

## ERC JOINS FORCES WITH THE SMITHSONIAN INSTITUTE

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The Smithsonian Institute's Conservation and Research Center, (CRC), an affiliate of the National Zoological Park in Washington, D.C., is a 3,200 acre facility in Front Royal, Virginia which houses 30-40 endangered species at any given time. Amongst other areas of interest, CRC specializes in reproductive sciences and physiology. By researching these imperiled species they hope to create a captive breeding program that will ultimately provide a means for conserving species that otherwise may not survive in the wild, possibly saving them from extinction entirely.

One of their current studies is of the Przewalski horse. This unique equid is an ancient species of wild horse originating in Mongolia, China and possesses some rather unusual characteristics.

Standing 12 to 14 hands high, they are short and stocky in stature, their dun color coat has a dark dorsal stripe which runs along its back. They possess a stiff, spiky mane that has no forelock and completely sheds out every year. Scientifically, it

has been discovered that they possess 66 chromosomes while domestic equids have 64. The latest evidence suggests that they have evolved as an entirely different species than our familiar domestic partners.

With a recorded 1,435 in existence, the Przewalski horse remains on the Red List of Endangered Species and is actually classified as extinct in the wild. Their primitive nature does not allow them to be handled, mounted or harnessed, thus making routine care for them in captivity difficult.



**Figures 1 (Above) and 2 (Below). The herd of Przewalski mares at the Smithsonian Institute's Conservation and Research Center (CRC), in Front Royal, Virginia.**



The CRC, along with 3 to 4 other zoological parks, is working to reinitiate research on the Przewalski horse, and in doing so, recently contacted ERC to join forces in learning more about them. Collectively, efforts will be made to evaluate certain reproductive parameters of both the Przewalski stallion and mare.

For semen collection, these stallions have to be anesthetized. While under the influence of tranquilization, a proven technique of

electroejaculation will be used to harvest the semen. By entering the rectal cavity, a probe is properly positioned to come in close contact with the reproductive organs. A small electrical current is then passed through to stimulate ejaculation. This type of collection method has been used successfully in other species, and is apparently also necessary in the Przewalski horse since these stallions aren't tame enough for the more traditional collection techniques of using a phantom mare and artificial vagina. After collection of an ejaculate, seminal characteristics such as volume, concentration, motility, and sperm output will be compared to those collected from those domestic stallions within ERC's clientele base. To date, researchers have not been able to make this direct comparison.

Certain characteristics of the Przewalski mare's reproductive cycle will also be under investigation. Unfortunately, very little has been learned over the years about this female. Because of their wild nature, these mares are also characteristically anesthetized for diagnostic evaluation. The research center is in the process of setting up a special squeeze chute apparatus called a "tamer". This device will allow safe

containment of the wild, anesthetized mare as she is being examined. Areas for further study are: 1) follicular growth patterns throughout the estrous cycle; 2) condition of the inner lining (endometrium) of the uterus; and 3) assessing cervical integrity. Interestingly enough, evaluating harvested urine seems to be a viable method of assessing hormonal levels in circulation.

After the collection of data, efforts will be made to get the mares impregnated utilizing artificial insemination techniques and semen from 2 or 3 of the in-house stallions. Unfortunately, in recent years natural service did occur with the herd but no pregnancies ever resulted. Although reasons for this failure are unknown, it is highly speculative that age-related issues have played a role since almost all of the mares are greater than 15 years old.

Our hope at ERC is to establish a mutually rewarding relationship with the CRC, one that will share a common interest in learning more about this particular equine species. It would be wonderful to help with finding ways to preserve this antiquated species.