



MEMORANDUM TO: Frank Einhellig, PhD, Provost, Institutional Official

FROM: Institutional Animal Care & Use Committee

SUBJECT: Semiannual Evaluation of Animal Care & Use Program and Inspection of Facilities

DATE: February 13, 2019

This semiannual report of the Institutional Animal Care & Use Committee (IACUC) covers the period August 16, 2018 to February 11, 2019. It is a part of Missouri State University's continuing compliance with the requirements of the following: the PHS Policy on Humane Care & Use of Laboratory; as a condition of this Institution's Animal Welfare Assurance on file with the NIH Office of Laboratory Animal Welfare (OLAW); the *Guide for the Care and Use of Laboratory Animals (Guide)*; and USDA Animal Welfare Act Regulations, 9 CFR Chapter I, subchapter A, as applicable.

The following is a brief summary of changes that have occurred in Missouri State University's program for animal care and use since the last review:

- Because the new Cayuse on line submission system is still not ready for full implementation, other potential systems are being explored. The old Cayuse system is being used for protocol submissions.

#### **I. Description of the Nature and Extent of the Institution's Adherence to the PHS Policy, the Guide, and the AWA**

Departures from the PHS Policy, the Guide, and the AWA:  
There were no departures during this reporting period.

#### **II. Deficiencies in the Institution's Animal Care and Use Program**

Animal Care and Use Program Review Date(s):  
February 11, 2019 (for the period of August 16, 2018 to February 11, 2019)

#### **III. Deficiencies in the Institution's Animal Facility**

Animal Facility Inspection Date(s):  
February 1, 4, 11, 2019 – Journagan Ranch, Shealy Farm, and Mountain Grove campus (no animals present at Mountain Grove campus)

January 28, February 4 and 6, 2019 – All Springfield main campus facilities and laboratories

Specific deficiencies are noted in the Table below. The individual facility and laboratory inspections are available through the Office of Research Administration; more details can be found in the individual inspection reports.

Deficiency Category*	✓	Location	Deficiency & Plan for Correction	Responsible Party	Correction Schedule & Interim Status	Completed
M		Temple 155 (Mathis)	Lab contact information not current.	PI	ASAP	
S	✓	Temple Vivarium Cage Wash Room (Goerndt)	Hole in drywall above autoclave.	Vivarium Manager	ASAP/Work orders have been turned in previously. Goerndt will turn in another one.	
M		Temple Vivarium Surgical Room (Goerndt)	Isoflurane machine leaks. Machine should be maintained and certified.	Vivarium Manager	ASAP/Stafford and Goerndt are contacting the contractor immediately.	
M		Temple Vivarium AHR 1 (Barnhart)	No feeding records found. Keep feeding records accessible.	PI	ASAP	
S		Temple Vivarium AHR 1 (Goerndt)	Sink is not ADA compliant	Vivarium Manager	ASAP	
M	✓	Temple Vivarium AHR 4 (Mathis)	Floors dirty. Tanks are unlabeled. 2 <sup>nd</sup> floor fish tank not adequate size for animal. No feeding records found. Dirty cages. Clean to prevent contamination. Keep feeding records accessible.	PI	ASAP	
M		Temple Vivarium AHR 2 & 3, MHRs 1-5 (Goerndt)	Fire exit blocked. Cracked floor in MHR3 and hall. Rust on floor AHR2. Hole in storage area wall. Eyewash station in MH1 not accessible. MH2 expired breeding diet mill date.	Vivarium Manager and Facilities Maintenance	ASAP/Fire exit blockage to be addressed with PI (Barnhart) whose water tank is blocking the exit. Floor has been worked on by Facilities Maintenance but repairs are insufficient. Goerndt is doing another work order. MH2 expired breeding diet mill date has already been fixed.	
M		Temple Vivarium AHR 3 (Greene)	Venomous cabinet unlocked. Snake cages with feces, dirty water and sheds present. Cage cards not up to date. AHR3 needs more than 1-2 cage cleanings per year. Snake enclosures not secure, have poor visibility, poor ventilation and poor lighting.	PI	ASAP/Cabinet has been locked. Other issues to be addressed by PI in minority report.	
M		Temple Vivarium APR1 & MPR1 (Goerndt)	BSC needs h.e.p.a. filters changed	Vivarium Manager	ASAP/Goerndt has already put out a bid to have this done.	

M		JVIC Vivarium AHR 1-4 + Chamber (Goerndt)	PI's expired food needs to be thrown away.	Vivarium Manager	<i>ASAP/Goerndt will throw away immediately.</i>	
M		JVIC Vivarium Surgical Room (Goerndt)	Isoflurane machine needs to be serviced and certified.	Vivarium Manager	<i>ASAP/Stafford and Goerndt are contacting the contractor immediately.</i>	
M		Professional 370 (Zimmerman, Timson)	Droppings in and around treadmills. Needs to be cleaned after each use.	PI	ASAP	
S		Professional Vivarium 336 (Wang, Ulbricht)	All drugs and saline expired. Syringe filled but not labeled. Destroy expired items appropriately.	Wang	<i>ASAP/Wang has been instructed on the proper disposal of expired drugs.</i>	
S		Professional Vivarium 367 (Zimmerman, Wang, Ulbricht)	Isoflurane machine is leaking. Needs serviced and certified.	Vivarium Manager	<i>ASAP/ Stafford and Goerndt are contacting the contractor immediately.</i>	
M		Professional Vivarium 368 (Goerndt)	Animal room doors not shutting on their own. Room 2 has water damage, needs paint. Room 2 needs burnt out light bulbs changed. Optimouse cage rack needs deep cleaning. Signage for protocols and personnel needs updated.	Vivarium Manager/ Facilities Maintenance	<i>ASAP/Door has been worked on by Facilities Maintenance but repairs are insufficient. Goerndt is doing another work order. A work order will be turned in for other maintenance issues.</i>	
M		Darr 106, 109, 110 (Sissel, Webb, Sukovaty, Lancaster)	Sharps in a container but not labeled as "Veterinary Sharps".	PIs	ASAP	
M		Darr (Webb, Sissel, Sukovaty, Lancaster)	3 feed sacks on ground. 3 food storage bins open in shed. Food is to be stored in sealed containers and off the ground to prevent contamination.	PIs	ASAP	
M		Shealy	Update signage	PIs	ASAP	
<p><b>*S = significant deficiency (a significant deficiency is or may be a threat to animal health or safety)</b>  <b>M = minor deficiency</b>  <b>C = change in program</b>  <b>✓ Check if repeat deficiency</b></p>						

#### IV. Minority Views

### Minority Opinion statement of Semiannual Review

Brian Greene, IACUC Chair and Associate Professor of Biology

During our recent semiannual review, several deficiencies were noted during the inspection of Aquatic Holding Room 3 in the Temple vivarium, where venomous snakes are housed as research subjects. These comments related to both the microenvironments (cage conditions) and macroenvironment (cabinets where cages are shelved). Comments pertaining to animal welfare specifically involved:

1. Cage conditions: feces, dirty water, and sheds present
2. Cage card information not being current
3. Cabinet enclosures not secure, provide inadequate visibility, ventilation, and lighting

Response:

- **Comment number 1:** Cages are monitored and cleaned as needed according to the standards outlined in the Missouri State University SOP's for snake care, approved by the MSU IACUC. The presence of fecal matter in cages and water bowls would be an understandable concern when conditions indicate a buildup of waste, indicating neglect. However, the fecal matter observed during the inspection was recently deposited because all cages and water bowls had been evaluated and cleaned the previous day. Additionally, shed skins are not a health hazard to snakes. Therefore, I do not believe that the cage conditions observed constitute a deficiency.
- **Comment number 2:** All cages contain cage cards that identify the occupant's taxonomy, individual ID, origin, and affiliated protocol numbers. Cage cards also include accurate feeding records for all research subjects. Occasionally a snake is not fed for extended periods of time. For example, some pregnant individuals refuse to feed and many wild-caught snakes from temperate regions do not eat during the winter. These fasting periods are a normal part of the biology of many snake species and do not constitute a health problem for individuals with healthy body conditions. Fasting of pregnant or hibernating snakes is noted in the Missouri State University SOP's for snake maintenance. The main concern about cage records appears to be related to cage cleaning frequency. Because, cage cleaning events are conducted on an as-needed basis, rather than on a specific schedule, recording of cage cleaning events are sometimes overlooked. This practice suggests that some cages are cleaned on a low frequency, making it appear that maintenance schedules are not uniform across time periods or individual subjects. Admittedly, this issue should be corrected.
- **Comment number 3:** The two cabinets housing caged snakes are similar in size and general design. Both are enclosed with either PVC or an opaque acrylic plastic and have two full-length doors that swing open from the center of each cabinet. The PVC cabinet has greater visibility (due to a large mesh panel in each door) than the acrylic cabinet (with one small mesh panel per door). The size of the mesh panels influences relative visibility into each cabinet. The difference in visibility has been discussed in the context of human safety rather than animal welfare. All snakes are maintained in escape-proof cages (secured with either keyed locks or binder clips). There have been no escapes of snakes from such cages in over 20 years of continuous research activity at our institution. From an animal welfare standpoint, there is no obvious difference in airflow between cabinets. Photoperiod is set at a 12:12 light/dark cycle and all snakes in the room are subjected to this circadian pattern. The snakes do not need to bask to maintain an optimal body temperature and do not require direct exposure to natural light for other health reasons. In natural settings, cottonmouths bask infrequently during warm weather and are chiefly nocturnal throughout much of their activity season. The conditions under which my research

VI. Signatures [signatures of a majority of the IACUC members required by AWAR (§2.31,c,3), if applicable]

Names of IACUC Members	Signatures
Michael Stafford	Michael Stafford
Brian Greene	Brian D. Greene
Harold Bengsch	Harold Bengsch
Jianjie Wang	Jianjie Wang
D. WAYNE MITCHELL	D. Wayne Mitchell
Johnna N Pedersen	Johnna N Pedersen
Bill Edger	Bill Edger