

Concept of scientific wildlife conservation and its dissemination

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ABSTRACT

In recent years, wildlife conservation has attracted great public attention. However, substantial distinctions can be found in the prevailing concepts of wildlife conservation, particularly with the recent notion that emphasizes animal rights. Wildlife welfare and wildlife rights are not synonymous, with welfare more compatible with the reasonable and legal utilization of wildlife. The key to scientific wildlife conservation is the appropriate awareness and appreciation of the relationship between wildlife conservation and utilization and the theoretical basis of holism. Nevertheless, rational biases regarding the public's understanding of wildlife conservation and the spread of information via social media still exist. As such, expansion of the concept of scientific wildlife conservation requires the application of several measures. Wildlife conservation researchers should be regarded as the most important disseminators of scientifically-based information, with education in schools and universities of growing importance. Furthermore, the media should shoulder the social responsibility for the accurate dissemination of conservation information.

Keywords: Wildlife conservation; scientific concept; Media; Dissemination.

INTRODUCTION

Wildlife conservation has two meanings. One is the preservation of both species and species diversity, the other is based on animal welfare, which is primarily aimed at wildlife in captivity (Lu, 2009). Conservation education is an important component of environmental education, and is aimed at expanding human awareness of conservation biodiversity and at changing environmental attitudes and behaviors to promote conservation through education and practical activities.

Wildlife conservation education forms part of conservation education. Since environmental concerns have increased across all society, wildlife conservation has become a

significant social issue. However, there are considerable differences in the concepts of wildlife conservation, with several plausible protection ideas currently debated. Some people believe that wildlife conservation should incorporate the protection of all animals, and follow the principles of animal. In addition, such protection includes resistance to live bear bile used in traditional Chinese medicine and prohibition of hunting and related activities. Furthermore, absolute conservation has strong public sensibilities, which can result in extreme wildlife conservation activities, thus welfare and animal rights. In contrast, others believe that wildlife conservation should be based upon scientific attitudes and strategies. Unfortunately, absolute protection currently dominates public opinion and sympathy (Zhang et al, 2015), with scientific discussion and rational thinking often discounted.¹

Absolute protection includes the random release of animals, which has led to the invasion of alien species weakening and hindering the process of wildlife conservation itself (Karanth et al., 2008).

Since public attitude plays a very important role in the formulation and implementation of wildlife conservation management policies, some of the main problems that need to be solved in the construction of an ecologically-based civilization are defining wildlife conservation, promoting scientific wildlife protection, and encouraging an objective view of wildlife conservation by the public.

CONCEPT OF SCIENTIFIC WILDLIFE CONSERVATION

To understand the public's attitude to wildlife conservation, we must first understand the relationship between humans and wildlife.

Relationship between humans and wildlife

Wildlife have been an important natural resource during the process of human evolution, and animal farming has supplied the necessary material for long-term human development. Thus, the relationship between wildlife and humans is close and complicated.

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Wildlife as an important resource in human evolution

Research has shown that *Homo habilis* and *Homo sapiens* (archaic) increased the proportion of meat protein in their diets by hunting, resulting in the rapid development and increased volume of the brain (Wang, 2004). In addition, meat was crucial to the reproduction and evolution of prehistoric humans (Niche, 1995). Compared with *Homo habilis*, *Homo sapiens* (archaic) used fire to cook and soften food, resulting in large changes in human morphology (Qiao, 2011). The shortening of food chewing and digestion time resulted in significant changes in mandible and dental morphology, such as jaw retraction, smaller teeth, rostrum retraction, and smaller cranium viscerale (Yu & Zhai, 2004). In addition, human learned to use fire and the consumption of meat protein, which is more easily absorbed than raw meat, following the introduction of fire and cooking promoted the development of the human brain and body. Furthermore, hunting activities improved human cognition and problem solving abilities, and promoted the evolution of physical fitness (Qiao, 2011). In short, the consumption of meat promoted human body health by reducing disease and strengthening the functions of the brain and other organs (Qiao, 2011).

Importance of wildlife in the long-term development of human society

Wildlife have played an important role in the development of clothing, medical materials, experimental models, and scientific research. Animal skins and fur have been used for clothing for millennia, and even today are symbols of fashion. Wild animals have also provided nutrition for humans, forming a significant proportion of our diet. The domestication and farming of wildlife, the advancement of feed technology, and the invention of meat and milk production can be considered the three revolutions of the human diet. These developments improved the fat and protein proportions in the diet, and enhanced the development of the human body and brain. At the early stage of *Homo sapiens*, wide-spread farming and preliminary formation of agricultural production increased human food abundance and variety, which again contributed to an increase in brain volume. At the late stage of *Homo sapiens*, with the arrival of primary agriculture, animal husbandry, and the industrial revolution, the structure, habit, and concept of the human diet has tended towards stability. Correspondingly, the physical form has remained predominantly unchanged (Qiao, 2011).

Medical advancement has also been significant in the development of humans. Animals form a vital part of traditional Chinese medicine, as both raw materials and secretions, and play an important role in the continuation of Chinese descendants (Liu, 2014). Wildlife also provide raw materials for scientific and medical research.

Humans and wildlife are closely interrelated, especially in regards to culture, traditional Chinese medicine, food, hunting, and eco-tourism. Therefore, it is not easy and appropriate to separate wildlife from human. It is both socially and scientifically important, therefore, that we clarify how best to protect wildlife

and upon which concept of wildlife conservation this protection is based.

Differences between wildlife welfare and rights

Wildlife rights and welfare are two different aspects of wildlife conservation. Those that support wildlife rights argue that animals possess thoughts, desires, consciousness, and memories, and feel emotion and pain the same as human beings. As such, they have the right to not being hurt or exploited, and it is our fundamental obligation to not use animals in research or merchant farming. Professor Tom Regan, an American philosopher in animal rights theory, states that animals are also the subject of life and, like humans, possess both heart and psychology, and are therefore deserving of rights (Cai, 2006). Many animal rights organizations oppose animal experiments. For example, in March 2012, China Southern Airlines canceled a shipment of crab-eating macaques (*Macaca fascicularis*) from Guangzhou to Los Angeles because of PETA's (People for the Ethical Treatment of Animals) protest. Some people think that we should be kind to animals, and should stop conducting animal-based experimental research (Wadman, 2012). Conversely, those that support animal welfare are concerned with the rational and humane use of wildlife. They state that humans are morally superior to wildlife, and thus should be allowed to use animals for their own benefit, though without unnecessary pain (Cai, 2006). Professor Carl Cohen, who argues against animal rights, believes that animals do experience pain and therefore must be care for, but that wildlife and animal-based experiments should be conducted, particularly in regards to the relief of human pain and disease (Huang, 2014).

However, what are the fundamental differences between wildlife rights and welfare? At present, more than 100 countries and regions have established animal welfare regulations, especially within European and American countries where detailed and interoperable animal welfare legislation started and developed earlier. For example, the mistreatment of animals, poor breeding conditions, and abandonment of pets are likely to be prosecuted, and the criminal to face legal punishment in such countries. Even in legitimate experimental institutions, poor and or illegal animal treatment will result in possible legal action (Wang, 2009). However, this does not mean that in these regions, animals have the same legal protection as human beings. Thus, rights and welfare differ in definition and application, and it is unrealistic and unscientific to advocate for wildlife rights.

Differences between absolute and scientific wildlife conservation

Absolute wildlife conservation

Although the differences between wildlife rights and welfare are very clear, in reality extreme events always exist in wildlife conservation. For example, the random release of the red-eared turtle (*Trachemys scripta elegans*), which led to a substantial reduction in China's native turtles (Zhou, 2010), and the extreme publicity of vegetarianism. These people protect any animal without reason or understanding of the

consequences. There are two reasons for this extreme situation. The first is exaggerating or confusing wildlife rights with wildlife welfare, in which animals and humans are regarded as equals and animal use of any kind is considered unethical. The second is the imposition of a personal choice on the public. For example, some people are vegetarian or regard animal companions as family members, and therefore oppose the use of animals based on their personal attachment. This concept of absolute conservation could misleadingly influence the attitude of the general public in regards to wildlife protection. Conversely, the concept of scientific conservation is the dialectical and objective understanding of the relationship between wildlife protection and utilization. Wildlife protection and utilization are inseparable, and their division could impact the balance between humans and nature. Scientific conservation requires a rational view of animal protection and the scientific utilization of wild animals (Zhang, 2006). It is not rational to oppose all activities in which animals are used in the name of animal protection, nor equate wildlife welfare with wildlife rights because of a love for animals. As to personal attitudes towards animals, it is not appropriate to impose or force a personal choice on the public, resulting in distortion of public attitude to wildlife conservation.

Wildlife conservation based on holism

The key to the concept of scientific wildlife conservation is to understand the relationship between the protection and utilization of wildlife based on holism, which asserts that a system is an organic whole and each part cannot be understood separately. From the perspective of holism, the protection and utilization of wildlife is unified, not conflicted. However, wildlife protection and utilization are often incorrectly thought to be contradictory.

The most typical example is wildlife hunting, in which those that oppose it argue that animals still require protection. However, the reasons why people disagree with hunting are based on a general lack of in-depth understanding. The principle of wildlife management states that disordered and arbitrary hunting will cause serious damage to wildlife, whereas methodical and well-managed hunting activities can be beneficial to wildlife conservation (Cao et al, 2014).

Well-organized hunting not only has ecological benefits, but also economic and social ones. From the perspective of ecology, ordered wildlife hunting can help regulate a population. For example, the poor ecological balance resulting from the over-population of herbivores due to low numbers of large carnivores can be stabilized through the artificial control of herbivore populations.

Wildlife hunting in many countries has proven that ordered hunting can have a positive effect on maintaining the ecological balance (Cao et al, 2014), as well as economic and social benefits. According to the United States Fish and Wildlife (USFWS) Service, the effect of wildlife hunting on economics was over \$65 billion in 2002, and direct income from wildlife hunting was \$22 billion (Cao et al, 2014). Hunting also offers more than 700 employment opportunities for people, with one in every 15 Americans engaged in hunting activities. If these

individuals are considered as a company, their tax ranks as 35 in the USA fortune 500 companies. Furthermore, the 2011 USFWS report states that 1.37 million people over 16 years participated in hunting activities, with total hunting expenses of \$33.7 billion (Tang & Zhou, 2013).

Another example of typical absolute conservation is the random release of wildlife. To protect animals, some organizations and individuals have planned and instigated the random release of wildlife into the field, even buying such wildlife for liberation. This behavior not only encourages the illegal trade of wildlife, but can also lead to the destruction of the natural environment due to the invasion of foreign species (Zhou, 2010). Although such negative results often deviate from the original intention, they do highlight the need for professional, rather than fervent and inexperienced, protection.

Scientific and professional wildlife conservation is, therefore, very different from extreme conservation. Protection and utilization of wildlife are not separate entities. The relationship between wildlife conservation and exploitation needs to be treated dialectically. The opposite of protection is the destruction of wildlife and the resulting ecological imbalance, not the limited use of certain wildlife products.

INADEQUACIES IN THE MEDIA AND PUBLIC REGARDING WILDLIFE CONSERVATION

With the expansion of wildlife conservation publicity after the passing of Wildlife Protection Law in 1988 (<http://www.china.com.cn/chinese/law/647629.htm>), wildlife conservation has gained significant public attention. However, due to the lack of scientific and objective understanding of wildlife conservation, social media are more focusing on how lovely the wildlives are, the urgency of protection and the destructiveness of overusing. Social media in China does not systematically introduce scientific strategies of wildlife conservation to the public, which helps explain why people easily hold to the concept of absolute wildlife conservation. Slogans such as “stop the use, will stop the killing”, “plead for animals”, “animals and humans are equal”, and “we are family” have gone beyond the fundamental purpose of wildlife protection (Zhang, 2013) and have pushed the relationship between humans and wildlife to the extreme.

The food chain tells us that the killing of animals is usual in the wild. Without killing, neither carnivores nor herbivores can survive. Eating or being eaten forms part of the ecological balance. From this perspective, wildlife conservation is the protection of the species, rather than the protection of the individual.

If absolute wildlife conservation is non-scientific and non-rational, the direction and scientific process of wildlife conservation can be hindered, and the balanced relationship between humans and wild animals destroyed, resulting in ideological confusion in the field of wildlife conservation.

DISSEMINATION OF SCIENTIFIC WILDLIFE CONSERVATION

Popularization of scientific wildlife conservation by researchers

It is difficult for many people to obtain detailed information on

environmental issues, often relying on social media, which can be biased and result in public misunderstanding (Coyle, 2005; Ladle et al., 2005). Scientific researchers are responsible for encouraging the public to understand the concept of and requirements for biological diversity conservation (Sunderland et al., 2009). As such, communication with the public must be effective, which requires active input from wildlife researchers and the development of effective methods to communicate with different people in regards to conservation education.

Sometime, people are more willing to believe in something that they think increases their personal values, whereas, ignore scientific data. One possible solution is to help people to find out the root of problem and establish their values of environmental protection on the basis of scientific understanding (St Clair, 2003). An excellent scientific communicator understands that scientific data are often not effective at persuading the public, with more specific and targeted strategies required. Conservation biologists should integrate the local culture into the overall planning of scientific communication, and not try to change behavior and thinking by data alone.

Conservation education in schools

Research has shown there are connections between high-level knowledge and high-level action for environmental protection (Rickinson, 2010). Although environmental education has demonstrated a growing trend in certain developed countries, the education is still limited due to poor access to educational courses (Cutter-MacKenzie & Smith, 2003).

Li et al. (2014) investigated the concept of conservation by comparing changes in the attitudes of university students towards wildlife after a professional lecture about sustainable conservation. According to the research, although the grade and hometown of students had certain influences on their attitudes to wildlife conservation, the expert lecture had a positive effect on students understanding (Li et al., 2014). Thus, attitudes towards wildlife conservation are variable, and not necessarily scientifically based. Research has stated that wildlife conservation education for university students should include the concept of scientific wildlife conservation through a variety of practical platforms and curricula (Zhang et al., 2015), which can be incorporated into existing courses in schools and universities and spread through an interdisciplinary approach (Sodhi et al., 2003). Publicity and education in schools can effectively enlarge the range of people interested and educated in the scientific protection of wildlife. It is not only the responsibility of universities to offer sustainable wildlife conservation courses, but also that of elementary and junior-senior high schools, which can lay a scientific foundation for more comprehensive education and sustainable wildlife conservation.

Popularization of scientific wildlife conservation by the media

Formal educational institutions are not the only channel from which the public can obtain their environmental knowledge. Social media and relationships are also important. In particular, social media can be considered as a "school of the air" where

people can gain knowledge on environmental protection (Ors, 2012). Generally speaking, social media is more capable than researchers in delivering information. However, the frequent misunderstanding of scientific knowledge by the media can lead to unsatisfactory or inaccurate reports (Pace et al., 2010). This is especially evident in the field of wildlife conservation. Nowadays, the concept of absolute wildlife conservation dominates social media, making rational discussion difficult. Because social media plays an important role in information distribution, it is very important that the concepts of scientific wildlife conservation are clear. In particular, researchers should be incentivized and willing to popularize their scientific data, in addition to publishing their articles in academic journals, and articles published in social media should be emphasized. Thus, the public could gain scientific knowledge from media, such as newspapers and blogs (Sodhi, 2007), while scientists expand access to their research.

In summary, public awareness and knowledge of the concept of scientific wildlife conservation is crucial for animal protection, and effective dissemination of scientific wildlife conservation has become a key issue in the field. The successful spread of information relies on the devotion of time and energy to overcome the obstacles caused by different cultures, educational backgrounds, beliefs, economic conditions, and regions.

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