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Karen Cooper, Information Officer
Montana Department of Livestock
PO Box 202001
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RE: Bison Vaccination Environmental Assessment

Ms. Cooper:

Please accept these comments on the proposed bison vaccination plan on behalf of myself and the Buffalo Field Campaign. Please include these comments in the public record and keep me informed of any action on this and other proposals pertaining to bison management by the Department of Livestock.

Please choose the “no action” alternative.

1. Vaccination of bison calves and yearlings captured in the Western Boundary Area is not likely to result in the reduction of the exposure rate to *brucella* bacteria in wild bison originating from Yellowstone National Park (YNP):

The Department’s analysis fails to show any conclusive data to relate the studies of potential efficacy conferred by the RB51 vaccine in laboratory studies to the wild bison that migrate into Montana from YNP. The laboratory studies did not include bison that exhibit similar characteristics to Yellowstone bison. Based on evidence from culture tests conducted on slaughtered Yellowstone bison that tested positive for exposure to *brucella* bacteria, it is clear that only a small percentage of the test positive animals were actually infected with *brucella*. The Department claims that vaccines can “enhance the immune response capability to ward off and infection when the animal is exposed and thereby increase the level of bacteria required for an infective dose.” What is the natural “immune response capability” of Yellowstone bison? What is the level of bacteria of a typical exposure in Yellowstone bison? How does this compare to the challenge strain in the laboratory studies? What is the primary means of exposure between bison in YNP? Do Yellowstone bison have a genetic characteristic that confers immunity to a portion of the population? The Department continues, “Because abortion is the major mechanism for transmitting brucellosis, the use of vaccines can also decrease the frequency of abortion and thereby reduce the potential for transmission.” Based on historical evidence, abortion is an extremely rare event in the Yellowstone bison herd. What is the rate of abortion in Yellowstone bison? What evidence does the Department have to indicate that

Yellowstone bison abort and shed *brucella* bacteria? Has the Department developed a realistic model to indicate what the reduction in the risk of transmission will be given the small number of bison vaccinated, the relative inefficacy of the vaccine and the demonstrated characteristics of the Yellowstone bison herd with relation to natural immunity, low bacteria levels and low rates of abortion? Has the Department conducted a cost-benefit analysis of implementation of the vaccination program with the current levels of information and the currently available vaccine versus definitive research on the method of exposure between Yellowstone bison and the development of alternative strategies to reduce the rate of exposure?

2. The vaccination plan as proposed by the Department is unlikely to reduce the risk of transmission of brucellosis between bison originating in YNP and domestic cattle in the Western Boundary Area:

The Department's analysis of the cattle that graze in the Western Boundary Area is lacking one key piece of information that relates directly to the risk of brucellosis transmission from bison originating in YNP. Stocking dates in the area begin in mid-June. If necessary, herd management plans could delay stocking dates even later. Studies conducted by Montana Fish, Wildlife and Parks (FWP) and the USDA's Animal and Plant Health Inspection Service (APHIS) of fetal disappearance and bacterial persistence rates indicate that *brucella* bacteria are not likely to persist in the environment beyond mid-May. Based on the methodology of the studies (human handling of carcasses, undisturbed bacteria in metal cages, etc.) it is likely that even mid-May is a conservative estimate of bacterial persistence in the environment. After mid-May, even if bacteria were shed into the environment, it would not last more than a few hours and the possibility that bacteria would persist by mid-June is statistically zero. Therefore, based on the current herd management plans and stocking dates for cattle in the Western Boundary Area, the risk of transmission between bison and cattle is also statistically zero. If the Department disagrees with this assessment, then perhaps stocking dates for brucellosis susceptible cattle should be changed to July 1 to further guarantee that brucellosis transmission will not occur. In any case, if spatial and temporal separation between bison and cattle can confer a zero risk of transmission, then vaccination is unnecessary and incapable of further reducing the risk. What is the Department's current assessment of the necessary spatial and temporal separation between bison and cattle? Has the Department conducted a cost-benefit analysis of revising stocking dates to reduce risk of transmission versus implementation of the vaccination program? Has the Department conducted a cost-benefit analysis of revising the IBMP through the adaptive management process based on the fetal disappearance and persistence study results to allow more tolerance for unvaccinated bison and progression to stage 2 of the IBMP versus implementing the vaccination plan and continuing the current strategy?

3. The Department's analysis of secondary impacts is insufficient and ignores comments received by the Department in the scoping process relating to the identification of vaccinated bison:

In the section titled “Issues Identified by the Public that are Within the Scope of the EA”, the Department states, “The EA should evaluate the appropriate identification of vaccinated bison, *with consideration for the fact that these animals will be observed by park visitors* (emphasis added).” In the proposed action section, the Department states, “While captured, each bison will be officially identified with an ear tag and/or other permanent means of identification...Identification will allow for the determination of vaccine effectiveness in individual bison that are subsequently recaptured.” In the section titled, Secondary and Cumulative Impacts, the Department states, “Secondary impacts are those impacts to the human environment that are indirectly related to agency action, i.e. they are indicated by a direct impact and occur at a later time or distance from the triggering action. The Department did not identify any secondary impacts associated with the proposed action.” Nowhere in the Department’s analysis is the issue of the visual impact of permanently tagged bison discussed in relation to the experience of park visitors.

4. The Department’s analysis of the impact of the vaccination plan on calf and yearling bison when the overall population is over 3000 is inadequate:

In the section titled, Proposed Action, the Department states, “When the population exceeds the defined objective for the Western Boundary Area for the whole bison herd, the Department may exercise discretion in determining whether to vaccinate and release otherwise eligible bison.” Has the Department conducted any studies to determine the viability of bison calves and yearlings that are released without adult females? If such studies indicate that orphaned bison calves and yearlings are not likely to survive until sexual maturity, then the Department’s purpose in initiating the vaccination program is further compromised. The only way that risk of exposure between bison and the risk of transmission to cattle could be reduced is if vaccinated calf and yearling bison successfully calve without shedding bacteria. Research on vaccinated calves and yearlings that are permanently tagged and subsequently recaptured will also be compromised if the vaccinated bison do not survive until the next winter/spring. The Department must provide a complete analysis of how the vaccination program will be conducted if the population of the whole bison herd exceeds the 3000 target level that includes the issues stated above.

5. The Department failed to analyze the impacts on individual calf and yearling bison that are vaccinated under the plan:

Each bison calf and yearling that is run through the squeeze chute and subsequently tests negative for exposure to brucellosis will then have to be run through the chute a second time. Based on incontrovertible evidence from capture/test/vaccination operations at the Stephen’s Creek facility in YNP, bison run through the chute sustained significant injury and stress. Has the Department developed a mechanism for testing and vaccinating bison that will not cause injury and meets the standards of humane treatment required of the Department? Further, if vaccinated bison sustain injuries during the capture/test/vaccination process, what is the impact of exposure to

bacteria from the vaccine to other bison or non-target species from open wounds or mortality caused by injury?

6. The Department should include analysis of a remote delivery vaccination plan:

In the section titled, Other Actions that were Considered but not Analyzed, under the subheading, Remote Vaccination, the Department states, “The Department is not prepared to initiate an EIS at this time because there is uncertainty whether a remote delivery system, sufficient to achieve the purposes of the IBMP, is available for field application at this time.” Based on the lack of research and understanding of the method of brucellosis exposure between bison in the Yellowstone bison herd, the lack of research and understanding of the pathology of brucellosis in Yellowstone bison, the natural characteristics of temporal and spatial separation between bison and cattle in the Western Boundary Area, the recent research on fetal disappearance and bacterial persistence, and the lack of research on the viability of orphaned bison calves and yearlings to survive until sexual maturity, there is significant uncertainty that subcutaneous vaccination of calf and yearling bison will achieve the purposes of the IBMP in reducing the risk of transmission of brucellosis between bison originating from YNP and domestic cattle grazing in the Western Boundary Area in the summer. Therefore, the standard for refusing to analyze remote delivery is inadequate. Further, the Record of Decision for the State of Montana and YNP states that step 2 “begins when a safe and effective remote delivery mechanism is available.” Because the IBMP is established under an adaptive framework, there is no reason that subcutaneous vaccination is a necessary precursor to the development of a remote delivery system and the advancement to step 2 of the IBMP even though the use of a safe vaccine is an available management action in step 1. Has the agency conducted a cost-benefit analysis of remote delivery vaccine and the advancement to step 2 in the IBMP versus implementing the subcutaneous vaccination program and remaining in step 1 of the IBMP?

In conclusion, based on the questions and concerns raised in the preceding comments, the Department should choose the “no action” alternative at this time. The proposed subcutaneous vaccination plan for calf and yearling bison originating in YNP is not likely to achieve the goals of reducing the exposure rates among the bison or reducing the risk of transmission between bison and domestic cattle. The Department should engage in further research to determine by what mechanisms exposure would be reduced among bison. The Department should also engage in the adaptive management process to revise the IBMP so that it is consistent with the latest available science on the necessary period of temporal and spatial separation to achieve the goals of the IBMP.

Respectfully submitted,
Josh Osher
Buffalo Field Campaign