



FERTILITY WORK-UP FOR AN AMUR TIGER

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photos courtesy of Zookeeper Rachael Downing

In the 1940s, Amur tigers were on the brink of extinction, with fewer than 50 individuals remaining in the wilds of the Russian Far East, China, and North Korea. Fortunately, following the end of World War II, Russia became the first country to ban tiger hunting, which helped this subspecies make a moderate recovery. In 1973, the Endangered Species Protection Act was signed into legislation, which also helped conservation efforts. Currently, they remain endangered, with less than 400 Amur tigers left in the wild.

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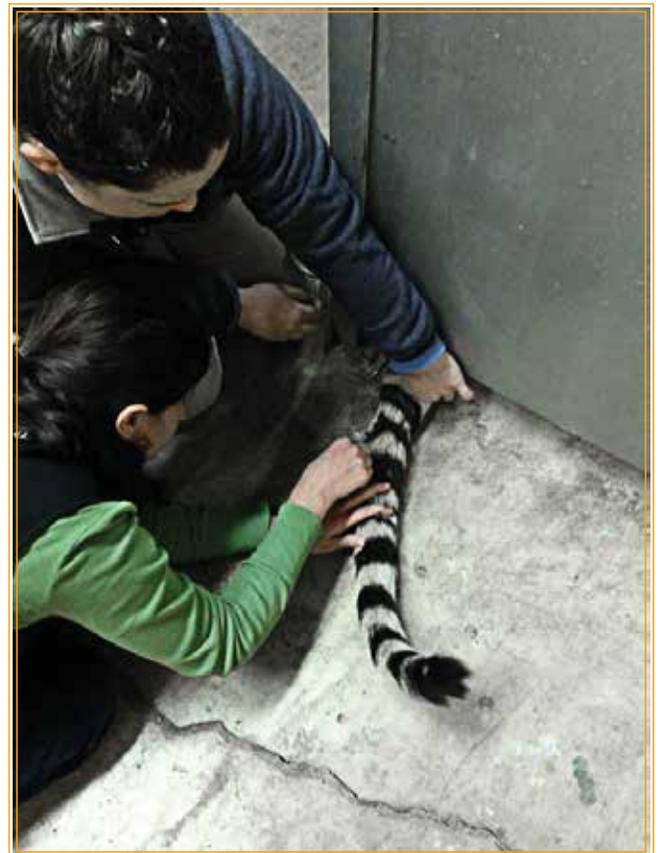
Zoos in North America and Europe are working together to help maintain the genetic diversity of captive Amur tigers. Tigers are often shipped between zoos so unrelated animals can be paired and potentially bred. This maintains the genetic health and diversity of the captive Amur tiger population, such that these tigers can serve as a “genetic lifeboat” for the wild population. If genetic supplementation of wild populations or reintroduction is ever needed and desirable, these captive populations could be very valuable for restoration efforts.

Cheyenne Mountain Zoo has a breeding recommendation for five-year-old Amur tigers Zoya and Grom. In the spring of both 2012 and 2013, we witnessed them breeding on multiple occasions when Zoya was in estrus. After two seasons of breeding but no pregnancy, fecal hormone monitoring was run on Zoya – it confirmed she was cycling normally. For this reason, a reproductive work-up was also scheduled for Grom.

In the weeks before the procedure, keepers finalized operant conditioning training for an awake blood-draw procedure. Grom was cued to move his tail under the enclosure door and reinforced when he allowed the vet to

handle the lateral tail vein (lateral caudal vein). One week before the scheduled anesthesia, a blood sample was collected from the tail and an i-STAT CG8+ suggested Grom was a healthy anesthesia candidate. Grom was then anesthetized for a full exam and reproductive assessment. While under anesthesia, serial i-STAT CG8’s enabled the team to identify a respiratory acidosis and a Vetscan Comprehensive Profile showed the tiger had a mild elevation of a liver enzyme (ALT) and a stress hyperglycemia, but was otherwise healthy. By providing positive pressure ventilation, the acidosis was corrected. The anesthesia was otherwise uneventful.

The full reproductive evaluation was performed by Dr. Jason Herrick from the National Foundation for Fertility Research. The tiger’s physical exam was normal, so a series of electroejaculations was done to evaluate the semen. Fortunately, he was found to have excellent semen quality (85% motility), good sperm morphology (56.6% normal - relatively good for a tiger), with a very high sperm count (881 million sperm/ml collected). After evaluating quality, samples were banked for 20 future artificial insemination procedures, should the need arise.



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Based on this exam and reproductive work-up, we determined that there were no obvious infertility issues with our male Amur tiger. In the coming months, we will continue to monitor breeding behavior and the female's fecal hormones. We are hopeful that given more time this pair will add to the next generation of this endangered species. And maybe someday, the offspring of captive Amur tigers can be returned to their wild habitats.

Cheyenne Mountain Zoo supports Amur tiger field conservation with our Quarters for Conservation fundraising program. Small change, pooled together, can help save habitats and species. For more information, please visit:

<http://www.cmzoo.org/conservation/quarters/>



VetScan CDP Results (Grom - during anesthesia)

Glucose	274
BUN	38
Ca	9.5
Phos	5.6
Ca:Phos	1.70
Na	146
K	4.2
Na:K	34.8
TP	7.3
Alb	3.7
Glob	3.6
Alb:Glob	3.6
ALT	341
tBili	0.3
Amylase	398
AlkPhos	15

*Values determined by zoo staff

ISIS Reference Values +/- SD

Gluc	134 +/- 44
BUN	27 +/- 7
Ca	10.1 +/- 0.7
Phos	5.7 +/- 1.2
Na	150 +/- 4
K	4.2 +/- 0.4
TP	7.1 +/- 0.6
Alb	3.7 +/- 0.4
Glob	3.4 +/- 0.6
ALT	60 +/- 34
tBili	0.2 +/- 0.2
Amylase	1417 +/- 993
AlkPhos	37 +/- 37
CPK	303 +/- 343