NP 1/8/18

COLUMN E EXPLANATION

1. REGISTRATION NUMBER
   43-R-0052

2. NUMBER OF ANIMALS USED IN THIS STUDY
   40

3. SPECIES (COMMON NAME) OF ANIMALS USED IN THE STUDY
   Tricolored Bats

4. EXPLAIN THE PROCEDURE PRODUCING PAIN AND/OR DISTRESS
   Researchers did not "produce" pain or distress. The purpose of this study was to learn more about the role played by the immune system in the pathology of white-nose syndrome (WNS) in bats. Our understanding of immune function during hibernation is to study bats with WNS, which is only known to effect hibernating bats.

   Hibernating bats do not typically have access to food during the winter in nature, and lose mass as the winter progresses as a result of using stored body fat. Healthy bats may lose 25 percent of their prehibernation mass and survive the winter in good health. WNS-infected bats appear to use their fat sooner, so the mass loss will be more rapid, possibility leading to emaciation and eventually death. The changes indicated are a normal part of hibernation or the pathology of WNS. Since the objective of this study is to monitor the WNS prevalence and severity, and the immune response to the WNS pathogen, the researchers did not interrupt the study. No steps were taken to interfere with the progression of hibernation, with or without WNS.

   All bats were exposed to WNS fungus during this study. Half were also treated with an anti-inflammatory (meloxicam) to inhibit immune function. Letting WNS infections run their course is critical to determining changes in immune function and it's role. The information is needed as the conservation community seeks to better understand this devastating disease.

   It is not clear the extent that hibernating animals feel pain or distress. Bats which developed white-nose syndrome could have been in some pain or distress, and researchers let the disease develop to study the immune system changes. Bats receiving the treatment may have experienced less distress if the treatment is found to be effective at preventing WNS. Bats were categorized into Category E due to researchers not relieving any distress/discomfort of bats under-going the normal progression of the naturally-occurring disease.

5. EXPLANATION WITH THE REASON(S) FOR WHY ANESTHETICS, ANALGESICS, AND TRANQUILLIZERS COULD NOT BE USED.
   The only way researchers could have changed the study to reduce the distress bats may have felt would have been to open the environmental chambers regularly, handle the bats, and check them for WNS. To do this would have ruined the study, as regular disturbance would prevent the bats from hibernating, in which case, the project would not have been a hibernation study. WNS only effect bats while they are hibernating.

6. WHAT, IF ANY, FEDERAL REGULATIONS REQUIRE THIS PROCEDURE?
   None