From: McCleary, Jessie May
Sent: Wednesday, August 14, 2019 9:50 AM
To: IACUC; [redacted]
Cc: or.ocv.alert
Subject: RE: Required IACUC Training: AST-O
Attachments: AST-H Rodents Outline 2018.docx; OCV Location.pptx

Hello [redacted]
I am a LVT from the Office of the Campus Veterinarian. Please let me know when you have completed the completed the AST-O training and we can get you scheduled for the hands-on portion of the training (AST-H).
Here is the link to the days available in Aug: https://iacuc.wsu.edu/hands-on-training/
Could you please send me the ASAF number for the protocol you are working under?
I have attached the outline of the training for you to look over and a map to our building. Let me know if you have any questions. I am looking forward to meeting with you.

Thank you,

Jessie McCleary, LVT
Washington State University
Office of the Campus Veterinarian
jmccleary@wsu.edu
Office (509)335-2595
Main line (509)335-6246
Emergency phone (509)330-1871

From: IACUC <or.ora.iacuc@wsu.edu>
Sent: Tuesday, August 13, 2019 9:53 AM
To: [redacted]
Cc: or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: Required IACUC Training: AST-O
Importance: High

Hi [redacted]

This is a courtesy notice that you are required for Dr. Fuch's ASAFs to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit

https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

> Our records indicate that you do not have an account with AALAS Learning Library. Once you are enrolled, you will receive enrollment emails from AALAS with log in information and links. If you do not see it in your inbox, check the spam/junk folder. Please let the Animal Welfare Program know if you need password setup email resent.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please visit https://iacuc.wsu.edu/hands-on-training/ to view the hands-on course schedule and then contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
(DVM, LVT, MD, and RN may be exempt from the hands-on course.)

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763

https://iacuc.wsu.edu

Aseptic Surgical Technique for Rodents
Hands-on Workshop

Washington State University
Office of the Campus Veterinarian-Vet Services

1. **Introduction**
    a. Discuss similarities & differences between rodent and non-rodent surgery
        i. Similar- Both require asepsis for anything touching the surgical area
        ii. Differences are primarily due to the small size of the rodent
            1. Designated space vs. dedicated facility (room or suite)
                a. Clean lab bench in non-traffic area
            2. Clean lab coat vs. sterile surgical gown
            3. Work alone vs. surgical team
                a. Without assistant, asepsis requires careful planning

2. **Procedure Area Preparation**
    a. Designated for surgery currently, no traffic/ drafts, post signs "Aseptic Surgery in Progress"
    b. Surgical/anesthesia records and disinfected pen
    c. Disinfect surfaces. Remove unneeded items.
    d. Animal Prep area: clippers, scrub solution, eye ointment, disposable layer
    e. Surgical Area: heat source, light, glass bead sterilizer? Absorbent clean or sterile layer, sterile instrument pack, drape and suture, (wait to open until just before gloves on)
    f. Post-operative area: heat source on lowest setting, under half of recovery cage, white pad or paper towels (instead of bedding), analgesic and saline drawn into syringes(warm syringes with heating pad)

3. **Instruments and Materials Preparation**
    a. Autoclaving- steam heat (moist heat, physical method)
        i. Metal instruments, some catheter tubing, saline, water
        ii. Packaging
            1. Surgical packs- gauze, drape, instruments
            2. Envelopes- Visi-peel
            3. Indicator tape, indicator strips
            4. Monitor autoclave quarterly with biological indicator
        iii. Date autoclaved materials – maximum 6 month expiration
        iv. Pre-packaged sterile supplies- suture, blades (check expiration dates)

    b. Glass bead sterilizers- dry heat (modified aseptic technique "tips only")
        i. Start with autoclaved pack then use hot glass beads between animals
        ii. Wipe instruments to remove blood & debris before use

iii. Instrument tips in heat for 30-60 seconds (too long may warp)
iv. Cool before use to prevent burns to animal or surgeon
v. New autoclave pack every 5 animals.
vi. Only tips are re-sterilized. Position: tips away/ handles toward surgeon
vii. New surgery gloves for each animal (unless assistant prepped new animal)
viii. Tips only surgical technique (handles & hands are clean but not sterile)

c. Chemical sterilants- liquid "cold sterilization"
   i. Liquid sterilants require 6-8 hours contact times to kill spores
   ii. Liquid must contact all surfaces (fill tubing)
   iii. Rinse chemicals off with sterile saline/H2O before use
   iv. Alcohol is a disinfectant but not a sterilant
d. Chemical sterilants- gas "cold and dry sterilization"
   i. Ethylene Oxide
   ii. Vaporized Hydrogen Peroxide

4. **Animal Preparation**
   a. Anesthesia
      i. Injectable or inhalation- assemble needed supplies (DEA regulations)
      ii. Weigh each animal pre-operatively & write in surgery/anesthesia record (grams)
      iii. Calculate dosages and draw up anesthesia, analgesia,
      iv. Give subcutaneous saline before the surgery if possible
      v. No food or water restriction for rodents
      vi. Rodents are susceptible to dehydration, hypoglycemia, hypothermia

   b. Eye ointment
      i. Anesthetized rodents don't close eyes
      ii. Prevent drying of corneas
      iii. Use ophthalmic ointment (artificial tears)

   c. Monitor anesthetic depth (variation in strains and individual animals)
      i. Observe respiratory rate and depth (Count 15 seconds X 4)
      ii. Color of mucus membranes, ears, tail, feet
      iii. Toe pinch withdrawal reflex? Use fingers or hemostat
         1. If withdraw, too light for surgery but clipping is OK
         2. Intra-operative- Maintain sterility using hemostats- handles sterile
      iv. If using injectable anesthetic (ketamine/xylazine) only boost with ketamine (1/3rd).

   d. Clip hair
      i. Blades #40 - maintain with spray cleaner/lubricant
      ii. Razor or Depilatory Cream (Nair) may be used

e. Scrub: can be done with exam gloves
    i. Chlorhexidine (scrub or solution) then alcohol OR Povidone/iodine (scrub or solution) then alcohol
    ii. Start at center and move out in spiral to clipped margins
    iii. Triple scrub then may apply solution to dry on (not scrub- contains soap)
    iv. Cotton swabs versus gauze sponges
    v. Don't soak animal or get disinfectant in eyes

5. Surgeon Preparation

a. Required
    i. Remove earrings, necklaces, rings, watches, scarves, etc…
    ii. Clean lab coat
        1. Free of debris, hair, or bedding to fall into surgical area
        2. Snug lab coat cuffs or tape around wide sleeves or roll up sleeves
    iii. Face mask
        1. protect surgical field from bacteria (surgeon's exhaled breath)
        2. Mask is clean but not sterile (Do not touch with gloved hands)
    iv. Surgical gloves – Wait until animal is prepped & ready to be draped
    Working alone? Before gloving ask yourself: **LIST** (**L**ight on, **I**nstrument pack open, **S**upplies/**s**uture, **T**oe pinch check anesthesia/ **T**ime starting noted
        1. Individually packaged latex or nitrile surgical gloves
            a. **NOT** exam gloves even if cleaned and/or autoclaved
            b. Do not re-sterilize & re-use surgical gloves
            c. Surgical gloves- check expiration date
            d. Sized in half sizes to fit (example: 6.0, 6.5, 7.0, 7.5)
        2. Wash hands with soap and warm water. Dry with clean towel.
        3. Aseptic gloving technique- demonstrate & practice
        4. If gloves are contaminated during surgery– get new gloves
        5. Put on new sterile gloves every 3 animals or if they become contaminated between surgeries.
    v. **Review your ASAF** surgery section on "How aseptic technique is maintained" You must adhere to what is written in the ASAF.

b. Recommended
    i. Hair cap/ bonnet recommended. Tie back long hair. Beard cover.
    ii. An Assistant: the surgeon can't touch anything non-sterile once gloved. Surgery is more efficient, faster and less complicated if there is an assistant.
    iii. **Review ASAF**, if cap for example, is listed then need to wear.

6. Draping

a. Open sterile instrument and drape pack → put on sterile gloves → then may handle drape

b. Place drape & lift drape to check toe pinch with hemostats without contaminating sterile gloves.
c. Alternative: Press N' Seal plastic wrap –use will be demonstrated at workshop

7. Perform surgery

a. Intraoperative monitoring of anesthetic depth- surgical record
b. Maintain sterile gloves and sterile field
c. Batch surgery? Working alone? Heat sterilize instrument tips prior to handling animal.

8. Recovery & post-operative care

a. Post-operative analgesic and warm saline
b. Wrap rodent in huck or paper towel to maintain body heat
c. Rotate position every 10 minutes until sternal, semi awake
d. Maintain heat source & keep separate until animal is moving about cage
e. Check surgery rodents end of first day
f. Monitor twice daily for first 3 days, then once daily for appetite, activity, grooming
g. Check incision for redness, swelling, discharge, suture failure
h. Water-soaked kibble or Gel pack in cage bottom advised
i. Document observations, analgesics, and date of suture removal (~10 days)
j. Analgesia discussion: do what is in approved protocol

9. Conclusion

a. Success requires careful planning & preparation
b. Difficult to do surgery alone especially on multiple animals- recommend having assistant to help prepare and recover animals while surgeon focuses on surgery

OCV is located in the LARC Building (in the yellow circle), the orange star is where the entrance door to the building. Front office is on your left. Josh our receptionist will bring you to Training Room. If he is not at his desk ring the bell on the wall for assistance. (The blue star is the training room #198.)

From: McCleary, Jessie May
Sent: Tuesday, May 28, 2019 2:20 PM
To: Appleyard, Suzanne
Cc: or.ocv.alert
Subject: RE: Required IACUC Training: AST-O
Attachments: AST-H Rodents Outline 2018.docx; OCV Location.pptx

Hello Dr Appleyard,
I am a LVT from the Office of the Campus Veterinarian. Please let me know when you have completed the completed the AST-O training and we can get you scheduled for the hands-on portion of the training (AST-H).
Here is the link to the days available in June: https://iacuc.wsu.edu/hands-on-training/
Could you please send me the ASAF number for the protocol you are working under?
I have attached the outline of the training for you to look over and a map to our building. Let me know if you have any questions. I am looking forward to meeting with you.

Thank you,

Jessie McCleary, LVT
Washington State University
Office of the Campus Veterinarian
jmccleary@wsu.edu
Office (509)335-2595
Main line (509)335-6246
Emergency phone (509)330-1871

From: IACUC <or.ora.iacuc@wsu.edu>
Sent: Friday, May 17, 2019 9:03 AM
To: Appleyard, Suzanne <s.appleyard@wsu.edu>
Cc: or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: Required IACUC Training: AST-O
Importance: High

Hi Dr. Appleyard,

This is a courtesy notice that you are required for ASAF #6528 to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Personnel must complete training before ASAF #6528 can be approved.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit

https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

Our records indicate that you already have an account with AALAS Learning Library.

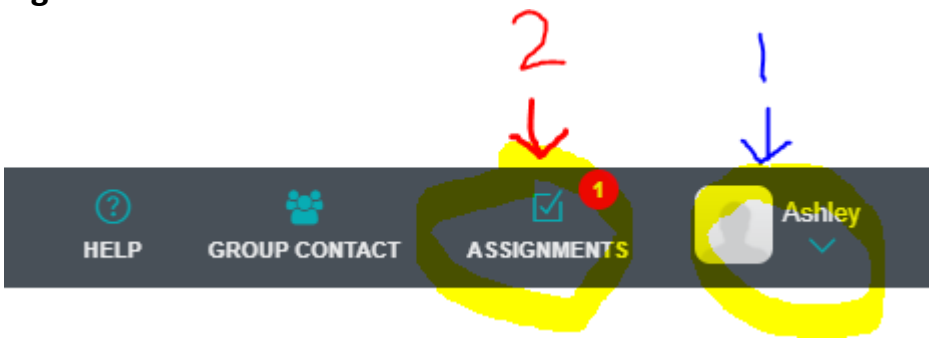
- The link to log in is: https://aalaslearninglibrary.org/index.html#/login/signin
- Enter your User name: [redacted]
- Enter your password. If you need to reset your password, you can click on the "I forgot my password" link. If that does not work, contact the Animal Welfare Program.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:



*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
DVM, LVT, MD, and RN may be exempt from the hands-on course.

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances

iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

Aseptic Surgical Technique for Rodents
Hands-on Workshop

Washington State University
Office of the Campus Veterinarian-Vet Services

1. **Introduction**
    a. Discuss similarities & differences between rodent and non-rodent surgery
        i. Similar- Both require asepsis for anything touching the surgical area
        ii. Differences are primarily due to the small size of the rodent
            1. Designated space vs. dedicated facility (room or suite)
                a. Clean lab bench in non-traffic area
            2. Clean lab coat vs. sterile surgical gown
            3. Work alone vs. surgical team
                a. Without assistant, asepsis requires careful planning

2. **Procedure Area Preparation**
    a. Designated for surgery currently, no traffic/ drafts, post signs "Aseptic Surgery in Progress"
    b. Surgical/anesthesia records and disinfected pen
    c. Disinfect surfaces. Remove unneeded items.
    d. Animal Prep area: clippers, scrub solution, eye ointment, disposable layer
    e. Surgical Area: heat source, light, glass bead sterilizer? Absorbent clean or sterile layer, sterile instrument pack, drape and suture, (wait to open until just before gloves on)
    f. Post-operative area: heat source on lowest setting, under half of recovery cage, white pad or paper towels (instead of bedding), analgesic and saline drawn into syringes(warm syringes with heating pad)

3. **Instruments and Materials Preparation**
    a. Autoclaving- steam heat (moist heat, physical method)
        i. Metal instruments, some catheter tubing, saline, water
        ii. Packaging
            1. Surgical packs- gauze, drape, instruments
            2. Envelopes- Visi-peel
            3. Indicator tape, indicator strips
            4. Monitor autoclave quarterly with biological indicator
        iii. Date autoclaved materials – maximum 6 month expiration
        iv. Pre-packaged sterile supplies- suture, blades (check expiration dates)

    b. Glass bead sterilizers- dry heat (modified aseptic technique "tips only")
        i. Start with autoclaved pack then use hot glass beads between animals
        ii. Wipe instruments to remove blood & debris before use

iii. Instrument tips in heat for 30-60 seconds (too long may warp)
iv. Cool before use to prevent burns to animal or surgeon
v. New autoclave pack every 5 animals.
vi. Only tips are re-sterilized. Position: tips away/ handles toward surgeon
vii. New surgery gloves for each animal (unless assistant prepped new animal)
viii. Tips only surgical technique (handles & hands are clean but not sterile)

c. Chemical sterilants- liquid "cold sterilization"
   i. Liquid sterilants require 6-8 hours contact times to kill spores
   ii. Liquid must contact all surfaces (fill tubing)
   iii. Rinse chemicals off with sterile saline/H2O before use
   iv. Alcohol is a disinfectant but not a sterilant
d. Chemical sterilants- gas "cold and dry sterilization"
   i. Ethylene Oxide
   ii. Vaporized Hydrogen Peroxide

4. **Animal Preparation**
   a. Anesthesia
      i. Injectable or inhalation- assemble needed supplies (DEA regulations)
      ii. Weigh each animal pre-operatively & write in surgery/anesthesia record (grams)
      iii. Calculate dosages and draw up anesthesia, analgesia,
      iv. Give subcutaneous saline before the surgery if possible
      v. No food or water restriction for rodents
      vi. Rodents are susceptible to dehydration, hypoglycemia, hypothermia

   b. Eye ointment
      i. Anesthetized rodents don't close eyes
      ii. Prevent drying of corneas
      iii. Use ophthalmic ointment (artificial tears)

   c. Monitor anesthetic depth (variation in strains and individual animals)
      i. Observe respiratory rate and depth (Count 15 seconds X 4)
      ii. Color of mucus membranes, ears, tail, feet
      iii. Toe pinch withdrawal reflex? Use fingers or hemostat
         1. If withdraw, too light for surgery but clipping is OK
         2. Intra-operative- Maintain sterility using hemostats- handles sterile
      iv. If using injectable anesthetic (ketamine/xylazine) only boost with ketamine (1/3rd).

   d. Clip hair
      i. Blades #40 - maintain with spray cleaner/lubricant
      ii. Razor or Depilatory Cream (Nair) may be used

e. Scrub: can be done with exam gloves
    i. Chlorhexidine (scrub or solution) then alcohol OR Povidone/iodine (scrub or solution) then alcohol
    ii. Start at center and move out in spiral to clipped margins
    iii. Triple scrub then may apply solution to dry on (not scrub- contains soap)
    iv. Cotton swabs versus gauze sponges
    v. Don't soak animal or get disinfectant in eyes

5. Surgeon Preparation

a. Required
    i. Remove earrings, necklaces, rings, watches, scarves, etc…
    ii. Clean lab coat
        1. Free of debris, hair, or bedding to fall into surgical area
        2. Snug lab coat cuffs or tape around wide sleeves or roll up sleeves
    iii. Face mask
        1. protect surgical field from bacteria (surgeon's exhaled breath)
        2. Mask is clean but not sterile (Do not touch with gloved hands)
    iv. Surgical gloves – Wait until animal is prepped & ready to be draped
    Working alone? Before gloving ask yourself: **LIST** (**L**ight on, **I**nstrument pack open, **S**upplies/**s**uture, **T**oe pinch check anesthesia/ **T**ime starting noted
        1. Individually packaged latex or nitrile surgical gloves
            a. **NOT** exam gloves even if cleaned and/or autoclaved
            b. Do not re-sterilize & re-use surgical gloves
            c. Surgical gloves- check expiration date
            d. Sized in half sizes to fit (example: 6.0, 6.5, 7.0, 7.5)
        2. Wash hands with soap and warm water. Dry with clean towel.
        3. Aseptic gloving technique- demonstrate & practice
        4. If gloves are contaminated during surgery– get new gloves
        5. Put on new sterile gloves every 3 animals or if they become contaminated between surgeries.
    v. **Review your ASAF** surgery section on "How aseptic technique is maintained" You must adhere to what is written in the ASAF.

b. Recommended
    i. Hair cap/ bonnet recommended. Tie back long hair. Beard cover.
    ii. An Assistant: the surgeon can't touch anything non-sterile once gloved. Surgery is more efficient, faster and less complicated if there is an assistant.
    iii. **Review ASAF**, if cap for example, is listed then need to wear.

6. Draping

a. Open sterile instrument and drape pack → put on sterile gloves → then may handle drape

b. Place drape & lift drape to check toe pinch with hemostats without contaminating sterile gloves.
c. Alternative: Press N' Seal plastic wrap –use will be demonstrated at workshop

7. Perform surgery

a. Intraoperative monitoring of anesthetic depth- surgical record
b. Maintain sterile gloves and sterile field
c. Batch surgery? Working alone? Heat sterilize instrument tips prior to handling animal.

8. Recovery & post-operative care

a. Post-operative analgesic and warm saline
b. Wrap rodent in huck or paper towel to maintain body heat
c. Rotate position every 10 minutes until sternal, semi awake
d. Maintain heat source & keep separate until animal is moving about cage
e. Check surgery rodents end of first day
f. Monitor twice daily for first 3 days, then once daily for appetite, activity, grooming
g. Check incision for redness, swelling, discharge, suture failure
h. Water-soaked kibble or Gel pack in cage bottom advised
i. Document observations, analgesics, and date of suture removal (~10 days)
j. Analgesia discussion: do what is in approved protocol

9. Conclusion

a. Success requires careful planning & preparation
b. Difficult to do surgery alone especially on multiple animals- recommend having assistant to help prepare and recover animals while surgeon focuses on surgery

OCV is located in the LARC Building (in the yellow circle), the orange star is where the entrance door to the building. Front office is on your left. Josh our receptionist will bring you to Training Room. If he is not at his desk ring the bell on the wall for assistance. (The blue star is the training room #198.)

From: McCleary, Jessie May
Sent: Tuesday, May 28, 2019 2:20 PM
To: Zhu, Mingyan
Cc: Appleyard, Suzanne; or.ocv.alert
Subject: RE: Required IACUC Training: AST-O
Attachments: AST-H Rodents Outline 2018.docx; OCV Location.pptx

Hello Dr Zhu,
I am a LVT from the Office of the Campus Veterinarian. Please let me know when you have completed the completed the AST-O training and we can get you scheduled for the hands-on portion of the training (AST-H).
Here is the link to the days available in June: https://iacuc.wsu.edu/hands-on-training/
Could you please send me the ASAF number for the protocol you are working under?
I have attached the outline of the training for you to look over and a map to our building. Let me know if you have any questions. I am looking forward to meeting with you.

Thank you,

Jessie McCleary, LVT
Washington State University
Office of the Campus Veterinarian
jmccleary@wsu.edu
Office (509)335-2595
Main line (509)335-6246
Emergency phone (509)330-1871

From: IACUC <or.ora.iacuc@wsu.edu>
Sent: Friday, May 17, 2019 9:05 AM
To: Zhu, Mingyan <mzhu115@wsu.edu>
Cc: Appleyard, Suzanne <s.appleyard@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: Required IACUC Training: AST-O
Importance: High

Hi Dr. Zhu,

This is a courtesy notice that you are required for ASAF #6528 to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Personnel must complete training before ASAF #6528 can be approved.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit

https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

Our records indicate that you already have an account with AALAS Learning Library.

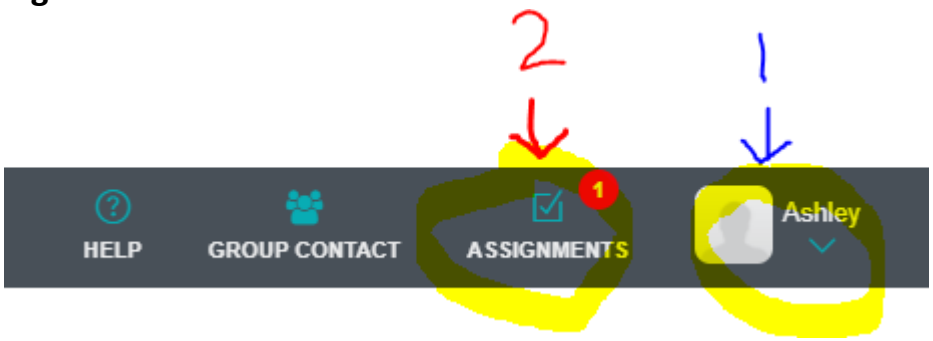
- The link to log in is: https://aalaslearninglibrary.org/index.html#/login/signin
- Enter your User name: [redacted]
- Enter your password. If you need to reset your password, you can click on the "I forgot my password" link. If that does not work, contact the Animal Welfare Program.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:



*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
DVM, LVT, MD, and RN may be exempt from the hands-on course.

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances

iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

Aseptic Surgical Technique for Rodents
Hands-on Workshop

Washington State University
Office of the Campus Veterinarian-Vet Services

1. **Introduction**
    a. Discuss similarities & differences between rodent and non-rodent surgery
        i. Similar- Both require asepsis for anything touching the surgical area
        ii. Differences are primarily due to the small size of the rodent
            1. Designated space vs. dedicated facility (room or suite)
                a. Clean lab bench in non-traffic area
            2. Clean lab coat vs. sterile surgical gown
            3. Work alone vs. surgical team
                a. Without assistant, asepsis requires careful planning

2. **Procedure Area Preparation**
    a. Designated for surgery currently, no traffic/ drafts, post signs "Aseptic Surgery in Progress"
    b. Surgical/anesthesia records and disinfected pen
    c. Disinfect surfaces. Remove unneeded items.
    d. Animal Prep area: clippers, scrub solution, eye ointment, disposable layer
    e. Surgical Area: heat source, light, glass bead sterilizer? Absorbent clean or sterile layer, sterile instrument pack, drape and suture, (wait to open until just before gloves on)
    f. Post-operative area: heat source on lowest setting, under half of recovery cage, white pad or paper towels (instead of bedding), analgesic and saline drawn into syringes(warm syringes with heating pad)

3. **Instruments and Materials Preparation**
    a. Autoclaving- steam heat (moist heat, physical method)
        i. Metal instruments, some catheter tubing, saline, water
        ii. Packaging
            1. Surgical packs- gauze, drape, instruments
            2. Envelopes- Visi-peel
            3. Indicator tape, indicator strips
            4. Monitor autoclave quarterly with biological indicator
        iii. Date autoclaved materials – maximum 6 month expiration
        iv. Pre-packaged sterile supplies- suture, blades (check expiration dates)

    b. Glass bead sterilizers- dry heat (modified aseptic technique "tips only")
        i. Start with autoclaved pack then use hot glass beads between animals
        ii. Wipe instruments to remove blood & debris before use

iii. Instrument tips in heat for 30-60 seconds (too long may warp)
iv. Cool before use to prevent burns to animal or surgeon
v. New autoclave pack every 5 animals.
vi. Only tips are re-sterilized. Position: tips away/ handles toward surgeon
vii. New surgery gloves for each animal (unless assistant prepped new animal)
viii. Tips only surgical technique (handles & hands are clean but not sterile)

c. Chemical sterilants- liquid "cold sterilization"
   i. Liquid sterilants require 6-8 hours contact times to kill spores
   ii. Liquid must contact all surfaces (fill tubing)
   iii. Rinse chemicals off with sterile saline/H2O before use
   iv. Alcohol is a disinfectant but not a sterilant
d. Chemical sterilants- gas "cold and dry sterilization"
   i. Ethylene Oxide
   ii. Vaporized Hydrogen Peroxide

4. **Animal Preparation**
   a. Anesthesia
      i. Injectable or inhalation- assemble needed supplies (DEA regulations)
      ii. Weigh each animal pre-operatively & write in surgery/anesthesia record (grams)
      iii. Calculate dosages and draw up anesthesia, analgesia,
      iv. Give subcutaneous saline before the surgery if possible
      v. No food or water restriction for rodents
      vi. Rodents are susceptible to dehydration, hypoglycemia, hypothermia

   b. Eye ointment
      i. Anesthetized rodents don't close eyes
      ii. Prevent drying of corneas
      iii. Use ophthalmic ointment (artificial tears)

   c. Monitor anesthetic depth (variation in strains and individual animals)
      i. Observe respiratory rate and depth (Count 15 seconds X 4)
      ii. Color of mucus membranes, ears, tail, feet
      iii. Toe pinch withdrawal reflex? Use fingers or hemostat
         1. If withdraw, too light for surgery but clipping is OK
         2. Intra-operative- Maintain sterility using hemostats- handles sterile
      iv. If using injectable anesthetic (ketamine/xylazine) only boost with ketamine (1/3rd).

   d. Clip hair
      i. Blades #40 - maintain with spray cleaner/lubricant
      ii. Razor or Depilatory Cream (Nair) may be used

e. Scrub: can be done with exam gloves
    i. Chlorhexidine (scrub or solution) then alcohol OR Povidone/iodine (scrub or solution) then alcohol
    ii. Start at center and move out in spiral to clipped margins
    iii. Triple scrub then may apply solution to dry on (not scrub- contains soap)
    iv. Cotton swabs versus gauze sponges
    v. Don't soak animal or get disinfectant in eyes

5. Surgeon Preparation

a. Required
    i. Remove earrings, necklaces, rings, watches, scarves, etc…
    ii. Clean lab coat
        1. Free of debris, hair, or bedding to fall into surgical area
        2. Snug lab coat cuffs or tape around wide sleeves or roll up sleeves
    iii. Face mask
        1. protect surgical field from bacteria (surgeon's exhaled breath)
        2. Mask is clean but not sterile (Do not touch with gloved hands)
    iv. Surgical gloves – Wait until animal is prepped & ready to be draped
    Working alone? Before gloving ask yourself: **LIST** (**L**ight on, **I**nstrument pack open, **S**upplies/**s**uture, **T**oe pinch check anesthesia/ **T**ime starting noted
        1. Individually packaged latex or nitrile surgical gloves
            a. **NOT** exam gloves even if cleaned and/or autoclaved
            b. Do not re-sterilize & re-use surgical gloves
            c. Surgical gloves- check expiration date
            d. Sized in half sizes to fit (example: 6.0, 6.5, 7.0, 7.5)
        2. Wash hands with soap and warm water. Dry with clean towel.
        3. Aseptic gloving technique- demonstrate & practice
        4. If gloves are contaminated during surgery– get new gloves
        5. Put on new sterile gloves every 3 animals or if they become contaminated between surgeries.
    v. **Review your ASAF** surgery section on "How aseptic technique is maintained" You must adhere to what is written in the ASAF.

b. Recommended
    i. Hair cap/ bonnet recommended. Tie back long hair. Beard cover.
    ii. An Assistant: the surgeon can't touch anything non-sterile once gloved. Surgery is more efficient, faster and less complicated if there is an assistant.
    iii. **Review ASAF**, if cap for example, is listed then need to wear.

6. Draping

a. Open sterile instrument and drape pack → put on sterile gloves → then may handle drape

b. Place drape & lift drape to check toe pinch with hemostats without contaminating sterile gloves.
c. Alternative: Press N' Seal plastic wrap –use will be demonstrated at workshop

7. Perform surgery

a. Intraoperative monitoring of anesthetic depth- surgical record
b. Maintain sterile gloves and sterile field
c. Batch surgery? Working alone? Heat sterilize instrument tips prior to handling animal.

8. Recovery & post-operative care

a. Post-operative analgesic and warm saline
b. Wrap rodent in huck or paper towel to maintain body heat
c. Rotate position every 10 minutes until sternal, semi awake
d. Maintain heat source & keep separate until animal is moving about cage
e. Check surgery rodents end of first day
f. Monitor twice daily for first 3 days, then once daily for appetite, activity, grooming
g. Check incision for redness, swelling, discharge, suture failure
h. Water-soaked kibble or Gel pack in cage bottom advised
i. Document observations, analgesics, and date of suture removal (~10 days)
j. Analgesia discussion: do what is in approved protocol

9. Conclusion

a. Success requires careful planning & preparation
b. Difficult to do surgery alone especially on multiple animals- recommend having assistant to help prepare and recover animals while surgeon focuses on surgery

OCV is located in the LARC Building (in the yellow circle), the orange star is where the entrance door to the building. Front office is on your left. Josh our receptionist will bring you to Training Room. If he is not at his desk ring the bell on the wall for assistance. (The blue star is the training room #198.)

From: McCleary, Jessie May
Sent: Tuesday, May 28, 2019 2:19 PM
To: Neyens, Drew M
Cc: Appleyard, Suzanne; or.ocv.alert
Subject: RE: Required IACUC Training: AST-O
Attachments: AST-H Rodents Outline 2018.docx; OCV Location.pptx

Hello Drew,
I am a LVT from the Office of the Campus Veterinarian. Please let me know when you have completed the completed the AST-O training and we can get you scheduled for the hands-on portion of the training (AST-H).
Here is the link to the days available in June: https://iacuc.wsu.edu/hands-on-training/
Could you please send me the ASAF number for the protocol you are working under?
I have attached the outline of the training for you to look over and a map to our building. Let me know if you have any questions. I am looking forward to meeting with you.

Thank you,

Jessie McCleary, LVT
Washington State University
Office of the Campus Veterinarian
jmccleary@wsu.edu
Office (509)335-2595
Main line (509)335-6246
Emergency phone (509)330-1871

From: IACUC <or.ora.iacuc@wsu.edu>
Sent: Friday, May 17, 2019 9:06 AM
To: Neyens, Drew M <drewneyens@wsu.edu>
Cc: Appleyard, Suzanne <s.appleyard@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: Required IACUC Training: AST-O
Importance: High

Hi Drew,

This is a courtesy notice that you are required for ASAF #6528 to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Personnel must complete training before ASAF #6528 can be approved.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit

https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

Our records indicate that you already have an account with AALAS Learning Library.

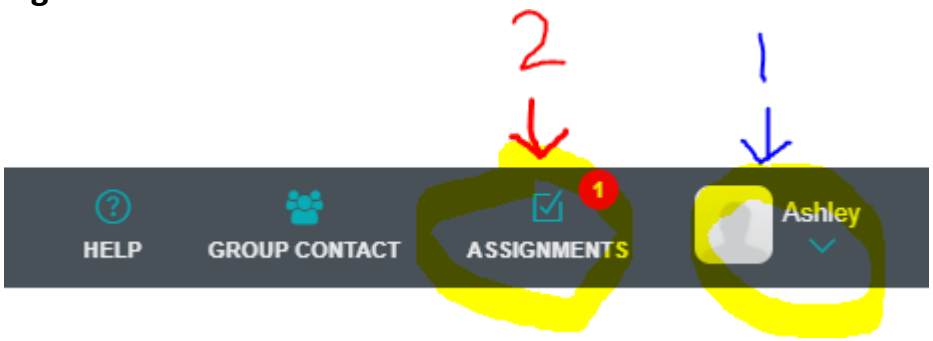
- The link to log in is: https://aalaslearninglibrary.org/index.html#/login/signin
- Enter your User name: [redacted]
- Enter your password. If you need to reset your password, you can click on the "I forgot my password" link. If that does not work, contact the Animal Welfare Program.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:



*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
DVM, LVT, MD, and RN may be exempt from the hands-on course.

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances

iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

Aseptic Surgical Technique for Rodents
Hands-on Workshop

Washington State University
Office of the Campus Veterinarian-Vet Services

1. **Introduction**
    a. Discuss similarities & differences between rodent and non-rodent surgery
        i. Similar- Both require asepsis for anything touching the surgical area
        ii. Differences are primarily due to the small size of the rodent
            1. Designated space vs. dedicated facility (room or suite)
                a. Clean lab bench in non-traffic area
            2. Clean lab coat vs. sterile surgical gown
            3. Work alone vs. surgical team
                a. Without assistant, asepsis requires careful planning

2. **Procedure Area Preparation**
    a. Designated for surgery currently, no traffic/ drafts, post signs "Aseptic Surgery in Progress"
    b. Surgical/anesthesia records and disinfected pen
    c. Disinfect surfaces. Remove unneeded items.
    d. Animal Prep area: clippers, scrub solution, eye ointment, disposable layer
    e. Surgical Area: heat source, light, glass bead sterilizer? Absorbent clean or sterile layer, sterile instrument pack, drape and suture, (wait to open until just before gloves on)
    f. Post-operative area: heat source on lowest setting, under half of recovery cage, white pad or paper towels (instead of bedding), analgesic and saline drawn into syringes(warm syringes with heating pad)

3. **Instruments and Materials Preparation**
    a. Autoclaving- steam heat (moist heat, physical method)
        i. Metal instruments, some catheter tubing, saline, water
        ii. Packaging
            1. Surgical packs- gauze, drape, instruments
            2. Envelopes- Visi-peel
            3. Indicator tape, indicator strips
            4. Monitor autoclave quarterly with biological indicator
        iii. Date autoclaved materials – maximum 6 month expiration
        iv. Pre-packaged sterile supplies- suture, blades (check expiration dates)

    b. Glass bead sterilizers- dry heat (modified aseptic technique "tips only")
        i. Start with autoclaved pack then use hot glass beads between animals
        ii. Wipe instruments to remove blood & debris before use

iii. Instrument tips in heat for 30-60 seconds (too long may warp)
iv. Cool before use to prevent burns to animal or surgeon
v. New autoclave pack every 5 animals.
vi. Only tips are re-sterilized. Position: tips away/ handles toward surgeon
vii. New surgery gloves for each animal (unless assistant prepped new animal)
viii. Tips only surgical technique (handles & hands are clean but not sterile)

c. Chemical sterilants- liquid "cold sterilization"
   i. Liquid sterilants require 6-8 hours contact times to kill spores
   ii. Liquid must contact all surfaces (fill tubing)
   iii. Rinse chemicals off with sterile saline/H2O before use
   iv. Alcohol is a disinfectant but not a sterilant
d. Chemical sterilants- gas "cold and dry sterilization"
   i. Ethylene Oxide
   ii. Vaporized Hydrogen Peroxide

4. **Animal Preparation**
   a. Anesthesia
      i. Injectable or inhalation- assemble needed supplies (DEA regulations)
      ii. Weigh each animal pre-operatively & write in surgery/anesthesia record (grams)
      iii. Calculate dosages and draw up anesthesia, analgesia,
      iv. Give subcutaneous saline before the surgery if possible
      v. No food or water restriction for rodents
      vi. Rodents are susceptible to dehydration, hypoglycemia, hypothermia

   b. Eye ointment
      i. Anesthetized rodents don't close eyes
      ii. Prevent drying of corneas
      iii. Use ophthalmic ointment (artificial tears)

   c. Monitor anesthetic depth (variation in strains and individual animals)
      i. Observe respiratory rate and depth (Count 15 seconds X 4)
      ii. Color of mucus membranes, ears, tail, feet
      iii. Toe pinch withdrawal reflex? Use fingers or hemostat
         1. If withdraw, too light for surgery but clipping is OK
         2. Intra-operative- Maintain sterility using hemostats- handles sterile
      iv. If using injectable anesthetic (ketamine/xylazine) only boost with ketamine (1/3rd).

   d. Clip hair
      i. Blades #40 - maintain with spray cleaner/lubricant
      ii. Razor or Depilatory Cream (Nair) may be used

e. Scrub: can be done with exam gloves
    i. Chlorhexidine (scrub or solution) then alcohol OR Povidone/iodine (scrub or solution) then alcohol
    ii. Start at center and move out in spiral to clipped margins
    iii. Triple scrub then may apply solution to dry on (not scrub- contains soap)
    iv. Cotton swabs versus gauze sponges
    v. Don't soak animal or get disinfectant in eyes

5. Surgeon Preparation

a. Required
    i. Remove earrings, necklaces, rings, watches, scarves, etc…
    ii. Clean lab coat
        1. Free of debris, hair, or bedding to fall into surgical area
        2. Snug lab coat cuffs or tape around wide sleeves or roll up sleeves
    iii. Face mask
        1. protect surgical field from bacteria (surgeon's exhaled breath)
        2. Mask is clean but not sterile (Do not touch with gloved hands)
    iv. Surgical gloves – Wait until animal is prepped & ready to be draped
    Working alone? Before gloving ask yourself: **LIST** (**L**ight on, **I**nstrument pack open, **S**upplies/**s**uture, **T**oe pinch check anesthesia/ **T**ime starting noted
        1. Individually packaged latex or nitrile surgical gloves
            a. **NOT** exam gloves even if cleaned and/or autoclaved
            b. Do not re-sterilize & re-use surgical gloves
            c. Surgical gloves- check expiration date
            d. Sized in half sizes to fit (example: 6.0, 6.5, 7.0, 7.5)
        2. Wash hands with soap and warm water. Dry with clean towel.
        3. Aseptic gloving technique- demonstrate & practice
        4. If gloves are contaminated during surgery– get new gloves
        5. Put on new sterile gloves every 3 animals or if they become contaminated between surgeries.
    v. **Review your ASAF** surgery section on "How aseptic technique is maintained" You must adhere to what is written in the ASAF.

b. Recommended
    i. Hair cap/ bonnet recommended. Tie back long hair. Beard cover.
    ii. An Assistant: the surgeon can't touch anything non-sterile once gloved. Surgery is more efficient, faster and less complicated if there is an assistant.
    iii. **Review ASAF**, if cap for example, is listed then need to wear.

6. Draping

a. Open sterile instrument and drape pack → put on sterile gloves → then may handle drape

b. Place drape & lift drape to check toe pinch with hemostats without contaminating sterile gloves.
c. Alternative: Press N' Seal plastic wrap –use will be demonstrated at workshop

7. Perform surgery

a. Intraoperative monitoring of anesthetic depth- surgical record
b. Maintain sterile gloves and sterile field
c. Batch surgery? Working alone? Heat sterilize instrument tips prior to handling animal.

8. Recovery & post-operative care

a. Post-operative analgesic and warm saline
b. Wrap rodent in huck or paper towel to maintain body heat
c. Rotate position every 10 minutes until sternal, semi awake
d. Maintain heat source & keep separate until animal is moving about cage
e. Check surgery rodents end of first day
f. Monitor twice daily for first 3 days, then once daily for appetite, activity, grooming
g. Check incision for redness, swelling, discharge, suture failure
h. Water-soaked kibble or Gel pack in cage bottom advised
i. Document observations, analgesics, and date of suture removal (~10 days)
j. Analgesia discussion: do what is in approved protocol

9. Conclusion

a. Success requires careful planning & preparation
b. Difficult to do surgery alone especially on multiple animals- recommend having assistant to help prepare and recover animals while surgeon focuses on surgery

OCV is located in the LARC Building (in the yellow circle), the orange star is where the entrance door to the building. Front office is on your left. Josh our receptionist will bring you to Training Room. If he is not at his desk ring the bell on the wall for assistance. (The blue star is the training room #198.)

From: Wheeler, Elizabeth A.
Sent: Tuesday, May 14, 2019 2:59 PM
To: Anderson, Gwen Marie; Cook, Corey D; Wild, Margaret Ann
Cc: or.ocv.alert
Subject: RE: Response Needed by OCV RE: New Lab Orders

Gwen,
Thanks so much for this information!

Corey – I will talk with ZooPharm in the morning, and make sure we're all set on that end. Then I'll sent through a VMP Order Form for payment.
Let me know if you have any different expectations to get this processed.

Cheers,
Liz

From: Anderson, Gwen Marie
Sent: Tuesday, May 14, 2019 2:37 PM
To: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>; Cook, Corey D <cdcook@wsu.edu>; Wild, Margaret Ann <margaret.wild@wsu.edu>
Cc: or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: RE: Response Needed by OCV RE: New Lab Orders

Good Afternoon,

If Dr. Wild has her own DEA license and already has an account with ZooPharm – she should be able to obtain products from them on her own and purchase them through her departmental purchasing staff.

Some University policies you should be aware of in regards to drug purchases for use in animals at WSU are:

1) WSU BPPM 70.08 regarding Purchasing Cards https://policies.wsu.edu/prf/index/manuals/70-00-purchasing/70-08-purchasing-card/ prohibits the use of a WSU Pcard when purchasing controlled substances. ZooPharm will ONLY take credit cards for purchases (they will not take a University Purchase order). So if, in the future, you plan to buy controlled substances/drugs from ZooPharm – you will need to request an exception to this policy for this restricted material purchase using a WSU Pcard: https://purchasing.wsu.edu/documents/2016/05/pcard-policy-violation-v2.pdf/ . Yohimbine is not a controlled substance so it does not apply in this case, but thought I should make you aware of this if you have to get controlled substances from ZooPharm in the future.
2) If the drug you are obtaining will be used in an animal listed on your WSU IACUC Animal Subjects Approval Form (protocol), it must be listed in the ***Drugs & Chemicals*** Section of the protocol. I did look at Dr. Wild's protocol (ASAF #6495) and Yohimbine is listed in this section.

If in the future you need help with obtaining veterinary pharmaceuticals or supplies, do not hesitate to reach out to us. We have accounts with MWI Veterinary Supply as well as other veterinary products distributors. Its best to email our departmental group email address (or.ocv.alert@wsu.edu) so if it is something that must be obtained in a timely fashion, someone can respond to your request promptly.

Thank you,
Gwen

From: Packer, Katherine <karp.packer@wsu.edu>
Sent: Tuesday, May 14, 2019 1:38 PM
To: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>; Cook, Corey D <cdcook@wsu.edu>; Wild, Margaret Ann <margaret.wild@wsu.edu>
Cc: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>; Anderson, Gwen Marie <gwenmarie@wsu.edu>
Subject: Response Needed by OCV RE: New Lab Orders
Importance: High

Hello,

Thank you for the emails regarding obtaining pharmaceuticals from ZooPharm.

Dr. Clyde and Gwen Anderson will be contacting you regarding the scope of your project and the pharmaceuticals needing to be purchased from ZooPharm. There are also some university policies that you must be aware of for purchasing items from ZooPharm.

Thank you,

Kay

Katherine Packer, Fiscal Specialist 2
Office of the Campus Veterinarian
Washington State University
PO Box 641165 (100 Dairy Road)
Pullman, WA 99164-1165
Office Phone: (509) 335-4230
Main Line: (509) 335-6246
Fax: (509) 335-3162
Email: karp.packer@wsu.edu

From: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>
Sent: Tuesday, May 14, 2019 1:25 PM

To: Cook, Corey D <cdcook@wsu.edu>; Packer, Katherine <karp.packer@wsu.edu>
Cc: Wild, Margaret Ann <margaret.wild@wsu.edu>
Subject: RE: New Lab Orders

Hello,
Just to be clear on this one – Dr. Wild has her own DEA license and account at ZooPharm.
At this time, we are just trying to pay for a vial of Yohimbine (Rx already faxed over last Friday). We may certainly have need for scheduled drug orders from them in the future, but aren't placing anything additional currently.
Please let us know of protocol for this type of purchasing.
Thanks much,
Liz

From: Cook, Corey D
Sent: Monday, May 13, 2019 9:46 AM
To: Packer, Katherine <karp.packer@wsu.edu>
Cc: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>
Subject: New Lab Orders

Hey Katherine,
We have a newer lab that is going to need to order pharmaceuticals from ZooPharm/Wildlife Pharmaceuticals. Can you help Liz get set up on the ordering policies and procedures for OCV?

Corey D. Garrison
College of Veterinary Medicine
Veterinary Microbiology and Pathology
Bustad 402
PO Box 647040
Pullman, WA 99164-7040
509-335-6021 phone
509-335-8529 fax
cdcook@wsu.edu

From: Anderson, Gwen Marie
Sent: Tuesday, May 14, 2019 2:37 PM
To: Wheeler, Elizabeth A.; Cook, Corey D; Wild, Margaret Ann
Cc: or.ocv.alert
Subject: RE: Response Needed by OCV RE: New Lab Orders

Good Afternoon,

If Dr. Wild has her own DEA license and already has an account with ZooPharm – she should be able to obtain products from them on her own and purchase them through her departmental purchasing staff.

Some University policies you should be aware of in regards to drug purchases for use in animals at WSU are:

1) WSU BPPM 70.08 regarding Purchasing Cards https://policies.wsu.edu/prf/index/manuals/70-00-purchasing/70-08-purchasing-card/ prohibits the use of a WSU Pcard when purchasing controlled substances. ZooPharm will ONLY take credit cards for purchases (they will not take a University Purchase order). So if, in the future, you plan to buy controlled substances/drugs from ZooPharm – you will need to request an exception to this policy for this restricted material purchase using a WSU Pcard: https://purchasing.wsu.edu/documents/2016/05/pcard-policy-violation-v2.pdf/ . Yohimbine is not a controlled substance so it does not apply in this case, but thought I should make you aware of this if you have to get controlled substances from ZooPharm in the future.
2) If the drug you are obtaining will be used in an animal listed on your WSU IACUC Animal Subjects Approval Form (protocol), it must be listed in the ***Drugs & Chemicals*** Section of the protocol. I did look at Dr. Wild's protocol (ASAF #6495) and Yohimbine is listed in this section.

If in the future you need help with obtaining veterinary pharmaceuticals or supplies, do not hesitate to reach out to us. We have accounts with MWI Veterinary Supply as well as other veterinary products distributors. Its best to email our departmental group email address (or.ocv.alert@wsu.edu) so if it is something that must be obtained in a timely fashion, someone can respond to your request promptly.

Thank you,
Gwen

From: Packer, Katherine <karp.packer@wsu.edu>
Sent: Tuesday, May 14, 2019 1:38 PM
To: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>; Cook, Corey D <cdcook@wsu.edu>; Wild, Margaret Ann <margaret.wild@wsu.edu>
Cc: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>; Anderson, Gwen Marie <gwenmarie@wsu.edu>
Subject: Response Needed by OCV RE: New Lab Orders
Importance: High

Hello,

Thank you for the emails regarding obtaining pharmaceuticals from ZooPharm.

Dr. Clyde and Gwen Anderson will be contacting you regarding the scope of your project and the pharmaceuticals needing to be purchased from ZooPharm. There are also some university policies that you must be aware of for purchasing items from ZooPharm.

Thank you,

Kay

Katherine Packer, Fiscal Specialist 2
Office of the Campus Veterinarian
Washington State University
PO Box 641165 (100 Dairy Road)
Pullman, WA 99164-1165
Office Phone: (509) 335-4230
Main Line: (509) 335-6246
Fax: (509) 335-3162
Email: karp.packer@wsu.edu

From: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>
Sent: Tuesday, May 14, 2019 1:25 PM
To: Cook, Corey D <cdcook@wsu.edu>; Packer, Katherine <karp.packer@wsu.edu>
Cc: Wild, Margaret Ann <margaret.wild@wsu.edu>
Subject: RE: New Lab Orders

Hello,
Just to be clear on this one – Dr. Wild has her own DEA license and account at ZooPharm.
At this time, we are just trying to pay for a vial of Yohimbine (Rx already faxed over last Friday). We may certainly have need for scheduled drug orders from them in the future, but aren't placing anything additional currently.
Please let us know of protocol for this type of purchasing.
Thanks much,
Liz

From: Cook, Corey D
Sent: Monday, May 13, 2019 9:46 AM
To: Packer, Katherine <karp.packer@wsu.edu>

Cc: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>
Subject: New Lab Orders

Hey Katherine,
We have a newer lab that is going to need to order pharmaceuticals from ZooPharm/Wildlife Pharmaceuticals. Can you help Liz get set up on the ordering policies and procedures for OCV?

Corey D. Garrison
College of Veterinary Medicine
Veterinary Microbiology and Pathology
Bustad 402
PO Box 647040
Pullman, WA 99164-7040
509-335-6021 phone
509-335-8529 fax
cdcook@wsu.edu

From: Anderson, Gwen Marie
Sent: Tuesday, May 14, 2019 3:11 PM
To: Wheeler, Elizabeth A.; Cook, Corey D; Wild, Margaret Ann
Cc: or.ocv.alert
Subject: RE: Response Needed by OCV RE: New Lab Orders

Hi Liz,

Happy to help. If you run into hiccups – let us knew. Our unit has a WSU Purchase exception to use our Pcard to purchase controlled substances through ZooPharm.

Cheers,
Gwen

From: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>
Sent: Tuesday, May 14, 2019 2:59 PM
To: Anderson, Gwen Marie <gwenmarie@wsu.edu>; Cook, Corey D <cdcook@wsu.edu>; Wild, Margaret Ann <margaret.wild@wsu.edu>
Cc: or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: RE: Response Needed by OCV RE: New Lab Orders

Gwen,
Thanks so much for this information!

Corey – I will talk with ZooPharm in the morning, and make sure we're all set on that end. Then I'll sent through a VMP Order Form for payment.
Let me know if you have any different expectations to get this processed.

Cheers,
Liz

From: Anderson, Gwen Marie
Sent: Tuesday, May 14, 2019 2:37 PM
To: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>; Cook, Corey D <cdcook@wsu.edu>; Wild, Margaret Ann <margaret.wild@wsu.edu>
Cc: or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: RE: Response Needed by OCV RE: New Lab Orders

Good Afternoon,

If Dr. Wild has her own DEA license and already has an account with ZooPharm – she should be able to obtain products from them on her own and purchase them through her departmental purchasing staff.

Some University policies you should be aware of in regards to drug purchases for use in animals at WSU are:

1) WSU BPPM 70.08 regarding Purchasing Cards https://policies.wsu.edu/prf/index/manuals/70-00-purchasing/70-08-purchasing-card/ prohibits the use of a WSU Pcard when purchasing controlled substances. ZooPharm will ONLY take credit cards for purchases (they will not take a University Purchase order). So if, in the future, you plan to buy controlled substances/drugs from ZooPharm – you will need to request an exception to this policy for this restricted material purchase using a WSU Pcard: https://purchasing.wsu.edu/documents/2016/05/pcard-policy-violation-v2.pdf/ . Yohimbine is not a controlled substance so it does not apply in this case, but thought I should make you aware of this if you have to get controlled substances from ZooPharm in the future.
2) If the drug you are obtaining will be used in an animal listed on your WSU IACUC Animal Subjects Approval Form (protocol), it must be listed in the ***Drugs & Chemicals*** Section of the protocol. I did look at Dr. Wild's protocol (ASAF #6495) and Yohimbine is listed in this section.

If in the future you need help with obtaining veterinary pharmaceuticals or supplies, do not hesitate to reach out to us. We have accounts with MWI Veterinary Supply as well as other veterinary products distributors. Its best to email our departmental group email address (or.ocv.alert@wsu.edu) so if it is something that must be obtained in a timely fashion, someone can respond to your request promptly.

Thank you,
Gwen

From: Packer, Katherine <karp.packer@wsu.edu>
Sent: Tuesday, May 14, 2019 1:38 PM
To: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>; Cook, Corey D <cdcook@wsu.edu>; Wild, Margaret Ann <margaret.wild@wsu.edu>
Cc: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>; Anderson, Gwen Marie <gwenmarie@wsu.edu>
Subject: Response Needed by OCV RE: New Lab Orders
Importance: High

Hello,

Thank you for the emails regarding obtaining pharmaceuticals from ZooPharm.

Dr. Clyde and Gwen Anderson will be contacting you regarding the scope of your project and the pharmaceuticals needing to be purchased from ZooPharm. There are also some university policies that you must be aware of for purchasing items from ZooPharm.

Thank you,

Kay

Katherine Packer, Fiscal Specialist 2
Office of the Campus Veterinarian
Washington State University

PO Box 641165 (100 Dairy Road)
Pullman, WA 99164-1165
Office Phone: (509) 335-4230
Main Line: (509) 335-6246
Fax: (509) 335-3162
Email: karp.packer@wsu.edu

From: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>
Sent: Tuesday, May 14, 2019 1:25 PM
To: Cook, Corey D <cdcook@wsu.edu>; Packer, Katherine <karp.packer@wsu.edu>
Cc: Wild, Margaret Ann <margaret.wild@wsu.edu>
Subject: RE: New Lab Orders

Hello,
Just to be clear on this one – Dr. Wild has her own DEA license and account at ZooPharm.
At this time, we are just trying to pay for a vial of Yohimbine (Rx already faxed over last Friday). We may certainly have need for scheduled drug orders from them in the future, but aren't placing anything additional currently.
Please let us know of protocol for this type of purchasing.
Thanks much,
Liz

From: Cook, Corey D
Sent: Monday, May 13, 2019 9:46 AM
To: Packer, Katherine <karp.packer@wsu.edu>
Cc: Wheeler, Elizabeth A. <elizabeth.a.wheeler@wsu.edu>
Subject: New Lab Orders

Hey Katherine,
We have a newer lab that is going to need to order pharmaceuticals from ZooPharm/Wildlife Pharmaceuticals. Can you help Liz get set up on the ordering policies and procedures for OCV?

Corey D. Garrison
College of Veterinary Medicine
Veterinary Microbiology and Pathology
Bustad 402
PO Box 647040
Pullman, WA 99164-7040
509-335-6021 phone
509-335-8529 fax

cdcook@wsu.edu

From: Coursey, Marta

Sent: Thursday, February 21, 2019 7:31 AM

To: Woodford, Nina Lynne

Cc: Hunt, Karen; Ekstrand, Alan; Keane, Christopher; Weiler, Phil; Sitzmann, Holly Christine; Roll, John; Verheul, Christina Marie; Steward, Joanna; Dudley, Kevin Roy; Aumen, J. Adriana; Hilding, Tina; Powell, Charles Elmo; Lindsay Fry (Lindsay.Fry@ARS.USDA.GOV); Avant, Sandra; Heineke, Merle J; or.ocv.alert; Luft, Jan Elizabeth; Gorence, Galen Jay; Gabelmann, Doris L

Subject: Re: talking points

Nicely done Nina. Thanks for this. M

On Feb 21, 2019, at 6:13 AM, Woodford, Nina Lynne <nwoodford@wsu.edu> wrote:

> article is on the back page of the northwest section of the Lewiston Tribune today. I think it is ok and portrays that we are following normal processes as expected.
> https://lmtribune.com/northwest/watchdog-group-files-complaint-against-wsu/article_4b132544-424e-5d0d-b163-efd4cf4712ee.html

---

LEWISTON The TRIBUNE

Watchdog group files complaint against WSU | Northwest | lmtribune.com

lmtribune.com

A nonprofit watchdog group has filed an official complaint against Washington State University alleging violations to the Animal Welfare Act in regards to four incidents where animals died while ...

Nina Woodford

Director and Attending Veterinarian
Office of the Campus Veterinarian
Washington State University
nwoodford@wsu.edu
509-335-6246

From: Woodford, Nina Lynne
Sent: Wednesday, February 20, 2019 3:41:06 PM
To: Hunt, Karen; Ekstrand, Alan
Cc: Weiler, Phil; Sitzmann, Holly Christine; Roll, John; Coursey, Marta; Verheul, Christina Marie; Steward, Joanna; Roll, John; Dudley, Kevin Roy; Aumen, J. Adriana; Hilding, Tina; Powell, Charles Elmo; Lindsay Fry (Lindsay.Fry@ARS.USDA.GOV); Avant, Sandra
Subject: RE: talking points

I spoke with Justyna Tomtas at the Lewiston Tribune this afternoon

She asked for a general description of how we manage adverse event reports, some specifics on the 4 main items from the release and asked for a final statement. I stuck with the talking points. No surprise questions and no reference or questions regarding ARS/USDA

I sent the AP reporter an email with my contact information. I'll let you know if he calls back

Nina Woodford DVM, MPH DACLAM
Director and Attending Veterinarian
Office of the Campus Veterinarian
Washington State University
509-335-6246
nwoodford@wsu.edu

From: Michael Budkie <saen@saenonline.org>
Sent: Wednesday, February 20, 2019 8:48 AM
To: Michael Budkie <saen@saenonline.org>
Subject: Washington State University Halts Experiment, Admits 3 More Deaths; Watchdog Claims USDA May Be Complicit in WSU's Breaking of Federal Law

FOR IMMEDIATE RELEASE

Wednesday, February 20, 2019

Contact: Michael Budkie 513-575-5517, saen@saenonline.org

Washington State University Halts Experiment, Admits 3 More Deaths;

Watchdog Claims USDA May Be Complicit in WSU's Breaking of Federal Law

PULLMAN, WA – Internal Washington State University reports obtained by a national research watchdog group document that research negligence has negligently killed three more animals and led to the termination of one WSU experiment.

WSU records reveal that a ferret was killed following burn injuries, a trapped rabbit was eaten alive by a predator, a goat died trapped in a fence, and a rabbit bone implant study was terminated following "complications," according to SAEN, a national research watchdog nonprofit that monitors the nation's research facilities for illegal acts and animal abuse.

The recently-obtained internal WSU documents are being made public as a part of an Official Complaint filed with the U.S. Dept. of Agriculture by SAEN.

SAEN has also launched an independent investigation into the terminated rabbit bone implant project because of concerns about potential animal deaths and/or injuries.

SAEN's complaint to the USDA noted the three latest deaths and calls for the maximum penalty of $10,000 per infraction/per animal, or about $30,000. The complaint also questioned the competence of WSU staff by calling for citations for unqualified personnel, inadequate veterinary care, inadequate enclosures, and improper animal handling.

"WSU's negligence continues to injure and kill animals unnecessarily," said Michael A. Budkie, A.H.T., co-founder of SAEN. "The USDA must stop these deaths," he added.

However, Budkie added, "the objectivity of the USDA's Animal Care Division is now being questioned. The goat death cited in SAEN's complaint came as part of a project which is apparently USDA funded. And so, in prosecuting WSU, the USDA would almost be prosecuting itself."

The SAEN complaint, which contains internal WSU documents, is available at: https://saenonline.org/media-Washington-State-University-Official-Complaint-2-20-19.html

-30-

From: Woodford, Nina Lynne

Sent: Thursday, February 21, 2019 6:13 AM

To: Hunt, Karen; Ekstrand, Alan; Keane, Christopher

Cc: Weiler, Phil; Sitzmann, Holly Christine; Roll, John; Coursey, Marta; Verheul, Christina Marie; Steward, Joanna; Dudley, Kevin Roy; Aumen, J. Adriana; Hilding, Tina; Powell, Charles Elmo; Lindsay Fry (Lindsay.Fry@ARS.USDA.GOV); Avant, Sandra; Heineke, Merle J; or.ocv.alert; Luft, Jan Elizabeth; Gorence, Galen Jay; Gabelmann, Doris L

Subject: Re: talking points

article is on the back page of the northwest section of the Lewiston Tribune today. I think it is ok and portrays that we are following normal processes as expected.
https://lmtribune.com/northwest/watchdog-group-files-complaint-against-wsu/article_4b132544-424e-5d0d-b163-efd4cf4712ee.html

LEWISTON The TRIBUNE

Watchdog group files complaint against WSU | Northwest | lmtribune.com

lmtribune.com

A nonprofit watchdog group has filed an official complaint against Washington State University alleging violations to the Animal Welfare Act in regards to four incidents where animals died while ...

Nina Woodford
Director and Attending Veterinarian
Office of the Campus Veterinarian
Washington State University
nwoodford@wsu.edu
509-335-6246

From: Woodford, Nina Lynne
Sent: Wednesday, February 20, 2019 3:41:06 PM
To: Hunt, Karen; Ekstrand, Alan
Cc: Weiler, Phil; Sitzmann, Holly Christine; Roll, John; Coursey, Marta; Verheul, Christina Marie; Steward, Joanna; Roll, John; Dudley, Kevin Roy; Aumen, J. Adriana; Hilding, Tina; Powell, Charles Elmo; Lindsay Fry (Lindsay.Fry@ARS.USDA.GOV); Avant, Sandra
Subject: RE: talking points

I spoke with Justyna Tomtas at the Lewiston Tribune this afternoon

She asked for a general description of how we manage adverse event reports, some specifics on the 4 main items from the release and asked for a final statement. I stuck with the talking points. No surprise questions and no reference or questions regarding ARS/USDA

I sent the AP reporter an email with my contact information. I'll let you know if he calls back

Nina Woodford DVM, MPH DACLAM
Director and Attending Veterinarian
Office of the Campus Veterinarian
Washington State University
509-335-6246
nwoodford@wsu.edu

From: Michael Budkie <saen@saenonline.org>
Sent: Wednesday, February 20, 2019 8:48 AM
To: Michael Budkie <saen@saenonline.org>
Subject: Washington State University Halts Experiment, Admits 3 More Deaths; Watchdog Claims USDA May Be Complicit in WSU's Breaking of Federal Law

FOR IMMEDIATE RELEASE
Wednesday, February 20, 2019
Contact: Michael Budkie 513-575-5517, saen@saenonline.org

Washington State University Halts Experiment, Admits 3 More Deaths; Watchdog Claims USDA May Be Complicit in WSU's Breaking of Federal Law

PULLMAN, WA – Internal Washington State University reports obtained by a national research watchdog group document that research negligence has negligently killed three more animals and led to the termination of one WSU experiment.

WSU records reveal that a ferret was killed following burn injuries, a trapped rabbit was eaten alive by a predator, a goat died trapped in a fence, and a rabbit bone implant study was terminated following "complications," according to SAEN, a national research watchdog nonprofit that monitors the nation's research facilities for illegal acts and animal abuse.

The recently-obtained internal WSU documents are being made public as a part of an Official Complaint filed with the U.S. Dept. of Agriculture by SAEN.

SAEN has also launched an independent investigation into the terminated rabbit bone implant project because of concerns about potential animal deaths and/or injuries.

SAEN's complaint to the USDA noted the three latest deaths and calls for the maximum penalty of $10,000 per infraction/per animal, or about $30,000. The complaint also questioned the competence of WSU staff by calling for citations for unqualified personnel, inadequate veterinary care, inadequate enclosures, and improper animal handling.

"WSU's negligence continues to injure and kill animals unnecessarily," said Michael A. Budkie, A.H.T., co-founder of SAEN. "The USDA must stop these deaths," he added.

However, Budkie added, "the objectivity of the USDA's Animal Care Division is now being questioned. The goat death cited in SAEN's complaint came as part of a project which is apparently USDA funded. And so, in prosecuting WSU, the USDA would almost be prosecuting itself."

The SAEN complaint, which contains internal WSU documents, is available at: https://saenonline.org/media-Washington-State-University-Official-Complaint-2-20-19.html

-30-

From: Powell, Charles Elmo
Sent: Thursday, February 21, 2019 9:00 AM
To: Woodford, Nina Lynne; Hunt, Karen; Ekstrand, Alan; Keane, Christopher
Cc: Weiler, Phil; Sitzmann, Holly Christine; Roll, John; Coursey, Marta; Verheul, Christina Marie; Steward, Joanna; Dudley, Kevin Roy; Aumen, J. Adriana; Hilding, Tina; Lindsay Fry (Lindsay.Fry@ARS.USDA.GOV); Avant, Sandra; Heineke, Merle J; or.ocv.alert; Luft, Jan Elizabeth; Gorence, Galen Jay; Gabelmann, Doris L
Subject: RE: talking points

Good work. KQQQ definitely too SAEN to task on the air this morning. The station was also were sent copies of emails provided to Mr. Budke through his PRR to try and build their case.

Charlie Powell
Public Information Officer
Washington State University College of Veterinary Medicine
PO Box 647010 | Pullman, WA 99164-7010
office: 509-335-7073
cpowell@vetmed.wsu.edu
www.vetmed.wsu.edu

From: Woodford, Nina Lynne
Sent: Thursday, February 21, 2019 6:13 AM
To: Hunt, Karen <karen.hunt@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>; Keane, Christopher <chris.keane@wsu.edu>
Cc: Weiler, Phil <phil.weiler@wsu.edu>; Sitzmann, Holly Christine <holly.sitzmann@wsu.edu>; Roll, John <johnroll@wsu.edu>; Coursey, Marta <marta.coursey@wsu.edu>; Verheul, Christina Marie <christina.verheul@wsu.edu>; Steward, Joanna <jsteward@wsu.edu>; Dudley, Kevin Roy <kevin_dudley@wsu.edu>; Aumen, J. Adriana <adriana@wsu.edu>; Hilding, Tina <thilding@wsu.edu>; Powell, Charles Elmo <charlie_powell@wsu.edu>; Lindsay Fry (Lindsay.Fry@ARS.USDA.GOV) <Lindsay.Fry@ARS.USDA.GOV>; Avant, Sandra <Sandra.Avant@ARS.USDA.GOV>; Heineke, Merle J <merle.heineke@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; Luft, Jan Elizabeth <jluft@wsu.edu>; Gorence, Galen Jay <gorence@wsu.edu>; Gabelmann, Doris L <dgabelmann@wsu.edu>
Subject: Re: talking points

article is on the back page of the northwest section of the Lewiston Tribune today. I think it is ok and portrays that we are following normal processes as expected.
https://lmtribune.com/northwest/watchdog-group-files-complaint-against-wsu/article_4b132544-424e-5d0d-b163-efd4cf4712ee.html

Watchdog group files complaint against WSU | Northwest | lmtribune.com

lmtribune.com

A nonprofit watchdog group has filed an official complaint against Washington State University alleging violations to the Animal Welfare Act in regards to four incidents where animals died while ...

Nina Woodford
Director and Attending Veterinarian
Office of the Campus Veterinarian
Washington State University
nwoodford@wsu.edu
509-335-6246

From: Woodford, Nina Lynne
Sent: Wednesday, February 20, 2019 3:41:06 PM
To: Hunt, Karen; Ekstrand, Alan
Cc: Weiler, Phil; Sitzmann, Holly Christine; Roll, John; Coursey, Marta; Verheul, Christina Marie; Steward, Joanna; Roll, John; Dudley, Kevin Roy; Aumen, J. Adriana; Hilding, Tina; Powell, Charles Elmo; Lindsay Fry (Lindsay.Fry@ARS.USDA.GOV); Avant, Sandra
Subject: RE: talking points

I spoke with Justyna Tomtas at the Lewiston Tribune this afternoon

She asked for a general description of how we manage adverse event reports, some specifics on the 4 main items from the release and asked for a final statement. I stuck with the talking points. No surprise questions and no reference or questions regarding ARS/USDA

I sent the AP reporter an email with my contact information. I'll let you know if he calls back

Nina Woodford DVM, MPH DACLAM
Director and Attending Veterinarian
Office of the Campus Veterinarian
Washington State University
509-335-6246
nwoodford@wsu.edu

From: Michael Budkie <saen@saenonline.org>
Sent: Wednesday, February 20, 2019 8:48 AM
To: Michael Budkie <saen@saenonline.org>
Subject: Washington State University Halts Experiment, Admits 3 More Deaths; Watchdog Claims USDA May Be Complicit in WSU's Breaking of Federal Law

FOR IMMEDIATE RELEASE
Wednesday, February 20, 2019
Contact: Michael Budkie 513-575-5517, saen@saenonline.org

Washington State University Halts Experiment, Admits 3 More Deaths; Watchdog Claims USDA May Be Complicit in WSU's Breaking of Federal Law

PULLMAN, WA – Internal Washington State University reports obtained by a national research watchdog group document that research negligence has negligently killed three more animals and led to the termination of one WSU experiment.

WSU records reveal that a ferret was killed following burn injuries, a trapped rabbit was eaten alive by a predator, a goat died trapped in a fence, and a rabbit bone implant study was terminated following "complications," according to SAEN, a national research watchdog nonprofit that monitors the nation's research facilities for illegal acts and animal abuse.

The recently-obtained internal WSU documents are being made public as a part of an Official Complaint filed with the U.S. Dept. of Agriculture by SAEN.

SAEN has also launched an independent investigation into the terminated rabbit bone implant project because of concerns about potential animal deaths and/or injuries.

SAEN's complaint to the USDA noted the three latest deaths and calls for the maximum penalty of $10,000 per infraction/per animal, or about $30,000. The complaint also questioned the competence of WSU staff by calling for citations for unqualified personnel, inadequate veterinary care, inadequate enclosures, and improper animal handling.

"WSU's negligence continues to injure and kill animals unnecessarily," said Michael A. Budkie, A.H.T., co-founder of SAEN. "The USDA must stop these deaths," he added.

However, Budkie added, "the objectivity of the USDA's Animal Care Division is now being questioned. The goat death cited in SAEN's complaint came as part of a project which is apparently USDA funded. And so, in prosecuting WSU, the USDA would almost be prosecuting itself."

The SAEN complaint, which contains internal WSU documents, is available at: https://saenonline.org/media-Washington-State-University-Official-Complaint-2-20-19.html

-30-

From: [redacted] 38
Sent: Thursday, May 23, 2019 11:30 AM
To: White, Stephen; Luft, Jan Elizabeth; McCleary, Jessie May; Durfee, Codie Jo; or.ocv.alert; White, Stephen; Fry, Lindsay; Libby, Julia E
Cc: 'codie.durfee@ars.usda.gov'
Subject: RE: thank you: barbered mouse

Thanks for looking at them and for all of the help!

[redacted] 38

From: White, Stephen <stephen_white@wsu.edu>
Sent: Thursday, May 23, 2019 11:28 AM
To: Luft, Jan Elizabeth <jluft@wsu.edu>; McCleary, Jessie May <jmccleary@wsu.edu>; Durfee, Codie Jo <chanke@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; White, Stephen <Stephen.White@ARS.USDA.GOV>; Fry, Lindsay <Lindsay.Fry@ARS.USDA.GOV>; [redacted] 38 Libby, Julia E <jlibby@wsu.edu>
Cc: 'codie.durfee@ars.usda.gov' <codie.durfee@ars.usda.gov>
Subject: thank you: barbered mouse

Thanks very much for your help on this!
Stephen

From: Luft, Jan Elizabeth
Sent: Thursday, May 23, 2019 10:58 AM
To: McCleary, Jessie May <jmccleary@wsu.edu>; Durfee, Codie Jo <chanke@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; White, Stephen <stephen_white@wsu.edu>; White, Stephen <Stephen.White@ARS.USDA.GOV>; Fry, Lindsay <Lindsay.Fry@ARS.USDA.GOV>; [redacted] 38 Libby, Julia E <jlibby@wsu.edu>
Cc: 'codie.durfee@ars.usda.gov' <codie.durfee@ars.usda.gov>
Subject: RE: barbered mouse

We will take care of the treatment if you like. Thanks Jessie!

From: McCleary, Jessie May
Sent: Thursday, May 23, 2019 10:56 AM
To: Durfee, Codie Jo <chanke@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; White, Stephen <stephen_white@wsu.edu>; White, Stephen <Stephen.White@ARS.USDA.GOV>; Fry, Lindsay <Lindsay.Fry@ARS.USDA.GOV>; [redacted] 38 Luft, Jan Elizabeth <jluft@wsu.edu>; Libby, Julia E <jlibby@wsu.edu>
Cc: 'codie.durfee@ars.usda.gov' <codie.durfee@ars.usda.gov>
Subject: RE: barbered mouse

Good morning, I checked on this mouse today. She is BAR, hair coat is slightly thin most likely from barbering. The lesion on the left hip may have started as a bite wound. It is dry and has started to heal. I recommend continuing the triple antibiotic with pain relief ointment daily and I will recheck it in a few days.

Thank you,

Jessie McCleary, LVT
Washington State University
Office of the Campus Veterinarian
jmccleary@wsu.edu
Office (509)335-2595
Main line (509)335-6246
Emergency phone (509)330-1871

From: McCleary, Jessie May <jmccleary@wsu.edu>
Sent: Wednesday, May 22, 2019 2:24 PM
To: Durfee, Codie Jo <chanke@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; White, Stephen <stephen_white@wsu.edu>; White, Stephen <Stephen.White@ARS.USDA.GOV>; Fry, Lindsay <Lindsay.Fry@ARS.USDA.GOV>; [redacted] Luft, Jan Elizabeth <jluft@wsu.edu>; Libby, Julia E <jlibby@wsu.edu>
Cc: 'codie.durfee@ars.usda.gov' <codie.durfee@ars.usda.gov>
Subject: RE: barbered mouse

Thank you Codie, I will be over in the morning to check on some others and will take a look at her. I will let everyone know what I find.

Thanks,

Jessie McCleary, LVT
Washington State University
Office of the Campus Veterinarian
jmccleary@wsu.edu
Office (509)335-2595
Main line (509)335-6246
Emergency phone (509)330-1871

From: Durfee, Codie Jo <chanke@wsu.edu>
Sent: Wednesday, May 22, 2019 2:14 PM
To: or.ocv.alert <or.ocv.alert@wsu.edu>; White, Stephen <stephen_white@wsu.edu>; White, Stephen <Stephen.White@ARS.USDA.GOV>; Fry, Lindsay <Lindsay.Fry@ARS.USDA.GOV>; [redacted] Luft, Jan Elizabeth <jluft@wsu.edu>; Libby, Julia E <jlibby@wsu.edu>
Cc: 'codie.durfee@ars.usda.gov' <codie.durfee@ars.usda.gov>
Subject: barbered mouse

Hello,

Today 38 and I were working with our mice and noticed one female had a pinkish patch on her back with hair loss. This is one of our TLR2 knockout mice (SCID-like, 004650Bb.129Tlr2ctm1Kir). Julie had a chance to look at her this afternoon and she said I should let OCV know in case they want to visually inspect the mouse. She said she couldn't tell if the skin was broken or had been broken since there is not really any scabbing either. She treated the mouse with triple antibiotic ointment with pain reliever and she flagged the mouse.

Please let us know if there is anything else we can do.

I will be out of town from May 23-27, but plan to be around after that. 38 will be here and Stephen will be around as well.

Thank you,
Codie Durfee

Lab 5-6306
Cell 14

38 Cell: 38
Stephen: 509-336-9764

From: Clyde, Gaylynn Goolsby
Sent: Wednesday, June 05, 2019 1:47 PM
To: [redacted] 38
Cc: or.ocv.alert
Subject: RE: Veterinary Shadowing
Attachments: WSU OCV Student volunteer sheet 01.docx

Hi [redacted] 38

Sorry this took so long, we have had several students interested in volunteering this summer. Attached is information and training sign off sheet for our Introductory Student Internship Program. Please look over the information and decide if this is what you are interested in. If you are, fill in the student information section and the date section, email back to or.ocv.alert@wsu.edu Once we receive, we will review and select the best dates and approve. We will have you initial all the appropriate sections and sign this on your first day.

Look forward to hearing from you soon.

Gay Lynn Clyde, DVM
Assistant Director Campus Veterinary Services
Office of Campus Veterinarian
Washington State University
Pullman, WA. 99164-1165
Phone (509) 335-4991 or (509) 335-6246
Fax (509) 335-3162
Email: gclyde@wsu.edu
Program URL: http://campusvet.wsu.edu

From: [redacted] 38
Sent: Tuesday, May 21, 2019 9:49 AM
To: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>
Subject: Veterinary Shadowing

Dear Dr. Clyde,

This is [redacted] 38 I am one of the volunteers at the Bear Center and I shadowed the procedures last week. I am entering my [redacted] 38 year of [redacted] 38 but have been accepted to the [redacted] 38 Program. I am still feeling out what type of vet med field I might be interested in, and I was wondering if perhaps I could shadow you for a day or two over the summer?

Thank you very much!
[redacted] 38

[redacted] 38
WSU ID: [redacted] 48

Phone: [redacted] 38
Email: [redacted] 38

WSU Office of the Campus Veterinarian Campus Veterinary Services

Introductory Student Internship Program

Student Information Section:

Name:

WSU Student ID:

Major/Minor:

Area(s) of Interest:

Animal Experience (what species):

Do you have pets where you live (please list):

Introduction:

- The Office of the Campus Veterinarian is a service department under the Office of Research that employs veterinary and professional animal personnel to assist in the research and teaching mission of Washington State University.
- The services and guidance provided help facilitate meeting the animal needs of the academic community while concurrently providing for the safe and ethical treatment of research and teaching animals.
- All animal use at WSU is under the oversight of the Institutional Animal Care and Use Committee and federal regulations. Information on how to report a concern is posted and available on the IACUC website https://iacuc.wsu.edu/ .
- Introductory Student internship Program (ISIP) with the Office of the Campus Veterinarian are 2 weeks in duration. Example of student activities will be shadowing veterinary staff on veterinary rounds, entrance exams, and medical cases, participating in journal reviews or on-line courses involving laboratory animal medicine. There will also be a hands-on course on basic handling of mice or rats.
- Our office works with a wide range of species (traditional laboratory rodents, rabbits, small ruminants, swine and wildlife species) every day. Please be prepared to work with any species.

Please initial this box to acknowledge you have read and understand this section

OCV Safety:

- Because our office works with a wide range of species including animals that may need immediate medical attention, it is of the utmost importance that the student listens to all instructions given by the veterinary staff.
- Needle safety is of the utmost importance. WSU has a no re-cap policy. If you are around needles and syringes, NEVER re-cap, always put an open needle and syringe in the sharps container.
- Allergy to animals is a significant occupational health concern for individuals who work with the common laboratory animal species.
- Please read “Allergies to Animals” on the IACUC website https://iacuc.wsu.edu/allergies-to-animals/ .

Please initial this box to acknowledge you have read and understand this section

Zoonosis Control:

- Working with many species there is the potential that diseases can be passed from an animal to a human.
- To prevent the accidental exposure to zoonotic agents, we require that each student participating in ISIP read all Zoonosis Fact Sheets on the IACUC website https://iacuc.wsu.edu/zoonoses/ which include:

General	Bats	Birds	Cats
Cattle	Dogs	Fish	Horses
Pigs	Rabbits	Reptiles/Amphibians	Rodents
Rodents-wild	Small Ruminants	Carnivores	Wild Ungulates

Please initial this box to acknowledge you have read all the zoonosis information listed on the IACUC website and understand the risks.

Biosecurity

- Because we work with specific pathogen free animals it is imperative that we eliminate the exposure of our research and teaching animals to diseases that could come from human/animal contact.
- If you have been around any other species before coming to the internship program, you must inform your OCV supervisor and they will decide what proper PPE will be necessary for that day. NOTE: Any pet rodents or rabbits at home, students must shower before coming into the OCV office.

Please initial this box to acknowledge you have read and understand this section

Communications and Confidentiality:

- All cell phones must be left silenced if going into an animal facility
- NO photographs, video or audio recordings are allowed be taken inside of any animal facility without the written consent of the Attending Veterinarian.
- NO photographs, video or audio recordings are allowed to be posted on social media.
- There are ~250 principal investigators at WSU working with animals for research and teaching purposes. Research activities, experiments, animal medical cases, etc. are not to be discussed outside of OCV office.

Please initial this box to acknowledge you have read and understand this section

---

Facts, aims and goals about the Office of the Campus Veterinarian

- Animals play an important role in research, testing, and teaching at WSU. All the animal housing areas are AAALAC accredited.
- The animal care and use program at WSU is partially centralized under the Office of the Campus Veterinarian (OCV) but the program as a whole is centrally monitored through the Vice President for Research.
- The WSU animal care and use facilities encompass approximately 60+ buildings, 530,000 square feet, and 1,300 acres of pasture and specialized animal housing and laboratory space.
- Animal housing areas are located not only on the WSU-Pullman campus but at many of the branch campus locations such as Spokane, Vancouver, Tri-Cities and Puyallup.
- Ensure quality animal care for all animals used at Washington State University.
- Provide training to WSU faculty, students and staff in regards to the use of laboratory animals.
- Act as a resource center for all issues related to animal care and use.
- Assist and serve in the functions of the Institutional Animal Care and Use Committee.

- Provide support and guidance in maintaining the animal care and use program to the standards of the USDA Animal Welfare Act, Public Health Service Policy and the Association for the Assessment and Accreditation of Laboratory Animal Care

Services provided by the Office of the Campus Veterinarian

- Medical and surgical support of research & teaching animal subjects.
- Technical assistance for animal related procedures.
- Animal housing and husbandry
- Training of faculty, students and staff in the handling, humane care and manipulation of animals.
- Routine health & quality assurance of animals used in research and teaching.
- Consultation and professional assistance in animal protocol development and implementation.
- Rental of specialized animal equipment.
- Guidance and assistance in the acquisition of animals and animal related products and equipment.
- Health Certificates & Brand Inspections

OCV Introductory Student Internships will aim to introduce students to laboratory animal medicine over a short two week period.

Dates and Availability

If you are interested in ISI Program, please provide below dates (2 week periods) that you would be available for this internship. Note: the 2 weeks are run concurrently, exclude weekends and can be flexible on times but typically would be M-F 8-5pm.

Date Range (e.g. June 10th-21st)	Times available (e.g. 9-2pm)	Approved

By signing below The Office of the Campus Veterinarian will provide a 2 week introductory internship program to students as described above, and the student understands the information provided.

OCV Signature_____ Date: _____

Student Signature: _____ Date: _____

From: Clyde, Gaylynn Goolsby
Sent: Wednesday, June 05, 2019 1:43 PM
To: [redacted]
Cc: or.ocv.alert
Subject: RE: volunteer work
Attachments: WSU OCV Student volunteer sheet 01.docx

Hi [redacted]

Nice to see you again today. Attached is information and training sign off sheet for our Introductory Student Internship Program. Please look over the information and decide if this is what you are interested in. If you are, fill in the student information section and the date section, email back to or.ocv.alert@wsu.edu Once we receive, we will review and select the best dates and approve. We will have you initial all the appropriate sections and sign this on your first day.

Look forward to hearing from you soon.

Gay Lynn Clyde, DVM
Assistant Director Campus Veterinary Services
Office of Campus Veterinarian
Washington State University
Pullman, WA. 99164-1165
Phone (509) 335-4991 or (509) 335-6246
Fax (509) 335-3162
Email: gclyde@wsu.edu
Program URL: http://campusvet.wsu.edu

From: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>
Sent: Wednesday, May 22, 2019 2:47 PM
To: [redacted]
Cc: or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: RE: volunteer work

Hi [redacted]

I will be discussing student shadowing with our group this next week and will get back to you with a tentative plan.

Thank you,

Gay Lynn Clyde, DVM
Assistant Director Campus Veterinary Services
Office of Campus Veterinarian

Washington State University
Pullman, WA. 99164-1165
Phone (509) 335-4991 or (509) 335-6246
Fax (509) 335-3162
Email: gclyde@wsu.edu
Program URL: http://campusvet.wsu.edu

From: [redacted] 38
Sent: Wednesday, May 22, 2019 12:09 PM
To: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>
Subject: volunteer work

Dear Gaylynn,

If there is anything at all that I would be able to help with, please let me know. I am available to help for most of the day Sunday, Tuesday, Wednesday, and Thursday after 10 am. Any other day of the week I do not have existing commitments. Thank you for your time and consideration. I hope you have a wonderful day.

Sincerely,
[redacted] 38

WSU Office of the Campus Veterinarian Campus Veterinary Services

Introductory Student Internship Program

Student Information Section:

Name:

WSU Student ID:

Major/Minor:

Area(s) of Interest:

Animal Experience (what species):

Do you have pets where you live (please list):

Introduction:

- The Office of the Campus Veterinarian is a service department under the Office of Research that employs veterinary and professional animal personnel to assist in the research and teaching mission of Washington State University.
- The services and guidance provided help facilitate meeting the animal needs of the academic community while concurrently providing for the safe and ethical treatment of research and teaching animals.
- All animal use at WSU is under the oversight of the Institutional Animal Care and Use Committee and federal regulations. Information on how to report a concern is posted and available on the IACUC website https://iacuc.wsu.edu/ .
- Introductory Student internship Program (ISIP) with the Office of the Campus Veterinarian are 2 weeks in duration. Example of student activities will be shadowing veterinary staff on veterinary rounds, entrance exams, and medical cases, participating in journal reviews or on-line courses involving laboratory animal medicine. There will also be a hands-on course on basic handling of mice or rats.
- Our office works with a wide range of species (traditional laboratory rodents, rabbits, small ruminants, swine and wildlife species) every day. Please be prepared to work with any species.

Please initial this box to acknowledge you have read and understand this section

OCV Safety:

- Because our office works with a wide range of species including animals that may need immediate medical attention, it is of the utmost importance that the student listens to all instructions given by the veterinary staff.
- Needle safety is of the utmost importance. WSU has a no re-cap policy. If you are around needles and syringes, NEVER re-cap, always put an open needle and syringe in the sharps container.
- Allergy to animals is a significant occupational health concern for individuals who work with the common laboratory animal species.
- Please read “Allergies to Animals” on the IACUC website https://iacuc.wsu.edu/allergies-to-animals/ .

Please initial this box to acknowledge you have read and understand this section

Zoonosis Control:

- Working with many species there is the potential that diseases can be passed from an animal to a human.
- To prevent the accidental exposure to zoonotic agents, we require that each student participating in ISIP read all Zoonosis Fact Sheets on the IACUC website https://iacuc.wsu.edu/zoonoses/ which include:

General	Bats	Birds	Cats
Cattle	Dogs	Fish	Horses
Pigs	Rabbits	Reptiles/Amphibians	Rodents
Rodents-wild	Small Ruminants	Carnivores	Wild Ungulates

Please initial this box to acknowledge you have read all the zoonosis information listed on the IACUC website and understand the risks.

Biosecurity

- Because we work with specific pathogen free animals it is imperative that we eliminate the exposure of our research and teaching animals to diseases that could come from human/animal contact.
- If you have been around any other species before coming to the internship program, you must inform your OCV supervisor and they will decide what proper PPE will be necessary for that day. NOTE: Any pet rodents or rabbits at home, students must shower before coming into the OCV office.

Please initial this box to acknowledge you have read and understand this section

Communications and Confidentiality:

- All cell phones must be left silenced if going into an animal facility
- NO photographs, video or audio recordings are allowed be taken inside of any animal facility without the written consent of the Attending Veterinarian.
- NO photographs, video or audio recordings are allowed to be posted on social media.
- There are ~250 principal investigators at WSU working with animals for research and teaching purposes. Research activities, experiments, animal medical cases, etc. are not to be discussed outside of OCV office.

Please initial this box to acknowledge you have read and understand this section

---

Facts, aims and goals about the Office of the Campus Veterinarian

- Animals play an important role in research, testing, and teaching at WSU. All the animal housing areas are AAALAC accredited.
- The animal care and use program at WSU is partially centralized under the Office of the Campus Veterinarian (OCV) but the program as a whole is centrally monitored through the Vice President for Research.
- The WSU animal care and use facilities encompass approximately 60+ buildings, 530,000 square feet, and 1,300 acres of pasture and specialized animal housing and laboratory space.
- Animal housing areas are located not only on the WSU-Pullman campus but at many of the branch campus locations such as Spokane, Vancouver, Tri-Cities and Puyallup.
- Ensure quality animal care for all animals used at Washington State University.
- Provide training to WSU faculty, students and staff in regards to the use of laboratory animals.
- Act as a resource center for all issues related to animal care and use.
- Assist and serve in the functions of the Institutional Animal Care and Use Committee.

- Provide support and guidance in maintaining the animal care and use program to the standards of the USDA Animal Welfare Act, Public Health Service Policy and the Association for the Assessment and Accreditation of Laboratory Animal Care

Services provided by the Office of the Campus Veterinarian

- Medical and surgical support of research & teaching animal subjects.
- Technical assistance for animal related procedures.
- Animal housing and husbandry
- Training of faculty, students and staff in the handling, humane care and manipulation of animals.
- Routine health & quality assurance of animals used in research and teaching.
- Consultation and professional assistance in animal protocol development and implementation.
- Rental of specialized animal equipment.
- Guidance and assistance in the acquisition of animals and animal related products and equipment.
- Health Certificates & Brand Inspections

OCV Introductory Student Internships will aim to introduce students to laboratory animal medicine over a short two week period.

Dates and Availability

If you are interested in ISI Program, please provide below dates (2 week periods) that you would be available for this internship. Note: the 2 weeks are run concurrently, exclude weekends and can be flexible on times but typically would be M-F 8-5pm.

Date Range (e.g. June 10th-21st)	Times available (e.g. 9-2pm)	Approved

By signing below The Office of the Campus Veterinarian will provide a 2 week introductory internship program to students as described above, and the student understands the information provided.

OCV Signature_____ Date: _____

Student Signature: _____ Date: _____

From: no-reply@vrmailer3.com on behalf of AIMLA <sarah.crouse@aimla.org>

Sent: Tuesday, June 18, 2019 7:22 AM

To: or.ocv.alert

Subject: Register Today! Veterinary Medical Laser Safety Officer Online Training (Earn 2 RACE Approved CEU's)

Does Your Practice Have a Veterinary Medical Laser Safety Officer?

If Not, AIMLA Can Help!

Did you know that OSHA requires a Veterinary practice to appoint a Laser Safety Officer if a Class IIIB or Class IV Therapy Laser is being used to treat patients?

AIMLA's Veterinary Medical Laser Safety Officer Training
will teach your designated LSO how to be in compliance with OSHA's current safety standards for medical lasers.

Topics Include:

Laser Basics ♦ Laser Bioeffects ♦ Classification of Lasers
Safety Control Measures & Eye Protection ♦ Exposure Limits ♦ NHZ Computations
Proper Warning Signs, Labels, & Instructions ♦ Responsibilities of a LSO

Enrollment Benefits:

Online Training ♦ Work At Your Own Pace ♦ Access to Course Content for 12-Months
Certificate of Completion to Display ♦ Earn 2 AAVSB RACE Approved CE Hours

The content of this online course is based upon the recommendations of the American National Standard for Safe Use of Lasers (ANSI Z136.1) which OSHA has adopted & enforces.

Register Today

Order Your Protective Eyewear Today & Save $25!

AIMLA Carries a Large Selection of
NoIR LaserShields, Doggles, & So Much More...

♦ Save $25.00 When You Purchase a Set of Doggles

♦ Purchase 2 or More Pairs of NoIR LaserShields & Save $25.00 per Pair

Hurry, This Offer Ends June 30, 2019!

Order Today

Share on Facebook Share on Twitter

Follow Us

American Institute of Medical Laser Applications
18070 Raymond Road
Marysville, Ohio 43040
937-642-9813

From: IACUC
Sent: Tuesday, August 20, 2019 3:07 PM
To: Chin, Wei Shen
Cc: or.ocv.alert; Davis, Christopher John
Subject: Reminder: Required IACUC Training: AST-O

Importance: High

Hi Wei,

This is a courtesy notice that you are required for Dr. Chris Davis' ASAF(s) to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

Our records indicate that you already have an account with AALAS Learning Library.

- The link to log in is: https://aalaslearninglibrary.org/index.html#/login/signin
- Enter your User name: [redacted]
- Enter your password. If you need to reset your password, you can click on the "I forgot my password" link. If that does not work, contact the Animal Welfare Program.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please visit https://iacuc.wsu.edu/hands-on-training/ to view the hands-on course schedule and then contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
(DVM, LVT, MD, and RN may be exempt from the hands-on course.)

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Sincerely,

Ashley Williams
Animal Welfare Program
Washington State University | Office of Research Assurances
Neill Hall 431 | Pullman, WA 99164-3143
iacuc@wsu.edu | Phone: (509) 335-5353
https://iacuc.wsu.edu

From: IACUC
Sent: Monday, August 26, 2019 3:56 PM
To: Dilworth, Kayla Ann
Cc: Ritter, W Sue; or.ocv.alert
Subject: Required IACUC Training: AST-O

Importance: High

Hi Kayla,

This is a courtesy notice that you are required for Dr. Ritter's to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

> Our records indicate that you do not have an account with AALAS Learning Library. Once you are enrolled, you will receive enrollment emails from AALAS with log in information and links. If you do not see it in your inbox, check the spam/junk folder. Please let the Animal Welfare Program know if you need password setup email resent.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please visit https://iacuc.wsu.edu/hands-on-training/ to view the hands-on course schedule and then contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
(DVM, LVT, MD, and RN may be exempt from the hands-on course.)

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

From: IACUC
Sent: Tuesday, August 13, 2019 9:53 AM
To: [redacted]
Cc: or.ocv.alert
Subject: Required IACUC Training: AST-O

Importance: High

Hi [redacted]

This is a courtesy notice that you are required for Dr. Fuch's ASAFs to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

> Our records indicate that you do not have an account with AALAS Learning Library. Once you are enrolled, you will receive enrollment emails from AALAS with log in information and links. If you do not see it in your inbox, check the spam/junk folder. Please let the Animal Welfare Program know if you need password setup email resent.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please visit https://iacuc.wsu.edu/hands-on-training/ to view the hands-on course schedule and then contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
(DVM, LVT, MD, and RN may be exempt from the hands-on course.)

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

From: IACUC
Sent: Monday, August 12, 2019 8:59 AM
To: Chin, Wei Shen
Cc: or.ocv.alert
Subject: Required IACUC Training: AST-O

Importance: High

Hi Wei,

This is a courtesy notice that you are required for Dr. Chris Davis's ASAFs to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

> Our records indicate that you do not have an account with AALAS Learning Library. Once you are enrolled, you will receive enrollment emails from AALAS with log in information and links. If you do not see it in your inbox, check the spam/junk folder. Please let the Animal Welfare Program know if you need password setup email resent.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please visit https://iacuc.wsu.edu/hands-on-training/ to view the hands-on course schedule and then contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
(DVM, LVT, MD, and RN may be exempt from the hands-on course.)

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

From: IACUC
Sent: Monday, August 12, 2019 8:51 AM
To: Onih, Jemima Oluwadolapo Funmilola
Cc: or.ocv.alert
Subject: Required IACUC Training: AST-O

Importance: High

Hi Jemima,

This is a courtesy notice that you are required for Dr. Christopher Davis's ASAFs to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

> Our records indicate that you do not have an account with AALAS Learning Library. Once you are enrolled, you will receive enrollment emails from AALAS with log in information and links. If you do not see it in your inbox, check the spam/junk folder. Please let the Animal Welfare Program know if you need password setup email resent.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please visit https://iacuc.wsu.edu/hands-on-training/ to view the hands-on course schedule and then contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
(DVM, LVT, MD, and RN may be exempt from the hands-on course.)

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

From: IACUC
Sent: Wednesday, August 07, 2019 10:13 AM
To: Qiu, Jiwen
Cc: or.ocv.alert; Fuchs, Rita
Subject: Required IACUC Training: AST-O

Importance: High

Hi Jiwen,

This is a courtesy notice that you are required for Dr. Fuchs's ASAFs to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

> Our records indicate that you do not have an account with AALAS Learning Library. Once you are enrolled, you will receive enrollment emails from AALAS with log in information and links. If you do not see it in your inbox, check the spam/junk folder. Please let the Animal Welfare Program know if you need password setup email resent.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please visit https://iacuc.wsu.edu/hands-on-training/ to view the hands-on course schedule and then contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
(DVM, LVT, MD, and RN may be exempt from the hands-on course.)

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

From: IACUC
Sent: Thursday, July 18, 2019 1:49 PM
To: [redacted]
Cc: Singletary, Kristan; Peixoto, Lucia; or.ocv.alert
Subject: Required IACUC Training: AST-O

Importance: High

Hi [redacted]

This is a courtesy notice that you are required for ASAF #4705 to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

> Our records indicate that you do not have an account with AALAS Learning Library. Once you are enrolled, you will receive enrollment emails from AALAS with log in information and links. If you do not see it in your inbox, check the spam/junk folder. Please let the Animal Welfare Program know if you need password setup email resent.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please visit https://iacuc.wsu.edu/hands-on-training/ to view the hands-on course schedule and then contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
(DVM, LVT, MD, and RN may be exempt from the hands-on course.)

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

From: IACUC
Sent: Friday, May 17, 2019 9:06 AM
To: Neyens, Drew M
Cc: Appleyard, Suzanne; or.ocv.alert
Subject: Required IACUC Training: AST-O

Importance: High

Hi Drew,

This is a courtesy notice that you are required for ASAF #6528 to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Personnel must complete training before ASAF #6528 can be approved.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

Our records indicate that you already have an account with AALAS Learning Library.

- The link to log in is: https://aalaslearninglibrary.org/index.html#/login/signin
- Enter your User name: [redacted]
- Enter your password. If you need to reset your password, you can click on the "I forgot my password" link. If that does not work, contact the Animal Welfare Program.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
DVM, LVT, MD, and RN may be exempt from the hands-on course.

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

From: IACUC
Sent: Friday, May 17, 2019 9:05 AM
To: Zhu, Mingyan
Cc: Appleyard, Suzanne; or.ocv.alert
Subject: Required IACUC Training: AST-O

Importance: High

Hi Dr. Zhu,

This is a courtesy notice that you are required for ASAF #6528 to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Personnel must complete training before ASAF #6528 can be approved.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

Our records indicate that you already have an account with AALAS Learning Library.

- The link to log in is: https://aalaslearninglibrary.org/index.html#/login/signin
- Enter your User name: [redacted]
- Enter your password. If you need to reset your password, you can click on the "I forgot my password" link. If that does not work, contact the Animal Welfare Program.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
DVM, LVT, MD, and RN may be exempt from the hands-on course.

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

From: IACUC
Sent: Friday, May 17, 2019 9:03 AM
To: Appleyard, Suzanne
Cc: or.ocv.alert
Subject: Required IACUC Training: AST-O

Importance: High

Hi Dr. Appleyard,

This is a courtesy notice that you are required for ASAF #6528 to complete the ***Aseptic Surgical Technique WSU (AST-O)***, an online course on AALAS Learning Library website that is required by WSU IACUC for all new researchers/ faculty/ staff performing surgery on research or teaching animals. Board-certified surgeons working within their specialty may be exempt.

Personnel must complete training before ASAF #6528 can be approved.

Please note: As of May 4th, 2018 per the WSU IACUC Policy #20, all required online training must be completed prior to approval.

**All Principal Investigators need to submit an amendment prior to the approval of personnel working on the protocol. For the new online system instructions, please visit https://myresearch.wsu.edu/Compliance/IACUC/ASAFInstructions.aspx. For the old PDF system form, please visit https://iacuc.wsu.edu/forms/.

Our records indicate that you already have an account with AALAS Learning Library.

- The link to log in is: https://aalaslearninglibrary.org/index.html#/login/signin
- Enter your User name: [redacted]
- Enter your password. If you need to reset your password, you can click on the "I forgot my password" link. If that does not work, contact the Animal Welfare Program.

Step 1: Once you log on, you will be directed to the AALAS homepage. Complete your profile located in the upper right corner with the person icon (arrow 1 in Figure 1).

Step 2: After you complete all required fields, find the ***Aseptic Surgical Technique WSU (AST-O)*** under the "Assignments" tab located in the top right (arrow 2 in Figure 1). The course and exam together can take approximately 1 hour.

Once you have passed the exam, you have completed the course.

Figure 1:

*If the exam link does not appear, a lesson has been missed. Please go to your profile (blue arrow 1 in Figure 1), then click on My Transcript to see which lessons are remaining.

To set up hands-on training after the completion of all required online training, please contact the Office of the Campus Veterinarian at or.ocv.alert@wsu.edu or (509) 335-6246.
DVM, LVT, MD, and RN may be exempt from the hands-on course.

If you have any issues regarding IACUC training, please contact the Animal Welfare Program at (509) 335-5353 or email at iacuc@wsu.edu.

Carmen Haines
Animal Welfare Program
Washington State University | Office of Research Assurances
iacuc@wsu.edu | Phone: (509) 335-1763
https://iacuc.wsu.edu

From: Gorence, Galen Jay
Sent: Friday, February 01, 2019 2:47 PM
To: or.ocv.ivssouth@lists.wsu.edu; Or.ocv.ivsnorth@lists.wsu.edu
Cc: or.ocv.alert
Subject: Shelf life of Lab Diet products
Attachments: ducm04_028023.pdf

Good afternoon,
I thought it pertinent to distribute this information that Jan had received from our Purina rep in regards to expiration dates of Lab Diet products. Per the Guide, feed is expected to be used up within a 6 month period from the mill date. However, we can take in consideration recommendations from the manufacturer when deciding on an expiration date. In this case, Purina has set the expiration dates for their standard diets to 9 months post mill date and 12 months for irradiated feed products. We should always rotate and inspect feed when refilling containers. If there are any concerns or abnormalities with a particular diet or individual lot/bag of feed, please alert your supervisor immediately. Keep in mind this information covers ONLY specified Purina products and does not include feed manufactured by other companies.

Galen

From: Fischer, Beverly [mailto:BJFischer@landolakes.com]
Sent: Wednesday, November 21, 2018 8:31 AM
To: Luft, Jan Elizabeth <jluft@wsu.edu>
Subject: LabDiet shelf life

https://www.labdiet.com/cs/groups/lolweb/@labdiet/documents/web_content/mdrf/mdi4/~edisp/ducm04_028023.pdf

Jan, here is the link I was referring to for reference.

-
Have a great day!

Beverly

Purina Animal Nutrition, LLC
Customer Operations – Consumer Representative|purinamills.com
Toll Free: 1-800-227-8941 | Fax: 636-742-6170

FEED GREATNESS™
FEEDING HUMAN PROGRESS
landolakesinc.com | LinkedIn | Facebook | Twitter | Instagram

intended recipient(s). If you are not the intended recipient, please contact the sender by reply email and delete all copies of this message.

LabDiet
Your work is worth it:

How Storage Conditions, Product Stability, and the Manufacturer's Warranty Work to Determine your LabDiet® Shelf Life

The purpose of this document is to provide clarification of nutrient stability and shelf-life for products in three LabDiet® product segments: Standard products, Irradiated products and Vitamin C sensitive products.

Storage conditions and dietary characteristics affect the nutrient stability of laboratory animal diets. Such non-dietary factors include, but may not be limited to, lighting, oxygen, temperature, and moisture. Antioxidants and fat in diet formulations can also affect the overall stability. Our extensive data prove that the manufacturer's warranty of LabDiet® products can be extended beyond the recommendations in the Guide for Care and Use of Laboratory Animals by storing products under climate-controlled conditions. Irradiation can also extend the stability of a diet by preventing growth of bacteria, yeasts, and molds. Extension of your diet usage by controlled storage varies depending on the type of diet. The recommended shelf life based on proven product stability for our LabDiet® items is provided below in a quick-reference table is with a detailed description of each category of our products.

Product	*Formula Provides the Stability to Assure a Recommended Shelf Life for*
LabDiet® Standard Products	9 months
PicoLab® & IsoPro® Irradiated Diets	12 months
Vitamin C Sensitive Standard Species Diets	
LabDiet® Non-human Primate (Stabilized Vitamin C)	9 months
LabDiet® Guinea Pig Products (Stabilized Vitamin C)	9 months

LabDiet® laboratory animal feed products are formulated with precision and manufactured at our Food Safety System Certified 22000 (FSSC 22000) facility in Richmond, Indiana. The current issue of the Guide for Care and Use of Laboratory Animals and USDA facility inspectors suggest using products within a 6 month from the date of manufacture. The below excerpt from THE GUIDE references **manufacturers' recommendations should be considered:**

> ***Most natural-ingredient, dry laboratory animal diets stored properly can be used up to 6 months after manufacture. Refrigeration preserves nutritional quality and lengthens shelf life, but food storage time should be reduced to the lowest practical period and the manufacturer's recommendations considered. 2011. Guide for the Care and Use of Laboratory Animals. p66.***

LabDiet® Standard Products:
The manufacturer's warranty on product stability of LabDiet® products is 9 months from the date of manufacture. Our diets are formulated and warrantied to meet and/or safely exceed the animals' minimum nutrient requirement for 9 months from the date of manufacturer, which accounts for any potential, normal and expected nutrient degradation over that time-period.

PicoLab® & IsoPro® Irradiated Diets
Product formulation, extensive laboratory testing and superior packaging allow us to provide assurance to customers that our full line of irradiated diets are stable and have a shelf life of twelve months from the date of manufactureb:

- PicoLab® and IsoPro® products are packaged in exclusive 4-ply bags with removable pop-out durable inner pouches
- Pico-Vac® diets offer the same advantages of irradiation as the standard PicoLab® and IsoPro® diets, but are vacuum-packed in 5-pound plastic bags

Vitamin C Sensitive Standard Species Diets
Diets requiring specific levels of vitamin C (All LabDiet® primate and guinea pig products) have a guarantee of 9 months from the date of manufacture as they contain a stabilized form of vitamin C, L-ascorbyl-2-polyphosphate.

We are confident that LabDiet® products maintain their nutritional integrity and remain palatable and safe for the timeframes outlined above. However, the contents of this publication do not supersede or override the decisions, protocols, and/or procedures of the inspection agencies, laboratory animal governing bodies, or directors or managers of lab animal facilities at research institutions. Our intention is to provide information about how our feeds are formulated and how product stability can be extended based on factual data we have accumulated over time. To review data supporting the stability of our products, please visit the Product Stability section at www.labdiet.com.

If questions or concerns arise, please do not hesitate to contact one of our LabDiet® team members by emailing info@labdiet.com.

LabDiet®

From: Clyde, Gaylynn Goolsby
Sent: Wednesday, May 15, 2019 3:38 PM
To: Turner, Gary Dean; Gold, Jenifer Robin
Cc: or.ocv.alert; Reed, Kathleen Deonne
Subject: Shimmer Adoption
Attachments: 20190515154533385.pdf

Hi everyone,

Attached is the signed and completed paper work for Shimmer. Gary has the official copy of the brand inspection (recommended for change of ownership in Washington). A copy needs to go to 33 Gary said he would make a copy and get to her.

Kerri Reed asked that she be informed when 33 is coming to get Shimmer so that she can let her people know there will be a truck and trailer at 120L and one less horse.

We will file the paper work with the IACUC.

Thank you,

Gay Lynn Clyde, DVM
Assistant Director Campus Veterinary Services
Office of Campus Veterinarian
Washington State University
Pullman, WA. 99164-1165
Phone (509) 335-4991 or (509) 335-6246
Fax (509) 335-3162
Email: gclyde@wsu.edu
Program URL: http://campusvet.wsu.edu

WSU IACUC

TRANSFER OF ANIMALS: PRINT OUT FORM AND COMPLETE ALL SECTIONS.

Completed signed form should be maintained in the animal's medical record. Copies are to be provided to the new owner, animal facility supervisor (where animal was housed at WSU) and a copy sent to the Office of the Campus Veterinarian (OCV) office; campus zip - 1165; fax (509)335-3162

WSU USDA # 91-R-002_	**WASHINGTON STATE UNIVERSITY**
Accession Number (CVM only) _____	**INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE**
IACUC ASAF Number___#6008_____	**ANIMAL RELEASE/DISPOSITION RECORD May 2004 version**

SECTION A: DESCRIPTION OF ANIMAL(S) and HISTORY: TO BE COMPLETED BY UNIVERSITY PERSONNEL FAMILIAR WITH THE ANIMAL (Print or Type. Please designate "NA" if a space does not apply.)

****NOTE: ANIMALS WITH KNOWN SERIOUS ACUTE OR CHRONIC EXISTING HEALTH OR BEHAVIORAL PROBLEMS/ISSUES SHALL NOT BE TRANSFERRED. FURTHER, ANIMALS HAVING REASONABLY LIKELY POTENTIAL TO DEVELOP SUCH SERIOUS PROBLEMS SUBSEQUENT TO LEAVING WSU SHALL NOT BE SUBJECT TO TRANSFER.****

Animal's Name: ___Shimmer_____ Species: ____Equine_____ Breed : Mixed breed_____

Sex: _F_____ Neutered (?) Y / N: __N_____ Age: ___14_____ Color/Markings: Grey_____

Tattoo/brand/identifying marks (including location of same): _____None_____

Identification # ___B104_____

Significant medical history, behavioral information, usage:
She has been used in the teaching herd when she was donated in 2013 due to lameness issues. She has been used for palpation labs, research and labs teaching students how to pass a nasogastric tube, catheter placement and injections. She also gets used for modeling the equine anatomy for various clients education purposes.

Reason for transfer (For groups of animals, describe group … e.g. number, strain, any identifying characteristics, research/training usage, etc.): She has gotten tired of palpation and kicks people that try to palpate her.

Print/type Name/relationship to animal (i.e. PI, researcher, instructor):

__PI_____

Signature _____ Date 5/8/19

Department Chair _____ Date 5/27/19

SECTION B: VETERINARY EXAM and MEDICAL AUTHORIZATION to RELEASE ANIMAL: To be completed and signed by a WSU Veterinarian NOT associated with the study/class. Make a statement on the desirability of release to the public (e.g. behavior, health, and medical conditions present):

Physical Exam of Animal Performed on: 5-13-19 (Date)

Print Name/title Gaylynn Clyde

Signature of Veterinarian _____ Date 5-14-19

SECTION C: NEW OWNER INFORMATION: TO BE COMPLETED BY PROSPECTIVE NEW OWNER -

Please Print/type. Attach a letter detailing the reason(s) for requesting the transfer of ownership of this animal and of your understanding of the animal's behavior and condition.

New Owner: [redacted] Driver's License No: [redacted]

Address: [redacted]

Telephone Number: Home [redacted] Work (_____) _____-_____

Intended Use: Companion

Planned housing: Boarding

Number and types of other animals: Horse (1), Dog (1)

Note: It is the responsibility of any prospective new horse or cattle owner to determine if a brand inspection is required.

SECTION D - ACCEPTANCE OF OWNERSHIP:

I certify that I accept full ownership of and responsibility (including responsibility for all subsequent veterinary care, other care, and/or other expense or damage) for the above-described animal. I am fully aware of the animal's condition as known and as set forth above. I recognize that the animal may have behavioral or medical issues of which Washington State University is not aware including but not limited to behavioral or medical issues that will develop with time from whatever cause or origin. I understand that no representation is made as to any training of the animal or its tractability. Horses are not trained for riding or otherwise. I recognize that the animal may have or is likely to have some medical and/or behavioral issues. These include problems that could pose risk of damage to persons including me or my/others' property and/or could result in significant veterinary or other expense.

WSU makes no representation of merchantability, suitability/fitness for a particular purpose or otherwise as to the animal and disclaims any and all implied warranties as to the animal. There are no express warranties as to the animal. I take the animal with all faults.

Nonetheless, I agree to assume upon the date of transfer all costs associated with the animal from whatever cause. Further, I assume all risk associated with transfer of ownership of the animal and acceptance of the animal, and I release, hold harmless, and agree to indemnify WSU, its regents, its officers, its employees, and its agents from any claim or cause of action arising from or connected with this transaction. Upon taking possession of the animal, I agree to assume all risk associated with the animal and to release, hold harmless and indemnify WSU from any claim or cause of action related to the animal or its behavior.

I am aware that the animal is transferred to me without registration papers and that WSU shall not make registration papers available or assist in obtaining registration papers for the animal. I certify that I have no intent to transfer or sell the animal.

I agree to pay the price of $300.00 in consideration for the animal, which includes the price of examination, certain other costs incurred by WSU and/or fees required by WSU. I understand that the animal herein described cannot be returned to WSU or any other institution to be used in further research and/or teaching. I acknowledge that I have read and understood this document prior to signing.

Signature of New Owner [redacted] Date 5-8-19

SECTION E: METHOD OF TRANSPORTATION OF ANIMAL (required by USDA)

Date of Release/Disposition to above named new owner: _____

Method of transportation of animal from WSU facility: Private trailer

Name of vehicle owner if privately owned vehicle used for transport – OR –

Name of commercial carrier or intermediate handler: _____
Vehicle License No: _____

SECTION F: COLLEGE OF VETERINARY MEDICINE ANIMALS ONLY; SIGNATURES REQUIRED TO AUTHORIZE RELEASE OF ANIMAL: For the release of a College of Veterinary Medicine-owned animals, you must also obtain a CVM Transfer of Ownership Packet and secure the signatures as set forth below prior to release of the animal. This is an internal CVM requirement.

WASHINGTON STATE UNIVERSITY CVM Accession Number: _____

#1) Scientific Instructional Technician OR Veterinary Technician Familiar with Animal
Signature _____ Date _____

#2) Scientific Instructional Technician OR Veterinary Technician Familiar with Animal
Signature _____ Date _____

#3) Animal Facility Manager (or his/her designee)
Signature _____ Date 5/8/19

#4) Campus Veterinarian (or his/her designee)
Signature _____ Date 5/14/19

COPIES: Copies of the completed form (including ALL signatures) are to be provided to the supervisor of the animal facility housing the animal, the Office of the Campus Veterinarian (OCV), campus zip code 1165, and placed in the animal's medical record. Last updated on May 12, 2004.

Format based on this document: http://www.iacuc.wsu.edu/documents/forms/pdf/Policy_5.pdf

WASHINGTON STATE UNIVERSITY

Veterinary Services
Office of the Campus Veterinarian
P.O. Box 641165, Pullman, WA 99164-1165
Phone: 509-335-8035, FAX: 509-335-4991

This animal was examined on 5-13-19 **for transfer of ownership.**

Physical Exam Findings:

Animal ID Shimmer MR: 147969	Location 120L
Species Equine	P.I. Gold
DOB 2005	ASAF #
Gender F	Color: Grey
Date of Arrival 7/29/13	
~~Date of Exam~~:	

GENERAL APPEARANCE (✓)NORMAL ( )ABNORMAL	INTEGUMENTARY ( )NORMAL (✓)ABNORMAL	MUSCULOSKELETAL (✓)NORMAL (x)ABNORMAL
CIRCULATORY (✓)NORMAL ( )ABNORMAL	RESPIRATORY (✓)NORMAL ( )ABNORMAL	DIGESTIVE (✓)NORMAL ( )ABNORMAL
GENITOURINARY (✓)NORMAL ( )ABNORMAL	EYES (✓)NORMAL ( )ABNORMAL	EARS (✓)NORMAL ( )ABNORMAL
NEURAL SYSTEM (✓)NORMAL ( )ABNORMAL	LYMPH NODES (✓)NORMAL ( )ABNORMAL	TEETH ( )NORMAL (✓)ABNORMAL

Temperature: 100.8 | Pulse: 38 bpm | Respiration: 12 bpm | Weight:~ 1300 lbs

• Mass right perineal area lateral to rectal opening - 1x3 cm firm, lobulated, No painful. • Some hoof chips all around
• BCS 7/9
• Some drooling noted, dental exam recomended

PROBLEM LIST — Initial Plan

1. Perineal Mass	Possible Melenoma	Rx.
2. Overconditioned	Wt. reduction	
3. Mild drooling	Dental Exam	
4. Feet trim due		

Clinician Signature: Gaylynn Clyde, DVM

At this time, " Shimmer **" appears to be an adequate candidate for sale to private owner with no overt medical conditions, as long as the owner is aware of all previous medical history and is aware of the animals ability to perform the desired tasks.**

Gay Lynn Clyde, DVM
Nina Woodford, DVM

SECTION C:

To Whom it May Concern,

I am requesting to adopt Shimmer as a companion for my other horse and as a pasture pet. I have worked with her repeatedly over the last four years for public education events and am familiar with her temperament. I understand that she has a permanent lameness issue and has kicked in the past during palpation labs.

Thank you,
33

Washington State Department of Agriculture

Livestock Inspection Program
PO Box 42591
Olympia WA 98504-2591
(360) 902-1855

WASHINGTON BRAND CERTIFICATE

№ E 04668

CASHIER USE ONLY

Please print all entries clearly

OWNER/SELLER: WSU-VCS Jen Gold	NEW OWNER: [redacted] 33 — ☒ SOLD TO ☐ SHIPPED TO
ADDRESS: 205 Olli Rd	PHYSICAL ADDRESS: [redacted] 33
CITY: Pullman; STATE: WA; ZIP: 99164	CITY: [redacted] 33; STATE: [redacted] 33; ZIP: [redacted] 33

STEERS	COWS	HEIFERS	CALVES B-S	CALVES H	BULLS	HORSES	BRAND	LOC	COLOR	REMARKS–PROOF OF OWNERSHIP	EXEMPT?
						1			Gray	Mare ~14yr	☐
						↓				"Shimmer"	☐
										K-Mt horse	☐
											☐
			ONE Head								☐

3104 Brand Inspection 1 Horses @ 5.00 = $ 5.00

3104 Brand Inspection _____ ID Cattle @ _____ = $ _____

3104 Brand Inspection _____ Non ID Cattle @ _____ = $ _____

Time _____ hours @ _____ = $ _____

Travel _____ miles @ _____ = $ _____

3107 Beef Commission _____ Cattle @ _____ = $ _____

5110 ADT _____ Cattle @ _____ = $ _____

Total Amount: $ 5.00

Brand Number _____

Brand Recorded to Seller/Shipper? ☐ Yes ☐ No Collected: ☐ Yes ☐ No

Customer # V443

Check Amount: $ _____ Check No. _____

Brand Inspector: Gaylyn Clark Code: V443

Owner/Authorized Agent: [signature] Date: 5-13-19

To ensure proper credit, return the yellow copy with your payment.

Checks returned by the bank will be charged a handling fee of $25.00 *(RCW 62A.3.515 (a) and 62A.3.520.).*

AGR FORM 407-7024 (R/3/16) Plies 1, 2, 3 & 5 of 5

DISTRIBUTION: White – Olympia Office Blue – Livestock Canary – Invoice Pink – Customer Goldenrod – Stays in Book

From: Clyde, Gaylynn Goolsby
Sent: Monday, May 13, 2019 2:39 PM
To: Gold, Jenifer Robin; Turner, Gary Dean; Woodford, Nina Lynne
Cc: or.ocv.alert
Subject: Shimmer

I looked at Shimmer this afternoon and completed a physical exam. I have her physical exam paper work and can write the brand inspection if I can get 33 address in Washington.

Dr. Gold, if I can come up to the hospital and give you the PE paper work and the brand inspection today that would be great, are you around?

Gay Lynn Clyde, DVM
Assistant Director Campus Veterinary Services
Office of Campus Veterinarian
Washington State University
Pullman, WA. 99164-1165
Phone (509) 335-4991 or (509) 335-6246
Fax (509) 335-3162
Email: gclyde@wsu.edu
Program URL: http://campusvet.wsu.edu

From: Gold, Jenifer Robin <jgold@wsu.edu>
Sent: Friday, May 10, 2019 8:17 PM
To: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>; Turner, Gary Dean <gdturner@wsu.edu>; Woodford, Nina Lynne <nwoodford@wsu.edu>
Cc: or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: Re: Message from "RNP002673B143C5"

All,
Shimmer is going to a place in WA.
So should be easy.
J

Jenifer R. Gold DVM Diplomate ACVIM, ACVECC
Clinical Associate Professor
Department of Veterinary Clinical Sciences
Washington State University,
Pullman, WA. 99164
(509) 432-6764

Love recognizes no barriers. It jumps, hurdles, leaps fences, penetrates walls to arrive at its destination full of hope-Maya Angelou

From: Gold, Jenifer Robin
Sent: Friday, May 10, 2019 8:12:45 AM
To: Clyde, Gaylynn Goolsby; Turner, Gary Dean; Woodford, Nina Lynne
Cc: or.ocv.alert
Subject: Re: Message from "RNP002673B143C5"

Gaylynn,
33 said she could get Shimmer in a week. So let's plan on examination next week. I believe she is staying in WA but will double check!
Jen

Jenifer R. Gold DVM Diplomate ACVIM, ACVECC
Clinical Associate Professor
Department of Veterinary Clinical Sciences
Washington State University,
Pullman, WA. 99164
(509) 432-6764

Love recognizes no barriers. It jumps, hurdles, leaps fences, penetrates walls to arrive at its destination full of hope-Maya Angelou

---

From: Clyde, Gaylynn Goolsby
Sent: Thursday, May 9, 2019 8:06:25 AM
To: Turner, Gary Dean; Gold, Jenifer Robin; Woodford, Nina Lynne
Cc: or.ocv.alert
Subject: RE: Message from "RNP002673B143C5"

Hi everyone,

I can perform physical exam for adoption. If she is crossing state lines more than likely she will need Coggins test, CVI and brand inspection which I could do also at the time of the PE if you would like?

Let me know time frame for pick up and I will get her on the schedule.

Thank you,

Gay Lynn Clyde, DVM
Assistant Director Campus Veterinary Services
Office of Campus Veterinarian
Washington State University
Pullman, WA. 99164-1165
Phone (509) 335-4991 or (509) 335-6246
Fax (509) 335-3162
Email: gclyde@wsu.edu
Program URL: http://campusvet.wsu.edu

From: Turner, Gary Dean <gdturner@wsu.edu>
Sent: Thursday, May 9, 2019 7:35 AM
To: Gold, Jenifer Robin <jgold@wsu.edu>; Woodford, Nina Lynne <nwoodford@wsu.edu>
Cc: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>
Subject: RE: Message from "RNP002673B143C5"

Also…she has blue collar #104 for reference. Her MR# is on her transfer paperwork.

Gary D. Turner BPS
Manager, Teaching and Research Herds Unit & VTH Animal Care
Washington State University College of Veterinary Medicine
Department of Veterinary Clinical Sciences
PO Box 646610
Pullman, WA. 99164-6610
509-335-0818 FAX 509-335-0880
gdturner@vetmed.wsu.edu
www.vetmed.wsu.edu

From: Gold, Jenifer Robin
Sent: Thursday, May 9, 2019 7:06 AM
To: Woodford, Nina Lynne <nwoodford@wsu.edu>
Cc: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>; Turner, Gary Dean <gdturner@wsu.edu>
Subject: Re: Message from "RNP002673B143C5"

Sounds good..I will see if I can find a time line when 33 wants to get her.
J

Jenifer R. Gold DVM Diplomate ACVIM, ACVECC
Clinical Associate Professor
Department of Veterinary Clinical Sciences
Washington State University,
Pullman, WA. 99164
(509) 432-6764

Love recognizes no barriers. It jumps, hurdles, leaps fences, penetrates walls to arrive at its destination full of hope-Maya Angelou

---

From: Woodford, Nina Lynne
Sent: Wednesday, May 8, 2019 5:13:00 PM
To: Gold, Jenifer Robin
Cc: Clyde, Gaylynn Goolsby; Turner, Gary Dean
Subject: RE: Message from "RNP002673B143C5"

Sounds good. I left a message with Gary and on your cell phone to set a time for the physical exam

I'd also like to pull & read her medical record for the health history

Thanks
Nina

Nina Woodford DVM, MPH DACLAM
Director and Attending Veterinarian
Office of the Campus Veterinarian
Washington State University
509-335-6246
nwoodford@wsu.edu

From: Gold, Jenifer Robin <jgold@wsu.edu>
Sent: Wednesday, May 8, 2019 11:57 AM
To: Woodford, Nina Lynne <nwoodford@wsu.edu>
Subject: Re: Message from "RNP002673B143C5"

Sounds good I'll send to 33
Your horse sounds perfect for an anatomy horse. Yes I would like you all to do the physical exams etc!
J

Sent from my iPhone

On May 8, 2019, at 11:53 AM, Woodford, Nina Lynne <nwoodford@wsu.edu> wrote:

> 33 needs to fill in and sign the new owner and transport section (date can be left blank until determined). Dr. Clyde or myself or one of the VTH veterinarians not associated with the teaching herd can do the outgoing physical exam. Do you have someone in mind or would you like us to it?
>
> I do have a 28 year old quarter-arab mare that was my son's first horse. Too small for him now and doesn't get along with the sheep, goat & donkey at home. Picks on the smaller critters.
>
> I have meetings until 3 but can call later today
>
> Nina Woodford DVM, MPH DACLAM
> Director and Attending Veterinarian
> Office of the Campus Veterinarian
> Washington State University
> 509-335-6246
> nwoodford@wsu.edu
>
> ---
>
> **From:** Gold, Jenifer Robin <jgold@wsu.edu>
> **Sent:** Wednesday, May 8, 2019 11:21 AM

To: Woodford, Nina Lynne <nwoodford@wsu.edu>
Subject: Fw: Message from "RNP002673B143C5"

Nina,
Shimmer is going to get adopted by [redacted]. I don't know if you need her to fill out the paperwork first or??
I have attached the form. Also filled out online info.
Gary told me you have a horse that we might be able to use for Anatomy lab?
Would love to talk more!
Jen

Jenifer R. Gold DVM Diplomate ACVIM, ACVECC
Clinical Associate Professor
Department of Veterinary Clinical Sciences
Washington State University,
Pullman, WA. 99164
(509) 432-6764

Love recognizes no barriers. It jumps, hurdles, leaps fences, penetrates walls to arrive at its destination full of hope-Maya Angelou

---

From: 1020scanner@vetmed.wsu.edu <1020scanner@vetmed.wsu.edu>
Sent: Wednesday, May 8, 2019 11:27 AM
To: Gold, Jenifer Robin
Subject: Message from "RNP002673B143C5"

This E-mail was sent from "RNP002673B143C5" (MP 6054).

Scan Date: 05.08.2019 11:27:31 (-0700)
Queries to: 1020scanner@vetmed.wsu.edu

From: White, Stephen
Sent: Thursday, May 23, 2019 11:28 AM
To: Luft, Jan Elizabeth; McCleary, Jessie May; Durfee, Codie Jo; or.ocv.alert; White, Stephen; Fry, Lindsay; [redacted]; Libby, Julia E
Cc: 'codie.durfee@ars.usda.gov'
Subject: thank you: barbered mouse

Thanks very much for your help on this!
Stephen

From: Luft, Jan Elizabeth
Sent: Thursday, May 23, 2019 10:58 AM
To: McCleary, Jessie May <jmccleary@wsu.edu>; Durfee, Codie Jo <chanke@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; White, Stephen <stephen_white@wsu.edu>; White, Stephen <Stephen.White@ARS.USDA.GOV>; Fry, Lindsay <Lindsay.Fry@ARS.USDA.GOV>; [redacted]; Libby, Julia E <jlibby@wsu.edu>
Cc: 'codie.durfee@ars.usda.gov' <codie.durfee@ars.usda.gov>
Subject: RE: barbered mouse

We will take care of the treatment if you like. Thanks Jessie!

From: McCleary, Jessie May
Sent: Thursday, May 23, 2019 10:56 AM
To: Durfee, Codie Jo <chanke@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; White, Stephen <stephen_white@wsu.edu>; White, Stephen <Stephen.White@ARS.USDA.GOV>; Fry, Lindsay <Lindsay.Fry@ARS.USDA.GOV>; [redacted] Luft, Jan Elizabeth <jluft@wsu.edu>; Libby, Julia E <jlibby@wsu.edu>
Cc: 'codie.durfee@ars.usda.gov' <codie.durfee@ars.usda.gov>
Subject: RE: barbered mouse

Good morning, I checked on this mouse today. She is BAR, hair coat is slightly thin most likely from barbering. The lesion on the left hip may have started as a bite wound. It is dry and has started to heal. I recommend continuing the triple antibiotic with pain relief ointment daily and I will recheck it in a few days.

Thank you,

Jessie McCleary, LVT
Washington State University
Office of the Campus Veterinarian
jmccleary@wsu.edu
Office (509)335-2595
Main line (509)335-6246
Emergency phone (509)330-1871

From: McCleary, Jessie May <jmccleary@wsu.edu>
Sent: Wednesday, May 22, 2019 2:24 PM
To: Durfee, Codie Jo <chanke@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; White, Stephen

<stephen_white@wsu.edu>; White, Stephen <Stephen.White@ARS.USDA.GOV>; Fry, Lindsay <Lindsay.Fry@ARS.USDA.GOV>; [redacted] 38 Luft, Jan Elizabeth <jluft@wsu.edu>; Libby, Julia E <jlibby@wsu.edu>
Cc: 'codie.durfee@ars.usda.gov' <codie.durfee@ars.usda.gov>
Subject: RE: barbered mouse

Thank you Codie, I will be over in the morning to check on some others and will take a look at her. I will let everyone know what I find.

Thanks,

Jessie McCleary, LVT
Washington State University
Office of the Campus Veterinarian
jmccleary@wsu.edu
Office (509)335-2595
Main line (509)335-6246
Emergency phone (509)330-1871

From: Durfee, Codie Jo <chanke@wsu.edu>
Sent: Wednesday, May 22, 2019 2:14 PM
To: or.ocv.alert <or.ocv.alert@wsu.edu>; White, Stephen <stephen_white@wsu.edu>; White, Stephen <Stephen.White@ARS.USDA.GOV>; Fry, Lindsay <Lindsay.Fry@ARS.USDA.GOV>; [redacted] 38 Luft, Jan Elizabeth <jluft@wsu.edu>; Libby, Julia E <jlibby@wsu.edu>
Cc: 'codie.durfee@ars.usda.gov' <codie.durfee@ars.usda.gov>
Subject: barbered mouse

Hello,
Today [redacted] 38 and I were working with our mice and noticed one female had a pinkish patch on her back with hair loss. This is one of our TLR2 knockout mice (SCID-like, 004650Bb.129Tlr2ctm1Kir). Julie had a chance to look at her this afternoon and she said I should let OCV know in case they want to visually inspect the mouse. She said she couldn't tell if the skin was broken or had been broken since there is not really any scabbing either. She treated the mouse with triple antibiotic ointment with pain reliever and she flagged the mouse.

Please let us know if there is anything else we can do.

I will be out of town from May 23-27, but plan to be around after that. [redacted] 38 will be here and Stephen will be around as well.

Thank you,
Codie Durfee

Lab 5-6306
Cell [redacted] 14

[redacted] 38 Cell: [redacted] 38
Stephen: 509-336-9764

From: White, Stephen <stephen.white@usda.gov>
Sent: Tuesday, August 20, 2019 10:41 AM
To: Woodford, Nina Lynne; Schneider, David; Fry, Lindsay Michelle; Taylor, Tye N; Karel-Ward, Emma; Fuller, Lori; Grossman, Paige Corinne; Evans, Cody Dale; Shipley, Lisa; Fluegel, Ernest John
Cc: Gorence, Galen Jay; or.ocv.alert
Subject: thanks for update: install solar powered double drive gate on Antelope Trail

Thanks for this update, Nina, and for continuing to push this. We appreciate your work to make things better on the hill.
S

From: Woodford, Nina Lynne <nwoodford@wsu.edu>
Sent: Tuesday, August 20, 2019 7:45 AM
To: Schneider, David <das@wsu.edu>; Fry, Lindsay Michelle <lfry@wsu.edu>; White, Stephen <stephen.white@usda.gov>; Taylor, Tye N <tye.taylor@wsu.edu>; Karel-Ward, Emma <ekarel@wsu.edu>; Fuller, Lori <lori.fuller@usda.gov>; Grossman, Paige Corinne <paige.grossman@wsu.edu>; Evans, Cody Dale <cody.d.evans@wsu.edu>; Shipley, Lisa <shipley@wsu.edu>; Fluegel, Ernest John <jfluegel@wsu.edu>
Cc: Gorence, Galen Jay <gorence@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>
Subject: install solar powered double drive gate on Antelope Trail

The gate installation is delayed until August 26th . This will give us more time to sort out all the utilities

Nina Woodford DVM, MPH DACLAM
Director and Attending Veterinarian
Office of the Campus Veterinarian
Washington State University
509-335-6246
nwoodford@wsu.edu

From: Schlee, Jonathan J <jonathan.schlee@wsu.edu>
Sent: Tuesday, August 20, 2019 7:06 AM
To: Loaiza, Fred A,II <floaiza@wsu.edu>; Woodford, Nina Lynne <nwoodford@wsu.edu>; Gorence, Galen Jay <gorence@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>; Fluegel, Ernest John <jfluegel@wsu.edu>
Cc: Griffin, Jeremy J <jeremy.griffin@wsu.edu>; Gehring, Ryan Joseph <rgehring@wsu.edu>; fencedoneright@gmail.com
Subject: RE: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

Good morning all,

I have been in contact with Valley Fence regarding the install scheduled for 8/21/19. The material order for the gate system was lacking some components that are arriving 8/22/19. Valley Fence has asked to reschedule the install start date to 8/26/19.

Please let me know if you have any questions or concerns.

Thanks,

Jon

Jon Schlee
Project Coordinator
Facilities Services
Construction Services
509-335-9043
jonathan schlee@wsu.edu
Washington State University
World Class. Face to Face.

http://facilitiesservices.wsu.edu/

From: Loaiza, Fred A,II <floaiza@wsu.edu>
Sent: Monday, August 19, 2019 12:22 PM
To: Woodford, Nina Lynne <nwoodford@wsu.edu>; Gorence, Galen Jay <gorence@wsu.edu>; Schlee, Jonathan J <jonathan.schlee@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>; Fluegel, Ernest John <jfluegel@wsu.edu>
Cc: Griffin, Jeremy J <jeremy.griffin@wsu.edu>; Gehring, Ryan Joseph <rgehring@wsu.edu>
Subject: RE: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

I met with Avisa today, the gas line has moved the proposed gate post site further up the road. The new white marks show where the posts can be placed. The marks are 2 feet from the gas line and do not require hand digging. Now that these spots are established, the Avista representative recommended we call the other utilities back and do their locate over again. (Just to be safe) I will call them today and see what I can do.

Fred Loaiza
Animal Care Facilities Mgr.
WSU CVM ARU
PO Box 647010
Pullman, WA 99164-7010
509-335-2188 Fax 509-335-5830
floaiza@wsu.edu

From: Woodford, Nina Lynne
Sent: Friday, August 16, 2019 12:41 PM
To: Gorence, Galen Jay <gorence@wsu.edu>; Schlee, Jonathan J <jonathan.schlee@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>; Fluegel, Ernest John <jfluegel@wsu.edu>
Cc: Griffin, Jeremy J <jeremy.griffin@wsu.edu>; Gehring, Ryan Joseph <rgehring@wsu.edu>; Loaiza, Fred A,II <floaiza@wsu.edu>
Subject: RE: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail
Importance: High

Good afternoon

There is a problem with the gate installation on Antelope drive. Fred generously called about marking the utilities before the digging started. There is a gas line right under the proposed location for the south side gate post.

I left voicemails for Jon Schlee, Ryan and Valley Fence.

It looks as if we can avoid all the utilities by moving about 20 feet further up the drive but that has to be verified. Who is responsible for determining the location of possible underground utilities – WSU or Valley Fence?

In the photo – the small white spot is the post location. The yellow marks indicate the gas line which runs along the drive and then crosses over about 20 feet from the white spot

I have a number for Valley Fence at 509-552-9056. I do not know who is specifically in charge of this project through WSU facilities or at Valley Fence. Please forward if necessary

Thanks
Nina

Nina Woodford DVM, MPH DACLAM
Director and Attending Veterinarian
Office of the Campus Veterinarian
Washington State University
509-335-6246
nwoodford@wsu.edu

From: Gorence, Galen Jay <gorence@wsu.edu>
Sent: Thursday, July 11, 2019 1:33 PM
To: Shipley, Lisa <shipley@wsu.edu>; Schlee, Jonathan J <jonathan.schlee@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>; Fluegel, Ernest John <jfluegel@wsu.edu>
Cc: Woodford, Nina Lynne <nwoodford@wsu.edu>; Griffin, Jeremy J <jeremy.griffin@wsu.edu>; Gehring, Ryan Joseph <rgehring@wsu.edu>
Subject: Re: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

The work should not interfere with that intersection. The new gate will be alittle farther than half the distance to Terra view from the intersection.
Jon marked the location if you want to take a look on your next trip out.

Galen

Get Outlook for Android

From: Shipley, Lisa
Sent: Thursday, July 11, 2019 1:05:09 PM
To: Gorence, Galen Jay; Schlee, Jonathan J; Ekstrand, Alan; Fluegel, Ernest John

Cc: Woodford, Nina Lynne; Griffin, Jeremy J; Gehring, Ryan Joseph
Subject: Re: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

Galen:

It would be OK if you take the Steffen Center gate, but jog over to "your" road at the first intersection (that still has the construction traffic sign pointing that direciton) to avoid driving past our animal facilities. I assume the gate construction won't interfere with that route?

Lisa

From: Gorence, Galen Jay
Sent: Thursday, July 11, 2019 12:50:48 PM
To: Schlee, Jonathan J; Ekstrand, Alan; Shipley, Lisa
Cc: Woodford, Nina Lynne; Griffin, Jeremy J; Gehring, Ryan Joseph
Subject: Re: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

Yes. We will need to work with the Stephen center.

Lisa it looks like we will have to shut down Antelope trail. Is there any foreseeable issues with using the stephen center gate for a couple days while they install the new gate?

Galen

Get Outlook for Android

From: Schlee, Jonathan J
Sent: Thursday, July 11, 2019 12:45:17 PM
To: Gorence, Galen Jay; Ekstrand, Alan
Cc: Woodford, Nina Lynne; Griffin, Jeremy J; Gehring, Ryan Joseph
Subject: RE: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

Galen,

For the safety of the installers and to keep the work flow uninterrupted, I feel that a temporary detour may be the best scenario. Is there an option to detour traffic temporarily during this timeframe?

Thanks,

Jon

From: Gorence, Galen Jay <gorence@wsu.edu>
Sent: Thursday, July 11, 2019 12:26 PM
To: Schlee, Jonathan J <jonathan.schlee@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>
Cc: Woodford, Nina Lynne <nwoodford@wsu.edu>; Griffin, Jeremy J <jeremy.griffin@wsu.edu>; Gehring, Ryan Joseph <rgehring@wsu.edu>
Subject: Re: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

I think that time line should work.. would we anticipate the road to be complely closed during this time at any point during theinstall?

Galen

Get Outlook for Android

From: Schlee, Jonathan J
Sent: Thursday, July 11, 12:16 PM
Subject: RE: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail
To: Gorence, Galen Jay, Ekstrand, Alan
Cc: Woodford, Nina Lynne, Griffin, Jeremy J, Gehring, Ryan Joseph

Galen,

Valley Fence has proposed an install timeframe of 8/21/19 – 8/23/19. Do you have any conflicts with this schedule? We have marked the (5) areas with yellow squares to indicate posts and key pad if you would like to verify.

Thanks,

Jon

From: Woodford, Nina Lynne <nwoodford@wsu.edu>
Sent: Tuesday, July 09, 2019 12:56 PM
To: Cole, Craig <craig.cole@wsu.edu>; Cole, Teresa Raquel <teresa.cole@wsu.edu>; Schlee, Jonathan J <jonathan.schlee@wsu.edu>
Cc: Gorence, Galen Jay <gorence@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>
Subject: FW: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

I approve use of the AAALAC MCR funds to be used for the gate

Nina Woodford DVM, MPH DACLAM
Director and Attending Veterinarian
Office of the Campus Veterinarian

Washington State University
509-335-6246
nwoodford@wsu.edu

From: Gorence, Galen Jay <gorence@wsu.edu>
Sent: Tuesday, July 9, 2019 10:09 AM
To: Schlee, Jonathan J <jonathan.schlee@wsu.edu>
Cc: Woodford, Nina Lynne <nwoodford@wsu.edu>; Anderson, Gwen Marie <gwenmarie@wsu.edu>
Subject: RE: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

Good morning Jon,
Did you get a chance to check in with Lucky Acres? If not please proceed with the work on the original contractor. I have cc'd Gwen on this as she may need to provide the accounts associated with the AAALAC funds to bill back to.
Let me know if you have any questions.

Galen

From: Schlee, Jonathan J
Sent: Tuesday, July 2, 2019 2:36 PM
To: Gorence, Galen Jay <gorence@wsu.edu>
Cc: Woodford, Nina Lynne <nwoodford@wsu.edu>
Subject: RE: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

Galen,

The fence contractor price does have the potential for variance. The cost for WSU Facilities involvement will remain consistent. This scope of work does not require a bid process. I have worked with Valley Fence and Lucky Acres fencing on numerous jobs of varying size and complexity and both are very competitively priced with each other.

I hope this helps.

Thanks,

Jon

From: Gorence, Galen Jay <gorence@wsu.edu>
Sent: Tuesday, July 02, 2019 12:37 PM
To: Schlee, Jonathan J <jonathan.schlee@wsu.edu>
Cc: Woodford, Nina Lynne <nwoodford@wsu.edu>
Subject: RE: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

Good afternoon Jon,
The estimate was higher than we expected. Would this project go out to bid? Should we request additional bids on a comparable setup from other companies? This was not the company that I had originally talked to over the phone. However the setup is a bit different so I don't know how this would affect the cost.

Any thoughts?

Galen

From: Schlee, Jonathan J
Sent: Wednesday, June 26, 2019 1:50 PM
To: Gorence, Galen Jay <gorence@wsu.edu>
Cc: fs.accounting <fs.accounting@wsu.edu>; Cole, Craig <craig.cole@wsu.edu>; Naylor, Colleen Marie <cnaylor@wsu.edu>; Gehring, Ryan Joseph <rgehring@wsu.edu>; Griffin, Jeremy J <jeremy.griffin@wsu.edu>
Subject: Department Cost Estimate Approval Letter 2019-025866; 0188E - Integrated Vivarium Services Isolation Building provide and install solar powered double drive gate on Antelope Trail

Dear Mr. Gorence,

Based on the design efforts, I am able to present you with the following project budget information and a proposal for construction funding. If you wish to move forward with construction, please complete the section below marked "Customer Required Information" and reply (to all). If you would prefer not to move forward with construction, please reply and let us know if you would like to defer this project to a specific date, cancel the project, or if you would like to have me resubmit the proposal based on revisions or new information. Either way, we would appreciate your response as soon as possible. If we do not hear back from you within the next 45 days, this project will be cancelled.

Sincerely,

Jon Schlee
Project Coordinator
Facilities Services
Construction Services
509-335-9043
jonathan.schlee@wsu.edu
WASHINGTON STATE UNIVERSITY
World Class. Face to Face.

http://facilitiesservices.wsu.edu/

REQUEST FOR CONSTRUCTION FUNDING: This is an opinion of total project budget based on an estimate developed using the construction drawings.
Date: 6/26/19 Construction Method: CFCI Fencing Contractor/WSU Facilities to provide locate

Reason for Work: *Department would like to secure the roadway using a double drive gate.*

Assumptions/Notes:
WSU Facilities High Voltage will provide locate for post hole excavation.CFCI to provide labor and material for remaining scope.No card access estimated.

Scope of Work: CFCI Fence contractor

INSTALL 2 4INCH POSTS FOR DOUBLE DRIVE STOCK GATEWITH LIFTMASTER 412XLSOLAR OPERATORLARGE XL BOX DUAL BATTERY BACKUP SOLAR PANELSHARNESS INCLUDED2 LM COMM WIRELESS KEYPADSPEDESTALS10 LM-811LM1 BUTTON REMOTESAND 1 TIMER

COST ESTIMATE SUMMARY

Roll-up

CONSULTANTS

$0

FACILITIES SVS DESIGN

$0

SUBTOTAL PROFESSIONAL SVS

$0

CONSTRUCTION SVS (Labor-Material-Equip)

$161

CONSTRUCTION CONTRACTS

$8,155

SUBTOTAL CONSTRUCTION SVS

$8,316

PROJECT ADMINISTRATION

$812

FURNITURE & EQUIPMENT

$0

OTHER WSU SVS

$0

CONTINGENCY

$832

SUBTOTAL OTHER SVS

$1,644

TOTAL BUDGET

$9,960

AMOUNT PREVIOUSLY APPROVED

$0

AMOUNT NEEDED TO CONTINUE

$9,960

Known Project Schedule Constraints/Expectations:
Opinion of Project Duration (Design through Construction):
REQUEST FOR FUNDING
Approval of the proposed work is required to proceed. Following receipt from the signature authority below, we will begin the work.
Customer Required Information:
Funding Authority:
Account Code:
Date:

From: Clyde, Gaylynn Goolsby
Sent: Wednesday, July 03, 2019 1:18 PM
To: Bayly, Warwick M
Cc: Woodford, Nina Lynne; or.ocv.alert
Subject: Updates from today

Hi Dr. Bayly,

Kellee was able to get a hold of me and we were able to meet no problem.

Health exams went well. There were 3 issues to update you on:
1. Skyler: he had been noted on arrival to be slightly stiff and sore (generalized) after his trim on Sunday he appears to be more reluctant to move. I looked at his feet, no obvious signs of sole abscess but he did have a moderate amount of bruised sole. No obvious heat. But he does seem uncomfortable, Kellee agreed.
1a. Would like to start him on 1g (~2.2 mg/kg) phenylbutazone daily for 3 days. We can start him today , and Kellee said she could give for the next 2 days.

2. Luna: she was noted to have right front carpal swelling on Sunday. She was reluctant to flexion today and remains swollen but reduced from Sunday Kellee said. I advised Kellee to "cold" soak for 10 minutes, she did that today in the stocks. She also could use phenylbutazone 1g daily for 2-3 days to get the swelling down.

3. Alieala: she remains BAR with no fever today. She continues to have increased respiratory effort. Kellee said she was "winded" coming back from a walk over the weekend down to the track area. No action needed, I am assuming that she has some restrictive airway disease that has been chronic for sometime that Orphan Acres already is aware of and any medical needs she may have.

I informed Kellee that all abnormal animals must be reported to the AV. This can happen two ways, she can call us anytime or report to the facility manager Kerry Reed. For the future, I will have a pre-study meeting with you and your staff to go over all of the requirements.

I will proceed with the treatment above unless I hear otherwise from you.

All the transportation paper work is in the track barn in a file folder:
1. WSDA CVI
2. WSDA brand inspection (we did need this) 3. Copies of the EIA test results 4. Copies of your Brand inspection from ID

I think that is all for now.

Thank you,

Gay Lynn Clyde, DVM
Assistant Director Campus Veterinary Services Office of Campus Veterinarian Washington State University Pullman, WA. 99164-1165 Phone (509) 335-4991 or (509) 335-6246 Fax (509) 335-3162
Email: gclyde@wsu.edu
Program URL: http://campusvet.wsu.edu

-----Original Message-----
From: Bayly, Warwick M <wmb@wsu.edu>
Sent: Wednesday, July 3, 2019 8:42 AM
To: Clyde, Gaylynn Goolsby <gclyde@wsu.edu>
Subject: Flat tire

Good morning Gaylynn. I just got a call from Kellee that she has a flat tire and will be a bit late. Her # is [redacted]

Hope this catches you in your office.

W

Warwick Bayly
Professor, Dep't Vet Clin Sci
PO Box 646610
Washington State University
Pullman, WA 99164-6610
5093355616

Sent from my iPhone

From: Anderson, Gwen Marie
Sent: Wednesday, October 17, 2018 8:29 AM
To: Archuleta, Robert; Deberry, Mira; Everson, Barrett L; Heineke, Merle J; Montonye, Daniel
Cc: ocv.spokane.vet@wsu.edu; or.ocv.alert
Subject: USDA in SPOKANE

Importance: High

I just received a call from Jennifer at the WSU Spokane Student Affairs office (Academic Center 130).

Dr. Ford with the USDA-APHIS has shown up to inspect the animal facilities. Jennifer was not able to reach Merle. I gave Merle's Cell phone number to Jennifer to call but wanted to also send an email to the animal care staff of Spokane. If Merle is not available to tour the USDA Veterinary Medical Officer around – can one of the animal care staff please go to the Student Affairs office to escort Dr. Ford?

Jennifer in the Student Affairs office can be reached at 8-7978.

Thank you,
Gwen

Gwen M. Anderson RVT, RLATG, ILAM
Assistant Director
Office of the Campus Veterinarian
Washington State University
PO Box 641165 (100 Dairy Road)
Pullman, WA 99164-1165
Office: (509)335-3042
Main Line: (509)335-6246
Fax: (509)335-3162
Email: gwenmarie@wsu.edu
URL: http://campusvet.wsu.edu/

From: Loaiza, Fred A,II
Sent: Wednesday, March 06, 2019 11:33 AM
To: Martinez, Michelle S
Cc: or.ocv.alert
Subject: WSU Alert Tests
Attachments: Animal_Resource_Unit_-_March__6_2019__11_38_AM.pdf

Hi Michelle,

With the resent WSU Alert System Tests, I revisited our status with Emergency Management. I thought I had finalized our WSU Ready-COOP last fall before our AAALAC site visit. When I spoke to Sarah Blatner I learned even though I had a hard copy of it in our office, it wasn't finalized. I couldn't finalize it because of how my clearance was set up. They changed that this morning and now it is final. You are still listed on it as Administrator so you can access it any time. I've attached a copy of it and there is an updated copy of it out here too. I was instructed to review this annually and update it.

I think we are good to go.

Thank you,

Fred Loaiza
Animal Care Facilities Mgr.
WSU CVM ARU
PO Box 647010
Pullman, WA 99164-7010
509-335-2188 Fax 509-335-5830
floaiza@wsu.edu

WSU Ready

Plan Managers:
Fred Loaiza
Plan Created: 08/01/18
Last Edit: 03/06/19

Animal Resource Unit

Table of Contents

Continuity Plan

CVM - Animal Resource Unit

Created	Aug 01, 2018
Last modified	Mar 06, 2019

WSU Ready

This document was created with the WSU Ready online Continuity Planning application. It is maintained within the application and can be edited by users with appropriate permissions.

Introduction

Continuity planning is a process that helps us become prepared to continue or rapidly resume operations when faced with adverse events, or disasters.

Your departmental continuity plan:

- Identifies your department's Critical Functions.
- Documents the business impact of loss of these functions over periods of time.
- Describes how you might continue these functions under conditions of diminished resources.
- Contains key information that might be needed during and after a disaster event.
- Includes Action Items designed to help your department become more prepared before an event occurs.

1. General Information

Department	CVM Animal Resource Unit
Department description	Animal Resource Unit Farm (ARU) provides animal procurement, husbandry, healthcare, and scientific support for the College of Veterinary Medicine's program areas.
Major division	College of Veterinary Medicine
Type of unit	Academic Laboratory Instruction
	Academic Research

	Student Affairs Enrollment and Financial Aid	
Personnel count	0	Faculty and other academic appointees
		Residents/Fellows
	6	Staff (full time)
		Staff (part time, excluding students)
	7	Student Staff
		Volunteers
		Guests
		Other
Head of unit	Michelle Martinez msmartinez@wsu.edu	
Cost center		

Buildings

Building	Ownership	Notes
ANIMAL HOLDING FACILITY 167	owned	Bldg. 167 2685 E Grimes Way
EQUINE RESEARCH BARN 165E	owned	Equine research and student instruction, open facility. Bldg. 165 E 3160 NE Terre View Dr.
HAY STORAGE POLE BARN 140B	owned	Hay storage open pole barn. Bldg. 140 B 1775 NE Terre View Dr.
LARGE ANIMAL QUARANTINE VETERINARY WORK FACILITY 141H	owned	Lab, supply and storage. 1135 NE Terre View Dr.
VET FEED LOT SHELTER 165d	owned	Open feedlot. Bldg 165 D 435 SE Dairy Road Dr.
VETERINARY HAY SHAVINGS STORAGE 160c	owned	Hay and Shavings Storage 160 C 2750 N.E. Terre View Dr.
VETERINARY LARGE ANIMAL BARN 160A	owned	Bldg. 160 A 2750 NE Terre View Dr.
VETERINARY LARGE ANIMAL HANDLING FACILITY 160d	owned	Bldg. 160 D 2750 NE Terre View Dr.

	VETERINARY MACHINE SHED 166c	owned	Bldg. 166 A 229 SE Dairy Road
	VETERINARY MAINTENANCE SHOP 166	owned	CVM Farm Shop Bldg. 166 229 SE Dairy Road
	VETERINARY RUMINANT BARN 160b	owned	Bldg. 160 B 2750 NE Terre View Dr.
	VETERINARY SAWDUST STORAGE 141l	owned	Shavings Bldg. 141 L 1135 N.E. Terre View Dr.
Evacuation plans for all buildings?	Yes		
Comments	Department Type: CVM ARU provides animal husbandry and support for teaching and research animals. Most all buildings are open with no climate control with one exception. Building 167 has HVAC for small ruminants.		
Critical Functions	1	Provide Animal Husbandry to all Animals, including basic food, water, mineral salt.	Critical 1
	2	Provide Safe Housing to all animals under our care	Critical 1
	3	Security to all CVM ARU Facilities & Equipment	Critical 1
	4	Report any health related situation to Emergency Services including Office of Campus Vet. and or Vet. Teaching Hospital Ambulatory	Critical 1
	5	Remove livestock from danger and relocate when ever possible.	Critical 1
Definitions	Critical 1	must be continued at normal or increased service load. Cannot pause. Necessary to life, health, security. (Examples: inpatient care, police services)	
	Critical 2	must be continued if at all possible, perhaps in reduced mode. Pausing completely will have grave consequences. (Examples: provision of care to at risk outpatients, functioning of data networks, at risk research)	
	Critical 3	may pause if forced to do so, but must resume in 30 days or sooner. (Examples: classroom instruction, research, payroll, student advising)	
	Deferrable	may pause; resume when conditions permit. (Examples: elective surgery, routine building maintenance, training, marketing)	

2. Critical Functions

2.1. Critical Function: Provide Animal Husbandry to all Animals, including basic food, water, mineral salt.

Description	Provide feed, water, mineral salt, shelter for all livestock. Check animals for health concerns, report them if any to Principal Investigator, Office of Campus Veterinarian, Farm Manager.	
Who performs this?	Animal Resource Unit Large Animal	
Responsible person(s)	Fred Loaiza, Dean Nygaard, Pat Dahmen, Mike Nelson, Kevin Repp, building resident and student employees. Unit Administrative Director (Michelle Martinez) may also delegate tasks to others at her discretion.	
Peak periods	January, February, March, April, May, June, July, August, September, October, November, December	
Comment	CVM ARU provides year round animal care, this includes weekends and holidays.	
Documents	See Documents list	
Upstream dependency comment	We depend on Fac Ops/Heavy Equipment for troubleshooting physical plant issues, i.e., lost of power, water, snow removal, disabled vehicles etc. We depend on WSU and Pullman Police for livestock and building security. We depend on Office of Campus Veterinarian and Veterinary Teaching Hospital for animal related field calls and emergencies.	
Upstream dependencies	Physical Plant Campus Services, Police Dept, Office of Campus Veterinarian and Veterinary Teaching Hospital	
Downstream dependency comment	Faculty , in research and teaching, place their livestock in our care. The importance of this is beyond measure. Facility Operations depend on us as first responders and to report trouble within WSU premises i.e., frozen pipes, broken water main, smoke detectors, lighting, heating etc.	
Downstream dependencies	Faculty in research and teaching, Departmental Fiscal Office, Facility Operations	
Possible consequences if this function is not continued or recovered quickly enough	**Consequence**	**Explanation**
	Disruption of teaching	Livestock must be cared for under any circumstances.
	Disruption of research	Livestock must have their feed, water and bedding on regular intervals on a

	routine basis.
Disruption of patient care	Animals must be monitored multiple times a day. Feed, water, mineral salt, bedding, shelter, must be provided and check on several times a day. All of these tasks , observations and health checks are performed then recorded in compliance with OCV, IACUC, AAALAC and USDA regulations.
Departure of faculty	We depend on OCV, VTH faculty for sick calls and to assist in animal related emergencies.
Departure of staff	Having adequate staff to maintain all the facilities and livestock under our care is essential to the well being of our research and teaching animals.
Departure of students	We have two student building residents, they provide weekend and holiday support for our livestock herds. We also have part time student help in sensitive and labor intensive areas of our daily operation. Their absence would adversely affect our daily operation.
Well being of faculty/staff	Without enough faculty or staff to maintain normal operations some individuals may become stressed or rushed for time. This increases the possibility of injury to one's self or state property. Being understaffed also creates the potential to miss or over look animal health related issues.
Well being of students	We have several student employees, they would have the same needs as faculty and classified staff.
Loss of revenue	It's complicated, I would refer to our Administrative Director, Michelle Martinez. Charlie Powell, he is our public information specialist and or Dr. Nina Woodford with the Office of Campus Veterinarian.
Legal obligations unmet	Michelle Martinez is our Administrative Director, Charlie Powell is our public

		information specialist. They should be able to explain if there are any legal obligations. The Office of Campus Veterinarian would also be able to help if there are legal obligations.
	Legal harm to the institution	Here again I would refer to Michelle Martinez, Charlie Powell and Dr. Woodford.
	Impact to other units	As a service unit we supply feed, bedding and other resources to our college. We perform work related services to our college and others colleges on Pullman campus.
	Impact on important business partners	We have close working relationships with the Veterinary Teaching Barns and USDA facilities. We help each other on a regular basis.
	Damage to reputation	Contacts, Michelle Martinez and Charlie Powell.
How to cope if usual space is not available	We might have to relocate livestock to different facilities. If that wasn't possible then some animals might have to be sold etc.	
How to cope if 50% absenteeism of staff and faculty	We would have to provide basic animal care, reports and other office work may have to be delegated to other staff.	
What to do if certain skills/knowledge are held by only one staff member (unique skills)?	Each staff and student employee have the basic skill set to perform most any task. In general each person can drive a truck, operate skid steer loaders, feed livestock. Each person is able to recognize animal related health issues report them and document it.	
Can this function be performed fully or partly from home?	We are a large animal research and teaching operation. Not many tasks could be performed from home other than management instruction or manager reports.	
How to cope if data network is not available	We use to complete all our paperwork with paper and pen. We backup everything with hard copies.	
Any show stoppers?	During winter months we need electricity for our automated drinking devices. We need power to operate and heat our shop. We can not maintain essential equipment without a heated shop during the winter months. We need places like this to thaw out frozen loaders, trucks and other farm related equipment that help us perform essential tasks.	
Do any of these coping strategies expose the University to risk?	As with any winter there are risks to exposure of cold. Our department provides winter apparel. During summer the opposite is a risk, everyone	

	is reminded about heat stress to them and our livestock. The Office of Campus Veterinarian also sends out emails to everyone about weather related risks and outlines web links how to recognize and prevent them.
Policy exceptions that may be needed	Basic animal care must be performed no matter what, if it can't then the animals might have to be relocated. These types of decisions must come from the principle researcher and or attending veterinarian. (Office of Campus Veterinarian 335 6246)
Additional vulnerabilities	Extreme cold or fires, unable to report to work due to vehicle failure.
Phone Services Disruption Print Label	
If temporary closure is declared, is it possible to stop doing this function?	
Comments	Road closures, for example May 18, 1980, Mt. St. Helens erupted. Washington State Patrol and Idaho State Patrol had road closures. There were barricades at the state line to prevent thoroughfare. After a few days, they didn't enforce it and we made it to work. In the meantime we had veterinary students and local faculty and state employees that performed basic animal care. It wasn't perfect but it worked.
Action items for this function	See Action Item list

2.2. Critical Function: Provide Safe Housing to all animals under our care

Description	Basic animal care is performed multiple times per day depending on each facility. Feed, water, mineral salt, shelter with clean bedding is provided on a normal basis. Health assessments are conducted at each feeding and randomly throughout the day. Anything noteworthy is forwarded to researchers and their staff then recorded in the Animal Health Data Base. While performing these duties, each facility, pen or pasture is evaluated for animal safety. At this time if something is detected the appropriate people or Fac Ops are contacted to make repairs. Besides having safe penning free from sharp edges etc. barriers between animals and barriers from the public are inspected and maintained with chained gates and padlocks.
Who performs this?	All employees of CVM ARU Large Animal are responsible for his or her areas. They are trained and cross trained in order to identify potential hazards and instructed to call their supervisor, unit manager and Fac Ops should it be necessary to fix the problem. This does not exclude Emergency Services such as Police & Fire. Depending on the type of emergency this could also involve Environmental Health and Safety for gas or chemical spills or leaks.

Responsible person(s)	It starts with who ever is on the scene, contact is made to the Primary Investigator and or their contact person, Office of Campus Veterinarian, and Veterinary Teaching Hospital. The Farm Manager is also contacted and Administrative Director. (Please refer to the CVM, ARU, Disaster Plan and CVM, Call List and Crisis Plan, Weekend Emergency Names and Phone Numbers)
Peak periods	January, February, March, April, May, June, July, August, September, October, November, December
Comment	Housing needs may change a little throughout the course of the year but work is always there. Birthing season in the spring, housing repairs and deep cleaning during the summer, haying season through the summer and fall, then hay deliveries again between weather events all winter to keep the barns full. There is really no down time, its all peak periods.
Documents	See Documents list
Upstream dependency comment	We depend on our suppliers to keep us stocked up on feed and bedding. We depend on Physical Plant and Facility Operations to keep lights on and fuel readily available for feed trucks, tractors, loaders etc.
Upstream dependencies	Goods and Services, Power and fuel
Downstream dependency comment	The animals depend on us for everything. The faculty, lab personnel and other animal staff depend on us to keep barns full of hay, mineral salt and bedding. The livestock must stay healthy, the barns must stay clean and fully stocked for everyone.
Downstream dependencies	Livestock, research/instructional faculty and other animal care personnel
Possible consequences if this function is not continued or recovered quickly enough	

Consequence	Explanation
Disruption of teaching	Daily health checks are mandatory and documented. Each animal's health is recorded several times a day. If there are injuries to any of the livestock this can disrupt teaching. Animal pens are looked at multiple times a day for anything that could be considered dangerous to the animal and removed or repaired.
Disruption of research	The animals are here for research and teaching. All facilities are constantly monitored and routinely inspected to insure a safe environment.
Disruption of patient care	All the livestock housed in our facilities are university owned. They are considered high priority and we insure

		we have adequate and safe places to house them.
	Well being of faculty/staff	We need to make a safe environment for the faculty, staff, as well as the livestock.
	Well being of students	We keep the barn yards and barn areas clean and organized to prevent slips and falls. Special attention is given when classes are being held, our staff feed these areas before students arrive.
	Legal obligations unmet	I would refer to Michelle Martinez our Administrative Director, Charlie Powell our public and media communications expert . Dr. Nina Woodford is our director of Office of Campus Veterinarian. They would be the ones to contact if legal questions came up.
	Legal harm to the institution	Here again, see my answers above.
	Impact to other units	The College of Veterinary Medicine Animal Resource Unit (ARU) works closely with other departments and colleges here on WSU campus. Various things that impact our college can also have a trickle down effect. If we have unsafe areas then other department staff can't use this area either.
	Damage to reputation	Please see my answer under "Legal Obligations" above.
How to cope if usual space is not available	We might have to relocate livestock to different facilities.	
How to cope if 50% absenteeism of staff and faculty	We would have to provide basic animal care, reports and other office work may have to be delegated to other staff.	
What to do if certain skills/knowledge are held by only one staff member (unique skills)?	Each staff and student employee have the basic skill set to perform most any task. In general each person can drive a truck, operate skid steer loaders, feed livestock. Each person is able to recognize animal related health issues report them and document it. We are all cross trained.	
Can this function be performed fully or partly from home?	We are a large animal research and teaching operation. Not many tasks could be performed from home other than management instruction or manager reports.	

How to cope if data network is not available	We can provide most basic animal husbandry without data network availability.
Any show stoppers?	During winter months we need electricity for our automated drinking devices. We need power to operate and heat our shop. We can not maintain essential equipment without a heated shop during the winter months. We need places like this to thaw out frozen loaders, trucks and other farm related equipment that help us perform essential tasks. It is difficult to provide a safe and healthy environment without essential tools.
Do any of these coping strategies expose the University to risk?	None that I know of.
Policy exceptions that may be needed	Duplicate answer from other critical functions. Basic animal care must be performed no matter what, if it can't then the animals might have to be relocated. These types of decisions must come from the principle researcher and or attending veterinarian. (Office of Campus Veterinarian 335 6246)
Additional vulnerabilities	Extreme cold or fires, unable to report to work due to vehicle failure.
Phone Services Disruption Print Label	
If temporary closure is declared, is it possible to stop doing this function?	
Comments	Road closures, for example May 18, 1980, Mt. St. Helens erupted. Washington State Patrol and Idaho State Patrol had road closures. There were barricades at the state line to prevent thoroughfare. After a few days, they didn't enforce it and we made it to work. In the meantime we had veterinary students and local faculty and state employees that performed basic animal care. It wasn't perfect but it worked.
Action items for this function	See Action Item list

2.3. Critical Function: Security to all CVM ARU Facilities & Equipment

Description	All our gates, buildings, padlocks etc. are manually opened with keys. No electronic devices needed for daily function. Each of us have been instructed to check locks, lock buildings and equipment after normal working hours. We must also be vigilant while providing safety to our livestock population. Unannounced visitors are reported to WSU Police non emergency phone number in most cases. We are all instructed to get brief descriptions of the persons, vehicle, license number etc. and relay

	that to WSU Police. Depending on the case, we may call 911 and let them handle the call. Sometimes people are just lost or want to just pet the animals, we explain each time that they have passed behind visible signs and barriers and inform them they are not authorized to be here. After we have called WSU Police and or 911, we then reported to our public media specialist, Administrative Director and Office of Campus Veterinarian.
Who performs this?	CVM ARU Staff, Building Residents, all reports to WSU/Pullman Police, Administrative Director, Public Media Specialist and Office of Campus Veterinarian.
Responsible person(s)	(See attached documents under "Plan Details" for a list of names and numbers) Animal Care Crisis Management Procedures, Office of Campus Veterinarian, Weekend Emergency Phone Numbers
Peak periods	January, February, March, April, May, June, July, August, September, October, November, December
Comment	There is really no off season.
Documents	See Documents list
Upstream dependency comment	We depend on information coming from our Administrative Director, Public Information Officer and WSU Emergency Systems.
Upstream dependencies	Information Services
Downstream dependency comment	Office of Campus Veterinarian, IACUC, AAALAC,USDA and Faculty all expect our staff to keep facilities secure.
Downstream dependencies	Research

Possible consequences if this function is not continued or recovered quickly enough

Consequence	Explanation
Disruption of teaching	Our assigned equipment, buildings and livestock herds are of top priority. If we have security problems this may effect classes held in our barns. Or the research animals housed in our facilities.
Disruption of research	Our herds need to be kept in calm normal settings. The livestock are accustomed to normal feeding and cleaning procedures they see everyday. Should unusual noises, unauthorized persons or unauthorized traffic occur close "hear, see or smell" to our herds they do become agitated and this can effect the research and adversely effect the animals health.

	Disruption of patient care	All areas within or near College Veterinary Medicine facilities need to be secure. If any of the herds are disrupted from their normal life it can cause health issues. If there are animals currently under veterinary care we must insure the areas are secure and safe.
	Well being of faculty/staff	Our livestock herds are of great importance to us but we hold personal safety to faculty and staff at the highest level. We train and exercise safe working procedures on a daily basis.
	Well being of students	Human safety is our highest priority, we are responsible for student safety while there are in class or working in our facilities or operating our equipment.
	Legal obligations unmet	I would refer you to CVM, ARU, Michelle Martinez our Administrative Director, Charlie Powell our media and public relations expert and Dr. Nina Woodford the Director of Office of Campus Veterinarian.
	Legal harm to the institution	I am sure that is not out of the question. Here again I would refer to Michelle Martinez, Charlie Powell and Dr. Nina Woodford.
	Impact to other units	The College of Veterinary Medicine works in concert with many other institutions here at WSU and other branch campuses.
	Damage to reputation	The College of Veterinary Medicine is concerned with public perception. I would refer you to Michelle Martinez, Charlie Powell and or Dr. Nina Woodford.
How to cope if usual space is not available	We would have to find other facilities to conduct our daily routine. Use adjacent facilities that are assigned to us.	
How to cope if 50% absenteeism of staff and faculty	We have multiple trucks, loaders, tractors etc. that can be used in other places if "absolutely" necessary. However cold weather prevents decontamination. Cross contamination is a problem, some things cannot be used in one place or another. Other equipment may have to be rented for short term use. .	

What to do if certain skills/knowledge are held by only one staff member (unique skills)?	All staff and student employees are trained in how to secure gates, barns, and lock up.
Can this function be performed fully or partly from home?	Sometimes managers or directors can give instruction from home. The animal care staff can't do that and must be present to attend the livestock.
How to cope if data network is not available	We can get essential tasks completed without data network.
Any show stoppers?	None noted at this time.
Do any of these coping strategies expose the University to risk?	There are inherent risks with some security scenarios i.e., unauthorized visitors. Our staff are instructed to gather a description of persons or vehicle, then call 911. Securing animals in their pens is much more straight forward and not as dangerous.
Policy exceptions that may be needed	None that I am aware of.
Additional vulnerabilities	
Phone Services Disruption Print Label	
If temporary closure is declared, is it possible to stop doing this function?	No
Comments	We can work with minimum staff numbers to perform essential functions, i.e., feed, water, bedding.
Action items for this function	See Action Item list

2.4. Critical Function: Report any health related situation to Emergency Services including Office of Campus Vet. and or Vet. Teaching Hospital Ambulatory

Description	All health situations are reported to the Primary Investigator and or their designated alternates. Then the Office of Campus Veterinarian is contacted, if necessary the Vet Teaching Hospital may also be called to assist and assess health issues.
Who performs this?	All ARU staff and building resident employees. (See CVM Call List, Crisis Plan, & Weekend Emergency Phone Number documents)

Responsible person(s)	(See CVM Call List, Crisis Plan and Weekend Emergency Phone Number documents)
Peak periods	January, February, March, April, May, June, July, August, September, October, November, December
Comment	We operate 24/7, there is no slow periods.
Documents	See Documents list
Upstream dependency comment	We need cell phone service in order to communicate with emergency services.
Upstream dependencies	Cell Phone Coverage
Downstream dependency comment	Research, Staff and Students rely on us to monitor, assess and report animal health related issues
Downstream dependencies	Faculty, Staff & Students

Possible consequences if this function is not continued or recovered quickly enough

Consequence	Explanation
Disruption of teaching	If health related issues are not reported and corrected it can make livestock unavailable for classes.
Disruption of research	Animal health issues must be reported ASAP in order to provide medical help to livestock under our care. Any disruption in this process can adversely affect research animals.
Disruption of patient care	If certain animal are under veterinary care it is mandatory that we maintain frequent daily observations.
Departure of faculty	None that I know of.
Departure of staff	None that I know of.
Well being of faculty/staff	Communication is very important in keeping a safe environment for all faculty and staff.
Well being of students	Although we do not teach classes ourselves, we do maintain facilities, trucks, loaders and livestock. All of this helps maintain safe areas for students.

	Loss of revenue	Research funding might be affected if animals are not cared for properly and health issues reported.
	Legal obligations unmet	There are many governing agencies that regulate our animal care and herd health.
	Legal harm to the institution	Not sure but it is possible.
	Impact to other units	If our facilities are not within compliance then animals would have to be moved to other facilities. This could have a negative effect on their facilities (overpopulated) and workload on the staff.
	Damage to reputation	Our college maintains transparency with all our herd health issues. If herd health issues arise and not reported , go unnoticed and not corrected it can have a negative effect on our College.
How to cope if usual space is not available	As long as cell service is maintained we can work from our vehicles.	
How to cope if 50% absenteeism of staff and faculty	We can provide essential animal husbandry for a short length of time with reduced staff.	
What to do if certain skills/knowledge are held by only one staff member (unique skills)?	We have our staff and students cross trained. Lead persons can work with substitutes personnel to get the jobs completed.	
Can this function be performed fully or partly from home?	Director or Farm Manager instructions can be given via cell communication. Many mandatory health reports can be completed from any computer.	
How to cope if data network is not available	That would be a real challenge, I don't know if we could.	
Any show stoppers?	We need two way communication devices. We need fuel for our vehicles.	
Do any of these coping strategies expose the University to risk?	No, I don't' think so.	
Policy exceptions that may be needed	None that I am aware of.	
Additional vulnerabilities	Power outages, lack of fuel or heat for our shop & offices.	

Phone Services Disruption Print Label	
If temporary closure is declared, is it possible to stop doing this function?	No
Comments	The livestock require 365 day care.
Action items for this function	See Action Item list

2.5. Critical Function: Remove livestock from danger and relocate when ever possible.

Description	If it is a fire, animals could be relocated out of harm's way. If it is weather related, then animals can be given extra feed and bedding. Some animals can be locked inside the barns.	
Who performs this?	CVM ARU Large Animal Farm Crew	
Responsible person(s)	Fred Loaiza, Pat Dahmen, Mike Nelson, Kevin Repp, Dean Nygaard, Building Residents. Unit Administrative Director, Office of Campus Veterinarian.	
Peak periods	January, February, March, April, May, June, July, August, September, October, November, December	
Comment	Animal Care is 24/7 and 365 days a year. There really is no down time.	
Documents	See Documents list	
Upstream dependency comment	We depend on Police and Fire to help with emergency situations.	
Upstream dependencies	Police & Fire	
Downstream dependency comment	Faculty, staff and students depend on us to ensure a safe environment for the livestock. The animals depend on us for everything, food, water, safe housing.	
Downstream dependencies	Faculty, Staff and Students, Livestock	
Possible consequences if this function is not continued or recovered quickly enough	**Consequence**	**Explanation**
	Disruption of teaching	If it isn't safe for the animals it isn't safe for teaching.
	Disruption of research	Yes, disruption may occur if the animals

		need to be relocated, this should only be short term.
	Disruption of patient care	If any animals are being treated at this time vet care would remain a priority no matter where the animals are moved.
	Well being of faculty/staff	Our animals are valuable to our college, there can be added human risks to relocate animals. Caution needs to be exercised at all times to minimize those risks.
	Well being of students	If the animals need to be moved to other locations, classes would probably be suspended until we could move things back to normal housing.
	Legal obligations unmet	Unsure but might be possible.
	Impact to other units	If we move animals, this could overpopulate some other barns or feedlots.
	Impact on important business partners	Unsure, there could be potential.
How to cope if usual space is not available	We could make temporary correls or pens if necessary.	
How to cope if 50% absenteeism of staff and faculty	We would have to reduce our efforts to only essential tasks.	
What to do if certain skills/knowledge are held by only one staff member (unique skills)?	All our animal care staff are cross trained, they can work in different areas to fill in for absent employees.	
Can this function be performed fully or partly from home?	Other than manager instructions, there is very little if anything at all can be done from home.	
How to cope if data network is not available	Probably would need to drive to each area where animals are being housed.	
Any show stoppers?	Trucks, trailers, tractors, loaders, corral panels.	
Do any of these coping strategies expose the University to risk?	Employee injury is a institution risk, caution would need to be stressed to all employees routinely.	
Policy exceptions that may be needed		

Additional vulnerabilities	
Phone Services Disruption Print Label	
If temporary closure is declared, is it possible to stop doing this function?	No
Comments	
Action items for this function	See Action Item list

3. Information Technology

3.1. Centrally-Owned Applications that are Critical for this Unit

Centrally Owned applications are those whose technical owner is Central IT. The functional owner can be any department.

No centrally owned applications are entered for this plan.

3.2. Department Applications that are Critical for this Unit

Department applications are those whose technical owner is our department or another department (but not Central IT)

No department applications are entered for this plan.

3.3. Department Servers

No department servers are entered for this plan.

3.4. Workstations

3.4.1. Workstation Backup

No workstations backup methods are entered in this plan.

3.4.2. Workstation Support

No workstation support options are entered in this plan.

3.5. Recovery Strategies for IT

Where will you quickly purchase new workstations, servers, or other hardware?	
When your support technicians rebuild your workstations or servers in the new location (on the new hardware), where will they find the systems software, applications software, and related documentation that they will need?	
Does your IT equipment have any environmental requirements (air conditioning, high power consumption, unusual physical security, etc.?)	
Will your technical support staff be adequate in numbers & skills to rebuild your systems quickly? Will they be available? Do they have other clients to serve?	
Are there any other obstacles that could hinder the quick re establishment of your critical IT services?	
Visualize now a flu pandemic. If all staff were requested to work from home (where possible) for a couple of months to minimize contagion, what would you have to do to enable & support their IT? (Presume the users all have adequate computers at home, plus broadband connections.) Be specific, and estimate how long it would take to get them set up & running.	
When IT systems become unavailable for an extended time, people use workarounds – paper forms to gather data, snail mail, chalkboard instead of PowerPoint. In the collection of IT applications & systems that you support, are there any that could not somehow be "worked around" for a few weeks or months? Explain.	

3.6. Action Items for IT

See Action Item List

4. Instruction

This unit does not provide instruction.

5. Faculty Preparedness

This section is disabled in favor of detailed critical function instruction section.

6. Key Resources

6.1. Staff Basics

Does your unit have a (printed) emergency contact list for faculty & staff?	
Who holds copies of the emergency contact list? (Be specific)	Fred Loaiza, Michelle Martinez, Office of Campus Veterinarian. Posted in all our Animal ID Information Boxes throughout our facilities.
Who updates the emergency contact list?	Fred Loaiza
Who knows how to check messages on your department's main phone line?	Fred Loaiza, Dean Nygaard
Who knows how to record a greeting on your department's main phone line?	Fred Loaiza, Dean Nygaard, Pat Dahmen, Mike Nelson, Kevin Repp
Who can post messages on your department's web site (i.e., do the actual mechanics)?	CVMWebTeam@vetmed.wsu.edu
Do your staff use any shared passwords that should be kept available?	No.
Comment	

6.2. Key People in Your Unit

Name	Fred Loaiza
Title of function	Animal Care Facilities Manager Farm Mgr.

Special skill	Farm manager for all CVM, ARU facilities and livestock under our care. Operate all forms of equipment in farm or livestock operations. Order all feeds, minerals, and maintenance supplies. On call weekends, holidays.
Special role	First leadership successor
Additional comment	Manages daily function of CVM ARU on a daily basis. Reports to Administrative Director.

Name	Dean Nygaard
Title of function	Maintenance Mechanic 2
Special skill	Working knowledge of day to day tasks, may fill in for Facilities Manager, lead and or direct staff or temporary employees as directed. Performs repairs on animal facilities and related equipment.
Special role	Second leadership successor
Additional comment	Can provide hands on animal care and equipment operation.

Name	Kevin Repp
Title of function	Farmer 3
Special skill	Maintains livestock on daily routine basis. May lead and or train temporary help. Operate feeding and cleaning equipment. Performs repairs on animal facilities and related equipment.
Special role	Third leaderships successor
Additional comment	Maintains livestock on daily routine basis. May lead and or train temporary help.

Name	Mike Nelson
Title of function	Farmer 3
Special skill	Maintains livestock on daily routine basis. May lead and or train temporary help. Operate feeding and cleaning equipment.

Special role	Third leaderships successor
Additional comment	Maintains livestock on daily routine basis. May lead and or train temporary help.

Name	Pat Dahmen
Title of function	Farmer 3
Special skill	Maintains livestock on daily routine basis. May lead and or train temporary help. Operate feeding and cleaning equipment.
Special role	Third leaderships successor
Additional comment	Works primarily as a herds manager.

Name	Michelle Martinez
Title of function	CVM ARU Large Animal Director
Special skill	Control of budget, hiring official.
Special role	Holds formal delegation(s) of authority
Additional comment	Unit Director of Administrative Services to the College of Veterinary Medicine.

6.3. Teams

No teams are entered for this plan.

6.4. Skills

These skills that may be needed post disaster to perform our unit's critical functions.

Skill	Description	Additional comment
Farmer 1,2&3	Must operate all forms of farm trucks, tractors, loaders & related equipment.	Must be familiar with all species of large animals.
Maintenance Mechanic 2	Must be able to feed livestock, order	Must be able to fill in where ever

	supplies, weld, automotive & farm equipment maintenance. Plumbing, electrical repairs.	needed and familiar with all aspects of operations.

6.5. Staffing Requirements

This list displays both

- numbers of staff who may be REQUIRED during crisis, and
- numbers of staff who may be AVAILABLE FOR REASSIGNMENT during crisis

Definitions

- Critical 1: must continue (life, health, security)
- Critical 2: must continue, perhaps in reduced mode
- Critical 3: pause if forced, but must resume in 30 days or sooner
- Deferrable: resume when conditions permit

Function	Criticality Level	Category of Staff	Shift	FTE required under normal conditions	FTE required during crisis FTE who may be available for reassignment
Provide Animal Husbandry to all Animals, including basic food, water, mineral salt.	1	Civil Service	8AM 5PM Monday through Friday(Standard Work Day)	4.0	4.0 0.00
Totals				**4.00**	**4.00** **0.00**

6.6. Staff of Other Units

No staff from other units are entered in this plan.

6.7. Stakeholders

No stakeholders are entered for this plan.

6.8. Documents

See Document List

6.9. Equipment and Supplies

Minimum equipment needed to carry out all critical functions.

6.9.1 Office Equipment

Minimum Number		Additional comment
Workstation (includes desktop computer, network connection, table, chair)	2	Staff Computers and Printers
Laptop Computer (car charger advised)		
Telephone (hard wired)	2	One in the facility managers office and one in the shop.
Printer	2	One in the staff room and one in the managers office.
Fax	1	Staff office
Copier	2	One in staff office and one in the managers office
Scanner	2	One in the staff office and one in the managers office.
Server	1	Need internet access to order supplies and daily operations.

6.9.2 Other Equipment

Major Items Only	(3) Flatbed, 4x4 feed trucks, (2) Manure hauling dump trucks, (2) Flatbed dump trucks, (2) 4x4 pickups, (5) Skid steer loaders, (1) 4x4 wheel tractor, (1) Cat Wheel loader, (2) 4x4 Service/Fence & Maintenance trucks. Welders, cutting torches, propane touches, heat guns.

6.9.3 Supplies

Necessary Consumables	Computer paper, fuel gas and diesel, motor oil, fuel additives, starting fluid, baled hay alfalfa, orchard and timothy. Mineral salt, wildlife pellets. Bulk shavings and straw bedding.
Inventory or Stockpiling Considerations	We keep several months of some supplies like hay and bedding in stock most the time.

6.10. Facilities and Transportation

Facilities (special needs beyond office classroom lab needs)	We need a heated chemical storage room. Heated shop with 2 bays and work areas.	
Utilities (very important to the functioning of the department)	**Utility**	**Additional comment**
	Electricity	During winter months all our watering devices use power to stay thawed out.
Transportation (special transportation needs)	Just the ones I listed earlier, like trucks, tractors, skid steer loaders, wheel loaders, dump trucks.	
Other Resources	Extra staffing if we have absences. We must provide animal care 24/7.	

7. Action Items

7.1. We keep enough hay stored in multiple barns so that we can last months without resupply. This would also include down stream departments that buy their hay through our department.

Assigned To	
Due Date	
Supports this Critical Function	Provide Animal Husbandry to all Animals, including basic food, water, mineral salt.
Estimated Cost	
Cost Frequency	
Within Whose Scope	
Details	

Status	
Date Entered	2018 08 10

7.2. We have enough bedding stored in our barns we can last for 30 days out.

Assigned To	
Due Date	
Supports this Critical Function	Provide Animal Husbandry to all Animals, including basic food, water, mineral salt.
Estimated Cost	
Cost Frequency	
Within Whose Scope	
Details	
Status	
Date Entered	2018 08 10

7.3. Special feed and mineral salt or other supplements are stored in large enough quantities to last 30 days

Assigned To	
Due Date	
Supports this Critical Function	Provide Animal Husbandry to all Animals, including basic food, water, mineral salt.
Estimated Cost	
Cost Frequency	
Within Whose Scope	
Details	
Status	
Date Entered	2018 08 10

7.4. We have a water wagon that can be filled from any water source. This in turn could be used to water livestock as long as we need it. This could also work for other departments within our college.

Assigned To	
Due Date	
Supports this Critical Function	Provide Animal Husbandry to all Animals, including basic food, water, mineral salt.
Estimated Cost	
Cost Frequency	
Within Whose Scope	
Details	
Status	
Date Entered	2018 08 10

7.5. During cold weather we can load feed trucks up in advance. Extra feed given to the livestock. Maintenance trucks, feed trucks, loaders etc. can be plugged in to block heaters. Extra bedding can be added to pens to help protect the animals from cold temperatures.

Assigned To	
Due Date	
Supports this Critical Function	Provide Safe Housing to all animals under our care
Estimated Cost	
Cost Frequency	
Within Whose Scope	My unit itself
Details	Weather alerts help us plan for extreme weather events, i.e., cold snaps, heavy wind or heat waves. We can move maintenance vehicles inside our shop ahead of time etc.
Status	

Date Entered	2018 08 13

7.6. If cell service is out we might be able to purchase hand held radios.

Assigned To	
Due Date	
Supports this Critical Function	Report any health related situation to Emergency Services including Office of Campus Vet. and or Vet. Teaching Hospital Ambulatory
Estimated Cost	
Cost Frequency	
Within Whose Scope	
Details	
Status	
Date Entered	2018 08 17

7.7. Step up security by increasing the number of times animals are observed and recorded.

Assigned To	
Due Date	
Supports this Critical Function	Security to all CVM ARU Facilities & Equipment
Estimated Cost	
Cost Frequency	
Within Whose Scope	
Details	
Status	
Date Entered	2018 08 27

8. Documents

These documents have been identified as important for continuing our critical functions.

Name	College of Veterinary Medicine Animal Resource Unin Farm Disaster Response Plan
Description	CVM ARU Farm Departmental Disaster Response Plan. & CVM Bldg. Emergency Contact List for Animal Care Facilities, Names, Phone Numbers.
Medium	Electronic (computer)
Location Where Stored (Physical)	Vet. Med. ARU Farm Shop 229. SE Dairy Road Pullman WA 99164
Location Where Stored (URL)	
Owner (department)	College of Vet. Med. ARU
Contact person(s)	Michelle Martinez Director Fred Loaiza Farm Manager
Backup measures	Backup and Loss Prevention Measures are listed within the Attachment
Comment	
Uploaded in this tool?	No

Name	CVM ARU Animal Care Disaster Response Plan & Animal Care Crisis Management Procedures
Description	CVM ARU Animal Care Disaster Response Plan & Animal Care Crisis Management Procedures
Medium	Paper
Location Where Stored (Physical)	CVM ARU Farm Shop 229. SE Dairy Road Pullman WA 99164
Location Where Stored (URL)	
Owner (department)	College of Veterinary Medicine
Contact person(s)	Michelle Martinez, Fred Loaiza
Backup measures	I have hard copies of all these documents.

Comment	
Uploaded in this tool?	Yes

Name	Office of Campus Veterinarian
Description	This document provides additional contact names for animal related emergencies.
Medium	Paper
Location Where Stored (Physical)	CVM ARU Farm Shop and all Animal ID information boxes
Location Where Stored (URL)	
Owner (department)	Office of Campus Veterinarian
Contact person(s)	Office of Campus Veterinarian
Backup measures	This is a living document and updated multiple times per year. It is located in CVM ARU Farm Shop and all Animal ID boxes throughout our facilities
Comment	
Uploaded in this tool?	Yes

Name	Weekend Emergency Phone Numbers
Description	Weekend emergency phone numbers and contact personnel.
Medium	Paper
Location Where Stored (Physical)	Posted in CVM ARU Farm Shop and all ID information Boxes throughout our facilities
Location Where Stored (URL)	
Owner (department)	CVM ARU Farm Shop
Contact person(s)	Too numerous to list. (See Attachment)
Backup measures	Hard copies are posted in multiple facilities and electronic copies are sent out to OCV, Unit Director and Communications Personnel.

Comment	This is a living document and updated several times a year.
Uploaded in this tool?	Yes

Name	CVM ARU Disaster Plan/CVM Call List & Crisis Plan
Description	This has step by step instructions for various scenarios. Emergency contact individuals listed for specific facilities with phone numbers and instructions for crisis plan.
Medium	Paper
Location Where Stored (Physical)	CVM ARU Farm Shop 229. SE Dairy Road Pullman WA
Location Where Stored (URL)	
Owner (department)	College of Veterinary Medicine Dean's Department
Contact person(s)	Michelle Martinez Admin. Director Fred Loaiza Farm Mgr.
Backup measures	We have this electronically with hard copies posted in our building.
Comment	This is a living document and updated several times a year.
Uploaded in this tool?	Yes

Name	Weekend Emergency Phone Numbers
Description	This has contact names and phone numbers for anyone needing assistance for animal related situations
Medium	Paper
Location Where Stored (Physical)	CVM ARU Farm Shop 229. SE Dairy Road Pullman WA 99164
Location Where Stored (URL)	
Owner (department)	CVM ARU Large Animal
Contact person(s)	Fred Loaiza Michelle Martinez
Backup measures	We have hard copies posted in our shop facility and in each animal ID information boxes in multiple places on campus.

Comment	This is a living document and updated several times a year.
Uploaded in this tool?	Yes

Name	CVM ARU Disaster Plan & CVM Call List Crisis Plan
Description	Departmental Disaster Plan for large animal & CVM Call List and Crisis Plan
Medium	Paper
Location Where Stored (Physical)	CVM ARU Farm Shop 229. S.E. Dairy Road Pullman WA
Location Where Stored (URL)	
Owner (department)	CVM ARU Large Animal
Contact person(s)	Fred Loaiza Michelle Martinez
Backup measures	Electronic copy stored in computer, hard copies are displayed in CVM ARU Farm Shop.
Comment	This is a living document and updated at least twice yearly.
Uploaded in this tool?	Yes

Name	Weekend Emergency Phone Numbers
Description	This is a list of emergency contacts with phone numbers
Medium	Paper
Location Where Stored (Physical)	CVM ARU Farm Shop 229. SE Dairy Road Pullman WA
Location Where Stored (URL)	
Owner (department)	CVM ARU Large Animal
Contact person(s)	Fred Loaiza Michelle Martinez
Backup measures	Hard copies are displayed in multiple places.
Comment	This document is posted in CVM ARU Farm Shop and in all animal ID

	boxes throughout our assigned areas
Uploaded in this tool?	Yes

Name	Contacting the Office of the Campus Veterinarian
Description	This is to contact the Office of Campus Veterinarian during norma and after hours.
Medium	Paper
Location Where Stored (Physical)	CVM ARU Farm Shop
Location Where Stored (URL)	
Owner (department)	WSU CVM OCV
Contact person(s)	Dr. Nina Woodford
Backup measures	This document is posted in CVM ARU Farm shop and all animal ID boxes throughout our assigned areas
Comment	This is a living document, it is updated several times a year .
Uploaded in this tool?	Yes

Name	CVM ARU Disaster Plan and CVM Call List and Crisis Plan
Description	These documents provide a unit disaster plan and CVM Call List and Crisis Plan
Medium	Paper
Location Where Stored (Physical)	Large Animal Farm Shop 229. SE Dairy Road Pullman WA
Location Where Stored (URL)	
Owner (department)	CVM & CVM ARU
Contact person(s)	Fred Loaiza Michelle Martinez
Backup measures	There are copies of this posted in the CVM ARU Large Animal Farm Shop
Comment	This is a living document and updated several times a year.

Uploaded in this tool?	Yes

Name	Weekend Emergency Phone Numbes
Description	This provides emergency contact names and phone numbers
Medium	Paper
Location Where Stored (Physical)	CVM ARU Large Animal Farm Shop 229. SE Dairy Road Pullman WA
Location Where Stored (URL)	
Owner (department)	CVM ARU Large Animal Farm Shop
Contact person(s)	Fred Loaiza Michelle Martinez
Backup measures	This document is posted in our Farm Shop and Animal ID boxes throughout our assigned areas.
Comment	This is a living document and updated several times a year. Hard copies are in multiple places.
Uploaded in this tool?	Yes

Name	Office of Campus Veterinarian
Description	This document provides contact names and phone numbers for normal, weekend and after hours
Medium	Paper
Location Where Stored (Physical)	CVM ARU Large Animal Farm Shop 229. SE Dairy Road Pullman WA
Location Where Stored (URL)	
Owner (department)	Office of Campus Veterinarian
Contact person(s)	Office of Campus Veterinarian Dr. Nina Woodford
Backup measures	Hard copies are posted at CVM ARU Large Animal Farm Shop and Animal ID boxes throughout our facilities
Comment	This is a living document and updated whenever needed.

Uploaded in this tool?	Yes

Name	Office of Campus Veterinarian
Description	Campus Veterinarian Contact Information. It has normal , after hour and weekend phone numbers and names.
Medium	Paper
Location Where Stored (Physical)	College of Veterinary Medicine Large Animal Farm Shop 229. SE. Dairy Road Pullman WA
Location Where Stored (URL)	
Owner (department)	CVM Office of Campus Veterinarian
Contact person(s)	Office of Campus Veterinarian Dr. Nina Woodford
Backup measures	This is posted at CVM ARU Large Animal Farm Shop and all animal ID boxes throughout our facilities.
Comment	This is a living document and updated as needed.
Uploaded in this tool?	Yes

Name	CVM ARU Disaster Plan, CVM Call List Crisis Plan
Description	List of names and phone numbers with Crisis Plan
Medium	Paper
Location Where Stored (Physical)	CVM ARU Farm Shop 229.SE Dairy Road, Pullman WA
Location Where Stored (URL)	
Owner (department)	CVM ARU Large Animal
Contact person(s)	Michelle Martinez Fred Loaiza
Backup measures	It is displayed in our Farm Shop
Comment	This is a living document, it is updated as needed.
Uploaded in this tool?	Yes

Name	Weekend Emergency Phone Numbers
Description	Lists contact information
Medium	Paper
Location Where Stored (Physical)	CVM ARU Farm Shop and all Animal ID boxes
Location Where Stored (URL)	
Owner (department)	CVM ARU Large Animal
Contact person(s)	Fred Loaiza
Backup measures	On display at CVM ARU Farm Shop, Animal ID boxes throughout our facilities.
Comment	This is a living document and updated several times a year.
Uploaded in this tool?	Yes

Name	Contacting the Office of Campus Veterinarian
Description	Emergency Contact for normal and after hours.
Medium	Paper
Location Where Stored (Physical)	Displayed at Farm Shop 229. Dairy Road, Pullman WA
Location Where Stored (URL)	
Owner (department)	CVM Office of Campus Veterinarian
Contact person(s)	
Backup measures	
Comment	
Uploaded in this tool?	No

From: Wild, Margaret Ann
Sent: Friday, August 30, 2019 4:55 PM
To: Loaiza, Fred A,II
Cc: or.ocv.alert; Martinez, Michelle S
Subject: RE: Fall 2018 IACUC Checklist - ARU Large Animal Facilities and Trailers
Attachments: Policy 15- Pest Control in Animal Facilities.pdf; Rodenticide secondary toxicity Murray .pdf

I heard back from Alan Ekstrand and he referred me to the relatively new pest control policy (policy #15) that I wasn't aware of. An important statement from that policy is:
"The use of rodenticides and avicides around animal facilities should be a last resort and only after careful consideration, especially near outdoor housing facilities. There is potential for secondary poisoning if the targeted species is poisoned, then consumed by animals housed at the facility (e.g. swine) or other animals around the facility (barn cats, raptors, etc.). Options should be discussed with your pest control provider, and rodenticides and avicides with lower risk of secondary poisoning should be selected whenever possible."

I was wondering what criteria went into the decision that kill traps are not feasible and therefore the "last resort" of rodenticides was needed at the animal facilities? I know kill traps can be a bit of a hassle, but some of the new ones (e.g., A24 Good Nature) are pretty slick. I'd certainly like to use those at the elk facility. Maybe it would be an opportunity to test them out and see if they might have wider application as well. I'd be interested in discussing this more and seeing about how we can move toward feasible yet environmentally sound rodent control.

Thanks,
Margaret
****
Margaret A. Wild, DVM, PhD
Professor
Washington State University
College of Veterinary Medicine
Department of Veterinary Microbiology and Pathology
ADBF 4013
PO Box 647040
Pullman, WA 99164-7040
Ph: 509-335-6323

From: Wild, Margaret Ann
Sent: Friday, August 30, 2019 9:59 AM
To: Loaiza, Fred A,II <floaiza@wsu.edu>
Cc: or.ocv.alert <or.ocv.alert@wsu.edu>; Martinez, Michelle S <msmartinez@wsu.edu>
Subject: RE: Fall 2018 IACUC Checklist - ARU Large Animal Facilities and Trailers

Thanks for looking into this Fred. I would respectfully differ with the pest company's assessment of risk of secondary toxicity, particularly to wildlife. I understand that use of these highly toxic anticoagulant rodenticides might be required in some situations, but I am going to reach out to the IACUC to ask about thinking about some risk reduction. Not that what we've done is the past is wrong, just thinking about if/how we might make it more environmentally friendly.

Best,
Margaret

****

Margaret A. Wild, DVM, PhD
Professor
Washington State University
College of Veterinary Medicine
Department of Veterinary Microbiology and Pathology
ADBF 4013
PO Box 647040
Pullman, WA 99164-7040
Ph: 509-335-6323

From: Loaiza, Fred A,II
Sent: Wednesday, August 28, 2019 3:05 PM
To: Wild, Margaret Ann <margaret.wild@wsu.edu>
Cc: or.ocv.alert <or.ocv.alert@wsu.edu>; Martinez, Michelle S <msmartinez@wsu.edu>
Subject: RE: Fall 2018 IACUC Checklist - ARU Large Animal Facilities and Trailers

Hi Dr. Wild,

I have some new information about the Generation Mini-Blocks we use in our bait stations, EPA # 7173-218. Like I said yesterday the rodent control is contracted out to Palouse Empire Pest Control 800 852-7498. I made calls to PEPC and the manufacturer of the product, Liphatech 800 351-1476. They both assured me that even though there is some risk of an animal eating a rodent after it ingested the bait, there have been no documented cases of secondary poisoning. Brad Bowman, of Palouse Empire Pest Control offered to speak with you if you like. He can do a much better job than I can to explain it .

If I learn anything else I will be sure to pass it on.

Thank you,

Fred Loaiza
Animal Care Facilities Mgr.
WSU CVM ARU
PO Box 647010
Pullman, WA 99164-7010
509-335-2188 Fax 509-335-5830
floaiza@wsu.edu

From: Wild, Margaret Ann
Sent: Tuesday, August 27, 2019 3:29 PM
To: Loaiza, Fred A,II <floaiza@wsu.edu>
Subject: RE: Fall 2018 IACUC Checklist - ARU Large Animal Facilities and Trailers

Thanks for sharing this information. I know it isn't your decision, but this stuff can be bad for wildlife. It causes secondary poisoning and is of particular concern in raptors (see for example http://npic.orst.edu/factsheets/rodenticides.html). I'll reach out to the IACUC and will be interested to hear their perspective.
Best,
Margaret

****

Margaret A. Wild, DVM, PhD
Professor
Washington State University
College of Veterinary Medicine
Department of Veterinary Microbiology and Pathology
ADBF 4013
PO Box 647040
Pullman, WA 99164-7040
Ph: 509-335-6323

From: Loaiza, Fred A,II
Sent: Tuesday, August 27, 2019 2:57 PM
To: Wild, Margaret Ann <margaret.wild@wsu.edu>
Subject: FW: Fall 2018 IACUC Checklist - ARU Large Animal Facilities and Trailers

Dr. Wild,

The question has been brought up before about secondary poisoning with our rodent bait stations. This email with attachments are what I sent to the IACUC upon their request. We currently still use the bait stations in all our facilities.

Hope this is helpful, thank you for the question.

Fred Loaiza
Animal Care Facilities Mgr.
WSU CVM ARU
PO Box 647010
Pullman, WA 99164-7010
509-335-2188 Fax 509-335-5830
floaiza@wsu.edu

From: Loaiza, Fred A,II
Sent: Friday, November 16, 2018 11:00 AM
To: Kuykendall, Kerri <kerri.kuykendall@wsu.edu>; Martinez, Michelle S <msmartinez@wsu.edu>
Subject: RE: Fall 2018 IACUC Checklist - ARU Large Animal Facilities and Trailers

Good morning,

I have read the "Cover Letter" and the "Semiannual Facility Inspection Checklist". Everything appeared acceptable with only thing I thought I could make clearer. Under the heading of

"Suggestions for Improvement, Pest Control"

1. There are rodent bait stations around the facility for rodent control. Some of the rodenticides are associate with higher risk of secondary toxicity if another animal consumes a rodent that has ingested bait. Please work with your Pest Control Company to identify the type of rodenticide in use. Whenever possible rodenticides with the secondary toxicity should be used. If live traps are used, then must be checked daily and documentation.

I personally contacted our pest company, Palouse Pest Control, I spoke with the owner, Brad Bowman explained they only use Generation mini blocks in our bait stations. As suggested this is one of the most environmental friendly baits we can use. I have attached the MSDS for that product and an image of the company logo on our bait stations. We appreciate the opportunity to share this information with you. If you have any further questions or concerns please let us know.

Thank you,

Fred Loaiza
Animal Care Facilities Mgr.
WSU CVM ARU
PO Box 647010
Pullman, WA 99164-7010
509-335-2188 Fax 509-335-5830
floaiza@wsu.edu

From: Kuykendall, Kerri
Sent: Thursday, November 15, 2018 8:39 AM
To: Martinez, Michelle S <msmartinez@wsu.edu>; Loaiza, Fred A,II <floaiza@wsu.edu>
Subject: FW: Fall 2018 IACUC Checklist - ARU Large Animal Facilities and Trailers

Hi,

Please see attached cover letter.

Thanks,

Kerri

From: Kuykendall, Kerri
Sent: Thursday, November 15, 2018 8:34 AM
To: Loaiza, Fred A,II <floaiza@wsu.edu>; Martinez, Michelle S <msmartinez@wsu.edu>
Cc: Woodford, Nina Lynne <nwoodford@wsu.edu>
Subject: Fall 2018 IACUC Checklist - ARU Large Animal Facilities and Trailers

Hello,

I have been asked by the Institutional Animal Care and Use Committee (IACUC) to send out the Animal Facility Checklist reports that were composed following the semi-annual visit by the WSU-IACUC. Please see the attached cover letter and checklist(s) for the facilities/areas that are in your charge. The cover letter provides definitions of the findings on the checklists as well as guidance on how to respond to the findings.

Please do not hesitate to contact me if you have questions regarding this information.

Sincerely,

Kerri

Kerri Kuykendall
Program Specialist 3/Post-Approval Reviewer
Animal Welfare Program
Washington State University
Office: (509) 335-8043
URL: https://iacuc.wsu.edu/

Washington State University

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

Policy #15: Pest Control in Animal Facilities Approved: New

A. Purpose

The purpose of this policy is to ensure appropriate measures are taken to prevent and control the entrance of pests and predators and eradicate infestations in facilities housing research and teaching animals.

B. Background

The Animal Welfare Act, the Public Health Service Policy, the ILAR Guide for the Care and Use of Laboratory Animals, and the Guide for the Care and Use of Agricultural Animals in Agriculture Research and Teaching require a pest control program as a component of the animal care program.

C. Policy

All units housing laboratory or teaching animals must have a pest control plan. Refer to the Safety Policies and Procedures Manual 5.10 for pest control guidance https://policies.wsu.edu/prf/index/manuals/6-00-contents/6-30-pest-animal-control/

D. Procedure

1. Facility maintenance and design

   Building design, construction and maintenance are the primary components to preventing entrance of potential pests into animal areas.

   All interior animal housing and support units must ensure that windows, doors and exterior walls are sealed to prevent entrance of pest and predators. Interior walls, drains and vents must be checked for cracks and leaks and repaired as needed. Facilities Services should be contacted when repairs are needed that require their services.

   Facilities shall be kept free of clutter, unnecessary storage of equipment, and trash to prevent the harborage of pests. Cardboard boxes, feed bags, etc. should be kept off the floor. Excess vegetation should be kept trimmed around exterior sheltered housing areas, feed storage areas and barns.

   Agricultural, wildlife and other sheltered/barn housing units have design limitations to prevent pest entry but need to maintain facilities to limit harborage of pests.

2. Pest control plan

Animal units are required to develop pest control plans specific to their pest control needs. A regularly scheduled and documented program of control and monitoring should be implemented (*Guide p.74*).

Principal Investigators and research staff must be consulted before ANY pesticides or other chemical substances will be used in animal areas or around caging, food or other items that could contact the animals to prevent any effects or unintended consequences that could affect the research experiments.

When necessary for the prevention or control of potential risks associated with pests and predators, nontoxic substances and live traps can be utilized. Any traps used should be humane (*Guide, p74*). Live and lethal (e.g., snap) traps must be checked daily. Rodent glue traps must not be used. Glue traps for insect monitoring can be used; however, they should be designed to prevent rodent capture.

Zoonotic and other infectious disease agents have been identified in the wild rodent populations so care should be taken with wild rodents. Animals trapped alive should be humanely euthanized. If live rodents are trapped within a rodent viviarium, contact OCV to determine if the animal should be submitted as part of the rodent health surveillance program for testing.

The use of rodenticides and avicides around animal facilities should be a last resort and only after careful consideration, especially near outdoor housing facilities. There is potential for secondary poisoning if the targeted species is poisoned, then consumed by animals housed at the facility (e.g. swine) or other animals around the facility (barn cats, raptors, etc.). Options should be discussed with your pest control provider, and rodenticides and avicides with lower risk of secondary poisoning should be selected whenever possible.

E. References

1) Guide for the Care and Use of Laboratory Animals, 8th Edition. 2011
2) Guide for the Care and Use of Agricultural Animals in Research and Teaching, 3rd Edition, 2010
3) Animal Welfare Act (AWA, Public Law 89-544, 7 U.S.C.)

WSU-IACUC Policy #15: Pest Control for Animal Facilities

Approved: 11-15-2018

Ecotoxicology (2017) 26:1041 1050
DOI 10.1007/s10646 017 1832 1

Anticoagulant rodenticide exposure and toxicosis in four species of birds of prey in Massachusetts, USA, 2012–2016, in relation to use of rodenticides by pest management professionals

Maureen Murray[1]

Accepted: 21 June 2017 / Published online: 1 July 2017

Abstract Restrictions on second-generation anticoagulant rodenticides (SGARs) in the United States, which were partially implemented in 2011, prohibit the sale of SGAR products through general consumer outlets to minimize use by non-professional or non-agricultural applicators. This study analyzed liver tissue from four species of birds of prey admitted to a wildlife clinic in Massachusetts, USA, from 2012–2016 for residues of anticoagulant rodenticides (ARs). Ninety-four birds were analyzed; 16 were symptomatic for AR toxicosis, and 78 asymptomatic. Ninety-six percent of all birds tested were positive for SGARs: 100% of those diagnosed with AR toxicosis ante-mortem and/or post-mortem and 95% of subclinically exposed birds. Brodifacoum was found in 95% of all birds. Sixty-six percent of all birds contained residues of two or more SGARs. A significant increase in exposures to multiple SGARs occurred in later years in the study. Pesticide use reports (PURs) filed with the Massachusetts Department of Agricultural Resources were reviewed to determine the frequency of use of different ARs by pest management professionals (PMPs) across five years. This study finds that the three SGARs favored by PMPs—bromadiolone, difethialone, brodifacoum—were present in combination in the majority of birds, with increases in multiple exposures driven by increased detections of bromadiolone and difethialone. Continued monitoring of AR residues in nontarget species following full implementation of sales and packaging restrictions in the US is needed in order to elucidate the role of PMP use of SGARs in wildlife exposures and to evaluate the effectiveness of current mitigation measures.

Keywords Anticoagulant rodenticides · Birds of prey · Pesticide use reports · Regulatory approach · Diagnosis of toxicosis

✉ Maureen Murray
maureen.murray@tufts.edu

[1] Wildlife Clinic, Cummings School of Veterinary Medicine at Tufts University, 200 Westboro Rd, North Grafton, MA 01536, USA

Introduction

Anticoagulant rodenticides (ARs) interfere with blood clotting by inhibiting the enzyme vitamin K epoxide reductase, which functions to activate vitamin K. This inhibition results in the accumulation of an inactive form of vitamin K, which in turn is unable to activate the vitamin-K dependent clotting factors. The depletion of these activated clotting factors causes a coagulopathy and hemorrhage.

Exposure to and mortality from ARs in free-living birds of prey is well documented over many years in multiple countries (Hegdal and Colvin 1988; Stone et al. 2003; Berny and Gaillet 2008; Walker et al. 2008; Albert et al. 2010; Murray 2011; Langford et al. 2013; Stansley et al. 2014; Huang et al. 2016; Justice-Allen and Loyd 2017). Signs of toxicosis in free-living birds of prey have been described (Stone et al. 1999; Murray and Tseng 2008; Murray 2011). The US Environmental Protection Agency (EPA) has determined that second-generation ARs (SGARs), which are more potent and have longer half lives in comparison to first-generation ARs (FGARs), present a significant risk to wildlife through both primary and secondary exposures (Erickson and Urban 2004).

To address the risk of SGARs to nontarget wildlife, in 2008 the US EPA issued the risk mitigation decision for ten rodenticides (RMD) disallowing the sale of the SGARs brodifacoum, bromadiolone, difenacoum, and difethialone through general consumer retail outlets, effective June 2011 (US Environmental Protection Agency 2008). The RMD allows the sale of the FGARs diphacinone and chlorophacinone on the general consumer market, as FGARs are thought to pose less risk to nontarget species (Erickson and Urban 2004). The decision allows continued use of SGARs by pest management professionals (PMPs) and agricultural users. Other users may still potentially purchase SGARs outside of general retail outlets—though packaging requirements are designed to discourage such use (US Environmental Protection Agency 2008)—with the exception of residents of the state of California, which has designated SGARs as restricted pesticides (California Department of Pesticide Regulation 2013).

Full compliance with the RMD was not achieved in June 2011 due to one manufacturer, Reckitt Benckiser (RB), refusing to remove SGAR-containing products from the general consumer market. Reckitt Benckiser retained product registrations for the SGARs brodifacoum and difethialone through 2014 (US Environmental Protection Agency 2014). However, other AR manufacturers brought replacement products to the market in June 2011. Along with FGARs, the neurotoxic agent bromethalin is allowed for sale through general consumer retail outlets. Discontinuation of the distribution of SGARs by RB to general consumer outlets occurred in March 2015 under an agreement between the company and the US EPA (US Environmental Protection Agency 2014).

Along with less convenient availability of SGARs to general consumers and bait station requirements, the potential effectiveness of the US EPA regulations in protecting wildlife species further depends on the supposition that use of SGARs by PMPs will be a component of an integrated pest management (IPM) strategy. An IPM approach should decrease reliance on chemical rodenticides and therefore result in less risk of exposure to and toxicosis from SGARs in wildlife species (US Environmental Protection Agency 2008). However, a 2015 survey of PMPs in Massachusetts revealed that 97% of respondents use chemical rodenticides more than half of the time as part of an IPM approach to rodent control, raising the question of whether PMP use of SGARs may still be a source of significant exposure in non-target species (Memmott et al. 2017). Moreover, this survey found that respondents had a low level of knowledge regarding potency and half lives of ARs, and 50% of respondents indicated a neutral or low level of concern regarding the effects of ARs on wildlife, including birds of prey (Memmott et al. 2017).

The objective of this study is to evaluate four species of free-living birds of prey (red-tailed hawks [*Buteo jamaicensis*], barred owls [*Strix varia*], eastern screech-owls [*Megascops asio*], and great horned owls [*Bubo virginianus*]) admitted to a wildlife clinic in Massachusetts, USA, for AR residues both in birds diagnosed with AR toxicosis and in those that showed no clinical signs of coagulopathy. Additionally, a sampling of pesticide use reports (PURs) filed with the Massachusetts Department of Agriculture, Division of Crop and Pest Services, were reviewed to determine the frequencies of use of specific rodenticides by PMPs in the state in order to evaluate the extent to which residues of ARs favored by PMPs are present in these birds of prey.

Methods

Birds included in study and diagnosis of anticoagulant rodenticide toxicosis

Birds included in this study are free-living red-tailed hawks (RTHAs), barred owls (BDOWs), eastern screech-owls (EASOs), and great horned owls (GHOWs) that were admitted to the Wildlife Clinic at Cummings School of Veterinary Medicine at Tufts University (CSVM) in North Grafton, Massachusetts, from late 2012 to early 2016. Locations of recoveries at the county level were examined to provide an indication of the predominant type of land use in the areas from which the birds were recovered.

Of the 16 birds diagnosed with AR toxicosis, ten were admitted to the clinic alive and were administered appropriate treatment (Murray and Tseng 2008) but died despite therapy; three others that were admitted alive were humanely euthanized due to grave prognoses and/or concurrent injuries; and three were recovered alive but were dead on arrival to the clinic. All birds diagnosed with AR toxicosis within the period of sampling were analyzed for residues of ARs. Subclinically exposed birds were sampled on an opportunistic basis, when birds from the included species died or were humanely euthanized, and were randomly chosen for analysis within each species group. These do not represent all mortalities among these species within the sampling period. These birds died soon after admission, were humanely euthanized due to the severity of the presenting injury or illness, or were dead on arrival.

Humane euthanasia was performed by intravenous injection of a veterinary euthanasia solution containing pentobarbital sodium and phenytoin sodium in cases in which the bird's condition indicated a grave prognosis for survival or precluded release to the wild. No birds were euthanized for the purpose of this study. No institutional animal care and use protocol was required due to the study's

utilization of cadavers only for tissue sampling. Medical treatment was directed by wildlife veterinarians. Rehabilitation of birds of prey at Tufts Wildlife Clinic is conducted under appropriate and state and federal permits.

Gross post-mortem examinations were performed on all birds by a wildlife veterinarian board certified in avian medicine, and a cause of death was assigned when possible. Cause of death categories other than AR toxicosis include trauma, infectious disease, and unknown. A diagnosis of AR toxicosis was made based on post-mortem findings, in conjunction with ante-mortem signs, when possible. Diagnostic criteria have been described previously (Murray and Tseng 2008; Murray 2011). Briefly, ante-mortem diagnosis of AR toxicosis was based on factors including anemia and hypoproteinemia; delayed clotting as demonstrated by a modified whole blood clotting test; evidence of excessive hemorrhage (e.g., external bleeding, extensive intramuscular or subcutaneous hemorrhage) in the absence of concurrent traumatic injuries such as fractures, severe wounds, or ocular injury; depressed mentation; evidence of cardiovascular shock (pallor of mucous membranes, poor capillary refill time). Post-mortem criteria included evidence of extensive hemorrhage (subcutaneous, intramuscular, pulmonary, visceral, or intracoelomic hemorrhage, pallor of internal organs) without concurrent evidence of corresponding severe trauma. For AR analysis, liver tissue was collected and stored frozen at −17 °C.

Analysis for anticoagulant rodenticides

Analysis of liver tissue for ARs was performed at the California Animal Health and Food Safety Laboratory (Davis, CA). Screening included testing for brodifacoum, bromadiolone, chlorophacinone, difenacoum, difethialone, diphacinone, and warfarin.

Two methods were used for analysis of ARs during the course of this project. In the first method, tissue samples were homogenized in 5% ethanol in ethyl acetate. The extracts were exchanged into hexane, cleaned up using Florisil solid phase extraction, exchanged into methanol and then screened using electrospray HPLC-MS/MS on a Thermo LXQ linear ion trap interfaced to a Waters Acquity HPLC. Extracts containing detectible levels of any of the ARs were re-analyzed for quantitation using HPLC with diode array and fluorescence detection. Analysis of analyte standard solutions at varying levels were used to construct calibration curves for quantitation. In the second method, used from September 2015 onward, tissue samples were homogenized in 10% methanol in acetonitrile, cleaned up using dispersive solid phase extraction, and analyzed by electrospray HPLC-MS/MS on a Thermo Q-Exactive high resolution mass spectrometer interfaced to a Dionex Ultimate 3000 HPLC system. In order to provide calibration curves for accurate quantitation by electrospray LC-MS/MS, control tissue samples were fortified at varying levels and then extracted and analyzed as per this method. Quality control practices for both methods included analysis of extracts of negative control tissue and spiked control tissue samples.

Reporting limits for each AR detected in this study for the earlier and later methods in ppm (wet weight), respectively, are: brodifacoum 0.01, 0.02; bromadiolone 0.05, 0.02; chlorophacinone 0.25, 0.02; difethialone, 0.25, 0.02; diphacinone 0.25, 0.02; difenacoum 0.05, 0.02.

Review of pesticide use reports

The Massachusetts Department of Agricultural Resources (MDAR), Division of Crop and Pest Services, retains yearly PURs filed by all licensed applicators of pesticides for 6 years from the time of filing. The earliest and most current years available for review during the time this manuscript was prepared were 2008 and 2015. Information available from the PURs includes trade name of products employed, major site or crop treated (e.g., structural, turf, cranberry, etc.) and total amount of product used. The PURs do not include information on amount of active ingredient used. Only PURs that denoted structural use of rodenticides were included.

Because the PURs are not in electronic format, a complete review of all reports from each year was not undertaken. To estimate the total number of PMPs using chemical rodenticides within a year, a list of active pesticide license holders in 2015 obtained from MDAR via public records request was examined. License holders for which company names denoted tree, landscape, solely insect-related, or other services clearly unrelated to structural rodent control were excluded, resulting in approximately 1300 individual licenses remaining. However, this number could be an overestimate of the total sampling population due to inability to ascertain whether each of these license holders definitely offered rodent control services or was actively employed in that year.

For each of the years 2008, 2009, 2013, 2014, and 2015, random selections of 100 PURs filed by PMPs employing rodenticides for structural use were reviewed to evaluate the frequencies of use of specific rodenticides by PMPs in each year. The confidence interval estimating a total of 1300 potential license holders per year is less than +/− 0.1. The years 2008 and 2009 were chosen to correspond to years included in prior AR study in birds of prey (Murray 2011); the years 2010–2012 were not evaluated. The paper PURs were filed by the MDAR in no specific order other than by year. Within each year, PURs were selected from the files at random and sorted until 100 reports denoting structural use of chemical rodenticides were obtained.

Statistical analysis

Statistical analysis was performed in IBM SPSS Statistics, version 22. The change in laboratory methods of AR analysis applied to 20 out of the total of 94 samples in this study (eight samples from 2015 and all 12 samples from 2016). This change resulted in lower reporting limits and slightly increased sensitivity in these 20 samples for certain ARs (chlorophacinone, bromadiolone, difethialone, diphacinone, difenacoum). Due to this change in laboratory methods in late 2015, a Fisher's exact test was used to compare the presence of one or multiple ARs in samples analyzed via the earlier and later methods for 2015 and 2015–2016 ($n = 23$, $n = 20$, respectively). No significant difference was found ($p = 0.67$). As a sensitivity analysis, samples analyzed via the earlier method in the year 2014 were combined with those from 2015 ($n = 45$) and compared against all samples analyzed via the later method using a Fisher's exact test. This result also was not significant ($p = 0.32$). These results indicate that the change in laboratory methods likely did not lead to increased detections of certain ARs in late 2015 and 2016. Therefore, all samples were included in further analysis.

Descriptive statistics were used to evaluate the percentages of birds exposed to all ARs, to multiple ARs, and to specific ARs according to species, cause of death, and year of recovery. Descriptive statistics were also used to evaluate use patterns of specific ARs by PMPs in different years in the study.

A Fisher's exact test was used to evaluate the presence of one or more than one AR in birds diagnosed with AR toxicosis compared to subclinically exposed birds. A Fisher's exact test expanded for a 2×4 contingency table was used to evaluate whether species differences in exposure to multiple ARs were present. For temporal analysis of presence of multiple ARs, the years 2014–2016 were first examined using a Fisher's exact test expanded for a 2×3 contingency table. The data were then collapsed into two time periods, 2012–2013 and 2014–2016, and compared using a Chi-square test.

A Kruskal–Wallis test was used to compare median brodifacoum liver concentrations among years included in this study and among species, followed by a Dunn procedure for pairwise comparisons where appropriate. As concentrations for bromadiolone, difethialone, and difenacoum were trace amounts below the limits of quantitation for the majority of detections for each, no statistical analyses were performed on concentration levels for these SGARs.

A Kruskal–Wallis test was used to compare cause of death to liver brodifacoum concentrations for each species independently, as species differences in sensitivity to ARs may exist (Petterino and Paolo 2001; Watanabe et al. 2015).

Results

Numbers of birds tested and geographic area of study

A total of 94 birds were tested for ARs: RTHAs $n = 37$, BDOWs $n = 24$, GHOWs $n = 17$, EASOs $n = 16$. Sixteen birds (14 RTHAs, 2 GHOWs) diagnosed with AR toxicosis and 78 birds without signs of AR toxicosis were analyzed. Numbers of birds tested in each year of the sampling period were as follows: 2012 $n = 6$; 2013 $n = 21$; 2014 $n = 24$; 2015 $n = 31$; 2016 $n = 12$. Because of the small number of birds tested in 2012 and as these samples were collected late in the year, samples from 2012 and 2013 were combined for statistical analysis focused on differences among years.

The majority of tested birds (89%) came from five counties: Worcester in central Massachusetts, where CSVM is located (37%), and four counties to the east: Middlesex (32%), Norfolk (10%), Suffolk (6%), and Essex (4%). Sixty-nine percent of tested birds were recovered from two counties, Middlesex and Worcester, which are the two largest counties in Massachusetts by population. The other most represented counties are the state's next three most populous. These five counties are predominantly suburban to urban and include two major cities: Worcester in Worcester county and Boston in Suffolk county, with Middlesex, Norfolk, and Essex counties holding the western, southern, and northern suburbs of Boston, respectively.

Anticoagulant rodenticides

Of all birds tested, 90 (96%) were positive for ARs (97% of RTHAs, 88% of BDOWs, 100% of GHOWs, 100% of EASOs, Table 1). All birds suspected of suffering from AR toxicosis were positive. Of the 78 asymptomatic birds, 74

Table 1 Percentages of all birds sampled positive for at least one AR, for multiple ARs, and for each SGAR identified across all years in study

Species	N	% of Birds positive					
		One or more AR	>1 AR	Brod	Brom	Difeth	Difen
Total	94	96	66	95	45	45	7
RTHA	37	97	78	97	51	62	8
BDOW	24	88	42	88	33	21	4
GHOW	17	100	71	94	76	35	6
EASO	16	100	69	100	13	50	13

Brod brodifacoum, *Brom* bromadiolone, *Difeth* difethialone, *Difen* difenacoum

(95%) were positive. All positive birds had residues of SGARs. Brodifacoum was found in all positive birds except one (99%), a GHOW which was positive for bromadiolone only. Two birds had residues of FGARs: an EASO with residues of both diphacinone and brodifacoum and a GHOW with residues of chlorophacinone along with brodifacoum, bromadiolone, and difethialone.

The majority of birds across all years (66%) had residues of more than one AR (78% of RTHAs, 42% of BDOWs, 71% of GHOWs, 69% of EASOs). While BDOWs showed the lowest exposure to multiple ARs, differences among species were not significant ($p = 0.087$). No significant difference in the number of ARs present was found between symptomatic and asymptomatic birds ($p = 0.37$). Due to this lack of difference in number of ARs between these two groups, symptomatic and asymptomatic birds were combined for analysis of multiple AR exposures per year.

The percentages of birds positive for multiple ARs per year are as follows: 33% in 2012–13; 67% in 2014; 87% in 2015; 83% in 2016 (Fig. 1). Across the years 2014–2016, no significant increase in the presence of multiple ARs occurred ($p = 0.48$). For the time period 2014–2016, 79% of birds combined were positive for multiple ARs, a statistically significant increase from 2012–13 ($p = 0.00$).

The percentages of positive birds with liver residues of each SGAR per year are shown in Fig. 2. The percentages of positive birds with residues of two, three, or four SGARs, respectively, for all years combined are as follows: 39, 27, 3%. The most frequent combinations of SGARs among positive birds were as follows: brodifacoum, bromadiolone, and difethialone (23%); brodifacoum and difethialone (19%); brodifacoum and bromadiolone (18%).

Range and median brodifacoum concentrations, respectively, in liver tissue (ppm) were as follows: all species combined <0.01–0.90, 0.11; RTHA <0.01–0.56, 0.12;

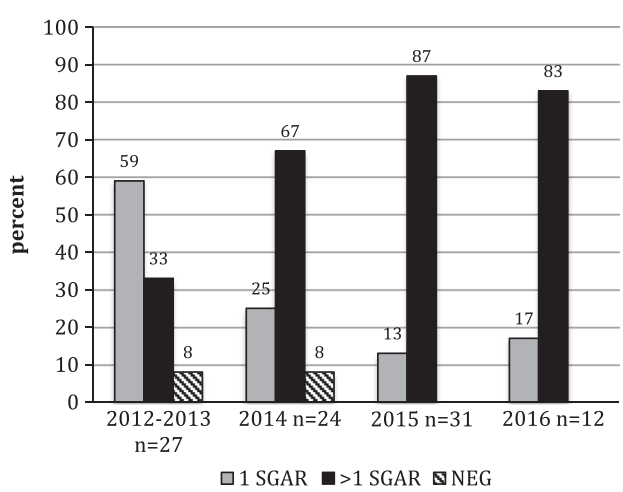


Fig. 1 Percentages of all birds sampled positive in liver tissue for one AR only or multiple ARs per year

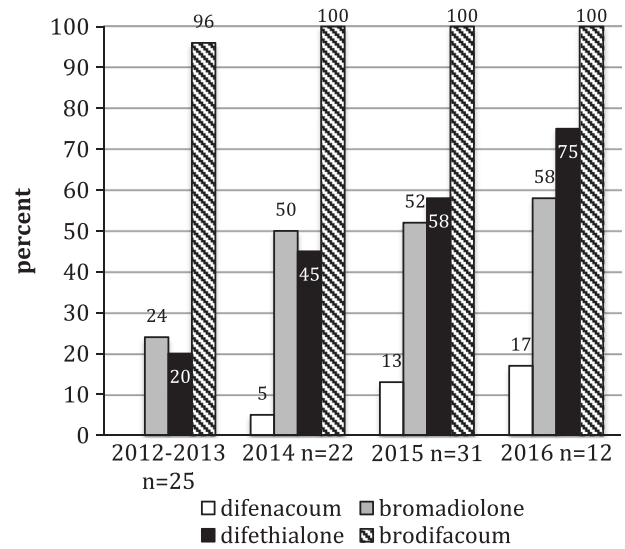


Fig. 2 Percentages of positive birds with residues of each SGAR in liver tissue per year

BDOW <0.01–0.39, 0.041; GHOW <0.01–0.90, 0.17; EASO <0.01–0.83, 0.051.

GHOWs had significantly greater brodifacoum concentrations than BDOWs ($p = 0.007$). No significant differences were found among other species comparisons. No significant increase in brodifacoum concentrations across the years included in this study was found ($p = 0.19$).

Concentrations of other SGARs detected were trace amounts below the reporting limit for 69% of positive bromadiolone cases (<0.05 ppm, $n = 18$; <0.02 ppm, $n = 11$), 81% of positive difethialone cases (<0.25 ppm, $n = 22$; <0.02 ppm, $n = 12$), and all difenacoum cases. Range and median concentrations, respectively, among the quantitated cases for bromadiolone and difethialone for all species combined in liver tissue (ppm) are as follows: bromadiolone, 0.058–0.38, 0.13 ($n = 13$); difethialone, 0.05–0.67, 0.18 ($n = 8$).

Cause of death and signs of toxicosis

Of the 16 birds diagnosed with AR toxicosis, 13 (81%) had residues of >1 AR. Among RTHAs, which comprised 14 of the 16 toxicosis cases, 87% had residues of >1 AR (Table 2). Only SGARs were present in symptomatic birds, and these were present in the following combinations: brodifacoum and difethialone $n = 6$; brodifacoum, bromadiolone, and difethialone $n = 4$; brodifacoum and bromadiolone $n = 2$; brodifacoum, bromadiolone, difenacoum $n = 1$. The remaining three birds had residues of brodifacoum only. The concentration range of brodifacoum in liver tissue of symptomatic RTHAs was large: 0.078–0.56 ppm. Of the 12 RTHA toxicosis mortalities that had residues of >1 SGAR, quantitated bromadiolone concentrations ranged

from 0.15 to 0.31 ppm ($n = 3$), and quantitated difethialone concentrations ranged from 0.05 to 0.67 ppm ($n = 4$).

Cause of death categories among birds that were not diagnosed with AR toxicosis include trauma (78%), infectious/systemic disease (3%), and unknown (19%). No significant differences were found in liver brodifacoum concentrations among all cause of death categories, including AR toxicosis, for each species (for RTHAs, $p = 0.13$).

Signs of toxicosis observed were similar to those reported in Murray (2011). In 13/13 birds presented alive, dull mentation, pale mucous membranes, and delayed capillary refill time were present. Anemia was documented in 9/9 birds for which a packed cell volume (PCV) was obtained, with PCVs ranging from 7 to 26%. Delayed clotting was seen in 7/7 birds for which a modified whole blood clotting time was performed (Murray and Tseng 2008). Other signs observed ante-mortem included: excessive bleeding from a laceration ($n = 6$), subcutaneous hemorrhage ($n = 6$), blood in the oral cavity ($n = 2$), bleeding from the nares ($n = 1$), bleeding from the vent ($n = 2$), hyphema ($n = 1$), severe periorbital swelling ($n = 1$). Signs observed on gross post-mortem examination included: pallor of internal organs ($n = 9$), coelomic hemorrhage ($n = 9$), pulmonary hemorrhage ($n = 7$), petechiation or bruising of the sternum ($n = 6$), hemorrhage into the central nervous system ($n = 4$), hemorrhage of the female reproductive tract with the presence of an egg ($n = 2$), hemorrhage of the gastrointestinal tract ($n = 2$), hemorrhage in air sacs ($n = 1$), blood pooling in the cloaca ($n = 1$); hemorrhage into the pectoral muscles ($n = 1$); hemorrhage into the pericardial cavity ($n = 1$).

Pesticide use reports

The percentages given here represent the number of reports of each toxicant per 100 PURs that indicated structural use of chemical rodenticides. The majority of reporting PMPs employed more than one type of AR in each year. The non-anticoagulant rodenticides bromethalin and zinc phosphide are included to present a more complete picture of chemical rodenticide use among PMPs (Table 3). In all years evaluated, bromadiolone was the most frequently reported AR. Reports of use of difethialone increased notably from 2008 to 2015, from 14 to 70%, respectively. The year 2015 was also the only year for which reports of use of all three of the most frequently employed SGARs, bromadiolone, brodifacoum, and difethialone, were over 50% for each SGAR.

Table 2 Percentages of birds diagnosed with AR toxicosis with residues of more than one AR and of each SGAR identified

		% of Birds positive				
Species	N	>1 AR	Brod	Brom	Difeth	Difen
Total	16	81	100	44	63	6
RTHA	14	87	100	43	71	0
GHOW	2	50	100	50	0	50

Brod brodifacoum, *Brom* bromadiolone, *Difeth* difethialone, *Difen* difenacoum

Discussion

The data presented here demonstrate widespread AR exposure among four species of birds of prey in predominantly suburban and urban areas of Massachusetts, USA, with 96% of tested birds positive for AR residues in liver tissue. Each of the species included in this study showed extensive exposure to SGARs. All 16 birds diagnosed with AR toxicosis based on ante-mortem and/or post-mortem signs were positive for SGARs, and 95% of 78 asymptomatic birds were positive for ARs, mainly SGARs. The percentage of exposed birds in this study represents an increase over prior research in these same four species in the same geographic area in Massachusetts, which found that 86% of 161 birds were positive for SGARs (Murray 2011).

Brodifacoum was the most frequently detected SGAR and was found in all positive birds except one (99%). This finding is consistent with previous research which also found that 99% of positive birds had residues of brodifacoum (Murray 2011). In the United States, two additional published studies demonstrated widespread exposure to ARs, particularly brodifacoum, among certain raptor populations prior 2011, when the US EPA stipulated the removal of SGARs from the general consumer market

Table 3 Number of reports of use of each rodenticide per 100 PURs indicating structural use for each year

	2008	2009	2013	2014	2015
Bromadiolone[a]	72	71	75	64	85
Brodifacoum[a]	55	52	47	43	60
Difethialone[a]	14	35	47	47	70
Difenacoum[a]	0	1	1	0	1
Diphacinone[b,d]	23	21	20	17	22
Chlorophacinone[b,e]	4	7	4	6	10
Warfarin[b]	0	0	1	1	1
Bromethalin[c]	21	18	10	11	19
Zinc phosphide[c,e]	6	17	8	15	16

[a] SGAR

[b] FGAR

[c] Non anticoagulant

[d] Tracking powder and/or bait blocks

[e] Tracking powder

(Stone et al. 2003; Stansley et al. 2014). In both reports, the SGAR brodifacoum was the most frequently identified compound. Stone et al. (2003) found brodifacoum in 84% of 130 positive birds sampled from 1998 to 2001 in the state of New York. Stansley et al. (2014) found brodifacoum in 93% of 103 positive birds sampled from 2008 to 2010 in the state of New Jersey.

While information on sales of general consumer rodenticide products is not readily available, brodifacoum has been noted to have been the most commonly purchased rodenticide from general retail outlets in the state of California pre-2011 (Krueger et al. 2015). Brodifacoum was still attainable on the general consumer retail market through much of the time period and in the geographic area of this study, allowing the likelihood that nonprofessional use contributed to this high percentage of exposures, particularly given that brodifacoum does not appear to be the most preferred SGAR among PMPs in Massachusetts according to PUR data presented here as well as to survey data (Memmott et al. 2017). If sales in California are representative of other states, brodifacoum is the SGAR most likely to be affected by EPA restrictions on points of sale and packaging in terms of potential decline in nontarget species exposures.

The review of PURs filed by PMPs with the state of Massachusetts reveal that PMPs have consistently favored bromadiolone in the years included in and prior to this study, with consistent but less frequent reports of brodifacoum use. Reports of difethialone use among PMPs, however, steadily increased over the years examined from 14% in 2008 to 70% in 2015. Reports of bromadiolone and brodifacoum use in 2015 were 85 and 60%, respectively, which are higher than other years included (Table 3). These data indicate that the majority of PMPs in Massachusetts used all three of these SGARs in 2015 with greater frequency than in earlier years. Given the limitations inherent in the information available on the PURs, it was not possible to accurately determine relative amounts of each SGAR used (total product or active ingredient) among years. However, the exposure and PUR data presented here show that Massachusetts PMPs employing chemical rodenticides for structural use favor the three SGARs (bromadiolone, difethialone, brodifacoum) found in varying combinations in 65% of tested birds across all years of this study. Of birds tested in 2015, coinciding with the year of highest reported use of each, 81% of birds were exposed to combinations of these three SGARs.

Difenacoum is the newest SGAR on the US PMP market, first registered in 2007 (US Environmental Protection Agency 2008). Reports of use by PMPs in Massachusetts were first detected in 2009 and were infrequent or zero in all subsequent years in the sampling of PURs examined indicating it is currently used by PMPs in Massachusetts far less frequently than other SGARs. However difenacoum was found in 7% of birds in combination with other SGARs, with the majority of detections occurring in 2015 and 2016 (Fig. 2).

A statistically significant increase in multiple SGAR exposures in birds of prey was found for the time period 2014–2016 compared to 2012–2013. This increase was driven by exposures to bromadiolone and difethialone combined with continued high exposure to brodifacoum (Fig. 2). The high percentage of birds overall with residues of more than one SGAR is in marked contrast to the three prior studies in the US. Previously in Massachusetts, less than 2% of positive birds were found to contain residues of more than one SGAR (brodifacoum and difethialone, Murray 2011). In New York, 12% of positive birds were noted to contain brodifacoum and bromadiolone with no other SGARs detected (Stone et al. 2003). In New Jersey, 19% of positive birds had residues of both brodifacoum and bromadiolone, with the SGAR difenacoum being found in one bird, and no other SGARs detected (Stansley et al. 2014).

The reason for the timing of the observed increase in multiple SGAR exposures in this study after 2012–2013 is not entirely clear. However, industry-sponsored US market studies from 2014 to 2016 identify a trend toward increased demand for rodent control services among structural pest control companies in each of these years (Pest Control Technology 2014, 2015, 2016a). This demand is suggested by industry sources to be influenced by increased rodent populations secondary to milder winters resulting in less seasonality to reproductive rates as well as by expansions in urbanized areas (Pest Control Technology 2016a). Additionally, 57% of 528 PMPs surveyed in 2014 and 62% of 285 surveyed in 2015 indicated that they believed the restriction on sale of SGARs through the general consumer market resulted in growth opportunities for their companies' rodent control services (Pest Control Technology 2014, 2015). Given the data available in this study, it is not possible to correlate the increase in exposures to multiple ARs in birds of prey to use of increased quantities of ARs by PMPs. However, the SGAR exposures reported here in conjunction with the PUR data support the need for further study of PMP chemical rodenticide use practices (Memmott et al. 2017) and the extent to which these practices pose a risk to wildlife species, particularly if various market influences continue to spur growth in demand for professional structural rodent control services.

In previous research in Massachusetts, no exposures to FGARs were detected (Murray 2011). In this present study, chlorophacinone and diphacinone were detected in one GHOW and in one EASO, respectively, with both detections in 2015, in which year reports of use of these FGARs were 22 and 10%, respectively, among PMPs in

Massachusetts. These FGARs are allowable for sale through general consumer retail outlets under EPA regulations. While thought to pose less risk of secondary toxicosis than SGARs, the FGARs diphacinone and chlorophacinone have been detected in the livers of raptors (Stone et al. 1999, 2003; Albert et al. 2010). Diphacinone has been demonstrated experimentally to cause secondary toxicosis in golden eagles (*Aquila chrysaetos*, Savarie et al. 1979) as well as in great horned owls and northern saw-whet owls (*Aegolius acadicus*, Mendenhall and Pank 1980). Moreover, laboratory studies in American kestrels (*Falco sparverius*) and EASOs determined that these birds of prey are significantly more sensitive to the toxic effects of diphacinone and chlorophacinone than other avian species previously used to determine lethal doses of FGARs in birds and that the risk to birds of prey from FGAR use may be underestimated (Rattner et al. 2011, 2012, 2014a, 2015; Vyas and Rattner 2012). The question of whether general consumer use of FGARs will result in exposures and mortalities in wildlife is an area requiring continued study.

Red-tailed hawks represent the largest proportion of birds in the study and of birds diagnosed with AR toxicosis, consistent with prior study (Murray 2011). Red-tailed hawks are diurnal birds that readily utilize human-dominated landscapes (Morrison et al. 2016) and are the bird of prey admitted to Tufts Wildlife Clinic in highest numbers each year. Given this study's reliance on admissions to a wildlife clinic for sampling, the species distribution among AR toxicosis cases cannot be interpreted to reflect relative risk among species, as various behavioral, environmental, and population factors will influence the likelihood of an individual bird being found and transported for veterinary care following injury or illness and will affect these data.

Much is still unknown about factors that contribute to the development of toxicosis among individual birds exposed to ARs (Rattner et al. 2014b; Watanabe et al. 2015; Huang et al. 2016). Consistent with prior study (Murray 2011) and other studies in free-living birds of prey (Stone et al. 1999, 2003; Justice-Allen and Loyd 2017), the range of brodifacoum in liver tissue in birds that showed signs of AR toxicosis was large (0.078–0.56 ppm in RTHAs). Also consistent with prior study, no association between cause of death and liver brodifacoum concentration was found for each species. Interpreting liver brodifacoum concentrations in relation to signs of toxicosis is further complicated by the high percentage of birds in this study exposed to multiple SGARs.

Among birds that died due to AR toxicosis, 81% were exposed to two or more SGARs. A study on AR exposure in barn owls (*Tyto alba*) in southwestern Canada found an increase in mortalities from AR toxicosis along with an increase in owls exposed to multiple SGARs between two time periods: 2006–2013 and 1992–2003 (Huang et al. 2016). No significant difference in the number of SGARs present in liver tissue in symptomatic vs. asymptomatic birds was found in the study reported here. However, the nature of this study, which does not allow knowledge of the amount and timing of ARs ingested, prevents a full understanding of how exposures to multiple ARs may interact in causing toxicosis. Specifically, it is impossible to know if the exposures to multiple ARs observed here resulted from ingestion of ARs as an acute dose combined within one prey animal or as sequential, chronic exposures via several contaminated prey items. Laboratory studies in rats have found that exposure to brodifacoum increases the level of sensitivity to subsequent exposure to warfarin. This effect is due to brodifacoum causing subclinical but prolonged partial inhibition of vitamin K epoxide reductase, the enzyme affected by ARs (Mosterd and Thijssen 1991). This research in rats suggests the possibility that subsequent exposure to another AR following sublethal exposure to an SGAR may be more likely to result in mortality. Further study is required to determine the effects of sequential exposures and exposures to multiple ARs in birds of prey (Rattner et al. 2012, 2014b).

The ante-mortem and post-mortem findings presented here contribute to a small body of literature describing the effects of ARs on free-living birds of prey exposed in their natural environments (Merson et al. 1984; Hegdal and Colvin 1988; Stone et al. 1999; Murray and Tseng 2008; Murray 2011; Huang et al. 2016; Justice-Allen and Loyd 2017). These reports combined identify subcutaneous hemorrhage, intramuscular hemorrhage, pallor of tissues and/or internal organs, and coelomic hemorrhage as being the most frequent post-mortem lesions observed in free-living birds of prey. Detailed ante-mortem signs in free-living birds of prey are less frequently described (Murray 2011; Murray and Tseng 2008). The findings presented here along with prior research (Murray 2011) support dull mentation, pallor of mucous membranes, anemia, excessive bleeding from a laceration, and subcutaneous and/or intramuscular hemorrhage as commonly observed ante-mortem signs of AR toxicosis in birds of prey suffering secondary toxicosis via natural prey items. These signs are consistent with those observed ante-mortem in birds of prey exposed to FGARs or SGARs by primary or secondary routes in experimental settings (Savarie et al. 1979; Radvanyi et al. 1988; Rattner et al. 2011, 2012, 2014a, 2015; Salim et al. 2014).

As the US EPA has concluded that exposure to SGARs presents a substantial risk to wildlife species warranting certain restrictions on sale and use (US Environmental Protection Agency 2008), the pervasive nature of SGAR exposure reported here is cause for concern, in particular, the increased detections of the SGARs bromadiolone and

difethialone compared to earlier study (Murray 2011) and among later years in this study. These findings support the need for additional approaches toward risk mitigation. Strategies beyond restrictions on sale and packaging have been proposed for decreasing risks from SGARs, including examination of use practices, development of educational stewardship programs, and the implementation of an eco-fee, or polluter-pays, system to fund research and other efforts to ameliorate the effects of SGARs on wildlife (Elliott et al. 2016). Areas have been identified in which enhanced education regarding ecologically conscious use of SGARs may be beneficial for PMPs and the general public, which exerts consumer pressure on PMPs (Memmott et al. 2017). Exploration of chemical rodent control that may present less risk to nontarget species, while limited, has been undertaken and requires further study (Damin-Pernik et al. 2016; Pest Control Technology 2016b).

Conclusions

Many aspects of the effects of SGARs on wildlife and ecosystems remain poorly understood or minimally investigated, including exposure pathways under different use scenarios, effects of repeated exposures to the same or multiple ARs, and the persistence of SGARs in ecosystems (Vyas and Rattner 2012; Elliott et al. 2014; Rattner et al. 2014b; Hindmarch and Elliott 2015; Liu et al. 2015; Pitt et al. 2015). Specific limitations of this study include the inability to correlate the exact locations of PMP use of SGARs with specific locations of bird recoveries; the inability to quantify amounts of SGARs used by PMPs across years examined; the inability to determine the potential for SGARs intended for agricultural use or obtained through internet sales to contribute to exposures in birds; and the reliance on birds presented to a wildlife hospital for sampling, which do not fully represent the prevalence of exposure and mortality in the state's populations of these species.

Despite these limitations, the widespread exposure among birds of prey to SGARs that are frequently used by PMPs, as shown by the PUR data as well as by a survey of PMPs in the state (Memmott et al. 2017), suggests the potential for PMP use of SGARs to be a significant route of exposure. Continued monitoring of at risk nontarget species and examination of SGAR sales and use practices are needed to elucidate the contribution of PMP use of SGARs to exposures and mortalities in wildlife and to evaluate the effectiveness of current mitigation approaches.

Acknowledgements Funding for this research was provided by the Ruby Memorial Research Fund, administered by the Cummings School of Veterinary Medicine at Tufts University and supported by numerous generous donors, as well as the Blake Nuttall Fund, Nuttall Ornithological Club. The author thanks Drs. Robert Poppenga and Adrienne Bautista for assistance with sample analysis, Michael Filigenzi for assistance with sample analysis and manuscript preparation, the Massachusetts Department of Agricultural Resources for assistance with access to public pesticide use records, and Jef C. Taylor for valuable input on this project.

Funding This study was partially funded by the Nuttall Ornithological Club (grant number N/A).

Compliance with ethical standards

Conflict of interest The author declares that she has no competing interests.

Ethical approval This article does not contain any studies with human participants or animals performed by the author.

References

Albert CA, Wilson LK, Mineau P, Trudeau S, Elliott JE (2010) Anticoagulant rodenticides in three owl species from western Canada, 1988 2003. Arch Environ Contam Toxicol 58:451 459

Berny P, Gaillet J (2008) Acute poisoning of red kites (*Milvus milvus*) in France: data from the SAGIR network. J Wildl Dis 44:417 426

California Department of Pesticide Regulation (2013) DPR 13 002 Designating brodifacoum, bromadiolone, difenacoum, and difethialone (second generation anticoagulant rodenticide products) as restricted materials. http://www.cdpr.ca.gov/docs/legbills/rulepkgs/13 002/13 002.htm. Accessed 29 April 2017

Damin Pernik M, Espana B, Besse S, Fourel I, Caruel H, Popowycz F, Benoit E, Lattard V (2016) Development of an ecofriendly anticoagulant rodenticide based on the stereochemistry of difenacoum. Drug Metab Dispos 44:1872 1880

Elliott JE, Hindmarch S, Albert CA, Emery J, Mineau P, Maisonneuve F (2014) Exposure pathways of anticoagulant rodenticides to nontarget wildlife. Environ Monit Assess 186:895 906

Elliott JE, Rattner BA, Shore RF, Van Den Brink NW (2016) Paying the pipers: Mitigating the impact of anticoagulant rodenticides on predators and scavengers. BioScience 66:401 407

Erickson W, Urban D (2004) Potential risks of nine rodenticides to birds and nontarget mammals: a comparative approach. Office of prevention, pesticides, and toxic substances. United States Environmental Protection Agency, Washington, DC, http://www.fwspubs.org/doi/suppl/10.3996/052012 JFWM 042/suppl file/10.3996 052012 jfwm 042.s4.pdf. Accessed 17 Feb 2017

Hegdal PL, Colvin BA (1988) Potential hazard to eastern screech owls and other raptors of brodifacoum bait used for vole control in orchards. Environ Toxicol Chem 7:245 260

Hindmarch S, Elliott JE (2015) When owls go to town: the diet of urban barred owls. J Raptor Res 49:66 74

Huang AC, Elliott JE, Hindmarch S, Lee SL, Maisonneuve F, Bowes V, Cheng KM, Martin K (2016) Increased rodenticide exposure rate and risk of toxicosis in barn owls (*Tyto alba*) from southwestern Canada and linkage with demographic but not genetic factors. Ecotoxicology 25:1061 1071

Justice Allen A, Loyd KA (2017) Mortality of western burrowing owls (*Athene cunicularia hypugaea*) associated with brodifacoum exposure. J Wildl Dis 53:165 169

Krueger L, Newton J, Semrow A, Levy L, Nguyen K, Morgan T, Sun S, Sims J, Koenig S, Shaw L, Cummings R (2015) An analysis of

the largest publically funded rodent control program in California: orange county mosquito and vector control district's rodent control program, 2004 2014. Proc Papers Mosq Vector Control Assoc Calif 83:52 56

Langford KH, Reid M, Thomas KV (2013) The occurrence of second generation anticoagulant rodenticides in non target raptor species in Norway. Sci Total Environ 450 451:205 208

Liu J, Xiong K, Ye X, Zhang J, Yan Y, Ji L (2015) Toxicity and bioaccumulation of bromadiolone to earthworm *Eisenia fetida*. Chemosphere 135:250 256

Memmott K, Murray M, Rutberg A (2017) Use of anticoagulant rodenticides by pest management professionals in Massachusetts, USA. Ecotoxicology 26:90 96

Mendenhall VM, Pank LF (1980) Secondary poisoning of owls by anticoagulant rodenticides. Wildl Soc Bull 8:311 315

Merson MH, Byers RE, Kaukeinen DE (1984) Residues of the rodenticide brodifacoum in voles and raptors after orchard treatment. J Wildl Manage 48:212 216

Morrison JL, Gottlieb IGW, Pias KE (2016) Spatial distribution and the value of green spaces for urban red tailed hawks. Urban Ecosyst 19:1373 1388

Mosterd JJ, Thijssen HHW (1991) The long term effects of the rodenticide, brodifacoum, on blood coagulation and vitamin K metabolism in rats. Br J Pharmacol 104:531 535

Murray M (2011) Anticoagulant rodenticide exposure and toxicosis in four species of birds of prey presented to a wildlife clinic in Massachusetts, 2006 2010. J Zoo Wildl Med 42:88 97

Murray M, Tseng F (2008) Diagnosis and treatment of secondary anticoagulant rodenticide toxicosis in a red tailed hawk (*Buteo jamaicensis*). J Avian Med Surg 22:41 46

Pest Control Technology (2014) State of the rodent market. Pest control technology, PCT http://www.pctonline.com/FileUploads/file/State Rodent Market.pdf. Accessed 17 Feb 2017

Pest Control Technology (2015) State of the rodent market. Pest control technology, PCT. http://www.pctonline.com/article/exclusive market research december 2015/. Accessed 17 Feb 2017

Pest Control Technology (2016a) State of the rodent market. Pest control technology, PCT. http://www.pctonline.com/fileuploads/file/2016 State of the rodent market.pdf. Accessed 17 Feb 2017

Pest Control Technology, PCT (2016b) Contrapest rodent control product earns EPA approval. http://www.pctonline.com/article/senestech contrapest rodent product epa approval/. Accessed 17 Feb 2017

Petterino C, Paolo B (2001) Toxicology of various anticoagulant rodenticides in animals. Vet Hum Toxicol 43:353 360

Pitt WC, Berentsen AR, Shiels AB, Volker SF, Eisemann JD, Wegmann AS, Howald GR (2015) Non target species mortality and the measurement of brodifacoum rodenticide residues after a rat (*Rattus rattus*) eradication on palmyra atoll, tropical pacific. Biol Conserv 185:36 46

Radvanyi A, Weaver P, Massari C, Bird D, Broughton E (1988) Effects of chlorophacinone on captive kestrels. Bull Environ Contam Toxicol 41:441 448

Rattner BA, Horak KE, Warner SE, Day DD, Meteyer CU, Volker SF, Eisemann JD, Jonston JJ (2011) Acute toxicity, histopathology, and coagulopathy in American kestrels (*Falco sparverius*) following administration of the rodenticide diphacinone. Environ Toxicol Chem 30:1213 1222

Rattner BA, Horak KE, Lazarus RS, Eisenreich KM, Meteyer CU, Volker SF, Campton CM, Eisemann JD, Johnston JJ (2012) Assessment of toxicity and potential risk of the anticoagulant rodenticide diphacinone using Eastern screech owls (Megascops asio). Ecotoxicology 21:832 846

Rattner BA, Horak KE, Lazarus RS, Goldade DA, Johnston JJ (2014a) Toxicokinetics and coagulopathy threshold of the rodenticide diphacinone in eastern screech-owls (Megascops asio). Environ Toxicol Chem 33:74 81

Rattner BA, Horak KE, Lazarus RS, Schultz SL, Knowles S, Abbo BG, Volker SF (2015) Toxicity reference values for chlorophacinone and their application for assessing anticoagulant rodenticide risk to raptors. Ecotoxicology 24:720 734

Rattner BA, Lazarus RS, Elliott JE, Shore RF, van den Brink N (2014b) Adverse outcome pathway and risks of anticoagulant rodenticides to predatory wildlife. Environ Sci Technol 48:8433 8445

Salim H, Noor HM, Hamid, Omar NH, Kasim D, Abidin CMRZ (2014) Secondary poisoning of Captive barn owls, *Tyto alba javanica*, through feeding with rats poisoned with chlorophacinone and bromadiolone. J Oil Palm Res 26:62 72

Savarie PJ, Hayes DJ, McBride RT, Roberts JD (1979) Efficacy and safety of diphacinone as a predacide. In: Kenaga EE (ed) Avian and mammalian wildlife toxicology. STP 693. American Society for Testing and Materials, Philadelphia, PA, p 69 79

Stansley W, Cummings M, Vudathala D, Murphy LA (2014) Anticoagulant rodenticides in red tailed hawks, *Buteo jamaicensis*, and great horned owls, *Bubo virginianus*, from New Jersey, USA, 2008 2010. Bull Environ Contam Toxicol 92:6 9

Stone WB, Okoniewski JC, Stedelin JR (1999) Poisoning of wildlife with anticoagulant rodenticides in New York. J Wildl Dis 35:187 193

Stone WB, Okoniewski JC, Stedelin JR (2003) Anticoagulant rodenticides and raptors: recent findings from New York, 1998 2001. Bull Environ Contam Toxicol 70:34 40

US Environmental Protection Agency, EPA (2008) Risk mitigation decision for ten rodenticides. USEPA office of prevention, pesticides and toxic substances. http://www.regulations.gov/#!documentDetail;D EPA HQ OPP 2006 0955 0764. Accessed 17 Feb 2017

US Environmental Protection Agency, EPA (2014) Product cancellation order for certain rodenticide registrations. Federal register: the daily journal of the United States Government. https://www.federalregister.gov/articles/2014/08/06/2014 18361/product cancellation order for certain rodenticide registrations. Accessed 17 Feb 2017

Vyas NB, Rattner BA (2012) Critique on the use of the standardized avian acute oral toxicity test for first generation anticoagulant rodenticides. Hum Ecol Risk Assess 18:1069 1077

Walker LA, Turk A, Long SM, Wienburg CL, Best J, Shore RF (2008) Second generation anticoagulant rodenticides in tawny owls (*Strix aluco*) from Great Britain. Sci Total Environ 392:93 98

Watanabe KP, Kawata M, Ikenaka Y, Nakayama SM, Ishii C, Darwishwa S, Saengtienchai AS, Mizukawa H, Ishizuka M (2015) Cytochrome P450 mediated warfarin sensitivity in avian species: in vitro assays in several birds and in vivo assays in chickens. Environ Toxicol Chem 34:2328 2334

From: Woodford, Nina Lynne
Sent: Friday, December 07, 2018 12:48 PM
To: Crespi, Erica; [redacted]; Wheeler, Paul A; Gabelmann, Doris L; Varnum, Michael; Ekstrand, Alan; or.ocv.alert; Sayler, Rodney D; Piovia-Scott, Jonah; Brunner, Jesse L
Subject: RE: draft of xenopus frog standards
Attachments: Xenopus husbandry SOP 120818.docx

I received a few edits on the xenopus SOP but I have only heard back from 2 investigators

If you would like to provide input on the upcoming IACUC SOP for xenopus, please send edits by December 11th . I have attached the latest revision

Thank you very much

Nina

From: Woodford, Nina Lynne
Sent: Wednesday, November 28, 2018 7:51 AM
To: Crespi, Erica <erica.crespi@wsu.edu>; [redacted] Wheeler, Paul A <pwheeler@wsu.edu>; Gabelmann, Doris L <dgabelmann@wsu.edu>; Varnum, Michael <varnum@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; Sayler, Rodney D <rdsayler@wsu.edu>; Piovia-Scott, Jonah <jonah.piovia-scott@wsu.edu>; Cooper, Cynthia <cdcooper@wsu.edu>; Brunner, Jesse L <jesse.brunner@wsu.edu>; Jiang, Zhihua <jiangz@wsu.edu>
Subject: draft of xenopus frog standards
Importance: High

Good morning

One of the AAALAC suggestions for improvement was to develop basic institutional standards for water quality monitoring or to have the water quality monitoring defined per protocol . The Guide for the Care of Use of Laboratory Animals states the following "Standards for acceptable water quality, appropriate parameters to test, and testing frequency should be identified at the institutional level and/or in individual animal use protocols depending on the size of the aquatic program." I sent out a draft of the fish standards last week which includes similar information.

I have drafted a WSU Xenopus husbandry standard and I would appreciate your input as amphibian experts. This is written broadly to cover X. laevis and tropicalis and multiple types of systems and would function as a minimum standard of care. If the research has unique requirements then those would be defined in the protocol and animal care plan (if in a satellite facility). This draft is similar to standards set at other academic institutions

The final version would go to the IACUC for approval
Please send comments and suggestions by December 10th if possible

Thank you
Nina

Husbandry Care for *Xenopus*

I. Purpose:

The purpose of this policy is to outline the WSU minimum standards of care for *Xenopus* frogs.

II. Policy:

All departments providing care for Xenopus must meet or exceed these minimum requirements which are based on the Public Health Service Policy, and the ILAR ***Guide for the Care and Use of Laboratory Animals***.

The selection of appropriate housing systems requires professional knowledge and judgment and depends on the nature of species and age of *Xenopus* used, and the design of the experiments.

Sanitation frequency, system maintenance and water quality monitoring will vary based on the species, aquatic system and research needs. Unique species or research requirements may be further defined in specific IACUC approved protocols or Standard Operating Procedures.

III. Procedure:

In addition to the procedures below, all facilities housing *Xenopus* must follow the conditions specified in WSU's **Aquatic Invasive Species Permit** for African Clawed Frogs from the State of Washington Department of Fish and Game. For example, all waste water must be treated prior to release, all specimens must be confined to a secure facility that will prevent escape and no specimens can be transferred without director approval. A copy of this permit must be posted near or on the facility door.

Daily Procedures: **(365 days a year without exception)**
Observe each tank and check for health issues.

- Observe all animals for signs of illness or distress. Signs to look for include red (or other) discoloration of the skin, abnormal behavior, loss of body condition, open cuts or abrasions, bloating, and lethargy.
- Record feeding: the feeding interval should be based on species, life stage, the nutritional quality and quantity of the food fed. Feeding should range from daily to 2 times per week. Frogs should be left undisturbed for 3-5 hours after feeding.
- Check that each tank is identified, clean, free of damage and that the water level is sufficient.
- Document all transfers, deaths and euthanasia of frogs
- Contact the Office of the Campus Veterinarian (OCV) to report sick frogs and mortalities or log entries in the OCV health database. Some mortality is anticipated in developing tadpoles. If within expected ranges, mortality data can be provided to OCV in a monthly summary. Unanticipated and higher than normal rates of mortality must be promptly reported to OCV.

- Check and record water temperature, which should be maintained at 17-24° C (*X. laevis*) or 24-28° C (*X. tropicalis*).
- Document parameters listed above in addition to room activities on room log sheet (feeding, health check, temperature of water or room depending on aquatic system).

<u>Sanitation</u> (twice weekly, monthly as appropriate):

Standing/Static water tanks:
Siphon solid wastes from tanks as needed, typically after feeding. Clean tanks to remove mild algae accumulation on an "as needed" schedule so that algal growth does not interfere with daily observation of animals. Replace a percentage of system water volume as appropriate with conditioned water as determined by nitrate levels, total ammonia nitrogen, and/or pH. Document procedures on room log sheet.

Recirculating systems with central filtration and flow-through water tanks:
Same as above but also back-flush, clean and/or replace filters associated with mechanical filtration systems as needed and monitor biological filtration system media levels.

Waste water:
All aquarium/holding tank water is to be treated for 30 minutes with ¼ cup of regular household bleach per 10 gallons water prior to disposal into a municipal wastewater treatment system. An alternate method of equal to or more stringent decontamination effectiveness could be used on approval.

Housing Rooms:
All animal rooms should be regularly cleaned and disinfected.

<u>Water Quality monitoring:</u>
In addition to daily temperature checks, check and record water quality parameters based on the species, aquatic system, density, and with a new or modified system. If water quality values are out of the normal range, action is required to correct the issue.

- The below parameters should be tested at least weekly in static systems & at least monthly in established recirculating or flow-through systems. (More frequent testing is required with new or newly modified systems):
  - *At least weekly testing*
    - *pH - 6.5-8.5 (in recirculating systems a minimum pH of 7.0 is advisable)*
    - *Conductivity (500-2000 µS (X. laevis), 500-1000 µS (X. tropicalis)*
    - *Alkalinity ($CaCO_3$) 50-200 mg/L*
    - *Ammonia (NH_3) < 0.02 mg/L*
    - *Nitrite (NO_2-N) < 0.5 mg/L*
    - *Nitrate (NO_3-N) < 50 mg/L*
  - *Other testing recommended at least monthly*
    - *Dissolved Oxygen > 7 mg/L (X. laevis) and >5 mg/L (X. tropicalis) monthly*
    - *Hardness ($CaCO_3$) 175-300 mg/L (X. laevis) and 100-300 mg/L (X. tropicalis)*

<u>Feeding:</u>
Frogs should be fed palatable, non-contaminated, and nutritionally adequate food daily or according to their requirements, unless the protocol under which they are being used requires

otherwise.
Pelleted feed should be stored in properly labeled vermin-controlled containers. It should be discarded either 6 months after being received or opened or at the manufacturer's expiration or best-by date. If bulk feed is stored frozen to extend the shelf-life, the manufacturer's verification of the extended shelf life should be kept on file and provided on request.

Raw liver can be frozen until used If not fed out fresh after receipt. Refrigeration of fresh or thawed liver should not exceed 5 days depending on the degree of freshness on receipt.

Feeding interval should be based on species, life stage, and specific feeding behavior. All feedings should be recorded in room logs.

Identification and animal counting:
Each tank/tub should be individually identified. The number of animals acquired through breeding, purchase or other means must be entered and tracked on the IACUC database. Please refer to the WSU IACUC Guideline for Counting Animals at
https://iacuc.wsu.edu/documents/2016/06/guidelines_counting_animals.pdf/

Environmental Enrichment:
Enrichment should elicit species appropriate behaviors and should be evaluated for safety and utility. Recommendations include social housing, a shelter, hide, artificial lily pad, or aquarium plants. Ensure that structural enrichment does not have any sharp edges which may cause abrasions on the frog's skin. Xenopus should be grouped housed however aggression, illness or project-related reasons may occur warranting individual housing. Refer to the Environmental Enrichment policy at https://iacuc.wsu.edu/documents/2016/06/policy_30.pdf/.

Physical plant:
For interior facilities, floors should be moisture-resistant, nonabsorbent, impact-resistant, and relatively smooth. Walls should be moisture resistant and have GFCI electrical outlets that are properly positioned to eliminate possible safety hazard. Any non-GFCI circuits necessary for essential equipment must be elevated out of the "splash" zone so either high on the wall or on the ceiling. All electrical equipment located in aquatics areas that are powered under a non-GFCI protected outlets must be in good working order, have waterproof connections, and should be inspected regularly for damage. Outlets should be water resistant or fitted with waterproof covers. Pipes used for transporting water into and around the system must not be galvanized or copper, due to heavy metal leaching that can occur.

Temperature, Humidity and Illumination:
Heating and air in frog rooms should be controlled in a manner that supports species-specific needs. Depending on the system, room or water temperature should be recorded on a room log sheet. Humidity does not directly impact aquatic animals but high levels of humidity in frog rooms can be detrimental to electronic equipment and can promote microbial growth. Illumination levels, photoperiod and wavelength should be appropriate to the species and sufficient to allow visualization of the animals for health and well-being. Installation of emergency lights for when the light cycle is off is recommended. Xenopus typically avoid bright light, so tanks should be set up so that animals can retreat from direct illumination.

Tanks and Density:

Frogs should be housed in non-porous and non-abrasive primary enclosures that meet their general needs (i.e. proper size tank for species-specific requirements and for maintaining appropriate densities for group housed frogs). The needs of each situation must be evaluated by the IACUC in consultation with the Principle Investigator or possible outside experts. Space recommendations and housing density varies with species, age, life support and research but must designed to restrict escape (Xenopus do jump out) or accidental entrapment and allow for normal movement and postural adjustments. Published density recommendations are 1 adult frog per 2 liters of water or 6-8 larvae per liter. Depth must be adequate to allow adult frogs to fully submerge in normal posture (> 6 inches).

References:

1. American Association for Laboratory Animal Science. Animal Care and Use Courses. Aquatic Animal Husbandry and Management. https://www.aalas.org/
2. NASCO (2003) 'NASCO On-line catalogs' http://www.enasco.com/prod/Static?page=xenopus
3. Laboratory Animal Science Association (LASA) (2001) 'Good Practice Guidelines
   - Xenopus Husbandry' www.aalas.org
4. *Guidance for the housing and care of the African clawed frog,* Xenopus laevis. Reed BT (2005), RSPCA, Horsham, UK. Report can be downloaded at: www.rspca.org.uk/xenopus
5. The Laboratory Xenopus sp., Sherril L. Green, 2010, A Volume in The Laboratory Animal Pocket Reference Series.

From: Ekstrand, Alan
Sent: Friday, December 07, 2018 1:47 PM
To: Woodford, Nina Lynne; Crespi, Erica; [redacted] 38 [redacted]; Wheeler, Paul A; Gabelmann, Doris L; Varnum, Michael; or.ocv.alert; Sayler, Rodney D; Piovia-Scott, Jonah; Brunner, Jesse L
Subject: RE: draft of xenopus frog standards
Attachments: Xenopus husbandry SOP 120818_ae.docx

Hi Nina,

I made a changes based on the language in our F&W permit for annual report but I think the rest looks good. Thanks,

-Alan

Alan Ekstrand, CPIA, RLATG
Assistant Director, Animal Welfare Program
(509) 335-7951
alan.ekstrand@wsu.edu

https://iacuc.wsu.edu/

From: Woodford, Nina Lynne <nwoodford@wsu.edu>
Sent: Friday, December 7, 2018 12:48 PM
To: Crespi, Erica <erica.crespi@wsu.edu>; [redacted] 38 [redacted] Wheeler, Paul A <pwheeler@wsu.edu>; Gabelmann, Doris L <dgabelmann@wsu.edu>; Varnum, Michael <varnum@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; Sayler, Rodney D <rdsayler@wsu.edu>; Piovia-Scott, Jonah <jonah.piovia-scott@wsu.edu>; Brunner, Jesse L <jesse.brunner@wsu.edu>
Subject: RE: draft of xenopus frog standards

I received a few edits on the xenopus SOP but I have only heard back from 2 investigators

If you would like to provide input on the upcoming IACUC SOP for xenopus, please send edits by December 11th . I have attached the latest revision

Thank you very much

Nina

From: Woodford, Nina Lynne
Sent: Wednesday, November 28, 2018 7:51 AM
To: Crespi, Erica <erica.crespi@wsu.edu>; [redacted] 38 [redacted] Wheeler, Paul A <pwheeler@wsu.edu>; Gabelmann, Doris L <dgabelmann@wsu.edu>; Varnum, Michael <varnum@wsu.edu>; Ekstrand, Alan <alan.ekstrand@wsu.edu>; or.ocv.alert <or.ocv.alert@wsu.edu>; Sayler, Rodney D <rdsayler@wsu.edu>; Piovia-Scott, Jonah <jonah.piovia-scott@wsu.edu>; Cooper, Cynthia <cdcooper@wsu.edu>; Brunner, Jesse L <jesse.brunner@wsu.edu>; Jiang, Zhihua <jiangz@wsu.edu>
Subject: draft of xenopus frog standards
Importance: High

Good morning

One of the AAALAC suggestions for improvement was to develop basic institutional standards for water quality monitoring or to have the water quality monitoring defined per protocol . The Guide for the Care of Use of Laboratory Animals states the following "Standards for acceptable water quality, appropriate parameters to test, and testing frequency should be identified at the institutional level and/or in individual animal use protocols depending on the size of the aquatic program." I sent out a draft of the fish standards last week which includes similar information.

I have drafted a WSU Xenopus husbandry standard and I would appreciate your input as amphibian experts. This is written broadly to cover X. laevis and tropicalis and multiple types of systems and would function as a minimum standard of care. If the research has unique requirements then those would be defined in the protocol and animal care plan (if in a satellite facility). This draft is similar to standards set at other academic institutions

The final version would go to the IACUC for approval
Please send comments and suggestions by December 10th if possible

Thank you
Nina

Husbandry Care for *Xenopus*

I. Purpose:

The purpose of this policy is to outline the WSU minimum standards of care for *Xenopus* frogs.

II. Policy:

All departments providing care for Xenopus must meet or exceed these minimum requirements which are based on the Public Health Service Policy, and the ILAR ***Guide for the Care and Use of Laboratory Animals***.

The selection of appropriate housing systems requires professional knowledge and judgment and depends on the nature of species and age of *Xenopus* used, and the design of the experiments.

Sanitation frequency, system maintenance and water quality monitoring will vary based on the species, aquatic system and research needs. Unique species or research requirements may be further defined in specific IACUC approved protocols or Standard Operating Procedures.

III. Procedure:

In addition to the procedures below, all facilities housing *Xenopus* must follow the conditions specified in WSU's **Aquatic Invasive Species Permit** for African Clawed Frogs from the State of Washington Department of Fish and ~~Game~~Wildlife. For example, all waste water must be treated prior to release, all specimens must be confined to a secure facility that will prevent escape and no specimens can be transferred without director approval. A copy of this permit must be posted near or on the facility door.

Daily Procedures: **(365 days a year without exception)**
Observe each tank and check for health issues.

- Observe all animals for signs of illness or distress. Signs to look for include red (or other) discoloration of the skin, abnormal behavior, loss of body condition, open cuts or abrasions, bloating, and lethargy.
- Record feeding: the feeding interval should be based on species, life stage, the nutritional quality and quantity of the food fed. Feeding should range from daily to 2 times per week. Frogs should be left undisturbed for 3-5 hours after feeding.
- Check that each tank is identified, clean, free of damage and that the water level is sufficient.
- Document all transfers, deaths and euthanasia of frogs
- Contact the Office of the Campus Veterinarian (OCV) to report sick frogs and mortalities or log entries in the OCV health database. Some mortality is anticipated in developing tadpoles. If within expected ranges, mortality data can be provided to OCV in a monthly summary. Unanticipated and higher than normal rates of mortality must be promptly reported to OCV.

- Check and record water temperature, which should be maintained at 17-24° C (*X. laevis*) or 24-28° C (*X. tropicalis*).
- Document parameters listed above in addition to room activities on room log sheet (feeding, health check, temperature of water or room depending on aquatic system).

Sanitation (twice weekly, monthly as appropriate):

Standing/Static water tanks:
Siphon solid wastes from tanks as needed, typically after feeding. Clean tanks to remove mild algae accumulation on an "as needed" schedule so that algal growth does not interfere with daily observation of animals. Replace a percentage of system water volume as appropriate with conditioned water as determined by nitrate levels, total ammonia nitrogen, and/or pH. Document procedures on room log sheet.

Recirculating systems with central filtration and flow-through water tanks:
Same as above but also back-flush, clean and/or replace filters associated with mechanical filtration systems as needed and monitor biological filtration system media levels.

Waste water:
All aquarium/holding tank water is to be treated for 30 minutes with ¼ cup of regular household bleach per 10 gallons water prior to disposal into a municipal wastewater treatment system. An alternate method of equal to or more stringent decontamination effectiveness could be used on approval (requires approval from Washington Department of Fish and Wildlife).

Housing Rooms:
All animal rooms should be regularly cleaned and disinfected.

Water Quality monitoring:
In addition to daily temperature checks, check and record water quality parameters based on the species, aquatic system, density, and with a new or modified system. If water quality values are out of the normal range, action is required to correct the issue.

- The below parameters should be tested at least weekly in static systems & at least monthly in established recirculating or flow-through systems. (More frequent testing is required with new or newly modified systems):
  - ~~*At least weekly testing*~~
    - *pH - 6.5-8.5 (in recirculating systems a minimum pH of 7.0 is advisable)*
    - *Conductivity (500-2000 µS (X. laevis), 500-1000 µS (X. tropicalis)*
    - *Alkalinity ($CaCO_3$) 50-200 mg/L*
    - *Ammonia (NH_3) < 0.02 mg/L*
    - *Nitrite (NO_2-N) < 0.5 mg/L*
    - *Nitrate (NO_3-N) < 50 mg/L*
  - *Other testing recommended at least monthly*
    - *Dissolved Oxygen > 7 mg/L (X. laevis) and >5 mg/L (X. tropicalis) monthly*
    - *Hardness ($CaCO_3$) 175-300 mg/L (X. laevis) and 100-300 mg/L (X. tropicalis)*

Commented [EA1]: Since we mention weekly or monthly about I think this sentence can come out.

Feeding:
Frogs should be fed palatable, non-contaminated, and nutritionally adequate food daily or

according to their requirements, unless the protocol under which they are being used requires otherwise.
Pelleted feed should be stored in properly labeled vermin-controlled containers. It should be discarded either 6 months after being received or opened or at the manufacturer's expiration or best-by date. If bulk feed is stored frozen to extend the shelf-life, the manufacturer's verification of the extended shelf life should be kept on file and provided on request.

Raw liver can be frozen until used If not fed out fresh after receipt. Refrigeration of fresh or thawed liver should not exceed 5 days depending on the degree of freshness on receipt.

Feeding interval should be based on species, life stage, and specific feeding behavior. All feedings should be recorded in room logs.

Identification and animal counting:
Each tank/tub should be individually identified. The number of animals acquired through breeding, purchase or other means must be entered and tracked on the IACUC database. Please refer to the WSU IACUC Guideline for Counting Animals at https://iacuc.wsu.edu/documents/2016/06/guidelines_counting_animals.pdf/

Environmental Enrichment:
Enrichment should elicit species appropriate behaviors and should be evaluated for safety and utility. Recommendations include social housing, a shelter, hide, artificial lily pad, or aquarium plants. Ensure that structural enrichment does not have any sharp edges which may cause abrasions on the frog's skin. Xenopus should be grouped housed however aggression, illness or project-related reasons may occur warranting individual housing. Refer to the Environmental Enrichment policy at https://iacuc.wsu.edu/documents/2016/06/policy_30.pdf/.

Physical plant:
For interior facilities, floors should be moisture-resistant, nonabsorbent, impact-resistant, and relatively smooth. Walls should be moisture resistant and have GFCI electrical outlets that are properly positioned to eliminate possible safety hazard. Any non-GFCI circuits necessary for essential equipment must be elevated out of the "splash" zone so either high on the wall or on the ceiling. All electrical equipment located in aquatics areas that are powered under a non-GFCI protected outlets must be in good working order, have waterproof connections, and should be inspected regularly for damage. Outlets should be water resistant or fitted with waterproof covers. Pipes used for transporting water into and around the system must not be galvanized or copper, due to heavy metal leaching that can occur.

Temperature, Humidity and Illumination:
Heating and air in frog rooms should be controlled in a manner that supports species-specific needs. Depending on the system, room or water temperature should be recorded on a room log sheet. Humidity does not directly impact aquatic animals but high levels of humidity in frog rooms can be detrimental to electronic equipment and can promote microbial growth. Illumination levels, photoperiod and wavelength should be appropriate to the species and sufficient to allow visualization of the animals for health and well-being. Installation of emergency lights for when the light cycle is off is recommended. Xenopus typically avoid bright light, so tanks should be set up so that animals can retreat from direct illumination.

Tanks and Density:

Frogs should be housed in non-porous and non-abrasive primary enclosures that meet their general needs (i.e. proper size tank for species-specific requirements and for maintaining appropriate densities for group housed frogs). The needs of each situation must be evaluated by the IACUC in consultation with the Principle Investigator or possible outside experts. Space recommendations and housing density varies with species, age, life support and research but must designed to restrict escape (Xenopus do jump out) or accidental entrapment and allow for normal movement and postural adjustments. Published density recommendations are 1 adult frog per 2 liters of water or 6-8 larvae per liter. Depth must be adequate to allow adult frogs to fully submerge in normal posture (> 6 inches).

Annual Reporting:
Each research laboratory using xenupus will need to submit the annual usage and disposition to the Animal Welfare Program Office by January 15 each year so that the campus permit can be maintained. Fish and Wildlife request that the annual report contain the number of animals, size, disposition, and the general nature of the research.

References:

1. American Association for Laboratory Animal Science. Animal Care and Use Courses. Aquatic Animal Husbandry and Management. https://www.aalas.org/
2. NASCO (2003) 'NASCO On-line catalogs' http://www.enasco.com/prod/Static?page=xenopus
3. Laboratory Animal Science Association (LASA) (2001) 'Good Practice Guidelines
   - Xenopus Husbandry' www.aalas.org
4. *Guidance for the housing and care of the African clawed frog,* Xenopus laevis. Reed BT (2005), RSPCA, Horsham, UK. Report can be downloaded at: www.rspca.org.uk/xenopus
5. The Laboratory Xenopus sp., Sherril L. Green, 2010, A Volume in The Laboratory Animal Pocket Reference Series.

120818