



Scope

This plan describes steps taken in animal care and use areas to prepare before and respond during and after hurricanes and other emergencies/disasters that require campus closure.

Definition Chain of Authority

The Animal Resource Manager is responsible for managing aspects of animal care on campus before, during and after a hurricane under supervision of Attending Veterinarian and Institutional Official (IO). Due to the specialized nature of animal care, the role should be an employee of the University who is familiar with large animal care requirements and has established relationships in the community. RUSVM animals are the responsibility of faculty and colleagues (not students) until the all-clear notice is given and campus is re-opened (See the current Hurricane Playbook Roles Document)

Preparation before and response after hurricane has passed

Preparations and recovery efforts are detailed per species within this standard operating procedure.

Response in hurricane passing

- The Animal Resource Manager, in consultation with the AV, will determine the minimum care requirements needed during any hurricane or inclement weather event that limits access to campus. While ensuring personnel safety, the Animal Resource Manager will use essential employees (See Appendix 1) to provide these services.
- Begin to plan anticipated recovery activities and prioritize support and supply needs for when the storm is passing the island in collaboration with ICT and Security.
- If video monitoring is available, monitor animal enclosures throughout the storm and identify issues that will need to be mitigated as soon as the storm passes
- Final authority on decisions regarding hurricane/disaster response of Animal Care and Use Areas lies with IO and, in consultation with the Animal Resource Manager, essential personnel will respond as required for maintaining animal welfare.

Response during emergencies other than hurricanes

When applicable, below detailed preparations and recovery efforts will be observed. When not feasible, the AV in consultation with the Manager Animal Resources will assess the best means for caring for the animals, ensuring welfare is maintained as required under AAALAC accreditation and US animal welfare regulations (USDA/OLAW) and to mitigate any need to report deficiencies to AAALAC or OLAW or to mitigate risk of being unable to meet animal needs for the curriculum. The essential personnel (see Appendix 1) and others to be designated on an as needed basis will be used to serve these needs and how these resources will be used to ensure compliance communicated to the IO and IC, to ensure all relevant personnel are informed. See also IACUC policy Emergency Procedures for Mandatory Evacuations for guidance on mandatory human and animal evacuation procedures and IACUC Continuity of Services Plan for guidance on how to maintain basic level of care during significant staffing issues.



1. Plan for the Pasture Animals

Chain of Authority

Please refer to Appendix I: List of Essential Personnel

Attending Veterinarian

Manager Animal Resources

Coordinator for Equids / Coordinator for Ruminants

Large Animal Supervisor

Pasture Assistant II

Pasture Assistant I/Truck Driver

- The Attending Veterinarian and Manager Animal Resources is to inform relevant faculty and colleagues of this plan and of whom is responsible for it in advance.
- Priority order
 - Human health, well-being and safety (includes employees' families)
 - Animal welfare, safety and health
 - Animal containment (fences and gates intact, animals appropriately grouped in paddocks and kennels)
 - Animal water
 - Animal food
 - Animal triage and treatment assisted by Attending Veterinarian, clinicians and veterinary technicians
 - Resource conservation and recovery
 - Repairs
 - Clean up
 - Evaluation of response efforts for plan revisions and future mitigation efforts.

1.1. Pre-Hurricane Season Preparation

The following steps will be taken in preparation for the "hurricane" season.

Personnel, Preparation, Communication and Responsibilities

- Animal Resources Colleagues meeting with the Manager Animal Resources in May
- The Disaster Plan will be reviewed annually in a general meeting including all Animal Resources colleagues. Faculty coordinators for various species populations will be invited to review the needs of their animals related to a disastrous event and should attend this meeting.
- Pasture Assistant II is the coordinator of Pasture disaster preparations in case of absence of the Manager Animal Resources



On site Preparation Activities

- Fill water storage tanks
 - 3 Water storage tanks, plastic, 2000-2500 gal capacity for 3-4 days' supply
 - Siting of water tanks, pre-placed permanently
 - Upper paddock-2 tanks servicing LARP reserve donkeys, sheep and cattle
 - Horse paddock-servicing horses, surgery donkeys, surgery sheep and Low Paddock
 - Kennel- Behind Kennel Block B
 - Truck-mounted water tank for distribution to other sites as needed
- Hoses for tank-to-trough transfer, stored in Pasture Storage
 - Assure these tanks are plumbed for immediate use (Pasture Assistant II)
 - Assure sufficient hoses for emergency water distribution are available and serviceable in Pasture storage (Pasture Assistant II)

1.2. Hurricane Watch

The following actions will be taken once a hurricane watch has been declared:

- Water storage tanks: Fill all water storage tanks (animal caretakers assigned in each tank's zone)
- Emergency feed supply
 - Arrange for advanced delivery of grass by vendors if a hurricane warning is issued (Manager Animal Resources)
 - Plan storage in box stalls, sheep sheds and grass boxes to secure it against wind
 - Pasture colleagues to receive and receipt grass delivered
- Shade sheds
 - Remove shade cloth from below mentioned non-essential shade sheds for remainder of hurricane season which are stored in the Pasture storage container. Collect all cords and properly store (Pasture Assistants):
 - Reserve sheep and donkey shades
 - Cattle shades
- Cattle, horses, sheep and donkeys to remain loose in their respective paddocks.
- Teaching Faculty to alert their students of students' role in disaster event responses.
 - Students to seek and remain in shelter as directed
 - RUSVM animals are the responsibility of Faculty and colleagues until the all-clear notice is given and campus is re-opened
 - All pasture animal teaching labs will be suspended until the all-clear notice is given and campus is re-opened
- Assure labor for recovery, cleanup, repairs, feeding and watering (Manager Animal Resources)
 - Manager Animal Resources
 - Animal Caretakers
 - Pasture Assistants
 - Tractor Driver
 - Facilities colleagues



- Assure that on-call clinicians are available for triage and treatment of injured animals in the aftermath of a disaster event (Attending Veterinarian, AR technicians, Clinical Veterinarians and technicians of Clinical Sciences and Biomedical Sciences)

1.3. *Hurricane Warning*

- Assure that on-call clinicians are available for triage and treatment of injured animals in the aftermath of a disaster (Attending Veterinarian, AR technicians, Clinical Veterinarians and technicians of Clinical Sciences and Biomedical Sciences)
- Cattle, horses, sheep and donkeys to remain loose in their respective paddocks
- Animal Feed
 - Advanced deliveries of grass (Pasture Assistants)
 - Brewer's grain, all available (Pasture Assistants)
- Animal Resources office
 - Window plywood screwed in place (Pasture Assistant II)
 - Pre-cut plywood stored in Palpatation Barn Closet
 - Computer, plastic cover (IT)
 - Desk and files (Manager Animal Resources)
 - Files and perishable materials placed into double plastic bags and placed in inner closet of office for greater protection from water damage
- Shade sheds
 - Remove shade cloth from below mentioned essential shade sheds which are stored in the Pasture storage container. Collect all cords and properly store (Pasture Assistants):
 - Labor shades over forage chopper and over Reserve Sheep Facility drive
 - Horse shades
 - Surgery sheep and donkey shades
 - Shades at the Large Animal Research Park
- Secure trucks, tractor, implements, other equipment, tools and materials against damage (Pasture Assistants)

1.4. *Hurricane All-Clear (no hit)*

- Advance extra feed
 - Extra forage fed promptly, before spoiling
 - Extra stocks of pellets/grain ordered in advance to be held in storage as a reserve for the continuing hurricane season, then fed out when season is deemed to have ended (December)
- Water tanks
 - Drain emergency water storage tanks within 24 hours of campus re-opening
- Shade Sheds
 - Replace shade cloth on below mentioned essential shade sheds:
 - Labor shades over forage chopper and over Reserve Sheep Facility drive
 - Horse shades
 - Surgery sheep and donkey shades
 - LARP shades



2. Plan for RUSVM Dog Teaching Colony

Chain of Authority

Please refer to Appendix I: List of Essential Personnel

Attending Veterinarian

Manager Animal Resources

Kennels Clinician

RUVC Director

Kennels Supervisor

Kennels Technician

Supervisor Small Animal & Exotics is the coordinator of kennels disaster preparations in case of absence of the Manager Animal Resources.

2.1. *Hurricane Warning*

- All dog labs will be suspended until the all-clear notice is given and campus is re-opened
- Kennels Technician and Animal Caretakers will carry out the following:
 - Secure dogs in their respective kennels
 - Remove any potentially dangerous objects from each kennel including shade covers
 - Close and secure aluminum shade panels on the front (east end) of Kennels block A & B
 - Secure kennel doors and check locks
 - Secure implements and any other equipment against damage
 - Clean and fill from local water supply the 1000 gallon water tank to capacity (Kennels Technician and Animal Caretaker)
 - Stock sufficient dog food for 3 to 4 days in waterproof containers in the Kennels SOAP room. Additional food will be stored in the Pasture Feed Container.

2.2. *Hurricane All-Clear (no hit)*

- Kennels Technician, in consultation with the Kennels Clinician, will assess all dogs for any signs of injury, excessive stress, and treat identified issues promptly
- Emergency feeding and watering after hurricane by Animal Care Colleagues
 - The 1000-gallon capacity water storage tank located in the back of the kennels will provide a 3-4 day supply. **The tank content is for animal use only.**
 - **Emergency food supply.** A 3-4 day supply of food will be stored in waterproof containers in the SOAP room. Additional food will be stored in the Pasture Feed Container.
- Re-open aluminum shade panels on the from (east end) of Kennels block A & B to allow normal ventilation.



3. Plan for the Security Canines

Chain of Authority

Please refer to Appendix I: List of Essential Personnel

Attending Veterinarian

Safety and Security Director

3.1. Hurricane Warning

- Security canines will be sheltered on campus for the duration of the storm/emergency unless instructed differently by Security Leadership for the safety of the canines.
- The Safety & Security Department will secure enough food and water for a two week period in air/water tight containers provided by RUSVM for this purpose.

3.2. Hurricane All-Clear (no hit)

- The K9 unit team will ensure the canines are well and provide appropriate care. The K9 unit will inspect the K9 kennel for any harm and deemed safe and secure.

4. Plan for Avians

Chain of Authority

Please refer to Appendix I: List of Essential Personnel

Attending Veterinarian

Manager Animal Resources

Coordinator for Aviary

4.1. Hurricane Warning

- All avian related student activities will be suspended until the all-clear notice is given and campus is re-opened
- RUSVM colleagues will place the T111 side inserts on the North and South side of the aviary building (these slide-ins are kept in storage by the colleagues).
- Under the direction of the attending veterinarian, the Avian Club, the president and vice president and assigned fourth semester students will:
- Move the birds into cages and maintain caged birds in the middle enclosure area for better protection or to the Multipurpose Animal Facility depending on hurricane severity.
- Unplug the storeroom freezer and material that could be damaged covered and placed on top of the freezer by the Avian Club.
- Place extra locks on the inside enclosure doors.
- Place enough extra food and water in the cages to maintain the birds for a three-day period.



4.2. *Hurricane All-Clear (no hit)*

- As soon as it is safe to travel, the responsible clinician will administer any treatments needed and members of the Avian Club and 4th semester students (EVS-D) assigned to the aviary for that period will check on the animals and assist with husbandry procedures.
- Any damage will be assessed and reported to the Manager Animal Resources.
- Clean-up will be performed as needed.
- Under the direction of the Aviary Coordinator, the birds can be returned to their enclosures.
- RUSVM colleagues will remove and store the T111 siding once it is dry.

5. **Plan for Sliders and Tortoises**

Chain of Authority

Please refer to Appendix I: List of Essential Personnel

Attending Veterinarian

Manager Animal Resources

Coordinator for Turtles/Tortoises

In the event of a hurricane or heavy rains, aquatic chelonians less than 100 pounds will need to be moved indoors into the Chelonian Laboratory in plastic containers. Aquatic species larger than this will need to be left in their tanks and the tanks moved further inland to a covered area outside of a potential storm surge path. Tortoises will need to be placed in stalls in the large animal area, one stall for females and one stall for males.

If the storm comes during a semester break, the Animal Care Team, coordinated by the Manager of Animal Resources, will be responsible for moving the animals, cleaning the bins and giving water and food to them. There is a week worth of food supply available. During the semester the Coordinator for Turtles/Tortoises will be responsible for coordination.

6. **Plan for Aquatic Animals**

Chain of Authority

Please refer to Appendix I: List of Essential Personnel

Attending Veterinarian

Manager Animal Resources

Coordinator for Aquatic Species

Aquaponics Project Manager

Marine Lab Technician



I. Marine Lab

Access to the Marine Lab is allowed only under supervision of the Coordinator for Aquatic Species or by the research technician or graduate student working in the specific project. Access is limited to fish due to potential biosafety issues.

6.I. 1. Hurricane Warning

- Experiments may require temperature in tank higher than room temperature, so heaters may be needed.
- In case of a power outage greater than 2 hours, emergency generators will be needed in the Marine Laboratory.
- The Marine Lab emergency generator is stored in the Hurricane Supplies container.
- The Marine Lab emergency generator will be sited, connected, fueled and serviced by the Facilities department.

In case of heavy rains and campus remains open, the technician or graduate student in charge will monitor the laboratory every 2 hours and will adjust the filters to improve water flow.

- The fish are secure for approximately 4 hours without water flow, if oxygenation is given (via air stones).
- In case of a power outage and complete blockage of water flow at the same time, an emergency generator must be provided.
- As a back-up, the Marine Lab is connected to the UPS system of the Lower Auditorium.

In case of flooding, all the materials in the Marine lab are waterproof and the floor has drainage.

Absolutely NO movement of live fish out of the Marine Lab racks is allowed, unless specifically instructed by the coordinator of aquatic species or Lab Technician of the lab.

6.I.2. Hurricane All-Clear (no hit)

- In case all of the systems fail (water flow, electricity, UPS and emergency power generation) the fish will be cared for and if necessary euthanized following the Fish Euthanasia SOP as soon as the all-clear is given.
- In regards to feeding:
 - If water flow is hampered (not flowing at all) feeding will be restricted for up to 4 days.
 - When water flow resumes, feeding protocols will continue as presented in the SOPs. However, if after 4 days, the flow of water has not been resumed, half the water volume in each tank will be replaced daily and feeding limited to 3 times per week, feeding 1% of total fish weight per tank per feeding session.

II. Fish Ponds

If there are fish in the pond and electricity goes off the only system that will be directly affected is the filtration system.

- These ponds are not completely reliant on the filters to keep the fish inside alive and can be off for hours if not days before endangering the fish inside.
- If the filter goes out, the fish will be left where they are until the filters turn back on. The water quality will be checked every few days if possible.



In case of heavy rains and campus remains open, the technician, graduate students, or WAVMA club member in charge will monitor once a day and will monitor the filters to improve water flow.

- In regards to feeding:
 - Feeding can be restricted for up to 5 days.
 - Once feeding resumes, the feeding of the fish should be 5% of the total fish weight.

III. SKA Nursery

Access to the SKA nursery is allowed only under supervision of the Coordinator for Aquatic Species or by the research technician or graduate student working in the specific project. Access is limited to fish due to potential biosecurity issues.

6.III.1. Hurricane Warning

- Depending on the species of fish in the tanks may require temperature in tank higher than room temperature, so heaters may be needed.
- In case of a power outage greater than 2 hours, emergency generators will be needed in the SKA nursery.
- The SKA nursery emergency generator is stored in the Hurricane Supplies container.
- The SKA nursery emergency generator will be sited, connected, fueled and serviced by the Facilities department.

In case of heavy rains and campus remains open, the technician or graduate student in charge will monitor the laboratory every 2 hours and will adjust the filters to improve water flow.

- The fish are secure for approximately 4 hours without water flow, if oxygenation is given (via air stones).
- In case of a power outage and complete blockage of water flow at the same time, an emergency generator must be provided.
- As a back-up, the SKA Nursery is connected to the UPS system of the Lower Auditorium.

In case of flooding, all the materials in the SKA Nursery are waterproof and the floor has drainage.

Absolutely NO movement of live fish out of the SKA nursery holding tanks is allowed, unless specifically instructed by the coordinator of aquatic species or Lab Technician of the lab.

6.III.2. Hurricane All-Clear (no hit)

- In case all of the systems fail (water flow, electricity, UPS and emergency power generation) the fish will be cared for and if necessary euthanized following the Fish Euthanasia SOP as soon as the all-clear is given.
- In regards to feeding:
 - If the normal feeding schedule is interrupted (automatic feeders error) then the PI or Lab technician of the lab will have to feed them by hand at their scheduled time.
 - The Fish in the nursery are under a constant watch and the fish have automatic feeders setup and should be constantly feeding the fish at predetermined times.

IV. Aquaponics System



6.IV.1. Hurricane Warning

If electricity goes off the aeration and filtration system will be affected.

- Aquaponics system power source is connected to the student's dormitory generator; electricity should be reestablished after a power failure.
- If generator fails, fish can survive without aeration for 6-12 hours.
- Battery powered aeration pumps can be provided in the fish tank.
- Feeding: food should be suspended while power is off. It can be restricted up to 5 days.

6.IV.2. Hurricane All-Clear (no hit)

- If power is not established or a major damage occurs, fish can be transferred to the Ross' fish ponds.
- As last resource, if all system fails (water flow, electricity, UPS, emergency power generation, battery powered pumps) the fish can be euthanized following the Fish Euthanasia SOP as soon as the all-clear is given.
- Feeding: If water flow is compromised, feeding will be restricted for up to 4 days.
- When water flow resumes, feeding protocols will continue as presented in the Aquaponics system SOPs.
- If after 4 days the flow of water has not been resumed, fish will be transferred to the Ross' fish ponds.
- In case of heavy rains and campus remains open, the technician, graduate students, or WAVMA club member in charge will monitor water quality and feed fish once a day as per Aquaponics system SOPs.



7. Plan for Vivarium

Chain of Authority

Please refer to Appendix I: List of Essential Personnel

Attending Veterinarian

Manager Animal Resources

Coordinator for Rodent Species

Supervisor Small Animals

Access to the vivarium is only allowed by authorized personnel. Authorized personnel include the Principal Investigators, Manager Animal Resources, Laboratory Animal Caretakers, and the Attending Veterinarian.

7.1. *Hurricane Warning*

- All rodent related student activities will be suspended until the all-clear notice is given and campus is re-opened
- Animals should be provided between 12 and 24 hrs before landfall with fresh cage boxes, bedding, food, and water as per the Bedding Change SOP.
- Fill distilled water reservoir in the animal room in the event that clean water cannot be collected post-hurricane.
- Portable thermometers should be placed in the animal room to monitor air temperature.
- The vivarium is on a back-up generator located outside the building as well as the general campus generator which is checked on a regular basis.
- Any animals being housed on the lower level of the IVC rack should be moved to higher rows if possible.
- The food storage container should be filled to capacity.
- Stock Personal Protective Equipment (PPE) necessary for the rodent animal room.
- Secure and protect RUSVM equipment following protocols already established, e.g.:
 - Unplug and cover with plastic the Biosafety Cabinet and disconnect any electrical appliances

7.2. *Hurricane All-Clear (no hit)*

- Inventory animal population and examine all animals for injuries or illness after a disaster event.
- Any animals that have injuries should be humanely euthanized as per the euthanasia SOP.
- Animal cages should be changed if heavily soiled or flooded.
- Food and water should be checked and refilled as needed. If food or water appears to be contaminated, fresh food and water should be provided.
- Room temperature should be measured and recorded.



ROSS UNIVERSITY
SCHOOL OF VETERINARY MEDICINE

veterinary.rossu.edu

Title: Animal Care Hurricane Disaster Plan
Issued Date: 2013
Revised Date: November 2023
Authority: IACUC

This Policy is subject to annual review.

Policy Approval:

13 November 2023

Signed

Date

Dr. Samson Mukaratirwa

Associated Dean for Research and Postgraduate Studies
Institutional Official



Title: Animal Care Hurricane Disaster Plan
 Issued Date: 2013
 Revised Date: November 2023
 Authority: IACUC

Appendix 1 List of Essential Personnel

This section can be updated to reflect institutional changes without resubmitting an entire new SOP.

Name	Position	Contact	
Dr. Amy Beierschmitt	Interim Attending Veterinarian	869-662-4410	
Jamieson Greaver	Manager Animal Resources	869-662-4112	
Dave Charles	Supervisor Large Animals	869-667-8535	
Samuel Phipps	Supervisor Small Animas	869-760-2052	
Kevin Brookes	Kennel Technician	869-764-3110	
Larry Rawlins	Pasture Assistant II	869-663-9945	
Chauncey Archibald	Pasture Assistant I/Truck Driver	869-664-7721	
See On Call Faculty Schedule	Over The Break On Call AV	See On Call Faculty Schedule	
Dora Casey	Grass Vendors	664-9026	
Leroy Pantlitz		663-3150	
Leroy Williams		763-7534	
Eugene Bedford		660-3139	
George Douglas		765-6019	
Curtis Romney / Frenchie		669-8436	
Zion		660-9636	
Dion Weekes		663-4652	
Ram's- Buckley's		Tortoise Produce Vendor	466-2848
N/A - Inactive		Coordinator for Rodent Species	N/A - Inactive
See On Call Faculty Schedule	Kennels Clinician	See On Call Faculty Schedule	
Dr. James Fairs	RUVC Director	869-668-4907	
Ludovic Roussel	Safety and Security Director	869-668-2294 or via SOC at 869-465-6161	
Dr. Cynthia Xue	Coordinator for Equids	+1-646-207-6575 869-660-1888	
Dr. Helene Larde	Coordinator for Ruminants		
N/A - Inactive	Coordinator for Aviary	N/A - Inactive	
Dr. Kimberly Stewart	Coordinator for Turtles/Tortoises	869-669-4268	
Dr. Amanda Murti	Chelonian Lab Technician	443-812-8943	
Dr. Mark Freeman	Coordinator for Aquatic Species	869-667-5481	
Dr. Clara Camargo	Aquaponics Project Manager	869-668-5411	