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INTERNATIONAL ZOO NEWS

Al Ain Wildlife Park and Resort, Abu Dhabi, United Arab Emirates

The park (AWPR) has announced the first-ever birth of two sand cat kittens following an *in vitro* fertilization and embryo transfer procedure. The success marks an important step forward in its efforts to conserve this threatened cat species and other arid-land carnivores such as the Arabian leopard.

In October 2009 AWPR initiated Project Sand Cat in partnership with the U.S.-based University of Illinois and Cincinnati Zoo and Botanical Garden – both world leaders in endangered species research. Fresh sperm and eggs collected from male and female sand cats were fertilized in an incubator to produce 50 embryos. Twenty-one of these were transferred into four host cats, one of whom recorded a successful pregnancy. (The remaining 29 embryos were frozen and transported to Cincinnati Zoo for similar trials.)

'Our sand cat mother gave birth to two kittens. They and their mother are in a very good condition,' says Farshid Mehrdadfar, the Animal Collection Manager at AWPR.

According to AWPR's Chief Programs Officer, Dr Mike Maunder, the goal is to develop protocols for embryo transfer that can be used for the sand cat and other more threatened species such as the Arabian leopard. 'This technique will allow sand cats and other threatened species held in the UAE to contribute to the breeding work of conservation institutions throughout the world,' explains Dr Maunder.

AWPR is home to almost 20% of the world's captive sand cats. The 34 cats at the park make up the largest and most genetically significant captive population of this species at any single zoological institution in the world. The *in vitro* fertilizations and embryo transfers would not be possible without the park's large number of the cats. Eggs were harvested from five female donors, fertilized with the sperm from three males, and the resulting embryos were implanted into a separate group of four female recipients.

Embryo transfer is an important technology for conservation efforts. Embryos fertilized at AWPR can be frozen and later implanted into recipient groups across the world. 'We can exchange genetic material without having to transport the animals themselves. This is a model for managing threatened wildlife species in the future,' explains Dr Bill Swanson, Director of Research at Cincinnati Zoo. 'The cats at AWPR are totally unrelated to other sand cats held anywhere in captivity. To introduce their genetic material to other populations will help build a stronger and more viable captive population.'

In North American AZA-accredited zoos, the sand cat SSP population consists of just 35 cats and, although carefully managed through selective breeding, the total number of animals remains too low to maintain a genetically healthy population over time. One solution to this management challenge is to link together the various regional populations housed in zoos and wildlife parks in North America, Europe and the Middle East to form a larger meta-population of nearly 160 cats. Developing an effective global management program for sand cats will depend on establishing international collaborations between these diverse geopolitical regions, as well as applying scientific expertise to optimize sand cat propagation. The initial efforts at getting these countries united for the species' conservation have been focused on

Al Ain Wildlife Park's first 'test-tube' sand kittens.

connecting zoo populations in the United States with those in the UAE.

If test-tube kittens from the project are born to sand cats at zoos in the United States, they will carry genetic material from AWPR's cats. As these foreign-born cats mature, they will be bred with their U.S.-based counterparts. This process will diversify the gene pool of captive sand cat populations. One such trial of the embryos fertilized at AWPR is underway at the Living Desert Zoo in California. In June 2010, the project members hope to create gene flow in the opposite direction, using frozen semen from unrelated U.S. cats to produce IVF embryos and offspring in female sand cats at the AWPR.

Project Sand Cat is a pilot project within AWPR's conservation program. The conservation work at the park focuses on the conservation and restoration of arid-land biodiversity and has a special focus on desert carnivores, including current work with Arabian leopards, African wild dogs and African lions.

Al Ain Wildlife Park press release, 26 January 2010, with material from Farshid Mehrdadfar and Bill Swanson in *Wildlife Middle East News* (**www.wmenews.com**) Vol. 4, No. 4 (March 2010)

Chester Zoo, U.K.

The zoo has achieved a world-first by monitoring and recording the heartbeat of a rhinoceros with a stethoscope. The newly-launched Littmann stethoscope – from the diversified-technology company 3M – is so sensitive that it even works through a rhino's thick protective hide. The zoo's veterinary team can not only listen clearly to a rhino's heart-beat and lung sounds for the first time, but, thanks to the stethoscopes' unique on-board Bluetooth technology, transfer the sounds wirelessly for digital storage and further analysis.

'We can now gather and build up crucial information about our rare eastern black rhinos and share it with other wildlife professionals worldwide,' explains the zoo's resident vet James Chatterton. 'These rhinos have been around for about five million years but they've been reduced to a critically endangered species, with only around 700 remaining in the wild. It's paramount that we learn as much as we can to help protect their health and welfare.'

The launch of the Littmann 3200 stethoscope couldn't have come at a better time for the two latest additions to the zoo's nine black rhinos. Asani, the first East-

ern black rhino to be born here in ten years, celebrated his first birthday in October. And in May 2009 he was joined by a female calf called Bashira. As Asani and Bashira grow up and develop their hide – which on rhinos can be up to two inches [50 mm] thick – the zoo can continue to record their progress.

The Littmann 3200 electronic stethoscope, which has been singled out by *Popular Science* magazine as the 'Innovation of the Year', amplifies sounds by 24 times and reduces background noise by an average of 85%. It has been primarily developed for use by cardiologists, hospital specialists and GPs on human patients. It will help to minimise the number of 'false negative' results, where heart conditions aren't detected, and also 'false positives', where patients are unnecessarily referred to a consultant.

Peter Robinson, 3M senior technical services specialist, commented: 'There's been considerable interest in this new model from medical professionals and we're delighted that its benefits can be transposed to the equally challenging fields of veterinary and zoological medicine.'

And it's not only the rhinos that will be benefiting at the zoo. As James Chatterton added: 'If it works that well on a rhino, just imagine how well we can now monitor other animals in our care.'

Z Magazine (Spring 2010)

Copenhagen Zoo, Denmark

The European population of Malayan tapirs counts around 50 individuals of which a large number suffer from a mysterious dental disease. Several of the tapirs in Copenhagen Zoo have suffered from dental problems over the past few years. The veterinarians examine the teeth thoroughly and take X-rays to establish whether the roots are damaged. If the roots are not healthy the teeth get loose and need to be extracted. In cooperation with the University of Copenhagen, the zoo veterinarians are in charge of investigating this mysterious disease that seems to be restricted to animals in captivity.

English summary of item in *Zoonyt* (Summer 2010)

Detroit Zoo, Michigan, U.S.A.

The zoo's breeding program for the critically endangered Puerto Rican crested toad (*Peltophryne lemur*) has yielded the best results in ten years with 3,701 tadpoles. The zoo kept 20 tadpoles for future breeding at its National Amphibian Conservation Center and shipped the rest to Cabo Rojo, Puerto Rico, for release into the wild.

The zoo has been working to preserve the species since 1999. 'Establishing a new population of amphibians in their natural environment is enormously gratifying and one very important way that the National Amphibian Conservation Center helps to save amphibians,' says Chief Life Sciences Officer Scott Carter. The award-winning center is a state-of-the-art facility that boasts a spectacular diversity of frogs, toads, salamanders, newts and caecilians. The *Wall Street Journal* dubbed the attraction 'Disneyland for toads'.

Connect (Association of Zoos and Aquariums), May 2010

Edinburgh Zoo, Scotland, U.K.

Keepers are celebrating the news that one of two lesser bushbabies (*Galago moholi*), born on 5 January, is the first female to be born to the resident bushbabies since their arrival at the zoo.

When the infants were just over four months old, and at an age when they could be caught without undue stress, zoo vets confirmed the news while carrying out routine micro-chipping and DNA sampling.

Speaking following the announcement, Darren McGarry, the zoo's Animal Collections Manager, said: 'For the keepers at Edinburgh Zoo there is always a sense of satisfaction when one of the animals in our care breeds, as it means we must be doing something right. While any parent would be delighted with a baby of either sex, this one obviously is particularly special as it is the first female of this species to be born at Edinburgh since the pair arrived in 2005.'

After a gestation period of four months, the adult female gives birth firstly to a single offspring, but then for subsequent births she will tend to have twins and even triplets. Lesser bushbabies can live for up to 16 years; they are found in Angola, Botswana, Mozambique, Namibia, Swaziland, Transvaal, western Tanzania and Zimbabwe. With five now in the zoo's collection, they can often be seen dozing during the day in a nest or tree hollow in their enclosure, and emit a cry similar to that of a human child.

Edinburgh Zoo press release

Kansas City Zoo, Missouri, U.S.A.

The zoo has conditioned a gorilla to allow transthoracic echocardiography on a weekly basis through positive reinforcement. Wanto, a 33-year-old male, has subtle signs of cardiac and respiratory insufficiency, including exercise intolerance. Due to the prevalence of fibrosing cardiomyopathy in gorillas, a specially-designed PVC portal was installed in the caging to have the gorilla present his thorax against the open end of the barrel portal, permitting 2-D, M-mode and Doppler echocardiography with a standard B-mode or digital ultrasound with color flow Doppler.

The right and left ventricles, mitral and tricuspid valves, pulmonary and aortic outflow tracts are routinely fully imaged. Evidence of mural hyperechoic densities compatible with fibrosing cariomyopathy are present in the left and right myocardium, and hyperechoic densities associated with the mitral valve have also been documented over the course of two years. Routine ultrasound is performed to monitor the progress of cardiac health without the use of immobilizing drugs which may influence cardiac function. Use of behavioral restraint allows consistent evaluation of cardiac health in this gorilla and may serve as a model for consistently monitoring gorilla cardiac health.

Connect (Association of Zoos and Aquariums), April 2010

Los Angeles Zoo, California, U.S.A.

Randa, a 40-year-old Indian rhinoceros, has successfully completed treatment for skin cancer using a breakthrough treatment platform designed to deliver electronic, X-ray-based therapy directly to cancer sites with minimal radiation exposure to surrounding healthy tissue.

Randa was recently diagnosed with recurrent squamous cell carcinoma, a form of skin cancer, under her horn. To deliver her treatment, zoo veterinary staff worked closely with oncology surgeons and radiation oncologists from UCLA Medical Center, as well as scientists from Xoft, Inc., makers of the Axxent® Electronic Brachytherapy eBx System. Her treatments were in two sessions, or radiation fractions. Since the eBx treatment does not use a radioactive isotope, it can be performed without the need for a lead-shielded room. This enabled the veterinarians and oncologists to remain with Randa during treatment, ensuring her safety and the accurate delivery of treatment.

'We are very happy with the outcome of Randa's cancer treatment and her recovery,' says Leah Greer, Randa's primary veterinarian at the zoo. 'After the treatment sessions were completed, she quickly returned to her normal attitude, acting years younger and entertaining zoo visitors. When you're talking about a 4,000-pound [1,800-kg] animal, you have