Cornell University

Cornell Wildlife Health Center

NEW FRONTIERS IN CONSERVATION TECHNOLOGY

BEAGLES & WILDLIFE CONSERVATION

Wildlife populations around the world are facing the ever-increasing threat of extinction. Sometimes we can look to our domestic species for a solution. Using beagles and in vitro fertilization (IVF) techniques, Cornell reproductive scientists have produced the world's first "test tube puppies."

Why is this important? By using the domestic dog as a model, we can develop assisted reproductive technologies (ARTs) to save wild canids. Working with our partners at the Smithsonian Conservation Biology Institute, this technology is poised for application in endangered species.

ASSISTING REPRODUCTION

Captive breeding programs involving endangered and threatened wildlife species are increasingly turning to ARTs to maximize the chances of producing viable offspring. A combination of ART and captive breeding helped save the black-footed ferret from disappearing from this planet forever.

Cornell researchers are also collaborating with the Smithsonian to determine if measurements of anti-Müllerian hormone (AMH), used as a monitoring tool in human reproductive medicine, can help predict whether a cheetah will produce mature eggs for fertilization if we stimulate her ovaries with hormones.

Having such an assay could help increase the candidate pool for assisted reproduction by including older animals who might have otherwise been excluded. AMH evaluation might also prove to be useful in other species for which ART is being considered.

AFRICAN WILD DOGS GET A HELPING HAND

African wild dogs are highly endangered, with perhaps fewer than 7,000 remaining in isolated wild populations. Captive breeding programs are plagued by high rates of juvenile mortality and stillbirth, leading to dramatic setbacks in zoological settings. By evaluating the health of twenty packs in captivity through social, hormonal, and genetic analysis, we are looking for ways to reduce juvenile mortality and improve captive population management.

LIFE AFTER DEATH: GENETIC RESCUE

When an endangered male animal dies, is that individual's ability to contribute to the gene pool over? Maybe not, if you can collect its sperm. What if death occurs before an animal reaches sexual maturity and doesn't have any sperm to collect?

New research utilizing testis tissue xenografting (transplantation) could allow scientists to collect and utilize viable reproductive stem cells from tissues harvested from deceased animals. These technologies could help secure the genetic legacy of an animal long after it's gone.

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