Scientists aim to bring mammoth back to life

January 16 2011, The Yomiuri Shimbun

Mammoths, which went extinct about 10,000 years ago, may once again walk the Earth.

A team of researchers will attempt to resurrect the species using cloning technologies after obtaining tissue this summer from the carcass of a mammoth preserved in a Russian mammoth research laboratory. It has already established a technique to extract DNA from frozen cells.

"Preparations to realize this goal have been made," said Prof. Akira Iritani, leader of the team and a professor emeritus of Kyoto University.

Under the plan, the nuclei of mammoth cells will be inserted into an elephant's egg cells from which the nuclei have been removed to create an embryo containing mammoth genes.

The embryo will then be inserted into an elephant's womb in the hope that the animal will give birth to a baby mammoth.

Researchers from Kinki University's Graduate School of Biology-Oriented Science and Technology began the study in 1997.

On three occasions, the team obtained mammoth skin and muscle tissue excavated in good condition from the permafrost in Siberia.

However, most nuclei in the cells were damaged by ice crystals and were unusable. The plan to clone a mammoth was abandoned.

In 2008, Dr. Teruhiko Wakayama of Kobe's Riken Center for Developmental Biology succeeded in cloning a mouse from the cells of mouse that had been kept in deep-freeze for 16 years. The achievement was the first in the world.

Based on Wakayama's techniques, Iritani's team devised a technique to extract the nuclei of eggs--only 2 percent to 3 percent are in good condition--without damaging them.

Artist's impression of the prehistoric mammoth. Japanese researchers will launch a project this year to resurrect the long-extinct mammoth by using cloning technology to bring the ancient pachyderm back to life in around five years time.

Last spring, the team invited Minoru Miyashita, a professor of Kinki University who was once head of Osaka's Tennoji Zoo, to participate in the project.

Miyashita asked zoos across the nation to donate elephant egg cells when their female elephants died.

The team also invited the head of the Russian mammoth research laboratory and two U.S. African elephant researchers as guest professors to the university. The research became a joint effort by Japan, Russia and the United States.

If a cloned mammoth embryo can be created, Miyashita and the U.S. researchers, who are experts in animal in vitro fertilization, will be responsible for transplanting the embryo into an African elephant.

The team said if everything goes as planned, a mammoth will be born in five to six years.

"If a cloned embryo can be created, we need to discuss, before transplanting it into the womb, how to breed [the mammoth] and whether to display it to the public," Iritani said. "After the mammoth is born, we'll examine its ecology and genes to study why the species became extinct and other factors."