荒野地生态修复法律问题研究：以美国 1964 年荒野法案为视角

马 允* （鹿特丹大学 法学院，荷兰 伊拉斯姆斯）

摘要：美国 1964 年的荒野法案肇始于 1960 年代兴起的荒野运动。该法案提出了对联邦土地的荒野价值（wilderness）进行特别保护的立法理念，并在既有的联邦土地保护地框架之上创设了国家荒野地保护系统。通过解读该法案的立法目的和对荒野的定义，学者认为该法案要求联邦土地管理机构保持荒野地的原真价值（wildness）和自然价值（naturalness）。然而，这两种价值之间却存在着张力。管理机构在对荒野地进行相关管理活动时，往往需要在这两种价值之间做出取舍：保持其原真价值可能会损害自然价值；而为了保护自然价值，往往需要破坏荒野地的原真价值。这种管理困境尤其体现在对于荒野地的生态修复问题上，即通过有针对性的人工干预来达到修复已损坏的生态系统的目的。美国联邦法院近期作出的若干司法判决均涉及对于荒野地内野生生物数量修复的问题。法院须判断管理机构对于荒野法案的解释是否合理，以及法院应在多大程度上对于管理机构的专业知识和判断秉持司法谦抑。本文在阐述荒野法案的立法目的，对荒野的定义和其主要内容的前提下，指出管理机构对于荒野地的生态修复面临着原真价值和自然价值选择的两难困境。通过对近期三个联邦法院的司法判例进行分析，本文指出美国联邦法院对于荒野地管理中的人工修复措施持审慎态度。这对于我国保护地生态修复问题，尤其是自然保护区核心区和生态功能区划中的禁止开发区内的生态平衡修复问题，或有借鉴意义。

1 Introduction

Not like the spread of national parks, the idea of wilderness still largely remains an American phenomenon. The Wilderness Act of 1964, as a direct output of the American wilderness ethic, contains the strictest legal protection ever over federal lands. It calls for preserving nature in an “untrammeled” status and instructs agencies to preserve the natural conditions and ecological values of such areas.[1] Two dimensions of the legislative purpose of the Wilderness Act are thereby identified: though defined with various terms, they are generally referred to wildness and naturalness. Management agencies are facing a dilemma as they are instructed to maintain both the pristine status and natural conditions of wilderness areas. Since nature has been altered by both internal and external factors, the necessity of ecological restoration, which indicates a certain degree of manipulative control of nature, has emerged. Ecological intervention, such as restoration of wildlife population and ecological equilibrium, is deemed to have compromised the wildness value of wilderness; while leaving the area untouched will risk reducing its naturalness. In this context, management agencies’ restoration decisions are frequently tested in courts, for example, to use pesticide to eradicate non-native trout in order to restock streams with native trout,[2] to build water tanks in desert to increase the population of bighorn sheep,[3] and to incubate salmon eggs outside the wilderness area and release fries back to increase the salmon population.[4]

In this article, I firstly introduce the Wilderness Act including its purpose statement, definition of wilderness and main measures provided for in the Act against the general backdrop of public land law in the USA; then I point to the management dilemma of wilderness restoration and analyze the influences of the legislative paradox of the Wilderness Act on agencies’ restoration decisions. By looking into three latest wilderness restoration cases, I further examine the judicial attitude towards agencies’ interpretation of the Act, and the degree of judicial deference that has been provided to agencies’ decisions. In concluding remarks, I point out the cautious attitude of the judiciary, and the lessons that China can draw upon in designing and implementing its restoration plans in the future.

2 The Wilderness Act of 1964 in the United States and beyond

2.1 A brief introduction to public land law in the USA

Public lands in the USA are now mainly legislated into four distinct systems, which are the National

* 作者简介：马允，PhD在读，荷兰伊拉斯姆斯鹿特丹大学法学院，ma@law.eur.nl

[1] 16 U.S.C. §1131 (c). For more discussion, see *infra* section 3.1.

[2] Californians for Alternatives to Toxics v. U.S. Fish & Wildlife Service (814 F. Supp. 2d 992, E.D. Cal., 2011). See *infra* section 4.1.

[3] Wilderness Watch v. U.S. Fish & Wildlife Service (629 F.3d 1024, 9th Cir., 2010). See *infra* section 4.2.

[4] Wilderness Society v. U.S. Fish & Wildlife Service (360 F.3d 1374, 9th Cir. 2004) (en banc). See *infra* section 4.3.

Park System, the National Forest System, the National Wildlife Refuge System, and the remaining public lands that do not fall into any of the former three systems. These four public land systems are now respectively governed and managed by four federal public land management agencies, i.e., the National Park Service (NPS), the United States Forest Service (USFS), the Fish & Wildlife Service (FWS), and the Bureau of Land Management (BLM). Among these four agencies, the USFS is affiliated to the Department of Agriculture (DOA), and the rest three are under the Department of Interior (DOI). Nowadays, these four agencies administer about 95% of the approximately 650 million acres of federally owned lands.[5]

These four agencies receive their respective organic acts from Congress, as shown in the following table. They possess different management philosophies over the land that is respectively under their control. For example, the NPS is instructed by Congress to 'to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations'. This is deemed a 'dual mandate' by scholars, i.e., conservation and provision of enjoyment.[6] Both the USFS and the BLM receive their multiple-use and sustainable yield mandate from Congress.[7] They are instructed to provide multiple uses to the society, including recreation, range, timber, minerals, watershed and others. The FWS is deemed to receive a dominant use mandate from Congress. According to the National Wildlife Refuge System Improvement Act of 1997, compatible wildlife-dependent recreation is prescribed as the priority general public use (Section 5). The wildlife-dependent recreation use is defined and limited to the use of a refuge 'involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation' (Section 5).

Table 1: Public land management agencies and their organic acts in the USA

Agency	Organic act	Purpose statement	Congressional Mandate
NPS	NPS Organic Act of 1916	'to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations'	A dual mandate
USFS	Organic Administration Act of 1897	'to improve and protect forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States'	A multiple-use mandate
FWS	National Wildlife Refuge System Improvement Act of 1997	'the mission … is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans'	A dominant use mandate
BLM	Federal Land Policy and Management Act of 1976 (FLPMA)	'public lands should be retained in Federal ownership… disposal of a particular parcel will serve the national interest'	A multiple-use mandate

Besides these four public land systems that are managed by parallel federal agencies, there is also another system, namely the National Wilderness Preservation System, that is managed by all these four agencies. This system is established by the Wilderness Act of 1964 that will be discussed as below.

2.2 The Wilderness Act: a critical examination

Since the 1960s, there has been a so-called 'wilderness movement' in the US. The Wilderness Act[8] is a direct product of this movement. After several years' negotiation and debates, the Wilderness Act was finally enacted by Congress in 1964 which imposed the strictest legal protection ever on public lands.

[5] Kori Calvert, *et al.*, 'Recreation on Federal Lands', 'Recreation on federal lands', Congressional Research Service Report for Congress, 22 September 2010, p.1. Available at http://cnie.org/nle/crsreports/10Oct/RL33525.pdf. Last visited July 2014.

[6] Frederico Cheever, 'The United States Forest Service and National Park Service: Paradoxical Mandates, Powerful Founders, and the Rise and Fall of Agency Discretion', 74 (1997) *Denver University Law Review*, pp. 625-1281.; Harmony Mappes,'Comment. National Parks: For Use and "Enjoyment" or for "Preservation"? and the Role of the National Park Service Management Policies in That Determination', 92 (2007) *Iowa Law Review*, p.604; and
Dennis Herman, 'Loving Them to Death: Legal Controls on the Type and Scale of Development in the National Parks', 11 (1992) *Stanford Environmental Law Journal*, p.7.

[7] For the USFS, see Multiple-Use, Sustained-Yield Act of 1960 (16 USC. §528-31); for the BLM, see Federal Land Policy and Management Act (43 USC. §§ 1701-1702).

[8] 16 U.S.C. §§1131-1136.

2.2.1 The birth of the Wilderness Act: a brief historical review

According to McCloskey, there are two conditions that warrant wilderness protection: a society with highly educated leaders and economic surpluses and an increasing scarcity of wilderness areas.[9] The idea of keeping nature in its wild status originates from the USFS's management experiences on 'primitive areas' that dated back to the 1920's. Since there was then a tourism boom on public lands in the US, to distinguish itself from the ambitious NPS and also to avoid the NPS asking for forest lands to designate new national parks, the USFS brought forward the idea of preserving nature in its wild status. By the mid-1930s, the USFS had established several dozen wild zones, which were named 'primitive areas'.[10]

On the one hand, the USFS's management of wild areas was then without statutory backing[11] and thus incurred litigation against such management.[12] On the other hand, conservationists were provoked by development activities within designated wild areas. This has led environmental advocates, especially the Wilderness Society, a main player during the Wilderness Movement, to legalize the idea of wilderness, i.e., to pursue for congressional recognition rather than administrative action. They argued that national parks, as administered under the NPS Organic Act of 1916, were deficient to protect the wilderness values of these areas. This was deemed a shift of the environmental organizations' gesture in the wilderness history from a defensive role to an offensive one.[13]

The first wilderness bill was heard in Congress in 1956. However, the USFS originally opposed the idea arguing that the statutory wilderness would be contrary to its multiple use and sustained yield management practices. In 1960, Congress passed the Multiple-Use, Sustained-Yield Act and prescribed a specific provision that 'the establishment and maintenance of areas of wilderness area consistent with the purpose [of this Act]' (16 U.S.C. § 529). The USFS's opposition abated after that.

The NPS's attitude towards the bill has witnessed a similar change with that of the USFS. It initially opposed the Wilderness Act as well and argued against extending it to national park lands. It contended that the NPS Organic Act of 1916 had provided them with sufficient authority to conserve park lands and resources, thus additional wilderness designation would be unnecessary. Actually, the NPS's concern is two-fold: first, the Act makes it more difficult for the NPS to build roads and other facilities on national park lands. Under the Organic Act of 1916, the fledgling NPS had 'no intention of treating these protected landscapes as wilderness sanctuaries';[14] second, as it has always been the practice that the USFS lands were taken to create new or expand existing national parks,[15] it will be difficult for the NPS to ask from the USFS to transfer any more lands.[16]

Under such circumstances, the Wilderness Act is actually a product of compromise: firstly to quell longstanding interagency rivalries, especially between the USFS and the NPS, and secondly to balance wilderness protection and commercial users' interests. This compromise is reflected from the following aspects:

Firstly, it provided that any wilderness area would continue to be managed by the previous agency that had managed it before the designation (Section 2(b));

Secondly, it reserved the power to further designate any wilderness area to Congress by a congressional act (Section 2(a));

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[9] Michael McCloskey, 'The Wilderness Act of 1964: Its Background and Meaning', 45 (1966) *Oregon Law Review*, p.288.
[10] George Coggins, Charles Wilkinson, and John Leshy, *Federal Public Land and Resources Law* (New York: Foundation Press, 2007), p.1010.
[11] Before 1964, Congress enacted some legislation requiring some specific federal lands to be managed as roadless, such as the Shipstead-Nolan Act in 1930. It is also deemed to be the first congressional recognition of the wilderness idea. However, most of the USFS's primitive areas were not congressionally granted. See *ibid.*
[12] See Perko v. United States, 204 F.2d 446 (8th Cir. 1953) (The President's Executive Order set that the airspace below 4,000 feet above sea level in roadless areas of the Superior National Forest was reserved and set aside as an airspace reservation. Private landowners of resorts challenged the validity of this Order and argued that this was unconstitutional taking of their property as it deprived them from commercial aviation service. The Appeal Court affirmed the judgment and ruled for the US).
[13] Coggins *et al.*, *supra* note 12, p.1011.
[14] Robert B. Keiter, *To Conserve Unimpaired : The Evolution of the National Park Idea* (Washington: Island Press, 2013), p.15.
[15] The original transfer occurred during the 1933 government re-organization. All national monuments previously managed by the USFS were transferred to the DOI and placed under the management authority of the NPS. The establishment of Olympus National Park also derives from previous designation of Olympus National Monument managed by the USFS. For more details of interagency battle between the USFS and the NPS on national monument management, see Gerald Williams, 'National Monuments and the Forest Service', Nov. 18, 2003. Available at http://www.nps.gov/history/history/online_books/fs/monuments.htm. Last visited April 2014.
[16] Keiter, *supra* note 16, p.22.

Thirdly, it generally prohibited construction of roads and commercial uses, but also provided quite a few exceptions to get the Act passed. It protects some existing uses, allow for limited commercial use and resource exploitation within wilderness areas (Section 4 (c)&(d)).

Therefore, the Wilderness Act is, on the one hand, a product of Congress's idealistic expression of wilderness, and on the other hand, a product of compromise recognizing that such an idealistic view is subject to some practical limitations.

2.2.2 The purpose statement and main measures of the Wilderness Act

The stated purpose of this 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 possessions, leaving no lands designated for preservation and protection in their natural condition' (16 U.S.C. §1131).

To achieve this purpose, the Act made four concrete steps:

(1) it established the new type of designation of wilderness area which in total composed the National Wilderness Preservation System on federal lands, and it also specified the procedures and standards to expand the System by adding new units (§1131(a) and §1132 (d));

(2) it provided a definition of wilderness and wilderness areas which, like other American statutes, guided the judiciary to review agencies' management decisions (§1131(c));

(3) it instructed the USFS, the NPS and the FWS to make an inventory of their primitive areas or road-less areas for purpose of designation of wilderness areas (§1132 (b)-(c)); and

(4) it listed prohibitive uses and management standard within wilderness areas (§1133 (b)-(d)).

With regard to the first step, as the idea of wilderness protection is inherited from the classification and management experience of national forests by the USFS, the Act designated 9.1 million acres of forest lands, which were classified and managed as 'wilderness', 'wild', or 'canoe' by the USFS before 1964, as wilderness areas (§1132 (a)). Congress reserved the right to designate new wilderness areas by clearly stating that 'no Federal lands shall be designated as 'wilderness areas' except as provided for in this chapter or by a subsequent Act' (§1131(a)).

Concerning the definition, according to the Act, wilderness is defined as 'an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain' (§1131 (c)). This definition is formed in a quite poetic, idealistic and romantic sense.[17] The Act also defines the wilderness area 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 and which

(1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially *unnoticeable*;

(2) has outstanding opportunities for solitude or a *primitive* and unconfined type of recreation;

(3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and

(4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value' (§1131 (c)) (emphasis added).

We see that this legislative definition contains quite a few terms that are elusive, such as unnoticeable and primitive. Vagueness embodied in the statutory language results in consequent suits.[18]

About the third step, i.e., the mandatory inventory requirement, the Act set ten years' time limit for agencies' inventory, which include the NPS, the USFS and the FWS. The BLM was not mentioned in the original inventory provisions of the Act. Until Congress passed the FLPMA in 1976, wilderness inventory requirements were placed on the BLM.[19] Actually, this requirement is not well implemented in practice due to opposition from agencies. For example, the NPS did not finish the inventory when the deadline of 1974 came to the end.

With regard to the last step, the Act completely proscribed 'commercial enterprise and permanent road' and conditionally prohibited 'temporary road, use of motor vehicles, motorized equipment or motorboats, landing of aircraft, other form of mechanical transport and structure or installation' within any wilderness areas (§1132 (c)). More discussion will be provided in the following page. This strict prohibition has incurred controversies and resistance. For example, when the Act was considered upon in the 1950's, it was opposed by western officials who feared that the prohibition upon economic activities in

[17] Coggins *et al.*, *supra* note 12, p.1012.
[18] See *infra* section 4.
[19] 43 U.S.C. § 1782 (a).

wilderness areas would deprive local interests.[20]

2.2.3 Regulation of commercial, motorized use and construction projects

The Wilderness Act states that wilderness areas should be 'administered for the use and enjoyment of American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness' (Section 2(a)). Compared to the purpose statement in the NPS Organic Act of 1916 which is to 'conserve, provide for the enjoyment and leave them unimpaired for the enjoyment of future generations', both Acts emphasize the use and enjoyment of American people, and adopted the so-called 'impairment' standard. In this sense, the legislative languages between Wilderness Act and Organic Act do not differ much. What the Wilderness Act is different from the NPS Organic Act protection of public lands is reflected in its strict regulation on commercial, motorized uses and road construction.

The Wilderness Act generally prohibits any commercial enterprise or construction of any permanent road except being subjected to existing private rights. It also limitedly authorizes temporary roads unless they are 'necessary to meet minimum requirements for the administration of the wilderness area'. The same requirement applies to use of motor vehicles, motorized equipment or motor boats, landing of aircraft, other form of mechanical transport, and structure or installation (Section 4(c)).

The Act also provides for special provisions and exceptions. For example, the use of aircraft or motorboats may be permitted to continue if they have already become established. It also stated that 'commercial service may be performed within the wilderness areas… to the extent necessary for activities which area proper for realizing the recreational or other wilderness purposes of the areas' (Section 4(d)(6)). In this sense, the Wilderness Act categorically proscribes commercial enterprise, but allows a narrow exception for the authorization of commercial services.[21]

These 'minimum requirements' and 'exceptional provisions' have become the central focus of judicial deliberation, as will be shown later.

3 Wilderness restoration: a management dilemma

3.1 The core values of wilderness: wildness and naturalness

From the purpose statement and definitions provided in the Act, we see that the Act prescribes two goals for wilderness protection:[22] firstly, the Act speaks of an 'untrammeled' feature of wilderness; secondly, the Act requires wilderness area to be protected and managed to preserve its 'primeval' character and 'natural' conditions. Some scholars generally refer to these two goals 'untrammeled-ness' and 'pristineness'.[23] Landres and others summarize these two aspects into two core values that the Wilderness Act intends to protect: wildness and naturalness.[24] Generally speaking, wildness refers to a status that is 'free from human control and manipulation'; while naturalness refers to 'native species, patterns and processes'.[25] The chart that depicts the relationship among wilderness, naturalness and wildness is shown as follows:

Figure 1: The relationship among wilderness, wildness and naturalness

[20] John Nagle, 'The Spiritual Values of Wilderness', 35 (2005) *Environmental Law*, p.961.

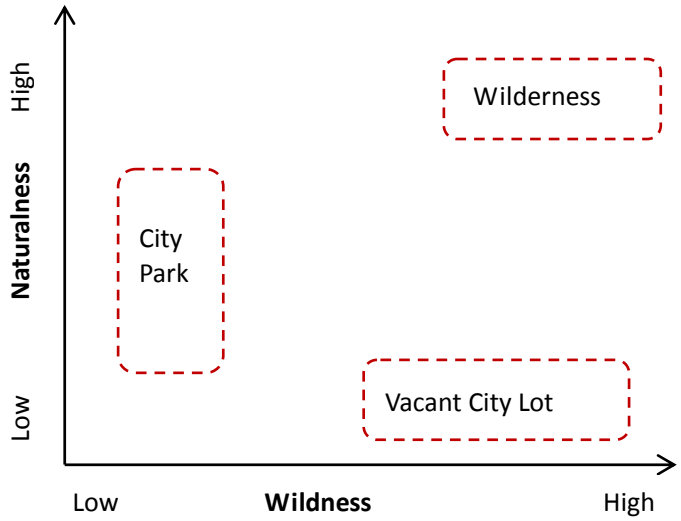
[21] This distinction is debated in High Sierra Hikers Association v. Blackwell, 390 F. 3d 630 (Court of Appeals, 9th Circuit 2004).

[22] Gregory Aplet, 'On the Nature of Wildness: Exploring What Wilderness Really Protects', 76 (1998-1999) *Denver University Law Review*, p.355.

[23] Sean Kammer, 'Coming to Terms with Wilderness: The Wilderness Act and the Problem of Wildlife Restoration', 43 (2013) *Environmental Law*, p.105 and FN 152 (the author notices that different terms are used by different scholars to refer to these two features). See also Gregory Aplet, *supra* note 24, p.353 (he saw wildness as the umbrella term that incorporated notions of freedom and naturalness); David Cole *et al.*, 'Naturalness and Beyond: Protected Areas Stewardship in an Era of Global Environmental Change', 25-1 (2008) *The George Wright Forum*, pp.36, 42 and 47 (they saw naturalness as the umbrella term that consisted of untrammeled-ness and pristineness).

[24] Peter Landres *et al.*, 'Naturalness and Wildness: The Dilemma and Irony of Managing Wilderness', 5 (2000) *Proceedings RMRS-P-15*, pp.377-381; see also Sean Kammer, *supra* note 25, p.85.

[25] Peter Landres, 'Wilderness Restoration: The Dilemma of Managing for Wildness and Naturalness', Aldo Leopold Wilderness Research Institute.



In this chart, 'wilderness is the idea and place where wildness and naturalness reach their highest expression'.[26] Places such as vacant city lot possess high degree of wildness that is free from human control, however, has a low degree of naturalness. To contrast, a city park that is under active human manipulation possess a less degree of wildness; however, since it contains natural landscape and species, it has a considerably higher degree of naturalness than city lot.

There are also scholars pointing out the ambiguities of the terms used in the naturalness versus wildness debate and suggesting replacing them with 'protection of biodiversity' versus 'respect for nature's autonomy'.[27] In this article, I will generally refer to these dual values naturalness and wildness.

3.2 Wilderness restoration and the management dilemma

The traditional attitude towards wilderness is more or less a "draw a line around it and leave it alone" strategy.[28] This hands-off approach used to be efficient; however, it is no more the case. The human imprint on wilderness has greatly increased. Firstly, increasing number of recreational users of wilderness has greatly changed the wild landscape. Data shows that the number of visitors in the 1990s has been 25 times of the one in the 1930s.[29] It is also noticed that designation of certain area as wilderness pushes visitors to use other areas yet designated. This will decline the area of lands with potential to be designated as wilderness areas. Secondly, the equilibrium of ecosystem has been disrupted by human-induced changes that occur on a regional, national or global scale, such as decades of fire suppression, global warming, and invasion of exotic species.[30] In this context, the need to manage wilderness has emerged.

An important component of wilderness management is to restore the derogated ecosystem, i.e., wilderness restoration. Restoration actions indicate intensive and broad-scale manipulation of nature. Tomback *et al*. provides a case in Rocky Mountain wherein whitebark pine forests are derogated by an exotic pathogen. This threatens grizzly bear population that is dependent on pine seeds for food. The question pending before the management agency is whether to actively intervene in such a process, such as breeding pathogen-resistant pine trees to protect ecological system and grizzly bear. Other restoration measures include using prescribed fire (i.e., human-ignited fire) for purpose of forest thinning, the eradication of invasive species by using mechanical or chemical measures for purpose of native species protection, the reintroduction of native species in case of the decline of their population, and the provision of water or food to aid certain specific species.

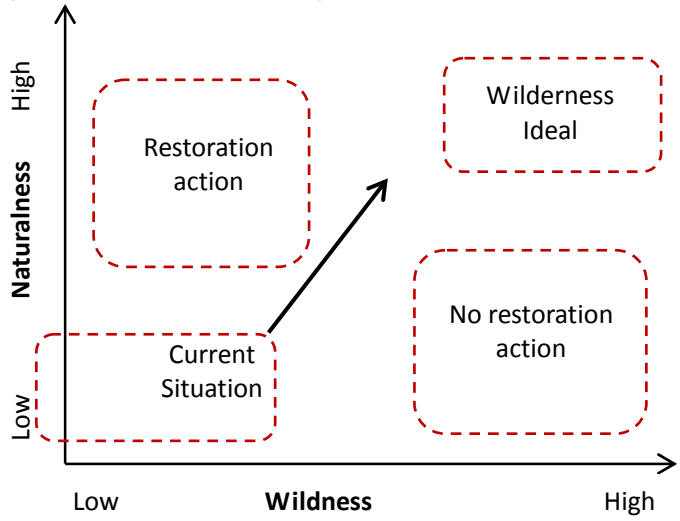
It is noticed that the term 'wilderness management' itself is a paradox.[31] Wilderness is supposed to be an area where human influence is absent or at least minimized, while the concept of management suggests

[26] Peter Landres *et al.*, *supra* note 26, p.377.
[27] Ben Ridder, 'The Naturalness versus Wildness Debate: Ambiguity, Inconsistency, and Unattainable Objectivity', 15-1 (2007) *Restoration Ecology*, pp.8-12.
[28] John Hendee *et al.*, *Wilderness Management* (Fulcrum Publishing, 1991), 2nd edition, p.15.
[29] John Hendee *et al.*, *supra* note 30, p.16.
[30] David Cole, 'Agency Policy and the Resolution of Wilderness Stewardship Dilemmas', 20-3 (2003) *The George Wright Forum*, p.28; and David Cole & Peter Landres, 'Threats to wilderness ecosystems: impacts and research needs', 6 (1996) *Ecological Application*, pp.168-184.
[31] John Hendee *et al.*, *supra* note 30, p.15.

human beings' manipulation and active control of nature. Howard Zahniser said stewards of wilderness should be 'guardians not gardeners'.[32] However, some scholars also assert that without management, the wilderness designation would be an empty symbol. The argument that 'we'll worry about management when wilderness designation is all done' is not defensible.[33] Furthermore, another justification for wilderness management is that there is no other acceptable alternative. Exclusion of management activities will result in either complete prohibition of all kinds of uses, which is against the stated statutory purpose for public use, or complete tolerance of all kinds and amount of uses, which will finally extinguish wilderness.

Management agencies are thus facing a management dilemma in restoring wilderness areas. Shown in the following figure, restoration actions may comprise the wildness value since it is an active human intervention; while the naturalness will be impaired if restoration actions are not taken.

Figure 2: Illustration of management dilemma of restoration action in wilderness



4 Case studies of wilderness restoration and management

Management agencies' management decisions are frequently debated in courts. In this section, I will discuss several recent judicial cases on restoration decisions made by management agencies and examine the judiciary's attitude in solving such a dilemma.

4.1 Case 1: Californians for Alternatives to Toxics v. FWS (2011)[34]

The FWS, the USFS and the California Department of Fish and Game (the 'Agencies') proposed the 'Paiute Cutthroat Trout Restoration Project' in the Carson-Iceberg Wilderness of California and planned to implement it in 2011. In this Project, the agencies would use pesticide to eradicate non-native trout in order to restock the native species of trout, i.e., the Paiute Cutthroat Trout (PCT), in the creek. The PCT is a species listed under the Endangered Species Act as threatened with extinction. Plaintiffs sued the agencies seeking to set aside this restoration project by arguing for its violation of the Wilderness Act and others.[35]

Plaintiffs asserted that the Project's use of motorized equipment, elevation of recreational fishing over the goal of preserving wilderness, and the agencies' failure to prove the necessity of the Project all violated the Wilderness Act.[36] Plaintiffs argued that the use of pesticide in this Project would not only kill the non-native trout but also kill the native invertebrate species in the river; therefore, an alternative of physical removal of non-native trout would be feasible.

To analyze whether the Project violated the Wilderness Act, the Court made three steps:

Firstly, it specified the standard of review under the Wilderness Act. By referring to the *Chevron* and *Mead* standards of judicial review,[37] the Court concluded that the agencies' approval of this Project did

[32] Howard Zahniser, 'Guardians not gardeners', 83 (1963) *Living Wilderness*, p.2. Citing from David Cole, *supra* note 32, p.29.
[33] John Hendee *et al.*, *supra* note 30, p.17.
[34] Californians for Alternatives to Toxics v. United States Fish & Wildlife Serv., 814 F. Supp. 2d 992 (E.D. Cal. 2011).
[35] 814 F. Supp. 2d, pp.997-999.
[36] 814 F. Supp. 2d (E.D. Cal. 2011), p.1003.
[37] See Chevron USA., Inc. v. Natural Resources Defense Council, Inc., 467 US 837 (1984); United States v. Mead Corp.,

not deserve *Chevron* deference and was 'only entitled to respect based on the persuasiveness of the Agency's justification' (p.1014).

Secondly, relying on this justification test, the Court stated that it first had to decide 'whether the Agencies' determination…that species conservation is a purpose of the Wilderness Act – runs unambiguously contrary to the language of the Act' (p.1014). Though the Court recognized that the purpose of the Wilderness Act as to conservation was sometimes ambiguous, it endorsed the purpose of the Project permissible under the Act (p.1015).

Thirdly, by relying on the precedent of *Wolf Recovery* case[38] in which the court supported the agency's use of helicopters to collect data on gray wolves in the Frank Church Wilderness, the defendants argued that 'authorization of motorized equipment will comply with the Act by achieving the purpose of preserving wilderness character' (p.1022). However, the Court disagreed by pointing out that, unlike the *Wolf Recovery* case, there was no 'imminent risk to the species' in the current Project (p.1021). The Court ruled that 'while the agencies justified the necessity of using motorized equipment as opposed to other methods, they nonetheless violated the Wilderness Act by failing to consider the potential extinction of native invertebrate species as a factor relevant to the decision of whether the extent of the project was necessary' (p.1019).

Besides refuting the agencies' arguments, it is worthy of notice that the Court suggested, in a footnote, a plausible analytical framework that the agencies may use to replace the one previously made (FN 32). By proposing such a hypothesis, the Court recognized that the two values embodied in the Wilderness Act, i.e., 'the preservation of wilderness character and the conservation of species', were in direct conflict.[39] If the agency decided to eliminate native invertebrate species to conserve the species of PCT, it will derogate the wilderness character. If it decided to protect the wilderness character, the species of PCT will face the risk of extinction. Therefore, the agencies should provide evidences to justify its choice to 'elevate the pursuit of the conservation value' (p.1022).

To conclude, the Court stated that 'in choosing one competing value (conservation of the PCT) over the other (preservation of the wilderness character), the Agencies left native invertebrate species out of the balance' (p.1024).

4.2 Case 2: Wilderness Watch v. U.S. Fish & Wildlife Serve, 629 F.3d 1024 (9th Cir., 2010)

The Kofa Wilderness inside the Kofa National Wildlife Refuge, located in southwest Arizona, is an extremely dry ecosystem. In 2007, the FWS built two water tanks to assist the declining population of desert bighorn sheep. These two tanks consist of aerated PVC pipe buried underground. The Wilderness Watch and other environmental organizations sued the FWS to the court by alleging that it violated the express prohibition on building structures provided for in the Wilderness Act. The district court ruled for the FWS, and the plaintiffs appealed to the Ninth Circuit. The appellant court reversed and remanded.

As a response to the plaintiffs' arguments, the FWS argued that the water structures fell within an exception to the Act based on two reasons: firstly, the conservation of bighorn sheep was a valid purpose of the Act; and secondly, the FWS adequately determined that the structures were necessary to meet the minimum requirements for conserving bighorn sheep (p.1032).

In analyzing the first reason that the FWS has provided, the Court refused the museum notion of wilderness; instead, the Court recognized the multiple purposes that wilderness should serve, specifically for recreational, scenic, scientific, education, conservation, and historical uses. However, the Court also stated that the Act gave conflicting policy directives to the FWS and the purpose of the Act with regard to conservation was ambiguous.[40] The Court supported the FWS's first argument that conservation of bighorn sheep was consistent with the purposes of the Act.

With regards to whether FWS's construction is of necessity to fulfill the conservation objective, the

533 US 218, 226-27, 121 S. Ct. 2164, 150 L. Ed. 2d 292 (2001). The Chevron case set forth a two-step test for courts to evaluate whether to defer to an agency's construction of a statute: first, court must determine whether the statute is ambiguous. If Congress has unambiguously answered the question, then 'that is end of the matter'. If courts determine that the statute is ambiguous, then courts must defer to the agency if 'the agency's answer is based on a permissible construction of the statute' (pp.842-43). The *Mead* case establishes that an administrative interpretation of a particular statutory provision qualifies for Chevron deference when 'it appears that Congress delegated authority to the agency generally to make rules carrying the force of law, and that the agency interpretation claiming deference was promulgated in the exercise of that authority' (p.232).

[38] Wolf Recovery Foundation v. United States Forest Service, 692 F. Supp. 2d 1264 (D.Idaho, 2010).

[39] Footnote 32, p.1022.

[40] Judgment, p.1033.

Court found that the agency did not prove that building of these two tanks was of necessity considering other alternatives to increase the sheep populations. By finding the agency's decision arbitrary and capricious, the Court reversed the district court's judgment favoring the agency.

Judge Bybee wrote his dissenting opinions. He defensed for the agency that the majority opinion 'ignore[d] our deferential standard of review under the APA and engrafts new procedural requirements onto the Wilderness Act'.[41] He argued that the agency had made scientific determination that drought was the critical factor leading to the bighorn's decline, and judicial deference should be therefore afforded. He interpreted that the statutory language of 'necessary' did not mean 'a specialized finding of absolute necessity' which would otherwise make the §1133 (c)'s exception meaningless.

4.3 Case 3: Wilderness Society v. U.S. Fish and Wildlife Service (353 F.3d 1051 (9th Cir. 2003) (en banc), amended by 360 F.3d 1374 (9th Cir. 2004) (en banc))

In 1980, Congress passed the Alaska National Interest Lands Conservation Act and designated 1.35 million acres (out of the total 1.97 million acres) as wilderness in the Kenai National Wildlife Refuge located in Alaska. The Tustumena Lake within the refuge provided spawning grounds for anadromous fish, particularly the Kenai salmon. The fish migration in the Refuge has attracted a large number of naturalists and politicians, and that is why it is stated that 'salmon and Alaska have been so closely intertwined as cotton and the South'.[42]

Dating back to 1974, the state of Alaska began to conduct a salmon research project by adding sockeye salmon fry to Tustumena Lake in order to increase the number of the fish for the benefits of sport fishers and commercial fisheries operating outside the wilderness area. The eggs of sockeye salmon were incubated at a hatchery outside the refuge, and the resulting salmon fry were released back to the lake in the following year. This enhancement project has resulted in a sharp increase of salmon number from 400,000 in 1978 to more than 17 million in 1984. In 1993, the Alaska Department of Fish and Game entered into a contract with the Cook Inlet Aquaculture Association (CIAA), a private and non-profit organization, to run the hatchery programs. In 1997, after conducting a series of environmental reviews, the FWS issued a permit to the CIAA for the Enhancement Project. The Wilderness Society challenged FWS's granting of permit arguing that it violated the Wilderness Act as it did not preserve the 'natural conditions' of the lake and allowed impermissible commercial activities. The district court granted summary judgment for the FWS and the Wilderness Society appealed. The Ninth Circuit panel affirmed the district court's judgment, and the Wilderness Society appealed again to the en banc Ninth Circuit. Finally, the Appellate Court, sitting en banc, reversed and enjoined the operation of the project. The issue of this case was the meaning of the term 'commercial enterprise' as prescribed in the Wilderness Act ('no commercial enterprise… within any wilderness area designated', 16 U.S.C.S. § 1133(c)). The Appellate Court found that the primary purpose and effect of the Enhancement Project was to 'advance commercial interests of Cook Inlet fishermen by swelling the salmon runs from which they will eventually make their catch'(353 F.3d at 1064) irrespective of the non-profit nature of the CIAA.

Though the final judgment was issued based on the 'commercial enterprise' test, it does bring a question forward: how 'wild' it should be in management of wilderness areas. According to the panel judgment of the Ninth Circuit Court, by referring to the 'wilderness' definition in the Wilderness Act, Judge Graber pointed out two ambiguities embodied in the statutory language: firstly, wilderness is not absolutely off limits to all human interference because some human activities are to be allowed; secondly, there are two kinds of conflicting interpretations on how an agency should protect and manage an area so as to preserve its natural conditions: to protect against the introduction of artificial propagation programs that alter the natural ecological processes, or to preserve the natural ecological processes as they would exist in their wild state, in the absence of artificial disturbance from outside the wilderness area. [43] John Nagle commented that these competing visions reflected distinct concepts of 'wilderness as a prohibition upon land use versus wilderness as a unique type of land use'.[44]

4.4 Summary

From the cases analyzed above, we see that there are a variety of active management activities within wilderness areas. All of these three cases relate to the issue of management of wildlife population in wilderness. In the first *Californians for Alternatives to Toxics* case, the question is about the legality of the

[41] Dissenting opinion, p.1041.
[42] Ernest Gruening, The State of Alaska: A Definitive History of America's Northernmost Frontier 245 (1954). Cited from John Nagle, *supra* note 22, p.966.
[43] 316 F.3d, at 923.
[44] John Nagle, *supra* note 22, p.967.

agency's use of pesticide to eradicate non-native species for the purpose of restoring native trout species. In the *Wilderness Watch* case, the FWS's decision to build water tanks to rehabilitate and stabilize the declining population of desert bighorn sheep was challenged. In the *Wilderness Society* case, the Enhancement Project to increase the number of salmon within a wilderness area is ruled to be invalid.

In these cases, the species being restored are regarded as native to the area and therefore essential to its "naturalness". However, the agency's management activities within the wilderness areas to maintain such naturalness are deemed to have disturbed the wildness value of these areas. The judiciary needs to interpret the provisions of the Wilderness Act to resolve the legality of agencies' management decisions, such as the purpose statement, the definition of 'wilderness', and the exception provisions for motorized vehicle use. From the judgments of these three cases, we see that the judiciary holds a cautious attitude towards agencies' intentional manipulation of wilderness areas. By reviewing relevant case law, Kammer argues that the Wilderness Act 'recognizes the value of keeping some areas beyond humans' manipulative reach altogether- even if such interference is well-meaning'.[45]

The judiciary's cautious attitude is consistent with it common attitude toward wilderness adjudication. Empirical studies on judicial judgments on 'Wilderness Act' cases have been done by scholars. Peter Appel traced back the 94 wilderness cases that courts at all levels have tried since the enactment of the Wilderness Act in 1964 until 2010. Data shows that when wilderness advocates challenge agencies' decisions seeking for more protection or less use within a wilderness area, they tend to win with a success rate of 52%; and when land agencies defend their decisions against wilderness users who argue that agencies are protecting wilderness too stringently, they almost never lose with a high success rate of 86.4%. He depicted this phenomenon as judiciary's 'one-way ratchet in favor of wilderness protection'.[46] Compared to the figures that show judicial deference to administrative decisions in other areas, either administrative law generally or environmental law specifically, he asserted that the judiciary in Wilderness Act cases stands in stark contrast, i.e., showing less deference and pro-wilderness tendency.[47] The cases that are discussed above also show that the judiciary tends to have a hard-look on agencies' restoration decisions in wilderness management.

5 Conclusion and implications for China

Though the wilderness concept largely remains an American idea, the practice of keeping nature wild is not unfamiliar in China. According to the Regulations on Nature Reserves issued by the State Council in1994, the core zone of a nature reserve aims at pristine preservation. No type of entry by any individual or any unit is allowed therein and limited scientific research activities are allowed based on case-by-case approval (Article 27). Based on an ecological planning concept, the measure of designating certain national territories as 'prohibited exploitation zone' also indicates the idea of protecting the pristineness of nature. The tension between keeping nature in its pristine status and restoring it to maintain its natural conditions also exist in China, though such a tension has not been fully discussed in academic works. Long-time practices of selective protection of those 'good' species and eradication of those 'bad' species without scientific basis, such as eradiation of sparrow and mouse, has derogated the ecological equilibrium at a large scale in China. Serious pollution and development activities adjacent to the core zone of protected areas have also placed considerable threats on ecological protection within these areas. This proves more necessities of ecological restoration in Chinese protected areas. From the legislation and judicial practices of wilderness restoration in the US, we see that, though with benign intent, agencies' restoration decisions are not always endorsed by courts. Instead, the value of keeping some areas of nature beyond human's intervention is recognized by both legislation and judicial decisions in the US. Therefore, in the face of carrying forward the ecological restoration projects in China, the necessity of striking a balance between wildness and naturalness should be kept in mind, either in designing restoration plans or enforcing a particular restoration project on a specific species or at a limited scale. More site-specific research work needs to be done in this regard.

[45] Sean Kammer, *supra* note 25, p.83.
[46] Peter A. Appel, 'Wilderness and the Courts', 29 (2010) *Stanford Environmental Law Journal*, pp.111-119. The author mentioned in his introduction to this article showing the two figures as 56% and 88% which were inconsistent with the figures he used later in Table 1 of his article. *Cf.* pp.66-67 and p.113.
[47] *Ibid.*