Global Federation of Animal Sanctuaries

Standards Appendix For Ape Sanctuaries

All applicants are expected to comply with the General Animal Care Standards. This Appendix is intended to be read in conjunction with the General Animal Care Standards, and provides additional requirements and recommendations for apes.

Version: 1.1

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ANIMALS COVERED BY THESE STANDARDS

Family / Genus

Family: Hominidae
Genus: Gorilla, Pan, Pongo

Genus	Species	Common Names
Gorilla	*Beringei*	Eastern gorilla, Mountain gorilla
Gorilla	*Gorilla*	Western gorilla, Lowland gorilla
Hoolock	*hoolock*	Western Hoolock Gibbon, Western Hoolock
Hoolock	*leuconedys*	Eastern Hoolock Gibbon, Eastern Hoolock
Hylobates	*agilis*	Agile Gibbon, Dark-handed Gibbon
Hylobates	*albibarbis*	Bornean White-bearded Gibbon, Bornean Agile Gibbon
Hylobates	*klossi*	Kloss's Gibbon, Dwarf Gibbon, Mentawi Gibbon
Hylobates	*lar*	Lar Gibbon, Common Gibbon, White-handed Gibbon
Hylobates	*moloch*	Silvery Javan Gibbon, Javan Gibbon, Moloch Gibbon, Owa Jawa, Silvery Gibbon

Hylobates	*muelleri*	Muller's Bornean Gibbon, Bornean Gibbon, Bornean Grey Gibbon, Borneo Gibbon,Grey Gibbon, Muller's Gibbon
Hylobates	*pileatus*	Pileated Gibbon, Capped Gibbon, Crowned Gibbon
Nomascus	*annamensis*	Northern yellow-cheeked gibbon, Northern buffed-cheek gibbon
Nomascus	*concolor*	Black-crested gibbon, Black gibbon, Crested gibbon, Indochinese gibbon,
Nomascus	*gabriellae*	Red-cheeked gibbon, Buff-cheeked gibbon, Buffy-cheeked gibbon, Yellow-cheeked gibbon
Nomascus	*hainanus*	Hainan gibbon, Hainan black crested gibbon, Hainan black gibbon, Hainan crested gibbon
Nomascus	*leucogenys*	Northern white-cheeked gibbon, White-cheeked gibbon
Nomascus	*nastus*	Cao-vit crested gibbon, Cao-vit black crested gibbon, Eastern black crested gibbon
Nomascus	*siki*	Southern white-cheeked gibbon
Pan	*Paniscus*	Bonobo, Pygmy Chimpanzee, Dwarf Chimpanzee, Gracile Chimpanzee
Pan	*Troglodytes*	Chimpanzee
Pongo	*Abelli*	Sumatran orangutan

Pongo	*pygmaeus*	Bornean orangutan
Pongo	*tapanuliensis*	Tapanuli orangutan

APE STANDARDS

The purpose of these standards is to assist sanctuary directors and personnel, other animal welfare agencies and professionals, and the public regarding best practices and appropriate criteria for the effective and efficient operations of an animal sanctuary. These standards are voluntary, but provide the basis for GFAS Accreditation and Verification.

Each standard or each part of every standard may not be applicable to all animal sanctuary and rescue center facilities. Further, these standards do not include every practice, procedure, or policy that might be desirable for or implemented by a sanctuary since the programs, conditions, facilities and objectives of all sanctuaries are not identical. GFAS does not suggest or infer that those who do not follow all of these standards or recommendations engage in unsafe practices.

GFAS recognizes that there may be many acceptable ways of meeting the intent of each standard. In order for a sanctuary to be considered compliant with the GFAS Standards, the sanctuary must be able to demonstrate compliance with the entire standard, as applicable, through the totality of the accreditation process which may include, but is not limited to, submission of required documentation, interviews, and demonstration and/or confirmation of practices during a sanctuary site visit. GFAS encourages sanctuaries to offer feedback on the standards and to explain any reasons why it meets a standard or believes any particular standard is not applicable and/or appropriate to its situation.

The exceeding of the standards is encouraged. In addition to meeting these standards, an organization is expected to comply with all applicable international, national, state/province, and local laws and regulations.

APES HOUSING

H-1. Housing

Animals are safely contained. Unless otherwise directed by a veterinarian, and for a specified medical reason, animals are provided sufficient opportunity to move about freely and rapidly, and to exercise choice in location so as to maintain positive welfare.

General

- Facilities are required to have shifting protocols in place to move apes into separate enclosures prior to personnel entering an enclosure. Additionally, a double entry system is recommended for enclosures so that there are two barriers between the animals and escape, and should be in place for all outdoor enclosures, particularly for entries through which vehicles enter. The two barriers are never open at the same time.

- Facility design takes into account caregiver-ape safety and ease of maintaining a positive relationship.

- Sanctuaries that routinely accept infant apes have a nursery unit with separate or easy access to kitchen and bathroom facilities for caregivers.
    - Nursery units include an outdoor play area separate from older animals.
    - Nursery units include sleeping areas for caregivers and infant apes in close proximity.
    - Both indoor and outdoor areas of the nursery unit are designed to allow infant apes to climb, explore and play.

  It is important to provide areas to house geriatric and sick animals separate from main groupings that meet all their needs.

Outdoor Enclosures

- Particular attention is paid to vertical aspects of their environment, allowing for more natural behaviors.

- Where outdoor enclosures are the primary enclosure, indoor day/night rooms or other means of providing night housing and secure shelter during inclement and extreme weather may also be provided. This space also provides alternate housing for sick or injured individuals while in close proximity to the social group.

Indoor Housing

- Indoor housing provides year-round protection from the elements. For sanctuaries located in northern climates (where freezing temperatures occur regularly during any part of the year), indoor space is large enough to allow for all forms of species-specific behavior (running, climbing, etc.).

Recommended Dimensions

Many factors influence the minimum space required for a group of apes, including, but not limited to: group size, group composition, and enclosure complexity. The following are minimum recommendations. Facilities should provide as much space as is possible and/or practical.

- Sanctuaries meeting only the minimum recommendations for enclosure space employ additional environmental enrichment, focusing on physical and mental exercise rather than food, to compensate for reduced space and complexity.

- Outdoor enclosures for apes are a minimum of 5,000 sq. ft. (464.5 sq. m) per 5 apes, with an additional 250 sq. ft. (23.22 sq. m) for each additional individual. Enclosure shape may be variable to take in natural features in the landscape such as rock formations, hills and trees, and for roofed enclosures there should be a minimum vertical dimension of 20 ft. (6 m). Space includes a minimum of one (1) animal transfer door leading to the indoor enclosure.

- Indoor day/night rooms for apes have a minimum of two ‘rooms’ per group of compatible apes. Room dimension is dependent on intended purpose and/or duration of confinement. Recommended minimum size is one room with a minimum dimension of 200 sq. ft. (18.6 sq. m) per compatible pair, with an additional 50 sq. ft. (4.6 sq. m) per additional animal.

    - A minimum vertical height of 15 ft. (4.6 m) is recommended, with furniture and/or catwalks that allow use of vertical space.

    - Rooms interconnect without creating ‘dead ends’ to allow for freedom of movement for subordinate individuals.

    - Whenever possible, separated apes have visual and tactile access to group members to facilitate reintroduction.

    - With consideration to group size and composition, access from outdoor to indoor enclosures includes a minimum of two (2) doors to prevent dominant individuals from blocking access to shade, sun, food, other desired space, social partners or enrichment items.

    - Facilities include multiple sub-enclosures so that the apes can be shifted to allow temporary segregation of individuals or subgroups and for secure staff access to enclosures for cleaning, maintenance, etc.

    - Enclosures are designed to allow for apes' normal defense reactions and appropriate 'flight' or escape distances.

    - All enclosures are designed, constructed and maintained to securely contain apes and to present no likelihood of harm to them.

    - Distance or barriers between apes and between enclosures and personnel is sufficient to minimize stress to the animals as well as reduce the risk of disease transmission.

Fencing

- High tensile electric fencing may be used in conjunction with standard fencing products but is discouraged for use as a primary barrier.

- Gates and doors are at least as strong, and as effective, in containing apes as the rest of the enclosure barriers. In particular, gates and doors are designed and maintained so as to prevent animals from lifting them from their hinges or unfastening the securing device.
- For outdoor enclosures, a minimum fence height of 17 ft. (5.18 m) is recommended, with the upper 30% of the barrier made of a smooth, non-climbable material. It is recommended that the upper portion of the containment fence is cantilevered.
- Rigid, woven wire steel mesh is recommended with a minimum 4-gauge (5.19 mm) thickness. Two inch (50.8 mm) square openings are recommended throughout the enclosure, particularly where staff and/or critical components are nearby, if a solid barrier is not possible in these areas. (Note: 4 in. (101.6 mm) square openings may be acceptable for ceilings and other areas not frequently accessed by staff. When staff is working in such areas, apes are shifted from the enclosure).
- Welded wire mesh is considered less reliable for containment and is not recommended as primary containment.

Electric Fencing

- Electric fence energizers emit at least 6,000 V with a joule rating appropriate for the length and condition of the fence (25 joules is recommended). Voltage readings should be taken at both the beginning and end of the fence line.
- A minimum of 14-gauge high-tensile wire is needed, with a stronger gauge (*e.g.*, 12-gauge) more appropriate for some species.
- Fences are ideally a minimum of 12 ft. (3.66 m) tall, depending on species, with a maximum wire spacing of 4 in. (101.6 mm) for the first 4 ft. (1.22 m) and 6 in (152.40 mm) thereafter.
- Fence is alternating hot/ground to prevent apes from leaping onto the fence and avoiding shock.
- Energizers are connected to battery or generator backup for continuous power supply during outages.
- In dry climates, the earth rod area is watered to ensure adequate grounding.
- If using electric fencing as a primary barrier, two separate complete systems can be used to increase effectiveness and reduce the chance of system failure.
- It is recommended that electric fencing is not used as a primary barrier. Electric barriers are better utilized as secondary barriers.
- Safety signs on hot wire are visible to personnel and bystanders.

Solid Barriers

- Solid barriers such as concrete block, poured concrete and artificial rock can be used as the sole method of containment or in conjunction with other types of barriers.
- Walls are secured in appropriate footings to ensure wall stability.
- Care is taken, especially with artificial rock, to ensure that contours in the rock do not provide escape routes from the enclosure.

- Design of areas using solid walls allows for sufficient air flow throughout an enclosure.

Moats

- Water moats present a significant risk of accidental drowning because most apes cannot float or swim and as such are not recommended.
- Dry moats, if used, are a minimum of 14 ft. (4.3 m) and have a smooth, non-climbable surface for at least the top 9 ft. (4.7 m). Moats are of a sufficient size and depth to adequately confine the ape species housed. An escape route is built in to allow apes who fall into the moat back into their enclosure.
- Moats are surrounded by fences, walls, hedges or shrubbery to prevent others from approaching too close to the edge.
- Dry moats are accessible by skid steer or similar small tractor to repair erosion or grade issues to meet other service or repair needs in the enclosure.
- Animal caregivers have safe and easy access to dry moats.

Open-Top Enclosures

- Smooth, solid barriers, such as poured concrete or no climb fences, are a minimum of 17 ft. (5.18 m) tall.
- Solid barriers are properly maintained so that finger holds do not develop.
- If using poured concrete or plate steel, cage or safety glass windows are provided to allow the apes to see outside of their enclosure.
- For added security, one or two strands of hot wire may be added at the top of the wall/fence.
- Enclosures are adequately secured to allow the animals without supervision.
- Consideration is given to the safety of animals from human intrusion.
- Consideration is given to securing apes known to have escaped from enclosures to have 24-hour access

Safety Glass

- Unless covered with another appropriate barrier, glass is laminated (glass-clad polycarbonate) with a minimum thickness of 1in. (2.54cm). Glass is set into a steel or aluminum frame for security.

Indoor Enclosures

- A maximum dimension of 2 in. x 2 in. (50.8 mm X 50.8 mm) for mesh is recommended for apes. A maximum mesh size of 1 in. x 1 in. (25.4 mm X 25.4 mm) is recommended where mesh separates adjacent cages. Woven wire mesh is recommended.

- Walls between enclosures can be constructed of concrete block or poured concrete. Where concrete block is used, the voids are filled with sand or soil to strengthen the walls and reduce potential harborage for unwanted species.
- Walls are of sufficient strength to anchor caging and furniture.
- Design of areas using solid walls allows for sufficient air flow throughout the enclosure.
- Solid concrete or concrete block walls are sealed to make them impervious to contaminants and pathogens.

Preferred practice:

✓ A non-electrified barrier is recommended to keep bystanders and wildlife from coming in contact with any electric enclosure fences, and is advisable in areas where the visiting public may come in proximity to fenced enclosures.

H-2. Ground and Plantings

Ground cover indoors and out is healthy for animals. Plantings are appropriate and safe.

Vegetation

- All outdoor enclosures for apes include living or fresh vegetation, which can provide visual barriers, shade and resting sites.
- Enclosures may also be planted with grasses, shrubs etc. that the apes do not tend to eat, provisioning the animals with preferred plant material as part of the daily diet.
- Enclosure design takes into account indigenous endangered vegetation and takes steps so it is not compromised.

Outdoor Enclosures

- Outdoor enclosures should include a substrate bottom which can be supplemented with organic materials, including but not limited to soils, sand, leaf litter, bark mulch, grasses, straw, hay, and wood shavings.
- Apes are provided with appropriate three-dimensional environments to accommodate an array of locomotor and foraging behaviors, as well as appropriate sleeping and resting areas, including nesting and bedding materials.
- Varied topography provides visual barriers, increased enclosure complexity and varied elevations, and can be achieved using naturally occurring topography at a selected construction site or through addition of soils, culverts, rocks, logs etc.
- Horizontal and vertical jump distance is considered when developing enclosure topography.

- Where natural topography of an enclosure is not varied, it is created through the addition of natural and placed elements.

- Trees, vines and shrubs, especially around fences and other barriers, are checked daily and trimmed as necessary to ensure that growth does not allow escape from open-top enclosures. In areas where there is risk of wild apes entering the enclosure the trees on the outside of the enclosure should be trimmed as well.

- Access to very tall trees is limited by electric wires, barriers etc. if they pose a safety risk to animals or people.

- Species-specific considerations for gibbons:

    - It is important to provide suitable baskets and branches where individuals can establish a familiar sleeping site and a sense of security.
    - Enclosures should be a vertical design.

    - If there are multiple gibbon enclosures, care is taken to ensure that gibbons in different enclosures are in visual range of each other

    - Incorporating a race way containing a slide can facilitate capture and restraint as required. Ideally animals should be conditioned to enter the area.

    - Use of the ground – i.e., false floor, undesirable vegetation, water - is discouraged.

Indoor Enclosures

- All indoor enclosures have a concrete floor and, provided adequate septic service is present, ideally are sloped to a drain.

- Bedding material suitable for use includes, but is not limited to, bark mulch, leaf litter, wood wool, straw hay, shredded paper and wood shavings.

- For individuals required to spend long periods of time indoors, consideration must be given to sufficient bedding and substrate for the welfare of the animals but taking into consideration practical considerations that do not cause potential problems with facilities – i.e. blocked drainage.

- Apes are observed regularly for signs of illness that may be related to ingestion of foreign objects, including wood shavings, bark mulch or other materials that may pose a hazard.

H-3. Gates and Doors

Animal enclosure gates and doors, including transfer doors, are appropriately designed to ensure both animal and human health and safety, and are properly maintained to ensure proper functioning.

General

- Doors are designed to allow transport crates to safely attach to them.

- Transport crates should be able to be moved in and out of the enclosure through the transfer doors.
- Transfer doors are designed to remain functional under all circumstances and are maintained in good working order and free from any encumbrances that may prevent opening and closing.
- Transfer doors allow for normal posture and are positioned appropriately according to a species (e.g., gates and doors off the ground for arboreal species).

Security

- Transfer doors and their frames are constructed of materials similar in strength to those used in the primary enclosure.
- Doors are lockable in both the open and closed positions.
- For pneumatic or hydraulic doors, pneumatic or hydraulic pressure is sufficient for keeping doors in the open position. A mechanical lock is, however, in place to lock the door in the closed position.
- Particular attention is given to preventing straw/shavings from affecting door mechanisms.

Animal Safety

- Doors operated via remote control are visible from the control area.
- Sliding doors are preferred. Guillotine doors are not recommended due to risk of animal injury. If used, a backup system should be in place to prevent doors from free falling due to mechanical failure or operator error.
- Hydraulic and pneumatic door systems include backup systems to allow for door usage in the event of equipment failure.

User Safety

- If door handles or locking mechanisms are in close proximity to the enclosure, a solid barrier is present to protect the user.
- Caregivers have a clear view of the entire area, with no blind spots in the enclosures where animals cannot be seen.

H-4. Shelter

Animals have access to natural or artificial shelter that provides each individual with protection from extreme weather.

- Consideration must be given to the positioning of the shelter within the enclosure according to the type of species – i.e., arboreal and terrestrial.
- Enough shelter must be provided so that every individual has access even when the group is not fully cohesive.

H-5. Enclosure Design

Animals are provided with an appropriately complex and rich habitat to explore, to ensure the animals' physical, nutritional and stimulation

- Appropriate complexity is provided through the use of various natural and artificial materials in the enclosure, using a combination of items including, but not limited to, those listed below.
- Apes are provided access to the vertical space available within the enclosures. This is particularly important for arboreal species and should be applied to indoor and outdoor areas.

Outdoor Enclosures

- Visual barriers can be used to avoid confrontation or aggression, and include climbing structures, fallen logs, walls, shade structures, topography and large enrichment items.
- Climbing structures accommodate natural locomotion patterns for the species housed, and should withstand the height of an adult male. When multiple species are housed together, climbing structures created specifically for each species' unique needs are provided. Metal pipe is preferably not used to construct climbers as, depending on climate, it may become dangerously hot in summer sun and can damage skin during cold weather. Climbing structures should be accessible by staff for routine sanitation, repairs and updates and should include:
    - horizontal and vertical elements and ensure that sufficient pathways exist throughout the enclosure so subordinate individuals do not reach 'dead ends' in the enclosure;
    - locations and/or mechanisms to provide enrichment above ground level;
    - resting platforms, perches, and handholds of varying size that large and small animals can securely grasp for support;
    - a minimum of 50% of total climber space designed to allow access by individuals of all ages and physical capabilities;
    - where possible, soft substrate such as soil, bedding material, mulch or leaf litter is installed below climbers to minimize risk of injuries from falls, especially to youngsters and older individuals.
- Perching
    - Horizontal perching areas and platforms are provided to allow resting, sleep, social behavior and feeding above ground.
    - Placement of perches or platforms includes consideration for access to animals for close observation, medication or training sessions.
    - Perches are accessible to staff for cleaning.

- Other Materials
    - Canvas fire hoses used for climbing elements, runways and hammocks are secured in a manner that prevents animals from becoming entangled in long lengths or trapped in openings.
    - Cargo nets are selected with a diameter that ensures youngsters may not become trapped in the net.
    - Ropes that are fastened horizontally in an enclosure are secured at both ends with sufficient tension to prevent an animal from becoming entangled. Frayed portions of rope are removed immediately.
    - Logs are placed and secured in a manner that prevents them from rolling or falling onto animals.
- Considerations for gibbons:
    - The larger the enclosure, the greater the distance should be between ropes/branches, as larger gaps allow greater speed and leaping distances.
    - Ideally, at least 2 platforms are provided for every gibbon housed in an enclosure.
    - It is important to create arboreal pathways at different levels.

Indoor Enclosures

- To the greatest extent possible, all visual barriers, climbing structures and perching surfaces meet outdoor enclosure criteria.
- Indoor furniture is constructed of materials that can be sanitized or easily replaced when they become overly soiled. Furniture is accessible to staff for routine cleaning and repair.
- Benches, perches, and other structures allow for climbing and for sleeping above ground level.

H-6. Sanitation

Proper sanitation is practiced to reduce pathogen transmission

- As fomites (shoes, clothing, etc. which carry infectious materials) may be a source of zoonotic disease, all who may come in contact with such materials are made aware of these risks and trained accordingly. (*See also* Standard V-8, “Zoonotic Disease Program”).
    - Ape waste is handled with precautions appropriate to bio-hazardous waste, and is not composted. Efforts are made to prevent native wildlife from getting access to waste.
- Disinfecting foot baths are placed at the entrance to any indoor enclosures to be used when entering and exiting the enclosure. The foot bath solution is changed daily, and foot bath solution is disposed of appropriately, utilizing proper drainage.
- Tools used for New World primates are not used for apes.

- Sanitation tools or equipment, including wheelbarrows, are not used for transport or storage of foodstuffs or bedding.

- Care is taken to minimize overspray of waste, directly or via aerosolizing, into adjacent cages during cleaning.
    - Concrete floored enclosures are dried with a squeegee, and as needed fans, to ensure floors are dry before bedding material is replaced.

- Specific disease exposure of species from research settings is taken into account when handling ape laundry.

H-7. Temperature, Humidity, Ventilation, Lighting

Temperature, humidity, ventilation, and lighting are appropriately addressed.

Temperature

- For facilities that do not have the means to install climate control systems, it is important to provide an opportunity for temperature control. Various means can be adopted according to species-specific needs and available resources. Examples include the opportunity to cool off in pools, providing appropriate shelter to protect from temperature (hot or cold), and/or providing suitable substrate for protecting against temperature (hot or cold) if primates spend a lot of time on the ground.

- For outdoor enclosures, apes have access to heated or cooled areas when ambient temperature falls below 55ºF (12.78ºC), adjusted for wind chill, or rises above 95° F (35ºC). Great caution is taken with elderly, infant and disabled apes.

- Windbreaks are sufficient in number to accommodate all apes simultaneously with consideration for social structure and relationships in a group.

- Infrared bulbs or ‘heat lamps’ are not recommended as heat sources due to risks associated with bulb breakage and tissue damage in the apes.

- For indoor enclosures, an average ambient temperature range of 70ºF (21ºC) and 80ºF (26.6ºC) is recommended. However, most apes can tolerate temperatures between 50ºF (10ºC) and 70ºF (21ºC) for short periods of time when supplemental bedding and heat is provided.

- Heat can be provided by forced air or hydronic heating systems.

- Cool air can be provided by refrigerant air conditioning, “swamp coolers”, fans, or misters.

- Providing apes with opportunities to choose temperature ranges within an enclosure is preferred. This can be achieved by access to areas near heat vents, skylights, or hog warmers for example.

- Even when ambient temperatures are ‘warm’, bare concrete floors, especially damp floors, are too cold for many individuals and are not considered suitable substrate or housing for apes.

- Any climate control systems include redundancy and back-up power in case of equipment or power failure.

Humidity

- Optimal indoor humidity is between 30% and 70%. Humidity should not be kept above 80% in controlled environments to prevent fungal and mold growth. High humidity can be mitigated through proper ventilation or dehumidifier systems.

Ventilation

- Heat Recovery Ventilators and Energy Recovery Ventilators can provide fresh outdoor air with minimal heat loss.
- Indoor enclosures ideally have a negative air pressure, with regular exchange of non-re-circulated air.
- A minimum of one complete air exchange per hour is recommended.
- To the extent possible, separate air handling systems are maintained between animal areas to prevent disease transmission.
- Proper window and door placement can ensure sufficient cross-ventilation in warm climates.

Lighting

- Light, natural and artificial, is appropriate for the species housed in terms of intensity, spectrum and duration.
- Indoor enclosures - Natural lighting is optimal and can be obtained using skylights, windows, roll-up doors and other means. Glass bricks may be used, taking into account the fact that light intensity will be less than with clear glass.
- Supplemental lighting is provided to ensure adequate light for caregivers to observe animals, clean enclosures and perform related animal care tasks.
- When animals are confined indoors overnight, sufficient lighting is used to extend the daylight period to a day/night cycle of 12/12 hours to allow animals time to eat and select sleeping sites.
- In northern climates, where natural light is less intense and of shorter duration during the winter months, full-spectrum bulbs are used to ensure ape health.
- Consideration is given to providing nightlights to prevent aggression between social groups that may result from surprise encounters in darkened areas.
- Outdoor enclosures - While not necessarily required, consideration is given to supplemental lighting or power sources for use in outdoor areas in event of an emergency. Tamper-proof lighting is used in ape enclosures.

NUTRITION REQUIREMENTS

N-1. Water

Fresh clean water is available in sufficient quantities at all times to all individuals.

- Multiple water sources are available for group-housed apes to ensure high-ranking individuals do not dominate water sources.
- For apes being rehabilitated for release to the wild, species-specific water sources should be provided (e.g., water containers mimicking tree holes placed high in enclosures for gibbons).

N-2. Diet

A properly balanced and healthy diet is provided appropriately based on the needs of each animal, following veterinary instructions for special needs.

General

- Diets should be nutritionally balanced and promote natural feeding behaviors.
- Diets should be developed using the recommendations of nutrition advisory groups, AZA Taxon Advisory Groups, Species Survival Group Programs, as well as veterinarians.
- Commercially prepared primate diets are not the sole diet for apes, but are at most a supplement to a diet of fresh fruits and vegetables, greens, and other whole foods.
- When pellets (chow) are fed, they should contain a high percentage of fiber.
- All apes are largely frugivorous and should have fruit in their diet. Be mindful to select fruit with a lower glycemic index; so, choose fruits with less sugar and higher fiber. Ensure fruits are ripe before feeding.
- Commercially available insects including crickets, mealworms and waxworms can be offered occasionally with the diet.

Browse

- Where possible and available, fresh browse is offered daily to animals housed indoors. If not naturally present in the outdoor enclosure, browse items (*e.g.*, grasses, cattails, vines, etc.) are

provided on a regular basis. In areas where it is difficult to source browse year-round, browse may be stored through freezing, drying, storage, etc.

- All browse items are nontoxic and grown without chemical pesticides. Caregivers are trained to identify safe, non-toxic plant species appropriate for apes.

Preferred practice:

✓ Browse should be offered daily in outdoor enclosures as part of a high fiber diet.

Vitamins/Supplements:

- If a diet is well balanced, there is no need for any supplements. Mineral or vitamin supplements must only be given in response to nutrient intake calculations of individuals or from veterinary prescriptions. They must never be given as prophylactics. Instead, the diet should be adjusted to treat the possible malnutrition diagnosed.
- If vitamins are given, they do not contain excess iron.

Preferred practices:

✓ Female orangutans who come into a sanctuary pregnant should be fed a Calcium supplement if the calcium to phosphorus ratio is not above 1.2:1. This is the same for gorillas.

✓ All apes are susceptible to vitamin D deficiency if they are housed away from natural sunlight. When animals are housed indoors for extended periods of time, Vitamin D is recommended.

N-3. Food Presentation and Feeding Techniques

Food is prepared and presented in a safe and appropriate manner to meet animals' health and social needs.

General

- Feeding and drinking receptacles are placed in positions that minimize the risks of contamination from soiling by the apes themselves, wild birds, rodents and other potentially invasive species.
- Feeding chutes or feeding boxes may be used as a means to safely distribute feed. If used, a solid barrier extending several feet in each direction from the opening is used to reduce the risk of apes grabbing staff.
- Apes are offered their diet a minimum of twice daily, with sufficient daylight hours remaining to allow necessary forage time.

Preferred practices:

✓ Depending on the ability (or lack thereof) to forage throughout the day, apes may be fed a minimum of four times daily, aiming for more frequent feeding where possible.

✓ Gorillas should have access to food 24 hours per day due to the nature of their digestive systems.

✓ The feeding strategy should be such that it increases the amount of time it takes an ape to eat. In the wild, apes eat most of the day so increasing the time it takes to process the food for consumption (e.g., peeling an orange rather than getting an orange slice) or find the food if it is scattered is a good strategy.

- ✓ Arboreal primates should be fed at least 1.5 meters off the ground to accommodate natural behavior and to reduce fecal contamination of the food, with exception for enrichment sessions which could be provided at ground level.

Feeding Techniques

- Caregivers are encouraged to reduce tensions during feeding times by conducting their tasks in a quiet manner; not playing favorites with the food; not accidently teasing an ape by trying to retrieve or relocate a dropped food item until after all feeding has been completed.
- Eye contact is avoided with animals showing aggressive behaviors Caregivers respond to aggressive behaviors with submissive behaviors.
- Variations in food presentation are considered part of the enrichment program for apes. Distributing food throughout an enclosure allows natural foraging behavior and may limit food hoarding and aggression. Food may also be presented in bowls, bags, or other containers, with consideration to social grouping.
- Feeding is done in a manner to ensure that subordinate individuals in group housing receive sufficient food. Observation is key during feeding times to ensure all animals have access to food.

Diet Related Health Issues

- Food selections and quantities are managed as much as possible to maintain healthy weight with attention paid to fat, sodium and sugar content.
- Food selections are managed to reduce the risk of nutritionally induced diabetes.

Diet Changes, Increases or Decreases

- Considerations for diet increase include weight and condition of all animals in the group, overall food consumption, activity level of the group, feeding competition and other medical or behavioral considerations. Body scoring is one consideration for diet change needs.
- Diet increases or decreases are made in modest increments with animal response to the change assessed for a minimum period before additional changes are made.

N-4. Food Storage

Food is stored appropriately to prevent spoilage and contamination.

See General Animal Care Standards.

N-5. Food Handling

Food is handled and prepared in an appropriate manner to retain nutritional value, freshness, and freedom from spoilage, invasive species or other forms of contamination.

See General Animal Care Standards

VETERINARY CARE

V-1. Veterinary Program Personnel

The sanctuary's veterinary medical program is developed and carried out under the supervision of a licensed veterinarian and with adequate support personnel. Veterinary care is on-site or on-call at all times.

See General Animal Care Standards.

V-2. Veterinary Capabilities

The sanctuary has on-site and/or off-site capabilities for pathology, surgery, and other veterinary procedures and treatments, and any on-site facilities are appropriately maintained.

- Whenever possible, there is an isolated area on the grounds for performing necropsies, or appropriate storage facilities until the deceased ape can be transported to a facility for a postmortem examination as soon as possible, understanding that necropsies performed longer than 24 hours after death may be of limited value due to autolysis of the body.

V-3. Preventative Medicine Program

The sanctuary has a complete preventative medicine program, pursuant to a written protocol, appropriate for each species housed.

- A veterinarian, veterinary technician, or other trained personnel performs regular fecal examinations to look for pathogens (random enclosure sampling is adequate for group-housed

apes). Results are recorded. Fecal examinations are repeated following treatment to evaluate efficacy.

- Animals are observed every day to check their health status and behavior, ideally by caregivers who are familiar with them.

V-4. Quarantine and Isolation Care and Facilities

Appropriate quarantine and isolation policies and facilities are in place for the protection of animals and personnel.

- Upon arrival, all apes undergo quarantine for a minimum of 30 days, ideally longer, and as long as needed to receive the results of TB cultures and other testing. Apes previously housed together may be quarantined together.
- When apes are quarantined together, an “all in - all out” rule should apply: if apes are added to a current quarantine group, then the quarantine start date should be reset for all quarantined apes to the arrival date of the newest individuals.

V-5. Medical Records

Complete medical records are maintained, and animals have permanent identification.

See General Animal Care Standards.

V-6. Medication Handling and Storage

All medications are purchased, prescribed and administered under the guidance of the veterinarian, and controlled substances are prescribed and stored legally.

See General Animal Care Standards.

V-7. Breeding Policy and Contraception

There is no intentional breeding of animals in lifetime care.

- Acceptable forms of contraception in males may include vasectomies. Where used, they are performed by a veterinarian experienced in the procedure. Castration is not an acceptable form of contraception and is only performed in cases of testicular pathology.

- Acceptable forms of contraception in females include oral contraceptives, synthetic progestins, surgical sterilization through tubal ligation, with choice of method based on present best practice and attending veterinarian recommendations. While ovariohysterectomy is an effective form of contraception, it is only performed in cases of reproductive tract pathology as the procedure may have significant behavioral implications.

- In range state sanctuaries where the possibility of release back to the wild exists, reversible forms of contraception are preferred.

V-8. Zoonotic Disease Program

The personnel and sanctuary veterinarian are knowledgeable about zoonotic diseases that may affect animals at the sanctuary, and implement appropriate policies and procedures as needed to mitigate risk and deal with any exposures that occur.

- ✓ Caregiver personnel have tuberculin tests and other necessary tests and immunizations at the commencement of employment and annually thereafter, as appropriate for the country, ape species and individual.
    - All personnel who have direct contact with apes are tested for tuberculosis or have a chest x-ray taken on at least an annual basis and are continually made aware of the potential threat.
    - Where advisable with consideration to facility and region, new personnel undergo a fecal test and HIV test.

- No caregiver begins work with releasable apes until routine testing has indicated he or she poses no risk to the apes' release to the wild.
    - Caregivers working with apes intended for release to the wild are routinely monitored for potential anthroponoses (diseases that have potential to be transmitted to the animals).
    - In addition to the required TB testing, vaccinations and fecal cultures for pathogens may be utilized, as appropriate for the region, to ensure the health of both the apes and their caregivers. New caregivers should not have contact with the apes for the first two weeks of employment. Caregivers should not have contact with the apes for two weeks following international travel.
    - Where appropriate to the region, Yellow Fever should be vaccinated against. Other vaccinations to consider include typhoid, measles, mumps and rubella, hepatitis A and B, covid and polio.

- Personnel with a fever or with respiratory signs do not work with apes.

- Personnel-ape contact is generally avoided, reducing risk of cross-contamination of disease. Where contact is necessary for feeding, enrichment, and other care, personnel should always wash hands and and/or wear gloves.

Preferred practices:

- ✓ All work clothes should remain on site.
- ✓ Personnel who have direct contact with apes undergo at least 2 tests for tuberculosis, preferably more, including the following: Tuberculin skin test / Mantoux, chest x-ray, Interferon Gamma test, Culture or PCR from sputum.

V-9. Euthanasia

Euthanasia is governed by an ethical written policy that includes identification of appropriate personnel and procedures.

See General Animal Care Standards.

WELL-BEING AND HANDLING OF APES

(For apes being rehabilitated for return to the wild, see also Standard R-6)

W-1. Physical Well-Being

Animals should be routinely monitored to ensure their physical well-being, and any unusual activity should be reported and recorded, with appropriate response.

- Apes are able to enjoy lives that are as close as possible to that of their wild counterparts as regards stimulation and interest through adopting husbandry and management procedures, including appropriate housing and enclosure design, environmental enrichment programs, positive reinforcement programs and a balanced diet to meet nutritional requirements.
    - Apes raised in captivity who are not able to be returned to the wild (e.g., those in North American sanctuaries) may benefit from continuing to receive enrichment items that are familiar to them, such as movies or toys.
- Apes have access to the outdoors as much as possible, ideally daily, with consideration to special physical and behavioral needs.
- Apes are provided with opportunities consistent with their species to climb, nest, groom, forage for food and play by providing species-appropriate climbing structures, places to hide and rest in comfort at multiple heights and at ground level, and a variety of plants and substrates and other enclosure enhancements where food/enrichment items can be hidden. (See also H-1)
    - It is particularly important for gorillas to have enough substrate or plant material in order to make nests daily.

- Regular assessments are performed in an effort to quantify and measure the welfare of individual animals through monitoring of nutritional, physical and social conditions. Any unusual activities are recorded in a log at each inspection. Sudden changes in food consumption and other behaviors are immediately brought to the attention of supervisory staff. Note: Where it is not possible to observe each animal on a daily basis (e.g., apes are free roaming on an island habitat), time is spent observing all apes on at least a weekly basis, an accurate population count is maintained, and health issues monitored.

- Veterinarians and staff carefully evaluate the need for physical intervention in cases of health problems, as unnecessary removal of individuals from a stable group may have long-term negative consequences for both the individual and the group.

- The use of positive reinforcement may be appropriate for some apes who enjoy interacting with people to provide additional enrichment and reduce the need for chemical immobilization and to reduce stress during medical intervention. Recommended foundation behaviors are shifting, cooperative feeding, stationing, separating, sitting, standing, presenting body parts and targeting.

W-2. Social Housing and Group Management

Animals are grouped so that they are compatible, with consideration to their natural social groupings and individual history, and with the safety of animals and sanctuary personnel in mind.

- Social housing and group management is species-specific, considering where possible natural social structures, and special care needs (i.e., health requirements, opportunity for release).

- Specific consideration must be given to the composition of males and females according to the species.

Chimpanzees/Bonobos

  - Chimpanzee and bonobo enclosures should, where possible, allow for natural 'fission-fusion' behavior, with space for smaller subgroups to temporarily separate from the main group.

  - Groups, and particularly those with young males, are monitored for aggression, and males forced out of the group are housed with a social companion where possible.

Gorillas

- Gorillas are generally social species and ideally should be housed in species-specific social groups. However, there are some distinctions to be considered:

  - Mountain gorillas – multi-male, multi-female groups.

  - Western lowland gorillas – primarily harem groups.

  - Male mountain gorillas disperse to all-male groups or as solitary individuals.

- Lowland male gorillas have been known to disperse between mixed-sex social groups
- Young gorillas benefit from the presence of adults and peers in new groupings.
- It is more common for all-male groups in mountain gorillas than in western low-land gorillas. However, in general captive settings bachelor groups have been formed and maintained.
- Bachelor groups – 2-4 individuals.

Orangutans

- Orangutans are mainly solitary. Released individuals sometimes form small groups in the forest.
  - Adult flanged males will generally not be housed together.
  - Unflanged males often do well in small groups, especially if they have been brought up together.
  - Older females can do well in small groups, but there often is quite a lot of aggression.
  - It is recommended to find a “foster mother” for the babies – juvenile females, following the introduction process. This means no human contact for the vulnerable babies, and release them together.

Gibbons/Siamangs

- Gibbons and siamangs of different species have been successfully housed together.
- Gibbon and siamang social structure are typically a monogamous pair and their offspring. In sanctuary settings the following social groups have been successful:
  - Adult male, adult female, juveniles, adolescents. Note: Juveniles and adolescents may be forced out of this grouping. When this occurs, a social companion for any single juvenile or adolescent is provided.
  - Adult male, adult female.
  - Adult trio– one male, two females.
  - Adult trio–single gender.
- Adult gibbons and siamangs housed with a young male should be monitored closely for aggression.

Infant/Geriatric/Sick

- Provision of separate areas to house and manage animals must be provided if they cannot be housed in main social groups according to specific needs, for example, nursery for infant apes, elderly and sick animals.

W-3. Introduction of Unfamiliar Individuals

Introduction of any new animal to a social group is done safely and according to techniques appropriate for each species, under the direction of designated personnel.

- Introduction of unfamiliar apes is carefully considered. Professionals with experience in social introductions, if not on staff, are consulted whenever possible during these considerations.
- As needed and possible, information listed below is gathered for the introduction planning process:
    - A list of individual animals to be introduced, including all that the sanctuary ultimately hopes to integrate into a group.
    - Background of each individual, including but not limited to: age and gender; social experience with other apes; rearing history (hand-reared, parent reared, time spent with mother and siblings); dominance rank in previous groups and rank relative to other apes who are also being integrated into the new group; affiliations with other individuals who are also being integrated into the new group; considerations for species-specific behavior and biology including potential for infanticide, cycle status of females, male-male relationships.
    - The plan is developed with involvement of all personnel involved with care of the species and details a series of steps that will be taken to integrate the individual animals involved. Necessary modifications to enclosures are identified and completed prior to beginning the process.
    - The plan establishes behavioral goals for introductions and is not solely driven by human schedules, and is open to modification as introduction/integration develops and evolves.
    - It is important to have an escape space within the enclosure or area where introductions take place. Also, the housing allows the opportunity to separate individuals if introductions do not go well.
    - Sanctuary animals being used as surrogates are screened for pathogens prior to introduction to any orphaned apes.

W-4. Behavioral/Psychological Well-Being

The behavioral well-being of each animal is monitored and evaluated.

- A complete environmental enrichment program is provided pursuant to a written protocol and includes the following:
    - Structural enrichment: benches, climbing structures, ropes and fire hoses, and hammocks.

- Object enrichment: straw, hay, blankets, branches, paper, cardboard, acrylic mirrors, dolls, and toys.
- Food enrichment: treat dipping, raisin logs, and smearing peanut butter in hard-to-reach areas.
- Social enrichment: the decision to include social enrichment with caregivers should be made on an individual basis, considering only the social needs of the animal such as apes in poorly bonded or small groups; dependent young; apes in small enclosures; solitary animals, particularly those hand reared by humans with no conspecific contact; neonatal and juvenile animals in situations where appropriate. Consideration should be given to whether the apes are in permanent or long-term sanctuary care, and not being rehabilitated for return to the wild,

- Items are removed when they become soiled, damaged or novelty has diminished.
- It is strongly advised to ensure there are no nooses or opportunities to create nooses with provided enrichment or exhibit furniture. These could lead to head and/or limb entrapment causing injury and potentially death. Items can be leaned against walls or stacked to create escape hazards. This can be easily mitigated by anchoring these items in the exhibit away from the walls.
- As appropriate by species, apes are provided with some sort of bedding daily in order to nest.
- Enrichment must be safe for apes, as they have tremendous strength, intelligence, and dexterity. Items should be sturdy enough so as not to break (items that break creating sharp objects can be particularly dangerous). Extra care should be taken with animals that ingest foreign objects.

W-5. Animal-Caregiver Relationships

Positive relationships between animals and caregivers are maintained.

- Positive relationships between caregivers and apes are critical for animal care. However, for individuals being prepared for release, minimizing contact between caregiver-animal is necessary.
- A positive relationship between the apes and regular caregivers, animal managers and veterinary staff is one in which the apes are given the freedom to integrate with their conspecific social group with minimal human interference or to interact regularly with caregivers if they choose.
- Interactions with apes do not cause overheating, excessive cooling, physical harm, or unnecessary discomfort, and minimizes physical and psychological stress or trauma as much as possible.
- Negative interactions are avoided. However, when they occur, efforts are made to recover trust and a positive relationship if the ape enjoys regular interaction with people.
- Physical abuse, deprivation of food or water, aversive spraying with a hose, and other forms of negative reinforcement or punishment-based training are never used to train, shift or otherwise handle apes. Note: This does not preclude the use of hoses or other watering devices in caring

for the apes who enjoy this form of enrichment.

W-6. Handling and Restraint

Any necessary handling and restraint is done safely and appropriately, with minimal distress to animals, and personnel are trained in species-specific safe handling techniques/practices.

- In general, manual restraint is not recommended for apes, and is not attempted when multiple animals are present in an enclosure.
- Other than exceptions for dependent young, apes are chemically immobilized by qualified personnel when direct handling is necessary (*i.e.*, physical exams).
- Unless in an emergency, apes are not darted in an area where they may be able to climb out of reach and risk injury from falling.
- Multiple personnel are trained to use a dart gun and other restraint equipment, and to employ safe capture techniques. Personnel, including volunteers where appropriate, are aware of who is trained and authorized to use restraint equipment.
- Where possible and appropriate, operant conditioning is used to minimize the need for chemical immobilization and to reduce stress during procedures.
    - Some apes may be trained to accept a manual injection for chemical immobilization, thus avoiding the stress of darting.
    - Some apes may be conditioned to enter a squeeze cage. Where this method of restraint is used, attachments for crates and squeeze cages are included in facility design or modifications.
    - For animals that are potential release candidates, operant conditioning might not be appropriate.
    - All staff should be able to ID each individual in case of emergencies.
- Apes are managed in a protected contact environment. The reasons for recommending protected contact for all forms of management are threefold: 1) Safety concerns for the caregiver (directed and accidental injuries). 2) Short and long-term effects of extended human interaction on the apes (such as maternal, sexual, and behavioral effects). 3) The influence of human interaction on public perception of apes, including appropriateness as pets and perception of entertainment being a major role for zoo apes.
- As part of their training, personnel are instructed to report any medical conditions or physical limitations that may hinder their ability to employ safe capture techniques.

W-7. Animal Transport

Animals are appropriately transported to maximize safety and minimize stress and in accordance with all applicable laws.

- Apes are transported only when necessary, such as when being transported to the sanctuary, to a medical facility for care or to another accredited sanctuary or qualified facility for reasons as described in standard “ADR-2: Disposition”.
- Where possible and appropriate, apes are acclimated to shipping containers/crates prior to transport. Capture, restraint, and transportation methods consider the ape's temperament and behavior in order to minimize injury, and distress.
- Where possible, transport containers:
    - have impervious surfaces, which are cleaned and disinfected after use.
    - are designed to permit safe transfer into a secondary enclosure.
    - are designed to minimize the risk of the ape reaching through to make contact.
    - are designed to minimize loss of bedding and waste, reducing the risk of disease transmission.
    - are placed within a secondary container or closed compartment on the transport vehicle.

APES BEING RELEASED TO THE WILD

GFAS strongly supports the efforts of wildlife rehabilitators and sanctuary managers to return wildlife to its natural environment, provided appropriate steps are taken to ensure that the animals released are likely to survive in the wild.

Facilities releasing apes to the wild must also make every effort to reduce the risk of their having a damaging impact on ecological resources, including other animal species, found naturally in the release area. Examples of risk factors include but are not limited to:

- Displacement of indigenous animals;
- Transmission of novel pathogens - As humans and apes are evolutionarily so close, the risk of transmission of pathogens between apes and their caregivers is particularly high, as is the risk of transmission of human pathogens back to wild individuals or populations via releases;
- Disruption of local human communities, including crop raiding, damage to dwellings and injury or death of local inhabitants;
- Alterations to the environment that disrupt the ecological niche of other species.

For a more detailed discussion of the potential risks, as well as time and financial commitment involved in creating a quality reintroduction project, *see* the International Union for the Conservation of Nature’s (IUCN) “Best Practice Guidelines for the Re-Introduction of Great Apes” and “Best Practice Guidelines for the Rehabilitation and Translocation of Gibbons.”

These standards should be read in addition to, and not in place of, the Housing, Nutrition, Veterinary, and Well-being and Handling standards in the General Animal Care Standards, as well as the ape-specific provisions in this Appendix.

R-1. General Considerations

The sanctuary has policies, agreements and plans in place to optimize the chances for successful reintroduction of apes into the natural environment.

- The facility has a written policy regarding the handling of any potential problems involving released animals. The policy should include but is not limited to:
    - a plan to minimize the risk to human life and property in the area of release;
    - a plan for management or removal of animals who fail to integrate appropriately or who become habitual 'problem animals.'
- In as much as possible, using the latest available information on potential health concerns regarding other species found in the area of release, animals are tested and treated for pathogens that might pose a threat to other wildlife.
- The facility has agreements in place with any and all appropriate authorities to allow the release process to proceed as smoothly as possible.
- Post-release monitoring should be conducted during and after the release.
- Cooperative agreements are in place prior to animals being released which may include, but are not limited to:
    - veterinary and scientific involvement in post-release monitoring;
    - community acceptance of the project and involvement in habitat protection and awareness raising;
    - landowner agreements enabling release, including the addressing of specific permissions and permits;
    - involvement of NGOs with similar or conflicting interests that may impact (positively or negatively) the project.

Preferred practices:

✓ Ideally, permissions, any necessary documentation, site determination, etc. begin as soon as it is determined that there are animals in care that are likely to be suitable for release.

- In particular, facilities obtain any permits or other forms of authorization needed to proceed with the release.
- Potential release sites are identified and evaluated as early in this process as possible.
- A team of experts perform surveys to establish relevant topics including plant phenology, carrying capacity etc.

- ✓ Facilities that rescue and release apes should work on changes in law enforcement, human attitudes and behaviors toward apes, as improved management of human-ape coexistence is needed to disrupt the cycle of killing and illegal possession followed by rescue and release.

R-2. Evaluation of Suitability for Release

Apes admitted into sanctuary are evaluated for their potential suitability for release.

- All apes are treated as potential release candidates. If apes admitted into sanctuary are determined to be potential release candidates, every effort is made to protect them from exposure to human disease and to keep them as wild as possible.
- The sanctuary has a written protocol in place to evaluate potential release candidates and to determine which apes are given priority for potential release.
    - Some animals can be released almost immediately after rescue once they have received care (e.g., small injury after car accident). Where possible, they should be released near the area where they were rescued.
    - Animals who have spent little time in captivity and/or who have had little human contact are given priority for potential release.
    - Overly human-focused individuals or those otherwise not behaviorally suited to survive in the wild should not be released.
    - Assessing the suitability for release of gibbons should be done according to Table 2 of the *Best Practice Guidelines for the Rehabilitation and Translocation of Gibbons*.
    - An animal with an infectious disease should not be released. Gastrointestinal parasites should not be a concern, if those parasites are found in the wild population in the release area.

R-3. Quarantine and Pre-Release Housing

The sanctuary has appropriate quarantine facilities and pre-release housing for apes, with consideration given to sick and injured apes.

General

- Non-quarantine housing for apes being considered for release provides as close to a natural setting as possible. The space allows for foraging, climbing, nesting and other actions naturally performed in the wild.
- Quarantine facilities and prerelease housing for apes intended for release are situated a minimum of 66 ft. (20m), giving consideration to factors such as wind direction, from resident ape populations to protect them from exposure to pathogens present in the sanctuary population that could compromise their return to the wild. A wall surrounding the quarantine area reduces pathogen transfer risk and aids in restricting access to authorized personnel.

  - Where this is not possible, sanctuary residents are screened for potential pathogens of concern, and pathogen-free animals are housed closest to the animals intended for release to the wild.

- Species-specific considerations include:
  - It is recommended that gibbons are released in compatible pairs or family groups. In order to determine whether a pre-release gibbon will accept another gibbon as a mate and is capable of learning how to duet and mate, they must be housed in pairs.
  - For orangutans, pairing learners with more competent conspecifics enhances learning and should be encouraged where possible.
  - Stable groups of Western lowland gorillas generally consist of one adult male with several adult females, with a variable number of immatures. Limits on group size may be imposed by intra-group feeding competition due to relatively low density of herbaceous vegetation.

Quarantine Housing

- Upon arrival, apes are quarantined for an adequate number of days, ideally for a minimum of 90 days in accordance with IUCN guidelines, which state that a 90-day quarantine period should be undertaken for all great apes who are to be released.
- In some situations, a longer quarantine may be advisable. See also Standard V-4.
  - The attending veterinarian works closely with regional, national and international experts and authorities to determine appropriate quarantine timing based on health risks to which the newly admitted apes may have been exposed and to ensure that apes do not bring infectious diseases into the wild.
- Apes are isolated until any potential health risks are evaluated.
- Sick or injured wildlife is quarantined in such a way that the rehabilitation process is begun during the quarantine phase.
- Quarantine facilities are designed to allow for monitoring and, as needed, modification of behavior of apes intended for release.
- Healthy apes admitted to quarantine have as large an enclosure as possible to help maintain natural locomotion and foraging behaviors.
- Apes being translocated can be released directly if they appear healthy. If the state of health is unsure, or the availability of release areas is limited, apes may be taken into quarantine to gain strength and have their health status evaluated.

Prerelease Housing for Apes

- Independent animals brought in for rehabilitation who can be released back into the environment from which they came are returned as soon as it is determined that the animal has recovered sufficiently to resume its presence in its former area.
- Consideration is given to social and territorial issues that may affect safe return to the original habitat.
- Prerelease housing for adult and independent subadult animals is ideally situated at the intended release site, allowing the animals to acclimate to their new environment before release.

R-4. Diet, Nutrition and Foraging Skills

Apes are fed an appropriate diet that approximates that which will be found in the habitat to which they are released, and foraging behavior is encouraged.

- As early in the rehabilitation process as possible, apes are exposed to the types of foods found naturally within the environment where they will be released and assessed for their ability to find appropriate foods and avoid inedible or poisonous foods.
- Release candidates are fed in such a way as to encourage natural foraging behaviors. Species-specific considerations include:
    - Gibbons should not be fed on the ground. Captive raised gibbons must be taught to drink water as they would in the wild; that is, by dipping their hand into a water source and licking the water as it drips off their hair. Some rescued individuals may have been fed a diet which comprises inappropriate foods (such as rice) for long periods of time. In such instances a transition diet, where preferred inappropriate foods are phased out in favor of a natural diet, may be needed.
    - Western lowland gorillas are a terrestrial species, traveling on the ground and feeding either at ground level or in trees. They feed on plants and leaves, and they are also highly frugivorous during periods of high fruit availability. They also consume large amounts of understory monocotyledonous plants, which provide important staple foods throughout the year, especially during periods of fruit scarcity, and which are subsequently essential for gorilla survival.
    - Orangutans should be exposed to a wide range of fruits and leaves.
- In a rehabilitation setting, feeding strategies should provide optimal stimulation and encourage wild behaviors. An appropriate feeding regime is critical, but there may need to be some compromise between reducing human contact and feeding at a frequency that most closely resembles wild feeding patterns.

R-5. Husbandry and Health

All aspects of care, including caregiver-ape relationships, introduction to social groups and overall health evaluation, are focused on preparing apes for return to the wild.

- Once an ape has been evaluated as a potential release candidate, all aspects of care are focused on preparing the animal for the wild, and apes are managed in such a way as to optimize their chances for successful return to the natural environment.

- Human activities and noises are minimized in areas housing apes being prepared for reintroduction.
- Apart from dependent young with no suitable conspecific surrogates, human interaction with apes being prepared for release to the wild is restricted to those activities that will enhance the apes' ability to live in the wild.

- Apes are placed in an appropriate social group or paired with a compatible conspecific, depending on species. Where appropriate surrogate conspecifics are not available, dependent young may be reared by human caregivers using approved best practices for the species housed.
  - Care is taken to balance the need to nurture these young animals with their need to develop appropriate survival skills as well as intraspecific social behaviors.
  - Apes are integrated into an appropriate social group, ideally composed of other conspecifics intended for release, as quickly as possible.
- Opportunities to explore, climb and learn skills in the natural environment are provided.
- Apes admitted into care from the wild at the stage where they are already independent, with recoverable illness or injury problems, are treated and released as quickly as possible, taking into account the potential for the animal not being accepted back into their previous social group.
- Caregiver-ape relationships for animals intended for release to the wild, while ensuring the animals' psychological well-being is met, focus on:
  - avoiding any types of interaction that may compromise the apes' chances for release;
  - encouraging the apes to develop appropriate relationships with conspecifics for their social needs.
- A written veterinary protocol is in place to evaluate overall health including:
  - recovery from the initial cause for admission to the facility;
  - pathogen surveillance to ensure the animal does not present a risk to the wild population as a result of exposure during the rehabilitation process.
    - In as much as possible, using the latest available information from the OIE-World Organization for Animal Health (www.oie.int) and the IUCN's Conservation Planning Specialist Group (http://www.cbsg.org), animals are monitored for human pathogens not found in the wild population.
  - See also Section "V" of the General Animal Care Standards and this Appendix.

R-6. Assessment of Health and Skills

Apes are fully assessed for health, behavior, and appropriate skills prior to release.

- Apes who have completed the rehabilitation process and have been successfully integrated into a social group or pair, as is species appropriate, are further evaluated for release, with attention to mental and physical health and all species-specific skills.

- Each animal's skills (*e.g.,* foraging, nest building, appropriate interaction or avoidance behaviors in the presence of conspecifics, avoidance of dangers including poisonous foods, venomous snakes or predators) are evaluated.
    - Apes require training for appropriate foraging skills and their survival competencies include: recognizable forest foods and dangers, nesting, foraging, navigation, arboreal travel, danger responses and effective conspecific communication and relationships.
- A complete health assessment is performed including:
    - Overall fitness as it relates to being able to survive in the wild, keep up with a conspecific group, avoid predators, etc.
    - Injuries and limitations that originally caused the animal to be brought into care are resolved, either completely, or to the extent that the ape has a reasonable chance for long term survival.
- Apes have been tested, and found free of pathogens that have potential to harm the wild population in the planned release area, based on the latest current knowledge.
- Genetic assessment has been done to ensure that the apes being released are of an appropriate subspecies/population/subpopulation for the release site.
- Apes are exposed to post-release monitoring equipment prior to release to allow them to acclimate to its presence.

R-7. Determining Appropriate Release Sites

Release sites are evaluated for health and other threats and for appropriateness for the species.

- Governmental policy toward reintroductions and the taxon concerned must be assessed. This may include checking existing provincial, national, and international legislation and regulations, and working toward the provision of new measures and acquisition of required permits.
- The potential release site is evaluated for the presence of appropriate and adequate food sources.
- The area is evaluated for potential health concerns.
- The potential release site is surveyed to ascertain whether any wild apes are present, either permanently or seasonally. See also Standard R-1.
- The area is evaluated to establish carrying capacity of apes to be released. This includes taking into consideration other releases that may have already taken place and issues of territoriality.
- The area is evaluated for instances of potential human-wildlife conflict.
- IUCN guidelines are, in as much as possible, followed when determining release sites for rehabilitated apes.
- Animals are released away from areas where there is potential for or has been a history of human-animal conflict.

- Apes are released in an appropriate habitat where carrying capacity for the species has not been reached.
    - An ecological survey should be executed, and assessments of habitat carrying capacity and threats need to be conducted, including assessment of the presence of indigenous fauna. The release area should be large enough or have suitable connectivity to support a viable population (or meta-population management strategies are in place), with isolation from human populations.
    - Release sites should have protected status, with active patrols focusing on illegal activities.
    - Density of other primates should be assessed in regards to their competition for food and their potential capacity as vectors of anthropogenic infectious diseases.
    - Species-specific considerations include:
        - An assessment of the existing gibbon population at a release site is essential. The loud calls of gibbons, the approximate population size, and distribution of existing groups within the release site should be ascertained.
        - For orangutan release, ensure there are no or very few orangutans inhabiting the area; this reduces fights, stress, and displacement into areas where they cannot be monitored, or those with human habitation.

R-8. The Release Process and Post Release Monitoring

Apes are supported as needed to adapt in their new environment and are monitored post release.

- Once it is determined that apes have the necessary skills for foraging in their new environment, supplemental care like provision of food is gradually decreased over time until it is discontinued altogether.
- A written policy for a post-release monitoring program is in place to ensure the rehabilitation program is providing the animals with the skills necessary to survive, that the habitat is adequate, and that, as is species appropriate, apes have integrated into the wild.
- Apes may be returned to the wild using a soft release process wherein they are housed in an enclosure within the release area where supplemental food may be provided as needed and observation of their acclimatization may be observed. Consideration is given to ape-caregiver interactions, which may result in apes choosing not to leave human caregivers. Some species-specific considerations include:
    - Hard-release strategies are not recommended for gibbons. They should not be released directly after transport, as they need time to recover from stress, and should have the ability to come back to the enclosure after release.
        - It is recommended that gibbons acclimatize to a semi-wild enclosure for a minimum of 2-3 weeks prior to release. A soft release would ensure the

demonstration of appropriate behaviors and calling as triggers prior to release from a soft release cage.
- Prolonged food provisioning might be needed; if an adult female in a group is pregnant or lactating, feeding supplements are continued for over a year to ensure a sufficient energy intake.
- Post-release monitoring includes the collection of data on behavior, ranging, ecology, socialization and on the interactions the gibbons have with other gibbons in the release area. The gibbons should be located as often as possible for at least 1 year, or until they have experienced every season in the wild. Refer to table 3 of the IUCN Guidelines of Reintroduction of Gibbons for further information.

- For orangutans, the preparation of the release site should involve cutting of trails to allow easy following.

- For gorillas, the soft release process lasts an average of 15 months. When transferred to the final release site, group members sleep in night enclosures and are accompanied daily in the forest. The primary aim of the soft release process is a gradual adjustment to the release site while ensuring group cohesion and safety from accidents and predators. Supplementary feeding and post-release monitoring may continue to impact group behavior after release. Post-release monitoring is gradually reduced over many months.

- The level of monitoring may decrease over time as apes are determined to be acclimating to the environment.

Preferred practice:

- ✓ Practices used and results obtained, both positive and negative, are shared both within the facility and with others involved in ape reintroduction to aid in the continued improvement of the process.

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