eleven diseases found are greatly aided by overcrowding and feeding on overgrazed range.

A. L. Olson of the University of Idaho who worked on the Yellowstone elk problem, concludes his report with this, "any plan which fails to provide for the systematic removal of the increase of a herd of animals on any range which is fully stocked must necessarily fail."

Wight and Thompson in their work on Wildlife Management on National Parks say with reference to Yellowstone elk, "Damage to their existence can be averted at present only by reducing the elk to about half their present number." George Wright of the National Park Service condemns artificial feeding, and writes that elk, like human beings, are not improved by being pauperized.

The gravest need at present is for legal authority to dispose of surplus animals, according to Harold M. Ratcliff writing of deer in the Rocky Mountain National Park in Colorado.

Don A. Gilchrist in a report on deer in New Mexico, states that deduction in the size of deer as compared to that of 20 years ago is not due to inbreeding, and Elliott S. Baker adds that lack of sufficient forage and killing off of all mature males are more serious factors in causing deterioration in size and quality of deer.

Gardner Bump, discussing deer foods and artificial feeding in New York State, remarks that those feeding wildlife should fear parasitic infestations from deer concentrations.

Gordon Fredine, head of Minnesota's Game Division in 1940, said that the limiting factor for deer populations in Minnesota is the carrying capacity of the winter yards, and that more deaths are due to malnutrition than to hunting. He states that hunting can and should be used as a tool to control the deer population. Jack Manweiler, after working with deer in the Big Bog country of northern Minnesota, believes there is need for more flexible game laws permitting regulated open seasons at such times and places as will reduce the deer herd to the carrying capacity of the range.

The Forest Service has controlled the deer herds in the Pisgah National Forest of North Carolina by managed hunting for a number of years. Bucks or does and fawns were hunted as winter deer food conditions indicated the herd should be regulated.

Wisconsin deer are also beginning to cause trouble. H. W. McKenzie, of the Wisconsin Conservation Department, states that the increasing deer herd is damaging the forest as well as their own habitat, and that to counteract this the season was being liberalized in 61 counties. Walter E. Scott, also of the Wisconsin Department, says the deer population is increasing, and that a depletion of the food supplies must be guarded against by herd regulation. In 1939 Swift reported for Wisconsin that feeding in overpopulated areas has been resorted to although considered biologically unsound.

In the 36 specific instances quoted where the relief of overpopulations of deer, elk, antelope, and mountain sheep were referred to, only two mentioned artificial feeding without making recommendations, seven condemned artificial feeding, and 29 recommended herd control.

Here in Michigan overpopulations of deer were being fed sporadically in the Upper Peninsula as early as 1925. In 1929 and 1930, and possibly before, some feeding was done in the Lower Peninsula. After an investigation of certain Lower Peninsula areas in 1930 Lovejoy recommended herd management through controlled hunting. During the last 12 years the Michigan Conservation Department has recommended herd control in the overbrowsed areas much as the game men in the 15 different areas previously mentioned have recommended for their respective states.

The first controlled experiments in Michigan on feeding starving deer in the wild were carried on at Hulbert in Chippewa County in 1930, and continued two years following. Feeding this herd of deer three winters convinced the Department that an extensive plan to feed all the deer in Michigan's 207 overbrowsed deeryards was impracticable. But as on the Kaibab

and in Pennsylvania public sentiment disregarding the lessons taught by experiences in these two areas has continued to demand a feeding program. The Department has adopted a policy conforming to that of the states that have had similar experiences, and has recommended but has not obtained authority to adopt herd control by regulated hunting.

In the meantime deer are starving by the hundreds each normal or severe winter. From deeryard investigations it has been determined that there are over 200 deeryards covering more than 860 square miles in the state which are overbrowsed. On this total area it is estimated that approximately 400,000 deer are attempting to winter. While it is known that the majority of adults and many fawns will pull through the winters even where these food shortages occur, many fawns however, will die of starvation each normal or severe winter. The percentage of the fawn crop which will succumb will depend on the relationship between the population and the carrying capacity of the winter food, and on the severity of the winter. Because of this fawn mortality it would be necessary to feed only fawns, but furnishing feed to only fawns in the wild is impracticable. The older deer congregate around any food distributed and drive the fawns away. For this reason it is necessary to put out many small piles of hay two or three times a week, so each deer will have a place to feed from. To adequately feed the 400,000 deer in overbrowsed wintering areas and materially reduce fawn starvation for one winter, it is estimated that it would require 28,000 tons of good first cutting alfalfa hay at an estimated total cost of \$800,000.

Many hunting clubs in the deer areas have for a number of years attempted to feed the deer wintering on certain overbrowsed club grounds. The Turtle Lake Club has distributed hay for years, but in spite of this artificial feed deer have decreased through starvation an estimated 60 percent on the club holdings.

On the Reed Ranch the caretaker has put out from 20 to 45 tons of good alfalfa hay annually for the last 5 years. During this time the number of deer in this territory has dropped off 50%. In addition to these two larger clubs the following clubs are known to have fed deer in 1941: Doctors, Robinhood, Stockbridge, Frutchie, Smoky Hollow, Little Wolf, Remington, Indian Creek, Silver Creek, Bonehead, Buckhorn, Four Pines, Lincoln, Woods, Leor, Foss, LeRoy, Spruce Ridge, Coombs, Silver Springs, Ridgevale, James, Blacks, and a number of others. All these clubs are in Alpena, Montmorency, Oscoda, and Alcona Counties.

It is thought that hay put out in 1941 by the clubs mentioned would be less than 150 tons as compared with the 28,000 tons needed in the state.

It is quite obvious that with an estimated total income from deer licenses of possibly \$500,000 in 1941, it would be impractical to spend \$800,000 to save an estimated 20,000 to 50,000 fawns out of a total herd of perhaps 800,000 deer.

It would be much more logical as suggested by a number of game men from other states as well as by our own game men to have laws sufficiently flexible to allow hunters under a controlled system to take the surplus deer when and where a surplus occurred.

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