

Talk #145, 11/20/24

145th meeting of The Lyncean Group of San Diego

Date: Wednesday, 20 November 2024

Location: Southwestern Yacht Club
2702 Qualtrough Street, San Diego, CA 92106 (Point Loma)

Speaker: Dr. Barbara Durrant
Henshaw Director of Reproductive Sciences, San Diego Zoo Wildlife Alliance (SDZWA),
Beckman Center for Conservation Research



Dr. Barbara Durrant. Source: SDZWA

Topic: The ART of Saving Species – The Northern White Rhino Initiative

Speaker bio: Dr. Barbara Durrant serves the San Diego Zoo Wildlife Alliance as the Henshaw Director of Reproductive Sciences. Her department conducts research in the fields of reproductive physiology, endocrinology and cryobiology, and develops innovative methods to encourage species reproduction. Her team includes the Curator of the Frozen Zoo™, the world's largest repository of cryopreserved cell lines and gametes of exotic and endangered species. The scope of her responsibilities includes ova, semen and embryo collection, evaluation, and cryopreservation; artificial insemination; in vitro oocyte growth, maturation, and fertilization; hormonal induction of estrus and ovulation to stimulate natural breeding; endocrine monitoring; and the development of novel hormone assays for the detection of ovulation and diagnosis of pregnancy.

Dr. Durrant received her undergraduate and graduate training at the University of North Carolina, and North Carolina State University, earning a Bachelor's degree in Animal Science, a Master's degree in Physiology and Genetics, and a Ph.D. in Reproductive Physiology.

Dr. Durrant joined the Beckman Center for Conservation Research as a postdoctoral fellow under the direction of Dr. Kurt Benirschke. Soon thereafter she accepted a permanent staff position and developed a formal program for Reproductive Sciences. She was instrumental in the successful propagation of giant pandas at the San Diego Zoo and has participated in numerous research projects involving cheetahs, rhinoceros, lions, tigers, Przewalski's horses, pheasants, Hawaiian forest birds, snakes, lizards, frogs, sea stars, and, most recently, kelp gametophytes.

In addition to her professional duties at the Beckman Center, she is an adjunct professor in San Diego State University's Biology Department and taught Animal Behavior for many years at Palomar College.

Among many grants and awards throughout her career, Dr. Durrant has been named to Outstanding Young Women of America, Who's Who in the West, Who's Who in California and American Men and Women of Science. She is also a recipient of the McDonald Foundation's Wildlife Heritage Fellowship and the YWCA Tribute to Women in Industry award.

Dr. Durrant has written or contributed to nearly 150 published articles, books, and presentations, and participates regularly in numerous guidance activities with young students. She is a member of the Society for the Study of Reproduction, American Society of Andrology, and has served as Chair of the Foundation Board, Chair of the Partner's Society, and Board member and Treasurer for the International Embryo Technology Society.

You can find more information on Dr. Durrant's background on the SDZWA website [here](#).

You may recall that Dr. Durrant last spoke to The Lyncean Group at [Meeting # 112](#) on 21 June 2017. Following is the abstract for her upcoming presentation.



Abstract: All species of rhinoceros are experiencing escalating threats in the wild, making self-sustaining zoological populations essential genetic reservoirs for species survival. However, for the northern white rhino (NWR), a subspecies closely related to the more abundant southern white (SWR), time has run out. With just two related, non-reproductive NWR females, there is no possibility of natural reproduction. In late 2015 an international, multidisciplinary team met to discuss possible approaches to saving this imperiled rhino. The result was a road map of scientific avenues to create a self-sustaining population of NWR. Almost a decade later, we are making significant progress on that road to success. Many of the scientific advances and breakthroughs envisioned in 2015 have become a reality for the NWR, and perhaps even more importantly, for other critically endangered rhino species. Six female SWR the San Diego Zoo Safari Park's Nikita Kahn Rhino Rescue Center have been intensively studied, enabling a new understanding of the species' reproductive cycle and how it can be hormonally manipulated to enhance reproductive potential. Employing assisted reproductive technology (ART), the tools and skills have been developed to safely retrieve *in vivo* rhino oocytes, mature and fertilize them *in vitro*, and produce advanced-stage embryos. Advanced molecular studies reveal the expression patterns of genes orchestrating ovarian follicle development as well as cellular contributions to oocyte maturation and embryo competence. Semen collection and cryopreservation techniques have been optimized and two calves have been born following artificial insemination. This information will lead to more efficient use of assisted reproductive technologies to overcome reproductive challenges in rhinos as well as other species, and to generate genetically healthy captive populations as a hedge against extinction.



In recognition of her remarkable contributions through the SDZWA's Northern White Rhino Initiative, The Lyncean Group of San Diego was pleased to present Dr. Durrant with our White Rhino Conservation Award.

The Lyncean Group's White Rhino Conservation Award



Bill Hagan's astrophotography slideshow is available [here](#).

The Lyncean Group meeting slides are available [here](#).

Dr. Durrant's slides were not available for posting on the Lyncean website.