References
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TREATMENT FOR EPILEPSY IN ONE EASTERN BLACK RHINO (*DICEROS BICORNIS MICHAELI*) AT POTTER PARK ZOO

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The purpose of this presentation is to share the experiences we as a staff at the Potter Park Zoo went through in the discovery, diagnosis, and treatment of epilepsy in Jello, an 8-year-old male Eastern Black Rhino. From the time of his arrival in June 2011, to the time of his death in 2015, the staff at Potter Park Zoo spent countless hours providing Jello the very best care to help manage his condition. After discovering some odd behavior, which we soon confirmed were pre-seizure activities, on the morning of June 4th, 2012, Jello quickly progressed into full on seizures that occurred hourly for approximately 9 hours that day. Potter Park Zoo staff did their best to help him through these seizures as well as trying to document a few episodes to share and seek guidance for what he was going through. The vet and keeper staff then created a management plan for medication and husbandry to treat this condition. For keeper staff, the daily preparation of meds, including creating numerous methods of hiding and administering meds, could take up to four hours for the three time a day medication routine. With much trial and error, multiple medications, many different dosages, and consistent blood testing to measure the medicinal concentration, we found a regimen that allowed Jello to live a full and complete life until the day he passed. There were good days and bad days but we learned from each one and moved forward to create a positive, safe environment for him to live. With much research in the years since first dealing with this illness and talking to many rhino experts worldwide, we have found that seizures in rhinos and specifically long-term management of seizures are a rare occurrence and are something that should be shared in the rhino keeper community.

EFFECTS OF SWARD STRUCTURE ON THE GRAZING BEHAVIOUR OF CAPTIVE SOUTHERN WHITE RHINOCEROS (*CERATOTHERIUM SIMUM SIMUM*)

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Zoological collections strive to provide natural diets which can be difficult to achieve in grazing African megafauna such as White rhinoceros (*Ceratotherium simum simum*) for whom grazing must be replicated to meet both nutritional and behavioural requirements. As sward (grass) length increases throughout the year it naturally becomes denser, allowing species that graze longer sward to take advantage of greater instantaneous intake rates. However, as sward density increases, so does concentration of cell wall components, making the grass tougher to process and reducing diet quality. It has been suggested that sward length and the digestive constraints it can offer should have less effect on hindgut fermenters in comparison to ruminants. Ruminant grazing strategies are thought to be governed by slow digestion rate due to the time needed for rumination. This results in ruminants often being found to favour shorter, higher quality sward. Additionally, ruminant dentition does not favour the handling of the tougher stems of longer sward. In this respect, hindgut fermenters with double sets of incisors, such as equids, may have an advantage. However, not all hindgut fermenters share this dentition - White rhinoceros only have molars and pre-molars. To examine the effects of sward structure on the grazing behaviour of captive White rhinoceros, a preliminary investigation was undertaken at Knowsley Safari. The selection rate of short, medium and long length sward and maintenance of grazing lawns over a 20.5-hectare reserve indicated that incidence of white rhino grazing on short sward was significantly higher than incidence of white rhino grazing on medium or long length sward ($Z= 8.83$, $p= <0.03$). These results suggest that the subjects benefitted from the higher nutritional quality of the short sward rather than the higher instantaneous intake rate offered by

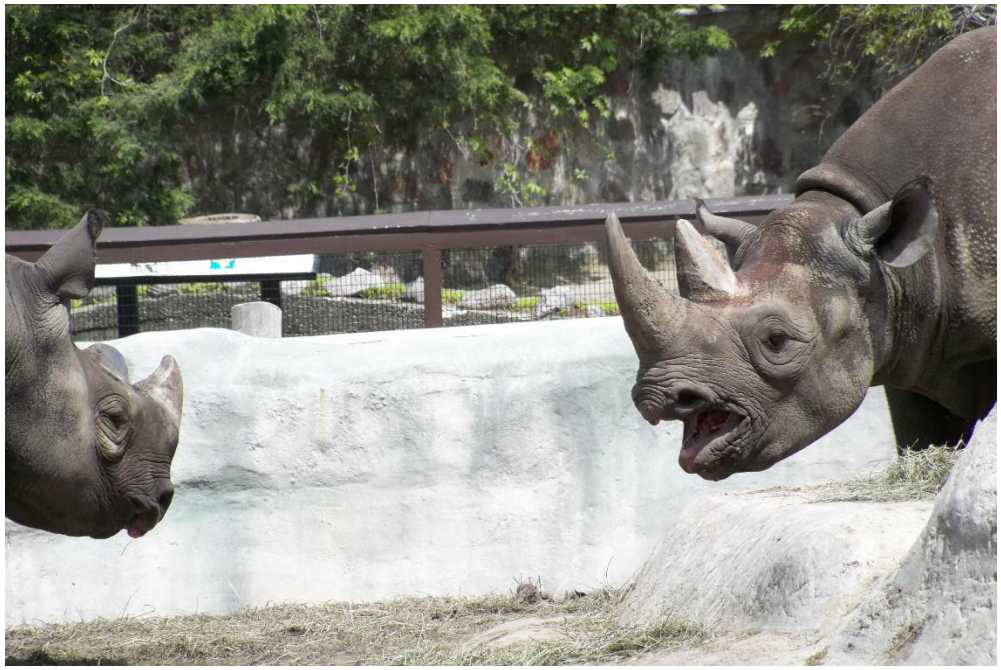
Treatment for Epilepsy in One Eastern Black Rhinoceros (*Diceros Bicornis Michaeli*) at Potter Park Zoo

Arrival

- June 11th, 2011
- Zoo Miami
- Calm, cool, collected

Introductions

- April and May 2012
  - No breeding behavior observed



June 4, 2012

- Arrived at 8 am
  - Normal behavior
  - Normal appetite
- Found at 9 am
  - Started presenting pre-seizure behavior
- Starting at 10 am
  - First observed seizure
- Ending at 6:30 pm
  - Last seizure

Pre/Post - Seizure Symptoms

- Head kicking
- Rubbing his face on the wall
- Excessive drooling
- Charging Keepers

“Head-Kicks”

Seizure #1

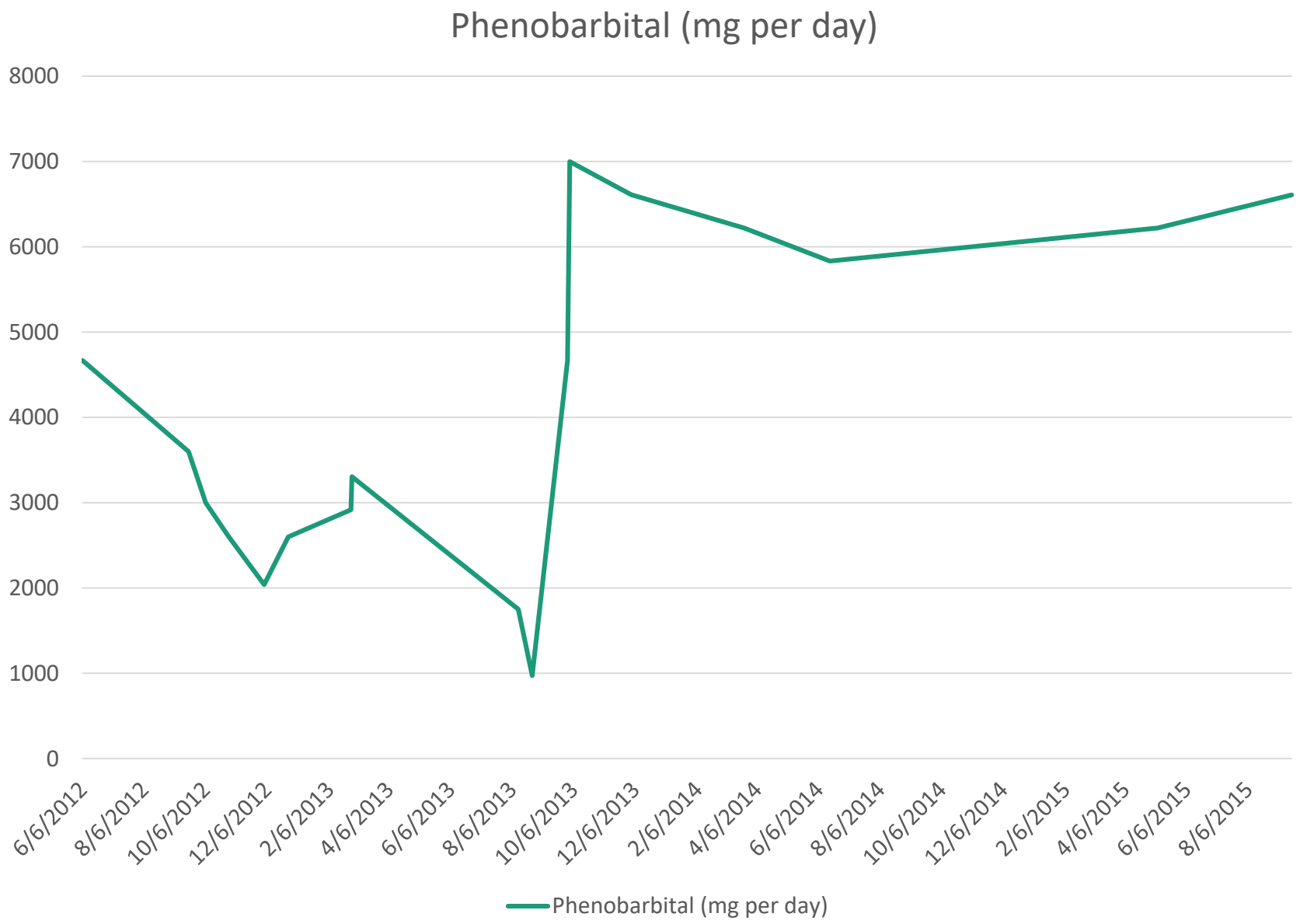
Seizure #2

Medications

- Phenobarbital
- Levetiracetam (Keppra)
- Diazepam

Different pill vehicles

- Fruit
  - Banana, Apples
- Bread
- Alfalfa cubes
- Fruit, Alfalfa cubes, Bread


Phenobarbital (mg per day)
8000
7000
6000
5000
4000
3000
2000
1000
0
6/6/2012
8/6/2012
10/6/2012
12/6/2012
2/6/2013
4/6/2013
6/6/2013
8/6/2013
10/6/2013
12/6/2013
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4/6/2014
6/6/2014
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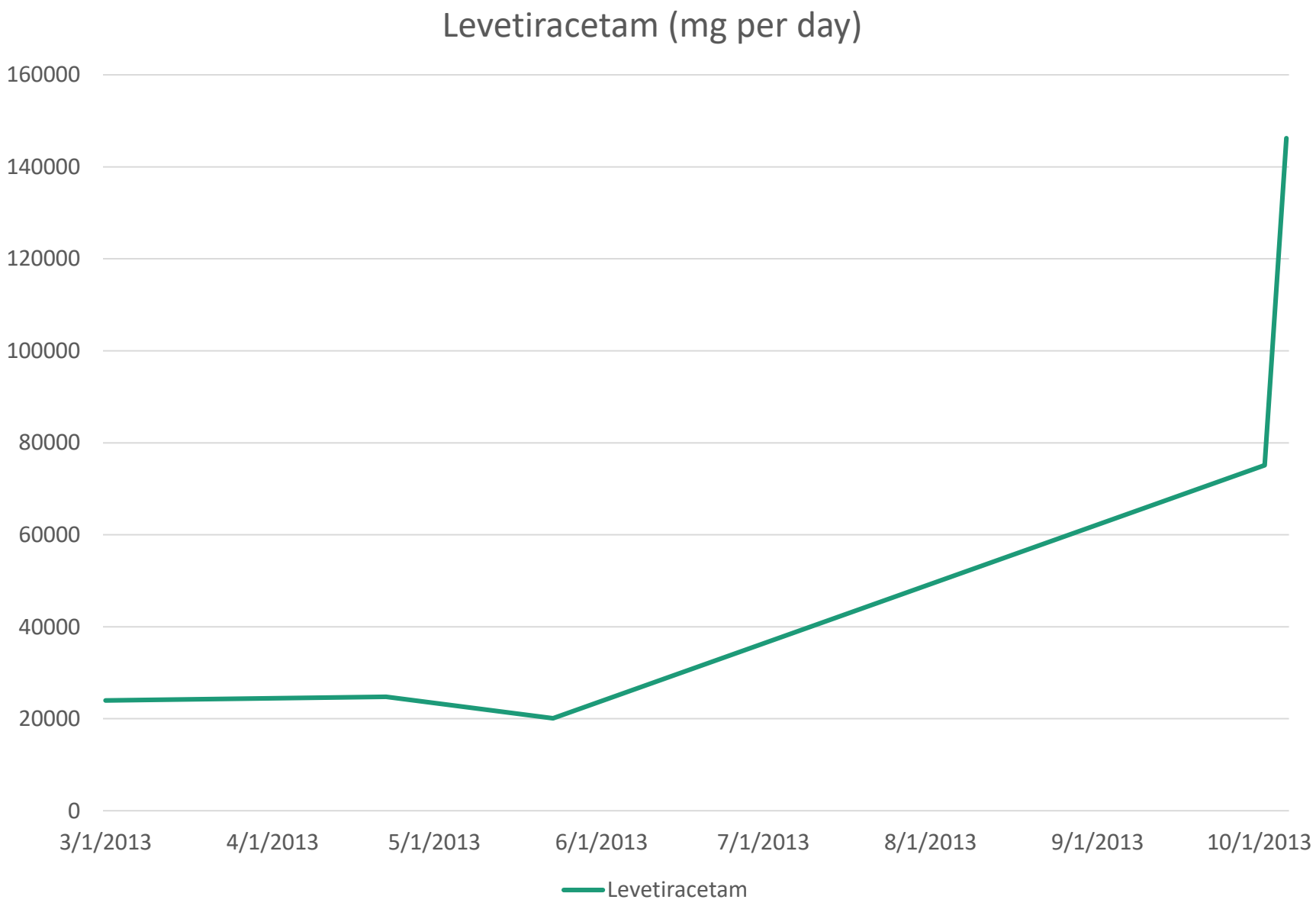
4/6/2015
6/6/2015
8/6/2015
Phenobarbital (mg per day)


Levetiracetam (mg per day)
160000
140000
120000
100000
80000
60000
40000
20000
0
3/1/2013
4/1/2013
5/1/2013
6/1/2013
7/1/2013
8/1/2013
9/1/2013
10/1/2013
Levetiracetam

Additional Seizures

- February 27, 2013
  - Seizures in Stalls 3-4
    - Lesser in intensity but longer in duration
- September 30, 2013
  - Seizure in Yard 2 at 8 am
    - Only a few seizures observed
    - Very agitated
    - Stopped after given extra medication

Possible seizure-like symptoms

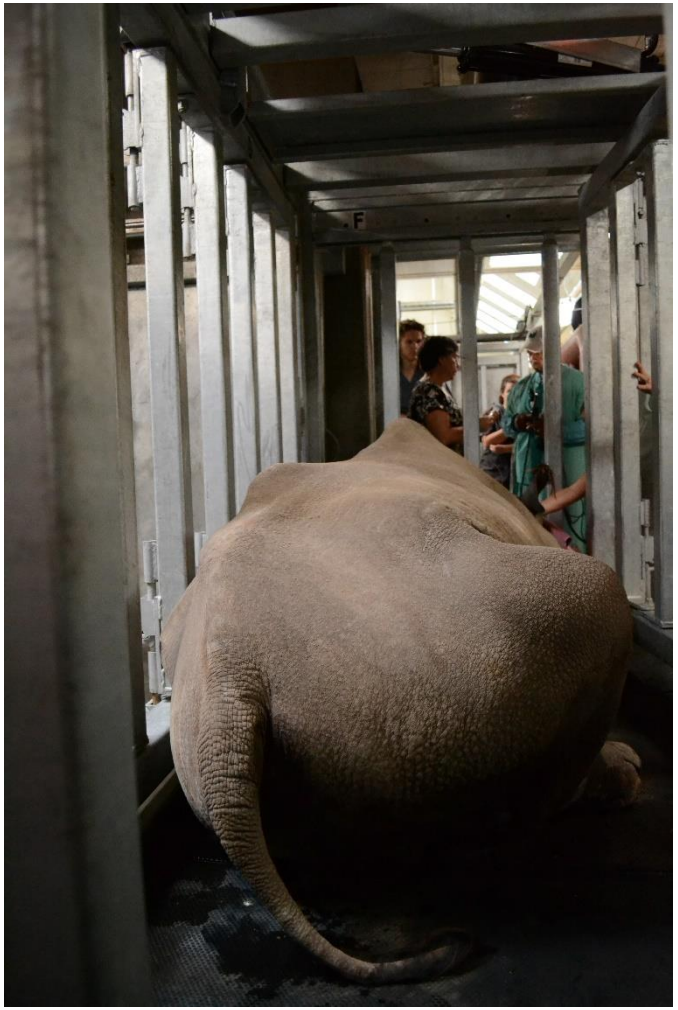
- Head “hiccups”
- Body tremors
- Licking the air
- Cracked his tooth
  - September 7th, 2015

- Cuts and sores on the inside of his lips

Head “Hiccups”

Other medical concerns

- Nasoendoscopy
  - July 27, 2012
- Necrolytic Dermatitis
  - Skin biopsy
    - November 16, 2012
- Blood Testing
  - Phenobarbital levels
  - Iron levels
- Ultrasound on his liver by MSU vets
  - October 8, 2013



October 18, 2015

- Found at 9:30
  - Could not use front legs
  - Could not lift his head
  - Administered phenobarbital with no improvement

Many Thanks

- Potter Park Zoo
  - Keeper and Vet Staff
- IRKA
- Michigan State University
  - Vet staff and school

Any Questions?