

the longer swards. Further research should be undertaken to determine the comparative nutrition of White rhinoceros grazing intake *in situ*, and whether differences in dentition across the order *Perrisodactyla* has a role to play in sward length preference.

### **TRAINING A WHITE RHINO FOR ARTIFICIAL INSEMINATION**

Amber Berndt and Susanne Wyatt, Indianapolis Zoo, [aberndt@indyzoo.com](mailto:aberndt@indyzoo.com), [swyatt@indyzoo.com](mailto:swyatt@indyzoo.com)

Indianapolis Zoo has a female southern white rhinoceros (*Ceratotherium simum simum*) from Kruger National Park who isn't cycling on her own. We have partnered with Cincinnati Zoo's Conservation and Research of Endangered Wildlife (CREW) and began hormone therapy to assist with successful cycling. Progesterone has been monitored via blood and urine throughout hormone treatment in order to establish baseline hormone levels for her cycles. Transrectal ultrasounds show successful follicular development, however, our proven bull has not bred her. Training and desensitization occurred in preparation of a hymen rupture and multiple artificial insemination procedures. Attempted artificial insemination continues with this female. Due to our success with this female, we decided to attempt hormone therapy and artificial insemination on our older female who has had nine calves. However, her last calf was a stillbirth and her cycles have since been erratic and the proven bull will only breed her in the warmer months although she's cycling regularly.

### **THE RHINO RESCUE CENTER: SAVING THE NORTHERN WHITE RHINO**

Jill Van Kempen, San Diego Zoo Safari Park, [jhampson@sandiegozoo.org](mailto:jhampson@sandiegozoo.org)

San Diego Zoo Global is committed to saving species from the brink of extinction. No species better fits this description than the northern white rhinoceros. With only three individuals left on the planet, human intervention is needed. Through the international collaboration of scientists and animal care professionals, it was decided that there was enough diverse genetic material banked from the northern white rhino to attempt assisted reproduction techniques. The Rhino Rescue Center was built as a first step. This research facility is home to six, wild-born, southern white rhino females that were imported from Africa in 2015. The center was uniquely constructed with their specific needs, and the needs of our Reproductive Sciences team, in mind. The rhino's training program allows for voluntary participation in their daily care and medical procedures. One of the most important voluntary behaviors is for the rhinos to allow weekly transrectal ultrasounds to be performed. In being able to frequently and reliably view the reproductive anatomy of each female, their cycles can be tracked and invaluable data is gathered. In the short time since the rhinos have arrived from Africa, they have made extensive progress behaviorally and continue to hit their training goals. As an added focus, The Rhino Rescue Center is committed to the highest level of animal welfare, which includes detailed records, scoring systems, specialized diets and an engaging enrichment program. The end goal is for these six females to become surrogate mothers to northern white rhino calves. Geneticists and reproductive physiologists are working to perfect techniques to create viable reproductive cells and eventually perform successful embryo transfer. There are many steps to be taken between now and then but we hope to one day reach our goal of saving the northern white rhinoceros from extinction.

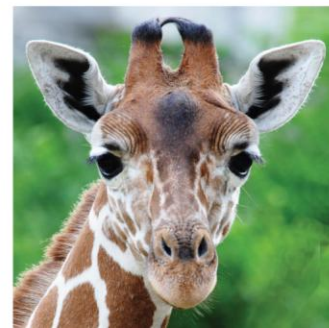
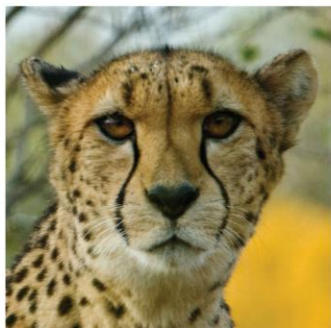
### **RHINO CONSERVATION: ENFORCEMENT TO EDUCATION**

Sarah Metzger, USFWS, Office of Law Enforcement, National Eagle and Wildlife Property Repository, [sarah\\_metzger@fws.gov](mailto:sarah_metzger@fws.gov)

The recent spike in rhino poaching and rhino horn trafficking necessitates action to save this iconic species from extinction. U.S. Fish and Wildlife Service's Office of Law Enforcement works on both ends of the spectrum to protect rhinos, effectively enforcing Federal laws and reducing demand through education and awareness campaigns such as Operation Crash and the San Diego Zoo rhino horn burn. Learn what updates are taking place and how zoo professionals can be involved.



# Training of White Rhino for Artificial Insemination



# Our Rhinos

- ❖ Gloria: Age 38, born at Jacksonville Zoo, has had previous calves
- ❖ Mambo: Approx. Age 21, born at Kruger National Park, never been bred
- ❖ Spike: Age 28, born at Lion Country Safari, has sired calves



# Training Chute Pros and Cons

❖ Pros: Added windows for access to legs and ears for blood draws and for abdominal access for ultrasounds.

Wide enough for all of our rhinos.

“Butt gate” has removable bars to have a large V for access for ultrasounds, etc. which we usually keep open.

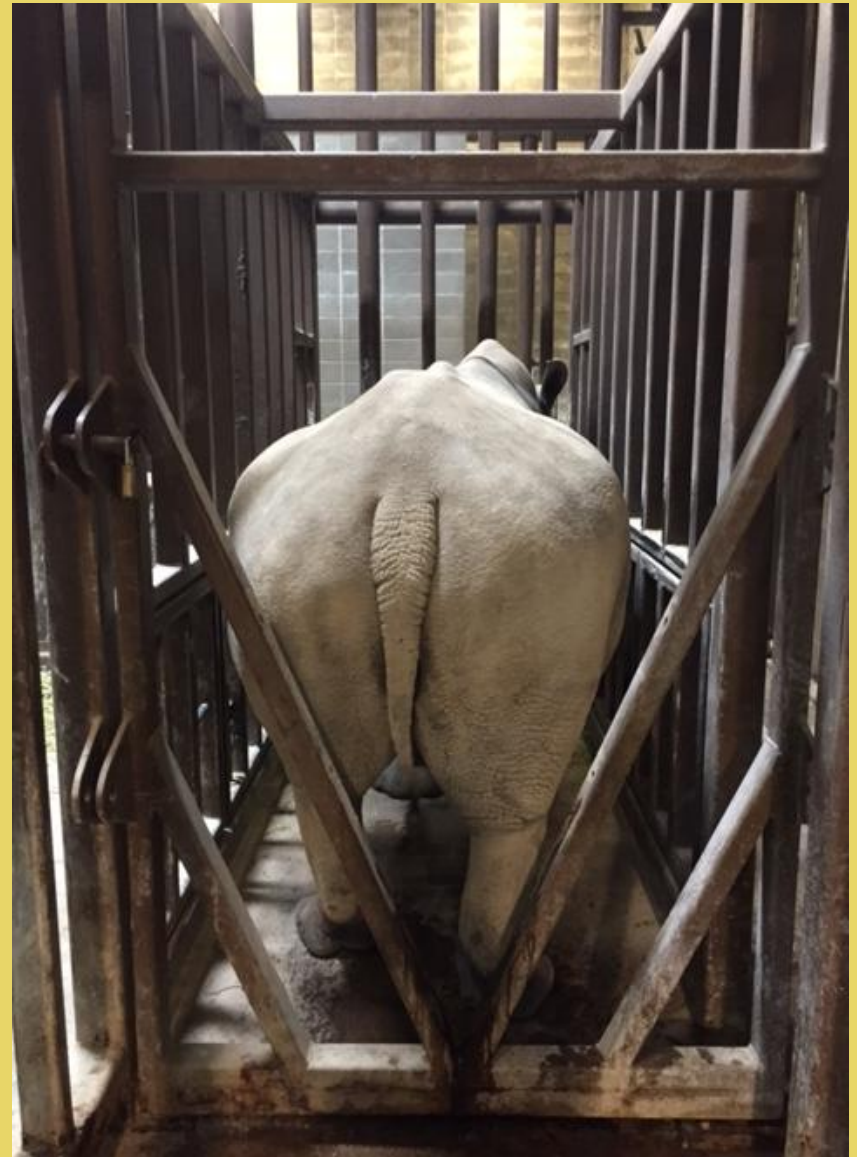
Electric gate behind the rhinos can be opened to allow more access for vet staff during procedure.

❖ Cons: Too wide for Gloria

Doesn't squeeze

Mambo tries to climb during standing sedation and can almost get foot caught.

Does not have a built in scale



# Chute

- ❖ Side views show more detail of ear window and leg/abdomen window

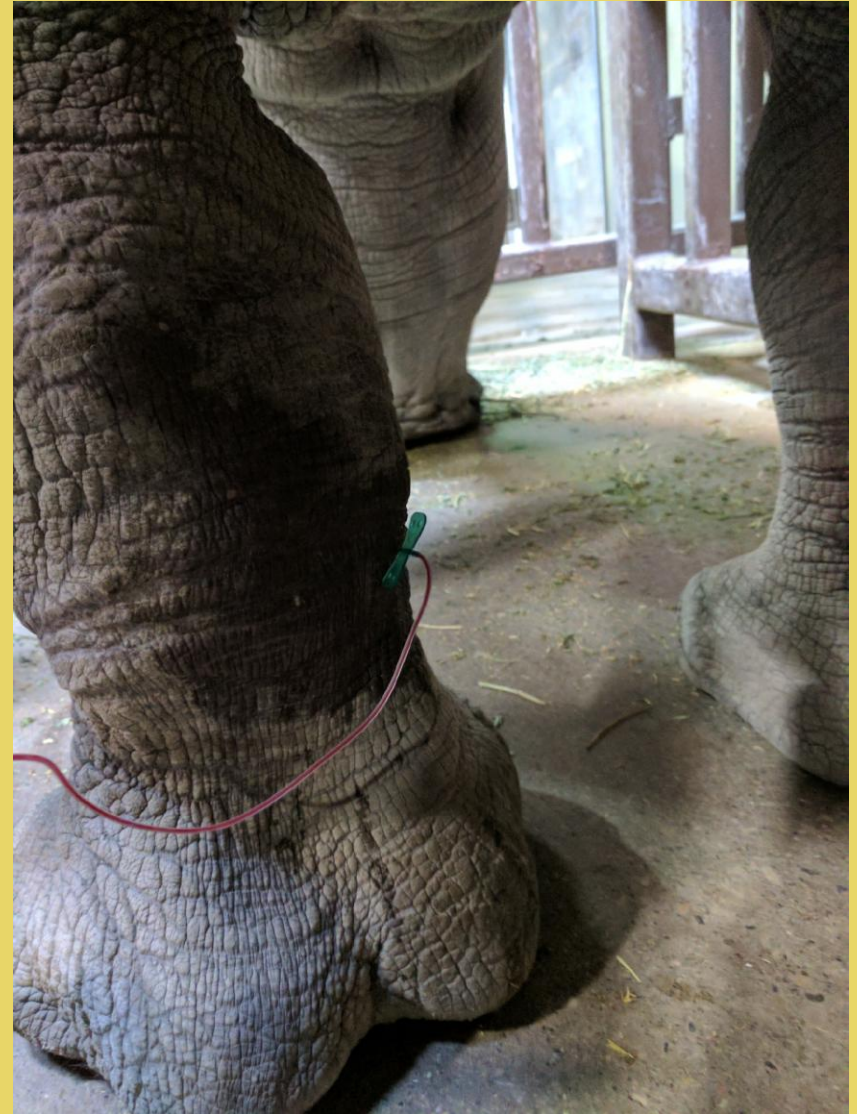


# Training of 0.2 White Rhinos

- ❖ Blood draw
- ❖ Transrectal ultrasound
  - ❖ Vaginal palpation
  - ❖ Neck injections
- ❖ Artificial insemination
- ❖ Transabdominal ultrasound

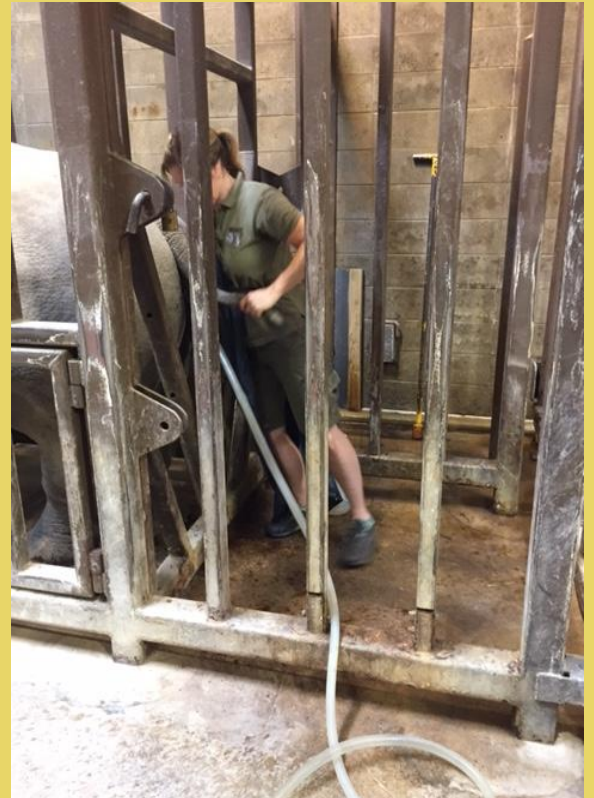
# Blood Draw

- ❖ Use a front leg vein (brachial) and station rhinos with alfalfa and add tactile reinforcement as necessary
- ❖ Techs have to be very cautious since it is a blind stick



# Transrectal Ultrasound

- ❖ Try to get them to defecate ahead of time. Not on cue but knowing routine can help.
- ❖ “Raked” out by hand gradually introduced
- ❖ Getting used to “enema” hose. Water in the tract seems to help open it up and improve contact of probes.





# Transrectal Ultrasound



# Vaginal Palpation

- ❖ Attempted desensitization to vaginal palpation to try to scope without sedation for potential hymen breakage and for AI.
- ❖ Not tolerated well by rhinos, primarily Mambo.
- ❖ Only able to get a portion of hand in safely.
- ❖ Practiced passing tubing to simulate AI.



# Neck Injections

- ❖ Only inject in the fold! We had one abscess that had to be treated due to not being injected in the fold.
- ❖ All injections given in fold of neck whether progesterone, cystorelin/GnRH, sedative, etc.
- ❖ Did some desensitization and stationing with alfalfa but still just have to give the injection.
- ❖ Both of our rhino females have fairly trusting personalities and usually have minimal reaction.



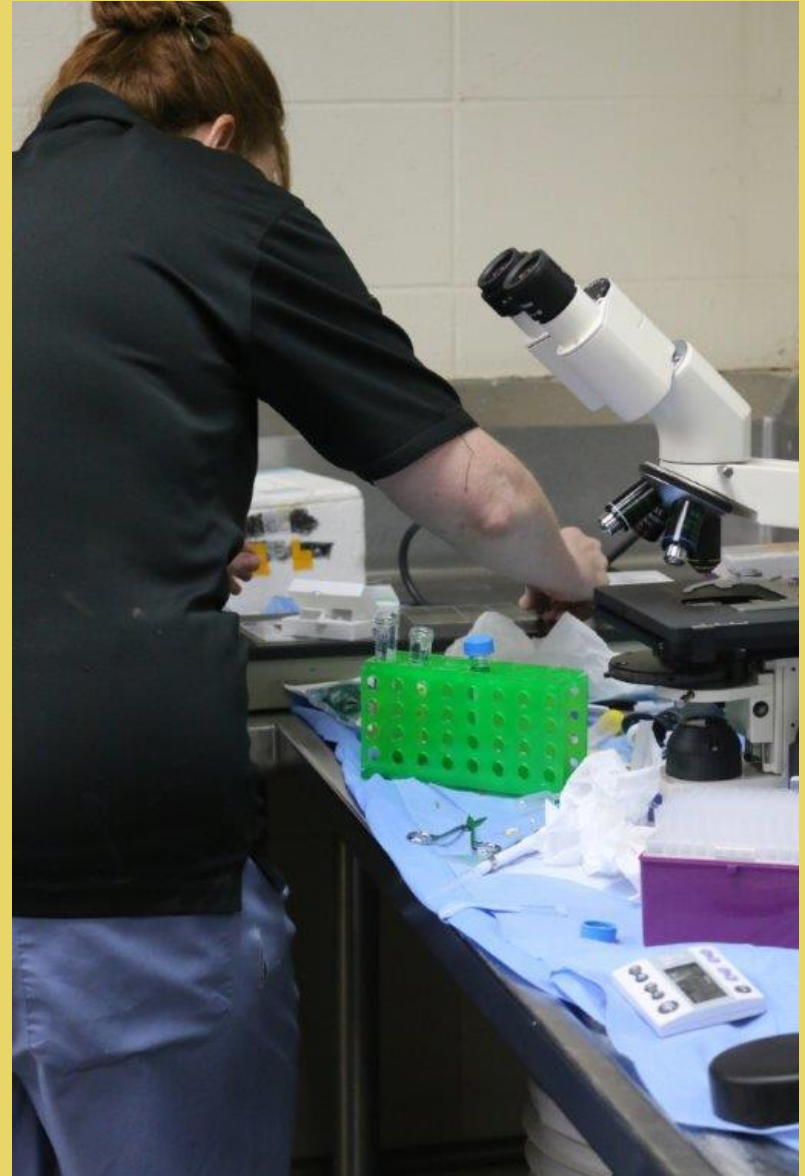
# Artificial Insemination

- ❖ Mambo: 6 Attempts:  
January 30, 2013, April 24, 2015 (hymen breakage),  
October 25, 2015, September 6, 2016, January 23, 2017, and  
April 5, 2017
- ❖ Gloria: One attempt!  
January 31, 2017
- ❖ Mambo's first two procedures were about two hours and she needed an additional dose of sedative.
- ❖ Now can do whole procedure in about 45-50 minutes.



# Artificial Insemination

- ❖ Gloria's AI used gamete rescue sperm.
- ❖ Mambo's: 2 attempts EEJ and 4 using gamete rescue (most recent EEJ)

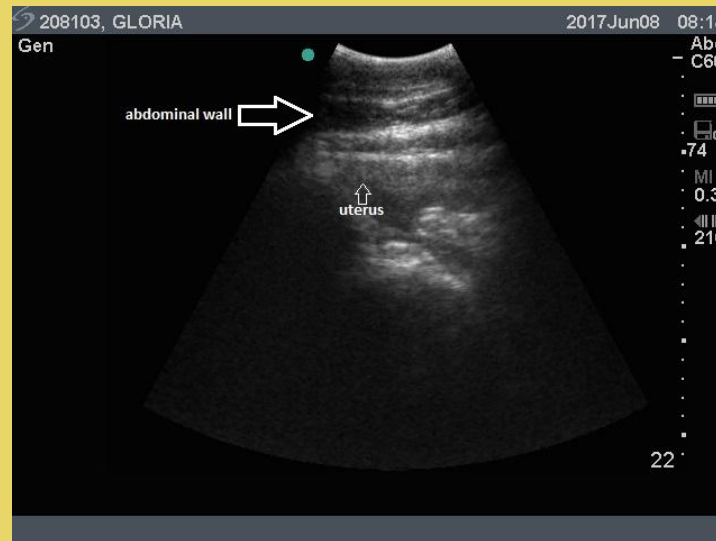


# Artificial Insemination



# Transabdominal Ultrasound

❖ Gradually desensitized to touching, ultrasound gel and probe, but she wasn't bothered at all



## Final Thoughts

- ❖ As of now Gloria's pregnancy appears to be holding strong and was at six months 7/30/17.
- ❖ Mambo's pregnancy appears to be holding as well and she will be four months on 8/4/17.
- ❖ Summer of 2018 could be very exciting!!
- ❖ Any information that you can share on white rhino calves will be greatly appreciated.



# Thank you

- ❖ Indianapolis Zoo for in kind support and time off for the conference.
- ❖ Cincinnati Zoo and CREW for helping with hormone therapy and AI for both of our girls and for allowing us to visit their institution as needed throughout the process.









