INTRODUCING "KNUCKLE NEWS"

How many times have you and/or your zoo embarked on a new program or just wanted to try something a little different for your gorillas and wondered if it had ever been tried before?

Or maybe you just want to know what's going on in other zoos with their gorillas.

Well, that's the purpose of this newsletter. Realizing how tough it is to get away for gorilla gatherings, we want to bring us all together via the mail.

Gorilla Gazette is to be by gorilla keepers for gorilla keepers. It's not meant to overwhelm anyone with scientific language or to impress anyone. Our goal is COMMUNICATION.

Our goal is to set up some networking, putting keepers in touch with other keepers who have similar interests and projects going on or completed. We want to share what is going on with us. What worked for us and what did not. And we want the same from you. We want to know who you are and what's going on with your zoo's gorillas.

We want your questions, your ideas, and most importantly, your news!

We plan to send out the newsletter quarterly. That should give each of you plenty of time to jot down what's going on with your program. Remember, we're not asking for anything lengthy or overly scientific (but feel free to do that, also.) Just a paragraph or two is fine by us, and we'll put it in Gorilla Gazette.

Later in this issue, just to get you started, we'll pose a few topics that we would like to see covered in addition to your goings on.

LET US HEAR FROM YOU!

DIANNA FRISCH
COLUMBUS ZOO
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Powell, OH 43065-0400
METRO TORONTO
ZOO'S GORILLAS

First, I'd like to take this opportunity to congratulate those who are involved in this newsletter project. It is an excellent way to share ideas and information with other interested gorilla keepers.

Since this is the first edition, I thought it would be appropriate to introduce our gorilla group. Here at Metro Toronto Zoo we have a troop of 2.5.1 gorillas at the present time, with an addition expected any time. Our seven adults all arrived here during 1974, as youngsters of approximately two years of age, and the keepers acted as their surrogate mothers up until the age of seven, interacting freely with the group. At that time, it was decided that having seven active, heavy, adolescent gorillas bouncing on the keepers' shoulders could lead to problems, and from then on the keepers no longer entered the enclosure with the gorillas, but still maintained a close rapport with them.

As the group matured, we saw two infants born within four days of one another—both initially reared by their mothers—in November 1980. However, Samantha tired of motherhood and rejected her infant, named Natasha, after twenty days of gradually less vigilant care. Josephine proved to be an excellent mother, but her infant, Tabitha, developed a brain abscess at the age of nine months, requiring neurosurgery in order to save her life.

As a result of the surgery, Tabitha was paralyzed on one side and therefore could not be returned to her mother. Thus, both Tabitha and Natasha were reared by the gorilla keepers in a special nursery set up beside the adults' enclosure on a 24-hour basis. In this way, the two infants received a great deal of close contact with both humans and gorillas, and we believe this effort was the reason that they were eventually integrated into their own social group without any problems.

Tabitha gradually regained almost total use of her limbs, and at the age of four years she and Natasha were sent on breeding loan to the Calgary, Alberta, Zoo to join two young males.

Since then, another infant named Catherine has been born to another female in our group, Caroline. Perhaps because she had observed Josephine care for her baby, Caroline successfully cared for her infant, and Catherine has become very spoiled due to the doting attention she receives from all group members—including the males. Catherine is now four years old, but is still not weaned; however, she is quite an independent little lady, going from one group member to the next, tiring everyone out with her antics.

As the group matured, we wondered whether it was going to be possible to continue to keep the two males together with the females. Unfortunately, about two years ago, they began displaying aggressively toward each other, as well as the females, and eventually this led to an all-out battle. Since that time, Charles and Barney have had to share time in the exhibit area with the females on an every-other-day basis. This has not been an ideal solution, because of the tension and stress generated. However, we believe that a resolution of the situation will occur this year. More about that another time.

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The other two females in our group are Julia and Amanda, neither of whom have reproduced to date. Julia is a very playful individual, who loves water. Her buddy Amanda is always nearby and can be counted on to back up Julia during a dispute.

Until recently, Amanda was the dominant female, but that title is now held by Samantha, who successfully challenged Amanda over the summer of 1986. Samantha still maintains ties of friendship with Josephine, and tends to push her around somewhat, but for the most part prefers to move about the exhibit on her own.

During disputes, Josephine stays out of the way, unless the youngster Catherine is involved; then, she will intervene in a hurry, as do all the females. Although both Charles and Barney try to be very gentle, they sometimes frighten Catherine with their playful tactics. All she needs to do is to squeak, and the females' wrath descends upon the unsuspecting male. He suddenly finds himself chased by all six females screaming as loudly as they can, until they all run out of breath. Generally, that's the end of it—until the next time.

Our adults are all about 16 now, and have an outdoor enclosure with a pool and grass (used primarily in the summer), as well as an indoor exhibit of concrete with glass viewing panels.

At the time of writing, we are eagerly awaiting the birth of Josephine's infant; if there is anything specific that anyone would like to know about our gorillas, I'd like to encourage you to write. It is always enjoyable to correspond with other interested keepers.

Marilyn Cole
Metro Toronto Zoo
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West Hill, Ontario
Canada

VACCINATION PROTOCOL FOR YOUNG GORILLAS

At Stone Zoo we vaccinate young gorillas on the same schedule a human infant would be on. The following schedule is the one we adhere to, which was recommended by an MD specializing in pediatrics:

<table>
<thead>
<tr>
<th>Age</th>
<th>Vaccine Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 mos.</td>
<td>DPT (diphtheria, pertussis, tetanus) and TOPV (trivalent oral polio vaccine)</td>
</tr>
<tr>
<td>4 mos.</td>
<td>DPT, TOPV</td>
</tr>
<tr>
<td>6 mos.</td>
<td>DPT, TOPV</td>
</tr>
<tr>
<td>1 year</td>
<td>Tuberculin test</td>
</tr>
<tr>
<td>1½ year</td>
<td>Measles, Rubella, Mumps</td>
</tr>
<tr>
<td>4-6 yrs</td>
<td>DPT, TOPV</td>
</tr>
</tbody>
</table>

Before using any of these vaccines, a pediatrician should be consulted. A more complete discussion of techniques, precautions, and contraindications can be found in Reece, Robert M., MD, Manual of Emergency Pediatrics, 2nd ed., W.B. Saunders Co., 1978, p. 646-660.

Our human-raised gorillas were easily examined and vaccinated by a pediatrician at the appropriate intervals. Our mother-raised gorilla was examined through the bars by the pediatrician while a keeper distracted mother with food. The actual vaccine was administered through the bars by the veterinarian or the keeper under the supervision of the veterinarian.

Christine Vangemert
Metroplitan Boston Zoos.
Franklin Park
Boston, MA 02121
MOTHER REARING AT APENHEUL

Apenheul (translation: ape hide out) is a unique primate facility located in a heavily forested area of Central Holland. They have a wide variety of primates that roam semi-free, mingling with the public.

Mixed species areas are the norm and it is not unusual to go and sit among a group of woolly monkeys and have several ring-tailed lemurs sunning themselves nearby.

Their gorillas are housed on a 3.4-hectare island (separated from the public by a moat) along with patas monkeys. Their collection consists of 1.6 adults and 3.5 subadults/juveniles/infants ranging in age from eight years to two months. They have had a 100% rate of mother rearing, but the first several births were not without some difficulties.

Seven-year-old Mouila was the first to become pregnant in late 1978. As she had never seen another female raise her youngster, it was thought that the introduction of an infant spider monkey might stimulate maternal behavior (Vol. 21, International Zoo Yearbook). Mouila's daughter, Kriba, was born in August 1979 and was mother reared.

In 1980, Lobo was the second gorilla to give birth, and as she had been with Mouila when she had given birth no problems were expected. But 12 days after the birth of her son, Dibo, the silverback attempted to kill the infant. (It was later confirmed that the true sire had been shipped to France.) Although Dibo was severely injured and required surgery, 10 days after the attack a decision was made to reintroduce him to his mother, another female, Mouila, and her youngster, Kriba. Ten months later, these four were reintroduced to the entire group. (In my studies there. I found that

APENHEUL'S GORILLAS

<table>
<thead>
<tr>
<th>INFANT</th>
<th>MOTHER</th>
<th>FATHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kriba 0.1</td>
<td>Mouila</td>
<td>Bongo</td>
</tr>
<tr>
<td>09-08-79</td>
<td>Jan. '72</td>
<td>Nov. '72</td>
</tr>
<tr>
<td>Dibo 1.0</td>
<td>Lobo</td>
<td>Balu</td>
</tr>
<tr>
<td>14-06-80</td>
<td>March '72</td>
<td>Sept. '70</td>
</tr>
<tr>
<td>Fraia 0.1</td>
<td>Mintha</td>
<td>Bongo</td>
</tr>
<tr>
<td>20-06-81</td>
<td>Feb. '74</td>
<td></td>
</tr>
<tr>
<td>Lukas 1.0</td>
<td>Mandji</td>
<td>Bongo</td>
</tr>
<tr>
<td>10-12-82</td>
<td>Jan. '75</td>
<td></td>
</tr>
<tr>
<td>Dibi 0.1</td>
<td>Mintha</td>
<td>Bongo</td>
</tr>
<tr>
<td>27-04-84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pesco 1.0</td>
<td>Lobo</td>
<td>Bongo</td>
</tr>
<tr>
<td>19-05-86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kolo 0.1</td>
<td>Mandji</td>
<td>Bongo</td>
</tr>
<tr>
<td>16-10-86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peabo</td>
<td>Tsimi</td>
<td>Bongo</td>
</tr>
<tr>
<td>18-03-87</td>
<td>Feb. '74</td>
<td></td>
</tr>
</tbody>
</table>

Not listed is Kim (Jan. '69), who has never conceived.

the silverback tolerated Dibo but did not interact/play with him as he did with his own offspring.

In December of 1982, Mandji went into labor with her first offspring. After 40 hours of labor, it was decided to anesthetize her to perform a vacuum extraction. Although the 1.0 infant (Lukas) was in a weakened state due (it was thought) to the prolonged labor and anesthetic, it was decided to reintroduce him to his mother as soon as she wakened, and she subsequently raised him.

In conclusion, I feel there are several reasons why Apenheul has such a good success rate. Comfortable indoor housing providing access to the island most of the year and also allowing the gorillas to avoid one another if they choose.

Their diet consists mainly of vegetables (an adult 1.0 gets 1/2
APENHEUL CONT

banana per day) and relies heavily on branches (twice a day), which provide activity throughout the day and relieves boredom.

The keepers have an excellent rapport with the gorillas, allowing them to be present in the cage with the females before, during, and after the births of their infants.

But, most important, is the emphasis that the Apenheul staff places on mother-rearing and early socialization of primates and the commitment to seeing these objectives through.

June 1987 Update

The gorilla island at Apenheul has been divided by a moat in preparation for a 10-year-old male (Kibobu) from Howletts who is to arrive sometime this summer and will be the silverback for a second group at Apenheul.

If there are any questions concerning Apenheul, please feel free to write to:

Fraans Keyzer, Gorilla Keeper
Apenheul
Berg en -Bos
Apeldoorn, The Netherlands

BETH ARMSTRONG
COLUMBUS ZOO
Box 400
Powell, OH 43065-0400

HELP WANTED

This will be a regular column listing the topics that you would like to see addressed. To get you started, here's a list of some of the things we would like to see discussed:

1. What do you use for bedding, if any, for your gorillas?

2. At what temperature do you put your gorillas outside? Please discuss not just temperature but weather conditions.

3. Many gorillas become bored during the long winter months. What have you found that helps relieve the boredom?

4. Let's talk diets!

5. What browse have you found your gorillas prefer? How do you obtain the browse you use?

6. How do you feel about bringing gorillas in from the wild (i.e., confiscated youngsters)?

7. What do you feel is the specialty of your gorilla program?

8. Do you have volunteers involved in your program? What do they do? How are they trained?

BOTTLE FEEDING A MOTHER-REARED INFANT

The gorilla group at Audubon Zoo consists of one adult male, Bom Bom, who is 11 years old, and two adult females, Fanya and Molly, who are 12 and 20 respectively. We also have two youngsters--Jabari, who is almost two, and Kitombe, who is five months.

Fanya is the mother of three infants--all born at Audubon Zoo. We were forced to pull the first two due to maternal neglect (although her care improved somewhat with the second baby). She is presently raising her third baby with a little help from the primate staff. In the beginning, Fanya exhibited normal maternal behavior, but as Kit began to cut teeth (at about four weeks), she cut back significantly on his nursing time. However, she continued to maintain her protective
BOTTLE FEEDING CONT.

attitude toward him. Because of this, we decided to attempt to train her to let us supplement his feeding.

We started by using a 16 oz. non-returnable Coke bottle because a regular baby bottle would not fit through the bars on the front of the nighthouse. The first day, two keepers tried to get Fanya to bring the baby over to the bars. She was afraid of the bottle and stayed at the back of the nighthouse. The second day, only one keeper tried to feed. She came to the front of the nighthouse, but when the bottle was placed between the bars, she hit at the nipple.

Baby food was applied to the nipple, and after she smelled it, and licked it off, she seemed more comfortable with the bottle. The keeper fed Fanya one peanut at a time while also trying to feed Kit. He started sucking immediately, but had eaten very little when Fanya pulled him away. She would not bring him back over; therefore, we abandoned efforts until that afternoon.

Once again, baby food was put on the nipple and she settled down enough to let him drink about one ounce before taking him away. The third day showed a marked improvement and she let him drink the two ounces that were offered with no problem (as long as she was offered one peanut at a time while he ate).

The only serious problem we encountered was that the Coke bottle proved unsatisfactory. We needed a long-necked bottle to fit through the bars. After various experiments, we settled on a Corona beer bottle and a small hoofstock nipple. We use masking tape to hold the nipple on and cover the neck of the bottle in case of breaking.

We started the feeding when Kit was four weeks old. Feeding times were 7:00 and 10:30 a.m. and 1:00, 3:00, and 5:00 p.m. The formula was Similac and water (1:2), and we are now proceeding with normal hand-rearing formula. We found that Kit usually refused to eat one feeding a day, so we cut back to four feedings. We did, however, increase the amount of each feeding.

So far (about 22 weeks), we are pleased with the success of the experiment. Kit is growing quickly and developing well. He is at the exploration stage now, so Fanya is not getting much nap time.

DEE NELSON
AUDUBON PARK AND ZOOLOGICAL GARDEN
Box 4327
New Orleans, LA 70178

SPECIAL SECTIONS

Like any major newspaper, Gorilla Gazette will have a number of special sections...and WE WANT TO HEAR FROM YOU!

VITAL STATISTICS: Births, deaths, transfers.

HELP WANTED: Questions you would like to see addressed. See our sample.

THE ARTS: Read any good books or articles lately? Send a re-review.

TV GUIDE: Media appearances, films to watch for, etc.

ENTERTAINMENT: Branches, rope, furniture, play equipment.

TRAVEL: Field studies, safaris, meetings/conferences, zoo-to-zoo personnel exchanges.

EDITORIALS: Get it off your chest.

HEALTH: Ultrasounds, vaccinations (see Stone Zoo's article).

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NATURAL REMEDIES

Four years ago, after extensive keeper research and development, a program utilizing natural remedies was initiated at the Columbus Zoo. We found that using this program, in conjunction with standard veterinary care, complimented the existing husbandry procedures that were already in place.

The following are some natural approaches we are currently using:

--To help relieve congestion associated with cold viruses, a hot soup made from onions and garlic has proven to be effective. We have seen a reduction in coughing and breathing is less labored.

--We have had positive results by administering chamomile tea to animals who are demonstrating nervous behaviors.

--A "gorilla cake" was developed for the purpose of dispensing protein powder and wheat germ oil. The cake, which contains no sodium or sugar, is readily accepted by the gorillas.

--A tea made from dried red raspberry leaves and alfalfa acts as a uterine tonic and seems to minimize blood loss at delivery. We have used this tea mixture on four females and have been very satisfied with the results. One of the females had experienced hemorrhaging during her last two deliveries. We used this regimen as a part of her prenatal care during her most recent pregnancy, and the hemorrhaging was not a problem at delivery. We cannot be certain that this procedure was responsible for solving the problem, but we do know that positive results were achieved for this female, and she is currently rearing her infant.

To aid in the production of milk, pregnant and lactating animals are given fenugreek tea, fennel seeds, and oatmeal water. The four females who have received the above have all had an ample milk supply. Once again, it is impossible to evaluate, but these liquids didn't cause any harm and may have been instrumental in milk production.

These are a few examples of the techniques we are using to promote the general health and well-being of the gorillas. A byproduct of the administration of these preparations is the rapport that can develop between the keepers and the gorillas.

Please get in touch with us if you have any questions or comments, or if you would like a complete list of the natural remedies we are presently using.

CHARLENE JENDRY
COLUMBUS ZOO
Box 400
Powell, OH 43065-0400

References


Royal, Penny C. *Herbally Yours*. Payson, Utah: Sound Nutrition.


SPECIAL SECTIONS CONT.

THE FUNNIES: Cartoons, jokes, puzzles (if it comes from another source, not original with you, please provide source information).

FOR SALE: Calendars, posters, patches, etc.

LETTERS: Readers should always write.
LOWLAND GORILLA KEEPER REFERENCE

Most of you will have received the keeper reference form pertaining to various aspects of husbandry, and it is hoped that the form will have some positive impact on your zoo's gorillas. Some of you may not have received the questionnaire or have forgotten to send it, so we have included the form in Gorilla Gazette to allow you to fill it in if you so desire. Please send the questionnaire to:

ROB SUTHERLAND
CALGARY ZOO
P.O. Box 3036, Station B
Calgary, Alberta, Canada  T2M 4R8

Thanks to all who participated!

The Gorilla Gazette is published quarterly by the Great Apes staff of the Columbus Zoo, 9990 Riverside Drive, Box 400, Powell, OH 43065-0400. (614) 766-3426 or 766-3400

SPECIAL THANKS

We would like to extend our thanks and appreciation to Rob Sutherland and the Calgary Zoo Docents who had done a great deal of preliminary work on establishing a gorilla newsletter. Rob also supplied us with a complete mailing list of zoos housing gorillas in the United States, Canada, and Great Britain.

This list is available through Gorilla Gazette. Please write if you want a copy.

GORILLA GAZETTE EDITORIAL BOARD

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Editor, Julie Estadt

Printing Courtesy Tuller Printing and Graphics Official Printer of the Columbus Zoo Gorillas
Lowland Gorilla Keeper Reference Questionnaire

Name: ________________________________________

Institution: ______________________________________

Mailing Address: __________________________________

Phone: ( ) ____________________

Habitat

What is the approximate size of your indoor enclosure? _____ L x _____ W x _____ H

Would you call your indoor enclosure(s) primarily: a) naturalistic ( )
                                                 b) architecturally naturalistic ( )
                                                 c) hygienically functional ( )
                                                 d) other ____________________________

What is the approximate size of your outdoor enclosure? _____ L x _____ W x _____ H

Would you call your outdoor enclosure(s) primarily: a) naturalistic ( )
                                                  b) architecturally naturalistic ( )
                                                  c) hygienically functional ( )
                                                  d) other ____________________________

Is there a high/moderate/low public interaction inside? _____

Is there a high/moderate/low public interaction outside? _____

Do other species cohabit with the gorillas? Yes _____ No _____

What species? ________________________________________

Husbandry Strategies

Do you ever enter the enclosure while the gorillas are present?

Never _____ With Certain Individuals _____ Frequently _____ Regularly _____

Please describe your experience in: (extensive, some, or none)

1. silverback interactions ______
2. solitary individual behavioural strategies ______
3. individual introductions to troop ______
4. "large" troop strategies (4+) ______
5. other ______________________________________

What is your frequency of feeding? ______________________________

Number of gorillas: males _____ females _____ young _____

Number of troops: _____
Sexual Behaviour

Please describe your knowledge/experience in: (extensive, some, or none)

1. successful techniques in: urine collection
   vaginal smear collection
   ejaculate collection

2. specialized dietary requirements
3. compatibility factors
4. hormone studies
5. male (in)fertility factors
6. testicular atrophy
7. female (in)fertility

Intellect

Please describe your experience in: (extensive, some, or none)

1. sign language
2. exercise apparatus
3. visual stimuli (e.g. film, pictures, etc)
4. play/activity/problem solving apparatus
5. generalized social behaviour patterns
6. other

Birth & Parental Behaviour

How many young have been born and raised at your zoo?

How many young were born and raised within the troop?

How many young were born and raised isolated from the troop?

Please describe your experience in: (extensive, some, or none)

1. mother raised young
2. mother raised/troop raised
3. hand raised
4. human/maternal training of gorillas
5. paternal behaviour
6. group behaviour to young
7. infant behaviour and development
8. post-caesarian section - female behaviour
9. pregnancy behaviour
10. preparation of maternal areas
11. introduction of hand raised young to troop
12. other