

UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. CERTIFICATE NUMBER: 23-R-0046  
CUSTOMER NUMBER: 347

FORM APPROVED  
OMB NO. 0579-0036

**ANNUAL REPORT OF RESEARCH FACILITY**  
(TYPE OR PRINT)

Bucknell University  
Bucknell University  
Dept. Of Biology And Psychology  
Lewisburg, PA 17837

Telephone: (570) -577-3811

3. REPORTING FACILITY (List all locations where animals were housed or used in actual research, testing, or experimentation, or held for these purposes. Attach additional sheets if necessary)

FACILITY LOCATIONS ( Sites ) - See Attached Listing

**REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY ( Attach additional sheets if necessary or use APHIS Form 7023A )**

A. Animals Covered By The Animal Welfare Regulations	B. Number of animal being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain-relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results or interpretation of the teaching, research, experiments, surgery, or tests. ( An explanation of the procedures producing pain or distress in these animals and the reason such drugs were not used must be attached to this report	F. TOTAL NUMBER OF ANIMALS ( COLUMNS C + D + E )
4. Dogs					
5. Cats					
6. Guinea Pigs					
7. Hamsters	69	43	77	0	120
8. Rabbits					
9. Non-human Primates	0	46	0	0	46
10. Sheep					
11. Pigs					
12. Other Farm Animals					
13. Other Animals					
Bats	0	65	0	0	65

**ASSURANCE STATEMENTS**

- 1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research teaching, testing, surgery, or experimentation were followed by this research facility.
- 2) Each principal investigator has considered alternatives to painful procedures.
- 3) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and an Institutional Animal Care and Use Committee (IACUC). A summary of all such exceptions is attached to this annual report. In addition to identifying the IACUC-approved exceptions, this summary includes a brief explanation of the exceptions, as well as the species and number of animals affected.
- 4) The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL  
( Chief Executive Officer or Legally Responsible Institutional Official )

SIGNED

10/14/08

## ANNUAL REPORT OF RESEARCH FACILITY, continuation

## 3. Reporting facilities

(b)(2)High, (b)(7)f

IACUC approved exceptions to standards and regulations

## 1. Exception to regulation discouraging multiple surgeries

Female hamsters serving as subjects in studies of the neural and neuroendocrine control of reproductive behavior often will undergo gonadectomy followed by brain surgery, the latter involving the placement of a lesion or the implantation of the guide cannula required for intracranial drug administration. Both procedures are central to our goals and experimental designs, both of which which revolve around the observation of responses to brain manipulations (requiring the brain surgery) in animals with controlled levels of gonadal hormones (requiring the gonadectomy). The rationale for separating these procedures (leading to multiple surgeries) is two-fold. First, we are convinced that a sequence of surgical procedures involves less stress and trauma than a single operation including both of the necessary procedures. Second, some of the behaviors of interest are subject to large individual differences, with the potential to obscure treatment effects. In such situations, it often is useful to use a within-subjects experimental design, in which any negative impact of individual differences is reduced by using each subject as its own control. In many of our studies, however, this requires that a subject be gonadectomized (so as to bring hormone levels under control), then undergo an initial round of behavioral testing (to establish baseline levels of behavior), then receive a brain lesion or control treatment, then undergo additional behavioral testing (to measure the treatment's impact). Such designs obviously require multiple surgeries.

In addition, some subjects may undergo more than one brain surgery. However, this will occur infrequently, and only when the sequence or combination of procedures and responses is itself a focus of study (e.g., comparison of responses to simultaneous vs. sequential lesions) or is otherwise crucial to the success of the project at hand (e.g., the use of sequential unilateral lesions to eliminate mortality that would be induced by a single procedure placing bilateral lesions). A typical experiment of this type might include: (1) the screening of prospective subjects; (2) gonadectomy; (3) at least 1 week of recovery; (4) 1-2 weeks of behavioral testing; (5) an initial round of brain surgery for the placement of a lesion; (6) at least 1 week of recovery; (7) possibly a second round of behavioral testing, depending on the experimental goals and design; (8) a

second round of brain surgery, for the placement of a second lesion; (9) at least 1 week of recovery; (10) a final round of behavioral testing; (11) euthanasia. Again, such sequences are employed only where critical to the relevant experimental goals and designs, seem to be tolerated well, and seem to us to be less stressful than single operations including all of the necessary procedures.

The number of animals that were affected by this exception in 2007-08 was 26.

2. Exception to regulation requiring that bats be housed in flight cages, i.e., cages sufficiently large for flight

Many of the bats housed in our facility are subjects in studies of the neuroendocrine and metabolic changes that help to support hibernation. Consequently, all of these subjects will be hibernating and inactive, making opportunities for flight both unnecessary and inappropriate (e.g., due to the need for elevated humidity, see below). The number of animals that were affected by this exception in 2007-08 was 65.

3. Exception to regulation establishing 30-70% as normal range of humidities

As noted above, some of the studies supported by our facility focus on neuroendocrine and metabolic correlates of hibernation. The successful induction and maintenance of hibernation requires the creation of conditions such as bats encounter during the winter in their natural environments. These are characterized by levels of humidity at or near saturation. Despite their departure from the humidities that otherwise might be normal, such elevated levels of humidity are entirely normal for these animals in this condition. The number of animals that were affected by this exception in 2007-08 was 65, i.e., the same 65 animals referred to just above.