REARING TRENDS OF CAPTIVE ORANGUTANS
Why examine rearing trends?

- Husbandry Advisor responsibility is to look at what captive husbandry issues affect orangutans
- APES profiles indicated that many animals had been hand-reared
Management Issues of Hand-Rearing

- Orangutans do not receive a normal, species specific infancy which can lead to behavioral problems in the future. Socio-sexual development begins in infancy for orangutans.
- Hand-rearing orangutans requires staff time and resources.
- Some age classes of hand-reared orangutans have a greater chance of rejecting their own infants.
- Breeding females do not acquire the necessary maternal skills to reinforce competent mothering.
RESEARCH QUESTIONS

• Does the age of the mother have an effect on rearing (i.e. do younger mothers have less success than older mothers)?
• Do hand-reared females have a poorer maternal performance than females in the other categories?
RESEARCH QUESTIONS

• Are there species differences among rearing successes?
• Does the rearing style of the dam have an effect on how she raises her own offspring?
METHODS

- Data is based on 194 AZA orangutan births with known rearing type
- Rearing types were categorized
- Dams were assigned to 5 classifications
- Other factors evaluated including:
  - age of dam at parturition (AAP)
  - style in which infant was reared
  - species type (Bornean, Sumatran or subspecific hybrid)
Rearing Classification
% Numbers of 194 Orangutans in AZA Population for Which Rearing Style is known

- **Wild-born Dams** – 63.917% of total population - 124 animals,
  - reared their infants: 25.257% of total population 49 animals = 39.516% of category
  - infants hand-reared: 29.896% of total population 58 animals = 46.774% of category
  - infants foster-reared: 1.546% of total population 3 animals = 2.419% of category
  - infants combo-reared: 7.216% of total population 14 animals = 11.290% of category
Captive-born/dam-reared dams

9.793% of total population
19 animals

- reared their infants  5.670% of total population  11 animals = 57.894% of category
- infants hand-reared  2.577% of total population  5 animals = 26.315% of category
- infants foster reared  .515% of total population  1 animal = 5.263% of category
- infants combo reared  9.793% of total population  2 animals = 10.526% of category
Captive-born/hand-reared dams
18.041% of total population
35 animals

- reared their infants 8.762% of total population - 17 animals = 48.571% of category
- infants hand-reared 4.123% of total population - 8 animals = 22.857% of category
- infants foster-reared 3.092% of total population - 6 animals = 30.927% of category
- infants combo-reared 2.061% of total population - 4 animals = 11.428% of category
Captive-born/foster-reared dams
1.030% of population
2 animals

• reared their infants 0% of total
  population – 0 animals = 0% of category

• infants hand-reared 0% of total
  population – 0 animals = 0% of category

• infants foster-reared 0% of total
  population – 0 animals = 0% of category

• infants combo-reared 1.030% of total
  population – 2 animals = 100% of category
Captive-born/combo-reared dams
7.216 of population
14 animals

- reared their infants: 3.092% of total population
  6 animals = 42.857% of category
- infants hand-reared: 3.092% of total population
  6 animals = 42.857% of category
- infants foster-reared: 0% of total population
  0 animals = 0% of category
- infants combo-reared: 1.030% of total population
  2 animals = 14.285% of category
% Numbers of 194 orangutans in AZA Population of Known Dam History

- Dam-reared: 42.78%
- Hand-reared: 39.69%
- Foster-reared: 5.15%
- Combo-reared: 12.37%
### Dam-rearing vs. Infant Interventions

<table>
<thead>
<tr>
<th>AAP</th>
<th>% dam-reared</th>
<th>% infant interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10</td>
<td>30.0</td>
<td>70.0</td>
</tr>
<tr>
<td>11-15</td>
<td>40.9</td>
<td>59.0</td>
</tr>
<tr>
<td>16-20</td>
<td>42.0</td>
<td>58.0</td>
</tr>
<tr>
<td>21-25</td>
<td>36.3</td>
<td>63.6</td>
</tr>
<tr>
<td>26-30</td>
<td>57.6</td>
<td>42.3</td>
</tr>
<tr>
<td>31-35</td>
<td>80.0</td>
<td>20.0</td>
</tr>
<tr>
<td>36+</td>
<td>66.6</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>50.48</td>
<td>49.4</td>
</tr>
</tbody>
</table>
## Breakdown of Infant Interventions

<table>
<thead>
<tr>
<th></th>
<th>AAP</th>
<th>Dam-Reared</th>
<th>Hand-Reared</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10</td>
<td>&lt;10</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>11-15</td>
<td>11-15</td>
<td>18</td>
<td>26</td>
</tr>
<tr>
<td>16-20</td>
<td>16-20</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>21-25</td>
<td>21-25</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>26-30</td>
<td>26-30</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>31-35</td>
<td>31-35</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>36+</td>
<td>36+</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>
### Rearing Status of Infants Born to Hand-reared females

<table>
<thead>
<tr>
<th>Age Range</th>
<th>#of Hand-reared infants</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10</td>
<td>2 out of 3 infants</td>
</tr>
<tr>
<td>11-15</td>
<td>3 out of 7 infants</td>
</tr>
<tr>
<td>16-20</td>
<td>1 out of 5 infant</td>
</tr>
<tr>
<td>21-25</td>
<td>none</td>
</tr>
<tr>
<td>26-30</td>
<td>none</td>
</tr>
<tr>
<td>30+</td>
<td>no data for this category</td>
</tr>
</tbody>
</table>
## Historical Interventions

<table>
<thead>
<tr>
<th>Date</th>
<th>% dam-reared</th>
<th>% Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955-59</td>
<td>0.51</td>
<td>0.51</td>
</tr>
<tr>
<td>1960-69</td>
<td>2.06</td>
<td>9.27</td>
</tr>
<tr>
<td>1970-79</td>
<td>7.73</td>
<td>18.04</td>
</tr>
<tr>
<td>1980-89</td>
<td>17.52</td>
<td>22.16</td>
</tr>
<tr>
<td>1990-99</td>
<td>13.91</td>
<td>7.21</td>
</tr>
<tr>
<td>2000-</td>
<td>1.03</td>
<td>0.00</td>
</tr>
</tbody>
</table>
## Interventions by species

<table>
<thead>
<tr>
<th>Species</th>
<th>Dam-reared</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sumatran</td>
<td>48 (24.7%)</td>
<td>50 (25.7%)</td>
</tr>
<tr>
<td>Bornean</td>
<td>31 (15.9%)</td>
<td>55 (28.3%)</td>
</tr>
<tr>
<td>Hybrid</td>
<td>4 (2.06%)</td>
<td>6 (3.09%)</td>
</tr>
</tbody>
</table>
Preliminary Conclusions

- Younger captive-born females have a higher incidence of not rearing their infants.
- Wild orangutan females do not give birth until 12 years of age or older.
- Young captive-born females should not be recommended to breed until older (supports natural reproductive patterns and increases chance for successful rearing).
- Certain age classes of females may need maternal training to promote proper maternal care of infants.
BIRTH MANAGEMENT
WHY IS BIRTH MANAGEMENT NECESSARY?

MOTHER INFANT RELATIONSHIPS FORMS THE BASIS OF ALMOST ALL SOCIAL BEHAVIOR IN ANIMALS
LACK OF CONSPECIFIC MOTHERING DURING INFANCY HAS BEEN LINKED TO FUTURE SEXUAL AND MATERNAL DEFICIENCIES.

THOROUGH PLANNING FOR AN IMPENDING BIRTH IS CRITICAL TO LESSEN THE CHANCE OF AN INTERVENTION.

WHY IS BIRTH MANAGEMENT NECESSARY?
BIRTH MANAGEMENT PLAN

OVERVIEW

- Review of history of expectant female
- Action plan development based on guidelines that is driven by an animal management review of the animals involved
History of the expectant female

- Apes profile
- Arks records
- Former Institutions
- Species Coordinator
- Husbandry Advisor
- Ape TAG Birth Management Teams
NULLIPAROUS FEMALES

No exposure to infants?

If female in under 10 and/or hand-reared, maternal skills training program

Some exposure to infants?

May have an increased chance of successful Mothering due to infant exposure
PRIMAPAROUS FEMALES

Successful at raising Infants?

Female should continue to care for future infants

Past Interventions?

Nature of intervention will help define next birth management plan
Intervention types

• Females who consistently neglect their offspring should ALWAYS be considered for a maternal skills training program
REVIEW OF PAST SCENARIOS

Was the male present?

Enclosure properly prepared?

Housed adjacent to other animals that impacted her social skills?
OTHER CONSIDERATIONS

- Past social history could have impacted proper maternal care
- AAP
- Rearing style of past infants
- Were all the necessary preparations made? (bedding, diet, environmental conditions)
- Dam in good health?
- Infants in good health?
- Was labor and delivery difficult or compromised in any way?
Competent mothering skills but failed to allow nursing

FOCUS ON A TRAINING PROGRAM THAT PROMOTES NURSING SKILLS

• EXAMINE REASONS FOR BEHAVIOR
• NO MILK?
• IMPROPER POSITIONING?
• REMOVED INFANT FROM NIPPLE
• NURSING APPEARS UNCOMFORTABLE
BIRTH MANAGEMENT PLAN
COMPONENTS

Overview which includes:

✓ Present social/housing situation
✓ Species Gestational Information
  ✓ Predicted due date
  ✓ History of past gestations
  ✓ Statement about taxa gestation
✓ Goals statement – goal of this pregnancy is for Sophia to …..
STAFF ASSIGNMENTS
PRE-PARTUM PREPARATIONS

- Physical facility review
- Hand-rearing equipment needs
- Notifications of impending birth
- Animal management plan for onset of labor
- Assessing the condition of the infant
- Additional considerations
- Plan B – if all scenarios fail
FACILITY REVIEW
ASSESSING THE INFANT AND DAM’S CONDITION

• PHYSICAL CONDITION OF THE INFANT?
• PHYSICAL CONDITION OF THE DAM?
ADDITIONAL CONSIDERATIONS
BIRTH PLAN TRACKING

SUMMARY

• DAY OF BIRTH
  – WHEN LABOR IS CONFIRMED
  – WHEN THE INFANT IS BORN
  – AFTER HOURS BIRTH
POST-PARTUM SCENARIOS

- Infant is medically compromised
- Dam is aggressive to the infant
- Other group members aggressive to infant
- Dam is ignoring infant
- Dam interested but not carrying infant
- Infant nurses within 24 hours
- Infant doesn’t nurse within 24 hours
- Infant or dam condition deteriorates
- Infant is healthy and reintro can take place
- If all efforts fail to get the dam to care for infant
APE TAG BIRTH
MANAGEMENT TEAM