

以生态健康的文化可持续性为目标进行审美体验设计

Designing Aesthetic Experiences for the Cultural Sustainability of Ecological Health



李佳阳
LI Jiayang*

美国密歇根大学环境与可持续发展学院
博士候选人
PhD Candidate, School for Environment
and Sustainability, University of
Michigan



琼·艾弗森·纳索尔
Joan Iverson NASSAUER

美国密歇根大学环境与可持续发展学院
教授
Professor, School for Environment and
Sustainability, University of Michigan

*Corresponding Author
Address: 440 Church Street, Ann Arbor, MI 48109, USA
Email: jiyang@umich.edu

翻译 | 王颖、田乐、李佳阳
TRANSLATED BY | WANG Ying, Tina TIAN, LI Jiayang

摘要

保障人类福祉和促进生态健康是当代景观设计实践和气候变化适应的两个核心目标。认知科学认为，情绪和情感会极大影响决策过程。本文则讨论了审美体验如何对能够提升或削弱生态健康的决策产生影响。虽然众多实践已经证实令人愉悦的景观体验有益健康，但是这些体验不一定会促进生态健康。如何推动审美体验与生态健康二者相辅相成仍处于探索阶段。基于“文化可持续性”概念，本文阐释了如何在设计策略中利用审美体验，鼓励公众接纳高性能的生态系统，避免其因吸引力较弱或不被人熟悉而遭到破坏或抵制。本文从小尺度、可以被迅速识别的景观特征出发，以“关怀线索”（cues to care）为例，剖析了如何通过改变人们的感知和情感反应来促进生态健康，并结合三个中国和美国的案例进行了讨论。本文期望引导读者思考：当城市面临气候变化带来的全新挑战时，审美体验在保护、恢复和营造生态良好景观的努力中能够发挥何种作用？如何通过设计人们可以迅速识别的景观特征来影响审美体验？

关键词

美学；景观感知；城市生态系统；基于自然的解决方案；绿色基础设施；生态设计

ABSTRACT

Ensuring human wellbeing and promoting ecological health are two central objectives in contemporary landscape architecture practice and adaptation to climate change. Cognitive sciences recognize that affect and emotion play a critical role in human decision-making. This article describes how aesthetic experiences could affect decisions that support or undermine ecological health. While the wellbeing benefits of pleasant landscape experiences have been demonstrated empirically, aesthetic experiences may or may not promote ecological health. The question of how to better align the two remains under debate and investigation. Building on the concept of cultural sustainability, this article elucidates how aesthetic experiences can be used in design tactics to encourage societal acceptance for highly functioning ecosystems that otherwise may be destroyed or resisted for their unappealing or unfamiliar appearance. With examples from China and the United States, this article illuminates how fine-scale, immediately noticeable landscape characteristics, such as “cues to care,” can change perceptual and affective responses to promote ecological health. This article invites readers to reflect on what role aesthetic experiences may play in conserving, restoring, and creating ecologically sound landscapes as we face new challenges in the urban era of climate change, and how design can help construct aesthetic experiences with immediately noticeable landscape characteristics.

KEYWORDS

Aesthetics; Landscape Perception; Urban Ecosystems; Nature-Based Solutions; Green Infrastructure; Ecological Design

1 引言

人类之于环境现象的审美体验是直接的、基于直觉的，其背后的复杂心理机制及感知、情感和认知过程尚未得到充分认识^{[1]-[3]}。尽管如此，快速而直接的审美体验——或愉快或不愉快的感受——可能极大影响人们对于景观及其生态完整性的决策和行为方式^{[4]-[6]}。但审美体验未必能反映生态过程和功能。在生态修复和绿色基础设施的发展过程中，一旦景观之美表现得不够清晰或有所削减，相关工作便可能受阻；而看起来不太美观却具备重要生态功能的盐沼、湿地和草甸，可能会通过增加树木、花园和步道等更具视觉吸引力的元素被“改善”^{[7]-[10]}。在气候变化问题越发显著的当下，基于自然的解决方案已经成为探索适应气候变化、增进人类福祉的重要途径，因此我们尤须积极应对“如何调和审美与生态”^[4]这一长期挑战。

考虑到人类认知的特征，可藉由两种途径来调和美学与生态功能的冲突关系。其一，发挥科学知识在调节情感反应和引导审美判断上的重要作用，激发人们对于环境之美的意识与反思^{[8][11][12]}。例如，当人们深入了解了盐沼生态系统后，便可能重新审视看似毫不起眼的草地和泥炭地，进而产生新的审美体验：人们对景观的直接情感反应可能较为肤浅且有所偏颇，因此人们应当了解景观背后的生态过程与功能，以深化审美体验，使其以生态健康为基础。其二，关注人们的知觉和情感反应，并理解其与可直观感知的景观特征的关系^{[13]-[15]}。以上相关研究成果揭示了如何有意识地在景观设计中实现生态和美学功能的共赢。与此相关的一个重要概念是“文化可持续性”（cultural sustainability）——正如琼·艾弗森·纳索尔所言，“能吸引人们关注和喜爱、得到人们悉心照料的景观更有可能留存下来”^[6]。她还提出，审美体验鼓励人们认识和享受生态健康，因此对维持景观长期的良好生态功能有至关重要的作用^[6]。文化可持续性的概念并不要求人们运用科学知识去理解一个陌生的景观具有何种生态健康效益；相反，它试图利用人们已经熟识甚至喜爱的景观要素，来唤起人们对新景观特征的认同。如此，人们便可能逐渐认识并接受与生态健康相关的景观特征。

本文基于第二种途径，探讨了聚焦于小尺度景观特征的设计策略如何引导人们的注意力，并激发人们对多种尺度的基于自然的解决方案的审美体验。本文认为，景观设计师和相关从业人员需将文化可持续性的概念融入对生态系统的保护、修复和营造之中，以获得更广泛的社会认同和支持，进而有效增强对气候变化的适应。

1 Introduction

Aesthetic experiences connect people to environmental phenomena in a direct, intuitive way. The complex psychological mechanisms and perceptual, affective, and cognitive processes involved in aesthetic experiences are yet to be fully understood^{[1]-[3]}. Nevertheless, aesthetic experiences feel rapid and immediate, and these pleasant (or unpleasant) feelings can powerfully influence human decision-making and behaviors to affect a landscape and its ecological integrity^{[4]-[6]}. Yet aesthetic experiences may or may not reflect ecological processes and functions. Ecological restoration and green infrastructure implementation may be rejected for the ambiguity or degradation of landscape aesthetics, while salt marshes, wetlands, and meadows that embed critical ecological functions but sometimes look unappealing may become “improved” as more attractive park-like green space with trees, gardens, and walkways^{[7]-[10]}. In the urban era of climate change, this long-noted challenge of “aligning aesthetics with ecology”^[4] demands even more attention, given that nature-based solutions are emerging as a key approach in climate change adaptation and human well-being support.

From the perspective of human cognition, there are two distinct ways of seeking a more integral relationship of aesthetics and ecology. One argues that scientific knowledge can, and should, have an essential role in moderating affective reaction and guiding aesthetic judgement to be more environmentally aware^{[8][11][12]}. As an example, knowledge of a salt marsh ecosystem may inform people to attach new meanings to the inconspicuous grasses and deep peat and enable aesthetic experiences that otherwise may not occur. This understanding implies that the immediate affective responses to a landscape can be superficial and biased, and consequently, people need to learn about ecological processes and functions embedded in a landscape to have more informed aesthetic experiences. The other focuses on understanding perceptual and affective response as related to a landscape’s immediately perceivable characteristics^{[13]-[15]}. These insights shed light on how to intentionally design landscapes to bear both ecological integrity and aesthetic pleasure. A notable concept relevant to this idea is “cultural sustainability”—as Joan Iverson Nassauer stated, “landscapes that attract the admiring attention of human beings may be more likely to survive than landscapes that do not attract care or admiration”^[6]. She further argued that aesthetic experiences are critical to sustaining ecologically sound landscapes over time because these experiences make ecological health recognizable and enjoyable to people^[6]. Cultural sustainability does not expect that people call on scientific knowledge to facilitate their cognition of unfamiliar yet ecologically healthy landscapes. Rather, it seeks to evoke approval of a new landscape characteristics by making use of what people notice and appreciate in their experiences of familiar landscapes. By doing so, it may teach people to gradually recognize and appreciate landscape characteristics associated with ecological health.

This article builds on the second approach and discusses how design tactics focused on fine-scale landscape characteristic might direct human attention to elicit aesthetic experiences of novel nature-based solutions across scales. We argue that, to

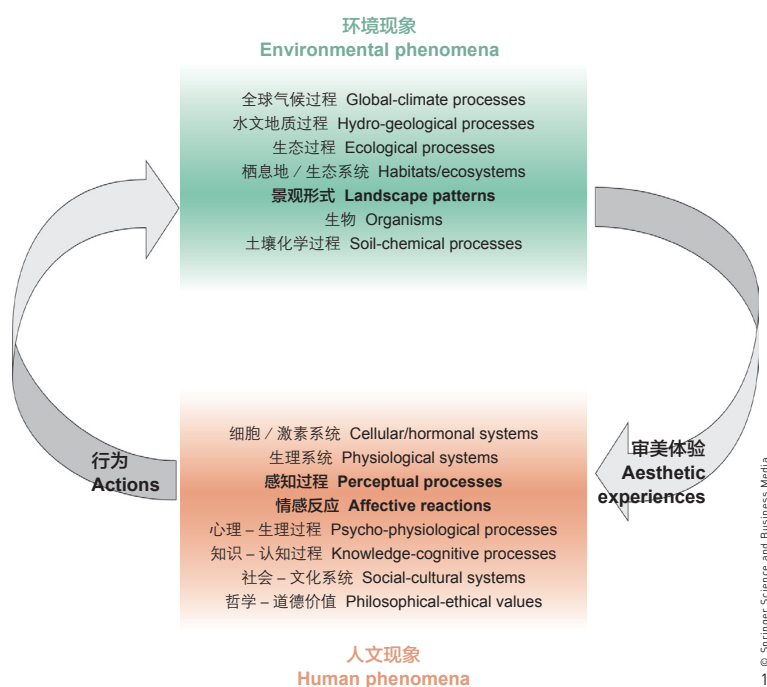
2 审美体验与可感知的景观特征

景观审美体验是一种从感知、情感和认知等心理过程——尤其是情感过程——中获得的愉悦感，而这一过程产生于人们对周围景观中水、植物、地貌和建筑结构等细微形态及特征快速捕捉^{[1][4]}。

保罗·H·戈布斯特等人将以人类视角和经验为核心的景观尺度称为“可感知范围”（perceptible realm）^[4]。他们提出，大到全球尺度、小到微观尺度的各类环境现象构成了生态系统服务的基础，而人能够快速感知的仅仅是有形的景观界面，以及可将难以察觉或不可见的生态过程呈现出来的景观特征（图1）。例如，生态学家通常根据含盐量和主要植被类型等生态指标对湿地进行分类，但公众则依靠水域面积、是否有树木、气味如何等可迅速感知的特征^{[16][17]}来认识湿地。图1所示的框架也将人类的感知过程和情感反应置于更广泛的认知系统和过程中——从个体的身心反应到人与人相互影响的社会—文化体系，再到超越了不同文化和社会层级的价值体系。但根据“可感知范围”，只有立足于特定尺度，设计才可能改变人们的景观审美体验和行为，进而影响更广泛的生态过程和功能。

什么样的景观特征可能更受人们的审美青睐？不同个体对这个问题的回答并非千差万别，这在一定程度上由人类的生物功能和作为智人的进化史所决定。在远古时代，人类祖先需要快速评估周围环境并采取相应行动以谋求生存，审美体验中涉及的情感反应即可能与此相关^{[1][2]}。

1. 呈现景观中人与环境相互作用的模型（改绘自参考文献[4]，受施普林格科学与商业媒体授权使用）。原图于2007年发表于《景观生态学》期刊第22卷第7期第963页。
1. Model of human-environmental interactions in the landscape (Adaptation source: Ref. [4] with kind permission from Springer Science and Business Media). It is originally published in Issue 7, Volume 22 (p. 963) of *Landscape Ecology* in 2007.



effectively contribute to climate change adaptation, landscape architects and allied practitioners need to build cultural sustainability into the conservation, restoration, and creation of ecosystems for them to gain societal recognition and support.

2 Aesthetic Experiences and Perceivable Landscape Characteristics

We define landscape aesthetic experiences as a feeling of pleasure that arises from psychological (perceptual, affective, and cognitive) processes, particularly affective processes, as people immediately notice the fine-grained patterns and characteristics of water, plants, landforms, and built structures in their surrounding landscape^{[1][4]}.

Paul H. Gobster et al. articulated the landscape scale centered on human perspective and experience as the “perceptible realm”^[4]. They observed that environmental phenomena occur at global to microscopic scales to deliver ecosystem services, while humans can readily perceive only noticeable landscape patterns. These patterns are the tangible landscape interface of often unperceivable or invisible ecological processes (Fig. 1). For example, wetlands are typically classified by ecological metrics such as salinity and dominant type of vegetation, but the general public perceives wetlands by their immediately perceivable characteristics, like area of visible water, presence of trees, and odor^{[16][17]}. Further, this model situates the perceptual processes and affective reactions that characterize aesthetic experiences within broader systems and processes related to human cognition—ranging from somatic and psychological reactions to social-cultural systems where individuals interact with each other to values that transcend different cultures and societies. The idea of the “perceptible realm” suggests a specific scale where design choices may work to change people’s aesthetic experiences of a landscape and, consequently, affect their actions, which impact broader ecological processes and functions.

What landscape characteristics are likely to be associated with aesthetic experience is less variable among individuals than is commonly understood. This has been partially attributed to biological functions and the evolutionary history of humans as *Homo sapiens*. Affective reactions involved in aesthetic experiences may relate to human ancestors’ need to quickly assess their surrounding environment and take actions accordingly in order to survive^{[1][2]}. As now recognized in cognitive psychology and neuroscience, affect and emotion play an integral role in human decision-making, often coming prior to reasoning and analysis-based judgments to guide adaptive behavior rapidly and efficiently^{[18]-[20]}. Some landscape elements and features, such as scattered canopy trees, colorful flowers, and water, have been consistently associated with greater aesthetic preference for natural landscapes, possibly because they signal safety or abundant food resource^{[3][5][21][22]}. In contrast, common feelings of dislike or fear of dense woods or swamps with a foul odor may relate to exposure to predators or pathogens in these environments^{[2][23]}. Moreover, concepts such as coherence and complexity^[5], and prospect-refuge^[24], have been developed to describe how the spatial arrangement of different elements and patterns affects aesthetic experiences, possibly by determining the ease of information processing and locomotion. Recent evidence from neuroscience research also indicate that people have significantly more similar

当前,认知心理学和神经科学普遍认为,情感和情绪在人类决策中起着不可或缺的作用,它们通常先于以逻辑和分析为基础的判断而出现,能够快速高效地指导适应行为^{[18]-[20]}。一直以来,人们更加偏好树冠舒展的树木、五彩缤纷的花卉、水体等自然景观元素/特征,可能由于它们具有安全感或象征着丰富的食物资源^{[3][5][21][22]}。相反,人们对茂密的森林或散发异味的沼泽感到厌恶或恐惧,则可能是因为身处这些环境中易受捕食者或病原体的威胁^{[2][23]}。此外,景观元素或模式的空间布局也会影响审美体验,这可能是由于“连贯性”(coherence)/“复杂性”(complexity)^[5]、“了望—庇护”(prospect-refuge)^[24]等概念所形容的空间布局能够影响人类对信息的处理和空间中的定位和移动。来自神经科学的最新研究还表明,相较于建筑或艺术品,人们对自然景观的“品味”更为相似,这可能正是由于景观审美体验与人类行为的联系更加紧密^[3]。

此外,个体体验通常产生于更加广泛的社会—文化体系之中。“文化”——广义上指一群人的生活方式——影响着人们如何预期和欣赏景观^[22]。正如哲学家玛西娅·伊顿所言,“是群体而非孤立的个人决定了什么是值得关注的,以及如何将审美意识倾注于事物中”^[25]。这一观点在由人类主导的景观中尤其适用。纳索尔在关于文化可持续性的讨论中表示,当景观为某一群体所见时,其本质上已具有了公共性,因而该群体的文化习俗将对景观风貌产生深刻影响^[6]。

人们对景观生态系统功能的理解也会改变自身的审美体验。这种理解可能源于专业训练和科学教育,甚或是源于对某一景观的长期观察^{[5][10][26]}。例如,有研究表明,不同于大众,设计从业人员对北京公园中自生植物的偏好要高于草坪和花坛^[27]。景观设计师和相关从业人员对景观的感知通常会受到有关生态过程和功能知识的影响,因而他们的审美体验可能与公众或当地居民不同。如果缺乏以生态学视角思考景观的经验,人们对于景观的审美体验将更多地依赖于当下的所感所知,而非生态完整性的相关知识。这种对环境过程的感知能够将人与自然环境以一种直观的、基于经验的方式相联系,尽管这种感知可能与科学知识相悖。

3 用“关怀线索”调和审美体验与环境健康

从一些已达成共识的设计规范中可以窥见人们对于景观风貌的文化观念——“风景如画”(Picturesque)的审美理念深深影响了英美等国家,以至于人们自然而然地认为,起伏连绵的山丘、平静的池水或倾泻而下的瀑布、树冠舒展的树木或开阔的草地就是美丽健康的大自然应有的样子。但在日常的景观设计和管理中,也存在另一种根植于民间实践且深深影响着当地物质文化的文化观念——纳索尔认为,这种民间美学源自可见的关怀和看护^[15]。例如,在许多地区和文化中,精心修剪的灌木和草坪象征着一种基于持续维护的得体的美。

本文将深入探讨“关怀线索”(cues to care)这一典型概念,以期指导能够实现更广泛环境效益的设计策略。笔者认为,这样的小尺度景观元素通过引导人们的注意力,能够鼓励人们重视并维护那些具有生态健

“tastes” for natural landscapes than for architecture or artworks, which could be explained by a greater behavioral relevance^[3]。

Further, considering the broader social-cultural systems within which individuals' experiences occur, culture—which broadly denotes the ways of living of a group of people—teaches people what to expect and appreciate from a landscape^[22]。As philosopher of aesthetics Marcia Eaton suggested, “It is communities, not individuals acting in isolation, that determine what is worthy of attention and how aesthetic attention gets directed to objects and events”^[25]。This is particularly relevant in human-dominated landscapes. In the discussion about cultural sustainability, Nassauer elucidated how cultural conventions within a community may powerfully influence landscape appearance, in part because landscape is inherently public when it is visible to the community^[6]。

People's understandings of a landscape's ecosystem functions can also modify their aesthetic experiences. This understanding may come from professional training and scientific education, or even observation of a landscape for a long time^{[5][10][26]}。For example, compared with the general public, design professionals expressed higher preference for spontaneous plants over lawns and flowerbeds in parks in Beijing^[27]。Consequently, landscape architects and allied actors who perceive landscapes with a deep understanding of ecological processes and functions need to keep in mind that their aesthetic experiences may differ from the general public or members of the local community. For people not trained to understand and appreciate a landscape through the lens of ecological integrity, aesthetic experiences may depend even more on immediately perceivable characteristics, offering an intuitive, experiential way of perceiving environmental processes that sometimes absents scientific knowledge。

3 Aligning Aesthetic Experiences With Environmental Health With “Cues to Care”

Cultural conventions for landscape appearance can be derived from resonant design norms: the Picturesque has so profoundly influenced Great Britain, the United States, and many other countries that the unchanging scenery consists of rolling hills, tranquil ponds and crushing waterfalls, and scattered canopy trees and open lawns are sometimes taken for granted as what beautiful and healthy nature looks like. However, another type of cultural convention is deeply rooted in vernacular practices for designing and managing landscapes in everyday life, and, as such, represents pervasive material culture. Nassauer described this vernacular aesthetic as an aesthetic of visible care and stewardship^[15]。For example, pruned shrubs and weeded, mown turf indicate appropriate, ongoing upkeep in many regions and cultures。

Here, we discuss in depth “cues to care” as an exemplary concept to inform design tactics intended to pervasive environmental effects. We focus on fine-scale landscape elements that invite further innovation to redirect people's attention to help them value and sustain landscapes that embody ecological health. We look specifically at urban green space, a landscape type associated with multi-functionality to address climate change stressors (e.g., urban heat mitigation, stormwater

康的景观。我们也希望“关怀线索”能启发读者去进一步创新设计策略。我们主要关注了城市绿地这一景观类型，其具有促进适应气候变化（如缓解城市热岛效应、进行雨洪管理）、增进人类福祉^{[28]-[33]}等多重功能，而这些功能的发挥皆取决于生态健康^[34]。同时，城市绿地的多功能规划设计往往也旨在营造美观宜居的建成环境^{[35][36]}。

关怀线索指“能够让人迅速识别出设计痕迹、体现人们对某一景观持续进行照料和关怀的景观元素”，这里的“设计”泛指任何有意为之的景观改造，可以由专业设计人员、工程人员、地产开发商或民众进行^[37]。纳索尔曾在多篇文章中表示，景观的环境效益通常是无形的，那些生态良好的景观虽然走进了人们的视野，但也可能会因为平平无奇、不为人所熟识的外观而被忽视^{[6][15][38]}。因此，她建议引入关怀线索，促使这些景观得到认可，从而提供持续的生态效益。

这种关怀线索具有三种感知及社会—文化机制，为其在人类主导的景观中有效地引入生态过程与功能提供了基础^[37]。首先，这些可见的线索来源于人们熟悉的景观形式；其次，这些线索能够暗示人类在景观中的存在印迹或关怀意图；第三，它们反映了有关景观风貌的地方文化传统和社会范式。常见的关怀线索包括修整过的草坪、多彩的花卉、修剪后的植物、栅栏和小径等小尺度景观元素。此外，关怀线索的应用方式也需要根据具体的土地利用和覆被情况进行调整。例如，花卉可作为公园中修复草甸的关怀线索，但却不一定适合湿地或溪流环境。下文将通过来自中国和美国的三个案例，展示关怀线索如何在不同文脉和尺度下发挥作用，帮助保护、修复和营造具有良好生态功能的绿地景观。

第一个案例是由土人景观设计的秦皇岛汤河公园。这个项目通过一个小尺度的设计手段，深刻地改变了人们对大尺度城市河流沿岸残留自然栖息地的认知（图2）^[39]。当时，汤河的其他河段多被渠化，自然河岸带也常常被改造为硬质铺装广场。而该项目则保留了自然水道和河岸带内茂密的野生植被，并引入了一条蜿蜒的木质步道和兼具座椅、照明和本土植物标本展示等功能的红色玻璃钢装置——“红飘带”。

该项目体现了一种设计尺度的转变——不再将某种想法或规则施加于生态系统来改变其外观与内在过程，而是侧重于改变人们在生态系统

management) and support human well-being^{[28]-[33]}. The effectiveness of these functions relies on ecological health^[34]. At the same time, multi-functional planning and design of urban green space often aims to contribute to aesthetically pleasant and livable built environment^{[35][36]}.

Cues to care are “landscape elements that are immediately recognizable as designed, and that signal continuing human presence to care for a landscape,” with design broadly connoting any intentional landscape change ranging from professional design and engineering to real estate development to vernacular management.^[37] In several papers, Nassauer articulated that landscape environmental benefits are often invisible, and that certain visible characteristics of ecologically sound landscapes may look unattractive and unfamiliar in human-dominant contexts^{[6][15][38]}. Therefore, she suggested employing cues to care so that these landscapes are perceived as valuable, and their ecological benefits sustain over time.

There are three perceptual and social-cultural mechanisms summarized for cues to care to effectively place ecological processes and functions within human-dominated landscapes^[37]. First, these visual cues belong to a familiar landscape vocabulary thus are immediately recognizable to people. Second, they signal human presence in a landscape or intention for caring for it. Third, they reflect local cultural traditions and social norms regarding landscape appearance. Common examples of cues to care include fine-scale elements such as mown turf, colorful flowers, pruned plants, fences, and pathways. Further, depending on the specific land use and land cover context, different cues may need to be employed. For example, color flowers may be an effective cue to accompany restored meadows in parks, but less so for wetlands or streams. Below, we look at three projects in China and the United States that demonstrate how cues to care may work in various contexts and scales to support the conservation, restoration, and creation of ecologically sound green space in cities.

Tanghe River Park in Qinhuangdao, China designed by Turenscape is a good example of how a small design gesture, which functions as a cue to care, profoundly changed the perception of a much larger-scale remnant natural habitats along an urban river (Fig. 2)^[39]. In contrast with other sections of the river where water was channelized with concrete and the riparian zone was eradicated and turned to paved plazas—a typical approach at the time, this project preserved the natural waterway and surrounding dense, wild-looking riparian vegetation. A wandering boardwalk was introduced, together with a red-colored glass fiber structure (the Red Ribbon) that combined seating, lighting, and native grass specimens with interpreting signs alongside.

This project exemplifies how design can shift scale from imposing ideas and rules on the appearance and embedded processes of an ecosystem, to focusing on intervening with people’s experiences and behaviors in this ecosystem. The Red Ribbon, of course, made the area accessible and usable for recreation. But on the fundamental level, this structure is an immediately recognizable cue that signals human intention: it clearly conveys to nearby residents that the surrounding plants

2. 秦皇岛汤河公园中的“红飘带”装置

2. Tanghe River Park with the Red Ribbon in Qinhuangdao





3. 由上海四叶草堂发起的社区花园项目
3. Communities gardens initiated by the Clover Nature School in Shanghai

中的体验和行为。“红飘带”不仅提升了该区域的可达性和休闲功能，更为根本的是，这一结构也是一个人们可以迅速辨识、表达了设计意图的关怀线索。它清楚地向附近居民传达着这样的信息：周边的植物和天然河道都是有意保留的，欢迎到这里体验和享受这种自然气息。此外，尽管“红飘带”鲜艳红色常常被评价为颇具“戏剧性”，与周围的绿色植物形成了充满艺术感的强烈对比^{[40][41]}，但红色在中国的民俗文化中也有欢乐与喜庆的寓意，是日常生活中常见的色彩。

另一个更具民间特色的案例来自于社区花园。在中国，这类景观正在获得更加广泛的社会认可并逐渐普及。上海四叶草堂青少年自然体验服务中心是发展社区花园的先锋。团队设计师主导并协助了众多社区闲置空地改造试点项目^{[42][43]}。在高密度的城市居住区内，社区花园不仅为居民接触自然、体验都市农业提供了机会，还具有为传粉昆虫及其他野生动植物提供栖息地、进行雨洪管理和家庭垃圾处理、促进社会凝聚力和提升邻里互动等潜在价值^{[44]-[46]}。为实现这些目标，社区花园中通常会种植多种生长季节各异的蔬菜，并保留或引入野生的本土草本和多年生植物，同时利用回收而来或生活中廉价易得的材料制作竹围栏、手工标牌和涂鸦、箱式种植槽等景观元素（图3）。

乍看之下，这些社区花园可能与地产开发中已经普及的高度人工化、精细化美学形成鲜明对比，甚至略显杂乱。但居民对社区花园的喜爱和花园日益增长的人气，恰恰反映出这种形式满足了社区居民营造与管理日常生活环境的关怀和热情。与汤河公园项目不同的是，居民拥有更多的主动权来构思花园中要设置哪些景观元素，以及如何管理这些元素，设计师则更多扮演辅助的角色^{[42][43]}。除此之外，设计师还能够运用专业技能促进社区花园在社会中的接受度和认可度，例如将蔬菜和本地植物与开花植物间种，或选用木本植物来维持冬季花园结构。^[47]这一案例表明，要想构建有效的关怀线索，就需要从当地居民的视角出发，探寻社区成员认为“值得关注”^[25]的对象。

第三个案例是美国底特律的一个绿色雨洪基础设施项目。该项目面向人口大量迁出、有众多废弃住宅的街区，通过将闲置地块改造成生态蓄洪花园，以期减少其对社区的不良影响。该项目的设计过程不断吸纳来自社区居民的反馈，探索何种关怀线索最符合当地居民对安全

and the natural riverbank were intentionally kept, inviting the residents to explore and enjoy what the site has to offer. Moreover, the bright red of the material—which some have commented as “dramatic” and interpreted as a formalistic, artistic contrast against the green plants^{[40][41]}—also is a color associated with joy and blissfulness in Chinese folk culture and used in everyday events and objects.

Another more vernacular example of how cues to care may come into play regards community gardens that are now gaining broader societal recognition and increasingly being explored in China as a potentially pervasive landscape type. Notably, designers from the Clover Nature School in Shanghai have helped initiate and facilitate a number of pilot community gardens on leftover lands and in between space in neighborhoods around the city^{[42][43]}. Such community gardens create opportunities for food production and more nature contact in high-density urban neighborhoods, and have potential for supporting pollinators and other wildlife, managing stormwater and household waste, and promoting social cohesion and interactions^{[44]-[46]}. Given these goals, community gardens often are used to grow a variety of vegetables with different looks and growing seasons, which are accompanied by wild-looking native grasses and perennials and small structures made with inexpensive recycled or vernacular materials such as bamboo edging, handmade signs and drawings, and box planters (Fig. 3).

At first glance, these community gardens may appear as a sharp contrast with the highly manicured and exquisite aesthetics that have become a norm in residential real estate development and professional practice. Yet to the extent that they are celebrated by many residents and continue to gain popularity, they are recognized as a manifestation of community members’ care for and engagement in the creation and stewardship of their everyday environment. Different from the Tanghe River Park project, residents play a major part in conceiving what landscape elements are included in the gardens and how they are managed, while designers are acting more as facilitators^{[42][43]}. Designers also help promote broader societal recognition of the gardens by proposing elements drawn on norms in professional practice, such as interplanting vegetables and native species with flowery plants and using woody plants to maintain the garden structure in winter.^[47] This example demonstrates that creating effective cues requires an effort to integrate local residents’ perspectives, and, what a community considers as “worthy of attention”^[25].

Another example is a project that transformed vacant lots to implement green stormwater structure in a neighborhood adversely affected by widespread vacant properties in Detroit, the United States. In this project, design and community feedback worked iteratively to investigate what cues to care may best signal safety and care to local residents and improve their perceptions of the neighborhood environment^[48]. After initial pilot site construction, focus groups informed a rigorous interview survey protocol, for testing how to improve the pilot site designs. Residents were found to most prefer designs that had bollards and flowery plants for vacant lots near their homes. They rated designs with these elements as significantly safer and well cared-for in comparison with designs featuring trees or mown turf (Fig. 4).

和维护良好花园的期望，以及最有助于改善街区环境^[48]。在试点花园初步建成后，项目团队根据从焦点小组中获取的信息，制定了细致的居民访谈调研计划，以了解设计的成效并探索改进方向。调研发现，居民最喜爱结合了混凝土防撞柱和开花草本植物与灌木的设计方案，对于他们而言，开花植物明显比树木或精修草坪更能让人体会到安全感与关怀感（图4）。

这一发现看似出乎意料——在美学层面，树木通常更受人喜爱，而混凝土制品则可能意味着高度的人工干预。但在底特律这样一个拥有悠久工业历史但又深受去工业化、投资缩减和结构性不公平困扰的城市中，防撞柱和低矮的开花草本与灌木更能向居民传达安全感和关怀感^{[48][49]}。这些元素所代表的正是居民在日常生活中所关注的——安全至上，以及能够切实感受到城市在街区投资和维护方面所做的持续努力。

4 结语

关怀线索的概念提供了一种策略，来弥合直观的景观审美体验与生态过程和功能所呈现的无形的（有时甚至是不受欢迎的）外观之间的差距。一方面，文化可持续性概念认可广义的文化线索，包括“风景如画”和“景色秀美”（Scenic）等已为大众所接受的景观形式。另一方面，根植于民间文化的关怀线索更能促进环境效益的提升，因为这种文化已经渗透至更为广泛的日常景观之中。本质而言，关怀线索强调要面向“能够理解这些线索”的居民和景观设计将会影响的社区。关怀线索之所以能够提升人们对生态健康景观的审美体验，并不是因为它们来自于某种美的普世标准，而是因为它们与社区居民的日常生活、地方文化与社会体系等密切相关。

如果能够从人类的感知与情感反应的角度理解审美体验，并思考这些体验与可感知的景观特征的关系，则可以通过设计将人们的情感和行为与环境现象联系起来。有意引入小尺度景观元素和形式的设计策略，能够令人们转换对景观的关注焦点，从而对具有重要但较难感知的环境效益的生态系统有所改观。本文讨论的关怀线索——无论作为一个概念还是作为具体的景观元素——正是以此为出发点的一种设计策略。关怀线索为寻找、选择和创造这类小尺度景观元素提供了指导。与此同时，

This finding might seem surprising given that canopy trees are often associated with high aesthetic preference, while concrete can be associated with too strong human impact and unnaturalness. But within a legacy city that has been troubled by deindustrialization, disinvestment, and structural inequities, flowery plants and bollards connote care and safety^{[48][49]}. The presence of these elements fits well with what residents value in their everyday life—reassurance of safety, and visible and ongoing efforts from the city to invest in and upkeep their neighborhood.

4 Conclusion

The concept of cues to care exemplifies one tactical approach to addressing the difference between the immediacy of landscape aesthetic experiences and the invisible and sometimes undesirable appearance of broader ecological processes and functions. While the concept of cultural sustainability embraces a wider set of cultural cues, including the Picturesque and Scenic, the pervasiveness of vernacular cues to care elevates its power to affect environmental benefits. Further, cues to care inherently includes a community audience of those “who can read these cues,” emphasizing the need to address the specific communities that landscape change will affect. That cues to care can help elicit aesthetic experiences of ecologically sound landscapes is not a product of universal standards of beauty. Rather, these experiences are contextualized in the everyday life of community members and local cultural–social systems.

Understanding aesthetic experiences in relation to human perceptual and affective responses and perceivable landscape characteristics presents a way for design to connect people’s emotions and behaviors with environmental phenomena. By intentionally intervening with fine-scale landscape elements and patterns, design tactics may redirect what people pay attention to in a landscape, changing otherwise negative perceptions of the unfamiliar or unappealing appearance of ecosystems. The concept and vocabularies of cues to care suggest one useful design tactic to discover, select, and create fine-scale elements to enhance aesthetic experiences of landscapes with important but unseen environmental benefits. For landscape architects and allied practitioners, critically employing cues to care and

4. 美国底特律市一处社区生态蓄洪花园的设计备选方案
4. Design alternatives for stormwater bioretention gardens in a neighborhood in Detroit



控制组场地
Control site



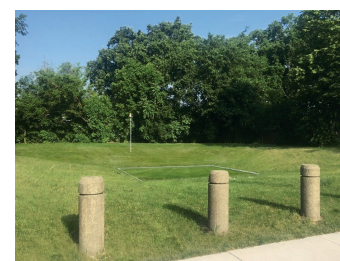
有开花草本和灌木，无防撞柱
Flowerly forbs and shrubs, without bollards



有开花草本和灌木及防撞柱
Flowerly forbs and shrubs, with bollards



有树木和防撞柱
Trees, with bollards



有草坪和防撞柱
Mown turf, with bollards

景观设计师和相关从业人员也应当批判性地采用具体的关怀线索，并进一步探索其他从感知与情感出发的城市绿地设计策略，帮助公众认识和欣赏能够提供更广泛生态系统服务的新景观，最终逐渐形成更加尊重生态健康的文化与景观美学。LAF

further exploring other tactics in urban green space design may help the general public and local communities to recognize and appreciate new landscapes with greater ecosystem services, and ultimately, shift cultures and landscape aesthetics to better align with ecological health. LAF

REFERENCES

- [1] Kaplan, S. (1987). Aesthetics, affect, and cognition: Environmental preference from an evolutionary perspective. *Environment and Behavior*, 19(1), 3-32. <https://doi.org/10.1177/0013916587191001>
- [2] Ulrich, R. S. (1983). Aesthetic and affective response to natural environment. In I. Altman, & J. F. Wohlwill (Eds.), *Behavior and the Natural Environment* (pp. 85-125). Boston, MA: Springer. https://doi.org/10.1007/978-1-4613-3539-9_4
- [3] Vessel, E. A., Maurer, N., Denker, A. H., & Starr, G. G. (2018). Stronger shared taste for natural aesthetic domains than for artifacts of human culture. *Cognition*, 179, 121-131. <https://doi.org/10.1016/j.cognition.2018.06.009>
- [4] Gobster, P. H., Nassauer, J. I., Daniel, T. C., & Fry, G. (2007). The shared landscape: What does aesthetics have to do with ecology? *Landscape Ecology*, 22(7), 959-972. <https://doi.org/10.1007/s10980-007-9110-x>
- [5] Kaplan, R., & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. Cambridge, England: Cambridge University Press.
- [6] Nassauer, J. I. (1997). Cultural sustainability: Aligning aesthetics and ecology. In J. I. Nassauer (Ed.), *Placing nature: Culture and landscape ecology* (pp. 65-83). Washington, DC: Island Press.
- [7] Dronova, I. (2019). Landscape beauty: A wicked problem in sustainable ecosystem management?. *Science of the Total Environment*, 688, 584-591. <https://doi.org/10.1016/j.scitotenv.2019.06.248>
- [8] Gobster, P. H. (1999). An ecological aesthetic for forest landscape management. *Landscape Journal*, 18(1), 54-64. doi:10.3368/lj.18.1.54
- [9] Nassauer, J. I. (1992). The appearance of ecological systems as a matter of policy. *Landscape Ecology*, 6(4), 239-250. <https://doi.org/10.1007/BF00129702>
- [10] Thayer, R. L. (1989). The experience of sustainable landscapes. *Landscape Journal*, 8(2), 101-110. doi:10.3368/lj.8.2.101
- [11] Brady, E., & Prior, J. (2020). Environmental aesthetics: A synthetic review. *People and Nature*, 2(2), 254-266. <https://doi.org/10.1002/pan3.10089>
- [12] Carlson, A., & Berleant, A. (2004). Introduction: The aesthetics of nature. In A. Carlson, & A. Berleant (Eds.), *The Aesthetics of Natural Environments* (pp. 11-42). Peterborough, Canada: Broadview Press.
- [13] Meyer, E. K. (2008). Sustaining beauty. The performance of appearance. *Journal of Landscape Architecture*, 3(1), 6-23. <https://doi.org/10.1080/18626033.2008.9723392>
- [14] Mazingo, L. A. (1997). The aesthetics of ecological design: Seeing science as culture. *Landscape Journal*, 16(1), 46-59. doi:10.3368/lj.16.1.46
- [15] Nassauer, J. I. (1995). Messy ecosystems, orderly frames. *Landscape Journal*, 14(2), 161-170. doi:10.3368/lj.14.2.161
- [16] Dobbie, M. F., & Green, R. (2013). Public perceptions of freshwater wetlands in Victoria, Australia. *Landscape and Urban Planning*, 110, 143-154. <https://doi.org/10.1016/j.landurbplan.2012.11.003>
- [17] Flotemersch, J., & Aho, K. (2021). Factors influencing perceptions of aquatic ecosystems. *Ambio*, 50(2), 425-435. doi:10.1007/s13280-020-01358-0
- [18] Damasio, A. (2006). *Descartes' error: Emotion, reason, and the human brain*. New York, NY: Random House.
- [19] Lerner, J. S., Li, Y., Valdesolo, P., & Kassam, K. S. (2015). Emotion and decision making. *Annual review of psychology*, 66, 799-823. <https://doi.org/10.1146/annurev-psych-010213-115043>
- [20] Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2004). Risk as analysis and risk as feelings: Some thoughts about affect, reason, risk, and rationality. *Risk Analysis*, 24(2), 311-322. <https://doi.org/10.1111/j.0272-4332.2004.00433.x>
- [21] Daniel, T. C., (2001). Whither scenic beauty? Visual landscape quality assessment in the 21st century. *Landscape and Urban Planning*, 54(1-4), 267-281. [https://doi.org/10.1016/S0169-2046\(01\)00141-4](https://doi.org/10.1016/S0169-2046(01)00141-4)
- [22] Nassauer, J. I. (1995). Culture and changing landscape structure. *Landscape Ecology*, 10(4), 229-237. doi:10.1007/BF00129257
- [23] Ulrich, R. S. (1986). Human responses to vegetation and landscapes. *Landscape and Urban Planning*, 13, 29-44. [https://doi.org/10.1016/0169-2046\(86\)90005-8](https://doi.org/10.1016/0169-2046(86)90005-8)
- [24] Appleton, J. (1996). *The experience of landscape*. Chichester, England: Wiley.
- [25] Eaton, M. M. (1997). The beauty that requires health, In J. I. Nassauer (Ed.), *Placing nature: Culture and landscape ecology* (pp. 85-106). Washington, DC: Island Press.
- [26] Tuan, Y. -F. (1990). *Topophilia: A study of environmental perceptions, attitudes, and values*. New York, NY: Columbia University Press.
- [27] Li, X. -P., Fan, S. -X., Kühn, N., Dong, L., & Hao, P. -Y. (2019). Residents' ecological and aesthetic perceptions toward spontaneous vegetation in urban parks in China. *Urban Forestry & Urban Greening*, 44, 126397. <https://doi.org/10.1016/j.ufug.2019.126397>
- [28] Bratman, G. N., Anderson, C. B., Berman, M. G., Cochran, B., de Vries, S., Flanders, J., ... Daily, G. C. (2019). Nature and mental health: An ecosystem service perspective. *Science Advances*, 5(7), 1-14. doi:10.1126/sciadv.aax0903
- [29] Depietri, Y., & McPhearson, T. (2017). Integrating the grey, green, and blue in cities: Nature-based solutions for climate change adaptation and risk reduction. In N. Kabisch, H. Korn, J. Stadler, & A. Bonn (Eds.), *Nature-based solutions to climate change adaptation in urban areas* (pp. 91-109). Cham, Switzerland: Springer Nature.
- [30] Hobbie, S. E., & Grimm, N. B. (2020). Nature-based approaches to managing climate change impacts in cities. *Philosophical Transactions of the Royal Society B*, 375(1794), 1-14. <https://doi.org/10.1098/rstb.2019.0124>
- [31] Kondo, M. C., Fluehr, J. M., McKeon, T., & Branas, C. C. (2018). Urban Green Space and Its Impact on Human Health. *International Journal of Environmental Research and Public Health*, 15(3), 1-28. doi:10.3390/ijerph15030445
- [32] McPhearson, T., Andersson, E., Elmquist, T., & Frantzeskaki, N. (2015). Resilience of and through urban ecosystem services. *Ecosystem Services*, 12, 152-156. <https://doi.org/10.1016/j.ecoser.2014.07.012>
- [33] Keeler, B. L., Hamel, P., McPhearson, T., Hamann, M. H., Donahue, M. L., Prado, K. A. M., ... Wood, S. A. (2019). Social-ecological and technological factors moderate the value of urban nature. *Nature Sustainability*, 2(1), 29-38. <https://doi.org/10.1038/s41893-018-0202-1>
- [34] Morecroft, M. D., Duffield, S., Harley M., Pearce-Higgins, J. W., Stevens, N., Watts, O., & Whitaker, J. (2019). Measuring the success of climate change adaptation and mitigation in terrestrial ecosystems. *Science*, 366(6471), eaaw9256. doi:10.1126/science.aaw9256
- [35] Andersson, E., Tengö, M., McPhearson, T., & Kremer, P. (2015). Cultural ecosystem services as a gateway for improving urban sustainability. *Ecosystem Services*, 12, 165-168. <https://doi.org/10.1016/j.ecoser.2014.08.002>
- [36] Frantzeskaki, N. (2019). Seven lessons for planning nature-based solutions in cities. *Environmental Science & Policy*, 93, 101-111. <https://doi.org/10.1016/j.envsci.2018.12.033>
- [37] Li, J., & Nassauer, J. I. (2020). Cues to care: A systematic analytical review. *Landscape and Urban Planning*, 201, 1-14. <https://doi.org/10.1016/j.landurbplan.2020.103821>
- [38] Nassauer, J. I. (1988). The aesthetics of horticulture: Neatness as a form of care. *HortScience*, 23(6), 973-977.
- [39] Yu, K. (2020). The land of peach blossoms and the art of survival: My journey to heal the planet. *Landscape Architecture Frontiers*, 8(5), 12-31. <https://doi.org/10.15302/J-LAF-1-010011>
- [40] American Society of Landscape Architecture. (2007). ASLA 2007 Professional Awards General Design Honor Award: *The Red Ribbon—Tanghe River Park*. Retrieved from https://www.asla.org/awards/2007/07winners/056_tbdtd.html.
- [41] Saunders, W. S. (Ed.) (2013). *Designed ecologies: The landscape architecture of Kongjian Yu*. Basel, Switzerland: Birkhäuser.
- [42] Liu, Y., Fan, H., Wei, M., Yin, K., & Yan, J. (2017). From edible landscape to vital communities: Clover Nature School community gardens in Shanghai. *Landscape Architecture Frontiers*, 5(3), 72-83. <https://doi.org/10.15302/J-LAF-20170308>
- [43] Liu, Y., Xu, J., & Yin, K. (2019). Participatory Construction of Community Public Space in High-density Cities—A Case Study of Community Gardens. *Landscape Architecture*, 26(6), 13-17. doi:10.14085/j.fyl.2019.06.0013.05
- [44] Gittleman, M., Farmer, C. J. Q., Kremer, P., & McPhearson, T. (2017). Estimating stormwater runoff for community gardens in New York City. *Urban Ecosystems*, 20(1), 129-139. <https://doi.org/10.1007/s11252-016-0575-8>
- [45] Kou, H., Zhang, S., & Liu, Y. (2019). Community-engaged research for the promotion of healthy urban environments: A case study of Community Garden Initiative in Shanghai, China. *International Journal of Environmental Research and Public Health*, 16(21), 4145. <https://doi.org/10.3390/ijerph16214145>
- [46] Menconi, M. E., Heland, L., & Grohmann, D. (2020). Learning from the gardeners of the oldest community garden in Seattle: Resilience explained through ecosystem services analysis. *Urban Forestry & Urban Greening*, 56, 126878. <https://doi.org/10.1016/j.ufug.2020.126878>
- [47] Yu, Z. (2019, February 15). Liu Yuelai: We constructed 30 community gardens in Shanghai to encourage the public's initiative in landscape design. *ArchiDogs*. Retrieved from <https://zhuanlan.zhihu.com/p/56767968>
- [48] Nassauer, J. I., Webster, N. J., Sampson, N., & Li, J. (2021). Care and safety in neighborhood preferences for vacant lot greenspace in legacy cities. *Landscape and Urban Planning*, 214, 104156. <https://doi.org/10.1016/j.landurbplan.2021.104156>
- [49] Carmichael, C. E., & McDonough, M. H. (2019). Community stories: Explaining resistance to street tree-planting programs in Detroit, Michigan, USA. *Society & Natural Resources*, 32(5), 588-605. <https://doi.org/10.1080/08941920.2018.1550229>