

**FY19 USDA APHIS Annual Report
Category E Explanations**

Common Vampire Bats: The purpose of the Category E study was to develop a rabies vaccine for vampire bats. Bats were challenged with the rabies virus after vaccination. When bats were showing clinical signs consistent with rabies virus infection or lost significant weight, they were humanely euthanized. After the rabies challenge, some bats with rabies died without any clinical signs therefore, they were not euthanized, and this study was listed as a Category E study. Rabies challenge is the only way to prove efficacy of rabies vaccines, as we do not know which immune system responses will be best associated with protection for this vaccine.

Little Brown Bats and Big Brown Bats: Both bat species are being utilized for development of a White Nose Syndrome (WNS) vaccine and rabies vaccine. WNS is a deadly disease affecting millions of wild bats of many species. In this study, bats were vaccinated with trial vaccines. After vaccination, some bats were challenged with the fungus that causes WNS (*Pseudogymnoascus destructans*). In this study some bats did get WNS, which is a potentially fatal disease and therefore, were humanely euthanized. Disturbing bats during hibernation has the potential to reduce bat survival, therefore they were not disturbed during hibernation to check their health, so some died without euthanasia which is why this study was listed as a Category E study. WNS challenge is the only way to establish efficacy of the vaccine, as immunity to WNS is poorly understood.

A second study using big brown bats was undertaken to develop a rabies vaccine for bats. Rabies is a zoonotic disease fatal to humans and animals worldwide. Bats were vaccinated with experimental vaccines in FY19. This protocol is categorized as Category E because bats will be challenged with rabies virus in FY20 and may succumb to infection. When bats show clinical signs consistent with rabies vaccine or have lost significant weight, they will be humanely euthanized. However, like vampire bats, big brown bats can sometimes die without clinical or vague signs and therefore, this study is listed as a Category E. Rabies challenge is the only way to prove efficacy of rabies vaccines, as we do not know which immune system responses will be best associated with protection for this vaccine.

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