

Translation of Watson, AE and Carver S. 2017.

荒野、再野化与自主性生态系统——IUCN-1b类保护地管理中的概念演进
Chinese Landscape Architecture 33(258):34-38.

Wilderness, rewilding and free-willed ecosystems: evolving concepts in stewardship of IUCN protected category 1b areas

Alan E. Watson

Aldo Leopold Wilderness Research Institute
USDA Forest Service, Rocky Mountain Research Station
Missoula, Montana, USA

Steve Carver

Wildland Research Institute
School of Geography, University of Leeds
Leeds, UK

Abstract: The concept of wilderness has different meanings to different people. In the US, the Wilderness Act of 1964 defined it officially for US government land management purposes, though continuous research has improved our understanding of attributes, values and threats associated with our National Wilderness Preservation System. Subsequent US legislation in the 1970s expanded wilderness designation to the eastern US where lands had been heavily influenced by commodity extraction, and wild areas were smaller in size but physically closer to a large part of the American population. Legislation doubled the US system in 1980 by including lands in Alaska but with many special provisions to accommodate subsistence use by rural people and existing mechanical means of access. Conservation biologists have capitalized on this existing wilderness system to “rewild” larger landscapes. Such rewilded landscapes have wilderness at the core, and are connected to other areas through ecological corridors that allow large predators and their prey to be re-established and thrive. The concept of rewilding has evolved in definition and application, including being used by conservation activists in a “plastic” sense, or as context requires. With new guidelines issued by the International Union for Conservation of Nature for management of wilderness (protected area category 1b), these concepts need to be understood and potentially applied in different cultural context situations in countries considering initiating or expanding wilderness designation.

Introduction

The 1960s brought a great deal of change to the United States. During a period of rising social concern about escalating involvement in Viet Nam (the conflict extended from 1955 to 1975) and rapid advancement of technological and chemical innovations, US society came together with broad support to increase civil rights, animal rights and the rights of all to a high quality environment. During a decade of vast changes in our society’s relationships with each other and the environment, in September of 1964, President Lyndon B. Johnson¹ signed the Wilderness Act (Public Law 88–577)

¹ Upon signing of the Wilderness Act, President Johnson commented on the 88th Congress: “Action has been taken to keep our air pure and our water safe and our food free from pesticides; to protect our wildlife; to conserve our precious water resources. No single Congress in my memory has done so much to keep America as a good and wholesome and beautiful place to live.” In other comments he made about the Wilderness Act: “If future

(<http://www.wilderness.net/NWPS/legisact>). This Act passed both houses of the US Congress with strong bi-partisan support, although after 8 years of negotiation. That negotiation produced 9.1 million acres (3.7 million ha) of federal lands protected immediately for their wilderness character (as defined by the Wilderness Act) and established a mechanism for consideration and addition of acreage in the future. The Act, and subsequent legislation that added new areas for protection as wilderness, also included some important special provisions (Craig et al. 2010; Watson 2012; Landres 2014) such as continued cattle grazing, commercial guiding and outfitting, and mining in some areas where these activities already existed.

Subsequent legislation increased the US National Wilderness Preservation System to nearly 110 million acres (nearly 44.5 million ha) in all but 6 of the 50 US states. This makes up about 5% of the total land base of the United States. All are on federal lands, managed by the Forest Service in the Department of Agriculture, or the National Park Service, Fish & Wildlife Service or the Bureau of Land Management, all in the Department of the Interior. About half of that acreage is in Alaska, designated by the Alaska National Interest Lands Conservation Act (ANILCA) in 1980.

The express purpose of the Wilderness Act was "... to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions² leaving no lands designated for preservation and protection in their natural condition." The Act declared it to be the policy of Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. Wilderness was described in the Wilderness Act as "...in contrast with those areas where man and his own works dominate the landscape," and is recognized as "...an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." Wilderness was further defined in the Wilderness Act as "...an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions."

By 1975 it was apparent that even with designation of new areas as Wilderness, there were areas in the eastern US that were not being included in the National Wilderness Preservation System due to a history of resource extraction, road building and their relatively small sizes. The so-called "Eastern Wilderness Act" (Public Law 93-622) of 1975³ added sixteen wildernesses in the eastern US and 17 "wilderness study areas" to be considered later after further study (Dawson and Hendee 2009). These areas included many private land inholdings, therefore a right to condemnation accompanied passage of this Act. This right was not attached to the Wilderness Act as it was not needed since most of the larger, western areas designated were within vast public lands holdings.

These areas in the East, while they were to be managed under the principles of the Wilderness Act, demonstrated a confidence that even though many of these lands were not extremely pristine at the time, they would recuperate and could be restored in a way that meant long term protection of their wilderness character. In 1980, ANILCA added over 50 million acres to the National Wilderness

generations are to remember us with gratitude rather than contempt, we must leave them something more than the miracles of technology. We must leave them a glimpse of the world as it was in the beginning, not just after we got through with it."

² There is a National Forest with designated Wilderness in Puerto Rico, which is not a state.

³ This Law actually has no official title

Preservation System. This Act included many special legislative provisions that acknowledged there were unique aspects of Wilderness in Alaska that could be allowed and still protect wilderness character. Such provisions include subsistence uses, float planes, airstrips, motor boats and commercial activities in many places.

Over time, as areas continued to be added to the US National Wilderness Preservation system, the wilderness concept also spread to other countries and was officially recognized as a protected area category by the International Union for Conservation of Nature (IUCN), with guidelines issued in 2016 to guide management (Casson et al. 2016). There has been concern expressed about a steady decline in the purism of proposed areas in the US and abroad, acceptance of more non-conforming special provisions, and the need for restoration in many areas to achieve near-natural conditions (Dawson and Hendee 2009). Not all impacts to wilderness character have been from previous uses. Agency policies have sometimes created situations where natural process and wild conditions have not occurred in many years.

Naturalness versus Wildness

The US Wilderness Act encourages protection of wilderness character, specifying that the earth and its community of life are to be *untrammelled*⁴ by man in Wilderness. It also specifies that management is charged with preserving *natural* conditions of those areas. Actions in favor of one of these two terms do not always favor the other. Often there are tradeoffs involved. Aplet (1999), of The Wilderness Society, suggested that these tradeoffs are extremely important and wilderness managers must acknowledge them more and differentiate between “wilderness” as a place and “wildness” as a concept. Aplet surmised that wildness is conferred not by the will of the people but the will of the land: the essential requirement of wilderness is that it be set free (Aplet 1999). This is what differentiates wilderness from other land classifications, except for IUCN protected area category 1a - strict nature reserves. Categories 1a and 1b are most commonly differentiated by the more accepted presence of humans through a variety of accepted uses (recreation, subsistence, education, in addition to science and management) in 1b (wilderness).

Challenges often arise when, in order to restore free-will in wild lands, managers first try to restore naturalness. Often managers have been tempted to define naturalness at some specific time in history, such as the time of European settlement in North America, or the late Pleistocene period, prior to arrival of humans and their influences on the landscape. Some want to define naturalness looking to the future instead of the past, reflecting “pristine” natural processes generally, without the influence of humans. But human judgement, as well as science, is often in disagreement about what these natural processes should look like, given our limited knowledge of “natural variation” and uncertainty about future conditions, especially related to climate.

Aplet (1999) suggested the concept of wildness actually exists along two dimensions: from the controlled to the “self-willed” along a gradient of freedom (“untrammelled” in the Wilderness Act), and from the artificial to the “pristine” along a gradient of naturalness. When humans restrict the freedom of the environment to be self-willed, or when we artificially manipulate elements of the environment to achieve some stated objective or time perspective, it is easy to see we are impacting wildness. What is

⁴Not limited or restricted; unrestrained. American Heritage® Dictionary of the English Language, Fifth Edition. 2016.

more difficult to understand is that efforts to increase naturalness (such as allowing fires to burn more naturally), often they compel managers to first reduce fuels through management-ignited fires or some other fuel manipulation. This action can have high impact on free-will of the ecosystem, with humans playing the dominant role in determining desired outcomes.

Rewilding and wilderness

Some effort has been expended to realize the true value of Wilderness as part of larger ecosystems. Increasingly, Wilderness is seen as a core of a larger landscape and less as an island. Rewilding is a concept being applied well beyond the boundaries of Wilderness today (Lorimer et al. 2015) to promote restoration of free-willed nature across the landscape. While rewilding efforts have appeared around the world, the most numerous occur in Europe and North America. In North America the original reason to use rewilding methods was to link lands in the National Wilderness Preservation System to larger landscapes (Hintz 2007). In Europe it is being applied in a more broad way, often in countries without wilderness systems but with increasing occurrence of land abandonment (Corlett 2016). Lorimer et al. (2015) summarize that these efforts simply aim to maintain or increase biodiversity, while reducing the impact of present and past human interventions through the restoration of species and ecological processes: i.e., setting nature free. Conflict with more prescribed forms of conservation is often observed, though acceptance is growing (Monbiot 2014).

Understanding and protecting the benefits of intact trophic cascades (relating to food and feeding (trophic) and enhancing the number of opportunities for animals, plants and other creatures to feed on each other (cascading)) which have been influenced by humans have emerged as a central organizing theme for a great deal of rewilding research and projects (Monbiot 2014, Svenning et al. 2015). “Setting nature free” is believed to be the best way to fully recapture these benefits. Rewilding is not just restoration of biodiversity, any more than wilderness only is intended to protect naturalness. The emotional aspects of freedom, self-will, and wildness are important goals of rewilding. Greater awareness of the importance of social and cultural factors in conservation have contributed to the popularity of rewilding (Corlett 2016). Monbiot (2014), in describing the emotional attraction and motivation of feral environments suggests that his primary excitement about rewilding is not to protect natural processes, but to witness these processes in a self-willed environment (or simply know they exist in some places). Excitement about reconnecting landscapes, seascapes, rivers and humans to free-willed nature is central to wilderness conservation.

Soule and Noss (1998) emphasized the 3 c’s of rewilding in North America: core areas, corridors, and carnivores. In the European context, there was realization that protection of special sites alone would not secure conservation goals, so more focus on connectivity through ecological corridors, core wild areas, restoration and buffer zones emerged (Hobbs 2002, Jones-Walters 2007). A limiting aspect of European efforts in rewilding has been an emphasis on naturalistic grazing and effects on biodiversity (Regos et al. 2016). While predators have yet to be restored in large numbers, focus has been more on the role of large herbivores in opening up forest canopy into more park-like settings. Not everyone agrees with this Europe version of rewilding, but rewilding is a popular concept, particularly in areas of rural depopulation and land abandonment (Lorimer et al. 2015, Regos et al. 2016, Corlett 2016).

Rewilding does not have a single, simple definition. Similar to wilderness and wildness, it is defined differently in different cultural and geographical contexts. Jørgensen (2015) details multiple rewilding definitions as 1) cores, corridors, carnivores; 2) Pleistocene mega-fauna replacement; 3) island taxon replacement; 4) landscape through species reintroduction; 5) productive land abandonment; and 6) releasing captive-bred animals into the wild. In addition, to create further confusion about the term rewilding, Jørgensen (2015) suggests that the term rewilding has been adopted by activists as a rallying plastic word⁵. Though some felt Jørgensen's comments were a criticism of the rewilding concept (e.g., Prior and Ward 2015), this plasticity might be celebrated by others as giving license to the emotional aspect of returning control to nature. Like the term wilderness, the plastic uses of rewilding illustrates the cultural attraction to wild nature, to nostalgic feelings, and the sense of loss created by the arrival and domination by humans in the Anthropocene era.

Lorimer et al. (2015) recently emphasized that rewilding, very simply, can be an approach that seeks to maintain or increase biodiversity and reduce or reverse past and present human impacts by restoring more functional ecosystems. Incorporating cultural landscape considerations into rewilding decisions is also an important criterion. The level of human intervention (trammeling) required to achieve some prescribed set of conditions or biological components is often controversial, but the endpoint goal of freedom or self-will of a fully cascading trophic system is the ultimate goal and a great deal of research and debate is currently on documenting benefits from acquiring this end state. The costs in terms of level of intervention to get to this ultimate goal remain a topic of great debate.

To intervene or not to intervene: Using the minimum tool to protect wildness

Intervention to accomplish some free-will objective, other than correcting past human influences on natural systems, can be a controversial subject (Watson et al. 2015). Recent research in the US suggests managers will find positive support among wilderness visitors for removing non-native species, assisting native species to recover, and igniting fires in wilderness to restore the natural role of fire (Figure 1). Intervention to introduce new genetic material more resistant to drought or disease, moving plants or animals in anticipation of habitat change, or irrigating to compensate for changes in precipitation, however, seem to threaten freedom of the environment to be self-willed much more than restoration to correct past human actions (Watson et al. 2015).

Many characteristics of wilderness are fragile and irreplaceable. If decisions are made without systematic analysis and without forethought for protecting key benefits of wilderness designation, a great deal could be lost through the wrong, or at least not the most appropriate, administrative actions. A systematic decision process for determining appropriateness of administrative actions in wilderness, from use of tools (like methods used to control invasive plants, suppress fires, or conduct scientific research) to regulations (such as weighing user restrictions that impact experiences but protect the resource against educational approaches) (Figure 2), to applications of force (citations, warnings, education, etc.), can offer many options and a firm, systematic process for making decisions is recommended. The Minimum Requirements Decision Guide (MRDG 2014) suggests a simple principle of "use the minimum tool" that is necessary to accomplish the task. In other words, the tool that is least obtrusive to both naturalness and wildness and addresses the issue is going to be the best tool or regulation or amount of force to use.

⁵ Developed in science for discrete ideas then moved into daily use according to the context.

Restoring wildness in the IUCN Category 1b guidelines

New global guidelines to help direct management of IUCN Protected Area Category 1b sites were issued in 2016 (Casson et al. 2016). These sites are defined as ‘...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’ (Dudley, 2013, p. 14). Wilderness areas do not exclude people. Rather they exclude certain human uses. In particular, they exclude industrial uses which are inconsistent with maintaining wilderness values (Kormos, 2008).

The wilderness manager’s role is often a balancing act between the highly desired, baseline standard of “passive management” - i.e., non-intervention - and the need to intervene by restoring a wilderness or completely rewilding a seriously degraded area as the core of a larger landscape. While there are many definitions and goals of rewilding in the literature, and rewilding is used differently on different continents, Carver (2016a) gave a simple example of rewilding to reduce flood potential in the UK as “...fewer sheep, more trees, restoring rivers to their floodplains and reintroducing beavers...” combined with other engineered solutions. If this is use of the “plastic word” rewilding, it is also an emotional use of the term, becoming more popular with the public. Carver (2016b) also suggested an alternative to using the term rewilding because of the emotion attached to it. Instead, Carver (2016b) suggests adopting something more descriptive – and less plastic - such as “nature-led ecosystems,” which can be a highly desirable objective across a range of conservation communities and types of land classifications.

The opposite of active intervention is passive (or non-intervention) management, a philosophy central to the wilderness concept historically. In the face of environmental change across landscapes, seascapes, and along rivers, especially related to climate change and industrial purposes, passive management is perhaps the best and least-costly approach for the manager to adopt and is consistent with core values of wilderness management. In such a case wilderness areas are simply retained as non-intervention areas that allow wildlife and ecosystems to adapt and respond naturally to climate change or other environmental change as it occurs. This philosophy accepts that active management or direct intervention in wilderness areas is difficult and likely to fail in many instances, and so maintains that the best approach to increase resilience is through actions such as ensuring that wilderness is relatively protected from human impacts and ensuring that core areas are connected via landscape corridors and permeable landscapes that give wildlife the ability to move and migrate unhindered to more favorable areas as ecosystems change.

Conclusions

There is currently confusion between the concepts of restoration and rewilding. Rewilding, in its most simple application suggests the return of an area to its wild, free-willed condition (untrammelled by humans), whereas restoration relates more to naturalness and implies intervention to return to some specific set of attributes, species or time period. Often the tradeoffs between free-will of the area and naturalness are evaluated in making intervention decisions. As with restoration, rewilding involves initiating, stimulating and allowing natural processes to occur (again), but also replacing human management and interference to shape new and wilder areas. Often the goal is a naturally functioning landscape that can sustain itself into the future without active human management. While some people believe rewilding could focus on accomplishing specific objectives, others argue that rewilding is more a matter of scale, emphasizing large-scale ecological restoration of wide-ranging native species, top carnivores, and other keystone species in their natural patterns of abundance to regain functional and

resilient ecosystems. The practice of rewilding is anything but uniform. However, it has become a core consideration in decision-making for both designation and management of IUCN Protected Category 1b areas and less strictly protected areas that also emphasize the scientific, experiential or educational values of understanding self-regulating aspects of wild nature.

Literature Cited

- Aplet, GH. 1999. On the nature of wildness: exploring what wilderness really protects. *Denver University Law Review* 76: 347-367.
- Carver, S. 2016a. Flood management and nature – can rewilding help? *Ecos* 37(1): 33-42.
- Carver, S. 2016b. Rewilding...conservation and conflict. *Ecos* 37(2): 3-10.
- Casson, SA., VG. Martin, A. Watson, A. Stringer, CF. Kormos (eds.). 2016. *Wilderness Protected Areas: Management Guidelines for IUCN Category 1b Protected Areas*. Gland, Switzerland: IUCN 166 pp.
- Corlett, RT. 2016. Restoration, reintroduction, and rewilding in a changing world. *Trends in Ecology & Evolution*, 31(6):452-462.
- Craig, DR; P. Landres, L. Yung. 2010. Improving Wilderness Stewardship Through Searchable Databases of U.S. Legislative History and Legislated Special Provisions. *International Journal of Wilderness* 16(2):27-31.
- Dawson, CP, JC Hendee. 2009. *Wilderness Management: Stewardship and Protection of Resources and Values*, fourth edition. Fulcrum Press, Golden, Co.
- Dudley, N. (ed.) 2013. *Guidelines for Applying Protected Area Management Categories*. IUCN, Gland, Switzerland.
- Hintz, J. 2007. Some political problems for rewilding nature. *Ethics, Place and Environment* 10:2, 177-216.
- Hobbs, RJ. 2002. Habitat networks and biological conservation. In *Applying Landscape Ecology in Biological Conservation*, ed. KJ Gutzwiller, pp. 150-170. New York: Springer.
- Jones-Walters, L. 2007. Pan-European ecological networks. *Journal of Nature Conservation* 15:262-264.
- Jørgenson, D. 2015. Rethinking rewilding. *Geoforum* 65: 482-488.
- Kormos, CF. (ed.) 2008. *A Handbook on International Wilderness Law and Policy*. Fulcrum Publishing, Golden, Colorado.
- Landres, P. 2014. Special Provisions in Wilderness Legislation 1964 to 2014: Number, Types, and Impact on Wilderness (abstract). 50th National Wilderness Conference Proceedings. 290-291.

- Lorimer, J., C. Sandom, P. Jepson, C. Doughty, M. Barua, KJ Kirby. 2015. Rewilding: science, practice, and politics. *Annual Rev. Environ. Resour.* 40:39-62.
- Minimum Requirement Decision Guide (MRDG). 2014. Online Instructions for Minimum Requirement Analysis. Arthur Carhart National Wilderness Training Center, available from <http://www.wilderness.net/MRA>MRDG>.
- Monbiot, G. 2014. *Feral: Rewilding the land, the sea and human life*. Chicago: The University of Chicago Press.
- Murray, J. 2015. Should businesses take a walk on the rewilding side? Rewilding may be good for the soul but there is growing evidence it could also be good for the bottom line. *Rewilding Britain*, 09 Sep 2015: 1-8. <http://www.rewildingbritain.org.uk/magazine/should-businesses-take-a-walk-on-the-rewilding-side>.
- Regos, A., J. Domínguez, A. Gil-Tena, L. Brotons, M. Ninyerola, X. Pons. 2016. Rural abandoned landscapes and bird assemblages: winners and losers in the rewilding of a marginal mountain area (NW Spain). *Reg Environ Change* 16:199-211.
- Soule, M, R. Noss. 1998. Rewilding and biodiversity: complementary goals for continental conservation. *Wild Earth* 8:3.
- Svenning, J.; PB Pedersen, CJ Donlan, R. Ejrnaes, S. Faurby, M. Galetti, D.M. Hansen, B. Sandel, CJ Sandom, JW Terborgh, F.W.M. Vera. 2015. Science for a wilder Anthropocene: Synthesis and future directions for trophic rewilding research. *Proceedings of the National Academy of Sciences of the United States of America*, v. 12, p. 1-7, 2015.
- Watson, AE. 2012. Wilderness at Arm's Length: On the Outside Looking in at Special Provisions in Wilderness. In: Cole, David N., comp. 2012. *Wilderness visitor experiences: Progress in research and management*. Proc. RMRS-P-66. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 134-146.
- Watson, A, S. Martin, N. Christensen, GD Fauth, Williams. 2015. The relationship between perceptions of wilderness character and attitudes toward management intervention to adapt biophysical resources to a changing climate and nature restoration at Sequoia and Kings Canyon National Parks. *Environmental Management*. 56: 653-663.

Photos

Figure 1: Restoring natural processes, like fire, in wilderness is broadly accepted by visitors to wilderness in the US as a correction to past human influence. Leopold Institute photo.



Figure 2: While recreation use numbers are restricted at the Boundary Waters Canoe Area Wilderness in Minnesota, US, once inside the wilderness, travel patterns are freely selected, solitude opportunities exist while traveling and at campsites and engagement in primitive recreation activities are highly valued. Leopold Institute photo.



荒野、再野化与自主性生态系统——IUCN-1b类保护地管理中的概念演进

Wilderness, Rewilding and Free-willed Ecosystems: Evolving Concepts in Stewardship of IUCN Protected Category 1b Areas

(美) 艾伦·沃森 /
(USA) Alan E. Watson

(英) 斯蒂夫·卡佛 撰文 /
(UK) Steve Carver

黄澄 杨河译 /
Translated by
HUANG Cheng, YANG He

摘要: “荒野”这一概念的含义因人而异。在美国，为便于政府部门进行国土管理，1964年通过的《荒野法》对“荒野”给出了官方定义。此后，通过持续的研究工作，人们对“国家荒野保护体系”相关属性、价值和威胁因素的理解得以改进。20世纪70年代，美国进一步的荒野立法将指定荒野保护地的范围扩大到受商业开发影响严重、野性区域面积较小但地理位置靠近人口众多区域的美东东部。1980年立法建立了阿拉斯加荒野保护地，美国国家荒野保护体系的面积因此翻倍。但是，该法律中包含有许多特殊条款，允许农村居民的生计活动，允许已有的使用机械进入荒野区的方式继续存在。拥护“自然资源保护主义”的生物学家们利用了现有的荒野保护体系将更大范围的景观“再野化”(rewild)。这类再野化景观以荒野地为核心，通过生态廊道与其他区域相连，使得大型捕食动物群体及其猎物群体得以恢复并繁衍兴旺。“再野化”的概念在其定义和应用上都已发生演变，自然资源保护主义活跃分子们在使用这个概念时赋予其“可塑性”，即根据不同语境做出不同阐释。世界自然保护联盟最近发布了《荒野保护地：IUCN保护地类型1b管理指南》，正在考虑建立或扩展荒野地的国家，需要在不同的文化背景、情境中理解并应用这些概念。

关键词: 风景园林；荒野；再野化；荒野保护地；野性；管理

文章编号: 1000-6664(2017)06-0034-05

中图分类号: TU 986

文献标志码: A

收稿日期: 2017-04-24;

修回日期: 2017-05-05

Abstract: The concept of wilderness has different meanings to different people. In the US, the Wilderness Act of 1964 defined it officially for US government land management purposes, though continuous research has improved our understanding of attributes, values and threats associated with our National Wilderness Preservation System. Subsequent US legislation in the 1970s expanded wilderness designation to the eastern US where lands had been heavily influenced by commodity extraction, and wild areas were smaller in size but physically closer to a large part of the American population. Legislation doubled the US system in 1980 by including lands in Alaska but with many special provisions to accommodate subsistence use by rural people and existing mechanical means of access. Conservation biologists have capitalized on this existing wilderness system to "rewild" larger landscapes. Such rewilded landscapes have wilderness at the core, and are connected to other areas through ecological corridors that allow large predators and their prey to be re-established and thrive. The concept of rewilding has evolved in definition and application, including being used by conservation activists in a "plastic" sense, or as context requires. With new guidelines issued by the International Union for Conservation of Nature for management of wilderness (protected area category 1b), these concepts need to be understood and potentially applied in different cultural context situations in countries considering initiating or expanding wilderness designation.

Key words: landscape architecture; wilderness; rewilding; wilderness protected area; wildness; stewardship

20世纪60年代，美国发生了很大变化。这一时期，美国在越南越陷越深(越南冲突从1955年持续到1975年)，引发社会担忧；科技和化工领域创新不断，取得飞速发展；社会各界凝聚共识，广泛支持公民权利、动物权利，以及任何人都拥有高质量生活环境的权利。这10年里，社会关系发生巨变，社会与环境的关系也发生了巨变。1964年9月，林登·约翰逊总统(President Lyndon B. Johnson)^①签署了《荒野法》

(公法88-577^②)。《荒野法》能赢得美国两党共同支持，获得国会两院通过，是8年辩论协商的结果。作为协商成果，910万英亩(370万hm²)联邦土地因为其荒野特征(wilderness character，依据《荒野法》中定义)而被立即纳入保护体系；未来考量、增加荒野区面积的机制也建立起来。《荒野法》和随后的荒野立法，在将新建荒野地纳入保护体系的同时，也包含了一些重要的特殊条款^[1-3]，准许某些当地已有的活动继续进

^① 签署《荒野法》时，约翰逊总统在第88届国会发表评论：“为保持我们的空气纯净、水质安全、食品没有农药，为保护野生动物、保护我们珍贵的水资源，我们已经采取了措施。在我记忆中，没有任何一届国会在保持美国优良、健康、美丽的生活环境方面办过这么多实事。”在对《荒野法》的其他评论中，他提到：“如果想要未来几代人在记起我们时心怀感恩而非蔑视，我们为他们留下的东西必须比科技奇迹更多。我们留给他们的，必须让他们能够看到世界初始的样子，而不仅仅是我们使用过后的状态。”

^② <http://www.wilderness.net/NWPS/legisact>

行,例如允许在某些地方继续放牧牛群、继续商业性导游与装备供给服务、继续采矿。

《荒野法》之后通过的一系列荒野立法使得美国国家荒野保护体系(National Wilderness Preservation System)的面积增加到约1.1亿英亩(将近4 450万 hm^2),占美国土地总面积的5%左右。美国50个州中除了6个州之外,其他各州均有指定荒野区。所有指定荒野区都位于联邦土地中,由农业部的林业局或内政部的国家公园管理局、鱼类和野生生物局、土地管理局进行管理。其中,1980年通过《阿拉斯加国家利益土地资源保护法》(ANILCA)建立的阿拉斯加州荒野区,面积约占到体系总面积的一半。

《荒野法》的目的是“确保人口增长及与之相伴的居民点扩张、机械增长不至于占用、改变美国及其属地^①的所有领域,确保自然状态应予保护的不会消失殆尽。”该法律宣布,国会的政策要保障当代美国人及其子孙后代能够永久性享受荒野资源带来的效益。在《荒野法》中,对“荒野”的描述是“……迥异于那些人类及人工对景观起主导作用的区域”是“地球及其生物群落不受人类束缚的区域,在这里人类只是过客”。在《荒野法》中,“荒野区”被进一步定义为“未开发的联邦土地区域,保留着原始特征和影响力,没有永久性的改良整修,没有人类定居,为保存其自然状态而被保护、管理”。

尽管许多新的荒野区陆续建立,到了1975年,在美国东部,显然还有许多区域由于历史上的资源开采、道路建设以及相对较小的面积,尚未纳入国家荒野保护体系。1975年通过所谓的《东部荒野法》^②(公法93-622)在美国东部增加了16个荒野区,另外还有17个“荒野研究区”(wilderness study areas)留待进一步研究后再考虑是否纳入系统^③。东部这些区域中,有许多被联邦土地包围着的私有土地,因此伴随该法律通过的还有土地征用权。1964年的《荒野法》并未附加土地征用权,因为无此必要——在西部,绝大多数被指定为荒野区的较大区域,本身就是公共土地的一部分。

这些东部的荒野区要依据《荒野法》的准则进行管理。虽然这些土地中有很多当时并非极为原始,但人们对于其将会复原并且可以在复原后长期保持荒野特征很有把握。1980年《阿拉斯加国家利益土地资源保护法》将5 000多万英亩(2 023万 hm^2)纳入国家荒野保护体系中。该法律包含了许多特殊条款,特许阿拉斯加保持某些特色,承认阿拉斯加可以既保持这些特色,又保护荒野特征。这些特殊条款包括许可很多地方的生计利用、水上飞机、简易机场、摩托艇和商业活动。

随着时间的推移,不断有新的地区被纳入美国国家荒野

保护体系中,荒野这一概念也向其他国家传播开来,并被国际自然保护联盟(IUCN)正式认定为一种自然保护地类型,IUCN首部《荒野保护地管理指南》也于2016年发布^④。同时,也有人表达出对某些现状的担忧,比如在美国和其他地区,被推荐的候选荒野地纯粹度越来越低,更多不符合荒野法准则的(non-conforming)特殊条款得以通过,许多地区需要通过修复(restoration)才能达到接近于自然的状态(near-natural conditions)^⑤。对荒野特征的冲击并非全部来自以往的土地利用模式。有时候,政府机构的政策也可导致多年来自然过程和野性状态(wild conditions)的缺失。

1 自然性(Naturalness)vs野性(Wildness)

美国《荒野法》倡导对荒野特征的保护,明确指出地球及其生物群落在荒野区内是“不受人类束缚的”(untrammelled^⑥)。同时,《荒野法》又明确赋予了管理机构保护这些区域“自然”(natural)状态的责任。这2个指导性用语(“不受人类束缚”与“自然”),倾向于其中一个的管理行为,并不总是有利于另一个,常常需要权衡取舍(tradeoffs)。“荒野协会”(the Wilderness Society)的Aplet认为,这方面的权衡取舍至关重要,荒野区管理者必须更深入地认识到这一点,将作为一个地方的“荒野”(wilderness)和作为一个概念的“野性”(wildness)区分开来^⑦。Aplet总结说,野性不是由人类意志所授予的,而是由土地意志所成就的;荒野区的基本要求是获得自由(be set free)^⑧。除了IUCN-1a类型(严格自然保护地)之外,这种自由状态正是荒野地和其他土地类型的区别所在。1a类型(严格自然保护地)与1b类型(荒野保护地)的区别通常在1b类型(荒野保护地)中准许更多的人类活动和利用方式(除了科研与管理活动外,还允许游憩、生计、教育活动)。

荒野地管理常常面临的挑战是,为了恢复野地的“自由意志”(free-will),管理者首先会尝试恢复其“自然性”(naturalness)。而管理者对于自然性的定义,常常会倾向于历史上某个特定的时期,比如欧洲移民定居北美洲的时期,或者自然景观尚未受到人类活动影响的更新世晚期。还有一些管理者,他们对自然性的定义,着眼于未来而非过去,意欲反映出具有普遍性的、没有人类影响的、“原始的”(pristine)自然过程。然而,鉴于我们对“自然差异”(natural variation)的认识有限,加上未来状况的不确定性(尤其是与气候相关的不确定性),对于“自然过程”应该是什么样子,个人观点常常各有不同,科学研究结果也往往并不一致。

Aplet^⑨提出,“野性”的概念实质上存在于2个维度,

① 在波多黎各(自治邦,不是州)有一个国家森林,其中有指定荒野区。

② 事实上,该法律没有官方名称。

③ 《美国传统英文字典》第5版(2016年)给出的英文释义为not limited or restricted; unrestrained(不受限制或束缚;无约束的)。

一个维度是自由(freedom),从受控制的(controlled)渐进到“自主的”(self-willed,即《荒野法》中的untrammeled不受束缚的);另一个维度是自然性(naturalness),从人造的(artificial)过渡到“原始的”(pristine)。当人类约束了环境的自由,令其不能“自主”,当我们为了达到既定目标或者营造某个时期的状态而人为地操纵环境要素时,显而易见,我们正在干预和影响“野性”。不那么显而易见的是,为努力提高“自然性”,比如允许天然林火在更自然的状态下燃烧,管理人员往往不得不首先采用人为干预手段,比如管理部门有计划地引燃林火以减少燃料量,或者采取其他针对燃料的干预手段。这一措施有可能会对生态系统的自主性产生很大影响,因为在决定所期望的结果方面,人类占据了主导地位。

2 再野化与荒野

荒野地是更大生态系统的一部分。为使荒野地实现其真正价值,有识之士已做出一定努力。越来越多的人把荒野地看作是更大范围景观的核心,而非景观中的孤岛。为促进恢复自主性的自然景观,再野化这一概念的应用如今已经远远超出了荒野地的范围^[7]。尽管世界各地都为再野化而做出了努力,实践成果最多的还是欧洲和北美。在北美,采用再野化方式的最初原因,是为了将国家荒野保护体系中的土地与更大的景观连接起来^[8]。在欧洲,再野化的应用更加广泛,通常发生在一些虽然没有荒野体系,但土地废弃越来越频繁的国家^[9]。Lorimer等^[7]总结说,这些再野化的努力旨在维持或增加生物多样性,并通过恢复物种和生态过程来减轻现在和过去的人类干预所带来的影响——也就是说,要让自然重获自由(setting nature free)。再野化正逐步得到更多人的接纳,但这一自然保护方式,和有更多规定计划的自然资源保护方式之间,常发生矛盾冲突^[10]。

理解并保护好无损的“营养级串联”(trophic cascades^①),在不同营养级的各种动植物和其他生物,其摄取食物和营养的机会相互依存、连带影响的生态过程)及其所带来的效益,已成为将许多再野化研究及项目组织到一起的中心主题^[10-11]。人类已经对营养级串联造成了影响,而要想充分享有营养级串联所能带来的效益,最佳办法就是“让自然重获自由”。再野化不仅仅是恢复生物多样性,正如荒野不仅仅是为了保护自然性。自由、自主和野性的情感层面同样是再野化的重要目标。社会和文化因素在自然资源保护中极为重要,这一方面意识的强化,已对再野化的普及起到推动作用^[9]。Monbiot^[10]在描述野生环境的情感吸引力和动力时表述道,再野化最令他感到激动的,不是为了保护自然过程,而是为了见证这些过程在自主的环境中发生(或者仅仅是知道有这样的过程正在某些地方发生)。将陆地景观、海洋景观、河流和人类,与“自主性自然”(free-willed nature)重新联结起来,对此所感受到的兴奋激动之情,对荒野自然资源保护是至关重要的。

Soule和Noss^[12]强调了北美洲再野化的3个要点:核心区、生态廊道和食肉动物。在欧洲的环境背景中,人们认识到,只保护特殊区域是不能确保达到自然资源保护目标的,所以人们开始特别关注各个区域(生态廊道、核心荒野地区、恢复和缓冲区)之间的联系^[13-14]。欧洲再野化的努力成果有一个局限,就是强调自然性放牧及其对生物多样性的影响^[14]。在大型捕食动物数量尚未大量恢复的情况下,再野化的关注点更多放在大型食草动物的作用上。这些大型食草动物将覆盖的林冠变得开敞,将林地变为公园般的场地。并不是每个人都同意这个欧洲版本的再野化,但是再野化是一个受欢迎的概念,特别是在人口下降的乡村和土地废弃的地区^[7, 9, 15]。

再野化不存在一个唯一、简单的定义。与荒野和野性相似,它在不同的文化和地理环境中有着不同的定义。Jørgensen^[16]详细介绍了再野化的多种定义,包括:1)核心区、廊道、食肉动物;2)重新引入更新世巨型动物群;3)在岛屿上重新引进物种;4)通过重新引入物种进行景观恢复;5)荒废生产性土地;6)将圈养繁殖的动物放归野外。此外,Jørgensen^[16]指出,活跃分子们已经把再野化变成了包罗广泛的可塑性词汇(rallying plastic word^②),这使得对再野化一词的理解更加混乱。尽管Prior and Ward等曾在2015年发表的一篇文章里提到Jørgensen的评论是对再野化概念的批判,这一“可塑性”却有可能得到另外一些人的赞许,因为它可以让再野化一词名正顺地表达出将控制权归还自然的情感层面。像“荒野”一样,“再野化”的可塑性用法,表达出野性自然和念旧情怀的文化吸引力,以及由于人类的出现和主导地位而造成的失落感。

Lorimer等^[7]近来强调说,再野化,很简单,可以成为一种维持或提高生物多样性、通过重建功能良好的生态系统来减轻或反转过过去及现在人类影响的途径。将文化景观方面的考虑纳入再野化决策也是一个重要标准,在为达到某些规定条件或生物组分而所必需的人类干预(束缚)强度方面,常常存在争议,但最终的目标是实现一个自由和自主的完整营养级串联系统。目前大量的研究和辩论都是关于证明取得这种最后状态可带来的种种益处。人类的干预强度,作为实现这一终极目标所需的成本,仍是一个很具争论性的话题。

3 要干预还是不干预:最小干预来保护荒野

除了纠正过去人类对自然系统造成的影响之外,通过干预而达到某些自主性目标可能成为一个很有争议的话题^[17]。美国近来的研究表明,管理人员会借助荒野地造访者的积极支持,移除非本地物种、帮助恢复本地物种,或采用计划引燃的方式恢复林火在荒野地中的自然作用(图1)。然而,引入耐旱或抗病的新基因物质、为应对栖息地变化提前迁移植物或动物、为弥补降水量变化而实施人工灌溉,这种干预行为,与其说有效恢复被人类破坏的环境系统,倒不如说对环境的自主性发展似乎产生了更多威胁^[17]。

①又译为“营养瀑布”。——译者注

②最初是为描述科学研究中互不相关的理念,后来成为日常用语,含义根据不同语境而改变。



图1 在美国，为纠正以往人类行为所造成的不良影响而在荒野地中恢复一些自然过程(比如林火)的做法，已经得到荒野区访客的普遍接受(利奥波德研究中心提供)

图2 在美国明尼苏达州边境水域独木舟荒野地，虽然访客的数量受到限制，但是进入荒野地之后，旅行模式可以自由选择。旅行、露营时都有幽僻独处的机会；参与原始的游憩活动倍受重视(利奥波德研究中心提供)

荒野的许多特性都是脆弱的、不可替代的。如果制定决策时没有经过系统性分析，对建立荒野地所带来的关键性长远利益没有预见性，那么错误的或者不适当的管理措施很可能造成严重损失。一个系统性的决策过程，在荒野地管理措施的制定方面，从管理工具的使用(比如控制入侵物种的手段、抑制林火的措施，或者开展科学研究的方式)，到规章制度的制定(例如，是限制游客经历以保护资源，还是鼓励体验教育活动，在这二者之间权衡轻重)(图2)，再到强制手段的应用(罚款、警告、教育等)，可以提供很多选择。这一决策过程，应该是严格的、具有系统性的。针对荒野区管理的《最低要求决策指南》(Minimum Requirements Decision Guide^[18])提出一个简单的原则，即“使用满足最低要求的手段”，用必需的手段来达到目的。换言之，在对管理工具、规章或强制程度做出决策时，最佳的选择，应该是对自然性和野性最不具有侵犯性，同时又能解决问题的手段。

4 IUCN-1b类保护地指南中的野性恢复

2016年，国际自然保护联盟新发布了有助于IUCN-1b类保护地管理的指南^[9]。这些保护地(荒野保护地)的定义是“通常面积较大、未经改变或有轻微改变的区域，保存着自然特征和影响力，没有永久或显著的人类定居，其保护与管理以保存其自然状态为目的”^[19]。荒野地并不排斥人类，而是排斥某些人类的利用方式，尤其排斥与维护荒野价值相矛盾的工业方式^[20]。

荒野地的管理者，常常需要在不同管理模式中寻找平衡点。一方面是备受期望的“消极管理”(即不干预模式，non-intervention)底线标准；另一方面，在恢复一个荒野地或者完全再野化一个严重退化地区以作为大尺度景观的核心区时，又有干预的需要。在文献中，再野化有很多定义和目标，各大洲对再野化的操作也各异；Carver^[21]则提供了一个英国为防洪减灾而再野化的简单例子，即把“……减少羊群数量、栽种更多树木、恢复河漫滩并重新引入河狸……”与其他工程上的解决方案结合起来。如果这是再野化作为“可塑性民间用语”的使用，那么它也是富有情感的用词，更加受到公众欢迎。正因为再野化一词附带有感情色彩，Carver^[22]建议用更具描述性、更少可塑性的用语来替代再野化，例如“自然主导的生态系统”(nature-led ecosystems)，可以是不同自然资源保护群体和不同土地资源类型所共同希冀的目标。

与积极干预相反的是消极(或不干预)管理。消极管理(不干预)是历史上与荒野概念相关的核心哲学理念。面临陆地景观、海洋景观、沿河区域的环境改变，尤其考虑到气候变化和工业用途的因素，消极管理可能是荒野区管理者可以采用的最佳方式。它成本最低，又符合荒野区管理的核心价值。在这种情况下，荒野地被简单地保留为不干预地区，任由野生动物和

生态系统自然地适应、应对气候变化或其他环境变化的发生。这一哲学理念承认,对荒野地的积极管理或直接干预,既困难又常常达不到目的;它主张,增强生态系统适应性(resilience)的最佳方法,是确保荒野地较少地受到人类影响,确保各个核心区域通过景观廊道及可渗透(permeable)景观互相连接,这样,在生态系统变化时,野生动物可以不受阻碍地移动、迁徙到更适合生存的区域。

5 结论

当前,生态恢复与再野化这2个概念常被混淆在一起。再野化,以其最简单的应用来说,是使某一区域回归到野性、自主的状态(不受人类束缚);生态恢复则更多地与自然性相关,具有通过人为干预回归到某些特定的属性、物种或时期的含意。在制定干预决策时,往往要在一个区域的自主性和自然性之间进行评估和权衡取舍。与生态恢复的步骤一样,再野化也会涉及启动、刺激、允许自然过程(再次)发生,但是为了形成新的更具野性的地区,它用自主性取代了人类的管理和干涉。通常,再野化的目标是形成一个自然运作的景观,在没有人类积极管理的情况下,可以自我维持,直到未来。虽然有些人认为再野化可以侧重于实现具体的目标,其他人则主张再野化更过地关乎规模,强调对种类繁多的本地物种、营养级顶端食肉动物以及其他关键物种的大规模的生态恢复,使这些物种达到在自然条件下丰足的数量,以此重新获得运作良好、有很强适应力的生态系统。再野化的实践,绝非千篇一律、一成不变。然而,在制定关于建立、管理IUCN-1b类保护地(荒野保护地)的决策过程中,再野化已经成为一个核心考虑。还有一些保护地,虽然保护的严格程度较低,但同样强调理解野性自然在其自我调控方面所具有的科研、实验或教育价值,在这些保护地的建立、管理中,再野化也已成为制定决策时的核心考虑因素。

参考文献:

- [1] Craig D R, Landres P, Yung L. Improving Wilderness Stewardship Through Searchable Databases of U.S. Legislative History and Legislated Special Provisions[J]. *International Journal of Wilderness*, 2010,16(2): 27-31.
- [2] Watson A E. Wilderness at Arm's Length: On the Outside Looking in at Special Provisions in Wilderness[C]//Cole D N. Wilderness visitor experiences: Progress in research and management, 2012: 134-146.
- [3] Landres P. Special Provisions in Wilderness Legislation 1964 to 2014: Number, Types, and Impact on Wilderness (abstract)[C]//56th National Wilderness Conference Proceedings, 2014: 290-291.
- [4] Hendee J C, Dawson C P, Hendee J C, et al. Wilderness management: stewardship and protection of resources and values[J]. *Fulcrum Pub*, 2002(4): 469-470.
- [5] Casson S A, Martin V G, Watson A, et al. *Wilderness Protected Areas: Management guidelines for IUCN Category 1b protected areas*[M]. Gland, Switzerland: IUCN, 2016.
- [6] Aplet G H. On the nature of wildness: exploring what wilderness really protects[J]. *Env.u.Lrev*, 1998, 76(2): 347-367.
- [7] Lorimer J, Sandom C, Jepson P, et al. Rewilding: Science, Practice, and Politics[J]. *Annual Review of Environment & Resources*, 2015, 40(1): 39-62.
- [8] Hintz J. Some Political Problems for Rewilding Nature[J]. *Ethics Place & Environment*, 2007, 10(2): 177-216.
- [9] Corlett R T. Restoration, Reintroduction, and Rewilding in a Changing World[J]. *Trends in Ecology & Evolution*, 2016, 31(6): 453.
- [10] Mombiot G. *Feral: rewilding the land, sea and human life*[M]. Penguin, 2014.
- [11] Svenning J C, Pedersen P B, Donlan C J, et al. Science for a wilder Anthropocene: Synthesis and future directions for trophic rewilding research[J]. *Proceedings of the National Academy of Sciences of the United States of America*, 2015 (12): 1-7.
- [12] Soule M, Noss R. Rewilding and biodiversity: complementary goals for continental conservation[J]. *Wild Earth*, 1998, 8: 3.
- [13] Hobbs R J. *Habitat Networks and Biological Conservation*[M]//*Applying Landscape Ecology in Biological Conservation*. Gutzwiller: Springer New York, 2002.
- [14] Jones-Walters L. Pan-European Ecological Networks[J]. *Journal for Nature Conservation*, 2007, 15(4): 262-264.
- [15] Regos A, Dominguez J, Gil-Tena A, et al. Rural abandoned landscapes and bird assemblages: winners and losers in the rewilding of a marginal mountain area (NW Spain)[J].

Regional Environmental Change, 2016, 16(1): 1-13.

- [16] Jørgensen D. Rethinking rewilding[J]. *Geoforum*, 2014, 65: 482-488.
- [17] Watson A, Martin S, Christensen N, et al. The Relationship Between Perceptions of Wilderness Character and Attitudes Toward Management Intervention to Adapt Biophysical Resources to a Changing Climate and Nature Restoration at Sequoia and Kings Canyon National Parks[J]. *Environmental Management*, 2015, 56(3): 653-663.
- [18] Minimum Requirement Decision Guide (MRDG) [EB/OL]. [2014-12-19]. Online Instructions for Minimum Requirement Analysis. Arthur Carhart National Wilderness Training Center. <http://www.wilderness.net/MRA>MRDG>.
- [19] Dudley N. *Guidelines for Applying Protected Area Management Categories*[M]. Gland, Switzerland: IUCN, 2013.
- [20] Kormos C F. *Handbook on international wilderness law and policy*[M]. Fulcrum Publishing, Golden, Colorado, 2008.
- [21] Carver S J. Flood management and nature-can rewilding help? [J]. *Ecos*, 2016a, 37(1): 33-42.
- [22] Carver S J. Rewilding: conservation and conflict[J]. *Ecos*, 2016, 37(2): 3-10.

(编辑/王媛媛)

作者简介:

(美)艾伦·沃森(Alan E. Watson)/1951年生/男/博士/美国联邦政府最高级别科学家、奥尔多·利奥波德荒野研究中心资深研究员,《国际荒野期刊》执行编辑,世界荒野大会科学主席,雷布赖特学者/研究方向为荒野地内的人类活动、荒野地的管理与政策制定

(英)斯蒂夫·卡佛(Steve Carver)/1965年生/男/地理学博士/英国利兹大学地理学家和资深讲师,荒野研究中心主任(Wildland Research Institute)/荒野网络(Wildland Network)、野性欧洲(Wild Europe)、欧洲荒野协会(European Wilderness Society)成员/研究方向为GIS及其在景观评估和荒野制图中的应用

译者简介:

黄澄/1990年生/女/加拿大籍/清华大学建筑学院景观学系在读博士研究生/研究方向为景观环境教育、国家公园、自然保护区(北京100084)

杨河/1971年生/女/美国籍/宾夕法尼亚州立大学游憩、公园与管理专业博士/米苏拉山水蒙学(学圈)创办人、校长/研究方向为荒野地、游憩、儿童教育