

EEO

生态文明新时代

THE NEW ERA OF
ECOLOGICAL CIVILIZATION

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建立中国荒野保护体系 守护生态文明原生根基

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美国大特顿国家公园高海拔区域中的荒野 (Jayme Dittmar 摄)
High altitude, Grand Teton National Park and wilderness, Wyoming USA (courtesy and © Jayme Dittmar)

全球荒野的重要性

人类从荒野中起源并发展，保护荒野对于地球上所有生命的福祉和健康发展都至关重要。作为这一新世界的领导者，中国提出了“生态文明”这一国家政策，并且有潜力成为一种全球模式。我们认为，基于科学、生态和文化等方面的许多原因，荒野保护应该成为中国生态文明建设的重要组成部分。

荒野的定义：是指陆地或海洋中具有生态完整性，而未受干扰的自然区域，在这里，人类的影响微不足道，人类的控制达到最低限度或者不存在。荒野中健康而动态的自然系统提供了“生态系统服务”，这对于人类和其他一切生命的健康和福祉都至关重要。

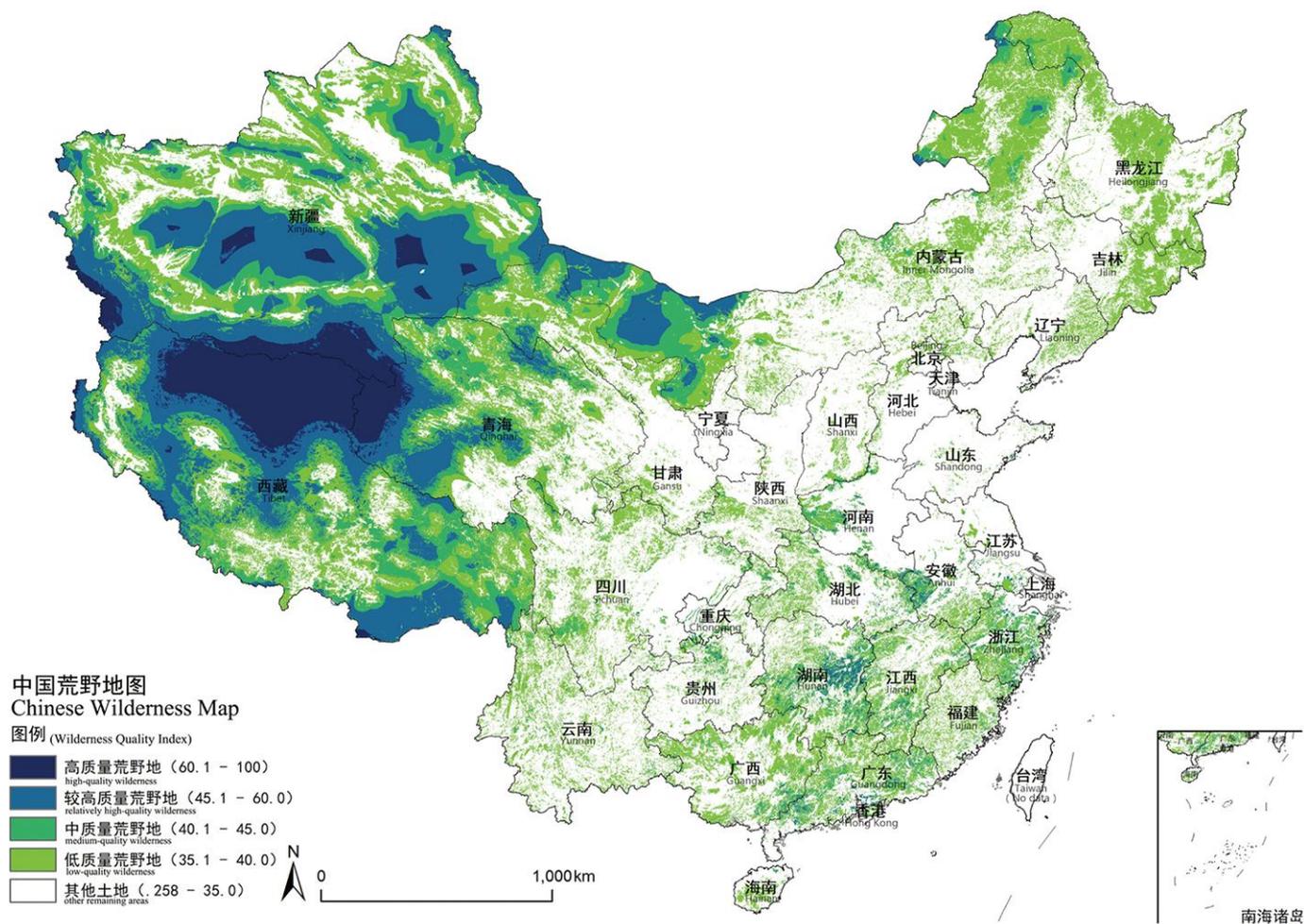
荒野生态系统主要提供 4 类服务：供给服务（如提供食物和水）、支持服务（如养分循环和授粉播种）、调节服务（如气候调节和疾病控制）以及文化服务（如提供归隐体验、游憩机会和精神活动）。荒野保护是应对气候变化的一种经济有效的措施。

在现代世界，荒野概念最初形成于 1964 年的美国《荒野法》，在那之后，荒野概念在全球的接受程度逐渐提高。1994 年，世界自然保护联盟 (IUCN) 在《自然保护地管理分类指南》中正式采用了荒野的概念。

荒野保护地（即 1b 类自然保护地）的定义：“大面积的、保留原貌或被轻微改变的区域，保存着自然特征，自然力量占据主导，没有永久的或明显的人类聚居点，该区域被保护和管理以保存其自然状态”。

2016 年，世界自然保护联盟荒野专家组 (WSG / IUCN) 发布了全球第一个《荒野保护地管理指南》，其中明确指出荒野并不排斥人类，而是排斥一些特定的人类利用方式及其影响。荒野的核心属性与价值，包括生态完整性、自然圣境、传统利用，以及没有明显的永久性基础设施或商业资源开采活动，同时提供具有孤独感、不确定性和挑战性的游憩机会。至今，世界上已有 70 多个国家通过法律或者行政法规认定了荒野保护地。

保护主义者和科学家认识到，这个新世界需要一个自然保护的新目标——即保护地球一半以上的面积，从而维持生物多样性。这一新目标的设置建立在现代科学和传统科学的基础之上，并会重新界定人类与野性自然之间的关系。2009 年，第九届世界荒野大会 (WILD9) 发起了“自然需要一半”的愿景与实践，随后越来越多的组织和专家接受了这一愿景。伟大的生物学家爱德华·威尔逊最近发起了“半球倡议”，为这一新愿景注入了巨大的力量。在此背景下，中国如何处理与荒野的关系，中国如何面对这一自然保护的新目标，成为重要议题。



中国荒野地图 (曹越, 龙瀛, 杨锐, 2017) Chinese Wilderness Map (Cao, Long, Yang, 2017)

对中国大陆现存荒野地的初步分析

从全球尺度的比较可见, 中国的生物多样性具有突出价值。作为保护国际认定的 17 个生物多样性最丰富的国家之一, 中国的物种数量居世界前列。但由于长期高强度的人类活动, 中国又是世界上生物多样性受威胁最严重的国家之一。

在生物多样性保护方面, 中国自然保护地的建设取得了明显成效。自 1956 年建立了第一个自然保护区以来, 特别是自 1978 年改革开放以来, 中国自然保护地的类型、数量和面积都出现了显著增长。至今, 中国陆地自然保护地覆盖率达到国土面积的 18%, 已经超过了联合国《生物多样性保护公约》爱知目标所设定的 17% 目标。

中国已经建立了多种类型的自然保护地。然而在现有的保护地体系中, 还缺少对于荒野的研究与保护, 具体表现为: 第一, 缺乏对荒野概念、价值与保护的系统性关注; 第二, 缺乏对于“荒野保护地”(IUCN 1b 类自然保护地) 的认定。因此, 中国还没有形成系统性的荒野保护机制, 也缺少提升荒野管理质量的指南。

从各国的实践经验来看, 理解荒野地的空间分布是制定与实施荒野保护政策的基础。由于之前从未开展过中国荒野地的调查统计, 因此缺少中国现存荒野地的数量与空间分布信息。在此背景下, 我们在

2016 年开展了中国国土尺度的荒野地存量调查研究。研究区域为中国大陆的陆地区域(暂未包括中国台湾地区和台湾海洋荒野), 在中国荒野制图研究中, 研究问题是“中国荒野地的面积有多大, 荒野质量如何, 荒野地分布在哪里”, 研究目的是为了发现中国现存荒野地的空间分布规律, 从而为进一步制定荒野保护政策奠定基础。

这项研究以“荒野连续谱”作为概念基础, 采用了经典的、经过验证的荒野制图方法, 首先分别对“距聚居点遥远度”、“距道路遥远度”、“生物物理自然度”, 以及“外观自然度”4 项反映景观“荒野度”的指标进行评估, 在此基础上应用多指标评价法对 4 项指标进行相等权重的叠加, 从而得到了中国荒野度指数地图, 在其中区分出了不同质量等级的荒野地及其空间分布情况。

根据中国荒野地图, 识别了 4 类不同质量的荒野地, 包括高质量荒野地(占陆地国土面积的 4.3%)、较高质量荒野地(12.4%)、中质量荒野地(11.9%)、低质量荒野地(24.0%), 以及其他不是荒野地的区域。这项研究说明了中国国土面积的大约 50% 的区域可以被认为是某种程度的荒野地, 这也意味着“自然需要一半”的愿望对于中国而言既是必要的, 也是可行的。

中国的高质量荒野地主要分布于羌塘、阿尔金山、可可西里、塔克拉玛干沙漠、罗布泊等区域。较高质量荒野地主要分布于西藏



羌塘，中国面积最大的荒野地（梁旭昶 摄）Qiangtang, the largest wilderness in China (courtesy and © Liang Xuchang)

北部、新疆南部、青海西部、内蒙古西部等区域。总体而言，高质量和较高质量荒野地主要分布于中国西部。在这些区域中，西藏羌塘仍保存着大约 30 万平方公里的无人区；青海可可西里由于其突出普遍价值，在 2017 年被认定为世界自然遗产地；三江源地区则被认定为中国国家公园体制试点区之一，以保护黄河、长江和澜沧江河流源头的景观。这些区域是中国国土中荒野度最高的景观，应重点保护，并严格限制对环境有负面影响的土地利用变更、人工设施建设和人类活动，从而为当代和子孙后代保存其荒野价值和荒野特征。

除此之外，中质量荒野地和低质量荒野地分布于中国西部、中部和东部的各个省份。虽然这两类荒野地的荒野度相对较低，但仍具有较高的保护价值，其中部分区域已经纳入自然保护区范围内，其他区域则尚未被纳入。中国中部与东部的荒野地具有破碎化的特点，但仍然为周边的城市人口提供着重要的“生态系统服务”与游憩机会。由于周边人口众多、社会经济发展需求更大，这些区域面临着比西部荒野地更多的威胁，因此需要得到密切关注和研究。这些区域的管理应该更加明智与谨慎，从而尽可能地维持其荒野价值。

显而易见的是，在经济高速发展和快速城镇化进程中，中国的荒野地面临着众多威胁，包括城市和农业用地扩张、基础设施建设、管理不当的旅游活动、偷猎盗猎、林业砍伐、采矿等等。因此，为

中国荒野保护建立一种系统性的机制，显得必要而迫切。

建立中国荒野保护地体系

在这个历史性的时刻，中国在荒野保护方面迎来了难得的机遇，并有机会发布一个全球性的声明。认识到现存荒野地是“生态红线”的一种体现，在荒野中保存着自然进化的过程，以及独特的人与自然关系、经验和知识，可以大大加强生态文明的理念和实践。

生态文明将不同于任何其他国家的发展模式。在此政策中，中国将改变对经济、能源、空间规划等等的看法。生态文明的新理念将建立在对于荒野的基本理解之上，即荒野对于人类未来发展和健康繁荣至关重要。

要做到这一点，最好的做法是在生态文明中纳入一个“中国荒野保护地体系”，从而将一些完整的自然区域纳入真正的“红线”之中，并为了独特的体验机会和科学研究对其进行保护。我们建议在正在进行的国家公园体制试点和自然保护区体系重构的进程中，讨论建立中国荒野保护地体系的可行性。

自然保护区（包括了国家公园），通常与现存荒野地相互重叠，这些区域对人与自然均有所助益，同时需要特定的设施来实现其目



纳米比亚骷髅海岸荒野区(万斯·马丁 摄) Skeleton Coast wilderness area, Namibia (by Vance G. Martin)

标。中国荒野保护地体系将优先考虑荒野(完整自然)的需求,并且只允许在没有永久性或破坏性设施的前提下,提供人类接触野性自然的机会。荒野地所需要的只是监督和管理,其中大多数情况下可由经过培训的当地人参与,以确保高质量的荒野保护。中国荒野保护地体系将表明中国对于荒野的理解,即荒野在人类社会中具有不可替代的作用。该体系有助于提供“基于自然的解决方案”,以荒野的独特价值来解决当今许多最紧迫的挑战。其中最重要的一些价值包括:

第一,在生态方面。荒野具有高度的“完整性”,因此所提供的生态系统服务是最重要的。当今中国面临的挑战,使得这些高质量的生态系统服务比以往任何时候都更加重要,例如碳储存和减缓气候变化、保护生物多样性、清洁和充足的水资源、生态韧性等等。另外,荒野还为科学研究提供了一个至关重要的“生态基线”,在荒野这一自然实验室中,科学家可以观察、测量和监测支持我们的自然世界的质量。

第二,在经济方面。保护荒野,会极大地转变对于国家经济发

展的思考。一方面,荒野保护能够为国内外的访客创造多样化和有吸引力的生态游憩机会,并促进当地社区的就业。更进一步,荒野保护也意味着在对于完整自然提供的生态系统服务正确估价的基础上,发展新的经济。

第三,在文化方面。与上述物质性的价值同样重要。在日益发展、技术化和充满压力的世界中,荒野会为我们提供游憩体验、自然疗法,以及体验孤独感和思考的机会。通过保护荒野,中国文化也将重新评估自身的传统生态智慧。最后,保护荒野也是伦理道德上的要求。荒野作为人类原初的“家”与“母亲”,塑造了人类基因与人类性格,因此保护荒野是一种谦逊和互惠的行为。

在不久的将来,荒野保护与管理有望通过以下政策得以大大提升,包括国家公园体制、生态功能区划、主体功能区规划、生物多样性保护优先区域划定,以及生态红线划定等,建立中国荒野保护地体系的建议恰逢其时。这将使得生态文明真正成为这个新时代中充满希望而非平凡的全球模式。

To Establish a Chinese Wilderness Preservation System as an Essential Part of Eco-civilization

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The global importance of wilderness

The world is awakening ... and just in time. Though it is easy to see and experience the challenging environmental conditions in many areas, it is also vitally necessary to recognize that change is underway and each of us need to be a part of this change, and create a new world.

This new world that is emerging recognizes the importance of honoring and protecting the wilderness in which our human race was created and has evolved, and that is essential for the continuing health and well-being of all life on earth. As a leader in this new world, China proposes a national policy (and potential global model) called Eco-civilization. For many scientific, biological and cultural reasons, the authors propose that wilderness protection needs to be an essential part of it.

Wilderness, in a very general sense, refers to the most biologically intact, undisturbed areas of nature on land or sea where human impact is negligible and human control is minimal or non-existent. Healthy, dynamic natural systems in wilderness produce “ecological services” essential to the health and well-being of all life, human and otherwise. Four main categories of services (each containing numerous specific services) are: provisioning (such as food and water), support (such as nutrient cycles and pollination), regulating (such as climate and disease), and cultural (such as solitude, recreation, spiritual practice). Even more, many experts make the clear argument that wilderness

protection is a cost-effective and efficient response to address climate change. (See Figure 1)

The wilderness concept is not new to traditional communities that have always had a philosophy of “reciprocity”, of giving back to (protecting) nature because nature provides for us. In the modern world, the wilderness concept was first formulated through legislation in the United States in the 1964 Wilderness Act, and it has since proceeded steadily towards global acceptance. Wilderness protection was officially adopted in 1994 by the International Union for the Conservation of Nature (IUCN), in its Guidelines for Protected Area Management. ‘Wilderness’ is “Category 1b”, defined as: Protected areas that are usually large, unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

In 2016, the IUCN’s Wilderness Specialist Group (WSG/IUCN) produced the first global “Guidelines for Wilderness Management,” among many things emphasizing that wilderness does not exclude humans, rather it excludes some specific human uses and impacts. The core set of wilderness attributes and values include biological intactness, sacred areas, traditional use, absence of significant permanent infrastructure or commercial resource extraction, and opportunities for experiencing solitude, uncertainty, and challenge. The wilderness category is now used under legislation or



administrative regulation in over 70 nations.

Conservationists, working with scientists and traditional leaders, recognized that this new world needed a new conservation vision. Nature Needs Half (NNH) was launched in 2009 at the 9th World Wilderness Congress (WILD9), based on the best modern and traditional science, to help define a new relationship between humankind and wild nature. Many groups and experts are increasingly adopting this vision and thinking, and thereby the importance of wilderness. The renowned biologist, Professor E.O. Wilson, recently launched the Half Earth initiative, adding great impetus to this new direction. It is helpful to understand how China stands in relation to wilderness and the new global vision.

Preliminary analysis of existing wilderness areas of mainland China

China's biodiversity is of outstanding global value. As one of the 17 megadiverse countries identified by Conservation International, China's species richness is among the highest in the world. However, due to long-term, high-intensity human activities, China's biological diversity is seriously threatened.

In terms of biodiversity conservation, remarkable results have been achieved through China's expanding protected area system. Since the establishment

of the first nature reserve in 1956, and especially since 1978 when the political reform and opening began, the type, number and total area of protected areas in China have increased considerably. China's total protected area estate is 18% of terrestrial mainland China, exceeding the 17% target set by the "Aichi Targets" (United Nations Convention on Biodiversity).

China has established different types of protected areas. However, within the existing Chinese Protected Areas System, there is very limited research and protection for wilderness areas, specifically: 1) the absence of a systematic consideration for wilderness concept, value and protection, and; 2) lack of designated sites as "Wilderness Protected Area" (IUCN category 1b). As a result, there is no systematic mechanism for the protection of wilderness areas, and no guidance or promotion of the need for high-quality management of these wilderness areas.

Knowledge of the location of wilderness areas is essential baseline information for the development and implementation of wilderness protection policies. Because a wilderness inventory of China had never been done, the total area and the spatial distribution of wilderness was not fully known, which seriously restricted the implementation of wilderness protection. To address this, a China national wilderness inventory was conducted in 2016. The study area is the mainland China (wilderness areas in Taiwan are not included due to the lack of data) and marine wilderness has not been included. In developing a wilderness map for mainland China, the survey addressed the question: "How

large, what ‘quality’, and where are the wilderness areas?” The objective was to discover the spatial distribution of the remaining wilderness in China, and thereby provide a practical base for further development of Chinese wilderness protection policies.

Based on the concept of “the wilderness continuum”, a classic and proven wilderness mapping method was applied using four key attributes of ‘wildness’: remoteness from settlements; remoteness from access; biophysical naturalness; and the apparent naturalness of the landscape. The result was then evaluated through combining these attributes with equal emphasis using Multi-Criteria Evaluation. The product was the Chinese Wilderness Index Map that distinguishes different quality wilderness areas and their location across China.

The Chinese Wilderness Index Map assigned four categories of “quality” to the wilderness areas in China, and then determined the proportion of that quality area to the total continental area of China, resulting in: high-quality wilderness (4.3%); relatively high-quality wilderness (12.4%); medium-quality wilderness (11.9%); low-quality wilderness (24.0%) and other remaining, non-wilderness areas. (See Figure 2). This research confirms that approximately 50% of China remains in wilderness condition. This means that the Nature Needs Half vision for China is as possible as it is necessary.

High-quality wilderness is mainly distributed in Qiangtang, Altun Mountains, Hoh Xil, Taklamakan Desert, Lop Nur, etc. Relatively-high-quality wilderness is mainly distributed in northern Tibet Autonomous region, southern Xinjiang Autonomous region, Western Qinghai Province and Western Inner Mongolia Autonomous region. These wilderness areas are mainly distributed in Western China. Among these areas, Qiangtang in Tibet has a total area of 300,000 km² as “no man’s land” (See Figure 3). In addition, Qinghai Hoh Xil was designated a natural World Heritage Site in 2017 due to its Outstanding Universal Value and the Sanjiangyuan region has been designated as a national park pilot area to protect the headwaters of the Yangtze, Yellow and Lancang rivers. These areas contain the landscape with highest wilderness quality in China. To preserve their wilderness values and characteristics for future generations, these areas should be preserved by restricting land-use alternations, and banning construction of artificial infrastructures and human activities with negative effects on landscapes.

In addition, medium-quality wilderness and low-quality wilderness is distributed in provinces among western China, central China and eastern China. Although the wilderness quality of these two types are lower, there are still high conservation values in these lands, some of which have already been designated as protected areas while the others have not. Wilderness areas in eastern and central China are fragmented, yet still provide important ecosystem services and recreational opportunities for nearby urban populations. These areas are more threatened than wilderness areas in western China, and need close attention and further research due to the large population and demand for economic development. Most importantly, the use

of these areas should be wisely and carefully managed in order to preserve the wilderness values as far as possible.

Clearly, in the process of rapid economic development and urbanization, wilderness areas in China face numerous threats, including the expansion of urban and agricultural areas, infrastructure construction, improper management of tourism activities, poaching, logging, mining and more. Therefore, it is an imperative to establish a systematic mechanism for the protection of wilderness in China.

To establish a Chinese Wilderness Preservation System as an essential part of Eco-civilization

At this historic moment, China has an unusual opportunity regarding its wilderness areas and a chance to make a global statement. It is not too late to do so, yet the window of opportunity will not be open forever. By recognizing that its remaining wilderness areas are the embodiment of “red-line” nature — reserved for natural evolution and specific human interaction, experience, and knowledge — it can greatly strengthen the philosophy and practice of Eco-civilization.

Eco-civilization would become unlike the development model of any other nation. In one policy, China would change the regard of a nation to its economy, energy, spatial planning, and more. This new mindfulness would be based on a fundamental understanding of the essential role of wilderness in human evolution and the future of a healthy and prosperous humanity.

The best way to do this is to include in Eco-civilization a Chinese Wilderness Preservation System (CWPS), thus recognizing that some intact natural areas are truly “red-line” and reserved for very specific human experience and scientific research. The possibility of establishing the CWPS could be discussed in the context of the National Park Pilot Program and the reconstruction of the Protected Areas System which are still under way.

Protected areas, especially the National Parks, are places to service both people and nature, which require specific types of infrastructure and facilities to fulfill their role in servicing people. A CWPS would prioritize the needs of wilderness and allow human interaction only in ways that require no permanent or intrusive infrastructure. All that is needed is oversight and management (much of which can be provided by trained local people) to assure standards of protection and respect. A CWPS would demonstrate China’s understanding that wilderness occupies an irreplaceable role in human society. It helps create “nature-based solutions” to address many of the most pressing challenges of today with its unique values, some of the most important of which are:

1. Biological — wilderness has high-functioning “intactness,” and the ecological services it provides are therefore of the highest order. The



challenges faced by China today make these high-quality services even more important than ever before: carbon storage and climate change mitigation, biodiversity protection, clean and ample water, ecological resilience, and more. Wilderness also provides a critically-necessary 'ecological baseline' for science, as a natural laboratory in which scientists can observe, measure, and track the quality and changes of the natural world that supports us.

2. Economic – protecting wilderness can help create a dramatic change in thinking about national economic development. One aspect of this is creating new, diverse and appealing eco-tourism for domestic and foreign tourists, with accompanying local employment. But more so, it is also about creating an economy based on correct and true valuation of the ecological services provided by intact, high-functioning nature.

3. Cultural – Equally important as the physical values mentioned above, cultural values are both social and moral, historic and contemporary. Wilderness protection provides opportunities for recreation, nature-based therapies, solitude and reflection so important in our increasingly developed, technological, and stressful world (See Figure 4). By protecting wilderness,

Chinese people also revalue their own traditional ecological wisdom. Ultimately, protecting wilderness is a moral imperative. Doing so is an act of humility and reciprocity that honors our original home and the mother forces that created the human genome and shaped the human character.

The proposal for the CWPS is very timely in China. Wilderness preservation and management could be greatly improved by policies currently underway such as the national park system, ecological function zoning, functional area planning, the delineation of biodiversity conservation priority regions, delineation of ecological red lines, and more.

Now is the time for China to act, and make a clear statement to its people and to the world: wilderness has never been more important than it is today, but it is not as important today as it will be tomorrow. Therefore, a Chinese Wilderness Preservation System would allow China to be a leader by demonstration, creating a beautiful China that honors and protects nature's legacy while also addressing the challenges and needs of human society today. This would make Eco-civilization a truly auspicious and singular global model for a new era.