

## Wildlife Health Protocol – Specimen Packaging and Shipping 04.02.15

### I. Items you will need:

- PPE such as gloves, Tyvek® suits, rubber boots and goggles, as appropriate. If you are unsure of appropriate PPE, call the Wildlife Health office (WHO) for guidance.
- Appropriate submission forms as required by WHO or receiving laboratory
- Shipping container: certified crush-resistant insulated shipping box or hard-sided cooler
- Plastic bags to enclose carcasses/samples; large, heavy bag to line shipping container
- Tags and fasteners such as zip ties, wire or string to label carcasses and bags
- Waterproof marker for labeling
- Tape or zip ties to seal bags
- Parafilm or electrical tape to seal leakproof jars
- Packaging, strapping or duct tape to seal shipping container
- Coolant, such as frozen blue ice packs. Wet ice should only be used in well-sealed containers (e.g. frozen soda or water bottles). DO NOT use dry ice unless specifically instructed by lab (subject to additional labeling and shipper's declaration requirements).
- Absorbent material to prevent leakage (e.g. cotton batting, paper towels, absorbent packs, etc.) Shredded office paper may be used for cushioning only, not as absorbent material.
- Appropriate shipping designation labels are included on the last pages of this document for your use, or you can order pre-printed stickers:
  - Certain dangerous diseases are considered **CATEGORY A and may not be shipped using these instructions**. Please contact the Wildlife Health office if your samples are likely to contain a dangerous infectious substance.
  - Blood and tissue samples from apparently healthy animals (hunter-killed, live captured) are classified as **EXEMPT ANIMAL SPECIMENS**
  - Blood and tissue samples from dead or sick animals are classified as a **BIOLOGICAL SUBSTANCE, CATEGORY B and UN 3373**
  - 10% Neutral Buffered Formalin (3.8% formaldehyde solution with alcohol) is classified as a **DANGEROUS GOOD**

### II. Procedures

1. Collect the freshest carcasses available. Decomposed or scavenged carcasses are of limited diagnostic value. If carcasses are too large to ship whole, contact WHO for guidance on sample collection and handling.
2. Contact recipient (WHO or the diagnostic laboratory) to get shipping approval and discuss shipping arrangements. Ship specimens by next day air (overnight) service Monday through Wednesday to guarantee arrival before the weekend. If specimens are fresh and need to be shipped on Thursday or Friday, call to see if special arrangements can be made. **Unexpected packages will not be opened by most laboratories!**
3. Email or fax appropriate history and submission forms or datasheets to WHO, and to the lab if submitting samples directly.
4. When collecting small carcasses, attach a tag to each animal with the following information in pencil or waterproof ink (Figure 1):
  - Date collected
  - Species
  - Location (GPS coordinates or specific location information)
  - Found dead or euthanized
  - Collector (name/address/phone)
  - Animal ID number such as a leg band, ear tag, or other identification number



Figure 1. Individually tagged carcass.



Figure 2. Individually tagged and bagged carcass.

5. Individually bag each carcass or fresh sample to prevent cross-contamination (Figure 2). Seal the bag: twist or fold over non-zipper bags and/or knot tightly, or press zipper bags closed and fold. Then cover sealed bag closure with strapping or duct tape to prevent leakage during pressure changes and vibrations associated with air transport (Figure 3).
6. If samples are preserved with 10% neutral buffered formalin, there are different shipping options and packaging steps (see Table 1 below, Formalin Shipping Guide):
  - a. Store jar containing formalin and samples at room temperature for at least 24 hours to ensure that the samples are properly preserved. Pour the formalin off the sample and ship the jar containing only the preserved sample, without the liquid, via overnight air (contact WHO for formalin neutralization and disposal instructions). Prior to shipping, seal the jar using electrical tape or stretched parafilm (Figure 4).
  - b. If the samples are classified as Exempt Animal Specimens, you may ship the samples in the formalin via Ground service. This delivery method takes longer, so ensure that jars are well sealed and are also cushioned for transport within the cooler.
  - c. Ship the samples immediately in the formalin via overnight air service as a Limited Quantity Dangerous Good (see Table 1 below for details). No more than five 200 ml jars (less than or equal to 1000 mls formalin total) can be shipped in one cooler, and jars must be well sealed and cushioned.



Figure 3. Examples of properly sealed and labeled primary sample bags using tape, twists, knots and zip ties.



Figure 4. Examples of secured, leak proof sample jars using tape or parafilm.

7. Place enough absorbent material (paper towels, cotton batting, or super absorbent pads or packets) to absorb all of the liquid contents in the bottom of a 2<sup>nd</sup> bag. Place the individually bagged carcasses or samples inside the 2<sup>nd</sup> bag (Figures 5 and 6). More than one individually bagged animal or sample can be placed inside the 2<sup>nd</sup> bag. Seal as described in step 5.



Figure 5. Absorbent material inside a secondary plastic bag before samples are added.



Figure 6. Absorbent material placed between the primary sample containers and the secondary bag.

8. Tag the outside of the 2<sup>nd</sup> bag with a list of contents, including number and species of carcasses, date collected, location and name of collector (Figure 7).
9. Be sure that the shipping container is in good condition. If using a hard-sided cooler, close the drain plug and tape over the plug inside. Line this container with a 3<sup>rd</sup> heavy (1 mil minimum) plastic bag.
10. Pack the second sealed bag, containing individually-bagged animals or samples into the 3<sup>rd</sup> liner bag with enough coolant on top to keep carcasses cold if there is a delay in delivery (Figure 8). You may add additional cushioning to reduce shifting of contents.
  - a. If shipping formalin jars at room temperature, no coolant is needed.
  - b. If shipping room temperature or refrigerated samples in the same shipping container as frozen samples, you must prevent the room temperature or refrigerated samples from freezing. Place several inches of insulating material (bubble wrap, large air cushions or foam) between the frozen samples with coolant on the bottom from the room temperature or refrigerated samples on the top.

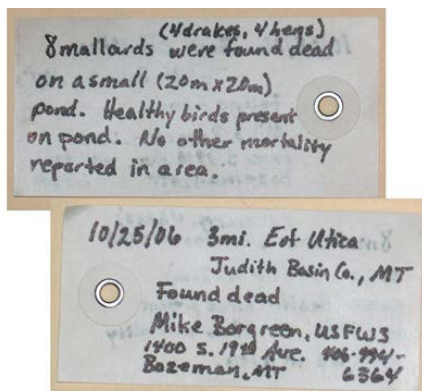


Figure 7. Front and back of tag with list of contents and other essential information attached to 2<sup>nd</sup> bag.



Figure 8. Individually bagged samples inside the 2<sup>nd</sup> sealed, tagged bag with absorbent material, inside 3<sup>rd</sup> heavy plastic bag with cold packs on top, inside shipping container.

11. Seal the 3<sup>rd</sup> liner bag as described in step 5 above.
12. Place the appropriate forms or datasheets (and return courier airbill if you want the container returned to you) in a plastic zipper bag and tape to the inside lid of the container.
13. Tape the container shut with packing or duct tape. If using a hard-sided cooler, tape around the lid and at each end using a continuous wrap around the cooler. Tape over the closed plug.
14. Attach the appropriate sample designation label (Exempt Animal Specimens or UN3373 Biological Substances Category B) and the shipping document (courier delivery airbill) to the outside of the container. If shipping formalin, add appropriate additional labels as outlined in Table 1.

Table 1. Formalin shipping guide.

<b>Type of 10% Neutral Buffered Formalin (3.8% formaldehyde solution with alcohol)</b>	<b>Shipping Method</b>	<b>Max Volume per Jar</b>	<b>Max. number of jars</b>	<b>Marking, Labels, Documentation</b>
Jars with formalin only and no specimen	Air – Shipped as a Limited Quantity <sup>1</sup> Dangerous Good	200 mL	5 per package	Class 8 Corrosive hazard label, Class 3 Flammable label, air certified limited quantity label, UN 1198 Formaldehyde solution flammable markings; orientation label on opposing sides of the package; Shipper's Declaration <sup>2</sup>
	Ground	no limit	no limit	none required
Jars with formalin and with Exempt Animal specimen(s)	Air – Shipped as a Limited Quantity <sup>1</sup> Dangerous Good and as Exempt Animal Specimens	200 mL	5 per package	same as for jars with formalin only and no specimen, plus Exempt Animal Specimens label
	Ground	no limit	no limit	Exempt Animal Specimen label
Jars with formalin and with Category B specimen(s)	Air – Shipped as a Limited Quantity <sup>1</sup> Dangerous Good and as a Category B infectious substance	200 mL	5 per package	same as for jars with formalin only and no specimen, plus UN 3373 Biological Substance Category B label
	Ground	<u>FedEx and UPS do not accept packages of Biological Substances for shipment via Ground</u>		

<sup>1</sup> Limited quantity packages must be combination packages including: the lid of each jar must be secured with a positive secondary method such as tape; packed inside a watertight container or bag with absorbent material; placed into the outer packaging such as Thermosafe® Insulated Shipper box such that impact does not result in jar disturbance and/or spill), and the gross weight limitation of the completed package is 30 kg (66 lbs.). The following lists the types of outer packagings that may be used:

- Drums of plastic, fiber, steel, aluminum, other metals or plywood
- Jerricans of plastic, steel or aluminum
- Boxes of fiberboard (cardboard), plastic, steel, aluminum, wood, plywood or reconditioned wood

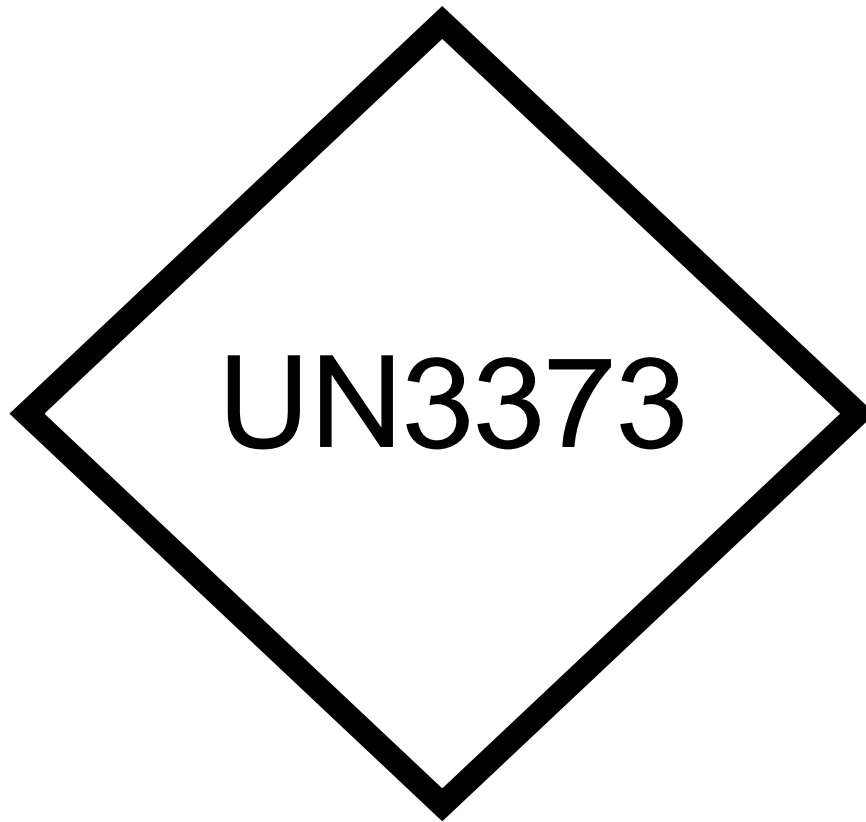
<sup>2</sup> FedEx requires all Shipper's Declarations originating in the U.S. to be prepared using only the following methods:

- Certified FedEx electronic shipping solutions (contact FedEx Dangerous Goods for software, it is not available online at FedEx.com)
- Recognized shipper-proprietary software
- FedEx-recognized dangerous goods vendor software application (contact FedEx Dangerous Goods for details)

QUICK CHECKLIST:

- Laboratory has been notified of this sample shipment
- Labeled sample in primary watertight container or bag
- Double-bag in secondary watertight bag; OK to put multiple primary bagged samples in secondary bag
- Plenty of absorbent material in secondary bag
- Seal and tag secondary bag with contents
- Line shipping container with heavy plastic bag
- Add double-bagged samples inside liner
- Plenty of coolant inside heavy plastic bag on top of bagged samples
- Several inches of insulating material between frozen and room temp/refrigerated samples, if needed
- Additional cushioning, if needed
- Seal heavy liner bag
- Add submission forms/datasheets
- Tape container shut
- Attach courier delivery airbill and appropriate labels:
  - Exempt Animal Specimens or UN3373 Biological Substance Category B
  - If shipping formalin, check Table 1 to ensure package is in compliance with regulations:
    - UN1198 Formaldehyde Solution Flammable
    - Corrosive
    - Air Certified Limited Quantity
    - Orientation markings (This Side Up arrows) if not already on container

LABELS below may be cut out along the dotted lines and attached to the outside of the shipping container. If shipping formalin as a Dangerous Good, a shipper's declaration (generated using specific software) must also be attached to the outside of the container.



**BIOLOGICAL SUBSTANCES, CATEGORY B**

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**EXEMPT ANIMAL  
SPECIMENS**

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**Air Certified Limited Quantity**