This report is required by law (7 USC 2143). Failure to report ac) to the regulations can result in an order to cease and desist and to be subject to penalti provided for in Section 21!

See atta orm for addition mation.

Interagency Report Control No.:

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. CERTIFICATE NUMBER: 41-R-0005
CUSTOMER NUMBER: 547

FORM APPROVE
OMB NO. 0579-0

(b)(6)

ANNUAL REPORT OF RESEARCH FACILITY
(TYPE OR PRINT)

University Of Minnesota
Rsch Animal Resources
420 Delaware St Se Mmc351
Minneapolis, MN 55455

Telephone: (612) -624-9100

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 Atached 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 ye used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use o 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 an 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 wh the use of appropriate anesthetic, analgesic, or tranquiliz drugs would have adversely affected the procedures, res or interpretation of the teaching, research, experiments, surgery, or tests. (An explanation of the procedures producing pain or distress in these animals and the reas such drugs were not used must be attached to this report	F. TOTAL NUMBER OF ANIMALS (COLUMNS C + D + E)
4. Dogs	21	520	351	24	895*
5. Cats	3	102	436		538*
6. Guinea Pigs	68	43	371		414
7. Hamsters	38	4	82		86
8. Rabbits	12	178	986	6	1170
9. Non-human Primates	10	5	165	3	173
10. Sheep		30	174		204
11. Pigs	6	489	791		1280
12. Other Farm Animals Cow	12	105	112		217
goat			47		47
13. Other Animals horse		24	60		84
llamas		15	2		17
gerbil		6			6
chinchilla	20		366		386

ASSURANCE STATEMENTS

1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anestetic, analgesic, and tranquilizing drugs, prior to, during, and following actual rese 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 ap 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 inc 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

(b)(6)

DATE SIGNED
11/3/07

*572 dogs, 361 cats, and several other species were humane society, shelter, student or client owned and returned.

This report is required by law (7 USC 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

Set reverse side for additional information

Interagency Report Control No 0180-DOA-AN

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. REGISTRATION NO. 41-R-0005
Customer No. 547

FORM APPROVED
OMB NO. 0579-0036

CONTINUATION SHEET FOR ANNUAL REPORT OF RESEARCH FACILITY
(TYPE OR PRINT)

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

University Of Minnesota
Rsch Animal Resources
420 Delaware St. NE, MMC 351
Minnesota, MN 55455 Telephone: 612-624-9100

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 — 12. &/OR 13. Other (List by species)	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 in those animals and the reasons such drugs were not used must be attached to this report)*	F. TOTAL NO OF ANIMALS (Cols. C + D + E)
alpacas		4			4
donkeys		6			6
reindeer		125	3		128
black bear			24		24
canadian lynx		4	4		8
racoon			25		25
redbacked voles		17		11	28
gray squirrel		125	3		128
peromyscus		97		55	152
flying squirrel				4	4
meadow vole		11		12	23
short tail weasel				1	1
masked shrew				5	5
13-lined ground squirrel		11	34	40	85
eastern chipmunk		4		61	65
meadow jumping mouse		6			6
little brown bat				6	6
plains pocket mouse				2	2

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 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)

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

(b)(6) [redacted]

DATE SIGNED 11/30/07

APHIS FORM 7023A
(AUG 91)

This report is required by law (7 USC 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 2160

Set reverse side for additional information

Interagency Report Control No 0180-0OA-AN

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

CONTINUATION SHEET FOR ANNUAL REPORT OF RESEARCH FACILITY
(TYPE OR PRINT)

1. REGISTRATION NO. 41-R-0005
Customer No. 547

FORM APPROVED
OMB NO. 0579-0036

2. HEADQUARTERS RESEARCH FACILITY (Name and Address, as registered with USDA Include Zip Code)
University of Minnesota
Rsch Animal Resources
420 Delaware St. NE., MMC 351
Minneapolis, MN 55455 Telephone: 612-624-9100

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 — 12. &/OR 13. Other (List by species)	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 in those animals and the reasons such drugs were not used must be attached to this report)	F. TOTAL NO OF ANIMALS (Cols. C + D + E)
red squirrel				1	1
Franklin's ground squirrel				1	1
lions		34			34
hyenas		11			11
jackals		3			3

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

(b)(6) [redacted]

DATE SIGNED 11/30/01

(AUG 91)

41-R-0005
University of Minnesota
Annual Report

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

1. 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.

2. A space exception was granted for keeping dogs in 14 sq ft kennels. The dogs were 26-37 kg with a body length requiring more floor space than 14 sq ft per AWA regulations. The housing space exception was approved for 1-5 days after hip surgery to limit movement and possible hip dislocation.

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, 2006 – September 30, 2007: 24

3. Species used in this study: dog

4. Explain the procedures producing pain or distress: Sodium urate injection into the knee to produce acute pain from a short-lived inflammatory state.

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: The synovitis or joint inflammation produced by the urate crystal injection is short-lived and is used as a model to test pain relievers. We were testing a new non-steroidal anti-inflammatory drug, assessing its ability to reduce the inflammation and relieve the associated pain. If we blocked the pain, we would not have been able to assess the efficacy of the test drug. In accordance with the IACUC approval, dogs were to be removed from the study and given analgesia (hydromorphone 0.05 mg/kg SC) and an anti-inflammatory drug (dexamethasone 0.5 mg/kg) if the cumulative pain score was greater than 14 out of 17 on more than 2 consecutive time points.

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. 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, 2006 – September 30, 2007 - 6 animals.

3. Species used in this study: Rabbits

4. Explain the procedures producing pain or distress:

Rabbits are injected with superantigens and then allowed to develop toxic shock syndrome. The animals must be allowed to progress in disease severity until they develop shock as a defining criterion for progression to death (with agreement with IACUC this has been determined to be the point where animals fail to exhibit escape behavior and fail to right themselves). Prior to this endpoint, the animals may recover. At that point the animals are euthanized with approved Beuthansia D.

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:

The development of toxic shock syndrome depends on cytokine and chemokine release from immune cells plus prostaglandin and hormone release from various organs including the brain. Medications to relieve pain and distress interfere with many of these systems and alter the progression to illness. Our studies are designed to test potential superantigen vaccine toxoids, and in these studies we need control groups of animals that develop toxic shock syndrome for comparison with vaccinated groups. Those control groups of animals must be allowed to progress in toxic shock syndrome to insure endpoint development without complication from medications given.

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. 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, 2006 – September 30, 2007: 3

3. Species used in this study: Rhesus macaque

4. Explain the procedures producing pain or distress:

   The research conducted in the laboratory is related to the neural correlates of arm, hand and finger movements. The IACUC determined that NHPs under this protocol should be classified as pain category C due to water restriction and single housing.

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:

   The justifications for inclusion of these two items (water restriction and single housing of NHPs) in the protocol are explained below:

   1) Pair housing of these animals could potentially cause injury to the hands or fingers during altercations. Any injury to the arm/hand would put our research at risk. A single injury to a hand or arm could nullify years of training, data collection, and future funding because data must be duplicated across both limbs before the research can be considered for publication. Therefore, we cannot pair house these animals.

   2) Water restriction is necessary to induce the animals to learn complicated hand/eye coordination tasks and repeat variations on these tasks hundreds of time for data collection purposes.

6. What if any federal regulations require this procedure? No

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, 2006 – September 30, 2007:

3. Species used in this study: red-backed vole

4. Explain the procedures producing pain or distress:

Wild, free-ranging animals were live trapped in Sherman traps. This is an aluminum box with spring loaded doors that close behind the animal trapping it inside. Traps were baited with oats. Traps were set in early evening and checked at dawn (pre-breakfast) the following morning. Animals were identified to species, powdered with fluorescent powder, and released. Total time in the trap was a maximum of 8 hours. Total handling time, about 3 minutes. To add powder, the vole was placed in a Ziploc plastic bag full of powder for about 30 seconds. Powder clings to the pelt naturally. The baggie is then lowered to the ground, opened, and the animal runs free.

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:

There was no pain experienced by these animals. Distress is also debatable. The animals were well fed when released, and being handled briefly to add powder incurs minimal distress. This is a class exercise to demonstrate the field method of powdering small mammals. We returned to the site of release the following evening to track the powder trails with uv lamps. The trails reveal use of structure in the habitat and in population studies, territorial boundaries, location of nests and even parentage (if powder is transferred to pups in the den).

6. What if any federal regulations require this procedure?

I don't think this question is applicable.

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, 2006 – September 30, 2007:

3. Species used in this study:

Species	Number of Individuals
Southern Flying Squirrel -- *Glaucomys volans*:	4*
Meadow Vole -- *Microtus pennsylvanicus*:	12
Short-tailed Weasel -- *Mustela erminea*:	1*
Southern Red-backed Vole -- *Myodes gapperi*:	8
Little Brown Bat -- *Myotis lucifugus*	6*
Plains Pocket Mouse -- *Perognathus flavescens*:	2
Deer Mouse or White-footed Mouse -- *Peromyscus*:	55
Masked Shrew -- *Sorex cinereus*:	5
Franklin's Ground Squirrel -- *Spermophilus franklinii*:	1*
Thirteen-lined Ground Squirrel -- *Spermophilus tridecemlineatus*:	40*
Eastern Chipmunk -- *Tamias striatus*:	61*
Red Squirrel -- *Tamiasciurus hudsonicus*:	1*

* individuals 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.

6. What if any federal regulations require this procedure?

None.

APHIS Form 7023 Site List

The following sites have been reported by the facility.

Registration Number:	41-R-0005
Customer Number:	547
Facility:	UNIVERSITY OF MINNESOTA RSCH ANIMAL RESOURCES 420 DELAWARE ST NE MMC351 MINNEAPOLIS, MN 55455 (612) 624-9100

MINNEAPOLIS SITE
420 DELAWARE ST. NE
MINNEAPOLIS, MN 55455

ST PAUL SITE
1861 BUFORD PLACE
ST PAUL, MN 55108

SPRING VALLEY SITE
7815 COUNTY ROAD N
SPRING VALLEY, WI 54767

DULUTH SITE
113 MEDICAL DR
DULUTH, MN 55455

Itasca Biological Station & Laboratories
28131 University Circle
Lake Itasca, MN 56470

SWINE RESEARCH UNIT
W CENTRAL RESEARCH OUTREACH CTR
46352 STATE HWY 329
MORRIS, MN 56267