

FOR IMMEDIATE RELEASE

Biology of Reproduction Editorial Office
1619 Monroe Street
Madison, WI 53711-2063
Phone: 608-256-2777
Fax: 608-256-4610
E-mail: bor@ssr.org

Reproductive seasonality observed in male giant pandas

4 April 2012 – A three-year study of giant pandas published today in *Biology of Reproduction's Papers-in-Press* reveals that reproductive seasonality exists not only in female pandas, but in male pandas as well.

According to the authors of the study, this new understanding of the regulators of male reproductive function will allow continued improvement of the captive panda management program and will one day assist in reintroducing pandas into the wild.

The giant panda is a specialized bear whose wild habitat now consists of only a few mountain ranges in central China. Attempts at preserving this endangered species have met with varying success, but over the last decade, substantial progress in giant panda breeding within China has resulted in a significant increase in the population of captive pandas.

Female panda reproduction has been thoroughly studied, and it is well known that a panda's estrus, the state of sexual excitement that immediately precedes ovulation, occurs only once a year, sometime between February and May, and lasts only 24 to 72 hours. Few studies have examined male reproductive capacity and physiology in similar detail, and none involved sample sizes larger than one or two individuals.

Now, an international research team led by Dr. Copper Aitken-Palmer of the Smithsonian Conservation Biology Institute and Dr. Rong Hou of the Chengdu Research Base of Giant Panda Breeding, along with senior researchers Drs. David Wildt, Mary Ann Ottinger, and the late JoGayle Howard, has published the results of their study of eight male giant pandas in a captive breeding center in China.

The team evaluated the interrelated seasonal changes in male panda androgen levels, sperm concentration, testes size, and reproductive behavior, and found that unlike what is found for females, reproductive fitness in the male giant panda varies throughout the year.



The state-of-the-art Chengdu Research Base of Giant Panda Breeding has provided an unprecedented opportunity for researchers to study multiple pandas in a single location.

Photo credit: Zhang Zhihe, Chengdu Research Center for Panda Breeding.

Waves in male giant panda reproductive activity occurred 3 to 5 months before the interval when most females displayed their estrus, presumably in order to prepare for and then accommodate the brief and unpredictable female estrus.

These findings not only fill a knowledge gap, but the authors believe that they can be used to help researchers collect and preserve only the highest-quality panda spermatozoa for artificial insemination, an increasingly important tool in genetic diversity management within the captive panda population.

Biology of Reproduction, published by the Society for the Study of Reproduction, is a top-rated peer-reviewed research journal in the field of reproductive biology.

The Smithsonian Conservation Biology Institute plays a key role in the Smithsonian's global efforts to understand and conserve species and train future generations of conservationists. Headquartered at a Smithsonian facility in Front Royal, Va., SCBI facilitates and promotes research programs based at Front Royal, the National Zoo in Washington, D.C., and at field research stations and training sites worldwide.

Dr. JoGayle Howard (1951–2011): A leader in the reproductive science and conservation of endangered species. *BOR* memorial at <http://www.biolreprod.org/content/84/5/1072.full>

Aitken-Palmer C, Hou R, Burrell C, Zhang Z, Wang C, Spindler R, Wildt DE, Ottinger MA, Howard J. Protracted reproductive seasonality in the male giant panda (*Ailuropoda melanoleuca*) reflected by patterns in androgen profiles, ejaculate characteristics, and selected behaviors. *Biol Reprod* 2012; (in press). Published online ahead of print 4 April 2012; DOI 10.1095/biolreprod.112.099044.

###