

SHIPPING AND TRANSPORT

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The shipment of an orangutan from one facility to another never seems to be a matter of routine, no matter how many times it is done. Experience has taught many of us that thorough early planning of a shipment ensures we can deal with the unexpected.

The process of transferring an orangutan to another facility should include the following steps to facilitate a smooth and safe shipment:

- A. Perform a pre-shipment evaluation well in advance of the shipment
- B. Perform a physical examination of the animal
- C. Develop a shipping transition plan
- D. Construct or acquire an appropriate shipping container/crate
- E. Determine which, if any, permits may be required
- F. For international shipments, locate a Center for Disease Control (CDC) approved quarantine facility.
- G. Make travel arrangements with the chosen carrier for animal and staff accompanying the shipment.
- H. Crate the animal and ship to the new facility
- I. Provide follow-up information and support, as needed to assure a smooth transition of the animal into the new facility. Fill out the Orangutan SSP® Transfer Survey and return it to the Husbandry Advisor (casodaro@brookfieldzoo.org)

(A) THE PRE-SHIPMENT EVALUATION involves examining all the records and history of the animal. These may include: medical, animal management, APES, positive reinforcement training and other records.

(B) THE PRE-SHIPMENT EXAMINATION is a must for obtaining a baseline evaluation of an animal's health and to address health problems that need to be resolved prior to shipment. The shipment process invariably causes stress in the animal. The pre-shipment exam helps to separate those medical issues that may be stress related from those that are chronic and may have a long-term effect.

Preshipment testing should be performed within 30-45 days of the anticipated shipping date. Any increase to this time interval should be approved by the veterinary staff of the receiving institution. The following protocol advises that specific baseline laboratory tests are performed for the purpose of evaluating the animal's current health status. Additional tests are recommended to increase baseline

information to determine their significance to individual animal health. The final decision for specific preshipment testing procedures should be made in partnership between the shipping and receiving institutions. To facilitate this, communication between the veterinary staffs of the shipping and receiving institution should occur prior to initiation of preshipment testing. Any abnormal findings discovered during preshipment testing should be communicated to the veterinary staff of the receiving institution in a timely manner.

Testing should include:

1. Signalment - age, sex, origin, studbook #, ISIS #
2. Anamnesis – Previous medical history (including previous health screens, medical problems, diagnostic test results, treatments, contraception, anesthetic data and current diet information) should be provided to the veterinary staff of the receiving institution for review prior to preshipment testing. Review of the previous medical history should be done by both the receiving institution's veterinarian and curator.
3. Complete physical examination should be performed by a veterinarian familiar with ape health issues, including complete review of systems (ophthalmic, otic, dental, endocrine, lymphatic, cardiovascular, respiratory, abdominal palpation, musculoskeletal, urogenital, neurologic).
4. Body weight. Morphometric data if requested by the SSP®.
5. Verification of permanent identification – transponder, tattoo.
6. Radiographs - thoracic and abdominal, VD and lateral. Recommend taking both oblique views of the teeth taken with the jaws open to screen for dental pathology.
7. Negative tuberculin skin test: 0.1 ml of mammalian tuberculin, human isolates (Colorado Serum Co., Synbiotics Corp.) administered intradermally and visually evaluated by veterinary staff for reaction at 24, 48 and 72 hours. Concurrent testing with avian tuberculin may be useful.
8. Electrocardiogram, blood pressure measurements and echocardiography are recommended to assess cardiovascular status, screen for high blood pressure or cardiac disease, and to collect information necessary for the development of species specific reference ranges. See Section 8 of the Guidelines for Ape

Preventative Health Programs (Veterinary Management Chapter, this volume) for more detailed information.

9. Blood collection

- Complete blood count.
- Serum chemistry panel including cholesterol, triglycerides, HDL, LDL, VLDL and protein electrophoresis.
- Serologic testing appropriate for species. For detailed recommendations, see Section 9 of the Guidelines for Ape Preventative Health Programs (Veterinary Management Chapter, this volume). Routine retesting of an animal previously determined to be serologically positive for a given antigen may not be warranted. The final decision for specific serologic testing should be based on the serologic status of the previous, shipping, and receiving troops.
- Bank at least 2 ml of serum at the shipping institution. If space does not permit, offer serum to receiving institution before discarding.

10. Fecal analyses

- Negative parasite screen – direct, flotation and sedimentation of feces for detection of endoparasites. If negative parasite screen cannot be achieved, update receiving institution on status of parasite load.
- Negative fecal culture for enteric pathogens (*Salmonella* sp., *Shigella* sp., *Campylobacter* sp., pathogenic *E.coli*, *Yersinia* sp.).

11. Verify contraceptive method, if any. See AZA Contraceptive Advisory Group recommendations (<http://www.stlzoo.org/downloads/CAGrecs2004.pdf>) and Birth Control Chapter this volume. Review needs for contraception for housing at receiving institution. Contracepting an animal may need to be considered prior to shipment.

12. Vaccinations

- Killed rabies 1 ml intramuscular within 3 yr prior to shipment
- Tetanus toxoid 1 ml intramuscular within 5 yr prior to shipment.

13. Transport Guidelines – The USA has adopted International Air Transport Association (IATA) Live Animal Regulations. Some airlines have specific nonhuman primate requirements or restrictions.

- Animals should be crated for shipment to the receiving institution.
- Animals should be trained for voluntary crating whenever possible.

- Zoo staff should accompany an ape in transit whenever possible.
- Certificate of Veterinary Inspection, medical records, and appropriate permits should accompany ape in transit.
- Animals should be shipped in climate-controlled manner, with temperatures optimally held between 60-85 F.
- Animals should be crated for shipment to the receiving institution
- A contingency plan for transit-associated problems should be in place prior to the shipment

(C) DEVELOP A SHIPMENT TRANSITION PLAN. This plan can help the animal being shipped adjust to changes in its environment, daily routine, diet, caregivers and future social group. Some orangutans adjust well to a new location and animal management routine with little apparent stress. Other individuals can experience varying levels of stress and/or depression ranging from mild to severe. There are cases of adolescent and sub-adult orangutans who have suffered severe post-shipment stress and/or depression. In a few of the cases, the animals have lost significant amounts of weight, became reclusive and are non-interactive with their caregivers or surroundings.

Here are some recommended steps in developing a shipment transition plan:

- Exchange animal records with the receiving institution. This will allow caregivers and animal managers the opportunity to review the animal's history. Records review may include: ARKS, MedArks, APES, diet, enrichment and training records. It is recommended to examine the APES of the orangutans who the animal will be housed with at the receiving institution. This will help in preparing the animal for transition to the new institution. A records review will help to determine if any past or present behavioral or medical issues that need to be addressed prior to or post shipment.
- Determine the shipping time line. This will help in development of a transition plan. The more time to prepare the animal for transition the better.
- Identify a shipping crate if the transition plan includes crate training the orangutan prior to shipment. This is highly recommended if your facility can accommodate this type of training. Voluntary crating of an orangutan is the least stressful method. Houston Zoo successfully crate trained an adolescent orangutan for shipment in 2005.
- Develop a separation plan. It is recommended to acclimate the animal being shipped to increasing time lengths of voluntary separation from its present social group. This type

of training helps the animal being shipped to adjust to being alone while at its home institution. It also helps to desensitize the remaining animals in the social group who are not being shipped, to separate for increasing periods of time in a non-stressful situation. Separation time lengths should begin very small and increase to where the animal is separate from its social group for several days prior to shipment. A concerted effort to keep the experience positive for the animals involved and in their regular routine is a goal.

- Have your nutritionist review the animal's present and future diet to determine what (if any) adjustments need to be made. Most zoos feed similar types of produce however there is a wide array of complete feeds (primate chows) that are fed.
- Is the animal on birth control and is there a breeding recommendation once it is shipped? You may need to discontinue birth control or have a birth control implant removed.
- Determine ahead of the shipment what the orangutan's new facility is like and what their orangutan management routine involves to help transition the animal being shipped. Request copies of their orangutan's APES profiles.

(D) DETERMINING THE SIZE AND DESIGN OF THE SHIPPING CRATE is a critical part of assuring a safe and successful transfer of the animal. The crate's inside dimensions should allow the animal to turn around and sit upright without its head touching the crate ceiling. Remember to take into account any bedding that may be included in the crate with the animal. The crate should be constructed of materials that are strong enough to contain the specific animal to be shipped taking into account the gender, age and size of the orangutan. Orangutans can be skilled dismantlers so aluminum, heavy grade plywood and steel can all be used in various combinations to construct a strong, safe crate. The design should allow for ease and safety in handling the crate. It is very important that the size and weight restrictions for the intended method of transport be taken into account (USDA Subpart D Sections 3.87-3.92 www.usda.gov) for specific requirements for crate construction and transit activity. Also refer to the International Animal Transport Associations Live Animal Regulations, 22nd Edition (IATA container requirements 33 and 34 www.IATA.com) for the crate design approved for air transport. Other factors to be considered when determining crate size include: corner turning space into the holding enclosures, dimensions of service corridors and doors, specifications of all truck tray, truckload ratings and airplane cargo door dimensions. It is important to check with the receiving institution to ensure the shipping crate can fit into their quarantine area for unloading. The method in which the crate door opens/closes needs

to be taken into consideration as well to ensure a smooth unloading process.

(E) PERMITS required will be dependent on the animal's destination and method of transportation. In general, a health certificate will be needed for transport in the United States. International shipments and some states require additional permits and documentation.

(F) LOCATE A CDC QUARANTINE FACILITY IF THE SHIPMENT IS an international one. All non-human primates coming into the United States from a foreign country need to go through quarantine at a CDC approved facility. Zoos that are certified for CDC quarantine include: Columbus Zoo, Brookfield Zoo, St. Louis Zoo, San Diego Zoo and Kansas City Zoo.

(G) THE TRAVEL ARRANGEMENTS WITH THE CHOSE CARRIER should be made as early in the process as possible. Differences in climate and temperature should be considered prior to shipment. If possible, animals that will be moved between Northern and Southern hemisphere institutions should only be moved when temperature differences are not too extreme. Moving an animal from one institution to another may be done using air transport, an exotic animal transporter or transport by staff from one of the participating institutions, using an institutional or rented vehicle. Careful consideration should be given to what will be safest and least stressful for the animal. If air transport is chosen, ensure the flight is as direct as possible. Take into account the possible weather at any scheduled stop and plan accordingly. You must ensure that the animal is not exposed to temperature extremes or large temperature fluctuations. Remember that even if someone flies with the animal, access during the flight will probably be non-existent. A recommendation from the Australian guidelines for orangutan transport recommends that arrangements be made ahead of time to allow keeper access on to the tarmac to supervise animal handling during transport. They recommend arranging for security passes well in advance with the cargo manager for both the outgoing airport and also for any stopovers. It is recommended that institutions appoint an appropriate person to ensure access requirements in transit for staff are made.

If an exotic animal transporter is chosen, confirm that they have experience transporting orangutans. It may be wise to contact institutions that have used a particular carrier to review their past track record for transporting orangutans. Confirm with the transporter the agreed upon trip length and the plan for dealing with any problems on the road. Make sure that adequate food and water is

sent with the animal. There should be at least two people who make the trip.

Having someone familiar with the animal accompany the shipment can assure a smoother transition for the animal and the caregivers. It is strongly recommended that keeper staff from the receiving institution work with the orangutan at its home institution prior to shipping. This allows the animal to meet their new caregivers and allows the new caregiver to work with and observe the animal in its normal daily routine. Both the sending and receiving institutions' caregivers should accompany the animal during shipment. Many orangutans suffer depression (sometimes extreme) after being moved to a new facility. It is recommended that a familiar caregiver stay at the new facility with the orangutan until the animal is eating and showing signs of adjustment to their new routine.

The choice to transport an animal using zoo staff may be the best one for relatively short distances. Remember that driving an orangutan across country is not as easy as it sounds. Plan the best route and then have alternative routes in case of unexpected road closures, severe weather or other changes. Have a plan for dealing with any problems encountered on the road. For long road trips, make plans for backup vehicles in case of a breakdown in the primary transport vehicle. It is recommended that arrangements are made for in-transit veterinary emergencies. This can be done by contacting AZA institutions that are along the transport route to enlist an experienced veterinarian to be on call if the need arises. Ensure that adequate staff accompanies the shipment. For the sake of the orangutan caregiver and animal safety, a minimum of two people should make the trip. Refer to the USDA regulations for transport of non-human primates for additional information.

Transporter Information

- Kitty Hawk Cargo ships between the following cities: Atlanta, Baltimore, Boston, Charlotte, Dallas, Denver, El Paso, Hartford, Houston, Kansas City, Los Angeles, Miami, Minneapolis, Nashville, Newark, Oakland, Orlando, Philadelphia, Phoenix, Portland and Seattle
- Federal Express will ship orangutans and the cost is reasonable. They have a requirement that two attendants must accompany the animal. Other requirements for attendants include a security screening (background check) and a current passport. It is important to discuss attendant requirements with Federal Express well in advance of the actual shipment.
- Animal – Port Houston (freight broker) 281-821-2224
- Pet Air (freight broker) 816-471-2412

- Global Air Transport (Mike Foley) 661-298-9760
- Roadway Express will pick up and deliver empty crates and they give a 30% discount

(H) TRANSFER THE ANIMAL INTO THE CRATE AND SHIP TO THE NEW FACILITY. The animal can be moved into the crate using positive reinforcement training methods or via sedation. The safest and preferred method to crate an animal is via training. This does involve staff time and resources but it is the least stressful option for the animal involved. If you are considering crate training, start the training process well in advance of the actual shipment. A behavioral shaping plan should be developed and a crate identified to using in the training process. When determining the crate type, keep in mind the crate must fit through all doors, hallways, and cage openings at the sending and receiving institutions as well as meeting IATA regulations. Once the animal is crate trained, actual "mock transports" could be staged prior to the actual shipment. For example, crate the animal during a training session, then move the crate from the holding area, load it onto a truck, drive around for a determined length of time and then uncrate the animal. This technique has been used successfully in the transport of marine mammals (Carol Sodaro, personal communication). Considering the safety and relatively low stress to the animal using this method, it would seem well worth the effort.

If the animal is sedated, great care must be taken in placing the animal in the crate so that the airway is not blocked. Maintain quick access to the animal until it starts to respond and can hold itself in an acceptable position. Do not put food or water into the crate until the animal is fully alert. The orangutan should be fully alert before it leaves the facility.

At the time of shipment, include pertinent information about the animal to the receiving facility. Information should include but is not limited to: medical history, an updated APES form, the American Association of Zookeepers (AAZK) Animal Data Transfer (ADT) form, Enrichment Data Form, Training Data Transfer Form and any institutional records pertaining to the individual orangutan. If the animal is involved in a behavioral modification program, a videotape of the animals training sessions will help provide a smooth transition to the new trainer(s).

(I) PROVIDE FOLLOW-UP INFORMATION AND support as needed to assure a smooth transition of the animal into the new facility. It is worth designating specific staff at each institution to help facilitate communication regarding the orangutan post-shipment. After the

animal has been shipped, fill out the SSP© Animal Transfer Survey (included at the end of this chapter) and return to the Husbandry Advisor (casodaro@brookfieldzoo.org)

Shipping the animal to the new facility should be accomplished with relative ease considering all of the planning that has gone into the process. However, always expect the unexpected and be ready to respond in a timely manner. The health and well-being of the orangutan should always be the primary consideration in the process.

REFERENCES

- International Air Transport Association (IATA), *Live Animal Regulations*, 22nd Edition, effective 1 October 1995, Montreal, Quebec, Canada.
- United States Department of Agriculture (USDA), Animal and Plant Inspection Service, **Animal Care Regulations**: Title 9 – Animals and Animal Products Chapter I –Part 3 – Standards, Paragraphs 3.75 through 3.92 (<http://www.aphis.usda.gov/ac/cfr/9cfr3.html>)