Editorial Chinese Science Bulletin

SPECIAL TOPIC
Conservation Biology of Endangered Wildlife

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Does population increase alone ensure the long-term survival of endangered species?

Over the past three decades, wildlife conservation in China has achieved a number of successes. Endangered animals such as the Chinese alligator and the crested ibis, and plants such as the dawn redwood and *Dysosma versipellis* have recovered from the brink of extinction after considerable *in situ* and *ex situ* conservation efforts. However, population increase alone does not ensure the long-term survival of rare and endangered species, which also requires support from different fields of conservation biology.

Effective decision-making is crucial in this era of pragmatic conservation where policy and management implemented by wildlife managers affect the likelihood of species survival. Conservation biologists need to study the population dynamics of target species so that managers can determine the most effective means of preserving animals and plants. Conservation biologists in China have conducted a range of studies on topics such as molecular biology, conservation genetics, cell biology and ecology to provide a scientific evidence base for wildlife managers to make effective and feasible conservation actions.

In view of these concerns, *Chinese Science Bulletin* invited me to organize a special topic on "Conservation biology of endangered wildlife" to present the latest research findings from different fields of conservation biology and improve academic communication in the hope of obtaining a more comprehensive understanding of the most effective conservation measures for threatened animal and plants.

In this topic, there are 11 papers representing *in situ*, *ex situ* and *in vitro* conservation and reintroduction. Five research groups present their studies of *in situ* conservation, including optimized noninvasive sampling [1], a new genetic diversity distribution pattern [2], a first glimpse of the genetic structure of the Guizhou snub-nosed monkey [3], the first use of varying coefficient analysis to investigate the relationship between two interacting species [4], and a risk assessment of ecological tourism in nature reserves [5]. These studies present findings at the individual [1], population [2], intraspecies [3], interspecies [4] and intra-reserve [5] levels, providing examples to help managers design surveys before developing conservation plans.

Snapshots are provided of *ex situ* and *in vitro* conservation and reintroduction. Molecular markers are important for genetic management of captive animal populations. Li et al. [6] and Zhao et al. [7] focused on maker development and demonstrated that there are not necessarily one set of optimal markers for species, but some are more useful for a certain species. For *ex situ* protection of plants, it is essential to optimize culture conditions to ensure that medicinal plants maintain their characteristics. Zhao et al. [8] explored the response of *Dysosma* to a light gradient and optimized the light intensity used in *ex situ* conservation. Zeng et al. [9] and Jiang et al. [10] cultured animal cell lines and plant pseudobulbs, providing examples of *in vitro* preservation of genetic resources in reptiles and orchids, respectively. Finally, Wang et al. [11] report the first trial of Chinese alligator reintroduction into a conservation site, with encouraging findings for the reintroduction project of this species.

Although these papers cannot represent all contemporary aspects of conservation biology, we hope that these examples will help conservation biologists in China contribute to the effective conservation of biodiversity in China, as well as to attract more manuscript submissions to *Chinese Science Bulletin* on related topics.

1 He G, Huang K, Guo S T, et al. Evaluating the reliability of microsatellite genotyping from low-quality DNA templates with a polynomial distribution model. Chinese Sci Bull, 2011, 56: 2523–2530
2 Dai Q, Fu J Z. When central populations exhibit more genetic diversity than peripheral populations: A simulation study. Chinese Sci Bull, 2011, 56: 2531–2540
3 Pan H J, Shi F L, Chang Z F, et al. Mitochondrial DNA variation analysis suggests extreme low genetic diversity in Guizhou snub-nosed monkeys (*Rhinopithecus brelichi*). Chinese Sci Bull, 2011, 56: 2541–2544
4 Shi L, Wang R W, Zhu L X, et al. Varying coefficient analysis for indeterminate species interactions with non-parametric estimation, exemplifying with a fig-fig wasp system. Chinese Sci Bull, 2011, 56: 2545–2552

5 Xiang Z F, Yu Y, Yang M, et al. Does flagship species tourism benefit conservation? A case study of the golden snub-nosed monkey in Shennongjia National Nature Reserve. Chinese Sci Bull, 2011, 56: 2553–2558
6 Li D S, Cui H M, Wang C D, et al. A fast and effective method to perform paternity testing for Wolong giant pandas. Chinese Sci Bull, 2011, 56: 2559–2564
7 Zhao S S, Chen X, Wan Q H. Assessment of genetic diversity in the forest musk deer (*Moschus berezovskii*) using microsatellite and AFLP markers. Chinese Sci Bull, 2011, 56: 2565–2569
8 Zhao Y P, Gong H D, Lu W Q, et al. Growth, photosynthesis and podophyllotoxin accumulation of *Dysosma versipellis* in response to a light gradient and conservation implications. Chinese Sci Bull, 2011, 56: 2570–2575
9 Zeng C J, Ye Q, Fang S G. Establishment and cryopreservation of liver, heart and muscle cell lines derived from the Chinese alligator (*Alligator sinensis*). Chinese Sci Bull, 2011, 56: 2576–2579
10 Jiang W M, Zhao M S, Fu C X. Studies on *in vitro* regeneration competence of pseudobulb cultures in *Changnienia amoena* Chien. Chinese Sci Bull, 2011, 56: 2580–2585
11 Wang Z H, Yao H, Ding Y Z. Testing reintroduction as a conservation strategy for the critically endangered Chinese alligator: Movements and home range of released captive individuals. Chinese Sci Bull, 2011, 56: 2586–2593

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