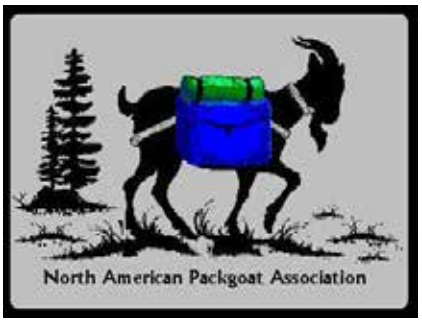

Comments on the

Custer Gallatin National Forest

Draft Environmental Impact Statement for the Draft Revised Forest Plan

Submitted by:

North American Packgoat Association

June 6, 2019

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VIA ELECTRONIC SUBMITTAL

RE: Comments on the Custer Gallatin National Forest Draft Environmental Impact Statement for the Draft Revised Forest Plan

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Attn: Forest Plan Revision
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Bozeman, MT 59771
Electronic Submittal: https://cara.ecosystem-management.org/Public//CommentInput?Project=50185

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On behalf of the North American Packgoat Association, I hereby timely submit these Comments on the Custer Gallatin National Forest ("Gallatin NF") Draft Environmental Impact Statement ("DEIS") for the Draft Revised Forest Plan ("Forest Plan"). If you have any questions concerning these comments or need further information, you may contact NAPgA or Andrew Irvine at the emails and phone numbers indicated above.

Date: June 6, 2019

Andrew A. Irvine
of Andrew A. Irvine, P.C.

I. Introduction to Comments

The North American Packgoat Association ("NAPgA") timely submits comments on the Custer Gallatin National Forest ("Gallatin NF") Draft Environmental Impact Statement ("DEIS") for the Draft Revised Forest Plan ("Forest Plan"). *See* 84 Fed. Reg. 8524 (Mar. 8, 2019) (Notice of Availability). Comments on the DEIS and Forest Plan were requested by the Gallatin NF as required by 40 C.F.R. §§ 1502.9, 1503.1. *See id.*; *see also* Letter from Mary C. Erickson, Forest Supervisor, Gallatin NF, to Interested Parties, dated March 1, 2019, available at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd611353.pdf (requesting comments). The comment period ends on June 6, 2019. *See* 84 Fed. Reg. 8524.

The North American Packgoat Association, Inc. is an organization established specifically for promoting packing with pack goats. The organization was incorporated in March 2001 as a 501(c)(3) non-profit organization. NAPgA seeks to further the pursuit of goatpacking by sharing the knowledge, ideas and experiences of its members, by promoting the use of pack goats to the public as a means of low impact wilderness transportation and recreation, by serving as an advisory group on local and national land use issues, and by engaging in other activities related to educating the public about goatpacking.

NAPgA appreciates this opportunity to comment on the Custer Gallatin National Forest DEIS for the Forest Plan. NAPgA and its numerous goatpacking-members will be affected by the management direction proposed in the draft goals and standards. The proposed management direction would result in closure of one of the premier goatpacking areas in the nation, and set a bad precedent for other forests to follow in managing goatpacking as a recreational use. These comments will better inform the DEIS and Forest Plan and further develop the efficacy of the management direction as defined by the draft goals and standards.

II. Legal Background for the Comments

A. NEPA Prohibits Uninformed Agency Action

In passing NEPA, Congress "recogniz[ed] the profound impact of man's activity on the interrelations of all components of the natural environment" and set out "to create and maintain conditions under which man and nature can exist in productive harmony." 42 U.S.C. § 4331(a). To bring federal action in line with Congress' goals and to foster environmentally informed decision-making by federal agencies, NEPA "establishes 'action-forcing' procedures that require agencies to take a 'hard look' at environmental consequences." *W. Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 486 (9th Cir. 2011) (citing *Metcalf v. Daley,* 214 F.3d 1135, 1141 (9th Cir. 2000)). Foremost among those procedures is the preparation of an environmental impact statement ("EIS"). *Id.*

Agencies considering "major Federal actions significantly affecting the quality of the human environment" are required to prepare an EIS. 42 U.S.C. § 4332(C). The EIS "shall provide full and fair discussion of [the] significant environmental impacts" of the proposed action. 40 C.F.R. § 1502.1. That discussion serves two purposes:

> First, it ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information

> concerning significant environmental impacts. Second, it guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.

W. Watersheds Project, 632 F.3d at 487 (quoting *Dep't of Transp. v. Pub. Citizen,* 541 U.S. 752, 768 (2004)). This process does not mandate particular substantive results, but "NEPA . . . prohibits uninformed . . . agency action." *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 351 (1989). By focusing agency and public attention on the environmental effects of proposed action, "NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct." *Marsh v. ONRC*, 490 U.S. 360, 371 (1989).

B. Review Under the APA

The Administrative Procedure Act ("APA"), 5 U.S.C. §§ 701-706, provides for judicial review of agency actions, such as those at issue here.[1] Under the APA, a reviewing court shall "hold unlawful and set aside agency action, findings, and conclusions found to be . . . arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law; . . . [or] without observance of procedures required by law." 5 U.S.C. § 706(2)(A), (D). Although the arbitrary and capricious standard is a "narrow one," the court is required to "engage in a substantial inquiry" and a "thorough, probing, in-depth review." *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 960 (9th Cir. 2005) (quoting *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 415-16 (1971)).

Under this standard, an agency decision is to be reversed as arbitrary and capricious if the agency has ". . . entirely failed to consider an important aspect of the problem, [or] offered an explanation that runs counter to the evidence before the agency. . . ." *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). "The reviewing court should not attempt itself to make up for such deficiencies." *Id.* (citation omitted). Most fundamentally, the agency must "examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'" *Motor Vehicle,* 463 U.S. at 53 (quotation omitted).

Where, as here, there has been a change in policy from allowing goatpacking on the Gallatin NF to eliminating goatpacking on the Forest, judicial review starts with the presumption that the change in policy is *not* justified by the administrative record. *Motor Vehicle*, 463 U.S. at 42. Additionally, the traditional presumption of agency expertise "'may be rebutted if the decisions, even though based on scientific expertise, are not reasoned.'" *W. Watersheds Project v. Ashe*, No. 11-462, 2013 WL 2433370 at *5 (D. Idaho June 4, 2013) (citations omitted).

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[1] NEPA claims are subject to judicial review under the APA, 5 U.S.C. § 706(2)(A). *See Dep't of Transp. v. Pub. Citizen,* 541 U.S. at 763; *Marsh,* 490 U.S. at 375–76; *League of Wilderness Defenders-Blue Mtns. Biodiversity Project v. U.S.*, 549 F.3d 1211, 1215 (9th Cir. 2008) (the APA provides authority for the court's review of decisions under NEPA); *W. Watersheds Project v. U.S. Forest Serv.*, 2006 WL 292010, *2 (D. Idaho) (same).

In addition to the requirements of the NEPA and the APA, Forest Service regulations require that "best available science" be taken into account in forest planning. 36 C.F.R. § 219.3. In taking "best available science" into account, the Forest Service must "document how the best available science information was used to inform the assessment, the plan decision, and the monitoring program" and such documentation must "[i]dentify what information was determined to be the best available scientific information, explain the basis for that determination, and explain how the information was applied to the issues considered." *Id.*

III. Background on the Forest Plan

The Forest Plan makes radical changes to the Gallatin NF's existing management of goatpacking on the Forest. At General Recreation, Section 2.4.15, and with regard to Suitability 01, the Forest Plan states that under Alternatives B and C "[r]ecreational use of pack goats is not suitable in the Madison, Henry's Lake, and Gallatin Mountains; Absaroka –Beartooth; or Pryor Mountain Geographic Areas. Under Alternative D, "[r]ecreational use of pack goats is not suitable forestwide," and under Alternative E, "[r]ecreational use of pack goats is suitable forestwide." Thus, three of the four proposed alternatives would render recreational use of pack goats unsuitable on the Forest.

In following, at Section 2.4.25 Recreational Opportunities—Outfitter Guides (RECOG), and with regard to Standards (FW-STD-RECOG) 01, the Forest Plan states:

> Alternatives B and C: Use of pack goats under new special use permits shall not be permitted in the Madison, Henrys Lake, and Gallatin Mountains; Absaroka-Beartooth; or Pryor Mountain Geographic Areas. Use of pack goats under new special use permits may be permitted in the Bridger, Bangtail, and Crazy Mountains; Ashland; and Sioux Geographic Areas only if a risk assessment indicates that spatial or temporal separation, or other mitigation can effectively minimize risk of disease transmission between livestock and bighorn sheep.
>
> Alternative D: Use of pack goats under new special use permits shall not be permitted.
>
> Alternative E: Use of pack goats under new special use permits shall be permitted only if a risk assessment indicates that spatial or temporal separation, or other mitigation can effectively minimize risk of disease transmission between livestock and bighorn sheep.

See also DEIS at 434-35 (repeating management direction). As a result, pack goats are banned from most of the Forest under Alternatives B and C, and from the whole Forest under Alternative D. Moreover, even where pack goats are not banned, they are subject to an undefined "risk assessment" under Alternatives B, C and E that must indicate, "spatial or temporal separation, or other mitigation can effectively minimize risk of disease transmission between livestock and bighorn sheep."

The Forest Plan adds that special use permits must provide the following:

02 Written instructions shall be included in the permit to address management, retrieval and disposition of stray pack goats.

03 Notification procedures shall be included in the permit for situations when wandering bighorn sheep may come into contact with pack goats, prompt notification of interaction shall be required by permittees.

04 The Forest Service shall require permittees to take appropriate measures to prevent use of sick or diseased pack goats

Finally, in the Glossary at page 215, the Forest Plan defines "effective separation" as "[t]he spatial or temporal separation between wild sheep and domestic sheep or goats to minimize the potential for association and the probability of transmission of diseases between species (Wild Sheep Working Group 2012)."

IV. Comments on the DEIS and Forest Plan

To assist the Gallatin NF, NAPgA's comments generally refer to specific pages of the DEIS and Forest Plan that form the basis for each comment; however, some comments may apply more broadly. Comments are intended to apply to all listed pages, or generally, and should be addressed in the context of each of the listed pages or in general.

NAPgA looks forward to the Gallatin NF's responses to its comments. In addition to its general obligation to respond to public comments under 40 C.F.R. § 1503.4(a), the Gallatin NF must specifically "discuss at appropriate points in the final [EIS] any responsible opposing view which was not adequately discussed in the draft [EIS] and . . . indicate the agency's response to the issues raised." *Ctr. for Biological Diversity v. U.S. Forest Serv.*, 349 F.3d 1157, 1167 (9th Cir. 2003) (quoting 40 C.F.R. § 1502.9(b)). A failure to do so is itself a NEPA violation. *Id.* at 1168. The Gallatin NF must also "insure the professional integrity, including scientific integrity, of the discussions and analyses" included in its DEIS. 40 C.F.R. § 1502.24.

1. The No Action Alternative is Mischaracterized in the DEIS and Must be Revised so as NOT to Include Policy which has Not been Subject to NEPA Review and Public Comment

Under Alternative A – No Action (the Current Plans), the DEIS states, "[w]hile no specific management direction is stated related to disease transmission to bighorn sheep from domestic sheep and goats, the Forest Service would follow current policy to only allow this use if a risk assessment indicates risk of disease transmission to bighorn sheep can be minimized." DEIS at 18.

As the Gallatin NF recognizes, the current plans do <u>not</u> provide specific management direction related to disease transmission from pack goats. As a result, Alternative A – No Action in the DEIS should represent an alternative where <u>no</u> restrictions are placed on pack goat use on the Forest. The Gallatin NF mischaracterizes Alternative A – No Action by adding a "policy" that has not been approved in a Forest Plan and has not been subject to NEPA. The policy does not represent the No Action alternative and cannot be incorporated as part of Alternative A – No

Action. This attempt by the Gallatin NF to include such policy as part of the existing Forest Plan in order to avoid NEPA review and public comment of the policy is improper.

Further, this "policy," although mentioned in the DEIS, is not specifically named, discussed or presented in the document, so the public is uninformed about the policy. This policy must be named, discussed and presented in the DEIS, so that the public can review the policy and comment on its inclusion as part of the DEIS.

2. The "Risk Assessment" Referenced in the DEIS Must be Presented to the Public and Discussed in the DEIS

At 2.5.4 Alternative B and throughout the DEIS, the DEIS references a "risk assessment." For example, the DEIS states, "[e]lsewhere on the national forest, . . . permitted recreational goat packing would be allowed only if a risk assessment indicated risk of disease transmission to bighorn sheep can be minimized." DEIS at 19. What is this "risk assessment?" This "risk assessment" must be presented to the public and subject to public comment as part of the DEIS.

3. NAPGA Generally Supports Alternative A and Alternative E to the Extent the Alternatives Allow for Continued Goatpacking on the Gallatin NF

Although the Gallatin NF fails to provide or discuss the "policy" made part of Alternative A and likewise fails to provide or discuss the "risk assessment" made part of Alternative E, both of these alternatives would appear to allow goatpacking to continue on the Gallatin NF. As a result, NAPgA urges the responsible official to choose Alternative A or Alternative E as the preferred alternative. Public recreational goatpacking is definitely a suitable use and should be allowed on the Forest with or without a risk assessment, as there is little to no risk of disease transmission to bighorn sheep posed by the use of pack goats on the Gallatin NF.

4. The DEIS Misrepresents the Science on Disease Transmission from Domestic Goats, Especially Pack Goats. To Ensure the Scientific Integrity of the DEIS and Forest Plan, the Gallatin NF Must Correct and/or Remove False or Unsupported Statements Concerning Pack Goats from the DEIS and Forest Plan

In evaluating the environmental impacts of a proposed action, NEPA requires federal agencies to ensure the scientific integrity of an EIS by considering appropriate studies and data. 40 C.F.R. § 1502.24. The Gallatin NF must "insure the professional integrity, including scientific integrity, of the discussions and analyses" included in its DEIS. *Id.* An agency may not rely on conclusory statements unsupported by data, authorities, or explanatory information. *Seattle Audubon Soc'y v. Moseley*, 798 F. Supp. 1473, 1480-83 (W.D. Wash. 1992), *aff'd*, 998 F.2d 699 (9th Cir. 1993). NEPA requires that an agency candidly disclose in its EIS the risks and effects of its proposed actions, and that it respond to adverse opinions held by respected scientists. *Seattle Audubon*, 798 F. Supp. at 1482 (*citing Friends of the Earth v. Hall*, 693 F. Supp. 904, 937 (W.D. Wash. 1988)). Further, under NEPA, courts have held that agency actions based on unexplained assumptions are arbitrary and capricious. *Ctr. for Biological Diversity v. U.S. Dep't of the Interior*, 623 F.3d 633, 650 (9th Cir. 2010); *see also Dow*

Agrosciences LLC v. Nat'l Marine Fisheries Serv., 707 F.3d 462, 470 (4th Cir. 2013) (agency must explain why lab tests reflect nature).

The Gallatin NF has failed to ensure the professional integrity, including scientific integrity, of the discussions and analyses in the DEIS as required under NEPA. The Gallatin NF appears to be operating on incomplete information concerning disease transmission from domestic goats, including packgoats, to bighorn sheep, and also appears to be ignoring important aspects of the problem of disease transmission as well as offering explanations in the DEIS that run counter to the evidence before the Gallatin NF. Much of the analysis and discussion in the DEIS lacks factual or scientific support.

At Section 3.10.4 General Wildlife, the DEIS cites Wild Sheep Working Group 2012 for the statement that "[a]n extensive review of scientific literature and available data on bighorn sheep populations in the western United States concluded that contact with domestic sheep and goats was the source of most of the disease resulting in major die-offs of bighorn sheep." This cite is to a collection of "Recommendations for Domestic Sheep and Goat Management in Wild Sheep Habitat," not a scientific research paper. To the extent there is any scientific evidence reference in the Wild Sheep Working Group 2012 to support this statement as it pertains to goats, particularly pack goats, such science should be directly cited and the public should be allowed to review and comment on such science. Otherwise, the Gallatin NF should remove the reference, as it is not a scientific research paper providing any evidence concerning disease transmission between pack goats and bighorn sheep.

Further, the DEIS indicates that "[t]he presence of disease-carrying domestic sheep and goats in close proximity to bighorn sheep is a key stressor for bighorn sheep." DEIS at 432. What is the basis for this statement as it applies to goats, particularly pack goats? There is absolutely no science indicating that "[t]he presence of disease-carrying domestic . . . [pack goats] in close proximity to bighorn sheep" is a " key stressor" for bighorn sheep. This statement must be revised to exclude pack goats.

Finally, the DEIS states, "[c]onsequently, comingling of bighorns with domestic sheep and goats continues to be a major concern today, " citing Garrott et al. 2015. DEIS at 432. Where in Garrott et al. 2015 is there a concern raised about commingling of bighorns with domestic goats, particularly pack goats? Garrott et al. 2015 does not mention any risk of disease transmission from pack goats. As a result, this statement must be revised to exclude pack goats.

5. Statements in the DEIS Concerning Effects of the Current Plans Must be Revised to Reflect Current Science on Disease Transmission from Pack Goats

In the DEIS under Effects of the Current Plans, the DEIS states that domestic goats "may carry some of the same strains of disease, and can transmit disease to bighorn sheep in the wild." DEIS at 433. No cite is provided for this statement. When has a domestic goat, particularly a pack goat, ever transmitted disease to bighorn sheep in the wild? That has never happened. This sentence must be revised to exclude pack goats.

The DEIS also references a "primary threat of disease transmission from domestic sheep and goats to bighorn sheep." DEIS at 433. What is this "threat of disease transmission" from pack goats to bighorn sheep? No such threat has been established. As a result, this statement should be revised to exclude pack goats. Furthermore, because pack goats do not pose a threat of disease transmission, as discussed further below, this section should be revised to indicate that existing plans are more than sufficient to minimize disease transmission from pack goats, as pack goats do not pose a threat of disease transmission to bighorn sheep.

6. The Gallatin NF Must Consider Dr. Margaret Highland's Research Concerning the Limited Prevalence of Mycoplasma ovipneumoniae in Pack Goats

The Gallatin NF has failed to consider recent scientific research indicating that pack goats do not commonly carry *Mycoplasma ovipneumoniae*. This research by Dr. Margaret Highland, Research Veterinarian with the Animal Disease Research Unit-ARS-USDA is presented in Exhibit B. Dr. Highland's research indicates that pack goats do not commonly carry the disease-causing organisms associated with bighorn sheep die-offs. The results of the testing performed for Dr. Highland's research are also included in Exhibit B, so that the Gallatin NF can consider the results and verify the legitimacy and scientific method in the research. Dr. Highland's research is in the process of being published, but has already been presented, *see*, *e.g.,* https://pdfs.semanticscholar.org/presentation/4bb7/616fa740f42ceda2c55d275f0a8032fc6ca8.pdf , and has been considered by the Forest Service on numerous other occasions (except on the Gallatin NF).

Under the APA and NEPA, the Gallatin NF is required to consider the fundamental aspect of the problem of disease transmission, namely, whether pack goats can actually carry and transmit *M. ovi* to bighorn sheep in the wild. *See Motor Vehicle,* 463 U.S. at 43. The Gallatin NF is also required to examine relevant data, consider opposing viewpoints, ensure the scientific integrity of its discussions, and articulate a satisfactory explanation for its action. *See id.* at 42-43, 53; *Ctr. for Biological Diversity v. U.S. Forest Serv.*, 349 F.3d at 1167 (quoting 40 C.F.R. § 1502.9(b)).

Moreover, and in addition to the requirements of the APA and NEPA, Forest Service regulations require that "best available science" be taken into account in forest planning. 36 C.F.R. § 219.3. In taking "best available science" into account, the Forest Service must "document how the best available science information was used to inform the assessment, the plan decision, and the monitoring program" and such documentation must "[i]dentify what information was determined to be the best available scientific information, explain the basis for that determination, and explain how the information was applied to the issues considered." *Id.* The Forest Service Land Management Planning Handbook, FSH 1909.12, directs the Gallatin NF's use of the best available scientific information and provides that where research is relevant, accurate and reliable, the Forest Service should include it as the best available scientific information. *See* FSH 1909.12, 42.13.

As a result, this science presented by Dr. Highland must be considered in the DEIS under the APA and NEPA, as well as the implications of pack goats not being carriers of *M. ovi*. If

pack goats are not carriers of disease-causing pathogens, then they do not pose a risk of disease transmission to bighorn sheep on the Gallatin NF.

In sum, the Gallatin NF must review and consider Dr. Highland's research in the DEIS. Such consideration is required by the APA, NEPA and the Forest Service's own planning regulations. Dr. Highland's research indicates that pack goats are rarely carriers of *M. ovi*. As a result, pack goats do not pose a significant risk of disease transmission to bighorn sheep on the Gallatin NF. Pack goats cannot transmit disease they do not have. These points must be considered in the DEIS.

7. Cooperation and Collaboration in Decision-Making is Required Before, Not After, the Gallatin NF Makes a Decision to Ban Pack Goat Use on the Forest

The DEIS indicates that a goal of the Forest Plan is "cooperation and collaboration with . . . livestock permittees, and other interested parties to develop livestock management protocols and habitat management strategies to minimize risk of disease transmission between domestic livestock and bighorn sheep." DEIS at 434. How is the Gallatin NF achieving this goal? It would seem important, as well as required under NEPA, to cooperate and collaborate with NAPgA prior to banning pack goat use from the Forest. In order to avoid uniformed agency decision-making, the Gallatin NF must consult with NAPgA before, not after, deciding to ban pack goat use from the Forest.

8. The DEIS Must Specifically Identify and Discuss the "Threat of Disease Transmission" from Pack Goats to Bighorn Sheep

As touched on above, the DEIS refers to a "threat of disease transmission from domestic livestock to bighorn sheep." DEIS at 434. The DEIS further indicates that plan alternatives include components to address this "threat" and that where pack goats are not completely banned from the Forest outright, they will be banned according to an undefined "risk assessment." *Id.* at 434-35. While the Gallatin NF is quick to ban pack goats use because of the "risk" or "threat" of disease transmission, it does not define what this "risk" or "threat" actually is?

The Gallatin NF should explain in the DEIS what it means by risk of disease transmission between pack goats and bighorn sheep. Notably, contact between pack goats and bighorn sheep has never occurred before on the Forest, so risk does not mean that contact is more likely that not, otherwise such contact would have already occurred. There is no scale of risk to inform the reader about the actual likelihood of contact. The Gallatin NF should explain what they mean by "risk," including the various scales of risk from high to low. Also, the Gallatin NF should explain how contact between pack goats and bighorn sheep on the Forest would actually occur. What does the Gallatin NF mean by "contact?" Would a bighorn sheep approach a pack goat on a trail, in the presence of the pack goat's human owner and make "contact?" Would a bighorn sheep enter into a camp in a forested area where there is a pack goat, again in the presence of its human owner, and make contact there? Is this nose-to-nose or sexual contact? When the Gallatin NF refers to "risk" and "contact" in the DEIS it is unclear what the Gallatin NF is talking about and how such "contact" would occur. These things should be explained. Likewise, the Gallatin NF should discuss the likelihood of contact in understandable terms and present how

such contact would occur based on the behavior of bighorn sheep and use and training of pack goats.

At page 431, the DEIS indicates that "[a] few individuals have used domestic pack goats for personal (not outfitting or guiding) recreational purposes, but to date, such use has been very limited on the Custer Gallatin National Forest." Considering this very limited use, the Gallatin NF is basically saying there is a strong likelihood that on one of the two or three goatpacking trips taken on the Gallatin NF each year, a bighorn sheep would (1) leave its herd and its summer habitat in the high country, (2) find a human and pack goat camp, (3) sneak into that camp without causing any disturbance in the pack goats and without being detected by the humans, (4) ask the pack goats to not be alarmed, to remain still and to muffle their bells and collars, (5) find a tethered goat that is infected by and shedding strains of *M. ovi*, (6) make physical contact with that goat sufficient for disease transmission, and (7) sneak back out of camp and return to its herd and infect other bighorn sheep. It is a far-fetched scenario that has never happened before.

In reality, there is almost no overlap in time or space between pack goats and bighorn sheep on the Gallatin NF; bighorn sheep are not prone to leave their herd/habitat and wander into human and pack goat camps; pack goats react noisily when they are alarmed by other wildlife, including bighorn sheep; the vast majority of pack goats do not carry and shed strains of *M. ovi*; and it is unknown whether bighorn sheep can even be infected with strains of *M. ovi* from pack goats resulting in fatal respiratory disease. The facts do not support the Gallatin NF's assumption that there is a likelihood of disease transmission from pack goats to bighorn sheep on the Forest.

Before undertaking management action concerning the risk of contact and disease transmission between pack goats and bighorn sheep on the Gallatin NF, the Forest should provide an analysis of the current risk posed by pack goats. This could be done with a quantitative risk assessment. Regardless, the Gallatin NF has not presented any scientific information indicating that pack goats pose a significant risk. Rather, pack goats rarely use the Gallatin NF, rarely carry disease and are very unlikely to contact a bighorn sheep, particularly when handled according to established guidelines, so pack goats would appear to pose negligible risk. Why then are they being prohibited from the Gallatin NF? The Gallatin NF must answer this threshold question. The Gallatin NF's explanation for prohibiting pack goat use runs counter to the evidence before the agency. Without establishing significant risk, the Gallatin NF's prohibition on pack goat use is unjustified.

9. The Gallatin NF Arbitrarily and Capriciously Treats Potential Disease Transmission from Pack Goats Different than that From Llamas and Alpacas on the Forest

Curiously, with regard to llamas and alpacas, the Gallatin NF provides, "[u]ntil more definitive science verifies disease transmission from llamas and alpacas to bighorn sheep in the wild, the Custer Gallatin would track this issue related to the forestwide desired condition for low or no disease transmission between domestic livestock and wildlife, under all revised plan alternatives." DEIS at 436. Although pack goats are likewise seldomly used on the Gallatin NF, with no known or suspected disease transmission to wild sheep or goats, the Gallatin NF has taken an approach opposite of that taken on llamas and alpacas—the Gallatin NF has banned

pack goats from the Forest. This decision is arbitrary and capricious. There is no science and certainly no known or suspected disease transmission from pack goats to wild sheep or goats. As a result, and similar to treatment of llamas and alpacas, the Gallatin NF should track the issue of disease transmission as it related to pack goats rather than institute a ban on pack goat use.

10. The Gallatin NF Mischaracterizes the Results of Besser's Research and Must Correct Statements in the DEIS Concerning Disease Transmission from Pack Goats to Bighorn Sheep

The DEIS states that "[d]isease transmission from recreational use of domestic pack goats is a potential threat to bighorn sheep." DEIS at 440. As discussed above, there is no scientific support for this statement. The Gallatin NF adds that "Besser and associates (2017) found that while domestic goats carry disease that can be transmitted to bighorn sheep, the severity of disease impacts on wild sheep populations was milder than impacts from disease transmitted from domestic sheep." *Id.* This is a gross misstatement of the research by Besser and associates (2017). The domestic goats in from Besser's research did not "carry disease." Rather, they were infected by disease by Besser during his research. Pack goats have not been infected by disease by Besser and thus are very different than the domestic goats used for Besser's research. Pack goats, in fact, rarely carry M. ovi, the primary disease of concern for disease transmission to bighorn sheep. The DEIS grossly mischaracterizes the research by Besser. If anything, Besser's research showed that domestic goats do not post a threat of disease transmission resulting in mortality in bighorn sheep. During Besser's research, not a single bighorn sheep died as a result of disease transmission from a domestic goat. As a result, the Gallatin NF must correct the misstatements and provide an accurate description of Besser's research, including the information discussed below.

Further, the Gallatin NF is cautioned about relying on Besser and associates (2017) as the research article is filled with inaccuracies and exaggerations and lacks objectivity. *See* http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0178707. Indeed, the publisher *PLOS ONE* issued a correction to the article to correct some of the inaccuracies and exaggerations. *See* http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0192006.

Importantly, based on the data and findings in Besser and associates (2017), and as stated above, not a single bighorn sheep died from exposure to domestic goats in any context throughout Besser's experiments. Indeed, as discussed on pages 5 through 7 of 13 of the article, to the extent bighorn sheep exhibited signs of respiratory problems when initially commingled with domestic goats, all bighorn sheep exhibited fewer signs of respiratory problems over time, indicating recovery from such problems prior to being euthanized. In short, Besser and associates (2017) shows that even when domestic goats are purposefully infected with *Mycoplasma ovipneumoniae*, comingling of such goats with bighorn sheep does not result in fatal respiratory disease in bighorn sheep. In other words, exposure of bighorn sheep to domestic goats colonized with *M. ovi* does not induce fatal pneumonia.

To the extent the Gallatin NF continues to rely on Besser and associates (2017) in the DEIS and Forest Plan, the Gallatin NF should update the reference to the article to the recently corrected version. The Gallatin NF should also recognize and discuss that commingling of domestic goats, even those purposefully infected with *M. ovi*, does not lead to fatal respiratory

disease in bighorn sheep. When domestic goats are not infected with *M. ovi*, as is the common case with pack goats, there is no risk of transmission of *M. ovi* leading to fatal respiratory disease in bighorn sheep.

11. The Gallatin NF Should Focus on Herd Density Issues in Managing Bighorn Sheep Populations and Should Further Acknowledge that Pack Goats Do Not and Have Never Posed a Threat of Disease Transmission to Wild Bighorn Sheep

The DEIS indicates that the "primary issue driving bighorn sheep populations on the Custer Gallatin National Forest and surrounding areas is major die-offs associated with disease spread among and possible between herds. Although wild sheep can carry disease and transmit to others, many of the same diseases can be carried by domestic sheep and goats, and can be transmitted to wild sheep." DEIS at 441. To start, the conclusion that the primary issues is disease transmission from domestic livestock is not necessarily true.

Recent science indicates that herds at high density are at a much, much greater risk of die-offs than those at low density (Sells et al. 2015). Sells et al. (2015) found that "[r]isk of a pneumonia epizootic increased >5-fold when herds were at a medium density and nearly 15-fold when herds were at a high density compared to when they were at a low density." Further, Sells et al. (2015) indicated, "[d]ensity is a component of risk that has previously received little attention because the positive association between risk of pneumonia and higher densities had not been quantified. The association between higher herd density and risk may appear to contradict the idea that herds of larger population size should be less threatened by extirpation than smaller herds [ ]." (citations omitted). So, according to Sells et al. (2015), the most important consideration, by a long shot, in managing to avoid pneumonia epizootics is control of bighorn sheep herd density and, in particular, ensuring that bighorn sheep herd density does not get too high. The Gallatin NF should consider this best available science.

Second, there are no facts or science indicating disease transmission between pack goats and bighorn sheep, in the wild. That has never happened. There simply is no credible threat of disease transmission from pack goats to bighorn sheep in the wild. As a result, the Gallatin NF's conclusion about disease transmission must be revised to give a true description of the facts, science and "risk" about disease transmission from pack goats to bighorn sheep in the wild.

12. The Gallatin NF Must Consult the Agricultural Research Service, within the United States Department of Agriculture, Before Preparing the Final EIS and Record of Decision

NEPA imposes on federal agencies conducting environmental review a duty to consult with certain other agencies." Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved [in the proposed action]." 42 U.S.C. § 4332(2)(C). Further, to promote NEPA's policies of public participation and informed decisionmaking, copies of the EIS and comments thereon from other agencies "shall accompany the proposal through the existing agency review processes." *Id.*

The regulations implementing these provisions state that "[a]fter preparing a draft environmental impact statement and before preparing a final environmental impact statement the agency shall . . . [o]btain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved . . . ." 40 C.F.R. § 1503.1(a)(1); *see also id.* § 1500.1(b) ("Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." (emphasis added)). "Special expertise" is defined as "statutory responsibility, agency mission, or related program experience." *Id.* § 1508.26. Under the statute and its implementing regulations, the Galltin NF has a duty to consult with the Agriculture Research Service ("ARS") before issuing the Final EIS. *See Idaho Wool Growers Ass'n v. Vilsack*, 816 F.3d 1095, 1103 (9th Cir. 2016).

ARS has "special expertise" concerning significant aspects of the proposed decision, including the mechanics of pathogen transmission in domestic sheep and goats. For example, 7 C.F.R. § 2.65 delegates to ARS, among other matters, the authority to "[c]onduct research concerning domestic animals and poultry, their protection and use, [and] the causes of contagious, infectious, and communicable diseases." Also, ARS's mission statement proclaims: "ARS conducts research to develop and transfer solutions to agricultural problems of high national priority and provide information access and dissemination to . . . enhance the natural resource base and the environment . . . ." U.S. Department of Agriculture, Agricultural Research Service, ARS: About US, http://www.ars.usda.gov/aboutus/aboutus.htm.

Thus, considering the language establishing NEPA's consultation requirement is expansive, NEPA mandates consultation with any federal agency that has" special expertise with respect to any environmental impact involved." 42 U.S.C. § 4332(2)(C) (emphasis added); *see also* 40 C.F.R. § 1503.1(a)(1) ("[T]he agency shall . . . [o]btain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. . . ." (emphasis added)). And, further considering that *Warm Springs Dam Task Force v. Gribble* suggests that for the consultation requirement to apply, the particular expertise of an agency does not have to encompass the proposed project as a whole or the issue the proposed project was designed to address. Rather, the expertise need relate only to one of the project's anticipated environmental effects. *See* 621 F.2d 1017, 1020-21 (9th Cir. 1980) (per curiam); *see also Idaho Wool Growers Ass'n*, 816 F.3d at 1103. It is a clear requirement that the Gallatin NF MUST consult with ARS on issues of disease transmission, such as those presented in the DEIS and Forest Plan, prior to issuing a Final EIS. As a result, the Gallatin NF MUST consult with ARS and should detail such consultation in the Final EIS.

13. The Gallatin NF Fails to Account for the Important Differences Between Pack Goats and Herd Domestic Goats and Domestic Sheep

The Gallatin NF fails to acknowledge the important differences between pack goats and herd domestic sheep and goats. These differences must be considered in the DEIS and Forest Plan. NEPA prohibits this type of uninformed agency action. *See Robertson*, 490 U.S. at 352 ("NEPA . . . prohibits uninformed . . . agency action."); *Marsh*, 490 U.S. at 371 ("NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct."). These differences are critical to the Gallatin NF's analysis of disease transmission from pack goats to bighorn sheep and must be considered by the Forest under NEPA.

Pack goats are very different from other domestic goats (and domestic sheep), both by breed and by use. These differences result in far less risk to bighorn sheep than the risk posed by domestic goats (or domestic sheep) on grazing allotments. The Gallatin NF DEIS must account for these differences. To consider pack goats the same as other domestic goats (or domestic sheep) for purposes of analyzing the risk of disease transmission to bighorn sheep on the Gallatin NF would be a critical error.

Pack goat owners go to great lengths and expense to find and train particular goats that will not stray from the security of a finite string of pack goats and their owner. Pack goats are inextricably bonded to their owners, which represent the "alpha goat" in their small herd. This is achieved through the processes of imprinting and socialization of pack goats from birth. As a result, pack goats are not prone to straying and remain in very close proximity to the "alpha goat." Other domestic goats (and domestic sheep), while often included in herds that number in the hundreds or thousands (compared to a string of pack goats ranging from two to ten goats), are not individually trained and, thus, there may be some risk of individual domestic herd goats (or domestic sheep) straying from the herd. The risk associated with domestic sheep or domestic goats transmitting disease to bighorn sheep requires "physical contact" between the domestic animal and the bighorn sheep, therefore, a pack goat that is less likely to stray and thereby come into contact with a bighorn sheep poses a much lower risk of transmission than any number of herd domestic sheep or goats which can wander and stray.

Domestic goat and sheep herds typical to grazing allotments on public land represent larger populations of animals that are more difficult to maintain, and which may not be in immediate proximity of their caretaker at all times. Pack goats, on the other hand, require their owner or "alpha goat" to be present to monitor the herd at all times, and are always in their owner's immediate presence and control. The small size of a pack goat string and perpetual control of the owner allows pack goats to be tied in unison while on trails, and tethered or high-lined at night (among other best management practices that can be easily implemented) to reduce the risk of contact between a pack goat and a bighorn sheep. Furthermore, if ever in sight of a bighorn sheep, there is always a human present in close proximity to the pack goats, making it extremely unlikely that a bighorn sheep would approach the string. In the presence of wild animals, such as bighorn sheep, pack goats are also on heightened alert and retreat to a position near the "alpha goat," i.e., their human caretaker. This and the other defining traits of pack goats, and the nature of their use and training, make pack goats far less of a risk of coming into contact with a bighorn sheep than herd domestic goats and/or domestic sheep.

Further, the lifestyle and care of a pack goat differs greatly from that of a typical herd domestic goat or domestic sheep. This difference in care means that pack goats are healthier and less likely to be the carrier of a disease. Pack goats are seen by their owners as a significant investment in time and resources. A pack goat is not viable for packing purposes until at least the age of three or four, and often pack goats do not reach their packing prime until the age of five or six. Thus, a goatpacker will have had to invest a number of years into a pack goat before it is ready to hit the trail. During this time, and throughout a pack goat's life, pack goats see personalized veterinary care in order to keep the goat healthy and prolong their useful life, a luxury that other free ranging herd domestic goats or domestic sheep do not enjoy.

Because of their overall health and stamina, a trained pack goat can bring a sale price of over $450. This means that a pack goat owner has a large financial interest in each of his or her pack goats. This high financial interest means that the owner of pack goats is likely to see to their care and protection whether that is protection from disease at home, or from contact with other wildlife when on public lands.

Further, typical herd domestic goats and domestic sheep may be sold and intermixed with goats from other herds. In contrast, pack goats—which are treated more like household pets than livestock—are not likely to change owners. The higher frequency that typical herd domestic goats and domestic sheep may be exposed to other domestic stock, would increase the opportunity for disease to spread between individual animals. On the other hand, pack goats are infrequently transferred between owners because of the nature of their function and required bonding. This greatly reduces the risk of exposure of pack goats to various diseases as compared to herd domestic goats and domestic sheep.

Perhaps most critical to the Gallatin NF's analysis of disease transmission from pack goats to bighorn sheep is the fact that the overwhelming majority of pack goats are not known to carry *M. ovi*. If a pack goat did not carry *M. ovi* it would be impossible for that goat to transmit disease to a bighorn sheep. Thus, the risk of disease transmission from that pack goat to a bighorn sheep would be zero. Further, even if a pack goat were to carry *M. ovi* and directly contact a bighorn sheep, there is no science indicating that the pack goat would transmit this pathogen to the bighorn sheep and that the bighorn would succumb to pneumonia as a result. The Gallatin NF did not consider these important factors in its analysis.

Finally, goatpackers limit their visits to the Gallatin NF, as well as their time on the Forest when they do visit. With only a few pack goats per goatpacker and only a few visits by goatpackers per year, for a limited amount of time, the chance that a pack goat would come into contact with a bighorn sheep is extremely unlikely. This factor was not considered by the Gallatin NF.

Here, the Gallatin NF's analysis in the DEIS is completely silent on the differences between pack goats and herd domestic goats and how those differences affect the risk of disease transmission between pack goats and bighorn sheep. These differences are critical and must be considered by the Gallatin NF. An agency decision is to be reversed as arbitrary and capricious if the agency has "entirely failed to consider an important aspect of the problem." *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). The Gallatin NF's silence on the issue will not suffice. The agency's path must be reasonably discerned. *Id.* A court "cannot infer an agency's reasoning from mere silence or where the agency failed to address significant objections and alternative proposals." *Beno v. Shalala*, 30 F.3d 1057, 1073 (9th Cir. 1994) (citing *Motor Vehicle,* 463 U.S. at 57); *see also*, *e.g.*, *SEC v. Chenery Corp*., 332 U.S. 194, 196-97 (1947) ("[i]t will not do for a court to be compelled to guess at the theory underlying the agency's action.").

In conclusion, pack goats are very different than other herd domestic goats or domestic sheep that are grazed on or near the Gallatin NF, and the use of pack goats on the Gallatin NF is very different than the use of other herd domestic goats and domestic sheep. The Gallatin NF DEIS and Forest Plan fail to account for these differences in the analysis of disease transmission

from domestic sheep and domestic goats to bighorn sheep on the Gallatin NF. As a result, the DEIS must be revised to consider (1) pack goats separate from other herd domestic goats and domestic sheep and (2) the unlikelihood that pack goats carry disease and (3) the unlikelihood that pack goats would ever come in close contact with bighorn sheep on the Gallatin NF. Further, the Gallatin NF must consider that the nature and use of pack goats on the Forest already achieves the spatial and/or temporal separation recommended by the Gallatin NF to minimize potential disease transmission. Thus, there is no justification and no need for the prohibition of pack goats on the Gallatin NF.

14. The Gallatin NF Fails to Consider Implementation of Mitigation Measures to Ensure the Separation of Pack Goats and Bighorn Sheep

Rather than consider implementation of minimization and mitigation measures to prevent contact and possible disease transmission between pack goats and bighorn sheep on the Gallatin NF, the Gallatin NF has simply closed a large portion of the Forest to pack goats. Under NEPA, however, the Gallatin NF must consider and discuss mitigation measures that would allow the use of pack goats on the Forest. NAPgA has attached a proposed suite of best management practices ("BMPs") and other minimization and mitigation measures at Exhibit A to prevent contact and possible disease transmission between pack goats and bighorn sheep on the Gallatin NF. These, as well as other available practices and measures must be considered by the Gallatin NF in the DEIS.

For example, the Gallatin NF DEIS fails to consider that separation between pack goats and bighorn sheep is maintained by the presence of a human with pack goats, by nighttime tethering or high-lining of pack goats, and by the nature and training of pack goats. The DEIS also failed to consider the use of GPS tracking collars on pack goats, pathogen testing, permitting for pack goat trips, designation of corridors for pack goats, and a host of other measures. Certainly, if pack goats do not carry disease and do not come into contact with bighorn sheep, there is zero risk of disease transmission from pack goats to bighorn sheep. Neither of these scenarios were considered in the DEIS. Instead of considering any of these measures, in violation of NEPA, the Gallatin NF fails to provide any consideration of these best management practices to maintain separation between pack goats and bighorn sheep on the Gallatin NF.

BMPs are mitigation measures that can be employed by goatpackers to prevent contact between pack goats and bighorn sheep. 40 C.F.R. § 1508.20 (defining "mitigation measures" to include "[a]voiding the impact" and "[m]inimizing impacts by limiting the degree or magnitude of the action and its implementation"). For a reasonable range of alternatives, the Gallatin NF DEIS must consider implementation of BMPs and mitigation measures, rather than simply concluding that goatpacking on the Gallatin NF must be prohibited. 40 C.F.R. § 1502.14.

An EIS must discuss "mitigation . . . in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Robertson,* 490 U.S. at 352. An agency is required to "discuss possible mitigation measures in defining the scope of the EIS, 40 CFR § 1508.25(b), in discussing alternatives to the proposed action, § 1502.14(f), and consequences of that action, § 1502.16(h), and in explaining its ultimate decision, § 1505.2(c)." *Id.*; *see also Okanogan Highlands Alliance v. Williams,* 236 F.3d 468, 473 (9th Cir. 2000) (An EIS must contain a "reasonably complete discussion of possible mitigation measures." (quoting *Robertson,* 490

U.S. at 352)). To be sure, an agency's final decision must "[s]tate whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not." 40 C.F.R. § 1505.2(c).

Further, NEPA mandates that federal agencies "provide legitimate consideration to alternatives that fall between the obvious extremes." *Colorado Envtl. Coalition v. Dombeck*, 185 F.3d 1162, 1175 (10th Cir. 1998). More specifically, NEPA is violated when an agency dismisses the consideration of an alternative "in a conclusory and perfunctory manner that [does] not support a conclusion that it was unreasonable to consider them as viable alternatives." *Davis v. Mineta*, 302 F.3d 1104, 1122 (10th Cir. 2002). "The existence of reasonable but unexamined alternatives renders an EIS inadequate." *Ilio'ulaokalani Coalition v. Rumsfeld*, 464 F.3d 1083, 1095, 1101 (9th Cir. 2006).

Without an alternative that describes and analyzes the implementation of mitigation measures to prevent contact between pack goats and bighorn sheep, instead of simply eliminating pack goats from the Gallatin NF, the DEIS contains an inadequate range of alternatives. Alternatives considering BMPs and mitigation measures are both reasonable and feasible under the circumstances, and must be analyzed in the DEIS.

In conclusion, the Gallatin NF has violated NEPA by failing to discuss and consider mitigation measures that would allow use of pack goats on the Forest while preventing the risk of disease transmission between pack goats and bighorn sheep. As a result, the Gallatin NF must revise the DEIS and Forest Plan to discuss and consider appropriate mitigation measures to prevent the risk of disease transmission between pack goats and bighorn sheep. Proper consideration of such measures should include consideration and adoption of an alternative to allow the use of pack goats on the Gallatin NF. This alternative should consider maintenance of the separation of pack goats and bighorn sheep on the Forest and, thus, achieve avoidance of any potential for disease transmission between pack goats and bighorn sheep.

15. The Gallatin NF Must Evaluate Alternatives that Consider Strengthening Bighorn Sheep Immunity to Disease

Established epidemiology shows that disease occurs in bighorn sheep populations in the absence of contact with domestic sheep and other animals, including pack goats. These data indicate that infectious agents and other contributing factors involved in the disease process are present within bighorn sheep populations. It appears that most bighorns are getting pneumonia from other bighorns because most of the herds that have outbreaks of pneumonia, are not in contact with domestic sheep or domestic goats. This indicates that the major problem is the lack of a good immune system in the bighorns. As discussed below, there are inherent risks in choosing a management strategy that attempts to isolate bighorn sheep populations from all perceived transmission risks (when complete isolation is not possible); instead the focus should be on managing population immunity.

The critical component of managing infectious diseases is population immunity. A decision to isolate a given population of bighorn sheep from contact with potential sources of infection assumes the ability for that population to maintain isolation. The wisdom of this management scheme (maintaining immunological naivety) in animal populations within the

United States, when sources of infection are present in nature, is questionable at best. Two methods which provide population immunity are vaccination and/or exposure of populations through natural exposure (transmission). This latter situation is also referred to as premonition (resistance to a disease due to the existence of its causative agent in a state of physiological equilibrium in the host and/or by immunity to a particular infection due to previous presence of the causative agent).

A primary risk associated with incomplete immunologic isolation of animal populations is cycles of disease when isolation is broken as opposed to a continuum of managed population immunity through vaccines and/or natural exposure and premonition. When multiple sources of a given pathogen or group of pathogens exist, the prudent long-term health management dictates that population immunity be the primary tool. As an example of population immunity being the most effective management tool, the Lostine River herd of bighorns experienced a die-off in the 1980s, but is now considered the most viable herd in the Hells Canyon area due to successful population immunity. Since bighorn sheep are infecting each other, building up their immune systems could have a beneficial effect on survival from many forms of disease.

Likewise, bighorn sheep face the risk of infection from domestic sheep and other animals on and off the Gallatin NF. Consequently, the elimination of pack goats on the Gallatin NF, even if there was evidence that pack goats carried and transmitted disease, would not eliminate the risk of disease transmission to bighorns. This fact is not adequately considered in the DEIS. It will be impossible for the Gallatin NF to eliminate the risk of disease transmission to bighorns because of the numerous variables besides pack goats (which are not even a known carrier or transmitter of disease) on the Gallatin NF. As a result, the Gallatin NF must analyze alternative solutions to maintaining bighorn sheep viability.

The Gallatin NF must also analyze the possibility that without interaction between bighorn sheep and other animals, bighorn sheep tolerance to disease may become worse, leading to more widespread die-offs, instead of fewer die-offs. Instead of considering this likelihood, the DEIS only considers one course of action: total separation. Based on the analysis in the DEIS, the most prudent and most logical management action would be to encourage development of immunity in bighorns because total separation is impossible. This action must be considered by the Gallatin NF in the DEIS.

16. Epidemiological Modeling is Needed to Understand How a Range of Factors Affect the Dynamics of Disease Spread Under Various Management Alternatives

The very limited disease review in the DEIS is generally based on geographic characteristics of the disease in the context of interaction between domestic sheep and bighorn sheep. While this is a useful component of much needed research, it is not in itself enough to make well-informed recommendations on policy alternatives. There remains limited knowledge of transmission dynamics. Clinical studies have shown bighorn sheep susceptibility to disease from contact with domestic sheep. However, epidemiologic modeling is needed to understand how contacts with domestic sheep, bighorn sheep, and other disease carriers (elk, deer, wild goats, birds, etc.), forage and climatic conditions, and other factors affect the dynamics of the

disease spread under various management alternatives. The Gallatin NF does not appear to apply any sort of modeling for the risk of disease transmission on the Forest.

NEPA's procedures require the presentation of "complete and accurate information to decision makers and to the public to allow an informed comparison of the alternatives considered in the EIS." *NRDC v. U.S. Forest Service*, 421 F.3d at 813. Here, further modeling and additional study is needed to determine the added probability of disease transmission among bighorns and from other animals. The probability that healthy "carrier" bighorns are infecting "non-carrier" bighorns is likely high, since a large number of the bighorns on the Gallatin NF may be disease-carriers. Additionally, more information and study should be undertaken to determine the exact mechanism for developing pneumonia in bighorn sheep following association with domestic sheep or other animals. Further, the Gallatin NF must study the development of immunity to disease in bighorn sheep. All of this information should be considered and addressed by the Gallatin NF in the DEIS.

17. The Gallatin NF Fails to Consider the Most Important Aspects of the Problem in the DEIS

Under the APA, agency decisions under NEPA and NFMA will be set aside if they are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). Under this standard, judicial review of agency action seeks to determine whether an agency "has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *See Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *Utah Environmental Congress v. Bosworth*, 443 F.3d 732, 739 (10th Cir. 2006).

In its DEIS, the Gallatin NF has failed to consider and acknowledge that the proposed alternative is unlikely to control disease transmission and is implausible. Disease could still be a factor for bighorn sheep populations on the Gallatin NF, regardless of the closure of the Forest to pack goats. The DEIS fails to give importance to the fact that bighorn sheep themselves on the Gallatin NF in fact already carry the pathogens that lead to disease. Thus, bighorn sheep are at risk of contacting other bighorn sheep that carry the pathogens that can lead to disease.

Because bighorn sheep are carriers of the pathogens that can lead to disease, contact with other bighorn sheep not only puts bighorn sheep populations at risk, but renders irrelevant pack goats as the vector for transmission of the pathogens (assuming that pack goats on the Gallatin NF are carriers of the pathogens). This can mislead readers to believe that eliminating risk of contact on the Gallatin NF between pack goats and bighorn sheep will eliminate the threat of disease transmission. Under this misleading premise, the DEIS appears to be designed to depict pack goats as a significant cause of disease transmission or even risk of disease transmission, which is not accurate. The alternatives and the discussion in the DEIS must acknowledge more fully the potential futility of alternatives and explain the need for more comprehensive solutions to the problem of disease transmission, such as the development of a vaccine, or the improvement of bighorn sheep immunity, or the improvement of bighorn sheep habitat.

The DEIS also fails to consider that other animals on the Gallatin NF, like elk, deer, birds, etc., may carry the pathogens that can lead to diseases. Thus, contact between cattle and other animals, besides pack goats, and bighorn sheep may lead to disease transmission on the Gallatin NF. The DEIS does not discuss this possibility. In addition, the DEIS fails to acknowledge that bighorn sheep are at risk of contact with domestic sheep and other animals off the areas controlled by the Gallatin NF, and which risk is not mitigated by the alternatives or the ban on pack goat use.

Because the DEIS wholly fails to consider the risks of disease transmission from other bighorns, the risks of disease transmission off the Forest, and risks of disease transmission from other sources, the DEIS is inadequate under NEPA. As a result, the DEIS must be revised to consider risks of disease transfer from other bighorns, off of the forest and from other sources.

18. The DEIS Does Not Properly Address the Relevance of Unavailable or Incomplete Scientific Information

The Gallatin NF acknowledges in the DEIS that it lacks complete information to assess the potential effects of disease transmission between domestic sheep and domestic goats and bighorn sheep, let alone pack goats and bighorn sheep. The DEIS does little to address the lack of information with its subsequent conclusions.

In situations such as this, where the relevant information for assessing impacts is incomplete or unavailable, the agency preparing the EIS must take the following steps: first, if the incomplete information relevant to reasonably foreseeable adverse effects is essential to a reasoned choice among alternatives and the overall costs of obtaining the information is not exorbitant, the agency must include that information in the EIS. Next, if the relevant information cannot be obtained because the overall costs are exorbitant or the means of obtaining the information are not known, then an agency must include in an EIS:

> (1) a statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.

40 C.F.R. § 1502.22(b).

Here, the Forest Service fails to take these required steps to address the incomplete or unavailable information relevant to ascertaining the possibility and consequences of disease transmission between domestic sheep/domestic goats and bighorns, and further fails to do so pertaining to the lesser risks of disease transmission from domestic goats in comparison to domestic sheep. The evidence provided in the DEIS suggests the likelihood or risk of disease transfer is largely specific to domestic sheep and not to domestic goats. The DEIS fails here to

include contrasting scientific points of view that have studied the differences in disease transfer risk between domestic sheep and bighorns, and domestic goats and bighorns. Here also, the DEIS fails to distinguish relevant information pertaining to disease transfer between other free ranging animals as comparable to easily managed and controlled animals like pack goats. Likewise, the DEIS fails to contain a clear and direct statement that the required information is incomplete or unavailable. The DEIS also fails to discuss the relevance of incomplete or unavailable information in light of evaluation of a reasonably foreseeable environmental impact. Lastly, the DEIS fails to contain the Forest Service's own evaluation of such impacts "based upon theoretical approaches or research methods generally accepted in the scientific community." *Id.*

Instead of honestly evaluating the range of potential scientific opinion applicable to disease transmission between pack goats and bighorns, the Forest Service impermissibly fails to comply with the requirements of the CEQ regulations to address incomplete or unavailable scientific information. Based on this fundamental flaw in the evaluation of environmental consequences in the DEIS, the DEIS should be revised to provide further analysis.

19. The Gallatin NF must Obtain Additional Information for the DEIS

When particular information "relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives," the agency must obtain that information and include it in the EIS, unless the cost is "exorbitant or the means to obtain it are not known." 40 C.F.R. § 1502.22. If obtaining the information is too costly or infeasible, the agency can forego its collection, providing full explanation in the EIS. *Id.* § 1502.22(b). "In that case the agency must include in the EIS: (1) A statement that the information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information; (3) a summary of relevant "existing credible scientific evidence;" and (4) the agency's evaluation of impacts based on "theoretical approaches or research methods generally accepted in the scientific community." *Id.*

The Gallatin NF has not included the following relevant information in the DEIS:

- Information indicating the differences between pack goats and other domestic goats;
- Information indicating that pack goats carry disease that can be transmitted to bighorn sheep;
- Information indicating that pack goats may come into contact or have come into contact with bighorn sheep on the Gallatin NF;
- Information indicating that BMPs and/or mitigation measures are not effective to ensure separation between pack goats and bighorn sheep on the Gallatin NF;
- Information indicating that pack goats may transmit or have transmitted disease to bighorn sheep on the Gallatin NF;

- Information indicating that bighorn sheep have contracted disease transmitted by pack goats on the Gallatin NF;

- Information indicating that bighorn sheep that have contracted disease transmitted by pack goats on the Gallatin NF have returned to their herds and infected other bighorn sheep;

- Information indicating that bighorn sheep that have contracted disease transmitted by pack goats on the Gallatin NF have returned to their herds and infected other bighorn sheep, which has led to a die-off;

- Information indicating that there is a risk of disease transmission from pack goats to bighorn sheep on the Gallatin NF;

- Information indicating the risk of disease transmission from other animals on and off of the Gallatin NF to bighorn sheep;

- Information indicating the impacts of wolves, mountain goats, and hunting on bighorn sheep populations on the Gallatin NF; and

- Information indicating the recreational, social and economic impacts on goatpackers of a closure of all or part of the Gallatin NF to pack goats.

EXHIBIT A

NAPgA Best Management Practices (BMP'S)

The BMP document is a living document which is open to editing and updating as needed.

NAPgA created the BMP's to establish responsible common sense guidelines for goatpacking. They are not intended to be overly restrictive or to discourage packgoat use in any way or in any location.

NAPgA will use best available science as a guide in which to measure and develop the BMP's to address wildlife and other resource concerns.

BMP#1: Individually Identify Your Packgoats

Each packgoat shall be individually identified. Each goat shall have a collar with a tag attached to it containing, at a minimum, the current owner's name and phone number.

Packgoats may be identified with a tattoo or microchip which is specific to each individual goat in conjunction with a collar.

Tattoos containing the individual packgoat's Scrapie Herd Number & ID or an official Scrapie ear tag may be used in conjunction with a collar.

BMP#2: Control

All packgoats shall be under direct human supervision at all times. They shall be on leads or have leads attached to their collar/halter.

In camp all packgoats shall be in direct sight or tethered in some fashion (picketing, high lining, etc.).

All packgoats shall be tethered at night within 30 feet of humans and bells will be attached to their collars.

BMP#3: Separation

Goatpackers shall minimize packgoat contact with wildlife.

BMP#4: Lost Packgoat

If a packgoat becomes lost every effort will be exhausted to locate and recover it.

If the owner is unable to locate and recover the lost packgoat the following agencies shall be contacted by telephone as soon as possible.

Information given should include a detailed description of the packgoat (size; color; ears erect, hanging or none, horned or not), any equipment they are carrying and the last known location. A photograph of the packgoat, if possible.

The local County Sheriff's office. Call 911 or the non-emergency line to dispatch of that county. Most hikers, hunters, land owners or citizens will call the sheriff's office first if they find a lost pack stock animal.

The state's Department of Fish and Game or Fish.

The local land management agency responsible for the area where the packgoat was lost. (Forest Service/BLM/DNR).

Post information, including photos if available, at convenience stores, trail heads and camp grounds with owners contact information, goat and gear descriptions.

Contact the North American Pack Goat Association (NAPgA) to report the loss. NAPgA will maintain a documentation file on all lost pack goats. NAPgA will request an initial report as well as an after-action report from the packgoat's owner/user. The information will be used for documentation as well as continued training and educational awareness training for pack goat users.

Contact the North American Pack Goat Association (NAPgA) to report the loss. NAPgA will maintain a documentation file on all lost pack goats. NAPgA will request an initial report as well as an after-action report from the packgoat's owner/user. The information will be used for documentation as well as continued training and educational awareness training for pack goat users.

BMP#5: Leave No Trace

Leave No Trace principles are strongly encouraged.

Leave No Trace principles are found on this website: https://lnt.org/learn/7-principles

EXHIBIT B

Packgoats and *Mycoplasma ovipneumoniae* Prevalence Study 2016

North American Packgoat Association Summary of Understanding

Mycoplasma ovipneumoniae, often referred to by the nickname "Movi" (or some variation of that) is the pathogen currently believed to be the most likely primary cause of outbreaks of bighorn sheep pneumonia that have threatened recovery of that species. On November 10, 2015 information was presented at The Technical Packgoat Meeting to NAPgA and the Blue Mountain Forest Plan Revision team in Pendleton, Oregon that goats had a 90% prevalence rate of *M. ovipneumoniae*. In clarifying this information Dr. Tom Besser noted in an email Dec 15, 2015 that this information was obtained from a "report of a large US survey of sheep operations tested for MOVI". Domestic goats are different than domestic sheep and most certainly packgoats are very different from domestic sheep on public lands grazing allotments.

To consider packgoats the same as sheep for purposes of analyzing the risk of disease (pathogen) transmission to bighorn sheep is in error. Packgoat owners train packgoat prospects from a young age. Packgoats are inextricably bonded to their owner, which represents the "alpha goat" in their small herd. The lifestyle and care of a packgoat in herds of 2 to 10 differs greatly from that of a typical herd of domestic sheep or goats which can range in size of hundreds to thousands. Packgoats are seen by their owners as a significant investment in time and resources for 3 or 4 years before they are viable for packing purposes. Throughout a packgoat's life, the packgoat receives routine veterinary care in order to keep the goat healthy and prolong their useful life.

Available literature at the time of this 2015 meeting quoted decades-old science in its discussion of evidence for "disease transmission" from domestic goats to BHS. There was no, and to date remains no, scientific support to implicate packgoats in BHS die-offs. Goats and sheep are different species and the scientific data from captive commingling experiments concerning pathogen (*M. ovipneumoniae* or other historically examined pathogens, such as members of the Pasteurellaceae family of bacteria) transmission to bighorn sheep and subsequent disease is vastly different. The types of *M. ovipneumoniae* carried by domestic sheep differ genetically from those carried by domestic goats (Maksimovic, Cassirer, unpublished data). Goat types or "strains" of *M. ovipneumoniae* have resulted in relatively mild (non-fatal) respiratory illness, dramatically different than the nearly 100% fatality reported from captive commingling with domestic sheep. To group sheep and goats together, and even packgoats and other types of domestic goats, in the discussion of pathogen or disease transmission falsely implicates packgoats in BHS die-off's.

In more recent research by Besser *et al.* (2016), not a single domestic goat or bighorn sheep succumbed to any sort of pneumonia before or after being infected with a "goat type" of *M. ovipneumoniae* and not a single animal died as a result of disease during the study. Domestic goats were not shown to cause deaths of bighorn sheep as a result of pathogen ("disease") transmission, even when the 3 study goats, were inoculated/infected with a "goat type" of *M. ovipneumoniae* and forced to commingle with bighorn sheep for 100 days. All animals in the study, both the domestic goats and bighorn sheep began showing symptoms of respiratory illness, and all of them recovered prior to being euthanized by the researchers. While the publication would imply that "sub-lethal pneumonia" was

induced in the bighorn sheep in this study, this is not consistent with the histopathology reports from lung tissue that was submitted to the Washington Animal Disease Diagnostic Laboratory in Pullman, WA. Those reports indicated that there were minimal to mild changes that are typically seen in small ruminants that are infected with *M. ovipneumoniae* (bronchiolar associated lymphoid tissue (BALT) hyperplasia and hyperplasia of the bronchial/bronchiolar epithelium); but no diagnosis of pneumonia was reported.

NAPgA is the leading organization in making recommendations on how to safely recreate with packgoats around BHS habitat. The complete lack of relevant research regarding *M. ovipneumoniae* prevalence in packgoats lead NAPgA to contact the USDA - Agricultural Research Unit - Animal Disease Research Unit (ARDU) in December of 2015. ADRU and APHIS (Animal and Plant Health Inspection Service) developed a packgoat *M. ovipneumoniae* surveillance research project.

In the spring of 2016 NAPgA recruited packgoat owners to participate in this research project. Consent was obtained from each packgoat owner. The majority of samples were collected by APHIS personnel and the remainder by Margaret Highland, DVM, PhD, Dipl. ACVP. Duplicate swabs were collected by both APHIS personnel and Dr. Highland. One swab was tested in the ADRU-ARS-USDA laboratory and the other was tested in the Washington Animal Disease Laboratory (except for kids <6 months of age and some of the non-packers that were also tested, which were tested only in the USDA-ARS-ADRU laboratory, as a means to save on research funds, since these animals are not used for packing).

A **packgoat owner survey** was completed. Information obtained was as follows:
•Goat information: Age, Sex, Breed
•Number of goats on premises (packers, non-packers)
•Illness(es) within the last year, including pinkeye/respiratory disease
•Any recent (last month) use of antibiotics
•Vaccination and antiparasitic regimen
•Use of packgoats on public lands? Proximity to bighorn sheep?

Samples collected (spring-fall 2016)
Packgoats

- 3 sets of duplicate nasal swabs collected at 4 week minimum intervals (few premises had only 1 or 2 sample collections)
- 1 blood sample for serum
- Other goats (milkers/breeders/etc) on premises were also tested
- At a minimum, 1 or 2 nasal swabs collected, at 1 to 3 time points
- Not all premises had “non-packer” goats on premises sampled
- All samples processed within 72 hours of collection

Sample Testing
•Nasal Swab samples tested by PCR and/or qPCR; positive samples confirmed by DNA sequencing
•PCR = polymerase chain reaction = technique that amplifies a segment of the bacteria’s genome to determine if it is present
•Duplicate nasal swabs from the first sample collection submitted to the Washington Animal Disease Diagnostic Laboratory (qPCR analysis)
•Serum samples are currently banked frozen

Distribution

State	#premises	#packgoats	# other goats	Total
AZ	3	16	23	**39**
CA	6	16	42	**58**
CO	8	29	12	**41**
ID	25	101	35	**136**
KS	1	13	51	**64**
MT	5	21	6	**27**
NM	1	2	0	**2**
NV	2	8	0	**8**
OR	9	32	3	**35**
UT	5	34	2	**36**
WA	14	65	17	**82**
WY	4	40	3	**43**
Total	**83**	**377**	**194**	**571**

"Other goats" = milkers, bucks, kids under 4 months of age which would not be out packing or on long hikes

WADDL Test Results

# Goats Tested	Detected	Indeterminate *	Not Detected
485 (83premises)	18 (5 premises)	20 (9 premises, 3 overlapped with the detected premises)	474 (72 premises)
	3.7% (6.0%premises)	4.1% (10.8%premises)	92.2% (86.7%premises)

* Indeterminate indicates that either there was an extremely low number of *M. ovipneumoniae* present in the sample OR the sample is truly negative, and the low detection is a false positive

WADDL Laboratory Test Results

NAPgA believes the large number of samples tested by the AAVLD accredited state diagnostic laboratory (WADDL) provide sufficient and valid evidence as to the very low prevalence of *M. ovipneumoniae* in packgoats.

ADRU-ARS-USDA Laboratory Results

8.2%, or 47, of all goats tested (n=571) had at least 1 sample in which *M. ovipneumoniae* was detected. Twenty-six of the positive animals were ≤4 months old, 35 were ≤12 months, and when considering only the "packers", 3.3% overall had *M. ovipneumoniae* detected on at least 1 sample collection. 10 of the 14 premises with at least 1 positive detection were premises reported to house kids or were a premises in which the packgoat(s) were in recent contact with a positive packgoat or kids from a positive premises. These results have not yet been published in a peer-reviewed venue. Overall NAPgA will provide the complete report after peer-reviewed publication.

This is a living document and will be updated as new scientific evidence-based information is available.

From: Highland, Margaret
Sent: Friday, May 05, 2017 9:59 AM
To: 'Steve Kilpatrick' <skilpatrick@wyomingwildsheep.org>; 'Ron Smith' <rsagebrushsmith@aol.com>; canyonshadows@wyoming.com; johnmionne@gmail.com; packgoat@icloud.com; ctrulock@fs.fed.us; sschacht@fs.fed.us; brandonjhouck@fs.fed.us; rvandervoet@blm.gov; Lander_WYMail@blm.gov; daryl.lutz@wyo.gov; pat_hnilicka@fws.gov; sara@bighorn.org
Cc: 'Knowles, Don (dknowles@vetmed.wsu.edu)' <dknowles@vetmed.wsu.edu>
Subject: RE: Pack Goat Meeting rescheduled

Since this may not occur before a final decision is made on the Shoshone NF, I would like to share with this group the data from the large scale pack goat study that was performed in 2016. While the ocular swabs are now and finally being tested after developing and validating PCR assays for detecting the 4 most common bacterial agents of pink eye (this process was much slower than anticipated by me), the Mycoplasma ovipneumoniae results are completed. The following, in quotes, is an email that I shared with Jim Wilder on 12/16/17. Since then we have retested all of the pack goat nasal swabs a 3 time with a more sensitive standard PCR method, the update on the findings from this follow the email correspondence.

"Over the last year we (ADRU-ARS-USDA), in collaboration with APHIS, were able to complete a fairly large scale surveillance study testing nasal shedding/presence of *Mycoplasma ovipneumoniae* in pack goats. We also tested goats that were housed with or on the same premises as domestic goats that were reported by the owner to be used specifically for packing. We also collected ocular swabs from participating goats to test for the presence of the common agents of small ruminant pink eye (*Chlamydophila* sp and *Mycoplasma conjunctivae, Moraxella ovis, and Acheloplasma oculi*); the ocular swabs are still being analyzed, with hopes of completing analysis this month. Upon analysis completion of the ocular swabs, the plan is to report the results by publishing in a peer-reviewed scientific journal by the end of winter/early spring.
I would like to share with you the following results from the nasal swab samples that were collected:

Nasal swabs were collected 3 times, at 1 month minimum intervals, from participating goats (aside from the handful of animals that were sold, removed from the study as per the owners discretion, or entered into the study late so had fewer sample time points). A couple of the premises had 4 or 5 samples collected. Duplicate nasal swabs were collected at each time point. 1 swab was tested in our USDA laboratory and samples that tested negative were then submitted to an independent laboratory for confirmation of the results (WADDL in Pullman, WA was the independent laboratory).
We tested a total of 576 domestic goats from 84 premises which included the following states (# of premises in parentheses after each): AZ (3), CA (6), CO (7), ID (26), KS (1), MT (5), NM (1), NV (2), OR (9), UT (5), WA (14), WY (4), VT (1). (I believe I had reported that there were 88 premises in earlier info that I shared with Mark P…..I forgot to deduct the 4 premises scattered in 4 eastern states that we didn't get tested).
Of all of the premises tested, we confirmed *M. ovipneumoniae* to be present in nasal

secretions from goats on 2 premises, limited to kids ≤2 weeks of age at only one test time. We collected additional swabs from 1 of these premises for 5 times total sample collections and the last 3 collection points had no detected *M. ovipneumoniae* and interestingly, all of the adult goats (9 of them) never had *M. ovipneumoniae* detected….the kids (there were 15 of them total) had 3 positives at time point 1, and 2 different kids positive at time point 2 (1st 3 positive were negative at this 2nd time point) and all goats on the premises were negative the last 3 sample collections.
As for the other premises that had a handful of positive kids: I repeat swabbed several of them 1 or 2 more times and they too were subsequently negative on the repeat samplings. This "kid phenomenon" is interesting…….I'll leave it at that as to save typing time in this already lengthy email, but am happy to discuss further some time if you are interested.
One additional premises that had *M. ovipneumoniae* detected 2 of the 3 sample times had a small group of yearling pack goats that were being housed at fence line with an 'open' breeding herd of registered Boer goats that were used for shows and sent out to farms for sire purposes. I instructed that owner to move his packers as soon as possible away from the large group of traveling Boer goats…….I suspect that his pack goats may clear (not shed) *M. ovipneumoniae* without the constant potential exposure, as all of his goats were negative on the 3 sample collection (I'd be happy to discuss why I suspect this may be possible with you too, if you're interested).

The other 81 premises had no confirmed *M. ovipneumoniae* present on any of the nasal swabs collected. Of interest to your local and nearby area, none of the WY, UT, CO, MT herds had confirmed *M. ovipneumoniae* detection at any of the time points. 1 of the places with "kid detected *M. ovipneumoniae*" was in ID, but these kids are the ones that have sense been negative and the adults never positive.
While nothing is ever 100% risk free in life, I think this data strongly supports that there is a very low prevalence of *M. ovipneumoniae* in goats, at least those raised and kept in closed and typically small groups (however, a few of the premises that I tested had 20+ goats though and still negative….even the premises that tested their milk goats).

I would also like to take the time here to give warning that unless researchers and/or diagnosticians are looking beyond the common published techniques for identifying *M. ovipneumoniae*, there is a chance that false positive results will occur…particularly in goats. For example, we know that the published PCR primers, referred to as "LM primers" and qPCR techniques that have been developed in the past based on these primers can (and do) result in false positive results. By "looking beyond" I mean perform standard PCR to amplify a minimum of 2 regions of the bacterial genome and sequence the products/amplicons…..and making sure that the products/amplicons match well-characterized strains of *M. ovipneumoniae* (ie. strains that are characterized by reputable groups such as ATCC). Mycoplasmas are tricky, to say the least. Again, I'm happy to discuss more should you be interested.

Please feel free to let me know, either by email or phone (listed in signature line), if you have questions, comments, or concerns about the information provided herein or if you have anything that you would like to further discuss with me regarding the bighorn pneumonia phenomenon."

Update following repeated testing using a more sensitive method of detection:
Five of the 83 premises tested (6%) had M. ovipneumoniae identified during the repeat nasal sample collections. Premises that had M. ovipneumoniae detected in any the goats

had at least 7 goats housed on the premises. M. ovipneumoniae was confirmed to be present on the nasal swabs collected from 30 of the 576 total goats tested, meaning that 94.8% of the goats tested had no M. ovipneumoniae detected at any of the sample collection time points. Of the 30 total M. ovipneumoniae positive goats, 27 (or 90%) of the were ≤1 year of age, and 23 of them were <5 months of age.
During the 2016 North American Pack goat annual gathering ("the Rendy") held in Oregon, I sampled in total 27 adults and 2 kid goats whose owners brought them to the sample collection site that I set up. Most of these goats were already part of the large pack goat/domestic goat surveillance study and I asked owners if they minded me taking an extra nasal swab from their animals with the thought that perhaps the stressor of travelling or bringing a large group of goats together may result in shedding of M. ovipneumoniae from animals that it hadn't been detected on during the first round of sample collections and it also gave the opportunity to add a couple more premises to the study. M. ovipneumoniae **was not detected** on any of the swab samples collected at the Rendy.

It's unfortunate how long research takes, particularly with something as time sensitive as this seems to be, as I had truly hoped that this entire study would be out in published in a peer-reviewed form at this point (April was my goal). Hoping now for June with fingers crossed that all of the ocular swab testing goes smoothly….and more importantly accurately with good specificity and sensitivity.

Thank you and I look forward to participating in the Pack Goat meeting whenever the final date is decided upon.

Maggie

Margaret A. Highland, DVM, PhD, Dipl. ACVP
Animal Disease Research Unit-ARS-USDA (VMO Researcher)
Washington Animal Disease Diagnostic Laboratory (Adjunct Pathologist)
School for Global Animal Health (Adjunct Faculty)
Washington State University
Pullman, WA 99164

Office phone: 509-335-6327
Cell phone: 608-213-3025
Fax: 509-335-8328

ACCESSION FORM FOR GENERAL DIAGNOSTICS

Washington Animal Disease Diagnostic Laboratory

College of Veterinary Medicine, Washington State University
Web Site: http://waddl.vetmed.wsu.edu

US Postal Service mailing address:
PO Box 647034
Pullman, WA. 99164-7034

UPS, FedEx or Courier shipping address:
Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034

Phone: (509) 335-9696
FAX: (509) 335 7424
E-Mail: waddl@vetmed.wsu.edu

2016 – 6030
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routed: ,md
05/10/16
form: 2 pages

Please type or use black ink and print clearly.

Veterinarian or Case Coordinator: Last Name: Highland First Name: Maggie

Clinic: ADRU-ARS-USDA

Street address: ADBF-WSU Mailing Address or PO Box:

City: Pullman State: WA Zip: 99164

Phone: 509-335-6327 Fax: 509-335-8328 E-mail: mah@vetmed.wsu.edu

Owner: Last Name first: same as above Guardian Name: (if owner is under 18)

Farm Name: First Time Submitter? ☐ Yes ☐ No

Street address: Mailing Address or PO Box:

City: State: Zip:

Phone: Fax: E-mail:

Billing: ☑ Owner ☐ Clinic ☐ 3rd Party (preapproval required) Please note: WADDL policy is to bill the clinic if provided, unless prepaid.

Reporting Preference: ☐ Mail ☐ Fax ☑ Web access - register on web site at http://waddl.vetmed.wsu.edu

Please fill out completely as possible:

Specimen(s) Submitted: nasal swabs
(Please use WADDL Animal ID Sheet for multiple animals.)

Date Collected: April 2016
Date Shipped:

Tests Requested:
☐ Necropsy ☐ Virology ☐ Bacteriology ☐ IHC
☐ Histopathology ☐ Serology ☐ Mycoplasma culture ☑ PCR
☐ Toxicology ☐ Fungal Culture ☐ Parasitology ☐ Other:

Note: WADDL reserves the right to modify the tests requested for more efficient case work-up and / or to send specimens to outside laboratories to perform testing not done at WADDL.

Animal ID (name/tag#)	Species	Breed	Age	Sex	Animal Weight
see multiple animal form	goat	multiple	1mo-12yrs		

Location of Lesion	No. in group	No. Dead	No. Sick	No. on Premises	Duration of Problem
N/A					N/A

* Was animal euthanized? If so, what method? N/A

Additional History: Vaccinations, signs, stress factors, treatments, post mortem findings, pertinent feed or feed additives, clinical lab results, previous WADDL Case Numbers. (Attach additional sheets as necessary.)

Please save any remaining DNA isolations and call Maggie for pick up.

Bill to ADRU-ARS-USDA acct #RSA 2540-1080

Samples were maintained [redacted] on ice then frozen w/in 2 days of collection + kept at -20°C since.

WADDL is an official brucellosis testing laboratory. All serology for brucellosis, including abortion screens, requires identification of animals, date of sample collection, and signature of an accredited veterinarian attesting to the following statement:
"I certify that the specimens submitted with this form were collected by me from the animal(s) described on the date indicated."

Veterinarian's, Clinician's or Owner's Signature:	Condition(s) Suspected:

Form WADDL 001.1 Version 09-15

IDENTIFICATION SHEET FOR MULTIPLE ANIMALS

(To accompany WADDL Accession form, if needed)

Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University

Mailing address:	Shipping address:
P.O. Box 647034	Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034	Pullman, WA. 99164-7034
Phone: (509) 335-9696	FAX: (509) 335-7424

E-Mail: waddl@vetmed.wsu.edu
Web Site: http://waddl.vetmed.wsu.edu

2016–6030
Ref Vet: Highland, Margaret
Owner: USDA–ARS–ADRU
Breed: Domestic Goat
Routing: ,md

Owner: ADRU-ARS-USDA

Veterinarian: Maggie Highland

TEST(S) REQUESTED: Mycoplasma ovipneumoniae qPCR

05/10/16

Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal
1	[redacted]_3_A	26	[redacted]_5_F	51	[redacted]_3_D	76	
2	[redacted]_3_B	27	[redacted]_5_G	52	[redacted]_7_A	77	
3	[redacted]_3_C	28	[redacted]_5_H	53	[redacted]_7_B	78	
4	[redacted]_11_A	29	[redacted]_6_A	54	[redacted]_7_C	79	
5	[redacted]_11_B	30	[redacted]_6_B	55	[redacted]_7_D	80	
6	[redacted]_11_C	31	[redacted]_6_C	56	[redacted]_7_E	81	
7	[redacted]_11_D	32	[redacted]_6_D	57	[redacted]_11_A	82	
8	[redacted]_16_A	33	[redacted]_6_E	58	[redacted]_11_B	83	
9	[redacted]_16_B	34	[redacted]_6_F	59	[redacted]_11_C	84	
10	[redacted]_4_A	35	[redacted]_6_G	60	[redacted]_11_D	85	
11	[redacted]_4_B	36	[redacted]_8_A	61	[redacted]_12_A	86	
12	[redacted]_4_C	37	[redacted]_8_B	62	[redacted]_12_B	87	
13	[redacted]_4_D	38	[redacted]_8_C	63	[redacted]_12_C	88	
14	[redacted]_4_E	39	[redacted]_8_D	64	[redacted]_12_D	89	
15	[redacted]_4_F	40	[redacted]_9_A	65	[redacted]_12_E	90	
16	[redacted]_4_G	41	[redacted]_9_B	66	[redacted]_12_F	91	
17	[redacted]_10_A	42	[redacted]_9_C	67	[redacted]_12_G	92	
18	[redacted]_10_B	43	[redacted]_2_A	68	[redacted]_12_H	93	
19	[redacted]_10_C	44	[redacted]_2_B	69	[redacted]_12_I	94	
20	[redacted]_10_D	45	[redacted]_2_C	70	[redacted]_12_J	95	
21	[redacted]_5_A	46	[redacted]_2_D	71	[redacted]_12_K	96	
22	[redacted]_5_B	47	[redacted]_2_E	72	[redacted]_12_L	97	
23	[redacted]_5_C	48	[redacted]_3_A	73		98	
24	[redacted]_5_D	49	[redacted]_3_B	74		99	
25	[redacted]_5_E	50	[redacted]_3_C	75		100 *	

* For over 100 samples, please copy this form and continue numbering.

Washington Animal Disease Diagnostic Lab

P.O. Box 647034
Pullman, WA 99164-7034
Telephone : (509) 335-9696
Fax : (509) 335-7424

Dr. Margaret Highland
USDA-ARS-ADRU
WSU - 3003 ADBF

Pullman, WA 99164-6630

Case#: 2016-6030
Report Date: 05/16/16

Submittal Date: 05/10/16 | Species: Domestic Goat | Age:
Owner: USDA-ARS-ADRU | Sex:

Final Report:

Molecular Diagnostics- Reported on 05/16/16 Authorized by Daniel Bradway, Lab Manager

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_3_A	Nasal swab	Not detected
[redacted]_3_B	Nasal swab	Not detected
[redacted]_3_C	Nasal swab	Not detected
[redacted]_11_A	Nasal swab	Not detected
[redacted]_11_B	Nasal swab	Not detected
[redacted]_11_C	Nasal swab	Not detected
[redacted]_11_D	Nasal swab	Not detected
[redacted]_16_A	Nasal swab	Not detected
[redacted]_16_B	Nasal swab	Not detected
[redacted]_4_A	Nasal swab	Detected
[redacted]_4_B	Nasal swab	Detected
[redacted]_4_C	Nasal swab	Detected
[redacted]_4_D	Nasal swab	Detected
[redacted]_4_E	Nasal swab	Detected
[redacted]_4_F	Nasal swab	Detected
[redacted]_4_G	Nasal swab	Detected
[redacted]_10_A	Nasal swab	Indeterminate
[redacted]_10_B	Nasal swab	Not detected
[redacted]_10_C	Nasal swab	Not detected
[redacted]_10_D	Nasal swab	Not detected
[redacted]_5_A	Nasal swab	Not detected
[redacted]_5_B	Nasal swab	Not detected
[redacted]_5_C	Nasal swab	Not detected
[redacted]_5_D	Nasal swab	Not detected
[redacted]_5_E	Nasal swab	Not detected
[redacted]_5_F	Nasal swab	Not detected
[redacted]_5_G	Nasal swab	Not detected
[redacted]_5_H	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_6_A	Nasal swab	Not detected
[redacted]_6_B	Nasal swab	Not detected
[redacted]_6_C	Nasal swab	Not detected
[redacted]_6_D	Nasal swab	Not detected
[redacted]_6_E	Nasal swab	Not detected
[redacted]_6_F	Nasal swab	Not detected
[redacted]_6_G	Nasal swab	Not detected
[redacted]_8_A	Nasal swab	Not detected
[redacted]_8_B	Nasal swab	Not detected
[redacted]_8_C	Nasal swab	Not detected
[redacted]_8_D	Nasal swab	Not detected
[redacted]_9_A	Nasal swab	Not detected
[redacted]_9_B	Nasal swab	Not detected
[redacted]_9_C	Nasal swab	Not detected
[redacted]_2_A	Nasal swab	Not detected
[redacted]_2_B	Nasal swab	Not detected
[redacted]_2_C	Nasal swab	Not detected
[redacted]_2_D	Nasal swab	Not detected
[redacted]_2_E	Nasal swab	Not detected
[redacted]_3_A	Nasal swab	Not detected
[redacted]_3_B	Nasal swab	Not detected
[redacted]_3_C	Nasal swab	Not detected
[redacted]_3_D	Nasal swab	Not detected
[redacted]_7_A	Nasal swab	Not detected
[redacted]_7_B	Nasal swab	Not detected
[redacted]_7_C	Nasal swab	Not detected
[redacted]_7_D	Nasal swab	Not detected
[redacted]_7_E	Nasal swab	Not detected
[redacted]_11_A	Nasal swab	Not detected
[redacted]_11_B	Nasal swab	Not detected
[redacted]_11_C	Nasal swab	Not detected
[redacted]_11_D	Nasal swab	Not detected
[redacted]_12_A	Nasal swab	Not detected
[redacted]_12_B	Nasal swab	Not detected
[redacted]_12_C	Nasal swab	Not detected
[redacted]_12_D	Nasal swab	Not detected
[redacted]_12_E	Nasal swab	Not detected
[redacted]_12_F	Nasal swab	Not detected
[redacted]_12_G	Nasal swab	Not detected
[redacted]_12_H	Nasal swab	Not detected
[redacted]_12_I	Nasal swab	Not detected
[redacted]_12_J	Nasal swab	Not detected
[redacted]_12_K	Nasal swab	Not detected
[redacted]_12_L	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae test comment: This assay detects only Mycoplasma ovipneumoniae. Culture is available at WADDL to detect other species of Mycoplasma if desired. Fees for culture are available on our website. Please contact the lab if Mycoplasma culture or other testing is desired.

Washington Animal Disease Diagnostic Lab — **Case Tracking HALF SHEET**

Quantity/Description/Routing of Samples

72 nasal swabs

Sample Condition:	☐ Room Temp.	☐ On ice	☑ Frozen	☐ Fixed	Contents match forms: ☐ Yes	☐ No Explain below:	Opened by:
Samples Received Via:	☐ US Mail	☐ FedEx	☐ Drop off				
	☐ UPS	☐ FedEx-R	☐ Other:				

Comments for Case Tracking: by Maggie Highland

2016 – 6030
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routed: ,md
05/10/16
notes; 1 page

Sample Label

Form WADDL 070, Version 05-14

ACCESSION FORM FOR GENERAL DIAGNOSTICS
Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University
Web Site: http://waddl.vetmed.wsu.edu

US Postal Service mailing address:
PO Box 647034
Pullman, WA. 99164-7034

UPS, FedEx or Courier shipping address:
Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034

Phone: (509) 335-9696
FAX: (509) 335 7424
E-Mail: waddl@vetmed.wsu.edu

2016-6160
Ref Vet: Highland, Margaret
Owner: USDA-ARS-ADRU
Breed: Domestic Goat
Routed: ,md
05/12/16
form; 3 pages

Please type or use black ink and print clearly.

Veterinarian or Case Coordinator: Last Name:	Highland	First Name:	Maggie
Clinic:	ADRU-ARS-USDA		
Street address:	ADBF-WSU	Mailing Address or PO Box:	
City:	Pullman	State: WA	Zip: 99164
Phone: 509-335-6327	Fax: 509-335-8328	E-mail:	mah@vetmed.wsu.edu
Owner: Last Name first:	same as above	Guardian Name: (if owner is under 18)	
Farm Name:		First Time Submitter? ☐ Yes ☐ No	
Street address:		Mailing Address or PO Box:	
City:		State:	Zip:
Phone:	Fax:	E-mail:	

Billing: ☑ Owner ☐ Clinic ☐ 3rd Party (preapproval required) Please note: WADDL policy is to bill the clinic if provided, unless prepaid.

Reporting Preference: ☐ Mail ☐ Fax ☑ Web access - register on web site at http://waddl.vetmed.wsu.edu

Please fill out completely as possible:

Specimen(s) Submitted: (Please use WADDL Animal ID Sheet for multiple animals.) nasal swabs

Date Collected: 4/16-5/16
Date Shipped:

Tests Requested:
☐ Necropsy ☐ Virology ☐ Bacteriology ☐ IHC
☐ Histopathology ☐ Serology ☐ Mycoplasma culture ☑ PCR
☐ Toxicology ☐ Fungal Culture ☐ Parasitology ☐ Other: _____

Note: WADDL reserves the right to modify the tests requested for more efficient case work-up and / or to send specimens to outside laboratories to perform testing not done at WADDL.

Animal ID (name/tag#)	Species	Breed	Age	Sex	Animal Weight
see multiple animal form	domestic goats	multiple	1mo-12yrs		

Location of Lesion	No. in group	No. Dead	No. Sick	No. on Premises	Duration of Problem
N/A					N/A

* *Was animal euthanized? If so, what method?* N/A

Additional History: *Vaccinations, signs, stress factors, treatments, post mortem findings, pertinent feed or feed additives, clinical lab results, previous WADDL Case Numbers. (Attach additional sheets as necessary.)*

Nasal swabs for M. ovipneumoniae qPCR

Please save any remaining DNA isolations and call Maggie for pick up.

Bill to ADRU-ARS-USDA acct #RSA 2540-1080

WADDL is an official brucellosis testing laboratory. All serology for brucellosis, including abortion screens, requires identification of animals, date of sample collection, and signature of an accredited veterinarian attesting to the following statement:
"I certify that the specimens submitted with this form were collected by me from the animal(s) described on the date indicated."

Veterinarian's, Clinician's or Owner's Signature:	Maggie Highland	*Condition(s) Suspected:*	None/Healthy Animals

Form WADDL 001.1 Version 09-15

2016 – 6160
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routing: ,md

IDENTIFICATION SHEET FOR MULTIPLE ANIMALS

(To accompany WADDL Accession form, if needed)

Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University

Mailing address:	Shipping address:
P.O. Box 647034	Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034	Pullman, WA. 99164-7034
Phone: (509) 335-9696	FAX: (509) 335-7424

E-Mail: waddl@vetmed.wsu.edu
Web Site: http://waddl.vetmed.wsu.edu

05/12/16

Owner: ADRU-ARS-USDA

Veterinarian: Maggie Highland

TEST(S) REQUESTED: M. ovipneumoniae qPCR

Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name
1	_1_A	26	_4_N	51	_5_S	76	_14_C
2	_1_B	27	_4_O	52	_5_T	77	_17_A
3	_1_C	28	_4_P	53	_5_U	78	_17_B
4	_1_D	29	_4_Q	54	_5_V	79	_17_C
5	_1_E	30	_4_R	55	_5_W	80	_17_D
6	_1_F	31	_4_S	56	_5_X	81	_17_E
7	_1_G	32	_4_T	57	_5_Y	82	_17_F
8	_7_A	33	_5_A	58	_5_Z	83	_17_G
9	_7_B	34	_5_B	59	_8_A	84	_17_H
10	_7_C	35	_5_C	60	_8_B	85	_17_I
11	_7_D	36	_5_D	61	_8_C	86	_22_A
12	_7_E	37	_5_E	62	_9_A	87	_22_B
13	_4_A	38	_5_F	63	_9_B	88	_22_C
14	_4_B	39	_5_G	64	_9_C	89	_23_A
15	_4_C	40	_5_H	65	_9_D	90	_23_B
16	_4_D	41	_5_I	66	_9_E	91	_23_C
17	_4_E	42	_5_J	67	_19_A	92	_23_D
18	_4_F	43	_5_K	68	_19_B	93	_23_E
19	_4_G	44	_5_L	69	_10_A	94	_23_F
20	_4_H	45	_5_M	70	_10_B	95	_23_G
21	_4_I	46	_5_N	71	_6_A	96	_2_A
22	_4_J	47	_5_O	72	_6_B	97	_2_B
23	_4_K	48	_5_P	73	_6_C	98	_12_A
24	_4_L	49	_5_Q	74	_14_A	99	_12_B
25	_4_M	50	_5_R	75	_14_B	100 *	_12_C

* For over 100 samples, please copy this form and continue numbering.

IDENTIFICATION SHEET FOR MULTIPLE ANIMALS

(To accompany WADDL Accession form, if needed)

2016 – 6160
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routing: ,md
05/12/16

Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University

Mailing address:	Shipping address:
P.O. Box 647034	Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034	Pullman, WA. 99164-7034
Phone: (509) 335-9696	FAX: (509) 335-7424

E-Mail: waddl@vetmed.wsu.edu
Web Site: http://waddl.vetmed.wsu.edu

Owner: ADRU-ARS-USDA

Veterinarian: Maggie Highland

TEST(S) REQUESTED: M. ovipneumoniae qPCR

Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name	Tube	Anim
1	[redacted]_12_D	26		51		76	
2	[redacted]_20_A	27		52		77	
3	[redacted]_20_B	28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100 *	

* For over 100 samples, please copy this form and continue numbering.

Washington Animal Disease Diagnostic Lab

P.O. Box 647034
Pullman, WA 99164-7034
Telephone : (509) 335-9696
Fax : (509) 335-7424

Dr. Margaret Highland
USDA-ARS-ADRU
WSU - 3003 ADBF

Pullman, WA 99164-6630

Case#: 2016-6160
Report Date: 05/16/16

Submittal Date: 05/12/16
Owner: USDA-ARS-ADRU

Species: Domestic Goat

Age:
Sex:

Final Report:

Molecular Diagnostics- Reported on 05/16/16 Authorized by Daniel Bradway, Lab Manager

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected
[redacted]_1_C	Nasal swab	Not detected
[redacted]1_D	Nasal swab	Not detected
[redacted]1_E	Nasal swab	Not detected
[redacted]1_F	Nasal swab	Not detected
[redacted]1_G	Nasal swab	Not detected
[redacted]_7_A	Nasal swab	Not detected
[redacted]_7_B	Nasal swab	Not detected
[redacted]_7_C	Nasal swab	Not detected
[redacted]_7_D	Nasal swab	Not detected
[redacted]_7_E	Nasal swab	Not detected
[redacted]_4_A	Nasal swab	Not detected
[redacted]_4_B	Nasal swab	Not detected
[redacted]_4_C	Nasal swab	Not detected
[redacted]_4_D	Nasal swab	Not detected
[redacted]_4_E	Nasal swab	Not detected
[redacted]_4_F	Nasal swab	Not detected
[redacted]_4_G	Nasal swab	Not detected
[redacted]_4_H	Nasal swab	Not detected
[redacted]_4_I	Nasal swab	Detected
[redacted]_4_J	Nasal swab	Indeterminate
[redacted]_4_K	Nasal swab	Not detected
[redacted]_4_L	Nasal swab	Not detected
[redacted]_4_M	Nasal swab	Not detected
[redacted]_4_N	Nasal swab	Not detected
[redacted]_4_O	Nasal swab	Indeterminate
[redacted]_4_P	Nasal swab	Indeterminate

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_4_Q	Nasal swab	Indeterminate
[redacted]_4_R	Nasal swab	Not detected
[redacted]_4_S	Nasal swab	Detected
[redacted]_4_T	Nasal swab	Detected
[redacted]_5_A	Nasal swab	Not detected
[redacted]_5_B	Nasal swab	Not detected
[redacted]_5_C	Nasal swab	Not detected
[redacted]_5_D	Nasal swab	Not detected
[redacted]_5_E	Nasal swab	Not detected
[redacted]_5_F	Nasal swab	Not detected
[redacted]_5_G	Nasal swab	Not detected
[redacted]_5_H	Nasal swab	Not detected
[redacted]_5_I	Nasal swab	Not detected
[redacted]_5_J	Nasal swab	Not detected
[redacted]_5_K	Nasal swab	Not detected
[redacted]_5_L	Nasal swab	Not detected
[redacted]_5_M	Nasal swab	Not detected
[redacted]_5_N	Nasal swab	Not detected
[redacted]_5_O	Nasal swab	Not detected
[redacted]_5_P	Nasal swab	Not detected
[redacted]_5_Q	Nasal swab	Not detected
[redacted]_5_R	Nasal swab	Not detected
[redacted]_5_S	Nasal swab	Not detected
[redacted]_5_T	Nasal swab	Not detected
[redacted]_5_U	Nasal swab	Not detected
[redacted]_5_V	Nasal swab	Not detected
[redacted]_5_W	Nasal swab	Not detected
[redacted]_5_X	Nasal swab	Not detected
[redacted]_5_Y	Nasal swab	Not detected
[redacted]_5_Z	Nasal swab	Not detected
[redacted]_8_A	Nasal swab	Not detected
[redacted]_8_B	Nasal swab	Not detected
[redacted]_8_C	Nasal swab	Not detected
[redacted]_9_A	Nasal swab	Not detected
[redacted]_9_B	Nasal swab	Not detected
[redacted]_9_C	Nasal swab	Not detected
[redacted]_9_D	Nasal swab	Not detected
[redacted]_9_E	Nasal swab	Not detected
[redacted]_19_A	Nasal swab	Not detected
[redacted]_19_B	Nasal swab	Not detected
[redacted]_10_A	Nasal swab	Not detected
[redacted]_10_B	Nasal swab	Not detected
[redacted]_6_A	Nasal swab	Not detected
[redacted]_6_B	Nasal swab	Not detected
[redacted]_6_C	Nasal swab	Not detected
[redacted]_14_A	Nasal swab	Not detected
[redacted]_14_B	Nasal swab	Not detected
[redacted]_14_C	Nasal swab	Not detected
[redacted]_17_A	Nasal swab	Not detected
[redacted]_17_B	Nasal swab	Not detected
[redacted]_17_C	Nasal swab	Not detected
[redacted]_17_D	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_17_E	Nasal swab	Not detected
[redacted]_17_F	Nasal swab	Not detected
[redacted]_17_G	Nasal swab	Not detected
[redacted]_17_H	Nasal swab	Not detected
[redacted]_17_I	Nasal swab	Not detected
[redacted]_22_A	Nasal swab	Not detected
[redacted]_22_B	Nasal swab	Not detected
[redacted]_22_C	Nasal swab	Not detected
[redacted]_23_A	Nasal swab	Not detected
[redacted]_23_B	Nasal swab	Not detected
[redacted]_23_C	Nasal swab	Not detected
[redacted]_23_D	Nasal swab	Not detected
[redacted]_23_E	Nasal swab	Not detected
[redacted]_23_F	Nasal swab	Not detected
[redacted]_23_G	Nasal swab	Not detected
[redacted]_2_A	Nasal swab	Not detected
[redacted]_2_B	Nasal swab	Not detected
[redacted]_12_A	Nasal swab	Not detected
[redacted]_12_B	Nasal swab	Not detected
[redacted]_12_C	Nasal swab	Not detected
[redacted]_12_D	Nasal swab	Not detected
[redacted]_20_A	Nasal swab	Not detected
[redacted]_20_B	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae test comment: This assay detects only Mycoplasma ovipneumoniae. Culture is available at WADDL to detect other species of Mycoplasma if desired. Fees for culture are available on our website. Please contact the lab if Mycoplasma culture or other testing is desired.

Washington Animal Disease Diagnostic Lab | Case Tracking HALF SHEET

Quantity/Description/Routing of Samples

103 nasal swabs

- Dropped off by M. Highland

Sample Condition:	☐ Room Temp.	☐ On ice	☑ Frozen	☐ Fixed	Contents match forms:		Opened by:
Samples Received Via:	☐ US Mail	☐ FedEx	☑ Drop off		☑ Yes	☐ No	
	☐ UPS	☐ FedEx-R	☐ Other:			Explain below:	

Comments for Case Tracking:

2016 – 6160
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routed: , md
05/12/16
notes: 1 page

Sample Label ✓

Form WADDL 070, Version 05-14

ACCESSION FORM FOR GENERAL DIAGNOSTICS

Washington Animal Disease Diagnostic Laboratory

College of Veterinary Medicine, Washington State University
Web Site: http://waddl.vetmed.wsu.edu

US Postal Service mailing address:
PO Box 647034
Pullman, WA. 99164-7034

UPS, FedEx or Courier shipping address:
Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034

Phone: (509) 335-9696
FAX: (509) 335 7424
E-Mail: waddl@vetmed.wsu.edu

2016 – 7117
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routed: ,md

06/02/16
form: 2 pages

Please type or use black ink and print clearly.

Veterinarian or Case Coordinator: Last Name:	Highland
First Name:	Maggie
Clinic:	ADRU-ARS-USDA
Street address:	ADBF 3033
Mailing Address or PO Box:	
City:	Pullman
State:	WA
Zip:	99163
Phone:	5-6327
Fax:	5-8328
E-mail:	mah@vetmed.wsu.edu

Owner: Last Name first:	same as above
Guardian Name: (if owner is under 18)	
Farm Name:	
First Time Submitter?	☐ Yes ☐ No
Street address:	
Mailing Address or PO Box:	
City:	
State:	
Zip:	
Phone:	
Fax:	
E-mail:	

Billing: ☐ Owner ☑ Clinic ☐ 3rd Party (preapproval required) Please note: WADDL policy is to bill the clinic if provided, unless prepaid.

Reporting Preference: ☐ Mail ☐ Fax ☑ Web access - register on web site at http://waddl.vetmed.wsu.edu

Please fill out completely as possible:

Specimen(s) Submitted: (Please use WADDL Animal ID Sheet for multiple animals.) nasal swabs

Date Collected: May 2016

Date Shipped:

Tests Requested:

☐ *Necropsy* ☐ *Virology* ☐ *Bacteriology* ☐ *IHC*
☐ *Histopathology* ☐ *Serology* ☐ *Mycoplasma culture* ☑ *PCR*
☐ *Toxicology* ☐ *Fungal Culture* ☐ *Parasitology* ☐ *Other:* Mycoplasma ovipneumoniae qPCR

Note: WADDL reserves the right to modify the tests requested for more efficient case work-up and / or to send specimens to outside laboratories to perform testing not done at WADDL.

Animal ID (name/tag#)	*Species*	*Breed*	*Age*	*Sex*	*Animal Weight*
see multiple animal form	domestic goats	-	adult	-	-

Location of Lesion	*No. in group*	*No. Dead*	*No. Sick*	*No. on Premises*	*Duration of Problem*
N/A	N/A	N/A	N/A	N/A	N/A

** Was animal euthanized? If so, what method?*

Additional History: *Vaccinations, signs, stress factors, treatments, post mortem findings, pertinent feed or feed additives, clinical lab results, previous WADDL Case Numbers. (Attach additional sheets as necessary.)*

M. ovipneumoniae qPCR
Please save remaining DNA isolations and call Maggie for pick up.

Bill to ADRU-ARS-USDA acct #RSA 2540-1080

WADDL is an official brucellosis testing laboratory. All serology for brucellosis, including abortion screens, requires identification of animals, date of sample collection, and signature of an accredited veterinarian attesting to the following statement:

"I certify that the specimens submitted with this form were collected by me from the animal(s) described on the date indicated."

Veterinarian's, Clinician's or Owner's Signature:	*Condition(s) Suspected:*

IDENTIFICATION SHEET FOR MULTIPLE ANIMAL

(To accompany WADDL Accession form, if needed)

2016 – 7117
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routing: ,md

Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University

Mailing address:	Shipping address:
P.O. Box 647034	Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034	Pullman, WA. 99164-7034
Phone: (509) 335-9696	FAX: (509) 335-7424

E-Mail: waddl@vetmed.wsu.edu
Web Site: http://waddl.vetmed.wsu.edu

Owner: ADRU-ARS-USDA

Veterinarian: Highland

TEST(S) REQUESTED: M. ovipneumoniae qPCR

06/02/16

Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name	Tube	e
1	[redacted]_13_A	26		51		76	
2	[redacted]_13_B	27		52		77	
3	[redacted]_13_C	28		53		78	
4	[redacted]_13_D	29		54		79	
5	[redacted]_15_A	30		55		80	
6	[redacted]_15_B	31		56		81	
7	[redacted]_15_C	32		57		82	
8	[redacted]_15_D	33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100 *	

* For over 100 samples, please copy this form and continue numbering.

Washington Animal Disease Diagnostic Lab

P.O. Box 647034
Pullman, WA 99164-7034
Telephone : (509) 335-9696
Fax : (509) 335-7424

Dr. Margaret Highland
USDA-ARS-ADRU
WSU - 3003 ADBF

Pullman, WA 99164-6630

Case#: 2016-7117
Report Date: 06/07/16

Submittal Date: 06/02/16
Owner: USDA-ARS-ADRU

Species: Domestic Goat

Age: Adult
Sex:

Final Report:

Molecular Diagnostics- Reported on 06/07/16 Authorized by Daniel Bradway, Lab Manager

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_13_A	Nasal swab	Not detected
[redacted]_13_B	Nasal swab	Not detected
[redacted]_13_C	Nasal swab	Not detected
[redacted]_13_D	Nasal swab	Not detected
[redacted]_15_A	Nasal swab	Not detected
[redacted]_15_B	Nasal swab	Not detected
[redacted]_15_C	Nasal swab	Not detected
[redacted]_15_D	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae test comment: This assay detects only Mycoplasma ovipneumoniae. Culture is available at WADDL to detect other species of Mycoplasma if desired. Fees for culture are available on our website. Please contact the lab if Mycoplasma culture or other testing is desired.

Washington Animal Disease Diagnostic Lab	Case Tracking HALF SHEET

Quantity/Description/Routing of Samples

8 nasal swabs
– dropped off by MAH

Sample Condition:	☐ Room Temp.	☐ On ice	☑ Frozen	☐ Fixed	Contents match forms:	Opened by:	
Samples Received Via:	☐ US Mail	☐ FedEx	☑ Drop off		☑ Yes	☐ No	MAH
	☐ UPS	☐ FedEx-R	☐ Other:			Explain below:	

Comments for Case Tracking:

2016 – 7117
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routed: ,md

06/02/16
notes: 1 page

Sample Label ✓ MAH

Form WADDL 070, Version 05-14

ACCESSION FORM FOR GENERAL DIAGNOSTICS

Washington Animal Disease Diagnostic Laboratory

College of Veterinary Medicine, Washington State University
Web Site: http://waddl.vetmed.wsu.edu

US Postal Service mailing address:
PO Box 647034
Pullman, WA. 99164-7034

UPS, FedEx or Courier shipping address:
Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034

Phone: (509) 335-9696
FAX: (509) 335 7424
E-Mail: waddl@vetmed.wsu.edu

2016 – 7913
Ref Vet: Highland, Margaret
Owner:
Breed: Domestic Goat
Routed: md
06/20/16
form; 3 pages

Please type or use black ink and print clearly.

Veterinarian or Case Coordinator: Last Name: Highland		First Name: Maggie	
Clinic: ADRU-ARS-USDA			
Street address: ADBF 3033		Mailing Address or PO Box:	
City: Pullman	State: WA	Zip: 99164	
Phone: 509-335-6327	Fax: 509-335-8328	E-mail: mah@vetmed.wsu.edu	
Owner: Last Name first: same as above		Guardian Name: (if owner is under 18)	
Farm Name:		First Time Submitter? ☐ Yes ☐ No	
Street address:		Mailing Address or PO Box:	
City:	State:	Zip:	
Phone:	Fax:	E-mail:	

Billing: ☐ Owner ☑ Clinic ☐ 3rd Party (preapproval required) Please note: WADDL policy is to bill the clinic if provided, unless prepaid.

Reporting Preference: ☐ Mail ☐ Fax ☑ Web access - register on web site at http://waddl.vetmed.wsu.edu

Please fill out completely as possible:

Specimen(s) Submitted: (Please use WADDL Animal ID Sheet for multiple animals.) nasal swabs

Date Collected: June 2016
Date Shipped:

Tests Requested:
☐ Necropsy ☐ Virology ☐ Bacteriology ☐ IHC
☐ Histopathology ☐ Serology ☐ Mycoplasma culture ☑ PCR
☐ Toxicology ☐ Fungal Culture ☐ Parasitology ☐ Other: _____

Note: WADDL reserves the right to modify the tests requested for more efficient case work-up and / or to send specimens to outside laboratories to perform testing not done at WADDL.

Animal ID (name/tag#)	Species	Breed	Age	Sex	Animal Weight
see multiple animal form	domestic goats	multiple	multiple		

Location of Lesion	No. in group	No. Dead	No. Sick	No. on Premises	Duration of Problem
N/A		N/A	N/A		N/A

** Was animal euthanized? If so, what method?*

Additional History: *Vaccinations, signs, stress factors, treatments, post mortem findings, pertinent feed or feed additives, clinical lab results, previous WADDL Case Numbers. (Attach additional sheets as necessary.)*

M.ovipneumoniae qPCR on each sample.
Please save remaining DNA isolation and call Maggie for pick up or may request further testing (sequencing) be performed by WADDL, depending on the results of qPCR analyses.

Bill to ADRU-ARS-USDA acct #RSA 2540-1080

WADDL is an official brucellosis testing laboratory. All serology for brucellosis, including abortion screens, requires identification of animals, date of sample collection, and signature of an accredited veterinarian attesting to the following statement:

"I certify that the specimens submitted with this form were collected by me from the animal(s) described on the date indicated."

Veterinarian's, Clinician's or Owner's Signature: Maggie Highland

Condition(s) Suspected: N/A (surveillance)

Form WADDL 001.1 Version 09-15

IDENTIFICATION SHEET FOR MULTIPLE ANIMALS

(To accompany WADDL Accession form, if needed)

Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University
Mailing address:
P.O. Box 647034
Pullman, WA. 99164-7034
Phone: (509) 335-9696
Shipping address:
Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034
FAX: (509) 335-7424
E-Mail: waddl@vetmed.wsu.edu
Web Site: http://waddl.vetmed.wsu.edu

2016 – 7913
Ref Vet: Highland, Margaret
Owner:
Breed: Domestic Goat
Routing: md

06/20/16

Owner: ADRU-ARS-USDA

Veterinarian: Highland

TEST(S) REQUESTED: Mycoplasma ovipneumoniae qPCR

Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name
1	[redacted]24_A	26	[redacted]_1_S	51	[redacted]	76	[redacted]_5_B
2	[redacted]24_B	27	[redacted]_1_T	52	[redacted]	77	[redacted]_5_C
3	[redacted]24_C	28	[redacted]_1_U	53	[redacted]	78	[redacted]_5_D
4	[redacted]_3_A	29	[redacted]_1_V	54	[redacted]	79	[redacted]_5_E
5	[redacted]_3_B	30	[redacted]_1_W	55	[redacted]	80	[redacted]_5_F
6	[redacted]_3_C	31	[redacted]_1_X	56	[redacted]	81	[redacted]_5_G
7	[redacted]_3_D	32	[redacted]_1_Y	57	[redacted]	82	[redacted]_5_H
8	[redacted]_1_A	33	[redacted]_1_Aa	58	[redacted]	83	[redacted]_5_I
9	[redacted]_1_B	34	[redacted]_1_Bb	59	[redacted]	84	[redacted]_5_J
10	[redacted]_1_C	35	[redacted]_1_Cc	60	[redacted]	85	[redacted]_5_K
11	[redacted]_1_D	36	[redacted]_1_Dd	61	[redacted]	86	[redacted]_5_L
12	[redacted]_1_E	37	[redacted]_1_Ee	62	[redacted]	87	[redacted]_5_M
13	[redacted]_1_F	38	[redacted]_1_Ff	63	[redacted]	88	[redacted]_5_N
14	[redacted]_1_G	39	[redacted]_1_Gg	64	[redacted]	89	[redacted]_5_O
15	[redacted]_1_H	40	[redacted]_1_Hh	65	[redacted]	90	[redacted]_5_P
16	[redacted]_1_I	41	[redacted]_1_Ii	66	[redacted]	91	[redacted]_4_A
17	[redacted]_1_J	42	[redacted]_1_Jj	67	[redacted]	92	[redacted]_4_B
18	[redacted]_1_K	43	[redacted]_1_Kk	68	[redacted]	93	[redacted]_2_A
19	[redacted]_1_L	44	[redacted]_1_Ll	69	[redacted]	94	[redacted]_2_B
20	[redacted]_1_M	45	[redacted]_1_Mm	70	[redacted]	95	[redacted]_2_C
21	[redacted]_1_N	46	[redacted]_1_Nn	71	[redacted]	96	[redacted]_2_D
22	[redacted]_1_O	47	[redacted]_1_Oo	72	[redacted]_4_A	97	[redacted]_2_E
23	[redacted]_1_P	48	[redacted]	73	[redacted]_4_B	98	[redacted]_2_F
24	[redacted]_1_Q	49	[redacted]	74	[redacted]_4_C	99	[redacted]_2_G
25	[redacted]_1_R	50	[redacted]	75	[redacted]_5_A	100 *	[redacted]_2_H

* For over 100 samples, please copy this form and continue numbering.

IDENTIFICATION SHEET FOR MULTIPLE ANIMALS

(To accompany WADDL Accession form, if needed)

Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University
Mailing address: P.O. Box 647034, Pullman, WA. 99164-7034
Phone: (509) 335-9696
E-Mail: waddl@vetmed.wsu.edu
Web Site: http://waddl.vetmed.wsu.edu
Shipping address: Bustad Hall, Rm.155-N, Pullman, WA. 99164-7034
FAX: (509) 335-7424

2016 – 7913 **06/20/16**

Ref Vet: Highland, Margaret
Owner:
Breed: Domestic Goat
Routing: md

Owner: ADRU-ARS-USDA

Veterinarian: HIGHLAND

TEST(S) REQUESTED: M. ovipneumoniae qPCR

Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name
1	_5_A	26	_2_A	51		76	
2	_5_B	27	_2_B	52	6_G	77	
3	_5_C	28	_2_C	53	13_A	78	
4	_5_D	29	_2_D	54	13_B	79	
5	_5_E	30	_3_A	55	13_C	80	
6	_5_F	31	_3_B	56	13_D	81	
7	_5_G	32	_3_C	57	13_E	82	
8	_5_H	33	_3_D	58	13_F	83	
9	_5_I	34	_4_A	59	-6-H	84	
10	_5_J	35	_4_B	60	-2-A	85	
11	_5_K	36	_4_C	61	-2-B	86	
12	_5_L	37	_1_A	62	-2-C	87	
13	_5_M	38	_1_B	63	-2-D	88	
14	_5_N	39	21_A	64	-2-E	89	
15	_5_O	40	_5_A	65	-2-F	90	
16	_5_P	41	_5_B	66	-2-G	91	
17	_4_A	42	_5_C	67	-2-H	92	
18	_4_B	43	_5_D	68	-2-I	93	
19	_1_A	44	_5_E	69	-2-A	94	
20	_1_B	45	_6_A	70	-2B	95	
21	_1_C	46	_6_B	71	-2-C	96	
22	_1_D	47	_6_C	72	-2-D	97	
23	_1_E	48	_6_D	73	-7_A	98	
24	_7_A	49	_6_E	74	-7-B	99	
25	_7_B	50	_6_F	75		100 *	

* For over 100 samples, please copy this form and continue numbering.

Washington Animal Disease Diagnostic Lab

P.O. Box 647034
Pullman, WA 99164-7034
Telephone : (509) 335-9696
Fax : (509) 335-7424

Dr. Margaret Highland
USDA-ARS-ADRU
WSU - 3003 ADBF

Pullman, WA 99164-6630

Case#: 2016-7913
Report Date: 07/01/16

Submittal Date: 06/20/16 | Species: Domestic Goat | Age:
Owner: | | Sex:

Final Report:

Molecular Diagnostics- Reported on 07/01/16 Authorized by Daniel Bradway, Lab Manager

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_24_A	Nasal swab	Not detected
[redacted]_24_B	Nasal swab	Not detected
[redacted]_24_C	Nasal swab	Not detected
[redacted]_3_A	Nasal swab	Not detected
[redacted]_3_B	Nasal swab	Not detected
[redacted]_3_C	Nasal swab	Not detected
[redacted]_3_D	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected
[redacted]_1_C	Nasal swab	Indeterminate
[redacted]_1_D	Nasal swab	Not detected
[redacted]_1_E	Nasal swab	Not detected
[redacted]_1_F	Nasal swab	Not detected
[redacted]_1_G	Nasal swab	Not detected
[redacted]_1_H	Nasal swab	Detected
[redacted]_1_I	Nasal swab	Not detected
[redacted]_1_J	Nasal swab	Not detected
[redacted]_1_K	Nasal swab	Not detected
[redacted]_1_L	Nasal swab	Not detected
[redacted]_1_M	Nasal swab	Not detected
[redacted]_1_N	Nasal swab	Not detected
[redacted]_1_O	Nasal swab	Not detected
[redacted]_1_P	Nasal swab	Not detected
[redacted]_1_Q	Nasal swab	Not detected
[redacted]_1_R	Nasal swab	Not detected
[redacted]_1_S	Nasal swab	Not detected
[redacted]_1_T	Nasal swab	Not detected
[redacted]_1_U	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_1_V	Nasal swab	Not detected
[redacted]_1_W	Nasal swab	Not detected
[redacted]_1_X	Nasal swab	Not detected
[redacted]_1_Y	Nasal swab	Not detected
[redacted]_1_Aa	Nasal swab	Not detected
[redacted]_1_Bb	Nasal swab	Detected
[redacted]_1_Cc	Nasal swab	Not detected
[redacted]_1_Dd	Nasal swab	Not detected
[redacted]_1_Ee	Nasal swab	Detected
[redacted]_1_Ff	Nasal swab	Detected
[redacted]_1_Gg	Nasal swab	Indeterminate
[redacted]_1_Hh	Nasal swab	Not detected
[redacted]_1_Ii	Nasal swab	Indeterminate
[redacted]_1_Jj	Nasal swab	Detected
[redacted]_1_Kk	Nasal swab	Not detected
[redacted]_1_Ll	Nasal swab	Indeterminate
[redacted]_1_Mm	Nasal swab	Not detected
[redacted]_1_Nn	Nasal swab	Indeterminate
[redacted]_1_Oo	Nasal swab	Detected
[redacted]_4_A	Nasal swab	Not detected
[redacted]_4_B	Nasal swab	Not detected
[redacted]_4_C	Nasal swab	Not detected
[redacted]_5_A	Nasal swab	Not detected
[redacted]_5_B	Nasal swab	Not detected
[redacted]_5_C	Nasal swab	Not detected
[redacted]_5_D	Nasal swab	Not detected
[redacted]_5_E	Nasal swab	Not detected
[redacted]_5_F	Nasal swab	Not detected
[redacted]_5_G	Nasal swab	Not detected
[redacted]_5_H	Nasal swab	Not detected
[redacted]_5_I	Nasal swab	Not detected
[redacted]_5_J	Nasal swab	Not detected
[redacted]_5_K	Nasal swab	Not detected
[redacted]_5_L	Nasal swab	Not detected
[redacted]_5_M	Nasal swab	Not detected
[redacted]_5_N	Nasal swab	Not detected
[redacted]_5_O	Nasal swab	Not detected
[redacted]_5_P	Nasal swab	Indeterminate
[redacted]_4_A	Nasal swab	Not detected
[redacted]_4_B	Nasal swab	Not detected
[redacted]_2_A	Nasal swab	Not detected
[redacted]_2_B	Nasal swab	Not detected
[redacted]_2_C	Nasal swab	Not detected
[redacted]_2_D	Nasal swab	Not detected
[redacted]_2_E	Nasal swab	Not detected
[redacted]_2_F	Nasal swab	Not detected
[redacted]_2_G	Nasal swab	Not detected
[redacted]_2_H	Nasal swab	Not detected
[redacted]_5_A	Nasal swab	Not detected
[redacted]_5_B	Nasal swab	Not detected
[redacted]_5_C	Nasal swab	Not detected
[redacted]_5_D	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_5_E	Nasal swab	Indeterminate
[redacted]_5_F	Nasal swab	Not detected
[redacted]_5_G	Nasal swab	Not detected
[redacted]_5_H	Nasal swab	Not detected
[redacted]_5_I	Nasal swab	Not detected
[redacted]_5_J	Nasal swab	Not detected
[redacted]_5_K	Nasal swab	Not detected
[redacted]_5_L	Nasal swab	Not detected
[redacted]_5_M	Nasal swab	Not detected
[redacted]_5_N	Nasal swab	Not detected
[redacted]_5_O	Nasal swab	Detected
[redacted]_5_P	Nasal swab	Indeterminate
[redacted]_4_A	Nasal swab	Not detected
[redacted]_4_B	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected
[redacted]_1_C	Nasal swab	Not detected
[redacted]_1_D	Nasal swab	Not detected
[redacted]_1_E	Nasal swab	Not detected
[redacted]_7_A	Nasal swab	Not detected
[redacted]_7_B	Nasal swab	Indeterminate
[redacted]_2_A	Nasal swab	Not detected
[redacted]_2_B	Nasal swab	Not detected
[redacted]_2_C	Nasal swab	Indeterminate
[redacted]_2_D	Nasal swab	Not detected
[redacted]_3_A	Nasal swab	Not detected
[redacted]_3_B	Nasal swab	Not detected
[redacted]_3_C	Nasal swab	Not detected
[redacted]_3_D	Nasal swab	Not detected
[redacted]_4_A	Nasal swab	Not detected
[redacted]_4_B	Nasal swab	Not detected
[redacted]_4_C	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected
[redacted]21_A	Nasal swab	Not detected
[redacted]_5_A	Nasal swab	Not detected
[redacted]_5_B	Nasal swab	Not detected
[redacted]_5_C	Nasal swab	Indeterminate
[redacted]_5_D	Nasal swab	Indeterminate
[redacted]_5_E	Nasal swab	Not detected
[redacted]_6_A	Nasal swab	Not detected
[redacted]_6_B	Nasal swab	Not detected
[redacted]_6_C	Nasal swab	Not detected
[redacted]_6_D	Nasal swab	Not detected
[redacted]_6_E	Nasal swab	Not detected
[redacted]_6_F	Nasal swab	Not detected
[redacted]_6_G	Nasal swab	Not detected
[redacted]_6_H	Nasal swab	Not detected
[redacted]_13_A	Nasal swab	Not detected
[redacted]_13_B	Nasal swab	Not detected
[redacted]_13_C	Nasal swab	Not detected
[redacted]_13_D	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.03.17

Animal	Specimen	Result
[redacted]_13_E	Nasal swab	Not detected
[redacted]_13_F	Nasal swab	Not detected
[redacted]2_A	Nasal swab	Not detected
[redacted]2_B	Nasal swab	Not detected
[redacted]2_C	Nasal swab	Not detected
[redacted]2_D	Nasal swab	Not detected
[redacted]2_E	Nasal swab	Not detected
[redacted]2_F	Nasal swab	Not detected
[redacted]2_G	Nasal swab	Not detected
[redacted]2_H	Nasal swab	Detected
[redacted]2_I	Nasal swab	Not detected
[redacted]2_A	Nasal swab	Not detected
[redacted]2_B	Nasal swab	Not detected
[redacted]2_C	Nasal swab	Not detected
[redacted]2_D	Nasal swab	Not detected
[redacted]7_A	Nasal swab	Not detected
[redacted]7_B	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae test comment: This assay detects only Mycoplasma ovipneumoniae. Culture is available at WADDL to detect other species of Mycoplasma if desired. Fees for culture are available on our website. Please contact the lab if Mycoplasma culture or other testing is desired.

Washington Animal Disease Diagnostic Lab | Case Tracking HALF SHEET

Quantity/Description/Routing of Samples

149 dry swabs

2016 – 7913
Ref Vet: Highland, Margaret
Owner:
Breed: Domestic Goat
Routed: md
06/20/16
notes: 1 page

Sample Condition:	☐ Room Temp.	☐ On ice	☒ Frozen	☐ Fixed	Contents match forms: ☒ Yes ☐ No Explain below:	Opened by:
Samples Received Via:	☐ US Mail	☐ FedEx	☒ Drop off			
	☐ UPS	☐ FedEx-R	☐ Other:			

Comments for Case Tracking:

Sample Label ✓

Form WADDL 070, Version 05-14

ACCESSION FORM FOR GENERAL DIAGNOSTICS
Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University
Web Site: http://waddl.vetmed.wsu.edu

US Postal Service mailing address:
PO Box 647034
Pullman, WA. 99164-7034

UPS, FedEx or Courier shipping address:
Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034

Phone: (509) 335-9696
FAX: (509) 335 7424
E-Mail: waddl@vetmed.wsu.edu

2016 – 10050
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routed: md
08/04/16
form; 3 pages

Please type or use black ink and print clearly.

Veterinarian or Case Coordinator: Last Name: Highland		First Name: Maggie	
Clinic: ADRU-ARS-USDA			
Street address: ADBF 3033		Mailing Address or PO Box:	
City: Pullman	State: WA	Zip: 99164	
Phone: 509-335-6327	Fax: 509-335-8328	E-mail: mah@vetmed.wsu.edu	

Owner: Last Name first: same as above		Guardian Name: (if owner is under 18)	
Farm Name:		First Time Submitter? ☐ Yes ☐ No	
Street address:		Mailing Address or PO Box:	
City:	State:	Zip:	
Phone:	Fax:	E-mail:	

Billing: ☐ Owner ☑ Clinic ☐ 3rd Party (preapproval required) Please note: WADDL policy is to bill the clinic if provided, unless prepaid.

Reporting Preference: ☐ Mail ☐ Fax ☑ Web access - register on web site at http://waddl.vetmed.wsu.edu

Please fill out completely as possible:

Specimen(s) Submitted: (Please use WADDL Animal ID Sheet for multiple animals.) nasal swabs

Date Collected: July 2016

Date Shipped: n/a

Tests Requested:
☐ Necropsy ☐ Virology ☐ Bacteriology ☐ IHC
☐ Histopathology ☐ Serology ☐ Mycoplasma culture ☑ PCR
☐ Toxicology ☐ Fungal Culture ☐ Parasitology ☐ Other: _____

Note: WADDL reserves the right to modify the tests requested for more efficient case work-up and / or to send specimens to outside laboratories to perform testing not done at WADDL.

Animal ID (name/tag#)	Species	Breed	Age	Sex	Animal Weight
see multiple animal form	domestic goats	multiple	multiple		

Location of Lesion	No. in group	No. Dead	No. Sick	No. on Premises	Duration of Problem
N/A		N/A	N/A		N/A

** Was animal euthanized? If so, what method?* N/A

Additional History: *Vaccinations, signs, stress factors, treatments, post mortem findings, pertinent feed or feed additives, clinical lab results, previous WADDL Case Numbers. (Attach additional sheets as necessary.)*

M. ovipneumoniae qPCR on each sample
Please save remaining DNA isolations and call Maggie for pick up or may request further testing (sequencing) be performed by WADDL, depending on the results of qPCR analysis.

Please bill to ADRU-ARS-USDA account #RSA 2540-1080

WADDL is an official brucellosis testing laboratory. All serology for brucellosis, including abortion screens, requires identification of animals, date of sample collection, and signature of an accredited veterinarian attesting to the following statement:
"I certify that the specimens submitted with this form were collected by me from the animal(s) described on the date indicated."

Veterinarian's, Clinician's or Owner's Signature: Maggie Highland	*Condition(s) Suspected:* N/A screening study

Form WADDL 001.1 Version 09-15

IDENTIFICATION SHEET FOR MULTIPLE ANIMALS

(To accompany WADDL Accession form, if needed)

2016 – 10050
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routing: md

08/04/16

Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University

Mailing address:	Shipping address:
P.O. Box 647034	Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034	Pullman, WA. 99164-7034
Phone: (509) 335-9696	FAX: (509) 335-7424

E-Mail: waddl@vetmed.wsu.edu
Web Site: http://waddl.vetmed.wsu.edu

Owner: Highland, Maggie

Veterinarian: Highland, Maggie

TEST(S) REQUESTED: Movi qPCR

Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name
1	_8_A	26	_5_O	51	_4_B	76	_1_E
2	_8_B	27	_5_P	52	_4_C	77	_1_F
3	_4_A	28	_2_A	53	_4_D	78	_1_G
4	_4_B	29	_2_B	54	_1_A	79	_1_A
5	_4_C	30	_2_C	55	_1_B	80	_1_B
6	_4_D	31	_2_D	56	_1_A	81	_1_C
7	_4_E	32	_6_A	57	_1_B	82	_1_D
8	_4_F	33	_1_A	58	_1_C	83	_1_E
9	_4_G	34	_2_B	59	_1_D	84	_1_F
10	_1_A	35	_2_C	60	_6_A	85	_1_G
11	_1_B	36	_2_A	61	_6_B	86	_5_A
12	_5_A	37	_2_B	62	_6_C	87	_5_B
13	_5_B	38	_2_C	63	_2_A	88	_5_C
14	_5_C	39	_2_D	64	_2_B	89	_5_D
15	_5_D	40	_25_A	65	_2_C	90	_5_E
16	_5_E	41	_25_B	66	_2_D	91	_5_F
17	_5_F	42	_25_C	67	_2_E	92	_5_G
18	_5_G	43	_25_D	68	_2_F	93	_5_H
19	_5_H	44	_25_E	69	_2_G	94	_5_I
20	_5_I	45	_1_A	70	_2_H	95	_5_J
21	_5_J	46	_1_B	71	_2_I	96	_5_K
22	_5_K	47	_1_C	72	_1_A	97	_5_L
23	_5_L	48	_1_D	73	_1_B	98	_5_M
24	_5_M	49	_1_E	74	_1_C	99	_5_N
25	_5_N	50	_4_A	75	_1_D	100 *	_5_O

* For over 100 samples, please copy this form and continue numbering.

2016 – 10050
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routing: md

IDENTIFICATION SHEET FOR MULTIPLE ANIMALS

(To accompany WADDL Accession form, if needed)

Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University

Mailing address:	Shipping address:
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Pullman, WA. 99164-7034	Pullman, WA. 99164-7034
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E-Mail: waddl@vetmed.wsu.edu
Web Site: http://waddl.vetmed.wsu.edu

08/04/16

Owner: Highland, Maggie

Veterinarian: Highland, Maggie

TEST(S) REQUESTED: Movi qPCR

Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name
101	5_P	126	1_E	51		76	
102	5_Q	127	7_A	52		77	
103	5_R	128	7_B	53		78	
104	5_S	129	7_C	54		79	
105	5_T	130	7_D	55		80	
106	5_U	131	2_A	56		81	
107	5_V	132	2_B	57		82	
108	5_W	133	2_C	58		83	
109	5_X	34		59		84	
110	5_Y	35		60		85	
111	3_A	36		61		86	
112	3_B	37		62		87	
113	1_A	38		63		88	
114	1_B	39		64		89	
115	1_C	40		65		90	
116	1_D	41		66		91	
117	1_E	42		67		92	
118	1_F	43		68		93	
119	1_G	44		69		94	
120	5_A	45		70		95	
121	5_B	46		71		96	
122	1_A	47		72		97	
123	1_B	48		73		98	
124	1_C	49		74		99	
125	1_D	50		75		100 *	

* For over 100 samples, please copy this form and continue numbering.

Washington Animal Disease Diagnostic Lab

P.O. Box 647034
Pullman, WA 99164-7034
Telephone : (509) 335-9696
Fax : (509) 335-7424

Dr. Margaret Highland
USDA-ARS-ADRU
WSU - 3003 ADBF

Pullman, WA 99164-6630

Case#: 2016-10050
Report Date: 08/19/16

Submittal Date: 08/04/16 | Species: Domestic Goat | Age:
Owner: USDA-ARS-ADRU | Sex:

Final Report:

Molecular Diagnostics- Reported on 08/19/16 Authorized by Daniel Bradway, Lab Manager

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.07.18

Animal	Specimen	Result
[redacted]8_A	Nasal swab	Not detected
[redacted]_8_B	Nasal swab	Not detected
[redacted]_4_A	Nasal swab	Indeterminate
[redacted]_4_B	Nasal swab	Not detected
[redacted]_4_C	Nasal swab	Indeterminate
[redacted]_4_D	Nasal swab	Indeterminate
[redacted]_4_E	Nasal swab	Not detected
[redacted]_4_F	Nasal swab	Indeterminate
[redacted]_4_G	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected
[redacted]_5_A	Nasal swab	Not detected
[redacted]_5_B	Nasal swab	Not detected
[redacted]_5_C	Nasal swab	Not detected
[redacted]_5_D	Nasal swab	Not detected
[redacted]_5_E	Nasal swab	Not detected
[redacted]_5_F	Nasal swab	Not detected
[redacted]_5_G	Nasal swab	Not detected
[redacted]_5_H	Nasal swab	Not detected
[redacted]_5_I	Nasal swab	Indeterminate
[redacted]_5_J	Nasal swab	Not detected
[redacted]_5_K	Nasal swab	Not detected
[redacted]_5_L	Nasal swab	Not detected
[redacted]_5_M	Nasal swab	Not detected
[redacted]_5_N	Nasal swab	Indeterminate
[redacted]_5_O	Nasal swab	Not detected
[redacted]_5_P	Nasal swab	Not detected
[redacted]_2_A	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.07.18

Animal	Specimen	Result
[redacted]_2_B	Nasal swab	Not detected
[redacted]_2_C	Nasal swab	Not detected
[redacted]_2_D	Nasal swab	Not detected
[redacted]_6_A	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_2_B	Nasal swab	Not detected
[redacted]_2_C	Nasal swab	Not detected
[redacted]_2_A	Nasal swab	Not detected
[redacted]_2_B	Nasal swab	Not detected
[redacted]_2_C	Nasal swab	Not detected
[redacted]_2_D	Nasal swab	Not detected
[redacted]25_A	Nasal swab	Not detected
[redacted]25_B	Nasal swab	Not detected
[redacted]25_C	Nasal swab	Not detected
[redacted]25_D	Nasal swab	Not detected
[redacted]25_E	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected
[redacted]_1_C	Nasal swab	Not detected
[redacted]_1_D	Nasal swab	Not detected
[redacted]_1_E	Nasal swab	Not detected
[redacted]_4_A	Nasal swab	Not detected
[redacted]_4_B	Nasal swab	Not detected
[redacted]_4_C	Nasal swab	Not detected
[redacted]_4_D	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected
[redacted]_1_C	Nasal swab	Not detected
[redacted]_1_D	Nasal swab	Not detected
[redacted]_6_A	Nasal swab	Not detected
[redacted]_6_B	Nasal swab	Not detected
[redacted]_6_C	Nasal swab	Not detected
[redacted]_2_A	Nasal swab	Not detected
[redacted]_2_B	Nasal swab	Not detected
[redacted]_2_C	Nasal swab	Not detected
[redacted]_2_D	Nasal swab	Not detected
[redacted]_2_E	Nasal swab	Not detected
[redacted]_2_F	Nasal swab	Not detected
[redacted]_2_G	Nasal swab	Not detected
[redacted]_2_H	Nasal swab	Indeterminate
[redacted]_2_I	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected
[redacted]_1_C	Nasal swab	Not detected
[redacted]_1_D	Nasal swab	Not detected
[redacted]_1_E	Nasal swab	Not detected
[redacted]_1_F	Nasal swab	Not detected
[redacted]_1_G	Nasal swab	Not detected
[redacted]_1_A	Nasal swab	Not detected
[redacted]_1_B	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.07.18

Animal	Specimen	Result
[redacted]1_C	Nasal swab	Not detected
[redacted]1_D	Nasal swab	Not detected
[redacted]1_E	Nasal swab	Not detected
[redacted]1_F	Nasal swab	Not detected
[redacted]1_G	Nasal swab	Not detected
[redacted]5_A	Nasal swab	Not detected
[redacted]5_B	Nasal swab	Not detected
[redacted]5_C	Nasal swab	Not detected
[redacted]5_D	Nasal swab	Not detected
[redacted]5_E	Nasal swab	Not detected
[redacted]5_F	Nasal swab	Not detected
[redacted]5_G	Nasal swab	Not detected
[redacted]5_H	Nasal swab	Not detected
[redacted]5_I	Nasal swab	Not detected
[redacted]5_J	Nasal swab	Not detected
[redacted]5_K	Nasal swab	Not detected
[redacted]5_L	Nasal swab	Not detected
[redacted]5_M	Nasal swab	Not detected
[redacted]5_N	Nasal swab	Not detected
[redacted]5_O	Nasal swab	Not detected
[redacted]5_P	Nasal swab	Not detected
[redacted]5_Q	Nasal swab	Not detected
[redacted]5_R	Nasal swab	Not detected
[redacted]5_S	Nasal swab	Not detected
[redacted]5_T	Nasal swab	Not detected
[redacted]5_U	Nasal swab	Not detected
[redacted]5_V	Nasal swab	Not detected
[redacted]5_W	Nasal swab	Not detected
[redacted]5_X	Nasal swab	Not detected
[redacted]5_Y	Nasal swab	Not detected
[redacted]3_A	Nasal swab	Not detected
[redacted]3_B	Nasal swab	Not detected
[redacted]1_A	Nasal swab	Not detected
[redacted]1_B	Nasal swab	Not detected
[redacted]1_C	Nasal swab	Not detected
[redacted]1_D	Nasal swab	Not detected
[redacted]1_E	Nasal swab	Not detected
[redacted]1_F	Nasal swab	Not detected
[redacted]1_G	Nasal swab	Not detected
[redacted]5_A	Nasal swab	Not detected
[redacted]5_B	Nasal swab	Not detected
[redacted]1_A	Nasal swab	Not detected
[redacted]1_B	Nasal swab	Not detected
[redacted]1_C	Nasal swab	Not detected
[redacted]1_D	Nasal swab	Not detected
[redacted]1_E	Nasal swab	Not detected
[redacted]7_A	Nasal swab	Not detected
[redacted]7_B	Nasal swab	Not detected
[redacted]7_C	Nasal swab	Not detected
[redacted]7_D	Nasal swab	Not detected
[redacted]2_A	Nasal swab	Not detected
[redacted]2_B	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.07.18

Animal	Specimen	Result
[redacted]2_C	Nasal swab	Not detected
[redacted]_1_H	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae test comment: This assay detects only Mycoplasma ovipneumoniae. Culture is available at WADDL to detect other species of Mycoplasma if desired. Fees for culture are available on our website. Please contact the lab if Mycoplasma culture or other testing is desired.

Washington Animal Disease Diagnostic Lab — **Case Tracking HALF SHEET**

Quantity/Description/Routing of Samples

133 nasal swabs
– dropped off by
Maggie Highland

Sample Condition:	☐ Room Temp.	☐ On ice	☐ Frozen	☐ Fixed	Contents match forms:	Opened by:
Samples Received Via:	☐ US Mail	☐ FedEx	☑ Drop off		☐ Yes ☐ No	MA
	☐ UPS	☐ FedEx-R	☐ Other:		Explain below:	

Comments for Case Tracking:

2016 – 10050
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routed: md

08/04/16
notes: 1 page

Sample Label ✓

Form WADDL 070, Version 05-14

ACCESSION FORM FOR GENERAL DIAGNOSTICS

Washington Animal Disease Diagnostic Laboratory

College of Veterinary Medicine, Washington State University
Web Site: http://waddl.vetmed.wsu.edu

US Postal Service mailing address:
PO Box 647034
Pullman, WA. 99164-7034

UPS, FedEx or Courier shipping address:
Bustad Hall, Rm.155-N
Pullman, WA. 99164-7034

Phone: (509) 335-9696
FAX: (509) 335 7424
E-Mail: waddl@vetmed.wsu.edu

2016 – 12311
09/21/16
Form: 2 pages
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routed: md

Please type or use black ink and print clearly.

Veterinarian or Case Coordinator: Last Name: Highland		First Name: Maggie	
Clinic: ADRU-ARS-USDA			
Street address: ADBF 3033		Mailing Address or PO Box:	
City: Pullman	State: WA	Zip: 99164	
Phone: 509-335-6327	Fax: 509-335-8328	E-mail: mah@vetmed.wsu.edu	

Owner: Last Name first: same as above		Guardian Name: (if owner is under 18)	
Farm Name:		First Time Submitter? ☐ Yes ☐ No	
Street address:		Mailing Address or PO Box:	
City:	State:	Zip:	
Phone:	Fax:	E-mail:	

Billing: ☐ Owner ☑ Clinic ☐ 3rd Party (preapproval required) Please note: WADDL policy is to bill the clinic if provided, unless prepaid.

Reporting Preference: ☐ Mail ☐ Fax ☑ Web access - register on web site at http://waddl.vetmed.wsu.edu

Please fill out completely as possible:

Specimen(s) Submitted: (Please use WADDL Animal ID Sheet for multiple animals.) nasal swabs-frozen (-20C)

Date Collected: Aug-Sept 2016
Date Shipped: n/a

Tests Requested:
☐ Necropsy ☐ Virology ☐ Bacteriology ☐ IHC
☐ Histopathology ☐ Serology ☐ Mycoplasma culture ☑ PCR
☐ Toxicology ☐ Fungal Culture ☐ Parasitology ☐ Other: _____

Note: WADDL reserves the right to modify the tests requested for more efficient case work-up and / or to send specimens to outside laboratories to perform testing not done at WADDL.

Animal ID (name/tag#)	Species	Breed	Age	Sex	Animal Weight
see multiple animal form	domestic goats	multiple	multiple		

Location of Lesion	No. in group	No. Dead	No. Sick	No. on Premises	Duration of Problem
N/A		N/A	N/A		N/A

* *Was animal euthanized? If so, what method?* N/A

Additional History: *Vaccinations, signs, stress factors, treatments, post mortem findings, pertinent feed or feed additives, clinical lab results, previous WADDL Case Numbers. (Attach additional sheets as necessary.)*

M. ovipneumoniae qPCR on each sample
Please save remaining DNA isolations and call Maggie for pick up or may request further testing (sequencing) be performed by WADDL, depending on the results of qPCR analysis.

Please bill to ADRU-ARS-USDA account #RSA 2540-1094

WADDL is an official brucellosis testing laboratory. All serology for brucellosis, including abortion screens, requires identification of animals, date of sample collection, and signature of an accredited veterinarian attesting to the following statement:

"I certify that the specimens submitted with this form were collected by me from the animal(s) described on the date indicated."

Veterinarian's, Clinician's or Owner's Signature:	*Condition(s) Suspected:*

IDENTIFICATION SHEET FOR MULTIPLE ANIMALS

(To accompany WADDL Accession form, if needed)

Washington Animal Disease Diagnostic Laboratory
College of Veterinary Medicine, Washington State University
Mailing address:
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Web Site: http://waddl.vetmed.wsu.edu

2016 – 12311
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routing: md

09/21/16

Owner: Highland, Maggie

Veterinarian: Highland, Maggie

TEST(S) REQUESTED: Movi qPCR

Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name	Tube	Animal # or Name
1	_2_A	26	_2_F	51	_4_B (3)	76	_1_J (2)
2	_2_B	27	_2_G	52	_4_C (3)	77	_1_L (2)
3	_2_C	28	_2_H	53	_4_D (3)	78	_1_N (2)
4	_2_D	29	_2_I	54	_4_E (3)	79	_1_O (2)
5	_9_A	30	_2_J	55	_4_F (3)	80	_1_P (2)
6	_9_B	31	_3_A	56	_4_G (3)	81	_1_Q (2)
7	_9_C	32	_3_B	57	_4_H (3)	82	_1_R (2)
8	_9_D	33	_3_C	58	_4_I (3)	83	_1_S (2)
9	_9_E	34	_4_A	59	_4_J (3)	84	_1_T (2)
10	_5_A	35	_4_B	60	_4_K (3)	85	_1_U (2)
11	_5_B	36	_4_C	61	_4_L (3)	86	_1_V (2)
12	_5_C	37	_4_D	62	_4_M (3)	87	_1_W (2)
13	_5_D	38	_4_E	63	_4_N (3)	88	_1_X (2)
14	_5_E	39	_3_A	64	_4_O (3)	89	_1_Y (2)
15	_5_F	40	_3_B	65	_4_S (3)	90	_1_HH (2)
16	_5_G	41	_3_C	66	_9_F (2)	91	_1_II (2)
17	_5_H	42	_3_D	67	_9_G (2)	92	_1_KK (2)
18	_5_I	43	_3_E	68	_17_J (2)	93	_1_LL (2)
19	_5_J	44	_3_F	69	_17_K (2)	94	_1_MM (2)
20	_5_K	45	_3_G	70	_1_A (2)	95	_1_NN (2)
21	_2_A	46	_3_H	71	_1_B (2)	96	_1_SS (2)
22	_2_B	47	_3_I	72	_1_D (2)	97	_1_ZZ (2)
23	_2_C	48	_26_A	73	_1_E (2)	98	_1_BC (2)
24	_2_D	49	_26_B	74	_1_F (2)	99	_2_H (4)
25	_2_E	50	_4_A (3)	75	_1_G (2)	100 *	

* For over 100 samples, please copy this form and continue numbering.

Washington Animal Disease Diagnostic Lab

P.O. Box 647034
Pullman, WA 99164-7034
Telephone : (509) 335-9696
Fax : (509) 335-7424

Dr. Margaret Highland
USDA-ARS-ADRU
WSU - 3003 ADBF

Pullman, WA 99164-6630

Case#: 2016-12311
Report Date: 10/05/16

Submittal Date: 09/21/16 | Species: Domestic Goat | Age:
Owner: USDA-ARS-ADRU | Sex:

Final Report:

Molecular Diagnostics- Reported on 10/05/16 Authorized by Daniel Bradway, Lab Manager

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.07.18

Animal	Specimen	Result
[redacted]_2_A	Nasal swab	Not detected
[redacted]_2_B	Nasal swab	Not detected
[redacted]_2_C	Nasal swab	Not detected
[redacted]_2_D	Nasal swab	Not detected
[redacted]_9_A	Nasal swab	Not detected
[redacted]_9_B	Nasal swab	Not detected
[redacted]_9_C	Nasal swab	Not detected
[redacted]_9_D	Nasal swab	Not detected
[redacted]_9_E	Nasal swab	Not detected
[redacted]_5_A	Nasal swab	Not detected
[redacted]_5_B	Nasal swab	Not detected
[redacted]_5_C	Nasal swab	Not detected
[redacted]_5_D	Nasal swab	Not detected
[redacted]_5_E	Nasal swab	Not detected
[redacted]_5_F	Nasal swab	Not detected
[redacted]_5_G	Nasal swab	Not detected
[redacted]_5_H	Nasal swab	Not detected
[redacted]_5_I	Nasal swab	Not detected
[redacted]_5_J	Nasal swab	Not detected
[redacted]_5_K	Nasal swab	Not detected
[redacted]_2_A	Nasal swab	Not detected
[redacted]_2_B	Nasal swab	Not detected
[redacted]_2_C	Nasal swab	Not detected
[redacted]_2_D	Nasal swab	Not detected
[redacted]_2_E	Nasal swab	Not detected
[redacted]_2_F	Nasal swab	Not detected
[redacted]_2_G	Nasal swab	Not detected
[redacted]_2_H	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.07.18

Animal	Specimen	Result
[redacted]_2_I	Nasal swab	Not detected
[redacted]_2_J	Nasal swab	Not detected
[redacted]_3_A	Nasal swab	Not detected
[redacted]_3_B	Nasal swab	Not detected
[redacted]_3_C	Nasal swab	Not detected
[redacted]_4_A	Nasal swab	Not detected
[redacted]_4_B	Nasal swab	Not detected
[redacted]_4_C	Nasal swab	Not detected
[redacted]_4_D	Nasal swab	Not detected
[redacted]_4_E	Nasal swab	Not detected
[redacted]_3_A	Nasal swab	Not detected
[redacted]_3_B	Nasal swab	Not detected
[redacted]_3_C	Nasal swab	Indeterminate
[redacted]_3_D	Nasal swab	Indeterminate
[redacted]_3_E	Nasal swab	Not detected
[redacted]_3_F	Nasal swab	Indeterminate
[redacted]_3_G	Nasal swab	Not detected
[redacted]_3_H	Nasal swab	Not detected
[redacted]_3_I	Nasal swab	Not detected
[redacted]_26_A	Nasal swab	Not detected
[redacted]_26_B	Nasal swab	Not detected
[redacted]_4_A (3)	Nasal swab	Not detected
[redacted]_4_B (3)	Nasal swab	Not detected
[redacted]_4_C (3)	Nasal swab	Indeterminate
[redacted]_4_D (3)	Nasal swab	Indeterminate
[redacted]_4_E (3)	Nasal swab	Not detected
[redacted]_4_F (3)	Nasal swab	Not detected
[redacted]_4_G (3)	Nasal swab	Not detected
[redacted]_4_H (3)	Nasal swab	Not detected
[redacted]_4_I (3)	Nasal swab	Not detected
[redacted]_4_J (3)	Nasal swab	Indeterminate
[redacted]_4_K (3)	Nasal swab	Not detected
[redacted]_4_L (3)	Nasal swab	Indeterminate
[redacted]_4_M (3)	Nasal swab	Indeterminate
[redacted]_4_N (3)	Nasal swab	Not detected
[redacted]_4_O (3)	Nasal swab	Not detected
[redacted]_4_S (3)	Nasal swab	Indeterminate
[redacted]_9_F (2)	Nasal swab	Not detected
[redacted]_9_G (2)	Nasal swab	Not detected
[redacted]_17_J (2)	Nasal swab	Indeterminate
[redacted]_17_K (2)	Nasal swab	Not detected
[redacted]_1_A (2)	Nasal swab	Not detected
[redacted]_1_B (2)	Nasal swab	Not detected
[redacted]_1_D (2)	Nasal swab	Not detected
[redacted]_1_E (2)	Nasal swab	Not detected
[redacted]_1_F (2)	Nasal swab	Not detected
[redacted]_1_G (2)	Nasal swab	Not detected
[redacted]_1_J (2)	Nasal swab	Not detected
[redacted]_1_L (2)	Nasal swab	Not detected
[redacted]_1_N (2)	Nasal swab	Not detected
[redacted]_1_O (2)	Nasal swab	Not detected
[redacted]_1_P (2)	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae SOP: 501.40RT.2016.07.18

Animal	Specimen	Result
[redacted]_1_Q (2)	Nasal swab	Not detected
[redacted]_1_R (2)	Nasal swab	Not detected
[redacted]_1_S (2)	Nasal swab	Not detected
[redacted]_1_T (2)	Nasal swab	Not detected
[redacted]_1_U (2)	Nasal swab	Not detected
[redacted]_1_V (2)	Nasal swab	Indeterminate
[redacted]_1_W (2)	Nasal swab	Not detected
[redacted]_1_X (2)	Nasal swab	Not detected
[redacted]_1_Y (2)	Nasal swab	Not detected
[redacted]_1_HH (2)	Nasal swab	Indeterminate
[redacted]_1_II (2)	Nasal swab	Not detected
[redacted]_1_KK (2)	Nasal swab	Not detected
[redacted]_1_LL (2)	Nasal swab	Not detected
[redacted]_1_MM (2)	Nasal swab	Indeterminate
[redacted]_1_NN (2)	Nasal swab	Not detected
[redacted]_1_SS (2)	Nasal swab	Not detected
[redacted]_1_ZZ (2)	Nasal swab	Not detected
[redacted]_1_BC (2)	Nasal swab	Not detected
[redacted]_2_H (4)	Nasal swab	Not detected

PCR-Mycoplasma ovipneumoniae test comment: This assay detects only Mycoplasma ovipneumoniae. Culture is available at WADDL to detect other species of Mycoplasma if desired. Fees for culture are available on our website. Please contact the lab if Mycoplasma culture or other testing is desired.

Washington Animal Disease Diagnostic Lab — **Case Tracking HALF SHEET**

Quantity/Description/Routing of Samples

99 nasal swabs → MD
per MAH
by M. Highland
→ 250B

Sample Condition:	☐ Room Temp.	☐ On ice	☑ Frozen	☐ Fixed	Contents match forms: ☐ Yes ☐ No	Opened by: MST
Samples Received Via:	☐ US Mail	☐ FedEx	☑ Drop off		Explain below: Unk → MD to verify	
	☐ UPS	☐ FedEx-R	☐ Other:			

Comments for Case Tracking:

2016 – 12311
Ref Vet: Highland, Margaret
Owner: USDA – ARS – ADRU
Breed: Domestic Goat
Routed: md
09/21/16
notes: 1 page

Sample Label ✓

Form WADDL 070, Version 05-14