



Vivarium Handbook

Program of Laboratory

Animal Resources

(PLAR)

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Welcome

This handbook has been prepared to provide information and guidelines for anyone currently using or planning to use animals in the Spokane Vivarium. This may not cover all of your questions, so please feel free to ask the people listed in the section below.

The Institutional Animal Care & Use Committee (IACUC) and the Office of the Campus Veterinarian (OCV) have oversight over all animal care use at Washington State University in accordance with the *Animal Welfare Act*, the *Guide for the Care and Use of Laboratory Animals* (the *Guide*), and the *Guide for the Care and Use of Agricultural Animals in Research and Teaching* (the *Ag Guide*). Animal housing and research areas must be inspected and approved by the IACUC prior to use and are subject to routine semi-annual and random inspections while in use.

Standard animal caging, feed, lighting, temperature and humidity are provided by the vivarium (see PLAR Policy #1). A research project may require that the Principal Investigator manage some of the animal care (for example: when an animal is housed in a recording chamber). These arrangements should be negotiated with Vivarium Director prior to receiving animals and starting the research project (PLAR Policy #1). Once responsibilities have been established, the project animal care plan should be described in a written husbandry Standard Operating Procedure (SOP). The husbandry SOP can then be used for reference and for training new students or employees. Any husbandry exceptions to the *Guide* or *Ag Guide* must be included in the Animal Subjects Approval Form (ASAF) as well as the SOP and approved

The Spokane vivarium is staffed daily from 7 am – 3:30 pm. The Vivarium Director is on-call after hours, on weekends and holidays for emergencies. The Office of Campus Veterinarian is staffed from 8:00 AM to 5:00 PM on weekdays and has on-call staff available after hours and on holidays and weekends for emergencies. The staff is available to assist researchers but please provide advance warning when possible so that the staff can plan to be available.

The Institutional Animal Care and Use Committee membership includes a veterinarian, scientific and non-scientific WSU Faculty and at least one community member not associated with WSU. The IACUC office is staffed by the IACUC coordinator and IACUC biosafety office from 8:00AM to 5:00PM on weekdays. The IACUC Chairperson, other committee members or the IACUC coordinator can be reached at (509) 335-7951. Meeting times and other IACUC resources are available on the IACUC website (<http://www.iacuc.wsu.edu/default.asp>)

This document describes vivarium policy and investigator's responsibilities when housing animals at WSU. More detailed information on animal care can be found in the *Guide for the Care and Use of Laboratory Animals* (the *Guide*) and the *Guide for the Care and Use of Agricultural Animals in Research and Teaching* (the *Ag Guide*).

Contact Information

WSU- Spokane Vivarium Contacts

Spokane Vivarium Director

Merle Heineke	509-358-7889	merle.heineke@wsu.edu
	419-944-5413 (cell)	
	509-448-1883 (home)	

Office of the Campus Veterinarian

Office of the Campus Veterinarian Main Office:

509-335-6246	or.ocv.alert@wsu.edu (reaches all OCV staff)
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Attending Veterinarian/Director:

Steven Russell	509-335-2023	spruss@wsu.edu
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Associate Director:

Gwen Anderson	509-335-3042	gwenmarie@wsu.edu
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Laboratory Animal Veterinarian:

Nina Woodford	509-335-8035	woodford@wsu.edu
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Laboratory Animal Veterinarian:

Gay Lynn Clyde	509-335-4991	gclyde@wsu.edu
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Veterinary Technician, Rodent Health & Sanitation Monitoring:

Lisa Estes	509-335-0697	lisam@wsu.edu
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Training Coordinator:

Rebecca Elfers	509-335-0697	belfers@wsu.edu
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IACUC & Safety Contacts

IACUC Coordinator:

Rani Muthukrishnan	509-335-7951	rani_m@wsu.edu
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Biosafety Officer:

Mike Kluzik	509-335-4199	mkluzik@wsu.edu
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Importing & Exporting Animals

Office of the Campus Veterinarian/rodent import & export coordination:

Nina Woodford	509-335-6246	or.ocv.alert@wsu.edu
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Office of Grants and Research Development/MTA imports:

Pharmacy: Brigetta Jozefowski	509-358-7968	brigetta@wsu.edu
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Medical Sciences:

Laboratory Operations and Safety - Spokane

Laboratory Operations Manager

Joseph Cook	509-358-7629	joseph.w.cook@wsu.edu
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Industrial Hygienist

Chad Trent	509-358-6699	chad.trent@wsu.edu
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Facility Access

The animal housing and study areas are kept locked and access is restricted to authorized personnel only. Only animal care staff or research personnel who are listed on the ASAF are granted access to the animal facility. Those personnel must have attended the WSU Animal Awareness seminar online and have either accepted or declined participation in the Animal Contact Program which is the occupational health program for WSU.

Children, pets and service animals are not permitted in animal facilities. Any visitors that are not listed on the ASAF and who have not registered in the Animal Contact Program must be accompanied by a research or staff member at all times.

Do not open facility doors to persons unknown to you or prop doors open to allow access. Report any suspicious persons to vivarium personnel. Report lost or stolen keys or key cards to the Vivarium Director and Facilities immediately.

Upon approval of the Personnel Amendment, notify the Director via email to request access to the vivarium. The facility orientation and animal handling training sessions will be scheduled. If the research protocol involves surgery, the Surgery Training Session will be scheduled with the Training Coordinator.

Entering & Exiting the Vivarium

Pathogen-free Animals and Disease Status: The majority of rodents and rabbits housed at WSU are bred and raised under strict hygienic conditions and are free of pathogens that can impact research variables or that can be transferred to people. Rodents raised as such are called “specific pathogen-free” or “SPF” rodents. There are different standards of “SPF” at different animal facilities on the WSU campus. For example, a mouse infected with mouse norovirus would be considered to have an acceptable health status in one facility and unacceptable in another facility. To prevent disease outbreaks and significant research disruption, investigators must contact vivarium management for approval before moving animals between room and facilities. Animals that are brought into the facility without prior approval may be re-located or euthanized.

Excluded Rodent Pathogens are listed below. This list is subject to change.

Mouse Pathogens

Fur mites
Pinworms
Ectromelia
Lymphocytic Choriomenigitis virus
Hantavirus
Mouse Hepatitis virus
Mycoplasma pulmonis
Sendai virus
Pneumonia virus of mice
Epizootic diarrhea of infant mice
(EDIM/rotavirus)
Revirus-3
Mouse parvovirus
Minute virus of mice
Mouse norovirus
Helicobacter species
Pneumocystis species

Rat Pathogens

Fur mites
Pinworms
Ectromelia
Lymphocytic Choriomenigitis Virus
Hantavirus
Sialodacryoadenitis virus
Mycoplasma pulmonis
Sendai virus
Pneumonia virus of rats
Rat Thielovirus
Reovirus-3
Rat parvovirus
Rate minute virus
Kilham’s rat virus
Toolan’s H-1 virus
Helicobacter species
Pneumocystis species

Order of Entry: The vivarium has a specific order of entry of rooms that must be followed to maintain biosecurity. The order of entry is posted on the office door (Room 11). The cage change schedule is also provided. Always check the posted order of entry as it can change frequently. In general, known-infected and quarantine rooms are last.

Entering the vivarium/office area: To enter an animal facility, you must wear shoes with covered toes. If you are entering the facility, but will not enter an animal room, handle equipment or pass beyond the office, no further PPE is required. If entering the hall, an animal room or handling equipment, a lab coat is required. See sections below for further instructions.

Working with Immune Compromised Animals: Before entering the suite, take off the lab coat and hang it on the hooks to the left of the suite door. To enter an animal room housing immune compromised animals, don a sterile disposable gown, disposable gloves, and head cover (if hair is not pulled back). The sterile disposable gown must be replaced after each use. Only one researcher may work in the hood at a time. Lightly spray the hood with the disinfectant provided and wipe down with paper towels. Open all cages in the hood; lightly spray your gloved hands between every cage. When work is complete, lightly spray the hood with the disinfectant and wipe down with paper towels. Remove gloves and wash your hands before exiting the room. Remove gown/head cover immediately prior to exiting the room.

Working in a SPF Room: Before entering the suite, take off the lab coat and hang it on the hooks to the left of the suite door. To enter a SPF Room, don a sterile gown, disposable glove, and a head cover (if hair is not pulled back). Only one researcher may work in the hood at a time. Lightly spray the hood with the disinfectant provided and wipe down with paper towels. Open all cages in the hood; lightly spray your gloved hands between every cage. When work is complete, lightly spray the hood with the disinfectant and wipe down with paper towels. Remove gloves and wash your hands before exiting the room. If your gown is unsoiled, it may be hung up and reused for up to one week.

Working in a Conventional Room: To enter a conventional room, the clean lab coat may be worn. Don disposable gloves and a head cover (if hair is not pulled back). Only one researcher may work in the room at a time. Lightly spray the work service with the disinfectant provided and wipe down with paper towels. Lightly spray your gloved hands between every cage. When work is complete, lightly spray the work service with the disinfectant and wipe down with paper towels. Remove gloves and wash your hands before exiting the room. If the lab coat is unsoiled, it may be hung up and reused for up to one week.

Entering animal rooms with biological hazards chemical hazards or radioactivity: Animal projects with additional hazards require approval through the WSU institutional Biosafety Committee and project-specific standard operating procedures (SOP). Vivarium staff must be notified a week before the hazard project is set to begin. Complete a Hazardous Projects Form and submit it to the Vivarium Director. Rooms with hazardous materials must be properly labeled and the project-specific SOP must be posted on the door. Anyone entering the room must follow the safety procedures within the SOP including personal protective equipment, animal containment and waste handling. Please contact Mike Kluzik at (509) 335-9553 or mkluzik@wsu.edu for more information.

Exiting the vivarium: Remove your gown and gloves; wash your hands. Depending on the room, gowns may be reused for up to one week. Don the lab coat hanging outside the suite to move through the facility. When leaving the facility, hang your lab coat on the appropriate hanger in the entrance. Do not wear the lab coat outside of the facility; do not take it home to launder. See laundry instructions below. Do not wear gloves in the public corridors. If gloves are needed to transport materials, wear one glove to handle the transported item. The free, ungloved hand is then used to touch door knobs, elevator buttons, etc. If you are wearing gloves to “protect your sample from you” and are in the hall, no one

else understands this and will be concerned about the items you have contaminated with those gloves. For further information, see the WSU Glove Policy.

Transporting Animals: Investigators must have approval from the Vivarium Director before moving animals between rooms and buildings. In addition, OCV must give approval for animal transportation between institutions. The transport procedure must be compliant with the WSU IACUC policy on animal transportation (<http://www.iacuc.wsu.edu/resources.asp>). Exceptions will require a project specific transportation plan, with approval from the IACUC, OCV, and vivarium director and if necessary, the Institutional Biosafety Committee.

Transporting Animals outside and inside the vivarium: Animals or complete carcasses are not to be taken to a lab or office space outside the vivarium (PLAR Policy #3). Animals may be manually transported from the housing facility to a vivarium procedure/surgery room in filtered secured caging such as a micro isolator cage or commercial filtered transport box. Do not stack cages more than 2 rodent cages high during transportation.

Escaped Rodents: Pathogen-free rodents that escape their cages and gain access to the floor should be captured and euthanized immediately to prevent colony contamination. If the escaped animal is considered irreplaceable, it should be caught, isolated in a separate labeled cage and placed last on the rack. Immediate arrangements should be made for quarantine or re-derivation. Inform the Vivarium Director immediately about escaped animals.

Animal Environment (*Guide pp. 41-104*)

The *Guide* and *Ag Guide* provide detailed recommendations for lighting, temperature, humidity, cage sizes, cage density, feed, water, bedding materials, sanitation frequency, outdoor housing and behavioral management for agricultural, terrestrial and aquatic animals. Exceptions to the *Guide* recommendations must be described in the ASAF and approved by the WSU IACUC. Examples of exceptions include significant changes in circadian cycles, limiting the feed, and single housing of social animals.

Macro-environment (animal room):

Emergency contact information: Emergency contact information must be posted in order to instruct emergency and maintenance personnel who to contact if there is a concern with the animal housing facility. This should include office and after-hours phone numbers for the investigator and laboratory personnel as well as OCV contacts and the Whistle-Blower policy (see addendum 1 &2).

Procedures: When working with or around animals, work quietly to avoid disturbing or distressing them. Any stressful procedures, such as surgery or euthanasia, must be done outside of the animal housing rooms to avoid unnecessary stimulation of the other animals.

Illumination: Light cycles within the animal rooms are controlled by a computerized system. The standard light/dark cycles are 12:12 or 14:10 in rodent rooms. Significant variation requires project specific IACUC approval. Red lights are available in all rooms.

Temperature & Humidity: The temperature and humidity in indoor animal housing rooms must be monitored and recorded daily. The thermostat is set at 70°F. Animal housing rooms should be able to maintain room temperature within $\pm 3^\circ\text{F}$ of the room's set temperature. The relative humidity levels for indoor animal rooms should be at $50\% \pm 20\%$. Levels frequently drop below 30% in the winter in Eastern Washington. Measures should be taken to increase the humidity levels if there are any clinical effects or if it is thought to impact the research. The recommended temperature range for rodents is 68-79°F or 20-26°C (*Guide* p. 44).

Ventilation: The broad guideline is 10-15 air changes per hour but more or less may be needed depending on room density and characteristics of the air supply (*Guide* p.46). Assessment of air changes is routinely conducted every 3 years or more often if the performance standard is not being met. If urine/ammonia odors are excessive, report to the Vivarium Director (*Guide* p. 46).

Sanitation: The animal rooms and support areas must be cleaned and disinfected regularly to minimize contamination and harborage of vermin (*Guide* p. 72). At minimum, floors and counter tops are cleaned and disinfected weekly, usually after cage changing. More frequent cleaning may be needed if dust and debris accumulate quickly. Cleaning activities are documented in a

room log with date and initials of personnel performing the task. Laboratories with recording chambers or other specialized animal housing areas are responsible for cleaning the chambers or equipment. The husbandry staff will clean the room. The cleaning schedule may be affected due to the testing/experiment schedule. Sanitation efficacy is assessed quarterly by the OCV sanitation monitoring program (WSU IACUC policy #5). Contact Lisa Estes at lisam@wsu.edu to coordinate sanitation sampling.

Pest Control: The animal study and housing areas must be kept neat and clean to prevent the harborage of vermin. Any feed, nutritional enrichment or treats must be stored in vermin-proof containers. Evidence of insect or wild rodent infestation should be reported to Vivarium Director as soon as possible.

Storage: The storage of unnecessary supplies, equipment and materials should not occur in animal areas. Clutter makes the area difficult to sanitize and can attract vermin. Do not use cardboard boxes in animal areas because cardboard cannot be sanitized and can harbor insects.

Waste Disposal: Vivarium management and Investigators are responsible for proper disposal of trash, animal waste, carcasses and any hazardous waste within the animal areas. If you have any questions, contact the Vivarium Director, the Laboratory Operations Manager or Spokane Industrial Hygienist.

Micro-environment (animal cage):

Animal Identification: Animals should be clearly identified through the use of cage cards that include name of responsible investigator(s), source, species/strain/breed, number of animals in the cage/enclosure, approved IACUC protocol #, and information such as birth/age, arrival, and relevant dates of procedures (breeding, weaning, injections, surgery).

Housing Density: The *Guide* and *Ag Guide* provide detailed recommendations for cage or pen sizes and housing density for single-housed, group-housed and breeding animals (*Guide*, p. 57). Exceptions to the *Guide* and *Ag Guide* recommendations required for a research project must be described in the ASAF and approved by the WSU IACUC. Examples of exceptions include single housing of social animals and having more than one mouse litter in a standard size mouse cage. Contact OCV or the IACUC for further guidance.

Standard mouse cage size: 77.66 sq. inches

Maximum mouse cage density: 5 adult mice or 2 adults (male and female) + 1 litter

Standard rat cage size: 140.12 sq. inches

Maximum rat cage density: 2 adults or 1 female + litter

Environmental Enrichment: The WSU IACUC policy #30 Environmental Enrichment at WSU details the basic behavioral management expectations for animals. Exemptions to environmental enrichment and social housing of social species requires justification and approval by the IACUC. The policy is available at <http://www.iacuc.wsu.edu/resources.asp>. The vivarium standard for Enrichment of rodents is:

- Socially housed mice: paper nesting material
- Single-housed mice: paper nesting material plus shelter
- Socially housed rat: paper nesting material or shelter
- Single housed rat: paper nesting material and shelter.

Sanitation: Ventilated animal cages are changed and sanitized every 2 weeks. Water bottles are checked daily and are changed and sanitized at least weekly (*Guide* pp. 70-71). Cleaning activities are documented in a room log with the date and initials of the personnel performing the task. The washing effectiveness is evaluated through the quarterly sanitation monitoring program (WSU IACUC policy #5).

Bedding (*Guide*, p. 68)

A variety of bedding is used at the Spokane vivarium. The type of bedding and changing frequency include:

- Changed every 2 weeks: 1/8" Cob
 Aspen
 Pine
 Diamond Soft
- Changed Every Week: Biofresh

Feed (*Guide*, p. 65)

A variety of diets is used at the Spokane vivarium. The type of diets and source include:

- Harlan Teklad: 8640, 2020, 2018, 2016
- Purina: 5001
- PI Specific: The research staff may order specialized diets.

Water: (*Guide* p. 67)

Animals have access to potable, uncontaminated water. Water bottles are checked daily and are changed and sanitized weekly. Research protocols which limit access to water must have prior IACUC approval.

Animal Monitoring

Vivarium management will insure that trained personnel monitor the animals every day including weekends and holidays. Each room must have a daily care check list on which animal care staff records the temperatures, humidity, room pressure, animal health checks, and any animal care duties performed such as a cage changing, watering, feeding, and room cleaning. Each entry must be dated and initialed by the personnel performing the tasks. If a research project requires that the investigator

monitor the animals themselves, the PI must review the distribution of responsibilities with the Vivarium Director.

Daily Animal Checks

Each animal room should have a daily care check list on which personnel record the animal health checks. Each entry must be dated and initialed by the personnel performing the task. Each animal must be checked daily including weekends and holidays unless otherwise described in the ASAF and approved by the IACUC.

OCV Animals Health Notification

The responsible personnel for each animal facility will go to the on-line OCV Animal Health Database and notify OCV of any ill, injured, and otherwise abnormal animals or the lack thereof every weekday (Monday thru Friday). See page 20, addendum 3 for more details on reporting abnormal animals. Please contact Gay Lynn Clyde at 509-335-6246 or or.ocv.alert@wsu.edu for training and database access.

Summary of Animal Room Documentation Requirements

The following items must be documented either daily or when the activity is completed. All entries must be dated and initialed by the personnel performing the task. These records must be kept for 3 years after the ASAF has expired. Usually a clip board with a month-long daily care sheet is kept at the entrance to the animal housing room. Older records are filed and should be easily retrieved for review.

1. Daily (7 days/week including weekends and holidays)
 - a. Animal health check; including health & access to feed and water
 - b. Temperature in indoor rooms
 - c. Relative humidity in indoor rooms
 - d. Air pressure in indoor rooms
 - e. Pest surveillance
 - f. Air handler readings
2. Business days (5 days/week, Monday - Friday)
 - a. OCV notification of the animal health using online database.
3. On dates performed
 - a. Cage changes
 - b. Feeding
 - c. Watering
 - d. Room cleaning (floors, walls, counters, chambers, fixtures)
 - e. Shower/eye wash flushing (should be weekly unless using sealed disposable flush bottles)

Animal Use

Training

All persons handling animals must attend a session of the Animal Awareness seminar either online or in person. This and other training can be found at the PLAR website or at the OCV website (<http://www.iacuc.wsu.edu/training.asp>). Dr. Becky Elfers is the OCV training coordinator. She can provide hands on training classes as well as online instruction on numerous topics and methodologies. Any investigator or researcher may request an animal training session from the Vivarium Director or Office of the Campus Veterinarian if they feel it would benefit their work or if mandated by the IACUC. Please contact the Vivarium Director or the OCV regarding training.

Animal numbers

All animals purchased, bred, transferred from another project or otherwise acquired for use in research or teaching must be listed on an IACUC approved ASAF before acquisition. There is an emergency holding protocol for unexpected acquisitions and new investigators. The holding protocol guidelines and request form are available at <http://iacuc.wsu.edu/forms.asp>. Each approved ASAF lists the total number of animals to be used and the number to be used within each pain class. To track animal usage against the approved numbers, all animals must be documented on the WSU IACUC database. The vivarium staff enters the numbers of animals used when animals are delivered, transferred, or when animals are born to breeding colonies. Pups are counted at the first cage change. Animal use should never exceed the animal numbers approved in the ASAF. An amendment requesting an increase in animal numbers should be sent to the IACUC for approval if an investigator needs additional animals. If transferring animals from one protocol to a different protocol (even if under same investigator), an animal transform form is required.

Animal Acquisition and Ordering

Animal order forms are available on the vivarium website. See PLAR Policy for additional guidance. There are two ways to submit the completed form:

Pharmacy: submit the form to Sarah Kohler for a PO number. Sarah will then forward the form to the vivarium director.

Medical Sciences: enter the account number to be charged. Send the form to the Vivarium Director and cc JoNell Edlin.

NOTE: To prevent disease outbreaks and significant research disruption, investigators must contact the Vivarium Director for approval before moving animals between rooms and facilities. Animals that are brought into the facility without prior approval may be re-located or euthanized.

Rodent Breeding

There are alternate methods for breeding rodents:

Pair/monogamous breeding consists of 1 male and 1 female in the cage. With this method, only 1 female is reproducing with the male, but due to the post-partum estrus, they can have a litter approximately every 21 days. If the litter is weaned promptly by 21 days, no overcrowding should occur. However, if a new litter is born before the previous litter has been weaned; then the older litter must be separated out immediately into new cages.

Harem/group breeding consists of 1 male with multiple females (2-4 depending on cage dimensions). It is an exception to the *Guide* to house multiple litters in a standard size cage (mouse 68-82 in²) therefore; females must be separated before they give birth with harem breeding. With this method, more females are simultaneously reproducing with 1 male, but they do not mate at the post-partum estrus, and will not breed again until the litter is weaned and the female is placed back with the male. If the strain requires co-mothering with multiple females or use of a “nanny” female to improve pup survival, this must be described in the ASAF and approved by the IACUC.

PLAR staff may perform breeding tasks. The time spent will be charged as technical services.

Weaning

Litters of mice and rats over the age of 21 days are considered adults and should be weaned accordingly, unless specific exceptions to extend the age of weaning are in the ASAF. Weanlings should be separated by sex into cages of 5 or less animals independent of their weight at weaning. Care must be taken to ensure that the weanlings can reach the food and water. A hydrogel cup should be placed in the cage unless it interferes with the research. An alternative is to place a cup with moistened food in the care. If training is needed on weaning procedures, contact the Vivarium Director or OCV. If animals need to be genotyped, tail-snipping may occur prior to 21 days of age without the use of anesthesia. If tail-snipping occurs after 21 days of age, anesthesia must be provided for the procedure. Read WSU IACUC SOP #2 on sampling guidelines at http://www.iacuc.wsu.edu/documents/forms/pdf/WSU_SOP_2.pdf

Procedures

Any procedure such as blood draws, injections, behavioral testing and surgeries performed on live animals must be described in the ASAF and approved by the IACUC. The only exception is diagnostic sampling and medical care under the direction of a veterinarian for medical issues. Any stressful procedure, such as drawing blood (lancet), surgery, or euthanasia, must be done outside of the animal housing rooms to avoid unnecessary stimulation of the other animals in residence. Procedure/surgery rooms are located in PBS Vivarium Rooms 19 and 23, and are available for use with online scheduling.

Animal Health and Veterinary Services

The Office of the Campus Veterinarian (OCV) is responsible for veterinary services for Washington State University. In addition, veterinary researchers may choose to provide veterinary services to their own experimental animals. Read WSU IACUC policy #3 Guidelines for Veterinary Care of Animals by Veterinary Researchers and Veterinary Faculty at <http://www.iacuc.wsu.edu/resources.asp> for further clarification.

Rodent Health Monitoring

OCV is responsible for routine screening of SPF rodents for rodent pathogens. OCV typically will test rodent housing rooms three times per year by either environmental PCR sampling, direct colony animal testing or by use of dirty bedding sentinel rodents. Please refer to WSU IACUC policy #14 or contact the vivarium Director or OCV at 1-509-335-6246 for more information.

Reporting Ill, Injured, or Dead Animals

If an ill, injured or dead animal is found during a daily health check, the animal must be reported to the principal investigator or their representative, the Vivarium Director, and to OCV. For rodents and other small animals, the cage is flagged with an orange OCV cage card. The condition and treatment is documented in the medical binder provided by the OCV. SOP #9 provides guidance for the treatment of common minor medical conditions in rodents by research investigators, students and animal care staff (http://www.iacuc.wsu.edu/documents/forms/pdf/WSU_SOP_9.pdf). Cases that do not resolve within the time frames listed in SOP #9 require further evaluation.

If the ill or injured animal requires immediate veterinary care by OCV, contact OCV by phone at 509-335-6246 or 509-330-1871. On holidays, weekends or after-hours, call 509-330-1871. Less urgent cases can be reported by email to or.ocv.alert@wsu.edu. The OCV veterinary staff will examine the animal, determine the appropriate testing or veterinary care, and will contact the investigator's lab with the recommended plan. If after hours or on weekends, efforts will be made to contact the investigator prior to initiating any care. If the investigator or designee cannot be reached, the OCV staff may proceed to treat or euthanize an animal. Current contact information must be available so the veterinary staff can reach the responsible persons for consultation.

All cases including unexpected deaths and cases treated by other WSU veterinarians or via an approved ASAF should be added to the OCV Animal Health Database by the next business day (see Addendum 3 for details on the OCV database). Any animal under observation or treatment for a medical issue must be identified and have a written or computer-based medical record documenting any diagnostic tests, surgery, medical treatments, resolution or euthanasia.

Investigators may develop their own standard operating procedures for the treatment of medical conditions associated with their research. These project specific standard operating procedures should be included in the ASAF and approved by the IACUC.

Euthanasia

The method of euthanasia (humane killing) must be described in the ASAF and approved by the WSU IACUC prior to use. In the case of an emergency, an alternative suitable method may be used under the direction of an OCV or other veterinarian. For more information, see the WSU IACUC policy #28 on the euthanasia of research or teaching animals at <http://www.iacuc.wsu.edu/resources.asp>.

CO₂ Euthanasia of Rodents

Medical grade compressed CO₂ gas in cylinders is the only allowable source of carbon dioxide. CO₂ generated by other methods (e.g., dry ice) is unacceptable. CO₂ delivery must be monitored by a flow meter or preset system to ensure CO₂ does not displace air more than 10-30% of the chamber volume per minute. Please contact the Vivarium Director or Dr. Gay Lynn Clyde at 509-335-4991 or at gclyde@wsu.edu for assistance. Rodents, especially neonates, are particularly resistant to euthanasia by overdose of inhaled agents such as CO₂ or even injectable agents. For this reason, the AVMA Guidelines for the Euthanasia of Animals and the WSU IACUC require a secondary physical method of euthanasia FOR ALL RODENTS after the animal is euthanized or profoundly anesthetized and prior to carcass disposal. Acceptable SECONDARY physical methods for adult and young rodents include:

- Decapitation
- Cardiac Perfusion
- Removal of vital organs (e.g. heart, lung, brain)
- Opening of the chest cavity to induce pneumothorax
- Exsanguination
- Cervical dislocation

NOTE: these procedures may **not** be performed in conscious animals without specific IACUC approval.

All persons conducting euthanasia must have received adequate training. This training must be documented and documentation should be available for review by the IACUC. If instruction on proper euthanasia techniques is needed, contact the Vivarium Director or OCV.

Live animals or whole animal carcasses are not to be removed from the vivarium. See PLAR Policy #2

Carcass and Tissue Removal

If the animal's death was unexpected and not part of an approved research protocol, it must be reported to OCV as an abnormal event. OCV may request a necropsy to determine the cause of death. In this case, the carcass should be refrigerated but should not be placed in the freezer as ice crystals can destroy the tissue histology. Dead animals and animal tissues must not be disposed of in the regular trash. They may be stored for 2-3 days in a refrigerator labeled for carcass storage or kept frozen in a freezer labeled for carcass storage. Medical and pathological waste including carcasses can be boxed for incineration. If you have any questions or need WSU onsite disposal boxes, please contact:

Joseph Cook	joseph.w.cook@wsu.edu	509-358-7629
Chad Trent	chad.trent@wsu.edu	509-358-6699

Laundry

Soiled protective clothing can be a source of contamination and allergens. Laboratory coats and other washable items used with animals must be laundered at WSU laundry facilities or by a commercial laundry service. Special procedures are required for radioactive contamination or BL3 and higher research activities. Do not take soiled materials home to launder. Do not use soiled materials in other animal facilities.

PLAR provides laundry service for lab coats dedicated to the vivarium. Hampers are located throughout the facility. All lab coats hung in the entry are laundered each weekend.

Drugs & Chemicals

Waste gases: Any volatile chemicals or anesthetic gases **must** be scavenged by either a biosafety cabinet equipped with a fume absorbing carbon filter, a fume hood or a portable carbon filter (F/Air-type canisters if using an anesthetic vaporizer). Laminar flow change stations and other biosafety cabinets are not appropriate for work with volatile chemicals or anesthetic gases. WSU IACUC policy #31 addresses anesthetic vaporizer maintenance and proper waste gas scavenging. The policy is available at <http://www.iacuc.wsu.edu/resources.asp>. The policy requires that all vaporizers receive annual servicing which must be documented.

Showers and eye wash: Eye wash stations in animal facilities and labs must be flushed weekly. This activity must be documented with date and initials of personnel performing the task.

Chemical storage: Flammable or explosive materials must be appropriately stored in a flammable storage cabinet. Incompatible chemicals such as bleach and ammonia should not be stored in the same area. If chemicals are transferred to a secondary container and not immediately used by the person doing the transfer, the secondary containers must be labeled with the contents and the hazards associated with using it. Please contact Chad Trent or Environmental Health and Safety services at <http://ehs.wsu.edu/> for more information on chemical safety.

Controlled Substances

Any investigator using controlled substances (Schedule I-V Drugs) in their research must obtain their own DEA and State drug licenses. It is a felony to provide a controlled substance to a person who is not registered with the DEA or who is not one of your authorized users. The storage and record-keeping of controlled substances commonly used in research animals are pentobarbital, ketamine, buprenorphine, diazepam, and tiletamine-zolazepam (Telezol®). Please contact Dr. Nina Woodford if you have any questions about the research use of controlled substances at WSU. The complete policy is available in the WSU Business and Procedures Policy Manual at <http://public.wsu.edu/~forms/manuals.html>.

Expired Materials

The use of expired drugs, chemicals, disinfectants and other substances on live animals is unacceptable practice. Expired materials must be labeled as expired and stored separately from unexpired materials until proper disposal. Contact Joe Cook, Laboratory Operations Manager for training in the identification, handling, and disposal of chemical waste.

Non-pharmaceutical grade chemicals and other substance

Pharmaceutical grade chemicals and other substances should be used, when available for all animal related procedures. The use of non-pharmaceutical grade chemicals or substance must be described and justified in the ASAF and receive approval from the WSU IACUC before use. For more information, please refer to WSU IACUC policies #29 and #32 at <http://www.iacuc.wsu.edu/resources.asp>.

Addendum 1
Washington State University

Institutional Animal Care & Use Committee

Procedures for Reporting Concerns about the Care and Use of Animals

Washington State University will immediately investigate any allegations of suspected misuse of animals or deficiencies regarding the care and use of research or teaching animals.

An individual reporting a suspected deficiency need not identify him/herself to make a report. If an individual chooses to identify him/herself, the individual's identity will be kept in strictest confidence.

To make a report or discuss a concern or perceived problem, contact:

- The Chairperson of the WSU Institutional Animal Care and Use Committee or any Committee Member via the IACUC office at (509) 335-7951.
- The Campus Veterinarian may also be contacted at (509) 335-6246. The reported deficiency or problem situation will be promptly reported to the Chairperson of the WSU-IACUC.
- The Vice President for Research may also be contacted at (509) 335- 3574 or (509) 335-1517. The reported deficiency or problem situation will subsequently be reported to the Chairperson of the WSU-IACUC and/or the Campus Veterinarian.

Background:

The federal Animal Welfare Act requires that Washington State University, as a registered research facility, ensures that all scientists, research technicians, animal technicians and other personnel involved in animal care, treatment, and use are qualified to perform their duties.

As part of this responsibility, the law states that Washington State University is required to instruct personnel on "Methods whereby deficiencies in animal care and treatment are reported, including deficiencies in animal care and treatment reported by any employee of the facility" (this would include all WSU employees and students). The law further states that "No facility employee, Committee member, or laboratory personnel shall be discriminated against or be subject to any reprisal for reporting violations of any regulation or standards under the Act".

The WSU Institutional Animal Care and Use Committee (IACUC) is charged with the responsibility of investigating complaints of misuse of animals used in instruction and research.

Addendum 2
Washington State University – Animal Care and Use Program
Contacting the Office of the Campus Veterinarian

During normal business hours (Monday - Friday; 8:00 AM - 5:00 PM):

*(Note: If there is an animal related emergency during **NORMAL BUSINESS HOURS**, call the **MAIN LINE FIRST (5-6246)**. If there is no answer, **leave a message – this voice mail is checked by everyone**. THEN also call the **OCV emergency cell phone (330-1871)**. That phone is always in the possession of one of the **OCV veterinary staff**.)*

- OCV Main Line: **335-6246**
- OCV Departmental Email (goes to all OCV staff): or.ocv.alert@wsu.edu
- Steven Russell, DVM – Director/Attending Veterinarian: 335-2023 (spruss@wsu.edu)
- Nina Woodford, DVM – Clinical Veterinarian (part-time): 335-8035 (woodford@vetmed.wsu.edu)
- Gay Lynn Clyde, DVM – Clinical Veterinarian (part-time): 335-4991 (gclyde@wsu.edu)
- Becky Elfers, DVM – Training Coordinator; 335-0697 (belfers@wsu.edu)
- Gwen Anderson, RVT, RLATG, ILAM – Assistant Director: 335-3042 (gwenmarie@wsu.edu)
- Lisa Estes, RVT, RLATG – Veterinary Specialist III: 335-3237 (lisam@wsu.edu)
- Kerri Kuykendall (PAR program) – Program Specialist III: 335-8043 (kerri.kuykendall@wsu.edu)
- Kelli Weed – Clerical Assistant II; 335-6246 (kelli.weed100@email.wsu.edu)

OCV's campus zip code: 1165

OCV's Fax number: 335-3162

OCV's web site: <http://campusvet.wsu.edu/>

OCV's Emergency Cell Phone: **(509)330-1871**

After Hours, Weekends and Holidays:

- OCV Emergency Cell Phone: **1-509-330-1871** (this is a local call in Moscow/Pullman area)
When calling this number, if no one answers right away, you will be asked to leave a voice mail message to include your name, phone number where you can be reached to answer questions, nature of emergency, others you have contacted in regards to this situation, and location of animal (include building and room/pen number). Please "flag" the animal with a GREEN vet check card on the cage/pen of the animal that requires veterinary evaluation so animal may be easily located by vet staff. (Additional cards may be acquired by calling the main office at 335-6246). If you do not receive a call back from the veterinary staff within 15 minutes of the call, please continue to call the emergency cell phone until you are able to communicate directly with the OCV staff.
- WSU Veterinary Teaching Hospital: **335-0711** (24 hour-a-day emergency number)
If an animal requires immediate veterinary care and attention, you may contact the Vet Teaching Hospital at any time of the day or night. Animal may need to be transported to the teaching hospital for care/evaluation.

Note: Anytime an animal is found to be abnormal, the following individuals are to be notified:

- **Principal investigator and/or research staff**
- **Animal Facility Supervisor**
- **Office of the Campus Veterinarian**

Addendum 3

OCV Notification Policy for Morbidity and Mortality in WSU Research and Teaching Animals

Introduction: Under the federal Animal Welfare Act, adequate veterinary care is an institutional responsibility. At WSU, veterinary medicine may be provided through the following means:

- The Office of Campus Veterinarian (OCV)
- The WSU College of Veterinary Medicine (CVM) through Veterinary Clinical Sciences (VCS)
- Veterinary-researchers/faculty
- Veterinary care described in IACUC approved research or management protocols (ASAF) or IACUC approved standard operating procedures (SOP) which may include veterinary services from private or government employed veterinarians

While OCV may not be the primary veterinary care provider for all WSU animals, OCV must assure the provision of adequate veterinary care for all WSU animals. To do so, OCV must be notified when any WSU animal is identified with illness, injury, other abnormality/medical condition or unexpected death. For further description, please refer to WSU IACUC policy #3 Guidelines for Veterinary Care at http://www.iacuc.wsu.edu/documents/forms/pdf/Policy_3.pdf. The notification process is described below.

Roles & Responsibility

- **Animal Care Staff & Facility Management:** Personnel conducting the required daily animal observation will be responsible for identifying abnormal animals and notifying the principle investigator and the veterinary care provider (OCV,VCS, or other). In addition, the designated staff or management personnel will notify OCV everyday (Monday thru Friday, with weekend/holiday updated on the first following weekday) if there are no cases, any new cases or resolution of an existing case.
- **Investigators and research staff:** Investigators or designated staff who conduct the required daily animal observation will be responsible for identifying abnormal animals and notifying the veterinary care provider (OCV,VCS or other). In addition, the investigator or designated staff will notify OCV every day (Monday thru Friday with weekend/holiday updated on the first following weekday) if there are no cases, any new cases or resolution of an existing case.
- **OCV personnel:** OCV veterinary staff will receive the daily notification and assure the provision of appropriate veterinary care. If needed, OCV will communicate with involved personnel or veterinary care providers and review medical records.

Notification Process

1. **Emergencies:** If there is an animal-related emergency, **call the veterinary care provider immediately.** If OCV is the veterinary care provider, call the OCV MAIN LINE at 509-335-6246 or if after-hours, call the OCV emergency cell phone (509) 330-1871. Email notification is acceptable in NON-EMERGENCY cases. All animal care personnel must be trained/informed as to whom to call in cases of animal-related emergencies.
2. **Daily Notification:** Facility management, investigator or designated staff member will notify OCV if there are no cases, any new cases or resolution of an existing case.

- a. Notification will be Monday through Friday with weekend/holiday updates on this first following weekdays
- b. Notification will be through a WSU network system:
<https://myresearch.wsu.edu/login.aspx?ReturnUrl=%2f>
- c. After logging on to my research, choose OCV tab which will bring up the vivarium that you are associated with as a health reporter.
- d. If there are no new medical cases that day, there is a button that is displayed to the far right of your vivarium name called “No Changes Today”. Pressing the button will send a notification that you have no new cases or resolutions that day. If there are no new animal cases, choose the “Add Record” button, you will be prompted to add this information:
 - i. **Start Date:** Date that the abnormal animal was identified
 - ii. **ASAF #:** number for the IACUC approved research or teaching protocol
 - iii. **Activity Number:** this will automatically fill in the PI name when you put in the ASAF, you will just need to select the most recent number.
 - iv. **Animal Species & Identification:** animal species and identification number or other identifier.
 - v. **Vivarium Code:** name of animal housing facility
 - vi. **Room:** room or pen number where animal is located or normally housed
 - vii. **Problem:** a brief description of the illness, injury or other clinical abnormality identified. If unexpected death, list as “found dead”.
 - viii. **Plan:** drop down option:
 1. ASAF or other SOP
 2. Monitor
 3. SOP #9
 4. Vet Care
 - ix. **Responsible Veterinary Staff:** Veterinary care should be under direction of a veterinarian or is described in an IACUC approved ASAF or SOP. Drop down options:
 1. Facility Staff
 2. OCV
 3. Other Vet
 4. PI research staff
 5. Vet PI
 6. VTH
 - x. **Resolution:** after a case has been started, the case should always have a resolution. To resolve an existing case, choose the edit button and add the resolution information via drop down options:
 1. Euthanasia
 2. Died
 3. Sold/Transferred Ownership (outside WSU)
 4. Returned to normal limits

5. Transferred to another facility (WSU)
 - xi. **Resolution Date:** drop down option
 - xii. **Necropsy:** this section does not need to be filled in for completion, but if necropsy is being performed, select “yes”.
 - xiii. **Comments:** this section is intended to be used for brief descriptions that do not fit in other categories, such as “PI notified”, “OCV examined on this date”. This section does not need to be used for completion.
 - e. **Continuing Cases:** as long as an abnormal animal is an active case, it should remain on the abnormal animal log until the case has resolution. The information already provided at the initiation of the case does not need to be amended day by day. Do not use the log to record daily treatments or give detailed case information. That information will be recorded in the animal’s medical record.
3. **Questions or Concerns:** Please contact OCV if you have any questions or concerns about animal notification:
- Email or.ocv.alert@wsu.edu
 - Telephone: 509-335-6246
 - Fax:509-335-3162