

**UPDATE**

**Lucy's Treatment Program  
Edmonton Valley Zoo**

March 2011

## **Introduction**

Lucy is a well-adjusted elephant with some manageable health issues, the most significant of which is a respiratory problem that compromises her ability to breathe properly. In November 2009, Dr. Milton Ness, veterinarian at Edmonton Valley Zoo, updated Lucy's treatment program to implement expert recommendations detailed by Dr. James Oosterhuis following a September 2009 exam. Dr. Ness's treatment program detailed actions to diagnose Lucy's breathing problem while working to treat symptoms and improve her breathing capacity and enhance the care she receives at the zoo.

In January 2011 Dr. Oosterhuis returned for a follow up examination. A report was received in late February. His findings and recommendations have been considered by Dr. Ness and the animal care team and have been incorporated into Lucy's treatment program which builds on the strengths of Lucy's relationships with the elephant care staff and Dr. Ness.

## **Exercise and Weight Reduction**

In his report, Dr. James Oosterhuis, an expert with more than 35 years experience working with elephants, noted that increased exercise with a focus on weight reduction would benefit Lucy, especially in regard to her respiratory problem.

Working with Dr. Ness and Lucy's care staff, an Edmonton veterinarian who specializes in rehabilitation therapy developed a comprehensive program to increase Lucy's activity level and flexibility to support ongoing weight loss. This program includes exercises, such as range of motion and stretching, to enable Lucy to be more active throughout the day even during colder weather when she spends more time inside. Elephant care staff hours have been increased allowing for this new exercise program to be implemented, in addition to her daily walks. Lucy's rehabilitation therapy also includes therapeutic laser treatments to mitigate the 35-year-old elephant's arthritis in her leg joints. Laser treatments are known to reduce swelling and inflammation.

Since the rehabilitation therapy program was started in November 2009, Lucy is demonstrating better movement when she is on walks and is bearing weight more equally on all four limbs. A formal session to benchmark Lucy's range of motion improvements occurred May 3, 2010. The therapist was pleased with Lucy's overall progress and noted that the elephant has shown steady improvement.

An animal nutritionist was engaged in June 2009 and Lucy's diet was modified at that time. The combination of Lucy's enhanced exercise program and diet changes has resulted in her losing approximately 360 pounds since September 2009 with her current weight being about 9,000 pounds.

Dr. Oosterhuis confirmed in his 2011 report that the weight reduction program should be continued with a goal of losing a further 660 pounds. Dr. Ness will continue to oversee Lucy's nutrition and exercise programming and has set a target for Lucy to gradually lose another 660 pounds. The zoo has again retained an animal nutritionist to review diet progress to date and further modify Lucy's diet.

## **Medical Treatment**

Lucy has a respiratory problem due to an inflammation of membranes in her nasal region. This inflammation compromises her ability to breathe properly, particularly when she is under stress. For example, if she walks too fast during her daily exercise, she has to open her mouth to breathe, which is abnormal for an elephant.

An initial endoscope exam was conducted in September 2009 to help evaluate Lucy's breathing conditions. In February 2010, a follow up exam was conducted to evaluate the effectiveness of medical treatment. This included an endoscopy during which Lucy's breathing was somewhat less laboured than it was during the previous exam, allowing Dr. Ness to conduct a longer scope exam. A three-metre long endoscope was again used to observe the inside of Lucy's trunk. The scope showed that Lucy's nasal passages remained constricted and that mucous was still present. The underlying cause of Lucy's respiratory problem continued to be undiagnosed. Lucy continued to receive treatment, including medication. During 2010, she continued with a prescription of antibiotics, anti-inflammatories and mucolytics to help address her breathing issue along with some medications to ease her arthritis.

As noted by Dr. Oosterhuis, the January 31, 2011 endoscopy revealed greatly diminished exudates likely due to the medications that Dr. Ness has administered. This enabled the veterinarians to clearly observe a mass between the nostrils. Unfortunately a biopsy was not possible because the forceps would glance off the mass and the team was unable to get a tissue sample. The medications to control the exudates will be continued. There is not believed to be an existing technology to obtain a biopsy from the upper area of an elephant's trunk. Dr. Ness will investigate, through biomedical engineers and other professionals, the potential development of biopsy instruments capable of obtaining a tissue sample in this situation. Dr. Ness will continue to make every attempt to determine a diagnosis as this is a priority to the Zoo in moving forward with a further treatment plan.

## **Facilities Modification**

The Edmonton Valley Zoo has increased the sand covered area of Lucy's indoor enclosure as recommended in Dr. Oosterhuis's earlier report. The remaining floor was covered with rubber matting in 2010 to make it easier on Lucy's feet and joints while she plays and exercises. This new flooring appears to be well received by Lucy and due to

the application process used there has not been an issue, as there was in the past, with her pulling up the mats. While the zoo is already meeting, and in some cases exceeding, industry standards for elephant enclosures, we recognize the need to ensure Lucy is getting enough exercise even on those days when extreme cold prevents her from walking the zoo grounds. The zoo has identified and is actively pursuing options to increase the indoor exercise space available to Lucy during the winter months and to ensure her existing space is used to its full potential. These include the possibility of acquiring new equipment or installations that encourage Lucy to stretch, reach, step up and down and explore. Alternative multi-purpose facilities that will increase winter space are being considered with respect to location on the zoo grounds, usability and cost. A treadmill is not being considered at this time.

### **Foot Care**

Lucy has some pad defects on her feet as a result of conformational defects -- Lucy was born pigeon toed and bowlegged. These issues put extra stress on her feet. Because of this, the elephant care team takes great care with Lucy's feet. They are checked and conditioned twice a day as a preventative measure. Her front feet are being soaked twice daily: once with an astringent such as Epsom salts and once with a disinfectant such as apple cider vinegar. New foot pedestals have been built and are now being used. Dr. Oosterhuis noted that some staff members still require training on the proper use of the pedestals. The Zoo will ensure that all staff members are fully trained by December 31, 2011.