

Medical History Report - Summary for Individual Specimen  
NATIONAL ZOOLOGICAL PARK

(2)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

.....2005...

- 17.Nov Clinical note recorded. [REDACTED]
- 5.Dec Clinical note recorded. [REDACTED]
- 6.Dec Clinical note recorded. [REDACTED]
- 7.Dec Clinical note recorded. [REDACTED]
- 15.Dec Clinical note recorded. [REDACTED]
- Clinical note recorded. [REDACTED]
- 18.Dec Clinical note recorded. [REDACTED]

.....2006...

- 6.Jan Clinical note recorded. [REDACTED]
- 13.Jan Clinical note recorded. [REDACTED]
- 31.Jan Clinical note recorded. [REDACTED]
- 14.Feb Clinical note recorded. [REDACTED]
- 2.Mar PROBLEM: artificial insemination (onset)  
Clinical note recorded. [REDACTED]
- 3.Mar PROBLEM: artificial insemination (resolved)  
Clinical note recorded. [REDACTED]
- Clinical note recorded. [REDACTED]
- 28.Mar Clinical note recorded. [REDACTED]
- 3.Apr Clinical note recorded. [REDACTED]
- 5.Apr Clinical note recorded. [REDACTED]
- 9.Apr Clinical note recorded. [REDACTED]
- 12.Apr Clinical note recorded. [REDACTED]
- 14.Apr Clinical note recorded. [REDACTED]
- 19.Apr Clinical note recorded. [REDACTED]
- 22.Apr Clinical note recorded. [REDACTED]
- 26.Apr Clinical note recorded. [REDACTED]
- 3.May Clinical note recorded. [REDACTED]
- Clinical note recorded. [REDACTED]
- 17.May Clinical note recorded. [REDACTED]
- 25.May Clinical note recorded. [REDACTED]
- 6.Jun Clinical note recorded. [REDACTED]
- 7.Jun Clinical note recorded. [REDACTED]
- 8.Jun Clinical note recorded. [REDACTED]
- 9.Jun Clinical note recorded. [REDACTED]
- 11.Jun Clinical note recorded. [REDACTED]
- 12.Jun Clinical note recorded. [REDACTED]

[REDACTED] (2)

[REDACTED] (2)

Medical History Report - Summary for Individual Specimen  
NATIONAL ZOOLOGICAL PARK

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female  
Age: 32Y 5M Est. Birth: 15.Mar.1975  
Acc. # [REDACTED]

.....2006...

- 13.Jun Clinical note recorded. [REDACTED]
- 14.Jun Clinical note recorded. [REDACTED]
- 15.Jun Clinical note recorded. [REDACTED]
- 19.Jun Clinical note recorded. [REDACTED]
- 26.Jun Clinical note recorded. [REDACTED]
- 27.Jun Clinical note recorded. [REDACTED]
- 28.Jun Clinical note recorded. [REDACTED]
- Clinical note recorded. [REDACTED]
  
- 4.Jul Clinical note recorded. [REDACTED]
- 9.Jul Clinical note recorded. [REDACTED]
- 12.Jul Parasitology examination: (ROUTINE EXAMINATION) Fecal sample.  
NO PARASITES SEEN
- 13.Jul Clinical note recorded. [REDACTED]
  
- 2.Aug Clinical note recorded. [REDACTED]
- 3.Aug Clinical note recorded. [REDACTED]
- 5.Aug Clinical note recorded. [REDACTED]
- 12.Aug Clinical note recorded. [REDACTED]
- 16.Aug Clinical note recorded. [REDACTED]
  
- 3.Sep Clinical note recorded. [REDACTED]
- Clinical note recorded. [REDACTED]
- 4.Sep Purpose/Problem: arthritis  
Rx: COSEQUIN 33gm PO BID for 42 days.
- 7.Sep Clinical note recorded. [REDACTED]
- 19.Sep Clinical note recorded. [REDACTED]
  
- 8.Oct Clinical note recorded. [REDACTED]
- 11.Oct Purpose/Problem: joint supplement  
Rx: COSEQUIN 33mg PO SID until further notice.  
Clinical note recorded. [REDACTED]
- 17.Oct Clinical note recorded. [REDACTED]
  
- 5.Nov Clinical note recorded. [REDACTED]
- 6.Nov Clinical note recorded. [REDACTED]
- 7.Nov Parasitology examination: (ROUTINE EXAMINATION) Fecal sample.  
Parasitology examination: (ROUTINE EXAMINATION) Fecal sample.  
NO PARASITES SEEN  
NO PARASITES SEEN  
Clinical note recorded. [REDACTED]
- 13.Nov Clinical note recorded. [REDACTED]
- 15.Nov Clinical note recorded. [REDACTED]
- 20.Nov Purpose/Problem: joint supplement

[REDACTED]

[REDACTED]

Medical History Report - Summary for Individual Specimen  
NATIONAL ZOOLOGICAL PARK

=====

<i>ELEPHAS MAXIMUS MAXIMUS</i>	Sex: Female	Acc. #: [REDACTED] (2)
Sri Lankan elephant	Age: 32Y 5M Est.	Birth: 15.Mar.1975
Name: Shanthi		

=====

.....2006...

- 20.Nov Rx: COSEQUIN 33mg PO SID until further notice.
- Clinical note recorded. [REDACTED]
- 28.Nov Clinical note recorded. [REDACTED]
- 4.Dec Clinical note recorded. [REDACTED]
- 6.Dec Clinical note recorded. [REDACTED]
- 7.Dec Clinical note recorded. [REDACTED]
- 8.Dec Clinical note recorded. [REDACTED]
- 13.Dec Clinical note recorded. [REDACTED]
- 15.Dec Clinical note recorded. [REDACTED]
- 18.Dec Clinical note recorded. [REDACTED]
- 28.Dec Clinical note recorded. [REDACTED]

Weight: 4174 Kg ( 9199 Lb)

.....2007...

- 3.Jan Parasitology examination: (ROUTINE EXAMINATION) Fecal sample.  
NO PARASITES SEEN
- 4.Jan Clinical note recorded. [REDACTED]
- 30.Jan Clinical note recorded. [REDACTED]
- 1.Feb Clinical note recorded. [REDACTED]
- 5.Feb Clinical note recorded. [REDACTED]
- 6.Feb Clinical note recorded. [REDACTED]
- 15.Feb Clinical note recorded. [REDACTED]
- Clinical note recorded. [REDACTED]
- 18.Feb Clinical note recorded. [REDACTED]
- 21.Feb Clinical note recorded. [REDACTED]
- 27.Feb Clinical note recorded. [REDACTED]
- 6.Mar Clinical note recorded. [REDACTED]
- 13.Mar Clinical note recorded. [REDACTED]
- 19.Mar Clinical note recorded. [REDACTED]
- 31.Mar Clinical note recorded. [REDACTED]
- 1.Apr Clinical note recorded. [REDACTED]
- 2.Apr Clinical note recorded. [REDACTED]
- 3.Apr Clinical note recorded. [REDACTED]
- 4.Apr Clinical note recorded. [REDACTED]
- 26.Apr Clinical note recorded. [REDACTED]
- 5.May Clinical note recorded. [REDACTED]
- 10.May Clinical note recorded. [REDACTED]
- 11.May Parasitology examination: (ROUTINE EXAMINATION) Fecal sample.

[REDACTED]

[REDACTED] (2)

Medical History Report - Summary for Individual Specimen  
NATIONAL ZOOLOGICAL PARK

=====

ELEPHAS MAXIMUS MAXIMUS

Sex: Female

Acc. #: [REDACTED] (2)

Sri Lankan elephant

Age: 32Y 5M Est.

Birth: 15.Mar.1975

Name: Shanthi

=====

.....2007....

11.May NO PARASITES SEEN

14.May Purpose/Problem: joint supplement

Rx: COSEQUIN 33mg PO SID until further notice.

1.Jun Clinical note recorded. [REDACTED]

5.Jun Clinical note recorded. [REDACTED]

13.Jun Purpose/Problem: joint supplement

Rx: COSEQUIN 33mg PO SID until further notice.

Clinical note recorded. [REDACTED]

28.Jun Clinical note recorded. [REDACTED]

29.Jun Clinical note recorded. [REDACTED]

10.Jul Clinical note recorded. [REDACTED]

15.Jul Clinical note recorded. [REDACTED]

21.Jul Clinical note recorded. [REDACTED]

28.Jul Clinical note recorded. [REDACTED]

30.Jul Purpose/Problem: joint supplement

Rx: COSEQUIN 33mg PO SID until further notice.

Clinical note recorded. [REDACTED]

6.Aug Clinical note recorded. [REDACTED]

[REDACTED]

[REDACTED] (2)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Clinical Note:

17.Nov.2005

Problem: arthritis (Suspected)  
Blood collection for clotting profile. Shanthi to act as "normal" control for Toni. Shanthi has not been on NSAIDs since 6/04. Toni is currently on oral ibuprofen and carprofen as well as weekly injectable Adequan. Blood collected in blue top tubes and submitted to [REDACTED] hospital for PT and PTT.

Results:

PT: 16.1; PTT: 17.9

Both animals' PTs are higher than the lab's dog/cat references (6-12). Both animals' PTTs are within the lab's dog/cat reference ranges (10-25).  
[REDACTED]

Clinical Note:

5.Dec.2005

Problem: arthritis (Suspected)  
Hx: Routine trunk wash. Day 1/3.  
Proc: Trunk wash: 60 ml saline instilled in trunk by keepers. Trunk raised then lowered as animal blew contents of trunk into plastic bag. Wash fluid transferred to sterile centrifuge tube.  
A: Routine 3 day trunk wash, day 1/3  
R/O tuberculosis  
P: Next trunk wash 12/6. [REDACTED]

Clinical Note:

6.Dec.2005

Problem: arthritis (Suspected)  
Hx: Routine trunk wash. Day 2/3.  
Proc: Trunk wash: 60 ml saline instilled in trunk by keepers. Trunk raised then lowered as animal blew contents of trunk into plastic bag. Wash fluid transferred to sterile centrifuge tube.  
A: Routine 3 day trunk wash, day 2/3  
R/O tuberculosis  
P: Next trunk wash 12/7. [REDACTED]

[REDACTED]

[REDACTED] (2)

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi

Sex: Female Acc. #: [redacted]
Age: 32Y 5M Est. Birth: 15.Mar.1975

Clinical Note:

7.Dec.2005

Problem: arthritis (Suspected)
Hx: Routine trunk wash. Day 3/3.
Proc: Trunk wash: 60 ml saline instilled in trunk by keepers. Trunk raised then lowered as animal blew contents of trunk into plastic bag. Wash fluid transferred to sterile centrifuge tube.

A: Routine 3 day trunk wash, day 3/3
R/O tuberculosis
P: awaiting results. [redacted]

Clinical Note:

15.Dec.2005

Problem: arthritis (Suspected)
Proc: routine exam today with tetanus vaccine
Hx: routine exams due in December for elephants, performed today on all 4 awake.

S/O: BAR, very good body condition 6/9, she has been on an ongoing weight reduction plan for several years according to keeper [redacted] and has only lost small amount of weight.

EENT: Eyes and oral cavity WNL.

Skin: Mild white drainage from right temporal gland.

GI/UG: WNL. Mammary glands, vulva, rectum WNL.

MS/NS: All feet slightly long and could use trimming. One small area (2 cm) of soft nail tissue on 2nd nail of right front foot, keeper [redacted] reports it comes and goes, and reappears often after trimming.

blood collected from left ear vein for PT/PTT comparison for Toni 109171. See [redacted] note from today.

Vaccination: Tetanus toxoid, 1.0 ml im, serial #277334A, exp.1/4/06, left rear thigh.

A/P: nails will be trimmed slightly by keepers. Continue efforts to reduce weight before future AI attempts for optimal pregnancy health. [redacted]

[redacted]

[redacted]

(2)

=====

<i>ELEPHAS MAXIMUS MAXIMUS</i>	Sex: Female	Acc. #: [REDACTED]
Sri Lankan elephant	Age: 32Y 5M Est.	Birth: 15.Mar.1975
Name: Shanthi		

=====

Clinical Note: 15.Dec.2005

Problem: arthritis (Suspected)  
Blood collection for clotting profile. Shanthi to act as "normal" control for Toni. Shanthi has not been on NSAIDs since 6/04. Toni is currently on oral ibuprofen and carprofen as well as weekly injectable Adequan. Blood collected in blue top tubes and submitted to Friendship hospital for PT and PTT.

Results:

PT: 19.6; PTT: 23.2

Both animals' PTs are higher than the lab's dog/cat references (6-12). Both animals' PTTs are within the lab's dog/cat reference ranges (10-25).  
[REDACTED]

Clinical Note: 18.Dec.2005

Problem: arthritis (Suspected)  
Results of blood collected 12/7/05 as part of routine exams:  
WBC 13.0 Hct 36 TS 10.1 Fibr 500  
chem wnl  
Vit E 1.02 ug/ml (MSU: their normal range for elephants is 0.75-1.3, with median of 1 ug/ml, so she is WNL. [REDACTED])

[REDACTED]

[REDACTED] (2)

=====
ELEPHAS MAXIMUS MAXIMUS

Sex: Female

Acc. #: [redacted] (2)

Sri Lankan elephant

Age: 32Y 5M Est.

Birth: 15.Mar.1975

Name: Shanthi
=====

Clinical Note:

6.Jan.2006

Problem: arthritis (Suspected)
Lab results (Rapid Test, MAPIA)

Serum from 109171 (Toni), 28486 (Ambika) and 101822 (Shanti) from the time of the elephants' routine exams in December 2005 was submitted to [redacted] at [redacted] for 2 experimental TB tests. Keepers are unable to bleed Kandula so a sample was not submitted from him. Keepers continue to work toward blood collection from Kandula by conditioning him to the ERD.

Results from the Rapid test, a screening test, were negative for Shanti, and reactive for Toni and Ambika, with Toni showing a higher positive result. All 3 elephants were negative by MAPIA test, which is very specific for the M. tb complex group. The interpretation of the test overall was negative by the proposed testing algorithm per [redacted] and [redacted], who are coordinating and running the tests. These tests have shown promise in diagnosis of TB in elephants, but are currently in the experimental phase and have not been validated in elephants. They are currently recommended by the elephant TB working group. Another test recommended by this group is the multiple antigen ELISA run at Colorado State, but this lab was contacted and the test is not currently being run. The only test currently recognized and required by the USDA is mycobacterial culture from trunk wash samples.

These results were discussed by [redacted] vets by conference call with [redacted]. The history, TB exposure status, recent/current medications, and clinical condition of the elephants were discussed. It was agreed to submit serum samples every 2 months to [redacted] for Rapid test and MAPIA for an indefinite period for monitoring. Trunk wash cultures will continue to be submitted every 6 months. Trunk wash culture results from December 2005 are pending. [redacted]

Clinical Note:

13.Jan.2006

Problem: arthritis (Suspected)
Lab results: Routine CBC and CP unremarkable [redacted]

Clinical Note:

31.Jan.2006

Problem: arthritis (Suspected)
Proc: Blood sample taken by keepers today. [redacted]

[redacted]

[redacted] (2)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

=====

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

Clinical Note:

14.Feb.2006

Problem: arthritis (Suspected)  
Results of trunk wash and mycobacterium culture from Dec 5-7,05 NEGATIVE.

Clinical Note:

2.Mar.2006

Problem: arthritis (Suspected); artificial insemination  
Proc: artificial insemination today #1  
Note: Shanthi's first LH surge occurred on Feb 11, and based on her past cycles, the AI's were planned 19, 20, and 21 days after that.  
On 3/1/06 LH was at baseline (0.3 ng/ml).  
3/2/06 in am LH 6 ng/ml  
3/2/06 in afternoon LH 4 ng/ml  
US in early afternoon: uterus has multiple small cysts on mucosal surface, which have been seen in Shanthi on past exams, but not in this number. Likely related to hormones during estrous and should not reduce fertility significantly.  
Right ovary has an approx. 1.6 cm follicle with visible borders but difficult to visualize (white hyperechoic lines on both sides of follicle), likely indicating that the follicle was close to ovulation. Multiple Corpora lutea also present. Left ovary inactive.

Semen collections were attempted on all scheduled bulls at [REDACTED] Zoo and [REDACTED] in the am, but none produced good quality semen. 15:30 attempt in [REDACTED] Bull [REDACTED] successful with 88% motility before leaving [REDACTED]. Hand-carried to NZP by 9:50 pm. On arrival motility was <20% with good concentration but many detached heads (poor semen quality).

AI with Drs. [REDACTED] and [REDACTED] from 22:30-23:00. Approx. 20 ml of semen placed directly into uterus and further semen placed into vagina with considerable backflush of vaginal sample observed.

A: peak fertile day today, with LH surge occurring in am; ovulation normally occurs approx. 24 hr later, and semen should optimally be in place at time of ovulation. Excellent semen placement into uterus, however with poor quality semen, but with good concentration.  
P: futher attempt tomorrow if semen available. [REDACTED]

=====

[REDACTED] (

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi
=====

Sex: Female Acc. #: [redacted]
Age: 32Y 5M Est. Birth: 15.Mar.1975

Clinical Note:

3.Mar.2006

Problem: arthritis (Suspected); artificial insemination
Proc: artificial insemination #2
Notes from Dr. [redacted] 3/4/06 am LH at baseline. Ovulation likely
occurred between evening of 3/2 and morning of 3/3. Not known how long egg
of elephant is viable post-ovulation, or how long it remains in the oviduct
and is capable of being fertilized, therefore decided to proceed with
another AI today.

US at 2pm: Follicle on right ovary no longer visible, ovulation has
occurred.

[redacted] bulls unsuccessful today. [redacted] bull able to be collected at 13:15
with good quality sample before departure (60/70% motility with 3-4
progression). Hand-carried to NZP and arrived at 21:30. On arrival semen
quality still good (50% motility, progression 4, concentration 1.36 x
10^6/ml.

Artificial insemination at 10:15 and completed in 14 min. Good placement of
10 ml of semen into the uterus, remaining into the vagina, minor amount of
backflush from the vagina occurred.

A: AI today likely post-ovulation and may be too late, but placement was
excellent and semen quality was good.

[redacted] assesses as 50% chance of pregnancy.

P: Progesterone will be monitored and LH surge at time of next cycle will
be monitored. Consider repeat AI at time of next cycle if not successful.

Clinical Note:

3.Mar.2006

Problem: arthritis (Suspected); artificial insemination
Routine urinalysis results:
Sp gr 1.022, pH 8.5, no RBCs, no WBCs, amorphous crystals; unremarkable.

[redacted]

[redacted] (6

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Clinical Note: 28.Mar.2006

Problem: arthritis (Suspected)  
Herpes PCR testing results: very faint band detected on 3/15 sample, test rerun 3/16 and was negative. Assume false positive on first sample. [REDACTED]

---

Clinical Note: 3.Apr.2006

Problem: arthritis (Suspected)  
EEHV PCR negative and ELISA low from 2/15, 3/1, and 3/29. CBC/CP from 3/1 unremarkable. [REDACTED]

---

Clinical Note: 5.Apr.2006

Problem: arthritis (Suspected)  
Herpesvirus test result showed a very faint band with term primers but (-) with TK primers. (Whole blood sample).  
A: The vary faint band is considered a slight positive test.  
Possible causes for a positive test are:

- 1) Cross reaction with other herpesvirus (false +)
- 2) Contamination of the sample (false +)
- 3) Low grade viremia being picked up sporadically. Real + (sample from 3/15 was also slightly positive).

P: Monitoring (WB) will be increased to twice a week (currently only wednesdays) until further tests (PCR) can elucidate the cause of this intermittent positive.  
Plan for treatment in case of having a positive animal has been updated  
[REDACTED]

---

Clinical Note: 9.Apr.2006

Problem: arthritis (Suspected)  
Results: Both primers were negative on WB for herpesvirus.  
Note: [REDACTED] has reported that she re-testd sample from 4/5 and both primers were negative.  
P: We will continue with twice a week monitoring for now until PCR tests are performed. If further evidence that original + results are false positive then frequency will be decreased. [REDACTED]

---

[REDACTED]

[REDACTED]

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Clinical Note: 12.Apr.2006  
Problem: arthritis (Suspected)  
Proc: Blood sample for biweekly herpesvirus test submitted today: Negative  
[REDACTED]

---

Clinical Note: 14.Apr.2006  
Problem: arthritis (Suspected)  
Proc: Blood sample for biweekly herpesvirus test submitted today: Negative  
[REDACTED] [REDACTED]

---

Clinical Note: 19.Apr.2006  
Problem: arthritis (Suspected)  
Proc: Blood sample for biweekly herpesvirus test submitted today: Negative  
[REDACTED]

---

Clinical Note: 22.Apr.2006  
Problem: arthritis (Suspected)  
PCR results: test ran to ID the cause of (+) results obtained in previous weeks:

A: The PCR ran by [REDACTED] matched the sequence of the elephant that she often use as (+) control. This suggests the results were a contaminant. If it had matched [REDACTED] sequence it would have been more likely that Shanthi actually had virus in her blood.

P: Go back to weekly monitoring (Wednesdays) [REDACTED]

---

Clinical Note: 26.Apr.2006  
Problem: arthritis (Suspected)  
Lab results: EEHV neg by PCR and EEHV ELISA low [REDACTED]

---

Clinical Note: 3.May.2006  
Problem: arthritis (Suspected)  
Result: Negative for PCR EEHV [REDACTED]

---

[REDACTED]

[REDACTED] (2)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED] (2)  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Clinical Note: 3.May.2006

Problem: arthritis (Suspected)  
Lab results: CBC/CP from 4/5 unremarkable. EEHV PCR negative from 3/8, 3/22, 4/12. Faint band seen on EEHV PCR from 4/5. EEHV ELISA titer low and PCR negative from 4/19. EEHV negative by PCR and using primer TK12 from 4/14 and 4/9. EEHV negative by PCR and using primer TK12 and TK78 from 4/6. According to EL, lab tech, the faint band seen on 4/5 sample was likely due to contamination of sample. [REDACTED]

---

Clinical Note: 17.May.2006

Problem: arthritis (Suspected)  
Lab results: EEHV neg by PCR and EEHV ELISA low from 5/10 [REDACTED]

---

Clinical Note: 25.May.2006

Problem: arthritis (Suspected)  
EEHV PCR negative from 5/24. [REDACTED]

---

Clinical Note: 6.Jun.2006

Problem: arthritis (Suspected)  
Comt: Ultrasound today to prepare for AI tomorrow. Vagina, urethra, bladder and ureters visualized - mucous strands seen within cervix - no abnormalities noted, not able to visualize ovaries.

P: AI tomorrow am [REDACTED]

---

[REDACTED]

[REDACTED] (2)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED] (2)  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Clinical Note:

9.Jun.2006

Problem: arthritis (Suspected)  
AM: Elephant is doing well after last night's procedure. Transrectal ultrasound done @10AM by Dr. [REDACTED] shows no follicle on right ovary - presumptive ovulation must have occurred last night or early this morning. Timing of last night's insemination was good. Site test suggests that LH peak occurred between last night and this morning. Plan to repeat insemination procedure this afternoon.

5PM - Good quality semen received from [REDACTED] male Asian elephant housed at [REDACTED] Zoo. As yesterday, equine endotracheal tube was advanced vaginally and secured (inflated) in place. Flexible endoscope was advanced through lumen of ET tube and vestibule and cervix visualized after insufflation with room air using a (separate) endoscopic equipment air source. When cervix was visualized, catheter was advanced but endoscope image failed - equipment malfunction prevented further visualization. Semen was placed blindly at last seen area immediately in front of cervix.

No problems seen after procedure. [REDACTED]

---

Clinical Note:

11.Jun.2006

Problem: arthritis (Suspected)  
EEHV PCR negative from 5/31 blood sample.

Note: AI was performed on Shanthi by Dr. [REDACTED] with sperm from bull, KC?, on 6/8 and 6/9. Additionally, rectal ultrasound to evaluate the reproductive tract was also performed on those days. [REDACTED]

---

[REDACTED]

[REDACTED] (2)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female  
Age: 32Y 5M Est. Birth: 15.Mar.1975

Acc. #: [REDACTED] 6

=====

Clinical Note:

7.Jun.2006

Problem: arthritis (Suspected)  
Quality of semen received from [REDACTED] Zoo was not good (poor motility). In addition, LH surge has not occurred. Therefore, because it is too early and quality of semen is not good, insemination procedure was cancelled for this morning.

12PM - Ultrasound examination was performed by Dr. [REDACTED] - right ovary has an approx 1.1 cm diameter follicle. Expected ovulation would occur between 1.5 cm and 2.0 cm diameter. Plan to inseminate in afternoon depending on quality of semen.

6:30PM - Semen received is of poor quality. LH surge has not occurred. Artificial insemination procedure was cancelled. Plan to reassess tomorrow morning and reconsider timing AI procedure. [REDACTED]

Clinical Note:

8.Jun.2006

Problem: arthritis (Suspected)  
Proc: Artificial insemination attempt. No semen collected this AM.  
Ultrasound exam done by Dr. [REDACTED] was unable to visualize ovary. LH surge has not occurred

Plan: Inseminate this afternoon based on semen quality

6:00 PM - Semen was received from [REDACTED] elephant [REDACTED] is of good quality and insemination will proceed.

Endoscopic insemination (done by Dr. [REDACTED]) procedure: An equine endotracheal tube was advanced vaginally while in EMD and inflated in place. Endoscope was advanced through lumen of endotracheal tube and vagina and cervix visualized after using room-air cuff through ET attachment. Semen extended in skim milk and egg yolk was placed into cervix using insemination catheter. Removal of endoscope and endotracheal tube was uneventful. Blood collected prior to insemination show no LH surge. [REDACTED]

=====

[REDACTED] [REDACTED] (

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

=====

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

Clinical Note:

12.Jun.2001

Problem: arthritis (Suspected)

Curator [REDACTED] reports that Shanthi has multiple swellings on her ventral abdomen this morning.

In speaking to keepers, the lesions appeared last night, but are somewhat more severe this morning - unable to say if more lesions in number or if lesions are larger. Keepers report that Shanthi's behavior is WNL other than that she may be flicking her tail at the lesions on occasion. Also she seemed reluctant to let Kandula nurse this morning but since then he has nursed regularly. Appetite and stool WNL.

On exam there are multiple (~20) well delineated, raised (<1 cm), warm, circular to slightly irregularly shaped, light colored lesions varying in size from 3-15 cm in diameter located on her ventral abdomen. On her mid left side, there are 3 similar circular lesions, 1 larger and 2 smaller. There are several smaller lesions on the teats. Otherwise she is BAR, eupneic, mm pink and moist.

Assessment: suspect urticaria, etiology unknown. Based on the timing, it is possible she had an allergic reaction to something related to the AI procedure. Discussed with [REDACTED], [REDACTED], [REDACTED] - none had seen a similar reaction after AI. [REDACTED] and [REDACTED] confirmed that nothing novel was used in the procedures and that the milk (purified from skim milk, cooked) extender is regularly used for AI in horses and cows and has been used in elephants in Hawaii. Keepers could not identify anything novel in environment (sand, other substrate) or food (although she did get more browse than normal during the AI procedures) that she or Kandula would have had access to. Reaction to insect stings is also possible, but seems unlikely due to the number of lesions and the fact that lesions are not seen on other elephants. No ant hills or wasps' nests were identified in the enclosure although a few individual wasps have been seen around the elephant barn. BL suggested using 25-30 ml dex phosphate orally if lesions worse this evening. [REDACTED] and [REDACTED] had not used benadryl in elephants. Based on [REDACTED] conversation with [REDACTED], a similar lesion (thought to be secondary to injection) resolved on its own in another elephant.

Plan: Since the lesions did not seem to be bothering Shanthi significantly and due to the fact that she may be in very early pregnancy, aggressive systemic treatment was not started. Benadryl cream was applied to the lesions in the afternoon although it is not known how effective this will be through elephant skin. At recheck in the late afternoon, the lesions appeared static, or some slightly smaller, in size and they did not appear to be increasing in number. Shanthi was still BAR. Status in AM. Continue benadryl topically TID tomorrow if not resolved. If lesions worse consider systemic treatment (benadryl or dexamethasone).

Blood collection by keepers for CBC/CP, herpes testing - results pending.

[REDACTED]

[REDACTED]

[REDACTED] (6

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female  
Age: 32Y 5M Est. Birth: 15.Mar.1975

Acc. #: [REDACTED]

=====

Clinical Note:

12.Jun.2006

Clinical Note:

13.Jun.2006

Problem: arthritis (Suspected)  
Recheck urticaria.  
Keepers report Shanthi's appetite, behavior, and stool remain normal. On visual exam, the skin lesions on the ventral abdomen are not significantly changed, although the one higher up on the left side appears less raised and the lesions on the teats are significantly smaller. Keeper [REDACTED], who first noted the lesions on Sunday, said the teat lesions were much larger then. All the lesions are still warm, raised, and slightly sensitive on palpation. Keepers do not feel the lesions are bothering Shanti - she is not rubbing, touching, or flicking her tail at them. Plan: continue benadryl cream TID (only BID may be possible today per keepers). Status 6/14. Keepers also to check on any possible irritants, including plants, that Shanthi or Kandula may have access to - [REDACTED] thought that they may be able to reach some patches of poison ivy, but [REDACTED] thought this was no longer the case. [REDACTED]

Clinical Note:

14.Jun.2006

Problem: arthritis (Suspected)  
Recheck urticaria.  
Shanthi continues to remain BAR with normal appetite, behavior, and stool. Wheals on ventral abdomen are significantly improved. Many are no longer detectable, a few are still faintly visible and slightly raised but no longer warm, a few are still raised and warm but less sensitive to the touch.  
Assessment: urticaria resolving, unknown if benadryl cream had positive effect, but treatment was well tolerated.  
Plan: Continue topical application of benadryl today, then discontinue. Recheck 6/15. Keepers will continue evaluation of exhibit yards for poison ivy or other potential irritants, but none yet identified.

Lab results: EEHV PCR negative from blood from 6/12.

CBC/Chem panel from 6/12: WBC 13500 with 39% segs, 8% lymphocytes, 51% monocytes, 2% eosinophils. Slight relative increase in segs compared to recent values, possibly associated with inflammation related to wheals. Eosinophils which can be indicative of allergic reaction were not elevated. Hct 36.6%. Fibrinogen 400. BUN 10. TP 9.2. [REDACTED]

[REDACTED]

[REDACTED]

2

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED] (a)  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Clinical Note:

15.Jun.2006

Problem: arthritis (Suspected)  
Recheck urticaria: continued improvement in wheals on ventral abdomen - no new lesions, but still not completely resolved.  
BAR with normal appetite and behavior. Does not appear bothered by wheals.  
Plan: okay to d/c benadryl cream. Call status 6/16. Visual +/- resolve 6/19. [REDACTED]

---

Clinical Note:

19.Jun.2006

Problem: arthritis (Suspected)  
Recheck urticaria.  
Urticaria appears completely resolved, no problems noted.  
Inactivate case. [REDACTED]

---

Clinical Note:

26.Jun.2006

Problem: arthritis (Suspected)  
Trunk wash for TB culture (routine). #1 of 3.  
60 ml sterile saline placed in trunk and flushed into sterile baggie after trunk was raised. 20 ml of collected fluid placed in plastic cryovial for mycobacterial culture.

Lab work (from 5/3/06)  
EEHV PCR negative.  
CBC, CP unremarkable other than a mild monocytosis compared to her previous values, 73% of 10000 WBCs. Monocytosis appeared resolved at recheck in June. [REDACTED]

---

Clinical Note:

27.Jun.2006

Problem: arthritis (Suspected)  
Trunk Wash for TB culture (routine) #2 of 3.  
60ml sterile saline instilled in trunk by keepers. Trunk raised and then lowered as elephant exhaled contents of trunk into a large plastic bag.  
Trunk wash fluid (50ml) was transferred to a sterile centrifuge tube for mycobacterial culture.  
P: Next trunk wash 28 June 2006 [REDACTED]

---

[REDACTED]

[REDACTED] (c)

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi

Sex: Female
Age: 32Y 5M Est.
Acc. #: [redacted]
Birth: 15.Mar.1975

Clinical Note:

28.Jun.2006

Problem: arthritis (Suspected)
Trunk Wash for TB culture (routine) #3 of 3.
60ml sterile saline instilled in trunk by keepers. Trunk raised and then
lowered as elephant exhaled contents of trunk into a large plastic bag.
Trunk wash fluid (50ml) was transferred to a sterile centrifuge tube for
mycobacterial culture.
P: Trunk wash completed; culture results pending [redacted]

Clinical Note:

28.Jun.2006

Problem: arthritis (Suspected)
Lab results: CBC/CP from 6/7/06 unremarkable. [redacted]

Clinical Note:

4.Jul.2006

Problem: arthritis (Suspected)
EEHV PCR negative from 6/21. [redacted]

Clinical Note:

9.Jul.2006

Problem: arthritis (Suspected)
Lab results:
UA unremarkable with USPG 1.010, pH 8, 3+ amorphous crystals (not unusual
for this individual) [redacted]

Submission Data >>

Type: Fecal sample
Purpose: ROUTINE EXAMINATION

Sample id.: 2006-2225
Date collected: 12.Jul.2006

Collected from:

From an individual specimen.

Enclosure: EH 11-13

Examination Data >>

Storage: room temperature
Consistency: formed
Gross appearance: Typical

Date examined: 12.Jul.2006

by: [redacted]

Sample description:

Normal

Tests & Results >>

FLOATATION - SUGAR

NO PARASITES SEEN

[redacted]

[redacted]

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

=====

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

Clinical Note:

13.Jul.2006

Problem: arthritis (Suspected)  
Left front stiffness reported by keepers.  
Keepers note that the apparent stiffness of the left front has recurred - she has had similar episodes treated with ibuprofen previously, possibly more commonly when pregnant. Previous episodes have reportedly resolved relatively quickly.  
On visual exam walking in the stall the stiffness of the left front is very subtle. Keepers note that earlier this week it was more obvious and that at times when she walked she would swing the LF leg out laterally.  
The LF was palpated from shoulder to toes and no evidence of discomfort was elicited. No areas of swelling or warmth detected. Nails in feet in adequate condition, no evidence of abscess at this time. Shanti is able to hold her LF leg up in normal position for foot work. She bears weight fully on both front legs.

Assessment: intermittent, currently very mild LF stiffness, unable to determine origin or etiology. R/o mild arthritis, soft tissue trauma/strain.

Plan: Discuss options at CCL 7/18: prefer not to give ibuprofen since very mild stiffness and possibly pregnant. Consider cosequin and possible radiographs of LF limb with RF for comparison.

Routine fecal from 7/2 NPS. [REDACTED]

---

Clinical Note:

2.Aug.2006

Problem: arthritis (Suspected)  
Spoke to [REDACTED] about cosequin treatment for intermittent left front limb stiffness. Although joint disease has not been documented radiographically, cosequin may help slow progression of mild joint disease not appreciable radiographically, especially if treatment is started early.  
Plan: Start treatment in ~2-3 weeks, pregnancy status should be known by then. [REDACTED]

---

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi
=====

Sex: Female Acc. #: [redacted]
Age: 32Y 5M Est. Birth: 15.Mar.1975

Clinical Note: 3.Aug.2006
Problem: arthritis (Suspected)
Lab results:
Rapid test for mycobacterium and MAPIA test both negative.
Trunk wash culture results pending. [redacted]

Clinical Note: 5.Aug.2006
Problem: arthritis (Suspected)
Lab results: EEHV PCR negative from 6/14, 7/6, 7/13, 7/21, 8/4.
CBC, CP from 6/12/06 unremarkable for this individual. [redacted]

Clinical Note: 12.Aug.2006
Problem: arthritis (Suspected)
Lab result: UA: USPG 1.007, pH 8, many amorphous crystals -
unremarkable for this individual. [redacted]

Clinical Note: 16.Aug.2006
Problem: arthritis (Suspected)
Hormone analysis reveals that this animal is not pregnant. [redacted]

Clinical Note: 3.Sep.2006
Problem: arthritis (Suspected)
Rx: COSEQUIN 33 gm PO BID for 42 days. [redacted]

Clinical Note: 3.Sep.2006
Problem: arthritis (Suspected)
Rx Cosequin supplement trial for intermittent limb stiffness. Previous
radiographs did not show definitive evidence of arthritis, but
radiographic signs can lag behind clinical signs.
Plan: Rx cosequin powder 10 scoops (33 gm) PO BID x 6 weeks. Evaluate
for effect medication compliance and plan to decrease to 10 scoops
(33 gm) SID UFN if effective. [redacted]

Purpose: arthritis

Prescription Data >>

Drug: COSEQUIN 33 gm PO BID for 42 days
Prescribed by: [redacted] (3.Sep.2006)

Starting date: 4.Sep.2006

Filled by: [redacted] (3.Sep.2006)
Treatment weight: 4218 kg

Comments >>

[redacted]

[redacted] (2)

Medical History Report - Individual Specimen  
NATIONAL ZOOLOGICAL PARK

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female  
Age: 32Y 5M Est. Birth: 15.Mar.1975

Acc. #: [REDACTED]

=====

Prescription Record (continued):

-----

Give 33 gm (10 scoops) of Cosequin, orally twice a day for 6 weeks.  
Dispensing Note: Dispense 84 doses.

-----

Clinical Note: 7.Sep.2006  
Problem: arthritis (Suspected)  
Urinalysis form 9/6: sp gr 1/017, pH 8.5, 3+ crystals - unremarkable  
for this individual. [REDACTED]

-----

Clinical Note: 19.Sep.2006  
Problem: arthritis (Suspected)  
Keepers report she is taking her cosequin well. No problems noted. [REDACTED]

-----

Clinical Note: 8.Oct.2006  
Problem: arthritis (Suspected)  
UA results from 10/4/06: USPG 1.006, pH 8.5, 1+ amorphous crystals -  
unremarkable for this individual. [REDACTED]

-----

Clinical Note: 11.Oct.2006  
Problem: arthritis (Suspected)  
Rx: COSEQUIN 33 mg PO SID until further notice. [REDACTED]

Purpose: joint supplement

Prescription Data >> Starting date: 11.Oct.2006  
Drug: COSEQUIN 33 mg PO SID until further notice  
Prescribed by: [REDACTED] (10.Oct.2006) Filled by: [REDACTED] (10.Oct.2006)  
Treatment weight: 4201 kg

[REDACTED]

[REDACTED] (2)

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi

Sex: Female Acc. #: [redacted]
Age: 32Y 5M Est. Birth: 15.Mar.1975

Clinical Note: 17.Oct.2006

Problem: arthritis (Suspected)
Curator, [redacted] reports Shanti is doing well with no change noticed
after decreasing to maintenance Cosequin dose. Continue at 33 mg PO
SID ufn.
Status mid November. [redacted]

Clinical Note: 5.Nov.2006

Problem: arthritis (Suspected)
EEHV negative by PCR from 8/23, 8/30.
Urinalysis from 11/1 unremarkable for this individual. [redacted]

Clinical Note: 6.Nov.2006

Problem: arthritis (Suspected)
Routine CBC, CP from 11/1: WBC 13200 with eosinophilia (39%)
etiology unknown, r/o parasites, hypersensitivity reaction. Hct
33.4%. CP unremarkable. EEHV negative by PCR and low reactivity by
ELISA.
Plan: Request repeat CBC. Request fecal for parasite check. [redacted]

Clinical Note: 7.Nov.2006

Problem: arthritis (Suspected)
Lab results:
UA unremarkable, sp gr 1.1013, pH 8.
Fecal NPS.
CBC: WBC 12400, Hct 32.6%, fibrinogen 400. Differential: 6% segs,
19% lymphocytes, 47% monos, 28% eos. Eosinophilia still present, but
improved. Lymphocytosis still present, but improved. Segs still
decreased.

BAR on visual with no problems noted by keepers. No evidence of
recurrence of hives or other hypersensitivity. Keepers did note that
she had pumpkins (fairly unusual food item) on 10/27, 28, 29 prior
to blood draw 11/1. [redacted]

[redacted]

[redacted]

(2)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

=====

Sex: Female                      Acc. #: [REDACTED] (2)  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

Parasitology Examination:

Submission Data >>  
Type: Fecal sample  
Purpose: ROUTINE EXAMINATION

Sample id.: 2006-3813  
Date collected: 7.Nov.2006

Collected from:  
From an individual specimen.

Enclosure: EH 11-13

Examination Data >>  
Storage: room temperature  
Consistency: formed  
Gross appearance: Typical

Date examined: 7.Nov.2006

by: [REDACTED]

Tests & Results >>  
FLOATATION - SUGAR

NO PARASITES SEEN

-----

---

Submission Data >>  
Type: Fecal sample  
Purpose: ROUTINE EXAMINATION

Sample id.: 2006-6973  
Date collected: 7.Nov.2006

Collected from:  
From an individual specimen.

Enclosure: EH 11-13

Examination Data >>  
Storage: room temperature  
Consistency: formed  
Gross appearance: Typical

Date examined: 7.Nov.2006

by: [REDACTED]

Tests & Results >>  
FLOATATION - SUGAR

NO PARASITES SEEN

-----

---

[REDACTED] (2)

[REDACTED] (2)

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi
=====

Sex: Female
Age: 32Y 5M Est.
Acc. #: [redacted]
Birth: 15.Mar.1975

Clinical Note:

13.Nov.2006

Problem: arthritis (Suspected)
Keepers report appetite and behavior remains WNL.
Blood collected by keepers for CBC and CP: WBC 13100 with 13% segs
(slightly low), 23% lymphocytes, 47% monos, 15% eosinophils (slightly
high, but continuing to improve).
Plan: Recheck CBC 11/22. [redacted]

Clinical Note:

15.Nov.2006

Problem: arthritis (Suspected)
Shanthi continues to do well with normal appetite and behavior and
stool and activity. Good medication compliance with Cosequin. Shanthi
has had periodic stiffness of limbs prior to starting cosequin. No
significant stiffness noted since taking cosequin - possible positive
drug effect??
Continue with SID treatment ufn. [redacted]

Clinical Note:

20.Nov.2006

Problem: arthritis (Suspected)
Rx: COSEQUIN 33 mg PO SID until further notice. [redacted]

Purpose: joint supplement

Prescription Data >>

Starting date: 20.Nov.2006

Drug: COSEQUIN 33 mg PO SID until further notice

Prescribed by: [redacted] (10.Oct.2006)

Filled by: [redacted] (15.Nov.2006)

Treatment weight: 4139 kg

Clinical Note:

28.Nov.2006

Problem: arthritis (Suspected)
Recheck blood from 11/22: WBC okay at 13800 with unremarkable
differential, eosinophils down to 8%. CP unremarkable.
Cause of previous eosinophilia unknown.
Continue with monthly blood collection for CBC, CP.

UA from 11/22 unremarkable. [redacted]

[redacted]

[redacted]

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

=====

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

Clinical Note:

4.Dec.2006

Problem: arthritis (Suspected)  
Trunk Wash for TB culture (routine) #1 of 3.  
60ml sterile saline instilled in trunk by keepers. Trunk raised and then lowered as elephant exhaled contents of trunk into a large plastic bag. Trunk wash fluid (60ml) was transferred to a sterile centrifuge tube for mycobacterial culture.  
P: Next trunk wash 6 December 2006 [REDACTED]

Clinical Note:

6.Dec.2006

Problem: arthritis (Suspected)  
Trunk wash, UA, CBC/CP, pending serology

1. Trunk Wash for TB culture (routine) #2 of 3.  
60ml sterile saline instilled in trunk by keepers. Trunk raised and then lowered as elephant exhaled contents of trunk into a large plastic bag. Trunk wash fluid (50ml) was transferred to a sterile centrifuge tube for mycobacterial culture.
2. Free-catch urine sample collected for UA:  
SpGr 1.009      pH 8.5      trace blood              Urob 0.2  
Amorphous phosphate crystals  
Negative for bacteria, casts, ketones, glucose
3. Blood sample collected for CBC/CP/EPH/EEHV/Vite/Serum Bank:  
WBC: 11.1k/ul      HCT: 33.1%      TP: 9.3g/dl  
CP unremarkable  
WBC differential and serology pending

P:      Next trunk wash 7 December 2006  
Routine exam 7 Dec 06 [REDACTED]

=====

[REDACTED]

[REDACTED] (2)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female  
Age: 32Y 5M Est. Birth: 15.Mar.1975

Acc. #: [REDACTED]

=====

Clinical Note:

7.Dec.2006

Problem: arthritis (Suspected)  
Proc: Trunk wash #3 of 3, routine exam, rabies/tetanus

1. Trunk wash for TB culture #3 of 3.

60ml sterile saline instilled in trunk by keepers. Trunk raised and then lowered as elephant exhaled contents of trunk into a large plastic bag. Trunk wash fluid (50ml) was transferred to a sterile centrifuge tube for mycobacterial culture.

2. PEx.

Overweight. 6.5-7/9 BCS.

EENT: OU adnexa, cornea and anterior chamber clear. Oral mucous membranes pink and moist. Tusks, sulci and molars appear normal.

INTEG: Feet, nails and pads unremarkable.

MS/NS: BAR, normal ambulation. Trunk and tail have normal range of motion and tone. Decreased ROM in left front carpus and possibly shoulder.

C/R: RR=8 breaths/min. Normal respiratory effort.

UG/GI: Mammary, vulvar and external rectal tissue appear normal. Mammary tissue appears more prominent than 28486.

3. Vaccinations (18g x 1.5" needles):

Vaccination: Imrab 3 1.0 ml im (RR), serial #12508A, exp.10/27/07

Vaccination: Tetanus toxoid, 1.0 ml im (RR), serial #1630101A, exp.4/5/07

A: Apparently healthy elephant

Decreased ROM in left front carpus (R/O arthritis/djd)

AI procedure may occur in March of 2007.

P: Review pending diagnostics. Discussed weight, AI schedule with DON and requested change in diet for reduction in weight prior to pregnancy as had been previously discussed with DAP and DON. Consider radiographs of LF and RF as comparison.

Addendum (12/13/06, [REDACTED]): Although the Elephant SSP recommends annual foot rads, [REDACTED] opted to work on getting baselines on one or two feet per year. The SSP also recommends a Salmonella culture. Negative culture results suggest the animal is not shedding Salmonella at that particular point in time. Positive results in a healthy animal could suggest an asymptomatic carrier or mild form of salmonellosis (i.e., self-limiting). Because interpretation is problematic and there has been no clinical problem with salmonellosis at the elephant house, [REDACTED] opted to not perform this test.

[REDACTED]

[REDACTED]

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female  
Age: 32Y 5M Est. Birth: 15.Mar.1975

Acc. #: [REDACTED]

=====

Clinical Note:

7.Dec.2006

[REDACTED]

Clinical Note:

8.Dec.2006

Problem: arthritis (Suspected)  
EEHV result: negative

National EEHV Lab at NZP  
Sample: EDTA whole blood  
Terminase 2429/2430 (Asian elephant) primer used  
PCR: negative [REDACTED]

Clinical Note:

13.Dec.2006

Problem: arthritis (Suspected)  
Vit E = 2.49ug/ml  
( [REDACTED] )  
NZP Median for Elephants (1ug/ml)

Interpretation: Adequate vitamin E serum levels [REDACTED]

=====

[REDACTED]

[REDACTED]

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi
=====

Sex: Female
Age: 32Y 5M Est.
Acc. #:
Birth: 15.Mar.1975

Clinical Note:

15.Dec.2006

Problem: arthritis (Suspected)
Curator discussion: rads of LF carpus ok'd; SPEP results

contacted curator to discuss the intermittent lameness/decreased ROM on the LF carpus. recommended rads of the LF carpus and TB concurred with this plan.

P: Check schedule and coordinate with staff to take rads in the next 1-2 weeks.

SPEP (NZP)
TP: 9.3g/dl

Table with 3 columns: Fraction, %, g/dl. Rows 1-6 showing protein fractions.

Interpretation: Normally there are 5 fractions and the identification of the sixth fraction is unknown. Most likely albumin is fraction 1.

Clinical Note:

18.Dec.2006

Problem: arthritis (Suspected)
Rads scheduled with 12/28 after 8am

talked to keeper to schedule rads of LF carpus. The day that worked for and was Thursday 12/28 (keepers will be and).

A: Decreased ROM on LF carpus

P: Rads of LF carpus and left forefoot 12/28 after 8am

[Redacted signature]

[Redacted signature]

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi
=====

Sex: Female
Age: 32Y 5M Est.
Acc. #: [redacted]
Birth: 15.Mar.1975

Clinical Note:

28.Dec.2006

Problem: arthritis (Suspected)
Rads cancelled due to DAH limitations, rescheduled for 1/2/07

Additional procedures were scheduled today and due to limited staff,
the radiograph procedure for today was cancelled. [redacted] contacted [redacted]
and requested rescheduling for Tuesday 1/2/07.

P: [redacted] and another vet will get rads with a tech on 1/2/07 after 8am.

Submission Data >>
Type: Fecal sample
Purpose: ROUTINE EXAMINATION

Sample id.: 2007-0024
Date collected: 3.Jan.2007

Collected from:
From an individual specimen.

Enclosure: EH 11-13

Examination Data >>
Storage: room temperature
Consistency: formed
Gross appearance: Typical
Sample description:
normal, formed

Date examined: 3.Jan.2007

by: [redacted]

Tests & Results >>
FLOATATION - SUGAR

NO PARASITES SEEN

[redacted]

[redacted]

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Clinical Note:

4.Jan.2007

Problem: arthritis (Suspected)  
Proc: carpal and foot radiographs

DAH staff: [REDACTED]  
EH staff: [REDACTED]

Using the portable radiographic unit, radiographs were taken of the left and right front carpi (AP and lateral) as well as the left and right front feet [REDACTED].

Interpretation: Only 3/4 radiographs were able to be interpreted - right lateral carpus came out dark. Other radiographs were overexposed so it was difficult to fully assess the carpal joints.

Plan: This elephant is currently on anti-inflammatories for this condition. Recommend repeat radiographs at next routine exam next year. Based on curator level of concern, consider repeat radiographs with technique adjustments. [REDACTED]

Clinical Note:

30.Jan.2007

Problem: arthritis (Suspected)  
Bled by keepers yesterday evening for coagulation panel for comparison to Ambika who has a significant anemia.

REsults not indicative of clotting disorder in either animal although PT slightly longer than seen in small animals as has been noted previously in panels submitted to Friendship from Toni and Shanti. Ambika PTT 15.5, PT 14.8, Shanthi PTT 20.5, PT 15.9. [REDACTED]

Clinical Note:

1.Feb.2007

Problem: arthritis (Suspected)  
Acute onset nail abscess on right fore foot.  
Abscess on 2nd nail - soft, extending length of nail. No odor. Plan to freshen edges to allow it to dry and grow out. Reassess 2/8. [REDACTED]

[REDACTED]

[REDACTED] (C)

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi
=====

Sex: Female
Age: 32Y 5M Est.
Acc. #: [redacted]
Birth: 15.Mar.1975

Clinical Note:

5.Feb.2007

Problem: arthritis (Suspected)
Urinalysis (routine) results from 1/31: unremarkable with USPG 1.012,
pH 8.5, rare epithelial cells and no RBCs, WBCs. 3+ crystals. [redacted]

Clinical Note:

6.Feb.2007

Problem: arthritis (Suspected)
Iron, run as comparison to 28486 with anemia, was slightly low at 41.
Plan to repeat at next routine blood draw. TIBC 203. Mineral panel
results pending. [redacted]

Clinical Note:

15.Feb.2007

Problem: arthritis (Suspected)
Dec 06 trunk wash fluid: No Mycobacterium isolated (NVSL)
Samples collected 12/4/06, 12/6/06, 12/7/06. [redacted]

Clinical Note:

15.Feb.2007

Problem: arthritis (Suspected)
Rx: COSEQUIN 33 mg PO SID until further notice. [redacted]

Clinical Note:

18.Feb.2007

Problem: arthritis (Suspected)
Keeper, [redacted], reports that Shanthi is stiff on the RF carpus. She
first noticed Shanthi was slightly stiff yesterday, but the stiffness
is more apparent today. She reports she has not seen this type of
stiffness from Shanthi in many years. On visual exam Shanthi will bear
weight evenly on all 4 limbs, but is reluctant to bend the R carpus.
R/O trauma, possible slip on ice or snow outside.
P: Recheck tomorrow. If not improved, consider short course of
ibuprofen. Nail abscess on RF improving. [redacted]

Clinical Note:

21.Feb.2007

Problem: arthritis (Suspected)
RF lameness/stiffness still present but remains mild and keepers feel
there has been some improvement. They prefer not to start NSAID
treatment at this time. [redacted]

[redacted]

[redacted] (2)

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi
=====

Sex: Female Acc. #: [redacted]
Age: 32Y 5M Est. Birth: 15.Mar.1975

Clinical Note:

27.Feb.2007

Problem: arthritis (Suspected)
Shanthi's mild RF stiffness continues to improve according to keepers,
curator.
Inactivate for now. Keepers to inform [redacted] if stiffness persists or
gets worse. [redacted]

Clinical Note:

6.Mar.2007

Problem: arthritis (Suspected)
Mineral panel results from 2/7/07:
Cobalt, copper, and selenium are WNL for horses. Zinc is slightly low,
but not to the level of showing signs of deficiency in horses.
Molybdenum is slightly below the normal range for horses, but clinical
problems are usually related to excess. References ranges for these
minerals not available for elephants. Manganese is higher than
expected for horses and also high compared to Ambika, but this may be
related to hemolysis.
Iron is lower than the horse range, even to the level of clinical
deficiency in horses. Ambika's iron (96 ug/dl) is actually higher than
Shanthi's (51 ug/dl) despite Ambika's anemia. Iron in both is low
compared to three Asian elephants from SDZ (1.28-1.73) but Ambika is
on the high end and Shanthi on the low end of the Asian elephant range
listed in Fowler 5.
Although difficult to interpret, it does not appear that either
elephant has a significant mineral deficiency.
P: Repeat iron panels this week and discuss results with [redacted]. [redacted]

Clinical Note:

13.Mar.2007

Problem: arthritis (Suspected)
EEHV by PCR = negative [redacted]

Clinical Note:

19.Mar.2007

Problem: arthritis (Suspected)
Iron panel results: Iron increased from last check to 62 ug/dl with
TIBC 288, and 22% saturation. [redacted]

[redacted]

[redacted]

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Clinical Note:

31.Mar.2005

Problem: arthritis (Suspected)  
Reproductive assessment and artificial insemination procedure was performed by Drs. [REDACTED] and [REDACTED] of the Institute of Zoo Biology, Germany.

@10PM: Transrectal ultrasound was performed using operant conditioning with elephant standing without sedation by Dr. [REDACTED]. Right ovary is source of follicular activity; a developing CL is present on left ovary. Developing follicle on right ovary is approx 1.8 cm diameter; ovulation expected once >2.0 cm. Left uterine horn shows some endometrial cysts, close to infundibulum. Right uterine horn has a soft tissue (mass?) structure adjacent to infundibulum with ultrasonographic appearance of classical leiomyoma in Asian elephants.

With elephant in restraint device unit, transrectal ultrasound was done concurrently with intravaginal placement of endoscope. A sterile endotracheal tube was advanced through vagina and cuff inflated in place. A sterile flexible endoscope was advanced through tube and cervix was visualized. Cervix had a moderate amount of thick, clear mucus. An insemination catheter was advanced through the cervix and into the uterus, with placement confirmed transrectally by ultrasonography.

Semen shipped from other institutions was used for insemination. Semen from [REDACTED] Zoo bull elephant [REDACTED] was placed in the uterus. Semen from [REDACTED] bull [REDACTED] was placed in cervix.

Insemination was well tolerated.

In order to time ovulation, administered 500 IU hCG IM around 1AM.

P: Repeat ultrasound in @12 hrs (@2-3PM) and consider a second insemination attempt if ovulation has occurred. [REDACTED]

---

[REDACTED]

[REDACTED] (10)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Clinical Note:

1.Apr.2007

Problem: arthritis (Suspected)  
Artificial insemination, 2nd procedure, with today's semen sample from [REDACTED] bull, [REDACTED] motility 60-65%. Performed by [REDACTED] vets, [REDACTED]  
Abdominal ultrasound ~ 3 PM: Behavioral restraint for standing and left lateral recumbency. Follicle on right ovary slightly larger than yesterday at 1.9 cm. Cysts seen on uterine horn +/- possible leiomyomas?  
AI: Restraint in ERD. Inseminated with sperm from bull, [REDACTED]. Routine procedure, no complications. Endoscopic insemination procedure: A sterile tube was advanced vaginally while in ERD and inflated in place. Endoscope was advanced through lumen of endotracheal tube and vagina and cervix visualized. Semen was placed into uterus and vagina using insemination catheter. Position of catheter confirmed by rectal ultrasound.  
Both procedures very well tolerated.  
P: Repeat ultrasound in AM and consider a 3rd AI attempt tomorrow based on ultrasound and blood hormone evaluation. [REDACTED]

Clinical Note:

2.Apr.2007

Problem: arthritis (Suspected)  
Artificial insemination, 3rd procedure, with semen from yesterday's sample from [REDACTED]. Performed by [REDACTED] vets, [REDACTED].  
Abdominal ultrasound ~ 9 AM: Behavioral restraint for standing, right and left lateral recumbency. Difficult to see either ovary, but a brief view of the right ovary suggested the follicle may be present but smaller. Relaxation of the repro tract could suggest that ovulation has already occurred and could make the ovaries harder to find.  
AI: Restraint in ERD. Inseminated with sperm from [REDACTED], yesterday's sample which still had ~50% motility. Routine procedure, no complications.  
Both procedures very well tolerated.  
[REDACTED] to continue to monitor Shanthi's hormones to evaluate for pregnancy. [REDACTED]

[REDACTED]

[REDACTED]

(2)

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi
=====

Sex: Female
Age: 32Y 5M Est.
Acc. #: [redacted]
Birth: 15.Mar.1975

Clinical Note: 3.Apr.2007
Problem: arthritis (Suspected)
Shanthi is reported as BAR with normal appetite and behavior and stool. No problems noted. [redacted]

Clinical Note: 4.Apr.2007
Problem: arthritis (Suspected)
Lab result:
UA: USPG 1.019, pH 8.5, no blood, no WBCs, no RBCs, crystals 3+.
CBC: unremarkable, CP pending? [redacted]

Clinical Note: 26.Apr.2007
Problem: arthritis (Suspected)
Fecal from 4/20 NPS. [redacted]

Clinical Note: 5.May.2007
Problem: arthritis (Suspected)
CBC, CP from 5/4 unremarkable with WBC 11900, Hct 38.6%. UA unremarkable for this individual with many amorphous crystals noted. [redacted]

Clinical Note: 10.May.2007
Problem: arthritis (Suspected)
Negative for EEHV by PCR from 5/4 sample.
UA from 5/4 unremarkable for this individual with USPG 1.005, pH 8. [redacted]

Submission Data >>
Type: Fecal sample
Purpose: ROUTINE EXAMINATION

Sample id.: 2007-1801
Date collected: 11.May.2007

Collected from:
From an individual specimen.

Enclosure: EH 11-13

Examination Data >>
Storage: room temperature
Consistency: formed
Gross appearance: Typical

Date examined: 11.May.2007

by: [redacted]

Tests & Results >>
FLOATATION - SUGAR

NO PARASITES SEEN

[redacted]

[redacted] (2)

Medical History Report - Individual Specimen  
NATIONAL ZOOLOGICAL PARK

=====

*ELEPHAS MAXIMUS MAXIMUS*  
Sri Lankan elephant  
Name: Shanthi

Sex: Female                      Acc. #: [REDACTED]  
Age: 32Y 5M Est.              Birth: 15.Mar.1975

=====

Purpose: joint supplement

Prescription Data >>

Drug: COSEQUIN 33 mg PO SID until further notice

Prescribed by: [REDACTED] (10.Oct.2006)

Starting date: 14.May.2007

Filled by: [REDACTED] (9.May.2007)

Treatment weight: 4110 kg

Clinical Note:

1.Jun.2007

Problem: arthritis (Suspected)

Comt: Blood collection - red top tubes taken to spin and produce serum for AB validation. [REDACTED]

Clinical Note:

5.Jun.2007

Problem: arthritis (Suspected)

UA from 6/1/07

USG 1.004

pH 8.0

Moderate amount of phosphate crystals (very grossly contaminated with sand). [REDACTED]

Clinical Note:

13.Jun.2007

Problem: arthritis (Suspected)

Rx: COSEQUIN 33 mg PO SID until further notice. [REDACTED]

[REDACTED]

[REDACTED]

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female  
Age: 32Y 5M Est. Birth: 15.Mar.1975

Acc. #: [REDACTED]

=====

Clinical Note:

28.Jun.2007

Problem: arthritis (Suspected)  
Routine exam: Routine screen and Trunk washes for mycobacterium this week.

Trunk washes #1 (6/26/07) and 2 (6/28/07) (repeated same procedure twice): Protected contact, gloves and masks worn. 60ml sterile saline instilled into trunk by keepers. Trunk raised and then lowered as elephant exhaled contents of trunk into a large plastic bag. Trunk wash fluid (45ml) was transferred by vets KH and NB to a sterile centrifuge tube for mycobacterial culture and cytology.  
P: Third trunk wash to be performed 6/29 and submitted for culture and cytology.

Physical exam:

S: BAR, mms pink, moist. Body condition score 6-7/9.  
O: EENT--able to view all 4 dental arcades, and all appear properly occluded and WNL. OS has small amount of serous ocular discharge--no lesions noted at that eye.  
UG/GI--observed defecating normal stool.  
M/S/I--Mildly overweight. Ambulates normally, no obvious lamenesses. Digit 4 of left front foot has two solar abscesses and another small abscess at cuticle base--all appear drained and clean, and are not painful on palpation. Digit 3 of right front foot has cuticle overgrowth and irregular nail growth, but also not painful to the touch.

A: 32 y F Asian Elephant  
- Occasional foot abscesses, responsive to treatment from keepers.

P: Perform 3rd trunk wash tomorrow

(ed by [REDACTED] 6/29) [REDACTED]

---

[REDACTED]

[REDACTED] (2)

=====

ELEPHAS MAXIMUS MAXIMUS  
Sri Lankan elephant  
Name: Shanthi

Sex: Female  
Age: 32Y 5M Est. Birth: 15.Mar.1975

Acc. #: [REDACTED]

=====

Clinical Note:

29.Jun.2007

Problem: arthritis (Suspected)  
Trunk wash #3/3:  
Free contact, gloves and masks worn. 60ml sterile saline instilled into trunk by keepers. Trunk raised and then lowered as elephant exhaled contents of trunk into a large plastic bag. Trunk was fluid (45ml) was transferred by [REDACTED] to a sterile centrifuge tube. Submitted for mycobacterial culture and staining [REDACTED]

---

Clinical Note:

10.Jul.2007

Problem: arthritis (Suspected)  
Lab result:  
UA unremarkable with USPG 1.014, Ph 8.5, 2+ crystals, but unsatisfactory to evaluate for RBCs and WBCs since frozen prior to observation. [REDACTED]

---

Clinical Note:

15.Jul.2007

Problem: arthritis (Suspected)  
Prob: Possible exposure to racoon. Proc: Vaccinated against rabies.  
Hx: This a.m a racoon was found dead on yard 7. All 3 animals had access to this yard. No conclusive evidence that the elephants killed or played with the racoon but contact with it can not be R/O.  
\*Carcass submitted to DoP for necropsy and rabies tasting.

S/O: Elephant is BAR, no abnormalities noted. Reported as eating, acting and defecating normally.

In order to follow NZP protocol on NZP animals exposed to alive racoons all 3 elephants were rabies vaccinated (booster) and protective measures started for keepers.

Vaccination: Imrab 3 1.0 ml IM, serial #12508A, exp.10/27/07

A: Racoon exposure. Elephant is clinically healthy. Vaccinated.  
P: Await for rabies testing result on dead racoon  
If racoon tests (+) for rabies proceed to step up isolation measures [REDACTED]

---

[REDACTED]

[REDACTED]

=====
ELEPHAS MAXIMUS MAXIMUS
Sri Lankan elephant
Name: Shanthi

Sex: Female
Age: 32Y 5M Est.
Acc. #: [redacted]
Birth: 15.Mar.1975

Clinical Note: 21.Jul.2007
Problem: arthritis (Suspected)
Raccoon the elephants were recently exposed to was negative for rabies at state lab.

Fecal, routine from 7/18 NPS. [redacted]

Clinical Note: 28.Jul.2007
Problem: arthritis (Suspected)
EEHV by PCR negative from 03/08/07, 04/04/07, 05/04/07 and 07/06/07 [redacted]

Clinical Note: 30.Jul.2007
Problem: arthritis (Suspected)
Rx: COSEQUIN 33 mg PO SID until further notice. [redacted]

Purpose: joint supplement

Prescription Data >> Starting date: 30.Jul.2007
Drug: COSEQUIN 33 mg PO SID until further notice
Prescribed by: [redacted] (10.Oct.2006) Filled by: [redacted] (26.Jul.2007)
Treatment weight: 4105 kg

Clinical Note: 6.Aug.2007
Problem: arthritis (Suspected)
UA from 8/3/07: USG 1.018, no blood, 3+ amorphous crystals.
EEHV PCR negative. [redacted]

[redacted]

[redacted] (2)

Clinical Pathology Records Report - ISIS/In-House Reference Values  
 NATIONAL ZOOLOGICAL PARK

Scientific name: *ELEPHAS MAXIMUS*  
 Common Name: Asiatic elephant

		ISIS Values			
		Mean	S.D.	Min.	Max. (N)
WBC	*10 <sup>3</sup> /UL	14.43 ± 4.409		5.800	33.30 (1779)
RBC	*10 <sup>6</sup> /UL	3.06 ± 0.51		1.78	5.15 (1501)
HGB	GM/DL	13.2 ± 2.2		6.6	24.9 (1568)
HCT	%	37.1 ± 6.0		20.3	68.0 (1890)
MCH	MG/DL	43.3 ± 4.8		16.6	63.2 (1464)
MCHC	uug	35.4 ± 3.6		16.9	68.6 (1536)
MCV	fL	122.3 ± 13.4		47.1	213.2 (1491)
SEGS	*10 <sup>3</sup> /UL	4.822 ± 2.925		0.291	23.90 (1502)
BANDS	*10 <sup>3</sup> /UL	1.402 ± 2.124		0.000	11.40 (307)
LYMPHOCYTES	*10 <sup>3</sup> /UL	5.243 ± 3.223		0.196	20.60 (1513)
MONOCYTES	*10 <sup>3</sup> /UL	3.677 ± 2.909		0.000	9.983 (1273)
EOSINOPHILS	*10 <sup>3</sup> /UL	0.465 ± 0.551		0.000	4.520 (1093)
BASOPHILS	*10 <sup>3</sup> /UL	0.173 ± 0.105		0.000	0.508 (119)
NRBC	/100 WBC	1 ± 1		0	3 (85)
PLATE. CNT.	*10 <sup>3</sup> /UL	469 ± 215		121	1394 (428)
RETICS	%	0.8 ± 1.6		0.0	4.4 (10)
GLUCOSE	MG/DL	91 ± 21		33	223 (1257)
BUN	MG/DL	13 ± 4		4	30 (1260)
CREAT.	MG/DL	1.6 ± 0.4		0.7	3.3 (1230)
URIC ACID	MG/DL	0.2 ± 0.3		0.0	3.4 (286)
CA	MG/DL	10.6 ± 0.8		7.8	14.8 (1184)
PHOS	MG/DL	5.0 ± 1.2		1.9	11.1 (724)
NA	MEQ/L	130 ± 6		99	181 (859)
K	MEQ/L	4.6 ± 0.5		3.2	6.6 (861)
CL	MEQ/L	89 ± 4		77	103 (731)
IRON	MCG/DL	65 ± 23		29	158 (82)
MG	MG/DL	2.10 ± 0.53		0.00	2.90 (68)
HCO3	MMOL/L	26.3 ± 3.0		19.0	32.3 (55)
CHOL	MG/DL	48 ± 19		0	189 (599)
TRIG	MG/DL	61 ± 42		10	329 (745)
T.PROT. (C)	GM/DL	8.1 ± 0.8		5.8	11.3 (1227)
T.PROT. (R)	GM/DL	8.4 ± 0.4		7.8	9.2 (23)
ALBUMIN (C)	GM/DL	3.2 ± 0.5		1.9	4.7 (648)
GLOBULIN (C)	GM/DL	5.0 ± 1.0		2.7	8.6 (639)
AST (SGOT)	IU/L	22 ± 11		4	97 (1227)
ALT (SGPT)	IU/L	7 ± 8		0	72 (781)
T. BILI.	MG/DL	0.2 ± 0.2		0.0	1.2 (765)
D. BILI	MG/DL	0.1 ± 0.1		0.0	1.3 (233)
I. BILI.	MG/DL	0.1 ± 0.1		0.0	0.6 (224)
AMYLASE	U/L	3017 ± 2492		0	9866 (170)
ALK.PHOS.	IU/L	143 ± 66		28	641 (1157)
LDH	IU/L	655 ± 703		46	4769 (495)



Clinical Pathology Records Report - ISIS/In-House Reference Values  
NATIONAL ZOOLOGICAL PARK

Scientific name: *ELEPHAS MAXIMUS*  
Common Name: Asiatic elephant

		ISIS Values				
		Mean	S.D.	Min.	Max.	(N)
CPK	IU/L	225 ±	170	23	1260	(486)
OSMOLARITY	MOSMOL/L	264 ±	29	0	325	(98)
ALPHA GLOB.	MG/DL	250.4 ±	353.1	0.7	500.0	(2)
ALPHA-1 GLOB	MG/DL	0.8 ±	0.1	0.7	1.0	(6)
ALPHA-2 GLOB	MG/DL	0.9 ±	0.2	0.7	1.1	(6)
BETA GLOB.	MG/DL	1.0 ±	0.6	0.6	1.4	(2)
Body Temperature:		36.3 ±	0.5	36.0	37.0	(4)
CO2	MMOL/L	24.8 ±	4.0	15.8	37.0	(230)
CORTISOL	UG/DL	2.0 ±	1.0	0.5	5.4	(35)
ESR	MM/HR	98 ±	32	53	130	(7)
FIBRINOGEN	MG/DL	371 ±	181	0	810	(238)
GGT	IU/L	7 ±	5	0	33	(314)
LIPASE	U/L	19 ±	30	0	127	(53)
PROGESTERONE	NG/DL	18.82 ±	62.45	0.020	346.0	(379)
TESTOSTERONE	NG/ML	20.34 ±	27.95	0.570	40.10	(2)
A-TOCOPHEROL	UG/DL	19 ±	15	0	42	(8)
TOT. T4 (RIA)	UG/DL	10.0 ±	2.7	4.2	12.6	(10)
T3 UPTAKE	%	28 ±	2	26	29	(2)
ALBUMIN (E)	GM/DL	4.1 ±	0.6	3.5	4.9	(4)
GAMMA GLOB	GM/DL	2.9 ±	2.9	0.0	9.0	(11)