

Parainfluenza 3: A New Disease of Free-Ranging Bison in Alaska?

by Randall L. Zarnke

Alaska is blessed with large expanses of virtually untouched wilderness and a variety of unique wildlife species. Our free-ranging bison herds are one example of this special blessing. The largest and most accessible bison herd occurs near Delta Junction. The people of Delta Junction take special pride in this herd of 300-400 animals and want to maintain its free-ranging status. The sportsmen of our state also have an intense interest in these animals because of the 50-75 hunting permits issued each year from a pool of as many as 10,000 applications.

In recent years, a couple of problems have arisen regarding the Delta Bison Herd. There has always been small-scale farming in the Delta Junction region and, as oil development swelled state coffers during the late 1970s and early 1980s, the state legislature encouraged large-scale development of agriculture in the area. Initially this effort focused on production of barley for export but, unfortunately, bison relate to barley about the same way children relate to candy. The Delta Bison Herd caused problems for themselves by eating barley and thus angering the farmers. To alleviate this growing confrontation, the state established the Delta Bison Range to attract bison away from the barley fields. This effort has been very successful because of the efforts of department staff in Delta Junction.

The development of large scale barley farms in the Delta Junction area, however, brought about another potential problem for the bison: as the agricultural industry of the region grew, so did the importation of livestock. In spite of good intentions and good disease regulations, the importation of livestock into an area often means the introduction of livestock diseases, as well.

The Alaska Department of Fish and Game (ADF&G) has supported an active Wildlife Disease program since the time of statehood. One facet of this program involves conducting disease surveys of wildlife populations. These surveys consist of testing blood samples for evidence of selected diseases. Bison have always been one of the most important species in these surveys. Thanks to the efforts of numerous ADF&G staff and innumerable hunters, we have been able to test several hundred bison blood samples over the past 30 years.

Recently, we have become increasingly concerned about a disease agent known as parainfluenza 3 (PI3), one of three viruses often referred to as the "bovine respiratory group." As the name implies, these viruses often cause respiratory tract infections. Severity of the infection may range from virtually inapparent to severe. Rate of illness in a population may be high, but rate of death is usually low. Perhaps the most important effects of this disease are: (1) decreased vigor and weight gain; and (2) increased susceptibility to other diseases; and (3) abortion. Transmission usually occurs by means of droplets expelled when infected animals cough or even during normal breathing. Blood tests have proved that various wildlife species in other parts of the world have been exposed to this virus.

Our survey of bison blood samples from the Delta Herd indicates that the occurrence of PI3 has increased from 0 percent prior to 1977 up to 100 percent by 1984. We believe that the virus was introduced into the bison herd from domestic livestock. We are concerned about the possibilities of decreased productivity in the herd and also secondary bacterial infection. Although there is only a small amount of data available regarding age at which bison become infected, it appears that they are exposed to PI3 during their first year of life. This is a time when the consequences of infection could be most severe. Additional research could clarify some of these uncertainties, but the work is expensive.

The rapid spread of PI3 in the Delta Bison Herd has caused a mixture of emotions. We feel fortunate that there was not an immediate and major die-off of bison. However, there may be long-term health consequences for the bison and other wildlife. In addition, we view this situation as an example of how other more life-threatening diseases could be transmitted from livestock to wildlife. Alaskans have repeatedly expressed their concern for healthy wildlife populations. We will do our best to continue carrying out this public mandate.

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