SW

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0036. The time required to complete this information collection is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

OMB APPROVED
0579-0036

This report is required by law (7 U.S.C. 2143). Failure to report according to the regulations can result in an order to cease and desist and to be subject to penalties as provided for in Section 2150.

Interagency Report Control No. 0180-DOA-AN

Fiscal Year: 2009

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

ANNUAL REPORT OF RESEARCH FACILITY

(TYPE OR PRINT)

REGISTRATION NUMBER: 41-R-0005

Customer Number: 547

2. HEADQUARTERS RESEARCH FACILITY (Name and Address, as registered with USDA, include ZIP Code)

University Of Minnesota
Research Animal Resources
[redacted] 420 Delaware Street Se
(b)(2)High, (b)(7)f
Minneapolis, MN 55455

DEC 16 2009

Telephone: (612) 624 5054

3. REPORTING FACILITY (List all locations where animals were housed or used in actual research, testing, teaching, 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 animals 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 on these animals and the reasons such drugs were not used must be attached to this report.)	F. TOTAL NUMBER OF ANIMALS (Cols. C + D + E)
4. Dogs	9	133	177	26	336*
5. Cats	4	62	283		345*
6. Guinea Pigs	45	10	167		177
7. Hamsters	52	176	301		477
8. Rabbits	0	47	579		626
9. Non-human Primates	20		182		182
10. Sheep	2	31	158		189
11. Pigs	5	234	554		788
12. Other Farm Animals	12	76	58		134
cow, goat	0		9		9
13. Other Animals	0	15	20		35
~~horse~~ llama/alpaca	0		5		5
chinchilla	7	3	65		68
gerbil	0	6			6

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 approved by the 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 provisions 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 (C.E.O.) or Legally Responsible Institutional Official (I.O.))
I certify that the above is true, correct, and complete (7 U.S.C. Section 2143).

(b)(6), (b)(7)c

DATE SIGNED 11/30/09

*270 dogs and 332 cats and several other species were humane society, shelter, student or agricultural unit owned and returned.

NP 12/29/2009

SH

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OMB APPROVED
0579-0036

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Interagency Report Control No. 0180-DOA-AN

Fiscal Year: 2009

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

CONTINUATION SHEET FOR ANNUAL REPORT OF RESEARCH FACILITY

(TYPE OR PRINT)

REGISTRATION NUMBER: 41-R-0005

Customer Number: 547

2. HEADQUARTERS RESEARCH FACILITY *(Name and Address, as registered with USDA, include ZIP Code)*

University Of Minnesota
Research Animal Resources
[redacted] *420 Delaware Street Se*
(b)(2)High, (b)(7)f
Minneapolis, MN 55455

Telephone: (612) 624 5054

DEC 16 2009

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY *(Attach additional sheets if necessary.)*

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black bear		36			36
canadian lynx		3			3
white footed/deer mouse		197		63	260
Nile Grass rat				39	39
red backed vole		19		72	91
fishing cat		13			13
prairie/meadow vole		818		41	859
13-lined ground squirrel		29		40	69
masked shrew		33		16	49
eastern chipmunk		19		64	83
meadow jumping mouse		107		4	113
red squirrel				5	5
short tailed shrew		41		47	87
arctic shrew				10	10

ASSURANCE STATEMENTS

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I certify that the above is true, correct, and complete (7 U.S.C. Section 2143).

(b)(6), (b)(7)c

DATE SIGNED
11/30/09

AUG 2009

SH

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UNITED STATES DEPARTMENT OF AGRICULTURE
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Telephone: (612) 624 5054

DEC 16 2009

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY *(Attach additional sheets if necessary.)*

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little/big brown bat		179		5	184
squirrel		100	90		190
beaver		4			4
bobcat			2		2
racoon			4		4
Richardson ground squirrel		8			8
Western Harvest mouse		1			1
short-tailed weasel		10		2	12
pigmy shrew				2	2
Franklin's ground squirrel				2	2
shrew				3	3

ASSURANCE STATEMENTS

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CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL
(Chief Executive Officer (C.E.O.) or Legally Responsible Institutional Official (I.O.))
I certify that the above is true, correct, and complete (7 U.S.C. Section 2143).

[redacted] (b)(6), (b)(7)c

DATE SIGNED 11/30/09

AUG 2009

SN

DEC 16 2009

Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration number: 41-R-005

2. Number of animals used in this study for the time period specified.
   October 1, 2008 – September 30, 2009: 39

3. Species used in this study: Grass Nile Rats (*Arvicantes*)

4. Explain the procedures producing pain or distress:

   No pain was involved in the study. Animals were exposed to swim stress for 5 minutes to explore despair-like behavior that is relevant to depression. This test (the Forced Swim Test) is frequently used in many rodent species as a screen for depressenogenic/antidepressant effects. In the current study, the test was utilized to evaluate the effects of short daylight exposure on the development of depression-like behaviors in a diurnal rodent. Major depression as well as seasonal affective disorder had been closely associated with changes in daylength and with circadian rhythms. The understanding of the underlying mechanisms of these devastating disorders as well as the attempts to develop better treatments for them may depend on the utilization of diurnal model animals to reflect changes in the diurnal human.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain or distress would interfere with test results:

   Since the induction of distress, in the form of despair-like behavior and/or depression, is the goal of this study and procedure, relief of that distress would fundamentally invalidate the scientific goals of the study.

6. What if any federal regulations require this procedure? None.

Column E Explanation

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1. Registration number: 41-R-005

2. Number of animals used in this study for the time period specified.
   October 1, 2008 – September 30, 2009
   Protocol 0803A29646: 20
   Protocol 0905A65384: 6

3. Species used in this study: Dogs

4. Explain the procedures producing pain or distress:

   The established protocol used for these studies is a urate synovitis model in which a 10mg/ml suspension of sodium urate is injected into the stifle of the dogs. An injectable anesthetic is used prior to the intra-articular injection. The urate induces temporary lameness with discomfort and mild swelling in the affected joint which resolves within 12-24 hours.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain or distress would interfere with test results:

   These studies are evaluating novel compounds for their analgesic properties. The degree of lameness caused by the sodium urate is used to evaluate the efficacy of the investigational veterinary product using force platform gait analysis and visual assessment. Relieving the discomfort with established analgesics would interfere with the current study of the investigational product as it would make it impossible to determine if the drug under study alleviates the symptoms of lameness and discomfort.

   Dogs are evaluated at 6 timepoints in the first 24 hours by visual assessment and force platform gait analysis. As described in the protocol any animals that do not return to normal limb function at 24 hours will receive analgesia and be removed from the study.

6. What if any federal regulations require this procedure?

   Not applicable.

SH

Column E Explanation

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1. Registration number: 41-R-005

DEC 16 2009

2. Number of animals used in this study during October 1, 2008 – September 30, 2009:
   A grand total of 305* animals was trapped during the Field Studies in Mammalogy course.
   * individuals of some species were not individually marked, so all captures are included

3. Species used in this study:

Species	Number of Individuals
Northern Short-tailed Shrew – *Blarina brevicauda*	5
Meadow Vole -- *Microtus pennsylvanicus*:	41
Southern Red-backed Vole -- *Myodes gapperi*:	72
Short-tailed Weasel – *Mustela erminea*	2
Little Brown Bat -- *Myotis lucifugus*	5*
Deer Mouse or White-footed Mouse -- *Peromyscus*:	63
Pigmy Shrew – *Sorex hoyi*:	2
Franklin's Ground Squirrel – *Spermophilus franklinii*	2
Thirteen-lined Ground Squirrel -- *Spermophilus tridecemlineatus*:	40*
Eastern Chipmunk -- *Tamias striatus*:	64*
Red Squirrel -- *Tamiasciurus hudsonicus*:	5*
Meadow Jumping Mouse – *Zapus hudsonius*:	4

   * individuals of these species were not individually marked, so all captures are listed

4. Explain the procedures producing pain or distress:

   Restraint in live traps is not known to cause undue distress. Animals were briefly handled before release at the point of capture. Individuals that were marked were marked by toe-clipping. Tips of digits were removed using surgical scissors immediately prior to release.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain or distress would interfere with test results:

   Toe-clipping is a commonly used procedure which likely causes some pain and distress in the short-term. Toe loss is seen naturally in wild populations. Frequently during live-trapping studies, individuals are observed to lose toes naturally with no known impact to survival. Additionally, during studies during which I checked traps at three-hour intervals, some mice initially toe-clipped would be captured again at the next trap check, implying that they did not associate the experience of being trapped and toe-clipped in a negative fashion.

   This method is fast and simple. The impact on natural populations is minimal compared to many other options. Animals are released immediately following toe-clipping, thus enabling them to get back to their home ranges and/or nests. This is preferable to restraining or relocating animals, even briefly, to the lab. Since we are looking at populations in their natural environments, removal of animals or additional, prolonged interference would further impact their use of the natural environment.

   For further information on marking techniques please see: Research and Management Techniques for Wildlife and Habitats. 1994. Bookhout, T.A., Ed. The Wildlife Society. and Guidelines of the American Society of Mammalogists for the use of wild mammals in research. 2007. Gannon, W. L., R. S. Sikes, and the Animal Care and Use Committee of the American Society of Mammalogists. Journal of Mammalogy, 88:809-823.

6. What if any federal regulations require this procedure? None.

Column E Explanation

This form is intended as an aid to completing the Column E explanation. A column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration number: 41-R-005

2. Number of animals used in this study for the time period specified.
   October 1, 2008 – September 30, 2009: 71 shrews

3. Species [common name] used in this study:
   Short-tailed shrew – 42
   Masked shrew – 16
   Arctic shrew – 10
   Shrew unspeciated - 3

4. Explain the procedures producing pain or distress:

   This was a study course on field methods in research and conservation of vertebrate populations. Although every attempt is made to ensure that no harm comes to the small mammals trapped and surveyed (frequent trap checks and food/water within the traps), shrew species have inherent physiologic traits that frequently result in death when trapped.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain or distress would interfere with test results:

   References regarding shrew trap mortality:

   http://www.fs.fed.us/psw/rsl/projects/wild/karraker/karraker4.pdf
   Kogut and Padley (1997) proposed that the best way to reduce mammal mortality in pitfall traps was to increase frequency of trap checks. While this may reduce mortality somewhat, mortality, particularly in shrews, still occurs even if traps are checked several times each day and night. Sarrazin and Bider (1973) reported 19% mortality in masked shrews (Sorex cinereus) when traps were checked hourly, during days and nights

   Researchers have attempted to keep small mammals alive in traps by providing food. Getz (1961) supplied rolled oats in live traps, checked the traps twice daily, and reported 88% mortality in S. cinereus. Manville (1949) baited live traps with sun-flower seeds and oats, checked the traps 4-5 times daily, and reported 97% mortality in S. cinereus. In Michigan, Yunger et al. (1992) placed approximately 7 grams of red worms (Eisenia foetida) in pitfall traps, checked the traps twice daily, and reported 83% mortality in S. cinereus.

   Inventory of Small Mammals at Cape Cod National Seashore with Recommendations for Long-Term Monitoring NPS/NER/NRTR--2006/047
   http://www.nps.gov/nero/science/FINAL/CACO_small_mammals/pdf1.pdf

   While checking traps once rather than twice daily can be a factor in higher rates of trap mortality, results from 2000 indicate there were no significant differences due to this factor. Trap mortality of masked shrew (Sorex cinereus) was 78% during replicate one, when traps were checked twice/daily and 72% during the remaining replicates (2 =0.02, df=1, p=0.88).

6. What, if any, federal regulations require this procedure? None.

SH

41-R-0005
University of Minnesota
Annual Report

There were two exceptions to the AWA regulations and standards approved by the IACUC during the reporting period.

The post-operative care program used to temporarily house dogs and pigs after surgery has kennels with approximately 20 square feet of floor space. That space meets the NIH and AWA guidelines for dogs up to 30 kg and pigs up to 50 kg but not over (over 30 kg dogs and pigs weighing between 50 and 100 kg should have 24 square feet). The kennels do have the opportunity for enlargement via the opening of an interconnecting side panel and this is done when a large weight dog or pig is present and the veterinarian's medical judgment is such that it is considered beneficial. If RAR veterinarians require limited exercise and movement for post-surgical patients, then the animals may be maintained in the 20 sq ft kennels, which is an exception to the standards. In practice, it is uncommon to have dogs over 30 kg in the postoperative care program. Pigs under post-operative care are generally 10-50 kg with an occasional patient weighing between 50-80 kg.

For three separate days while gait analysis data was being collected, six dogs were temporarily housed in runs smaller (15.4 sq ft) than the minimum space requirement of 24 sq ft. The dogs were housed for a maximum of 30 hours in the smaller runs. During the 30 hour period, they were taken out of the runs five times and exercised for 15 minutes. This was repeated twice with a one week minimum stay in regular housing between each 30 hour period.

SH

APHIS Form 7023 Site Addendum for FY: 2009

DEC 16 2009

Registration Number: 41-R-0005
Customer ID Number: 547

Facility Business Address Information:

University Of Minnesota
Research Anmial Resources
[redacted] 420 Delaware Street Se
[redacted] (b)(2)High, (b)(7)f
Minneapolis, MN 55455

Telephone: (612) 624 5054

Facilities Site(s) Address Information:

Site Code(s):

005
(b)(2)High, (b)(7)f
Assigned Inspector: Debra Sime, D V M

003
(b)(2)High, (b)(7)f
Assigned Inspector: Debra Sime, D V M

007
(b)(2)High, (b)(7)f
Assigned Inspector: Debra Sime, D V M

008
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Assigned Inspector: Debra Sime, D V M

001
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002
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