

USDA ANNUAL REPORT –2019**Column E Explanation Form**

This form is intended as an aid to complete the Column E explanation. It is not an official form and its use is voluntary. Annual reports and explanations should NOT include PI information such as names (principle investigator, research or animal care staff), addresses, protocols, meeting notes (either in part or in full), the animals room numbers, grant information, veterinary care programs, and the like. A Column E explanation must be written so as to be understood by a lay person as well as scientist.

- 1) **Registration #:** 91-R-0002 (Washington State University)
- 2) **Number of Animals categorized as column E used in this study:** 24
- 3) **Species (Common name) of animals used in this study:** Bighorn sheep
- 4) **Explain the Procedures producing pain and/or distress.** Explanations should include a brief description of the procedure, but also explain what the animal's experience, examples of which may include, but are not limited to: Neurological signs, seizures, tremors, paralysis, lethargy, inappetance, respiratory signs, GI distress, vomiting and diarrhea.

Epizootic pneumonia is an infectious disease affecting bighorn sheep that may strike dramatically quickly and result in death with very few, very brief premonitory signs. When seen, clinical signs may include watery or purulent nasal discharge (associated with rhinitis), head shaking and ear paresis (associated with otitis media), and coughing and lethargy (associated with lower respiratory tract disease).

- 5) **Attach or include with the reason(s) why anesthetics, analgesics, and tranquilizers could not be used (for federally mandated testing, see Item 6 below).**

In these studies, the development of pneumonia (or failure to develop pneumonia) is the key outcome measure and essential to this research. This precludes the use of antibiotics for prevention. Once the disease is established, there is no effective antibiotic therapy. Since the BHS are wild animals, capture and restraint for veterinary examination, despite the availability of handling facilities to ease the process, have a real possibility of inducing stress, traumatic injuries, and/or capture myopathy. Capture of the animals sufficiently frequently to detect pain / distress associated with pneumonia would at the least introduce a confounding factor likely to change study results, and at worst, negatively affect the animal's well-being while still failing to detect some cases of pneumonia prior to death. As a result, we rely on monitoring the animals from a distance to detect the onset of clinical signs consistent with pneumonia. The observations include presence of inappetance, lethargy, cough, nasal discharge, ear paresis (an indicator of otitis media), increased respiratory rate, weakness and/or recumbency, and difficulty breathing during 20-30 min observation periods. Following exposure to a source of *M. ovipneumoniae* when the disease signs are progressive, we will perform this clinical symptom scoring daily. As the disease abates, we will reduce scoring frequency to as low as two times per week. Our experience has shown that this infection results in intermittent or slowly progressive disease, that can in some animals take very sudden turns to rapidly fatal disease. With our observation schedule we expect to recognize most severely affected individuals so that they can be captured or anesthetized, examined by a veterinarian to assess disease severity, and then humanely euthanized to alleviate pain and distress.

Because of our inability to monitor and treat individual animals early in the disease process as described above, and the potential for advanced pneumonia to develop rapidly in the absence of observed disease, we classified these experiments as category E.

Our intent and our goal is to relieve pain and/or distress in our study animals in all cases. Since there is no effective treatment for this disease, we attempt to euthanize as soon as we determine that significant disease is present. However, we don't want to euthanize unnecessarily, and all animals at least occasionally exhibit mild respiratory signs such as coughing or a runny nose that should not trigger euthanasia.

During the current period, there were 24 animals at risk for development of pneumonia. Twelve of these animals only developed mild/transient disease. Ten animals that did develop pneumonia were each detected by clinical observations and were euthanized to relieve pain and distress. Two animals developed severe disease rapidly and died before they could be euthanized.

6) What, if any, federal regulations require this procedure? Cite the agency, the code of federal regulations (CFR) title number and the specific section number (e.g. APHIS, 9 CFR 113.102). If the requirement is per a guidance document, such as an Agency notice or harmonization guideline, please provide specific sufficient information to identify the cited document.

Agency: Not Applicable

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Certificate Number: 91-R-0002

Customer Number: 1026

IACUC-Approved Exceptions: USDA-covered animals

Bears:

- During the hibernation period (~4-5 months) the following exceptions are approved for the care of the bears;
 - The straw bedding is not changed and dens of the grizzly bears are not cleaned.
 - Bears are not fed (water fixtures are left turned on).
 - These exceptions are approved due to the consideration of the need to not disturb the animals during hibernation combined with the fact that the animals are not eating, urinating or defecating during the hibernation period.
 - Animal wellbeing is assessed via remote cameras daily.
 - Number of Animals: 11 bears

Pygmy rabbits:

- Approval to provide foraging feeds directly on the floor of the cage/enclosure. This is to promote natural foraging behavior.
- Approval to clean /sanitized concert pens once per month. This is to reduce disturbance of the animals.
- Number of Animals: 3 pygmy rabbits