



*Tick Paralysis in the American Buffalo, *Bison bison* (Linn.)**

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ALTHOUGH CASES OF TICK PARALYSIS occur almost every year in man, and in cattle, sheep, and dogs, in the Rocky Mountain States and British Columbia, the disease has not been reported in the American buffalo, or any other native animals, so far as we are aware. The first known instances of the occurrence of this disease in buffaloes came to the attention of the writers in the spring of 1951 through J. E. Schwartz, Superintendent of the National Bison Range in western Montana. Two privately owned herds were involved.

On the morning of April 3, Mr. Schwartz informed us that there was illness in one herd, about 30 miles southwest of Ronan, Montana. Only two calves had been affected in the herd of twenty cows, three bulls, and three yearling calves. Inspection of the herd at about 11:00 A.M. the previous day had revealed that these two calves were unable to get up. They had been examined for ticks by the owners at about 3:00 P.M., and numerous adult *Dermacentor andersoni* were found just back of the horns and on the neck. Many had been removed by hand and the infested area treated with a kerosene-crankcase oil mixture. The animals were then trucked to the ranch and left in the truck overnight. Early the next morning one calf was on its feet and by noon both were standing. When seen by us at 5:00 P.M. the animals were still in the truck and their actions appeared normal, except for some unsteadiness in the forelegs.

On the morning of April 11, Mr. Schwartz informed us of illness in the other herd, about 5 miles north of Arlee, Montana, and about 30 miles distant from the previous herd. This herd consisted of five four-year-old cows which had been acquired as yearlings, plus ten yearling calves. The herd had wintered in the vicinity of the ranch and for the past two weeks had grazed on the low

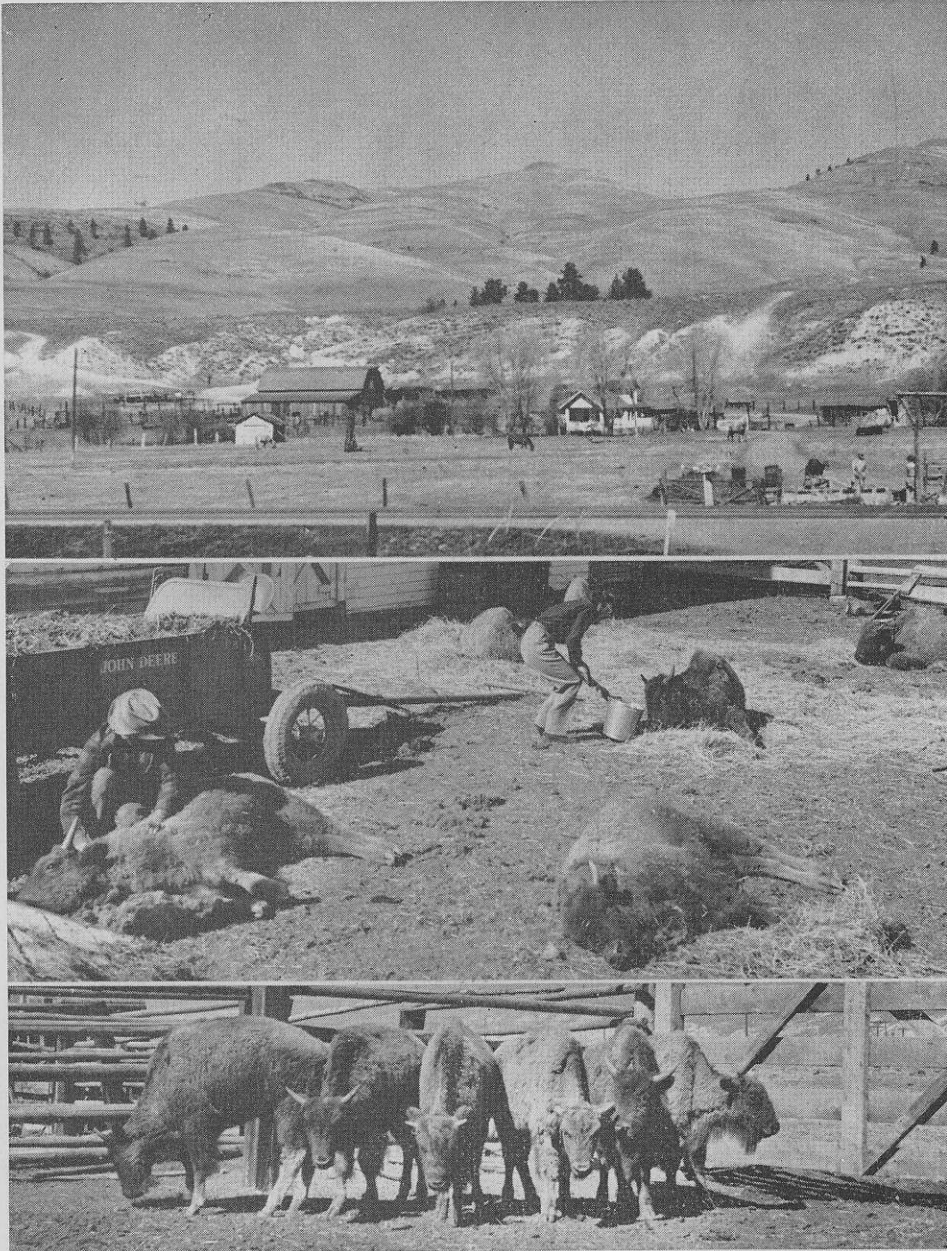
* From the Federal Security Agency, Public Health Service, National Institutes of Health, National Microbiological Institute.

hills adjacent to the ranch buildings. The owner saw the herd the evening of April 9, and all the animals appeared to be in good health. During the afternoon of April 10, however, three of the yearlings were unable to get up. All of the animals were then brought to the corral. The owner, suspecting tick paralysis, worked until late at night attempting to remove the ticks from the animals by hand picking, but with little success because of the thick, matted hair. Another yearling went down during the next morning, and after our arrival at 1:00 P.M., two more were seen to stagger and fall, making a total of six stricken animals. Before going down, the animals had an unsteady gait, with jerky movements of the legs and head. When down, they would struggle briefly in an effort to get up, and would then remain quiet. The animals that had been down the longest were able to eat hay and drink from a pail when assisted to a sternal position.

All the afflicted animals were infested with *Dermacentor andersoni* adults in all stages of engorgement. The ticks were rather generally distributed on the neck and brisket forward to the horns and under the chin. It was estimated that the total number of ticks on each animal did not exceed 150. A total of 80 ticks from five of the calves was tested for infection by maceration and injection into laboratory animals, but no infection was demonstrated. Blood samples from the five animals gave negative serological tests for tularemia, Q fever, and Rocky Mountain spotted fever, although all gave some reaction for brucellosis. Red blood cell counts and leucocyte counts were similar to those of normal yearling cattle.

Since it was not feasible to detick the animals completely by hand picking, it was recommended that an acaricide be used. Drs. F. L. Metcalf and E. S. Aby, Missoula veterinarians, were called, and on reaching the ranch about 8:30 P.M., applied Dane (registered) solution, a liquid preparation containing chlordane (Pitman-Moore Co.), to the tick-infested regions which had either been clipped as closely as possible with sheep shears or plucked by hand. Temperatures of the animals were taken at this time and were considered to be normal. The owner reported that by the next morning all but one of the stricken calves were up and that about noon the one remaining calf had gotten to its feet. It was still a little unsteady and limped slightly on the left rear leg. The actions of the other calves appeared to be normal.

Our observations on tick paralysis in buffaloes are similar to those reported by Jellison, Stoenner, Kramis, and Beardmore (1951) relative to an outbreak of the disease in yearling range cattle in the same general region in western Montana in April 1950. It is of interest that only yearling buffaloes were affected and that there were no concomitant outbreaks among cattle being



TOP: Ranch site of infested buffalo herd. CENTER: Afflicted bison suffering from tick paralysis. BOTTOM: Buffalo yearlings after recovery.

grazed on the same or adjacent pastures, nor had the disease been observed in cattle or other animals on these ranches. The herd on the National Bison Range has remained free of the disease insofar as known.

As in the case with other animals stricken with tick paralysis, the prompt removal or destruction of the ticks resulted in dramatically rapid recovery with no obvious impairment in health. The fact that buffaloes are known to be susceptible to tick paralysis suggests the possibility that the disease may also occur in native ruminants such as elk, deer, and moose, and perhaps in other wild animals as well. Elk, deer, and moose have been weakened by excessive infestations of the winter tick, *D. albipictus*, but this was not believed to be related to tick paralysis.

Literature Cited

- Jellison, W. L., H. G. Stoenner, N. J. Kramis, and H. F. Beardmore. 1951. An outbreak of tick paralysis in cattle in Western Montana. *Vet. Med.* 46: 163-166.