



## EDITORIAL

### 主编寄语

**时间** 2016年5月26日 **地点** 中国西藏自治区墨脱县雅鲁藏布江大峡谷 **拍摄** 俞孔坚

为了对雅鲁藏布江大峡谷科学观测站进行规划设计，我随中国科学院青藏高原研究所的科学家们一同深入大峡谷中。这里是世界上最独特的景观之一，也是地球上生物多样性最丰富的地区之一，位于喜马拉雅山脉南坡，海拔高达5 000多米，在方圆100km范围内，同时存在从冰川、寒带到热带雨林等各种栖息地类型。变幻莫测的印度洋暖湿气流与高山深谷相交错的复杂地貌相互作用，形成了万千变化的栖息地条件，演绎出异常丰富多彩的生命世界。

**Date** May 26, 2016 **Location** Yarlung Zangbo Grand Canyon in Medog, Tibet Autonomous Region, China **Photographer** Kongjian Yu

I visited the Yarlung Zangbo Grand Canyon with the scientists from the Institute of Tibetan Plateau Research, Chinese Academy of Sciences. One of the most biodiverse landscapes in the world, we visited as part of a research trip for the design and planning of a nearby observatory. Located on the southern side of the Himalayas and rising over 5,000 meters above sea level, here capricious warm and wet flows from the Indian Ocean run up against dramatic topography leading to microclimates that range from icy and cold to humid and tropical. This climatic biodiversity has produced the perfect living paradise for an enormous variety of creatures.



## 栖息地与生物多样性

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20多年前读爱德华·奥斯本·威尔森的《地球上的生命》，其中的一段话让我热血沸腾，他说：“在人类干扰遍布地球的今天，景观设计将发挥至关重要的作用。在那些已因人类活动而发生了巨大改变的环境中，只要我们对地球上的林地、流域、水库，以及其他人工坑塘和湖泊进行合理巧妙的设计，生物多样性仍可以在很大程度上得以保持。我们笔下的规划不仅要考虑经济效益与美学，对物种和种族的保护也应纳入考量。”他的话一直在鼓舞着我发展景观设计学和修补地球的信心，提高了我对景观设计学的认识，并指导我的规划设计实践。

关于生物多样性，学界的共识包括三个层次：基因的多样性、物种的多样性和栖息地的多样性。

在基因层次上，生物多样性体现在单一物种的个体差异上——世界上没有两棵杨树是一样的，尽管杨树被认为是最普通的树种。人类自身便是基因层次的多样性的最好例证：近60亿人，同样没有两个个体是一样的。正是基因层次的生物多样性，给了每个物种适应多变环境的潜在能力——物种适应和生存的潜力。人类在基因层次上对生物多样性的毁灭，莫过于克隆技术：它可谓是釜底抽薪，斩断了生物多样的基础，使物种失去适应环境变化以及病毒侵扰的能力。尽管我并非现代技术的恐惧者，但对于克隆这样的逆天之术，实在没有好感！

在物种层次上，生物多样性最容易被大众理解：地球上生活着数以百万计的物种。但在这个层次上，人类剿灭生物多样性的历史却也由来已久。其他物种之于人类的实用性抑或危害性，以及人类对其的好恶态度，往往成为剥夺物种生存权力的理由。象牙、犀角、鱼翅、熊掌都是灭杀那些物种的理由。最高效的灭杀物种的“大规模杀伤性武器”，诸如农药、抗生素、火焰喷射器，它们往往因为人类要灭某种“害虫”，如水中的钉螺（吸血虫的寄主）、田间的蚂蚱、土里的地鼠和天空的麻雀，而大量施用，滥杀无辜——这种种都是我亲身经历过的。儿时记忆中那万物竟自由的丰饶乡土大地，已经变得静如死寂！与此同时，人类对其所好的物种却关爱有加，出于美好愿望，科学家们提出所谓的“旗舰物种”的概念，期望通过优先保护如大熊猫等“可爱的”物种，唤醒公众对所有生物及它们生存环境的保护，促进人们保护生态的观念的提升。然而，就在我们不惜成本保护大熊猫的繁衍及其栖息地的同时，与大熊猫处于同一长江流域里的、也许更具生态价值的生物多样性保护，却没有获得应有的重视！

栖息地是生物生存和繁衍的场所，其多样性是物种和基因多样性的保障和基础。栖息地是地理单元内各种环境因素的总和，每一种因素的微妙变化都会对生物的生存造成影响。当今地

球上的人类活动已造成了栖息地的巨大变化——堪比恐龙灭绝时代的全球性变化！全球范围的气候变化、区域尺度的城市扩张、粗暴无度的水利工程和大型灰色基础设施的建设、日益机械化和规模化的农业生产、原始森林的大规模砍伐、能源作物如油棕的大规模种植……都在以惊人的速度毁灭着大量的生物栖息地！

理解了生物多样性消减的原因，我们便可以回到威尔森的憧憬中去：景观设计将在未来的生物多样性保护中发挥至关重要的作用。要如此，景观设计学必须立足于以下几大基本原则和策略：

第一，设计遵从自然，首先通过规划途径，建立国土和区域的生态安全格局，在人地关系日益紧张背景下，通过判别和保护关键性的栖息地，用最少的土地最大限度地保护和改善生物多样性。

第二，在栖息地的生态修复和大规模城乡绿化中，尽可能地使用本土的原生物种，避免外来物种和园艺栽培种的泛滥。

第三，对水利工程、交通基础设施工程、农业及林业活动，以及城市开发建设，景观设计师必须承担起生态化设计的重任。所有这些人类活动并非注定就是生物多样性的杀手，古代水利工程中的陂塘系统、有机农业系统、可持续的林木采伐管理、与山水相适应的城镇建设等经验都告诉我们，通过科学与艺术的结合，优秀的景观设计可以使人类活动不加害于其他生命的栖息地，反而有助于生物多样性的保护与栖息地的共享。



# HABITAT AND BIODIVERSITY

CHIEF EDITOR Kongjian YU

TRANSLATED BY Sara JACOBS Angus ZHANG

When I first read *Life on Earth* by Edward Osborne Wilson over 20 years ago, I was enlivened by his words: “In the expanding enterprise, landscape design will play a decisive role. Where environments have been mostly humanized, biological diversity can still be sustained at high levels by the ingenious placement of woodlots, hedgerows, watersheds, reservoirs and artificial ponds and lakes. Master plans will meld not just economic efficiency and beauty but also the preservation of species and races.” Wilson’s statement has continued to inspire me and bring confidence to my commitment to healing the earth through landscape architecture. His words also increased my awareness of the potential of landscape architecture, helping to guide my professional practice.

There are three consensuses about biodiversity: genetic diversity, species diversity, and habitat diversity.

Biodiversity can refer, at the scale of the gene, to the individual differences within a single species. For example, there is no same two poplars on earth, despite being the most common tree. In many ways, humans are the best example of the diversity at the genetic level. There are nearly six billion people on the earth, with no two the same. It is the genetic diversity that gives each species the potential to thrive and adapt to changing environments. Cloning, despite replicating genes, does not contribute to biodiversity. Rather, it dramatically cuts off biodiversity, causing species to lose their ability to adapt to the environment. I am not, however, fearful of modern technology, yet I cannot help hating such technology that is against natural law!

Biodiversity at species level is most understandable. Simply, there are millions of species living on earth. However, this awareness has not curtailed our long history of destroying biodiversity. Often, a species’ right to life depends on their usefulness to humans, our likes or dislikes. The harvesting of ivory, rhino horn, shark fin, or bear paw can, and often does, result in the death of those animals. Weapon of mass destruction, such as pesticides, antibiotics, or flamethrowers are widely used only as human pest control. I have seen creatures innocently killed, such as oncomelania in water (the host of aquatic blood-sucking insects), the grasshopper in fields, the hamster in the earth and the sparrow in the sky. My childhood memories of a fertile homeland where all species live in free competition is now nothing but dead silence. At the same time, humans go to great efforts to save the species they like. “Flagship species,” most of which are charismatic species, such as the Giant Panda, are proposed by ecologists with a good intention of arousing public’s awareness of species and habitat conservation and given priority within conservation measures. Even these efforts are now being challenged as people go to great lengths to protect panda habitats and breeding grounds while ignoring greater species diversity within the same valley, the Yangtze River!

Habitat is where creatures reproduce, live, and grow, the diversity of these landscapes is the foundation of species and gene biodiversity. Habitat is the sum of our environments, where subtle changes in subtle factors impact living things. Human activity has resulted in huge changes in habitat, on par with global change that occurred in the era of the dinosaurs! Worldwide climate change, regional-scale urban expansion, the construction of brutal gray infrastructure, increasingly mechanized agricultural production, the large-scale clearing of primeval forests, and the mono-cultivation of energy crops such as oil palm are all examples of activities actively destroying habitat at an alarming rate!

With knowledge of what causes biodiversity reduction, we can go back to Wilson’s words, that landscape design will play a decisive role in biodiversity conservation. With this in mind, landscape architecture must incorporate the following principles and strategies:

First, we must design with nature. Beginning with planning, this will require establishing ecological security patterns at both the regional and state level. Working between people and land, landscape architects must use less land. This will require first protecting, and then resorting, biodiversity through identification and conservation of critical habitats.

Second, landscape architects must, where possible, use local and native species during ecological restorations, particularly large-scale urban and rural afforestation, avoiding exotic species invasion and intensive use of cultivated species.

Finally, landscape architects must assume the task of ecological design as it applies to hydraulic engineering, transportation infrastructure, agriculture and forestry, and urban development. While none of these activities are designed to kill biodiversity, without proper planning and design they can be incredibly environmental destructive. Various methods, such as the ponds system of historic water conservancy projects, organic farming systems, sustainable management of forestry, and adaptive settlement with hilly land and flood have shown that by combining science and art, landscape architecture can produce life, rather than take life, helping achieve a shared world.

