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U.S. Fish and Wildlife Service
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USFWS: Arctic National Wildlife Refuge:

These comments are being written by the llama industry ad hoc Public Lands Access Committee. It is being written specifically to address the proposed banning of llamas in the ANWR and a comment letter written by Kevin Hurley representing the Wild Sheep Foundation. The WSF comments are based on the CCH 17 Risk Assessment, a collaborative effort between the Wild Sheep Foundation and Dr Helen Schwantje. This effort is repeatedly referenced in the WSF April 2017 Thinhorn Summit Synthesis as documented in commentary and analysis of the RA discussion at the 2017 Thinhorn Summit.

https://www.packllamas.org/pdf/akban/commentary_on_risk_assessment-final-5.pdf There was open discussion of banning llamas based on disease transmission to wild sheep while evidence was simultaneously being presented that pen studies by Dr. Tom Besser, WSU, demonstrated there was no disease or transmission. This renders the Risk Assessment as biased and without merit.

Hurley states The Alaska Department of Fish and Game assisted with the funding of the CCH, intimating they support the RA. Though they did provide funding, they consider it without merit as evidenced by the following statement to Barb Baker, president of Greater Appalachian Llama and Alpaca Association, by Bruce Dale, ADF&G, writing in reference to the CCH RA'17: *"there is no significant information in the RA. After discussing the document internally and with other biologists from several jurisdictions (including the Western Association of Fish and Wildlife Agency Wild Sheep Work Group - WSWG), we will continue to focus and enhance our evaluation of disease risk from species other than llamas or related camelids. There is not enough information presented in this report or other current publications to warrant spending additional resources on this issue."* Furthermore, the ADF&G letter states, *"we understand that the WSWG pulled the RA report from their website partially due to some concerns about the report itself."*

Read the complete letter:

https://www.packllamas.org/pdf/akban/alaska_department_fish_game_to_gala_06-11-18.pdf

Hurley further states WSF has called for "well-designed experiments and pathogen surveillance programs to specifically test/assess llamas and other camelids that are used in wild sheep ranges." He seems unaware that Dr. Helen Schwantje, B.C. Provincial Wildlife Veterinarian who directed the CCH 17 RA, openly admits no information was taken from llama (camelid) veterinarians and disease researchers stating, "Almost none of the material was from camelid health researchers."? Given her lack of evidence of disease in llamas or transmission to wildlife in their survey it would seem she would have abandoned the assessment based on lack of need or used these obvious untapped sources. The information is not accessed or used because it demonstrates the lack of disease in llamas and the possibility of disease transmission to wild sheep and destroys WSF's basis for banning llamas.

Hurley makes the unsupported statement: "...South American camelids can serve as host to at least 7 pathogens that could potentially impact wild sheep." The RA is admittedly hypothetical and was unable to demonstrate the listed pathogens existence in llamas and it does not support such a statement.

The CCH '17 states: "We found that there is high uncertainty about the probability of pathogen transmission from SACs to wild ungulates. We found no peer-reviewed publications documenting pathogen transmission from camelids to wild ungulates or to domestic sheep and goats for the identified pathogens."

Actually, there are such studies that have been done and they dismiss llamas as a threat to wild sheep, effectively over-riding the cautionary assessments. These are the same studies that establish the disease transmission of domestic sheep and used by WSF for separation policy from domestic sheep. Polymicrobial pneumonia (Mycoplasma ovipneumoniae (M. ovi) creates greater susceptibility to Pasturella spp and the combination actually causes the pneumonia.) is the primary cause of wild sheep die offs and domestic sheep have been identified as the primary source of the pathogens in these die offs. Llamas were demonstrated to not carry these pathogens involved in the pneumonias. The following research statements detail the studies and results. Please take note of any references to llamas.

¹² M.Woolever and T. Schommer cite research (2001): **A Process for Finding Management Solutions to the Incompatibility Between Domestic and Bighorn Sheep:**

"All ungulates, except llamas, carry some strains of P. haemolytica⁷(Foreyt 1995). However, experimental exposure of bighorn sheep to elk, deer, mountain goat, cattle, llama, and domestic goats has not resulted in pneumonia in bighorn sheep⁷(Foreyt 1992, Foreyt 1993, Foreyt 1994). Bighorn sheep also appear to be attracted to domestic sheep and goats, but not cattle or llamas. Since Pasteurella transmission requires nose-to-nose contact or transfer of mucus through coughing or sneezing, it is most likely to occur between bighorn sheep and domestic sheep or goats."

<https://www.packllamas.org/pdf/akban/foreyt-effects-of-controlled-exposure-1994.pdf>

²¹**A Review of Disease-Related Conflicts Between Domestic Sheep and Goats and Bighorn Sheep_USFS September 2008** (USDA Forest Service RMRS-GTR-209. 2008)

*"Planned pen experiments that put captive bighorn sheep in contact with other species do not support the stress hypothesis. Foreyt (1992a, 1994) and Foreyt and Lagerquist (1996) conducted eight independent contact experiments involving bighorn sheep penned with: 1) elk, white-tailed deer, and mule deer; 2) elk alone; 3) domestic goats; 4) mountain goats; 5) llamas; 6) cattle; 7) horses; and 8) steers. Of the 39 bighorn sheep tested in these experiments, only two died. One was an old female whose death was most likely due to a tooth abnormality that adversely affected her feeding ability. The other death was a bighorn sheep in the pen with the steers that died of pneumonia (Foreyt and Lagerquist 1996). These findings suggest that the presence of other species in pens itself is unlikely to lead to bighorn sheep deaths and that species other than domestic sheep are considerably less likely to transmit microbes fatal to bighorn sheep. **This latter conclusion is consistent with a lack of historical observations or circumstantial data linking such species to bighorn sheep die-offs"***

<https://www.packllamas.org/pdf/akban/foreyt-effects-of-controlled-exposure-1994.pdf> provides additional information regarding pen studies regarding llamas and their lack of disease transmission to wild sheep.

Statements made at the Wild Sheep Foundation (WSF) Thinhorn Sheep Summit II Synthesis and Summary April 2017: *MOVI IN WILD SHEEP: MANAGEMENT-RELEVANT RESEARCH - Presented by Dr. Peregrine Wolff, State Veterinarian, NDOW, for ²⁰Dr. Tom Besser, Rocky Crate Chair, WSU*

*¹⁰ "There have been numerous pen studies over the past 25 years that have mixed domestic sheep with BHS; greater than 95% of co-mingled BHS have died. When other studies mixed cattle, horses, and llamas with BHS, less than 10% of the BHS died. Tom (Besser) repeated some of these same pen studies with Movi-negative DS, and found no die-offs in BHS. (Movi is the field term for *M. ovipneumoniae*)"*

The following is posted on the Wild Sheep Foundation website:

"Mix domestic sheep with bighorn sheep – pneumonia outbreak

Greater than 95% bighorn sheep death loss

Mix cattle, llamas, or horses with bighorn sheep: No pneumonia outbreaks (occasional individual disease)
Less than 10% death"

Besser and others, J Wildlife Dis, 2012; PLOS ONE submitted; Kagudas, WSU PhD thesis, 2016

[https://www.packllamas.org/pdf/akban/tom_besser_\(peri_wolff\)_movi_ths_summit_ii_no_animation.pdf](https://www.packllamas.org/pdf/akban/tom_besser_(peri_wolff)_movi_ths_summit_ii_no_animation.pdf)

Hurley lists 7 diseases named in the CCH '17 as hypothetical disease risks for transmission from llamas to wild sheep and touts the CCH'17 as the most up to date risk assessment regarding those diseases. The most current statement regarding the specific diseases listed by Hurley and the CCH '17 comes from the AASRP, American Association of Small Ruminant Practitioners, issued in February 2020. This policy statement comes from a U. S. professional association of approximately 1000 practicing, research, and regulatory veterinarians charged with protecting and guarding the health of the domestic and wild species ANWR policy is dealing with. They know each species and understand the disease interactions both within and across species lines. AASRP specifically addresses the disease pathogens CCH identifies as significant problems in wild sheep and goat populations and dismisses camelids as carriers of those pathogens. This precludes transference of those pathogens by camelids to wild species.

Policy Statement Concerning Camelid Ban in National Parks

*There exists concern that the entry of camelid pack animals (llamas, alpacas) onto public lands poses a potential risk of disease to resident endangered or threatened ungulate populations including Boreal Caribou, Northern Mountain Caribou, Central Mountain Caribou, Southern Mountain Caribou, Bighorn Sheep, Mountain Goat, Dall's Sheep, Stone's Sheep and Roosevelt Elk. The diseases of concern by National Parks and wildlife managers include: *Mycoplasma ovipneumoniae*, *Mannheimia haemolytica*, *Mycobacterium avium paratuberculosis*, *Mycobacterium bovis*, *Pasteurellaspp.*, *contagious ecthyma*, *bovine viral diarrhea virus (BVDV)*, and *bluetongue virus*. Transmission of pathogens from cattle and sheep to wild ungulates under natural conditions has been well documented in the literature. Examples include respiratory disease and fatal pneumonia following contact between domestic and bighorn sheep (Schommer & Woolever, 2008), *M. bovis* from cattle to elk in Riding Mountain National Park (Garde et al., 2009), and BVDV from cattle to deer (Passler & Walz, 2010). However, there have been no peer-reviewed publications documenting pathogen transmission from camelids to wild ungulates or to*

domestic sheep and goats for the pathogens of concern. The American Association of Small Ruminant Practitioners is opposed to banning camelid pack animals on public lands until there is scientific justification for this action. http://www.aasrp.org/about/policy_statement.asp

http://www.aasrp.org/about/policy_statements/Llama_Ban_rev2020.pdf

CE (Contagious Ecthyma)

Page 25 of the CCH'17 states, "Dr. Helen Schwantje reported mortalities of Mountain Goats 26 with severe lesions as above in populations in contact with bighorn sheep herds with endemic CE, and a decrease in Mountain Goat numbers following observation of clinical signs (Helen Schwantje, pers. comm., 2017). D.4. Qualitative" The CCH states: "*CE has a medium-high probability of SAC infection, as infection can persist for weeks to months, and the disease is common among small ruminants in western Canada.*"

Dr Schwantjes and the CCH'17 have just established CE as endemic in bighorn sheep and small ruminants in western Canada and The CCH '17 advocates banning llamas that rarely contract CE, and do not carry the parapox virus causing CE.

Dr Gregg Adams

⁴"Contagious ecthyma, chlamydiosis and MAP in camelids are rare - far less than in humans."

Dr. Larue Johnson

³"Contagious ecthyma (CE) is a very well established viral disease in sheep and goats. It has very rarely been reported in llamas."

¹⁰ THS Summit II, page 21, Helen Schwantje: "*We used mineral salt blocks to draw BHS away from a highway, but the bighorns got a high amount of orf (contagious ecthyma); therefore, I feel that concentrating animals can lead to disease-transmission issues.*"

¹⁰ THS Summit II, page 21, Bill Jex: "*In BC, I believe that concentrating wild sheep is dangerous, from a disease perspective. BC has outfitters that are putting out their own (mineral) blocks, with the thought that it will produce better rams.*"

Given that CE is endemic in sheep populations, persistently present in their habitat, disease occurs spontaneously in sheep, yet is extremely rare in llamas, why is CE even considered? It is very puzzling to include CE when ADF&G, Division of Wildlife Conservation is represented as a participant/solicitor in the assessment. Dr. Kimberlee Beckmen is a veterinarian in that division and is a coauthor of a recently released research paper, ²⁵ [Orf virus infection in Alaskan mountain goats, Dall's sheep, muskoxen, caribou and Sitka black-tailed deer](#), that documents the high prevalence of CE as a zoonotic infection freely transmitted between members of the bovidae family (sheep and goats both domestic and wild) and humans. The parapoxvirus genus is the pathogen implicated. Camelpoxvirus, ²⁶ Dr. Murray Fowler-[Camelids Are Not Ruminants](#), is the virus implicated in pox infections in camels in Africa and Asia and rarely infects llamas.

BVDV (Bovine Viral Diarrhea Virus)

The CCH states: "*BVDV was assessed as high probability of SAC infection because serosurveillance in North America shows moderate exposure in SAC herds, and it is ubiquitous in cattle in western North America; infected camelids have been demonstrated to transmit virus to other animals; PI and acutely infected animals shed large amounts of virus; and there is environmental survival. It was ranked as*

having low impact to wild ungulates by experts, giving an overall medium risk”

BVDV is rare in llamas. The sero-converters mentioned as significant are not infections. These are animals that have been exposed to the virus probably through contact with cattle, but developed immunity, not the disease. The actual infections noted were in a single herd of alpacas. The persistently infected alpacas were crias infected in utero and subsequently did not develop titers for disease resistance. They were contagious, but tended to be weak and expired as neonates, limiting their impact. Exposure to uninfected herd mates would elicit antibody production and immunity. Infection required exposure of a female during a narrow window of the gestation period and only her fetus would be infected and without immune response.

M. avium paratuberculosis (Johne's) (MAP)

The CCH states: *“Johne's Disease was assessed as medium-high probability of SAC infection because the bacteria is known to affect SACs; it is ubiquitous in livestock in western North America; it can be shed by animals without overt signs of disease during a long pre-clinical infection; and it has long environmental persistence.”*

¹² Comments from Western Association of Fish and Wildlife Agencies (WAFWA) Wild Sheep Working Group; 2001

“There has been ongoing concern about Johnes disease transmission from llamas to bighorn sheep. However, there is no evidence to support the concern. Only 4 confirmed cases of Johnes disease have been documented in the United States in a population of approximately 100,000 llamas. Transmission requires repeated and prolonged nasal contact to high concentrations of bacteria (10-8 per gram). Animals shedding this number of bacteria are in the terminal stages of the disease. They are emaciated and weak which is incompatible with a viable pack animal. In short, this is not a problem for our bighorn sheep herds. For additional information, refer to the Johnes Disease Workshop Proceedings March 1996 available from Melanie Woolever.”

Comments from Colorado State University Veterinary Teaching Hospital Faculty:

“To date, only four cases of Johnes's disease have been documented in llamas, although a thorough search of the literature indicates one additional case where typical lesions of the disease were noted but the organism was not specifically identified. Not only has the disease been infrequently found in llamas in North America, but the reported cases have tended to be unusual in being quite young or quite old, as compared to the typically affected cow or sheep. The course of the disease in llamas has been short, with death occurring shortly after clinical suggestion of disease. It is most likely that the low reported incidence of this problem in llamas is a true representation of the disease in the species because it is unlikely that the disease has been inadvertently overlooked. By comparison with our domestic ruminant livestock, llamas have tended to maintain a high individual monetary value and, therefore, death and disease in this species has typically been closely scrutinized using standard but extensive diagnostic methods. Llamas are frequently placed in close contact with domestic ruminant livestock and thus should have ample opportunity to contract the disease and show signs if they were highly susceptible to this problem. While the low reported incidence of Johnes's disease in llamas is significant in itself suggesting that llamas are an extremely infrequent carrier of the M. paratuberculosis microorganism.”

¹¹ Summary letter May 5, 1994 to the Canyonlands Veterinary Symposium signed by Colorado State University Veterinary Teaching Hospital faculty:

Franklyn B Garry, DVM, MS Assoc Professor Food Animal Medicine and Surgery

David M. Getzy, DVM, Director Diagnostic Laboratory

Terry Spraker, DVM, PhD, Associate Professor, Diagnostic Laboratory

LaRue W. Johnson, DVM, PhD. Associate Professor and Section Chief, Food Animal Medicine and Surgery

Johne's disease is rare in llamas. They do develop titers, but that only indicates exposure. Johne's was the disease threat cited as the reason for banning llamas in Canyonlands NP. Johne's disease in llamas received extensive analysis and the ban was lifted upon determination no significant threat existed. It was determined Johne's infections in llamas were rare, atypical, and terminal. The disease incidence has continued to be rare and limited to endemic areas.

BTV-Blue Tongue Virus

The CCH states: *"BTV was assessed as medium probability for SAC infection and risk of transmission in the limited geographic range and season for the vector, and was assessed as high potential impact to wild ruminants."*

Blue tongue is rare in llamas and dependent on an arthropod vector for infection. Llamas are not a carrier of BTV and the midge vector does not typically occur in the NW U.S. Blue Tongue virus is recognized as a cattle pathogen. Other species can be infected, but cattle prove to be the source of the infections. This would be the source for any wild sheep infections as well.

M. bovis - Mycobacterium bovis

CCH states: *"M. bovis was assessed as low probability of SAC infection because it is extremely rare in any animal species in Canada, and the disease is highly unlikely in a SAC born in Canada."*

They rank it as a medium risk in the face of their own statements. Occurrence of M. bovis infections in llamas is similar to that in horses and the disease is not of consequence. The disease has been infrequently documented in endemic areas such as the UK.

Hurley further states:

"Much like the North American Pack Goat Association (NAPgA) <https://www.napga.org/> has done, including a collaborative August 2018 workshop with WSF/wild sheep representatives, it would be beneficial if individual or collective llama packers or their associations worked with other stakeholders on development of comprehensive standardized health assessment guidelines and implementation of a comprehensive testing protocol..."

This statement is so grossly misstated it calls for correction. The North American Pack Goat Association (NAPgA) and pack goat individuals were victims of the most aggressive, all out war, to completely eliminate the use of pack goats anywhere near wild sheep habitat on our public land. It started in 2007, by Mr. Hurley and others in the root wild sheep foundation organizations with the purchase of a priority use recreational special use permit that used pack goats on the Shoshone National Forest. The intent and purpose was to eliminate any future recreational use for the general public with pack goats in wild sheep habitat. The permit was retired without public review. Over the years, Mr. Hurley and the Wild Sheep Foundation have succeeded in large swaths of 100's of thousands of acres of public land access

being taken away from pack goats and their human companions. To suggest that the WSF and NAPgA had a collaborative 2018 workshop that was successful for the pack goats, is not true. It certainly was true for the WSF because they drafted the protocol for testing pack goats to be used on the Shoshone National Forest. It was a part of the closure and finality to eliminate pack goats as designed in the SNF-Final-EIS. This was not so they could be used in wild sheep habitat, because Mr. Hurley and the WSF got the pack goats prohibited on our public lands for decades. It was simply a small non-wilderness buffer area far from any pristine wilderness and wild sheep habitat.

“In fact, NAPgA has developed a set of Best Management Practices <https://www.napga.org/resources/best-management-practices-psr/> that pack goat users should, and do, adopt and implement. In addition, NAPgA has developed a popular-format training video <https://www.napga.org/bmp-video/> that pack goat users voluntarily watch; perhaps the llama packers associations could duplicate these approaches, customized for their animals. Furthermore, WSF and associated wild sheep representatives helped NAPgA develop a Health Passport that assists small ruminant veterinarians or other veterinary practitioners as they conduct health inspections/assessments of pack goats to be used recreationally.”

The deception of this paragraph is staggering. Not only did the NAPgA not have anything to negotiate with the WSF that was to be given to the Shoshone National Forest, they lost public land access all over the United States, with the implementation of new federal land management plans prohibiting pack goats. This so called wonderful “Health Passport” does NOT allow this user group to use their pack goats in wild sheep habitat. It was developed by the WSF so it would make it almost impossible to succeed, especially with the costs involved. The health passport, that Mr. Hurley refers to, was soundly rejected by other small ruminant veterinarians, including wild sheep scientists and practitioners as reasonable.

Hurley intimates llama packers should be cooperative and enter a similar process. Nobody in the llama packing industry has been asked to participate in any process and have never been acknowledged as stakeholders. A proper risk assessment would engage all stakeholders in formulating and identifying diseases and determining the methodology used. The risk assessment was unilateral and fatally flawed as a result. There is no scientific basis. No disease has been demonstrated and there is a failure to identify pathogens (particularly M ovi.) because they are not there. That’s the reason the llama community was never engaged. It did not serve the purposes of WSF. Additionally, developing testing requires presence of disease or disease agents. None exist. To suggest that there needs to be a disease protocol and passport for llamas is asinine.

To suggest the WSF and the NAPgA are collaborative friends is grossly untrue. Furthermore, Hurley and WSF take a reckless non-scientific leap by propagating and funding false science and research to land managers and the general public, by citing the CCH17. The RA commits a huge scientific blunder citing Bovids and Camelids as equivalent disease risk to wild sheep. Perhaps Mr. Hurley should focus on the greater disease threats posed to wild sheep by humans, cattle, and horses. Only then would it be appropriate to even consider any disease threat posed by llamas.

In the spring of 2017, with the motto “NO CONTACT IN THE NORTH” in tow, at the Wild Sheep Foundation Thin Horn Sheep Summit II Synthesis and Summary, Page 22, Kevin Hurley said the following: ***“In AK, per BOG regulations, you cannot use pack goats or llamas for hunting, but you can use them for non-hunting recreation. WSF would like to see these domestic animals banned from THS range on all federal lands in AK year-round.”*** This was 6 months before the release of the CCH-17.

Besides the statement being patently false, The Wild Sheep Foundation, once again, planned, propagandized, and spread false science, slanderous to the llama packing industry. Fortunately, many scientists have disregarded the CCH-17, in part, because the way this paper was produced for the WSF. The fact that the CCH-17 is not peer reviewed, nor published, and violated every fundamental protocol required for a scientific risk analysis, should send up a red flag to the Arctic National Wildlife Refuge managers.

The comments from Hurley, representing WSF 's position, demonstrate WSF's irrational pursuit of a ban of llamas based on disease transmission to wild sheep. Their pursuit is based on their determination to control the wild sheep industry and the lands they inhabit and not on any demonstrated or real threat to wild sheep populations posed by llamas. The sheep are a public wildlife asset and the lands they occupy are public as well. By limiting pack llamas, they hope to reduce competition for limited sheep tags by eliminating private hunters using pack llama support thus increasing the chances for clients of WSF hunter/guide members selling expensive guided hunts. They are attempting to appropriate public assets and public lands to support their private interests at the expense of private hunters and recreationalists of all types historically using these very lands for the purposes for which they were set aside.

WSF tactics, demonstrated by Hurley's comments, demonstrate a propensity for bullying borne of unchecked access. This access has been paid for through distributing a lot of money, much of which comes from the auctions of special hunt sheep tags (public assets). WSF has developed an arrogance that they can dictate and create science that underwrites their appetite for dominance of the wild sheep industry. This becomes readily apparent when WSF manufactures junk science like the CCH and based on false information, expects to advance their interests unchecked. As this becomes apparent to more of the public and they realize there is a movement afoot to limit their access and associated livelihood and enjoyment, there will be appropriate reaction and the llama packing community will be at the front of the effort.

Ad Hoc Llama Industry Committee for Public Lands Access

Scott Woodruff-WY
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