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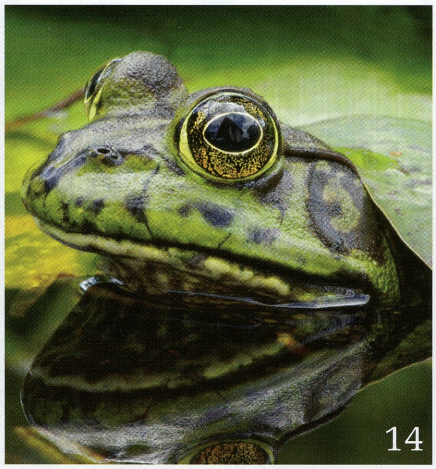

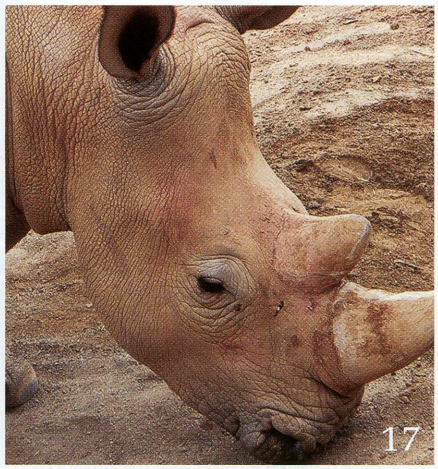

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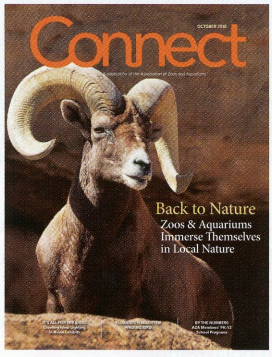

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Reproductive Science

Southern White Rhino at San Diego Zoo Safari Park Pregnant Through Artificial Insemination

Researchers at the San Diego Zoo Institute for Conservation Research in San Diego, Calif., announced that they have confirmed a pregnancy in one of the southern white rhinos living at the Nikita Khan Rhino Rescue Center. The pregnancy, created through artificial insemination with sperm from a male southern white rhino, is an important milestone in the ongoing work to develop the scientific knowledge required to genetically recover the northern white rhino, a distant subspecies of the southern white rhino. Only two female northern white rhinos currently remain.

"The confirmation of this pregnancy through artificial insemination represents an historic event for our organization but also a critical step in our effort to save the northern white rhino," said Dr. Barbara Durrant, director of reproductive sciences at the San Diego Zoo Institute for Conservation Research. "The sperm had excellent motility and the procedure went very well—we are excited to confirm a pregnancy has occurred, but we have a long time before we can declare a real success with the birth of a healthy southern white rhino baby."

Rhino gestation lasts from 16 to 18 months. The artificial insemination of a rhino named Victoria, occurred on 22 March at the San Diego Zoo Safari Park . Victoria is one of six female southern white rhinos that were relocated to the Safari Park from private reserves in South Africa in November 2015. Artificial insemination of rhinos has rarely been attempted in zoos and there have only a few births from this procedure in the past.

"We have been very lucky to be able to provide the space and social structures necessary to encourage natural breeding of southern white rhinos, black rhinos and greater one horned rhinos in zoos," said Randy Rieches, director of curatorial and husbandry sciences for San Diego Zoo Global. "Unfortunately the challenges associated with limited gene pools and severely reduced numbers facing Javan rhinos, Sumatran rhinos and the northern white rhino means that some form of assisted reproduction may be their only hope for the future."

A key element of the program at the Rhino Rescue Center is the ability of animal care staff to work closely with the rhinos, building positive relationships so the rhinos participate voluntarily in procedures like artificial insemination and ongoing monitoring of pregnancies.

"Just the fact that we have been able to confirm this pregnancy while the embryo is just a few weeks old is tremendously important and is all due to the work that animal care staff have put into developing relationships with these rhinos," said Parker Pennington, post doctoral associate. "Through regular cooperative ultrasounds with Victoria we will be gathering a lot of data about the progress of a rhino pregnancy—data that has never been gathered before."

If Victoria is able to carry the calf to term, the first southern white rhino calf born at the Nikita Kahn Rhino Rescue Center could arrive in summer 2019.

To reach the ultimate goal of successfully producing a northern white rhino, multiple steps must be accomplished. One of the first steps involved sequencing the genome of the northern white rhino to clarify the extent of genetic divergence from its closest relative, the southern white rhino. Another step requires conversion of cells preserved from 12 individual northern white rhinos in the San Diego Zoo Institute for Conservation Research's Frozen Zoo® to stem cells that could develop into sperm and eggs—a process successfully begun in the laboratory of Dr. Jeanne Loring of The Scripps Research Institute, with details of the process published in 2011.

Reproductive options include artificial insemination, in vitro fertilization and embryo transfer, with the southern white rhinos possibly serving as surrogates for northern white rhino embryos. The reproductive system of rhinos is very complex, and there is still much to be learned. There are many challenges ahead, but researchers are optimistic that a northern white rhino calf could be born from these processes within 10 to 15 years. This work also may be applied to other rhino species, including critically endangered Sumatran and Javan rhinos.