Quarantine Protocols, Enrichment and Training

Leanne Blinco
Hospital Zoological Manager
Disney’s Animal Kingdom
Our goal for quarantine animals

- Acclimate animals to our facility
- Keep keeper staff and animals safe from injury
- Keep animals healthy
  - Eating
  - Drinking
  - Behaving normally
- Leave quarantine happy and healthy
Overview

- Collection planning/acquisitions
- Pre-shipment
- Shipments
- Quarantine facilities
- Zoonotic disease(s)
- Footbaths, PPE and tools
- Quarantine period
- Quarantine exams and testing
- Enrichment
- Training
- Wildlife cases
Collection planning

- Existing animals in the collection
- Adding animals to the collection
  - Housing requirements for new animals
  - Group dynamics
  - SSP recommendations
  - Education component

*off exhibit holding area
Know what you are getting............
State regulations

- Import permits
- Testing that is mandated by state
Testing

- **General Testing**
  - Three fecals for endoparasites
  - Screen for ectoparasites
  - Fecal culture for pathogens
  - PE
  - Some form of permanent ID
  - BW

- **Test for avian species**
  - CBC/serum chemistry panel/EPH
  - Fecal acid fast stain
  - Infectious disease screening
Testing

- Test for Artiodactyla
  - CBC/serum chemistry panel/fibrinogen
  - TB test
  - Brucellosis test
  - Infectious disease screening
  - Johne’s testing for all ruminants
Testing

- Test for primates
  - TB test
  - AP and lateral radiographs
  - Infectious disease screening
  - Current vaccination history against measles, tetanus, rabies and polio
Shipments

- How do we get the animal here?
- Hire a shipper
- Airway bill
- Crates

*off exhibit holding area*
Trailer into barn

*off exhibit holding area
*off exhibit holding area
Quarantine Facility

- Quarantine Barns
- Quarantine Building

How can you safely unload and hold animals in your barns and buildings

*off exhibit holding area*
Quarantine Facility

- What species are/are not housed together
- Birds
  - AZA birds not housed with private breeder birds
  - Columbiforms, psitticines and passerines all housed separately.
  - All in/ all out
- Hoofstock
  - All in/all out (can be from separate AZA facilities)
Proper containment

*off exhibit holding area*
*off exhibit holding area
Enclosure set-up
off exhibit holding area
*off exhibit holding area
*off exhibit holding area*
off exhibit holding area
Zoonotic disease

What is a zoonotic disease (or zoonosis)?

- Refers to disease that can be passed from animals to humans.
- Although some diseases are species specific, many other diseases can be spread between different animal species.

Examples – Campylobacteriosis, Chlamydia psittaci, Pasteurella multocida, Salmonellosis
Zoonotic disease

- At risk groups:
  - Children
  - Seniors
  - Pregnant woman
  - Immunosuppressed
  - Already sick
  - Work with animals
Zoonotic disease

- Handwashing is the **most important** technique for preventing exposure to diseases at home or work.
- Wear protective clothing and keep it clean
  - Wash or change coveralls, gloves, masks, and boots after exposure
- Reduce exposure to insects
  - Mosquitoes, ticks, and fleas can transmit disease
Footbaths

- Do you need to use footbaths?
- Do you have a foot bath policy?
A footbath should be set up in front of each stall

*off exhibit holding area*
Quarantine period

- How long?
- PPE and tools
- Communication
- Adjustment period

*off exhibit holding area*
How long do they stay?

- 30 days
  - Birds
  - Most Reptiles
- 60 Days
  - Snakes - Crypto
- 90 Days
  - Hoofstock – Johne’s

*off exhibit holding area
PPE and tools

- Gloves
- Masks
- Rubber boots
- Eye protection – birds
- Separate tools for each set of quarantined animals
off exhibit holding area
Separate tools for each set of animals
- Color coded
Communication
Communication

SENSITIVE ANIMAL

Authorized Personnel Only
Please contact a hospital staff member for a key assist

1.0 Nyala
Triangle Cue
Adjustment period

- Housing
  - The quarantine “black hole”
  - Change is “bad”
Nightlights

*off exhibit holding area
Adjustment period

- Diets
Animal Diet Sheet

Feeding Group Name:  
Diet Contact Team:  
Species: Tragelaphus angasii  
Common Name: Nyala  
Location: AP27  

<table>
<thead>
<tr>
<th>Non/Accession</th>
<th>Sex</th>
<th>Birthdate</th>
<th>House Name</th>
<th>Current Wt.</th>
<th>Wt. Date</th>
<th>Prev. Wt.</th>
<th>Target Wt.</th>
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<tbody>
<tr>
<td>120212</td>
<td>Male</td>
<td>31 Oct 2010</td>
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Effective Date: 4/11/2012

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Manufacturer</th>
<th>Form</th>
<th>Indiv. Measure</th>
<th>Indiv. Amount</th>
<th>Group Measure</th>
<th>Group Amount</th>
<th>Schedule</th>
<th>Freq</th>
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<tbody>
<tr>
<td>I Alfalfa</td>
<td>Hay Exchange</td>
<td>Flake</td>
<td>0.255</td>
<td>600 g</td>
<td>0.255</td>
<td>600 g</td>
<td>DAILY</td>
<td></td>
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<tr>
<td>I N/A ADF-16</td>
<td>Mazuri</td>
<td>Pellet</td>
<td>600 g</td>
<td></td>
<td>600 g</td>
<td>DAILY</td>
<td></td>
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<tr>
<td>M Timothy Hay</td>
<td>Hay Exchange</td>
<td>Flake</td>
<td>0.465</td>
<td>600 g</td>
<td>0.465</td>
<td>600 g</td>
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<td></td>
</tr>
<tr>
<td>M Wild Herbivore Pellets - 5Z0X</td>
<td>Mazuri</td>
<td>Pellet</td>
<td>600 g</td>
<td></td>
<td>600 g</td>
<td>DAILY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Food Component Notes:

Packaging: Delivery Location:
Forage Bulk: QUARANTINE CAGES (Formerly QUARANTN) (Formerly QH)
Grain Bulk: QUARANTINE CAGES (Formerly QUARANTN) (Formerly QH)

Prep Instructions:

Keeper Instructions:

Diet Notes:
4/11/2012 2:40:00 PM New arrival from Miami. Incoming diet was 1 lb (454 g) Mazuri Hi Fiber and 1.25 lb (568 g) ADF 16,  
20% browse, alfalfa and 1/2 banana twice a week. Started on DAK diet of 600 g Wild Herbivore 5Z0X and 600 g  
provase, alfalfa and 1/2 banana twice a week. Added to Pembe savannah  
g Incoming ADF 16 and a mixture of timothy (DAK) and alfalfa (incoming). Next transition to 75% Wild Herbivore and 25% ADF  
16 in 5-7 days.
*off exhibit holding area*
Quarantine Exams

- Quarantine exams
  - Coordinate with other area managers (enough staff)
    - Safety person
  - Immobilizations
  - Drop shoots (tamers)
  - Keeper Training
  - What happens during the quarantine exam?
*off exhibit holding area

Staffing
Immobilizations

- Netting and transport
- Crating/transport
- Hand Grab
- Darting/transport
Netting
Hand Grabbing

*off exhibit holding area*
off exhibit holding area
Darting
Tamer (Hugger)

*off exhibit holding area
Keeper Training

- Anesthesia induction
- Dangerous drugs
- Anesthesia recovery
Dangerous Drugs
Recovery

- Give your staff multiple escape routes
- Have each door manned

*off exhibit holding area*
Quarantine Exams

- What happens during the quarantine exam:
  - Intubation
  - Check transponder
  - BW
  - Blood collection
  - Vaccines
  - Hoof trimming
  - Float teeth
  - TB test
  - PE
  - Radiographs
  - Documentation
Intubation

*off exhibit holding area
Transponder

*off exhibit holding area
Vaccines

*off exhibit holding area*
Float Teeth

*off exhibit holding area
TB Test

*off exhibit holding area
Documentation
Quarantine Fecal Testing

- Ova/parasite check
- 3 in a 30 day period
### FECAL SUBMISSION FORM

**Species:** Greater Flamingo  
**Accession #:** 060303  
**Call Date:** 07/21/11

<table>
<thead>
<tr>
<th>Location</th>
<th>Call Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lodge 10</td>
<td>LODGE 10</td>
</tr>
</tbody>
</table>

| Collection Time: | 1500 |
| Collection Time: | 1500 |

| Cell By: | A. Kocher |
| Sample: | Typical |
| Appearance: | Typical |
| Sample: | Atypical |
| Appearance: | Atypical |

| Weight: | 8.1 kg |
| Weight: | 3.1 kg |

**SUBMISSION REASON:**
- [ ] Routine
- [ ] Direct Float (general O&P)
- [ ] McMaster's Study
- [ ] Occult Blood
- [ ] Cytology GS: AF: ___ Crypt: ___ DQ: ___
- [ ] Culture: ___
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- [ ] McMaster's Study
- [ ] Occult Blood
- [ ] Cytology GS: AF: ___ Crypt: ___ DQ: ___
- [ ] Culture: ___

<table>
<thead>
<tr>
<th>REQUESTED TEST (continued):</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Routine</td>
</tr>
<tr>
<td>[ ] Direct Float (general O&amp;P)</td>
</tr>
<tr>
<td>[ ] McMaster's Study</td>
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<tr>
<td>[ ] Occult Blood</td>
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<tr>
<td>[ ] Cytology GS: AF: ___ Crypt: ___ DQ: ___</td>
</tr>
<tr>
<td>[ ] Culture: ___</td>
</tr>
</tbody>
</table>

**METHOD:**
- [ ] Watery
- [ ] Soft
- [ ] Refrigerated
- [ ] MELENA/TARRY

**UNUSUAL FINDINGS:**
- [ ] Watery
- [ ] Soft
- [ ] Refrigerated
- [ ] MELENA/TARRY

**RESULTS:**
- [ ] Watery
- [ ] Soft
- [ ] Refrigerated
- [ ] MELENA/TARRY

**QUANTITY:**
- [ ] Watery,
- [ ] Soft,
- [ ] Refrigerated,
- [ ] MELENA/TARRY,
Quarantine Fecal Testing

- McMasters
Enrichment

- When is the right time to start enrichment
- Animal specific enrichment
  - Enrichment plans determined by husbandry team
- Man made enrichment
- Store bought enrichment
Bat Enrichment
*off exhibit holding area
Enrichment

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off exhibit holding area
Training

- Can depend on animals’ disposition, animals’ length of time in quarantine and animals’ previous training experience
- Spider framework
- Determined by husbandry team
The S.P.I.D.E.R. framework is a tool that can be used to develop and maintain a successful (goal oriented, self-sustaining) husbandry training program. It can serve as a potential model for institutions to review, refine, and modify to fit their own needs. We call this the SPIDER model or framework because the first letter of each component spells out the word “spider” (Sevenich MacPhee and Mellen, 2002).
Spider Framework

- Setting Goals
- Planning
- Implementing
- Documenting
- Evaluating
- Re-Adjusting
Training

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off exhibit holding area
Wildlife Cases

- Wildlife permits
- FWS contacts
- Interesting case
  - Black bear
Black Bear