APE PROFILE AND EVALUATION SYSTEM (APES)

Carol Sodaro (Chicago Zoological Society/Brookfield Zoo)

The Ape Profile and Evaluation System (APES) is a project begun in 1995 by the Orangutan SSP© Husbandry Advisor. Its purpose is to provide a thorough behavioral and social history picture for any orangutan within the SSP© population. Information collected on these forms includes rearing and social history, personality traits, diet, behavioral enrichment, training, exhibits and reproductive history. Refer to example of APES form in Appendix I. All of the APES profiles have been transferred to diskette which will allow for more efficient updates.

All of the information gathered from the profiles will be reviewed, looking for trends and potential concerns in captive orangutan management. One of the first analyses done on the data set was to examine rearing trends. One of the goals of the SSP© is to eliminate hand-rearing of infants as it does not provide proper socialization and can use a great deal of staff resources.

In order to look at rearing trends, classifications of rearing status were developed. The rearing style categories include: dam reared, hand reared, foster reared and combo reared. Combo reared is any combination of hand and dam rearing prior to the age of one year. The rearing style and age of the dam was also examined to help in determining if the manner in which she was reared had an effect on the rearing style of her infants.

The results are based on 194 orangutans in the AZA (American Zoo and Aquarium Association) population for which the rearing style is known. A total of 25 ranking categories were used.

Both the age at parturition (AAP) and the percentage of dam reared infants versus infant interventions was examined. Infant intervention was described as the combination of all hand-reared, foster-reared and combo-reared infant categories in all dam classifications. The following table lists the AAP and percentage of dam-reared versus infant interventions for 194 births.

AAP	% of dam-reared infants	% of infant interventions
<10	30.0	70.0
11-15	40.9	59.1
16-20	42.0	58.0
21-25	36.3	63.7
26-30	57.6	42.4
31-35	80.0	20.0
36+	66.6	33.4
Total	50.4	49.6

Additionally, species was examined (Bornean, Sumatran or subspecific hybrid) to determine if it had an effect on rearing results

Species	Dam-reared infants	Infant interventions
Sumatran	24.7%	25.9%
Bornean	15.9%	28.5%
Subspecific hybrid	2.0%	3.0%

By examining the results of these tables, it appears that females who are 10 years of age or less at parturition (70%) when they give birth have a good chance of their infants requiring some intervention type. This would suggest a birth management plan that includes a maternal skills training program and very careful prepartum preparations. Interestingly, wild born females do not typically give birth under the age of 10.

This is just one example of how APES information can be used to look at trends that affect animal welfare, husbandry and management. More in-depth data analysis will be presented at a later date.

Appendix I

Here is an example of a completed APES profile

ORANGUTAN A.P.E.S.

Bornean_x__ Sumatran_____ Subspecific Hybrid_____
Name: Mukah Sex: M Studbook #2707
D.O.B. 30 March 95 Birth Institution: Lincoln Park Zoo
Present Institution: Chicago Zoological Park (Brookfield Zoo)
Tattoo# None Distinguishing Features: sparse hair

INFANT REARING AND SOCIAL HOUSING APES = 17 (combo,foster)

Check one:
Dam reared_____ Hand reared_____Dam/Hand reared ____x_____

Surrogate reared _x_Other (describe)_____

Group composition/present at birth

Name	**D.O.B.**	**Studbook #**	**Relationship to infant**
Batu	3/27/86	2077	dam
Herbie	4/30/81	1829	sire
Tanga	1/1/50 est.	133	grandmother

Describe any significant reactions of group member(s) towards dam or infant during or immediately after birth: After birth (the next day), the sire was very rough with the dam, forcibly copulating with her

Did dam exhibit appropriate maternal skills? No, she showed no interest in the infant

If not, describe dam's behavior: zoo staff was unaware dam was pregnant and found the infant the next day, on the enclosure floor, cold and unresponsive. Attempts were made by Lincoln Park Zoo to give the infant back to the dam and to the grandmother which was not successful.

If any inappropriate maternal behavior was observed did this cause you to remove the infant for hand rearing? Yes

Age infant removed for hand rearing: 2 days
Location of hand rearing: nursery at Lincoln Park Zoo. During this time was the infant able to see conspecifics? Yes_____No_x_ hear conspecifics? Yes_____No_x___ smell conspecifics Yes_____ No__x_ touch conspecifics Yes_____ No___x___

If this is a recent birth (within the last year) are you tracking the infant's development with the Orangutan SSP Infant Development Sheet? NO

Staff involved in hand rearing (names, titles): Andy Henderson, Area Supervisor, Primates

Brief description of the hand rearing process. For example, how much time did the infant spend per day being carried by staff? Did the infant participate in play sessions with caregivers? How long did the play sessions last? Please photo copy and send any other records pertaining to hand rearing if available (these can include nursery records, weight records, food consumption records, medical records, etc): Infant was housed in nursery until October or November of 1995. He was then brought to the Ape House where he would see, hear and smell his dam and sire. When infant was 2 days old, he was brought to Brookfield Zoo in an attempt to introduce him to two different lactating females. Pepper (#1769 b. 5/22/80) was tried first. She had a dependent offspring Brunei (#2431 b 3/29/91) who was still nursing. Pepper showed little interest in him. Sophia (#1817 b. 2/18/81) was given access to infant next. Sophia also had a dependent offspring (0.1 Kutai #2615 b. 7/27/93) who was nursing. Sophia eventually picked him up (using positive reinforcement training initiated by keeper Dave Derk) but was somewhat rough with him. Mukah was removed and returned to Lincoln Park Zoo. Brookfield Zoo has videotape of these reintroduction attempts. See attached detailed notes for more information.

Was the infant reintroduced to the dam? NO
Age of infant at reintroduction_____

Brief description of reintroduction to dam (include any other records pertaining to the reintroduction if available. If you have any videotapes, please include them for duplication and return to your institution at no cost): n/a

Was the infant reintroduced to other conspecifics? Yes
Age of infant at reintroduction to conspecifics: 14 months
Briefly describe reintroduction: Mukah was housed adjacent to Maggie (#449 b. 7/18/61). Maggie had given birth 4 times previously at San Diego Zoo but never raised her own offspring. See additional notes on Mukah hand-rearing process (attached)

Conspecifics involved in reintroduction:

Name	**D.O.B.**	**Studbook #**	**Relationship to infant**
Maggie	7/18/61	449	surrogate mother

HOUSING HISTORY

Include a chronological history if available for this animal. Please include any significant separations of this animal or a cage mate due to a medical or behavioral problem, birth or other reason. Include additional sheets if necessary. NOTE: If your ISIS housing records are up to date you may substitute that report.

Date: 30 March 95 – 1 April 95
Cage mates: none, born – Lincoln Park attempts re-intro attempt to both dam and maternal grandmother but unsuccessful.
Location: Lincoln Park Zoo Ape House
Reason for Change: Pulled for hand-rearing

Date: 1 April 95 – 1 April 95 (1)
Cage mates: 0.1 Pepper #1769 and 1.0 Brunei #2431
Location: Tropic World Orangutan Holding
Reason for Change: Attempted introduction – infant (Mukah) brought from Lincoln Park Zoo in an attempt to introduce him to a lactating female. See APES section on birth and rearing for specifics. Introduction attempt stopped when Pepper showed no interest in Mukah.

Date: 1 April 95 – 1 April 95 (2)
Cage mates: 0.2 Sophia (# 1817) and Kutai (#2615)
Location: Tropic World Orangutan Holding
Reason for Change: 2nd attempted introduction while Mukah was at Brookfield Zoo. Since Sophia had recently undergone maternal training and had an infant, an introduction was attempted but not successful. See APES section on birth and rearing for specifics. Introduction attempt stopped when Sophia became rough with him after she had picked him up.

Date: 1 April 95 - 5 March 95
Cage mates: none
Location: Lincoln Park Zoo
Reason for Change: returned to Lincoln Park after unsuccessful introduction attempts to two lactating females at Brookfield Zoo. During this year, Mukah was first housed in the nursery and then later housed in cages at the Ape House where he was able to be in visual, auditory and olfactory contact with his dam and sire.

Date: 5 March 95 -6 April 95
Cage mates: none
Location: Brookfield Zoo Quarantine
Reason for Change: to become integrated to potential surrogate mother, Maggie #449

Date: 6 April 95 – 1 July 96
Cage mates: creeped to potential surrogate mother Maggie #449
Location: Tropic World Orangutan holding
Reason for Change: out of quarantine – introduction process begins

Date: 1 July 96 – 5 Nov 96
Cage mates: Maggie #449
Location: Tropic World Orangutan Holding
Reason for Change: integrated with surrogate mother Maggie #449

Date: 5 Nov 96 – 22 Jan 97
Cage mates: Maggie #449, Ben #1671
Location: Tropic World Orangutan Holding
Reason for Change: potential breeding between Maggie and Ben – this housing situation discontinued as Ben became increasing rough and somewhat aggressive in his play with Mukah

Date: 22 Jan 97 – 23 April 97
Cage mates: Maggie #449
Location: Tropic World Orangutan Holding
Reason for Change: introduction to Ben discontinued

Date: 23 April 97 – 8 May 97
Cage mates: Maggie #449, creep access to Kutai #2615
Location: Tropic World Orangutan Holding
Reason for Change: creep access given to conspecific Kutai to encourage play.

Date: 8 May 97 – 25 May 97
Cage mates: Maggie #449, creep access to Kutai #2615 and Ben #1671
Location: Tropic World Orangutan Holding
Reason for Change: staff felt that Kutai could be helpful in reintroduction attempts of Ben to Maggie and Mukah. It was hoped that Ben and Maggie would successfully breed. Ben is Kutai's sire.

Date: 27 May 97 – 14 June 97
Cage mates: Maggie #449, Kutai #2615 and Ben #1671 were given full contact access for varying periods to Mukah and Maggie on a regular basis
Location: Tropic World Orangutan Holding
Reason for Change: discontinued to due to Ben's aggressiveness to Mukah

Date: 14 June 97 – 19 August 97
Cage mates: Maggie #449, creep access to Kutai #2615 and Sophia #1817, eventually had creep access to 1.0 Otis #879
Location: Tropic World Orangutan Holding
Reason for Change: to increase social opportunities for all orangutans involved

Date: 19 August 97 - 1 May 98
Cage mates: Maggie #449, creep access to Otis #879
Location: Tropic World Orangutan Holding
Reason for Change: birth of 0.1 Mei #2852 to 0.1 Sophia #1817

Date: 1 May 98 – 15 May 98
Cage mates: Maggie #449
Location: Tropic World Orangutan Holding
Reason for Change: birth management of Sophia, Mei and Otis (sire of Mei)

Date: 15 May 98 – 20 June 98
Cage mates: Maggie #449, creep access to 1.0 Otis #879
Location: Tropic World Orangutan Holding
Reason for Change: attempted introduction of Maggie to Otis for breeding

Date: 20 June 98 – 16 July 98
Cage mates: Maggie #449, day only creep access to Kutai #2615, Mukah and Kutai both have creep access to Maggie and in different cages Sophia #1817 and Mei #2852. Maggie and Sophia do not have direct access to one another. On certain days, Otis #879 had creep access to Mukah.
Location: Tropic World Orangutan Holding
Reason for Change: social enrichment

Date: 16 July 98 – 31 July 98
Cage mates: Maggie #449
Location: Tropic World Orangutan Holding
Reason for Change: discontinued creep access temporarily – Mukah became trapped by Otis one day (Otis was sitting in the shift door and not actively preventing Mukah from going back to Maggie and Mukah was afraid to pass him to go back to Maggie)

Date: 31 July 98 – 15 Feb 99
Cage mates: Maggie #449, creep access to Kutai #2615, Sophia #1817, Mei #2852, on a variable schedule, Otis #879 was creeped to Maggie and Mukah, along with Sophia, Kutai and Mei
Location: Tropic World Orangutan Holding
Reason for Change: social enrichment

Date: 15 Feb 99 – 23 June 99
Cage mates: Maggie #449, creep access to 1.0 Brunei #2431, 1.0 Pongo #1886, and 0.1 Pepper #1769
Location: Tropic World Orangutan Holding
Reason for Change: 1.0 Brunei had to be removed from his social group due to his maturity stage – the unrelated adult male whom he had been housed with stopped tolerating him. We were attempting to be able to still creep Brunei to his former social group of Pongo and Pepper. During the times when this creep arrangement was not taking place, Mukah and Maggie were still regularly creeped to Kutai, Sophia, Mei and Otis

Date: 23 June 99 – 4 Oct 99
Cage mates: Maggie #449
Location: Tropic World Orangutan Holding
Reason for Change: During the creeping of Mukah to Brunei, Pongo and Pepper, Mukah was bitten seriously by either Pongo or Pepper so this introduction discontinued

Date: 4 Oct 99 – ongoing
Cage mates: Maggie #449, creep access to Kutai #2615, Sophia #1817 Mei #2852 and Otis #879
Location: Tropic World Orangutan Holding
Reason for Change: Mukah's leg wound healed – resumed creep access for social enhancement

Date: 5 Oct 99 – 21 Oct 99
Cage mates: Maggie #449, 1.0 Brunei # 2431
Location: Tropic World Orangutan Holding
Reason for Change: gradual introduction of Brunei which will starts and stops daily based on animals' interactions.

Date: 21 Oct 99 - 10 Jan 00
Cage mates: Maggie #449, Brunei #2431, creep access to Kutai #2615 on a variable schedule
Location: Tropic World Orangutan Holding
Reason for Change: Kutai was used as an social catalyst between Mukah, Maggie and Brunei

Date: 11 Jan 00 – 22 Feb 00
Cage mates: Maggie #449, 1.0 Ben #1671
Location: Tropic World Orangutan Holding
Reason for Change: Discontinued introduction of Brunei in order to introduce Ben to Maggie for breeding

Date: 23 Feb 00 – 16 Aug 00
Cage mates: Maggie #449, Ben #1671, 0.1 Kutai #2615
Location: Tropic World Orangutan Holding
Reason for Change: creep access to Kutai for social enrichment for all orangutans

Date: 16 Aug 00 – 13 Nov 00
Cage mates: Maggie #449
Location: Tropic World Orangutan Holding
Reason for Change: Ben attacked and seriously bit Mukah so he will no longer be housed with Maggie or Mukah. Creep access to Kutai temporarily discontinued

Date: 14 Nov 00 – 1 April 01
Cage mates: Maggie#449, creep access to Brunei # 2431 and Kutai #2615
Location: Tropic World Orangutan Holding
Reason for Change: Mukah recovered from injuries

Date: 1 April 01 to May 2005
Cage mates: Maggie #449, Brunei #2431
Location: Tropic World Orangutan Holding
Reason for Change; Kutai shipped to Toledo Zoo,

Has been successfully housed with:
(write n/a if animal hasn't been housed with that age class)

	Males	Females
Infant (0-3 years)	n/a	yes
Juvenile (4-7 years)	_____	yes
Subadult (8-13 years)	yes	_____
Adult (13+ years)	yes	yes

Has not been successfully housed with:
Note: enter ns for not successful or nt for never attempted

	Males	Females
Infant (0-3 years)	nt	_____
Juvenile (4-7 years)	ns	_____
Subadult (8-13 years)	_____	nt
Adult (13+ years)	ns	ns

If animal has had problem with any age/sex class please describe briefly: Mukah has been tried in a variety of social housing situations. He was integrated with no problems with one adult male Otis (#879). Mukah was also tried with an adult pair 1.0 Pongo (#1886) and Pepper (#1769) without success. Pepper or Pongo (unsure of which animal) bit Mukah severely. Mukah was also housed for a time with 1.0 Ben (#1761). At first, Maggie, Mukah and Ben appeared very compatible but then Ben became very aggressive and attached Mukah one day (while out of view of keepers) causing injuries

Has this animal ever been housed by the restricted access or creep method on a regular basis? If yes, please describe housing situation briefly: yes, he had creep access for most of the introductions he was involved with. He was also creeped on a regular basis to other social groups allowing the juveniles to mingle with the group of their choice. This was very successful. Mukah has been housed with other animals in the recent past, they have been creeped to one another (Maggie (his surrogate mother) and Brunei (his cage mate). Mukah is very familiar with a creep (restricted access) and how to use it.

List of other animals (ages, sexes, species) that are housed in same holding area: as of 1 May 05, there are 9 orangutans in our holding area, 1.2 mandrills and 1.1 colobus monkeys

Has the animal been housed in a mixed species exhibit? Please list other species the orangutans were housed with: yes, but orangutans are confined to their exhibit (peninsula) within our larger Asia exhibit. Other species can choose to jump to the orangutan peninsula if they wish. Other species housed in TW are white-cheeked gibbons and Asian small-clawed otters. He has been on exhibit with Asian passerine birds in the past but not for the last two years.

Additional comments (include anything pertinent pertaining to housing/cage mates:

PHYSICAL DESCRIPTION/FEATURES OF EXHIBIT

Description of holding cages/bedroom. Give dimensions, caging material, cage furniture and permanent behavioral enrichment devices or other permanent special modifications: Description of holding cages/bedroom. Give dimensions, caging material, cage furniture and permanent behavioral enrichment devices or other permanent special modifications: Each cage measures 9'x12'x14' and has smooth cinder block walls with 2"x2" stainless steel mesh cage fronts. Cages have lexan resting/nesting shelves and a variety of cage furniture to promote arboreal locomotion. The floor is sealed concrete. Lixit water source. Two light fixtures in each cage contain 2 fluorescent bulbs.

At what temperature is the holding area maintained? 75 to 80 F

Brief description of exhibit (specify indoor or outdoor): Indoor – large naturalistic exhibit within TW Asia. 2 artificial nests for resting enrichment. Peninsula is 50' in length, x 22' wide x 25' high (1100 square feet, 27,500 cubic feet). Many artificial vines, large trees and enrichment devices

If the exhibit is indoors, at what temperature is the exhibit maintained: 75 to 80 F.

If the exhibit is outdoor, what temperature ranges are the animals allowed access to the exhibit? no outdoor exhibit

Has this animal been observed to destroy any particular aspect of its exhibit? Describe: no

List all types of nesting material provided to animal. Please note any likes or dislikes: wood wool, timothy hay, straw, shredded paper, paper bags, canvas hammock, alfalfa, browse – likes them all

Additional Comments: none listed

BEHAVIORAL PROFILE

This section is intended to be a description of the animal's behavior towards cage mates and keepers in its present housing situation.

In general, is the animal considered to be:

Aggressive towards cage mates:_NO____ Describe: _____

Passive towards cage mates: _NO___Describe: _____

Interactive with cage mates: _Yes__Describe: Loves to play and interact with cage mates – very social

Aggressive towards keepers: NO____ Describe: _____

Passive towards keepers: _NO_ Describe: _____

Interactive with keepers: Yes Describe: very interactive and gentle with keepers

Are there any particular ways that the animal and keeper enjoy interacting? Yes, talking through cage front. Mukah likes to be shown any small scratch or wound that keepers have. He appears to be very concerned by this and wants to touch and/ or orally inspect scratches or wounds.

Does the animal have any other names (nick names or pet names that you call it)? Muki, Muki Boy, Mu, Muey

Does the animal spit at keepers?__rarely_ In what situations does the animal exhibit this behavior? to get attention or if he is upset

throw excrement at keepers? NO In what situations does the animal exhibit this behavior?_____

throw food at keepers? NO In what situations does the animal exhibit this behavior?_____

Other behaviors exhibited towards keepers: sticks his penis through the cage front when keepers are near. Will run or follow keepers as they walk down hallway to get their attention, likes to stick one of his testicles through the cage mesh to show to keepers. Mukah likes to press his chest/abdomen to the cage front in order for his keepers to scratch him. He will try to urinate on keepers or other people he doesn't like.

Does the animal practice any of the following?
regurgitating and reingesting: NO___How often?_____
Describe situation during which this behavior is observed

coprophaghy: yes How often? infrequently Describe situation during which this behavior is observed: boredom

Urine drinking: NO How often?_____ Describe situation during which this behavior is observed

self mutilation: NO How often?_____ Describe situation during which this behavior is observed_____

overgrooming: NO How often?_____ Describe situation during which this behavior is observed _____

Describe any other stereotypical behaviors the animal exhibits: If Mukah gets stressed out, he will begin pacing or stereotypically nest building.

Has anything been changed in the animals routine to discourage any of these stereotypical behaviors? NO

Does the animal have good shifting habits (shifts from cage to cage on request of keeper)? Yes___x_____ No_____

Does the time of day appear to affect the animals shifting habits? NO
Are there any other factors that affect the animals shifting habits? Yes – other activities in his holding area (vet staff or workmen passing through). The orangutan holding area is a shared area with African monkeys.

Please describe methods used to shift this animal: see attached protocol – this animal is shift trained

ZOO VISITOR/ANIMAL INTERACTIONS

Does the animal interact with zoo visitors in any way? NO

Does the animal throw items from its enclosure at zoo visitors? NO

In what situations does the animal do this? N/A

Do zoo visitors encourage (either positively or negatively) the animal to exhibit any specific behavior? Describe: N/A

Are zoo visitors allowed to feed the animals? NO

Additional comments: NONE LISTED

POSITIVE REINFORCEMENT TRAINING

Has the animal been involved in positive reinforcement training programs?
Yes__x_____ No_____

Length of time of program: Since 2001

Goals of program: medical and husbandry behaviors, shift and separation training

Behaviors trained: target, touch, mouth open, foot, hand, hold (sit in place), belly, shoulder, turn around, jump, retrieve and trade, shift

Re-enforcers/rewards used: fruit, Nutrasweet Kool-aid and Jello, yogurt, bread, daily fruit ration, raisins, pasta

Name of trainers involved in program: Danielle Fogarty (primary trainer), other miscellaneous back-up trainers

How many times a day is the animal trained? Once a day, 3x per week

How long does each training session last? 10 to 15 minutes

Additional comments: NONE LISTED

BEHAVIORAL ENRICHMENT
Indicate which forms of behavioral enrichment this animal enjoys. Please note any additional enrichment that you have tried.

Enrichment Item	Likes	Dislikes	Favorite
Clothes	X		
blankets/sheets			X
cardboard boxes	X		
puzzle feeder	X		
wood wool	X		
juice feeder			X
Timothy	X		
Straw	X		
Alfalfa	X		
toilet paper in cage	X		
computer strips	X		
newspaper	X		
cargo nets	X		
phone books	X		
browse			X
plastic cups/bowls			X
finger paints			
crayons/non-toxic			
dried leaves	X		

Enrichment Item	Likes	Dislikes	Favorite
large water buckets	X		
barrels	X		
plastic dust pans	X		
boomer balls	X		
spices	X		
tires	X		
tug-of-war-rope			
access to water hose			X
logs			
fresh herbs	X		
kiddy pools	X		
alternate caging	X		
forage piles	X		
frozen fruit	X		
varied feeding times	X		
whole foods	X		
ice treats	X		
warm water shower	X		
TV/VCR	X		
Nylons	X		
Jello boards/balls	X		
Raisin boards	X		

Have there been any safety/health concerns relating to any enrichment offered to this animal? Describe: NO

DIET

Provide diet for this animal (in gram or pound amounts, if known)
If it is easier, make a photo copy of your present diet and attach to this form: see attached prescribed diet from Barbara Lintzenich, former Brookfield Zoo Staff Nutritionist

What are the animals favored food items? Fruit, bread, honey, juice, raisins, peanuts, pasta, grapes

What time(s) of day is food offered? Animals are fed, larger meal twice a day which consists of their greens, vegetables and starch. Monkey chow and fruit are hand fed 3 times per day. Mukah is accustomed to being separated for the hand-feedings. Food enrichment items are offered on a random schedule throughout the day – see attached enrichment rotation for specifics.

How is the food presented? Numerous ways, broadcasted throughout cage/exhibit, in food troughs, hand fed, in bags or boxes (or other enrichment devices)

Where is the food presented? Holding cages and on exhibit

Does the animal receive any dietary supplements? no

How is water offered? lixit

HEALTH/MEDICAL

Is the animal in good physical shape? yes

Current weight (give date of weight) 46.0 kg 12 March 05

Please briefly describe any recurrent/known health problems of this animal: none listed

Is the animal receiving any long-term medications? no

Please list any specific methods/food items you use/have used to medicate this animal: honey, bread, juice, peanut butter

Date of most recent physical examination: 12/30/04

Additional Comments: none listed

BREEDING/REPRODUCTION

Is this animal in a breeding situation: Yes___x___ No_____

Please describe: He is now of an age where he could impregnate his surrogate mother Maggie (unrelated) who he copulates with at times.
She is not contracepted due to her age and the likelihood she won't become pregnant due to irregular cycling. However, if he did impregnate her, it would become a recommended breeding and a genetically valuable birth.

Does the animal exhibit normal sexual behavior? Yes, for his age.

If the animal is a male, does he forcibly copulate with females? If so, describe: NO

Have there been any injuries as a result of forced copulations? Yes_____ No_____
Describe: _____

What is the reaction of the female(s) during the forced copulation? n/a

If the animal is a female, do see evidence of monthly cycling?
Yes_____ No_____ If yes, please describe_____

Do you monitor female cycling in any way?_____

Do you use any specific methods to confirm pregnancy? _____

List brand names of any pregnancy test kit you have used to test for pregnancy. Describe outcome of use. For example, used XYZ brand test kit, results were negative even though animal was pregnant. NA

Have you noticed labial swellings on pregnant females? If yes, at what stage of pregnancy?_____

Once a female is confirmed to be pregnant, are there any husbandry changes made? N/A

Prior to parturition, are there any husbandry changes made for the pregnant female? N/A

Has this animal given birth? Yes____ No__x__ Briefly describe
birth and maternal behavior post-partum: n/a

Does the animal regularly self nurse? no

Which animals (sire and/or conspecifics) were present at the birth? n/a

Describe any significant interactions between dam, infant and conspecifics: n/a

Has the animal ever served as a surrogate mother or father?
No__x__Yes____ Describe_____

Has the animal carried infants other than it's own? No_x_Yes_____
Describe_____

Additional Comments: none listed

MISCELLANEOUS

If the animal is a male, does he ever long call? Yes____ No__x__
If yes, please describe the situation(s) and time(s) of day you have heard long calling:
____

What is the reaction of cage mates during long calls? _____

Are any of the following behavioral displays associated with long calling:
piloerection_____ throwing items in cage____
emitting scent_____ forced copulation with female_____
Other (describe) _____

Are any other adult males housed in the same area? Yes, 4 (3 adult cheek-padded males and a 2-year-old infant male.

Do these males have: visual contact __x__ auditory
contact___x__ olfactory contact___x__

Do the other males react in any specific manner when they hear
long calling? No, Mukah does not react

Do sudden or loud noises induce long calling? N/A

Does long calling occur when the animal sees a specific
individual? N/A

Please add any additional information that you feel may be important regarding this animal's behavior, personality, or general history: Mukah is a very people oriented orangutan. He is gentle with his keepers and highly intelligent and inquisitive. He does not like to have his hands or feet touched, but otherwise is interactive with keepers and cage mates.

Staff Members Who Participated in this profile:

Name/Title	Phone Number	Date
Carol Sodaro, Lead Keeper	708-485-0263 x424	1 May 05

Name of Profiler: Carol Sodaro
Date of Profile: December 2002
Date Profile Updated: 1 May 05