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Decline in Semi-Natural Grasslands and Changes in Value Perceptions in Japan's Natural Parks

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Abstract: The decline in semi-natural grasslands has resulted from reduced traditional use, leading to a marked decrease in their overall area. Despite being located within Japan's core protected area system, the effectiveness of natural parks in conserving grasslands remains unclear. This study aimed to determine whether natural parks successfully prevent the decline in grasslands. By analyzing historical changes in value perceptions toward grasslands in natural parks, natural parks' contribution to grassland conservation and the associated challenges were explored. The study focused on the Sengokuhara grassland in Fuji-Hakone-Izu National Park and incorporated previous studies on other grasslands. It revealed that grasslands have been valued for their scenic views and recreational potential since the establishment of the national park. As grassland scarcity increased nationwide, attention shifted toward rare plants found exclusively on grasslands, along with grasslands' value as semi-natural landscapes. Consequently, natural-park-based grasslands have primarily been conserved based on these two values. However, conservation efforts within natural parks have mainly focused on regulating human activities, with limited measures to sustain nature, such as grasslands, through livelihoods. To enhance grassland conservation, it is essential to recognize their cultural value and develop mechanisms that ensure economic benefits are reinvested in conservation efforts.

Keywords: semi-natural grassland; underuse; historical change; cultural value; natural park

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1. Introduction

Japan's warm and humid climate typically supports forest development unless there is consistent human interference, except for certain high-altitude regions. However, the presence of semi-natural grasslands (hereafter referred to as "grasslands") indicates a history of continuous human influence [1], and these grasslands represent an ecosystem shaped by the dynamic interaction between nature and human society.

Historically, ecosystems such as "Satoyama" (village-vicinity forest) used for firewood and charcoal production and semi-natural grasslands used for grazing, foraging, and thatching have coexisted with human activities. However, these ecosystems are currently facing extinction due to the diminishing impact of traditional livelihoods and land use practices (referred to as "underuse") [2]. This decline in grasslands is recognized as a significant biodiversity crisis alongside other threats posed by human activities and development, introductions by humans, and climate change, as stated in Japan's National Biodiversity Strategy 2012–2020 [3]. The diffusion of industrial products and the globalization of resource procurement have played a pivotal role in diminishing traditional forms of biomass use, which were reliant on local resources. Moreover, the modernization of rural lifestyles has further reduced the use of grasslands in the past [4].

Historically, the grasslands have served as common resources managed by local communities. However, Japan is currently experiencing rapid depopulation as residents

migrate from rural to urban areas, resulting in an aging population. This phenomenon, prevalent in developed countries, has led to a disconnection between grasslands and local communities in numerous areas. Consequently, communities face challenges in collaborating to maintain grasslands, especially in implementing essential practices like controlled burning [5].

Grasslands serve not only as habitats and refuges for species reliant on their unique ecosystems but also provide various ecosystem services, such as water source restoration, carbon sequestration, and disaster mitigation [6,7]. Furthermore, the expansive vistas and open landscapes of grasslands offer cultural benefits to humans, including tourism, recreational opportunities, and the preservation of local traditions [8]. Recognizing the concept of "nature-based solutions" as crucial [9], it is essential to actively promote initiatives that address ecological, community, and social issues while effectively harnessing the services provided by grasslands. To promote grassland conservation, their diverse value must be recognized. Given the current circumstances in Japan, the underuse of grasslands has resulted in their decline, making their conservation a pressing issue. Yamaki [10] provided insights into the present state of grassland conservation, revealing that efforts now focus on tourism, recreation, and biodiversity conservation, as well as their traditional uses, such as grazing, foraging, and thatching.

Natural parks constitute Japan's central protected area system, covering approximately 15% of the country's land area. These parks play a vital role in the conservation of grasslands in Japan, which hold significant cultural value and are prime locations for nature tourism and recreational activities, benefiting from their remarkable natural landscapes. For example, renowned grasslands like Aso, boasting the largest grassland area in Japan, are encompassed within natural parks owing to their value as tourism and outdoor recreation destinations given their openness and expansive views. Consequently, nearly 40% of grasslands are currently protected within natural parks [11].

Natural parks have been recognized for their contribution to grassland conservation, and studies have indicated that the rate of grassland decline within these parks has been lower than outside their boundaries, thereby helping to prevent further degradation [12]. Nevertheless, it has been reported that the rate of grassland decline has increased since the establishment of national parks [13]. This raises questions regarding the effectiveness of the natural park system as a framework for grassland conservation and the need for improvements. While previous studies have primarily focused on changes in grassland areas in natural parks, the present study offers an additional perspective. Specifically, it examines the effectiveness of the natural park system in grassland conservation by exploring the historical shifts in value perception toward grasslands and discussing the challenges associated with grassland conservation in these parks.

To address these objectives, the following research questions were set:

RQ1: How has the value of grasslands in natural parks been perceived?

RQ2: Have natural parks effectively contributed to grassland conservation?

RQ3: What challenges arise in the conservation of grasslands in natural parks?

By examining these questions, this research reveals the limit of natural parks in halting the decline of grasslands.

2. Materials and Methods

2.1. Japan's Natural Park System and Study Area

Japan's natural park system is regulated by the Natural Park Law, which identifies three park types: national parks, quasi-national parks, and prefectural natural parks. National parks, managed by the national government, encompass outstanding natural scenic areas representing Japan. Quasi-national parks, managed by prefectural governments, are natural scenic areas close to national parks. Prefectural natural parks are natural scenic

areas managed by the prefectural governments. These parks cover 5.8%, 4.0%, and 5.1% of the national territory, respectively, totaling 14.8% of the country's land. Natural park areas are designated irrespective of land ownership and serve as protected areas, accommodating coordinated land use practices.

Many types of grassland are found in natural park areas, historically owned and maintained by local communities for purposes such as grazing, foraging, and thatching. However, in recent years, these grasslands have transitioned toward maintenance for tourism, recreational use, and biodiversity conservation [10]. The scarcity of labor and the aging workforce dedicated to grassland management have emerged as significant challenges, hindering sustainable conservation efforts.

In Japan, the first eight national parks were designated in 1934, and today, there are 34 such parks. This study focuses on the Sengokuhara grassland, located in the Hakone area of Fuji-Hakone-Izu National Park, as a case study (Figure 1). The Fuji-Hakone-Izu National Park was one of the first parks designated in 1936, around the period when Japan's national park system was established, and it currently consists of four major units: Hakone, Fuji, Izu Peninsula, and Izu Islands. The natural environment exhibits diverse characteristics across these regions. The Hakone area comprises various volcanic landforms, including dammed lakes formed by volcanic eruptions, fumarolic phenomena, and abundant hot springs. Proximity to the Tokyo metropolitan area has contributed to its development as a popular tourist destination, with 21 million visitors recorded in 2018 prior to the COVID-19 pandemic. The Sengokuhara grassland, located in this area, covers an area of approximately 18 ha, is renowned for its scenic silver grass (*Miscanthus sinensis*) landscape, and attracts many tourists in autumn (Figure 2).

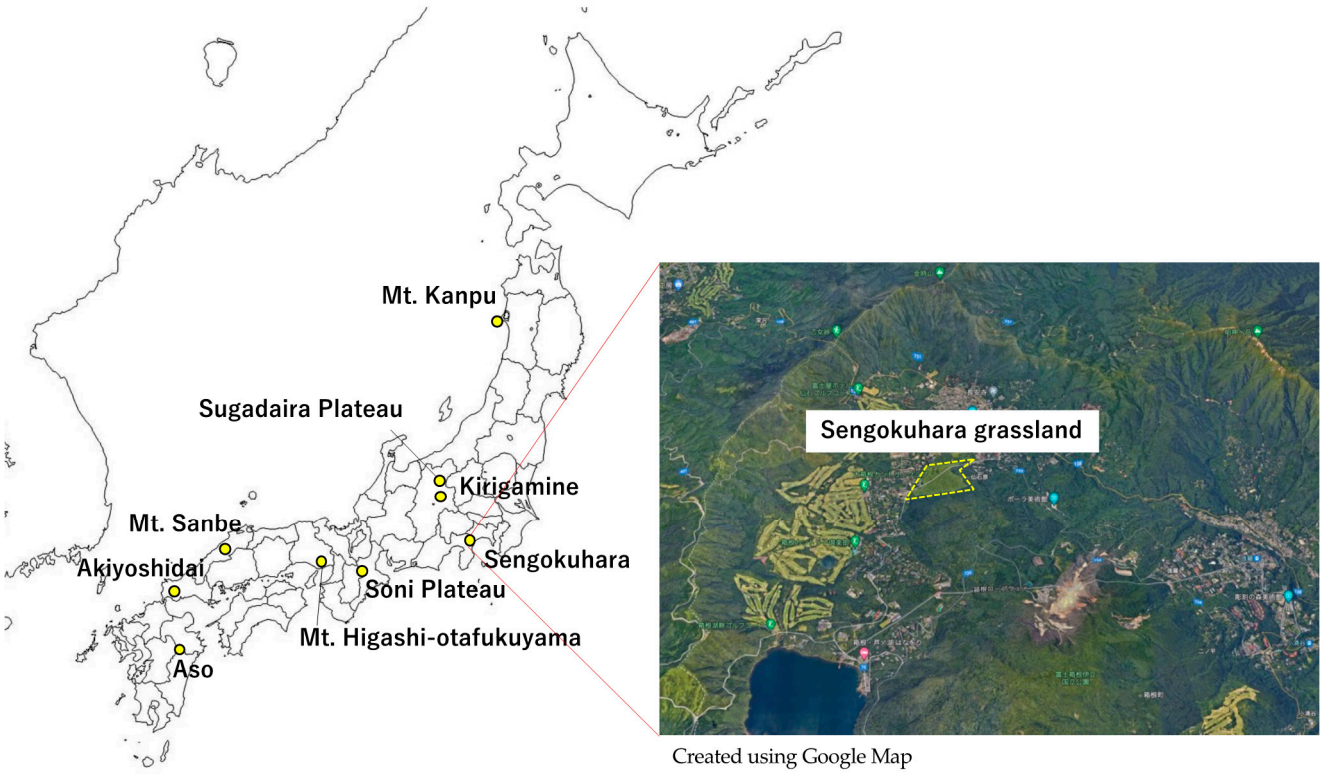


Figure 1. Location of the study areas.

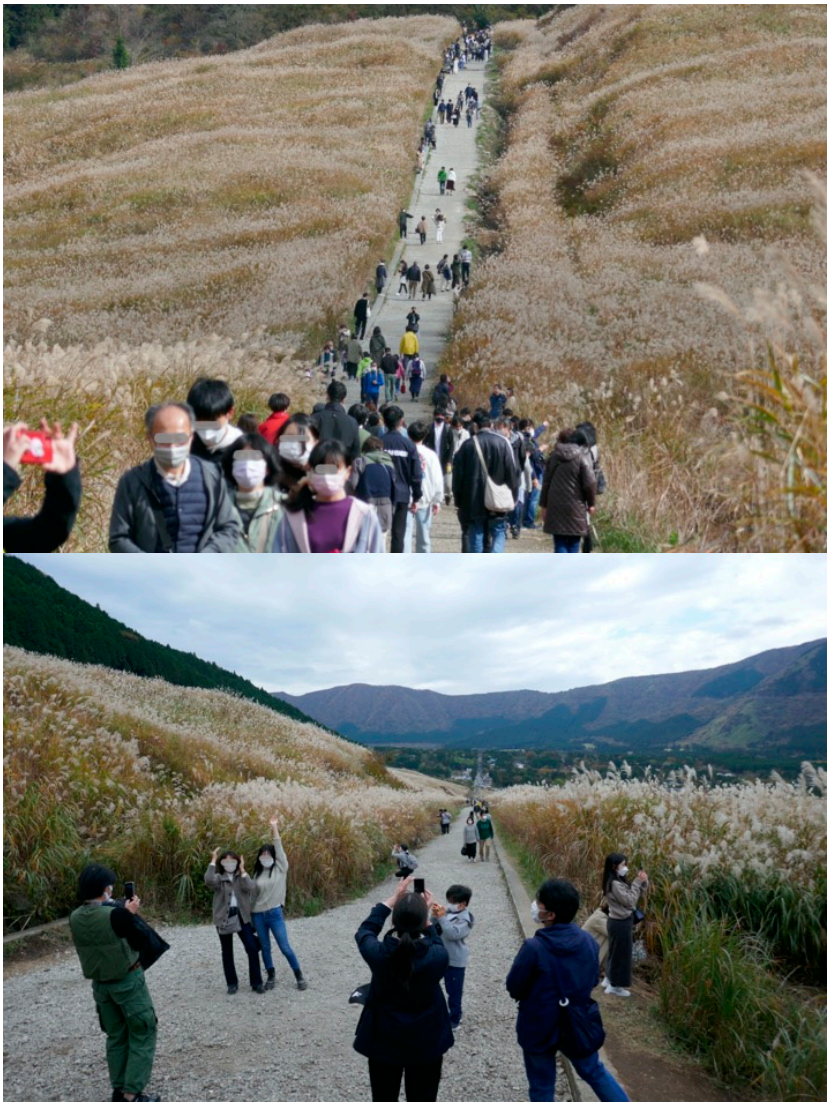


Figure 2. Sengokuhara grassland provides cultural ecosystem services.

Sengokuhara was selected as a case study area owing to its location within a park established during the early stages of the national park system, enabling an examination of the historical relationship between the natural park and grasslands. Moreover, the Hakone area's proximity to the Tokyo metropolitan area and its long-standing reputation as a hot spring resort have subjected the Sengokuhara grassland to considerable development pressure as a tourist destination. Thus, the area offers insights into the significant transformation of the grassland and its changing land use patterns throughout the modernization of Japan.

2.2. Methods

First, this study aimed to elucidate the historical evolution of the Sengokuhara grassland. Essential information for this analysis was obtained through field surveys, interviews, and literature collection. Using this information, a comprehensive understanding of the historical changes in the Sengokuhara grassland was achieved. However, as Sengokuhara serves as a single case study, it does not provide a comprehensive overview of grassland transitions in natural parks. Therefore, other grasslands in natural parks were examined by reviewing relevant academic literature published in the past. This enabled a broader perspective on the overall trajectory of grassland changes in these parks. The selection of literature review sites was conducted by searching for research papers on grasslands

in databases and other sources. Descriptions within the literature were then used to summarize the observed changes in grasslands.

In this study, eight grasslands were selected: Aso [14], Mt. Sanbe [8,15], Sugadaira Plateau [13], and Mt. Higashi-otafukuyama [16] in national parks and Akiyoshidai [17,18], Soni Plateau [19,20], Kirigamine [21], and Mt. Kanpu [22] in quasi-national parks (Figure 1). Through analysis of these selected sites, the transition of grassland-associated value in natural parks was summarized, providing insights into the contributions of natural parks to grassland conservation.

3. Results and Discussion

3.1. Historical Changes of Sengokuhara Grassland

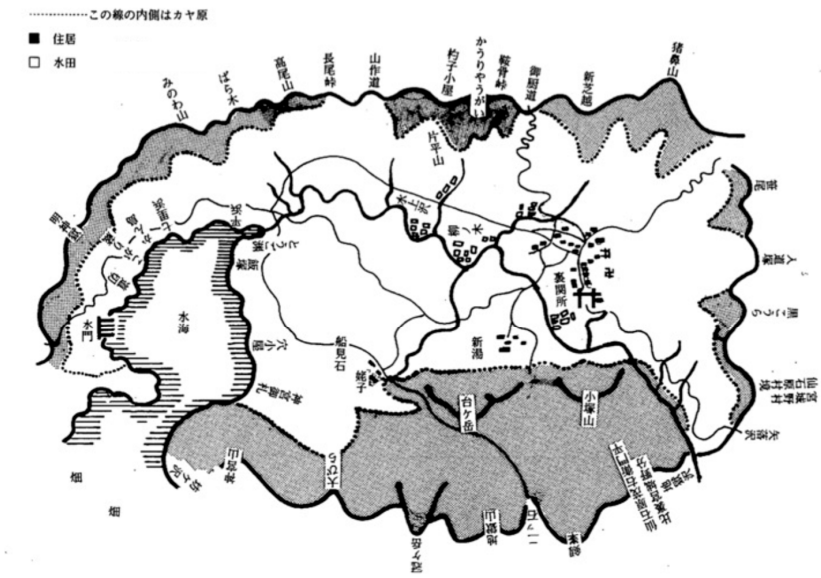
Until the Meiji Era (late 1800s), Japan had over 10% of its land covered by grasslands [23]. However, by the 1980s, grasslands covered only 1% of the country's land. Despite many grasslands once existing around the Fuji-Hakone-Izu national park, most of them have been lost, and only a few grasslands, including Sengokuhara, remain. Formerly, extensive grasslands existed around the foothills of Mount Fuji, which are now covered by forests [24]. Only two Self-Defense Force training grounds, converted from common lands, serve as remnants of that era, preserving their grassland state outside the national park area. Compensation has been provided for the restriction of communal access rights, although limited local access to resources remains permissible. Several other grasslands also exist within and around national park areas. Some of these are used for foraging and thatching, whereas others are primarily maintained to conserve the landscape and preserve communal access rights.

The Sengokuhara grassland is situated at an elevation exceeding 600 m. Owing to this relatively high elevation and its nutrient-poor volcanic soil, the grassland is unsuitable for agriculture and historically served as grazing and thatching land for nearby communities. During the Edo period (1603–1867), a barrier was established in 1626 in Sengokuhara to monitor the roads leading to Edo (present-day Tokyo), strictly regulating the passage of people. The surrounding mountains were deemed defensive mountains, off-limits to the public (Figure 3). Annual wildfires were intentionally set in spring, extending the grasslands to the outer ridges of the mountain [25,26] (Figure 4).

In the Meiji era (1868–1912), as Japan embarked on modernization, the Koubokusha ranch was established in 1880 to foster modern industries, using the area as a ranch. However, due to the death of the ranch's representative, the Koubokusha ranch was dissolved and closed in 1907. Hakone, including Sengokuhara, benefited from its proximity to Tokyo and was therefore developed as a recreational area. In 1913, a golf course was built on the former ranch site in Sengokuhara grassland, and the construction of inns and recreational facilities was promoted [27]. According to historical records [25], approximately 240 ha of grassland was subjected to burning during this period.

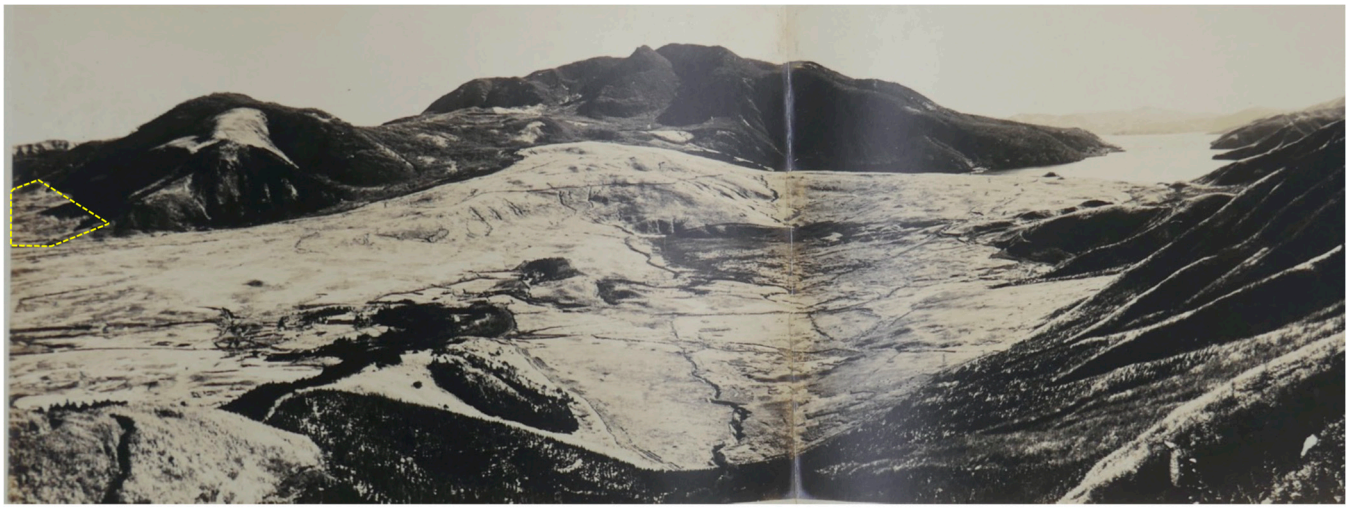
Around the same time, efforts were made to establish Hakone as a national park, and scholars with knowledge of national parks worldwide began conducting research on Hakone's qualities as a potential national park. Honda [28] described Sengokuhara as a place with "the best wilderness view" and suggested that "the spacious wilderness scenery should be maintained." However, he also noted that "the forests of the entire mountain have been burned down or cut down and now lack the solemn and majestic beauty of the forests," and that" because there is not much shade, it is not suitable for summer walks." A document published by Kanagawa Prefecture [29] described the area as having "a rich variety of bushland and wilderness with an unobstructed view," and stated that "grasslands with a broad view are also indispensable." Conversely, it has been stated that "the mountains are generally grasslands, and there is nothing to admire in the beauty of mountains and forests." These descriptions indicate that grasslands were deemed suitable for tourism and recreational use owing to their openness and scenic views. However, there was no explicit mention of the outstanding value of grasslands, and it was acknowledged that forest beauty was lacking in Hakone. This suggests that grasslands were prevalent throughout Japan during that period and that their scenic beauty was not particularly rare.

Simultaneously, the forests had been devastated by burning and logging, resulting in them being perceived as visually less appealing.



Source: Sengokuhara Marsh Research Team (1985)

Figure 3. Sengokuhara in the Edo era (before 1868). The white area delineated by the dotted line shows thatch grasslands [25].



Source: Kanagawa Prefecture (1930)

Figure 4. View of Sengokuhara in a photograph most likely taken in the early 1900s. The area enclosed inside the dotted line is the present grassland [29].

The development of Sengokuhara as a recreation area continued, and in 1934, a hot spring villa area was established. In 1936, the entire area, including Sengokuhara, was designated as a national park. In the late 1930s, amidst the wartime regime, afforestation efforts were actively promoted in the wilderness (abandoned grassland) to meet the growing demand for timber. Following World War II, as Japan's economy improved, the demand for Sengokuhara as a recreational destination continued to increase, leading to the opening of two new golf courses in 1954–1955.

As Sengokuhara developed as a tourist destination, the area of grassland gradually decreased. Consequently, the once-extensive grasslands that covered the entirety of Sengokuhara now occupy only 18 ha. Moreover, the local community's use of the grasslands declined, leading to the discontinuation of the practice of grassland burning in 1970. However, the scenic value of the silver grass landscape was recognized, and Sengokuhara was designated as a special protection area in the national park in 1975. This designation aimed to preserve the grassland landscape of Sengokuhara, which also has attractiveness as a tourist attraction. Nonetheless, the cessation of grassland burning led to landscape degradation, prompting the resumption of burning activities in 1988 by a committee formed by local stakeholders. Initially, the Ministry of the Environment, responsible for managing the national park, opposed the burning because it constituted a human-induced alteration within the special protection area [30]. Within the framework of the natural park system, which aims to conserve the natural environment by regulating human activities, burning was deemed an unauthorized activity and not recognized as a means of maintaining the grassland landscape [31]. However, it was eventually recognized as a traditional practice to preserve the protected vegetation, and burning has continued to the present day.

3.2. Historical Changes of Grasslands in Natural Parks

The historical changes in grasslands in natural parks, including the Sengokuhara grasslands and eight other grasslands, were determined, and the major events in these grasslands are summarized chronologically in Table 1. In the early twentieth century, after the closure of the Koubokusha ranch, the Sengokuhara grassland was converted into golf courses and vacation home lots as Hakone gained popularity as a tourist destination, and high expectations were placed on the development of the area, driven by the construction of such tourist facilities. In 1936, the Hakone area, including Sengokuhara, was designated as a national park. However, in the 1940s, Sengokuhara underwent land conversions, such as the establishment of the golf course and afforestation, leading to a decline in grassland area.

The scenic value of grasslands in natural parks was recognized at an early stage [32], and the recreational value of the Sengokuhara grasslands in terms of their openness was also acknowledged when the national park was established. However, as grasslands were relatively abundant at the time, their conservation value received limited attention. Similar situations occurred in other grasslands, such as the Aso grasslands in Aso-Kuju National Park, where the vast grassland landscape's value has been highlighted. The proximity of Hakone to Tokyo fueled tourism development [33], resulting in the implementation of higher value-added land uses, rather than protecting the Sengokuhara grassland landscape.

As traditional grassland use declined, grassland areas decreased nationwide, creating awareness of their scarcity and conservation value. In the 1950s, there was national recognition of the open grassland landscape's value, leading to the inclusion of Mt. Sanbe in a national park and the designation of Akiyoshidai and Kirigamine as quasi-national parks. However, grassland burning ceased in Sengokuhara in 1970, accompanied by the ongoing decline in grasslands, which occurred throughout the country. Various grasslands experienced reductions in area over time, including Mt. Sanbe (2430 ha in 1899 to 320 ha in 2004 [7]), Sugadaira Plateau (4450 ha in 1881 to 530 ha in 2010 [13]), Mt. Higashi-otafukuyama (59 ha in 1948 to 7 ha in 1995 [16]), Akiyoshidai (8910 ha in 1899 to 1760 ha in 2015 [18]), Kirigamine (4896 ha in 1913 to 2296 ha in 1990 [21]), and Mt. Kanpu (319 ha in 1975 to 138 ha in 2014 [22]). In 1975, the rarity of the Sengokuhara grassland landscape was recognized, leading to its designation as a special protection area in the national park. Additionally, land purchases by the prefectural governments were made in Mt. Kanpu and Soni Plateau in the 1970s to preserve grasslands, further raising nationwide awareness of their scarcity and value.

Table 1. Major events in the grasslands in the study regions.

Year	Era	Sengokuhara	Aso	Sugadaira Plateau	Mt. Higashi-otafukuyama	Akiyoshidai	Mt. Sanbe	Kirigamine	Soni Plateau	Mt. Kanpu
1880	Meiji13	Koubokusha Ranch established								
1881				4450 ha						
1899						8910 ha	2430 ha			
1907	40	Koubokusha Ranch dissolved and closed								
1910's				Afforestation						
1913	Taisho 2							4896 ha		
1914	3	Golf course built								
1924	13							Afforestation		
1934	Showa 9	Hot spring villa area created	National Park designated							
1935	11	National Park designated								
Late 1930's		Afforestation								
1948					59 ha					
1949	24			National Park designated						
1954	29	Golf course built							Afforestation	
1955	30	Golf course built				Quasi-national Park designated				
1956	31				National Park incorporated					
1963	38						National Park incorporated			

Table 1. *Cont.*

Year	Era	Sengokuhara	Aso	Sugadaira Plateau	Mt. Higashi-otafukuyama	Akiyoshidai	Mt. Sanbe	Kirigamine	Soni Plateau	Mt. Kanpu
1964	39					Special Natural Monument designated		Quasi-national Park designated		
1969–1976		Afforestation								
1970	45	Burning suspended							Quasi-national Park designated-Grasslands purchased by the prefectural government	
1973	48						Pastoral Association dissolved			Quasi-national Park designated
1974	49	Selected as one of the 50 most scenic spots in Kanagawa								
1975	50	Special Protection Area designated								319 ha
1977–1982	52–58									Grasslands purchased by the prefectural government
1988	63	Burning resumed					Grazing resumed			
1990										
1995	Heisei 7				7 ha					
2004	16						320 ha			
2007	19				Mowing started					

Table 1. *Cont.*

Year	Era	Sengokuhara	Aso	Sugadaira Plateau	Mt. Higashi-otafukuyama	Akiyoshidai	Mt. Sanbe	Kirigamine	Soni Plateau	Mt. Kanpu
2008	20	Grasslands purchased by the town (–2010)								
2010	22		Grassland Restoration Council established	530 ha						
2014										138 ha
2015						1760 ha				
2016	28									Burning suspended
2017	29		Important Cultural Landscape designated							
2019	Reiwa 1							Burning suspended		Burning resumed

In Sengokuhara, which was listed as one of the 50 most scenic spots in Kanagawa Prefecture, grassland burning resumed in 1988 to prevent grassland loss. However, because local residents were no longer using the grassland and their population was aging, burning responsibilities shifted to a local committee. In 1989, grazing resumed in Mt. Sanbe, and in 2007, mowing began in Mt. Higashi-otafukuyama. Efforts to actively conserve the grasslands were initiated in response to a growing sense of crisis regarding their continuous decline.

In Aso, the Grassland Restoration Council was established in 2005 under the Nature Restoration Act, with the involvement of diverse stakeholders, to promote comprehensive grassland conservation. Aso grasslands were also designated as Important Cultural Landscapes by the Cultural Properties Protection Act in 2017 to protect their cultural value. However, the existing national park framework alone is insufficient to adequately conserve grassland landscapes based on livelihoods. Alternative systems, such as "Landscape Conservation Agreements," established in 2002, aim to involve other organizations in the maintenance and management of secondary natural areas in national parks on behalf of the landowners. Although the first case in Japan was established in Aso, it has not been widely adopted since then and is not functioning effectively. Consequently, there is a need to promote grassland landscape conservation efforts through a multifaceted approach using diverse systems.

Despite these efforts, the aging population and lack of a workforce have led to the suspension of burning in various grasslands. For example, at Mt. Kanpu, grassland burning was suspended in 2016 but resumed in 2019, given the efforts of researchers, although there is no guarantee that it will be continued sustainably in the future. Additionally, in Kirigamine, grassland burning ceased in 2019, given the aging workforce and the risk of uncontrolled burns and fire spread, with grasslands now maintained by treating shrubs. In Aso, although people are struggling to continue burning grasslands (distributed in approximately 160 pastures), the aging workforce and the scarcity of labor also make it difficult to maintain burning, resulting in a decrease in their number, and the abandonment of grassland management may lead to a 60% loss in grassland area within 30 years [34].

As traditional grassland use declines, grasslands across Japan have diminished. The grasslands examined in this study have all experienced a continuous decline in their area up to the present day, which is consistent with the situation observed in grasslands outside natural parks. Concurrently, as grassland areas decreased nationwide, the value of grasslands gained increased recognition. Consequently, conservation efforts targeting grasslands within natural parks began to emerge. However, new challenges arising from depopulation and the aging of local populations created issues such as a shortage of workers for grassland burning, affecting not only grasslands in natural parks but also those in general. These challenges cannot be effectively addressed solely within the framework of natural park policies, necessitating a multifaceted approach for their resolution.

3.3. Contribution of Natural Parks to Grassland Conservation

This study focused on Sengokuhara and other grasslands, aiming to clarify the historical changes that have occurred in these natural parks. Based on these findings, we now discuss the research questions posed in the Introduction section.

The first question was "How has the value of grasslands in natural parks been perceived?" The scenic vistas and recreational opportunities offered by grasslands have been acknowledged since the early days of national parks. Notably, the emphasis has been on the openness and recreational aspects of grasslands. However, as grasslands have gradually diminished nationwide, their scarcity has drawn attention. Furthermore, the unique value of grassland vegetation, including rare plant species exclusive to grasslands and the intrinsic value of grasslands as natural landscapes, albeit semi-natural, have garnered recognition. Hence, in addition to their value as enjoyable spaces for people, grasslands have acquired added value from a natural science perspective. Presently, many grasslands within natural parks are primarily conserved based on these two values. Conversely, the landscapes of Aso grasslands possess a distinct cultural value that goes beyond the scope

of the natural park system. This unique perspective, which the natural park system has struggled to adequately address, has been reinforced by the establishment of the Important Cultural Landscape, a new and separate system now recognized by the public as a fresh aspect of the grassland landscape (Figure 5).

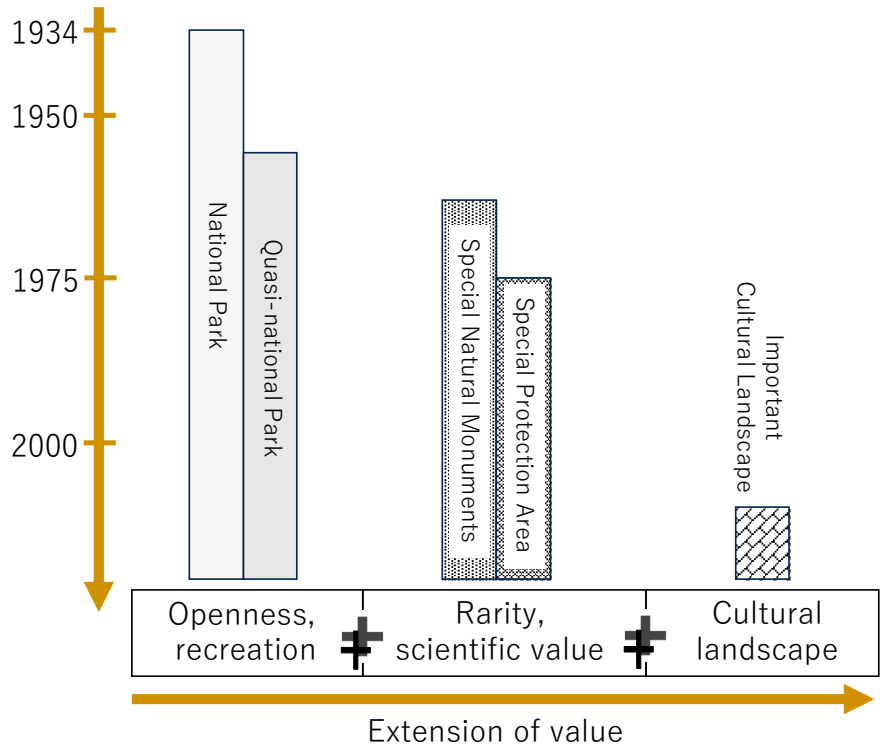


Figure 5. Value perception changes related to grasslands in natural parks.

The second question was "Have natural parks effectively contributed to grassland conservation?" As mentioned in the introduction, it has been suggested that natural parks have played a role in preventing the decline in semi-natural grasslands. However, it is also acknowledged that the mere designation as a natural park does not necessarily ensure the conservation of grasslands. It can be argued that designation as a natural park has contributed to grassland conservation to some extent, as it led to the recognition of grasslands' value based on the perspectives discussed earlier. This recognition, in turn, facilitated conservation efforts. Nevertheless, as highlighted in this study, natural parks lacked an appropriate mechanism for conserving human-maintained nature, including grasslands. Consequently, many grasslands within natural parks experienced a decline. Therefore, it can be concluded that the role of natural parks in halting the decline in grasslands was limited.

The third question posed was "What challenges arise in the conservation of grasslands in natural parks?" To effectively conserve grasslands in natural parks, it is crucial to implement supportive measures for the maintenance and management of secondary nature [13]. One of the most important reasons why grasslands have not always been adequately conserved in natural parks is the predominant focus on regulating human activities as a means of nature conservation. This approach, exemplified by the initial negative perception of burning at Sengokuhara, lacks direct measures to encourage human activities that contribute to the preservation of grasslands through traditional livelihood practices. Furthermore, the scarcity and aging of the workforce responsible for maintaining grasslands, attributed to underutilization, are substantial limitations in addressing the issues across various grasslands. Merely designating natural parks is insufficient for conserving grasslands, raising concerns about the potential ongoing loss of grassland areas, especially those that are lesser-known, in natural parks in the future.

The next question we must address is as follows: What can be carried out to address these issues? Under such circumstances, a new establishment called the Grassland Restoration Council has been created to promote conservation activities in Aso. The council assumes a central role in restoring and preserving the diverse benefits derived from grasslands, thereby contributing to grassland conservation efforts. It is important to recognize that grasslands have historically thrived owing to traditional human activities; therefore, the concept of a "cultural landscape" that explicitly encompasses these traditional land uses has been introduced. This recognition aligns with the "protected landscape" concept proposed by the International Union for Conservation of Nature for protected areas [35]. Although Japan's current natural park system primarily focuses on biodiversity conservation and the provision of cultural ecosystem services, such as recreational opportunities, the protected landscape concept emphasizes the relationship between nature, livelihoods, and communities. It also aims to manage protected areas considering "combined natural and cultural heritage." For example, in Aso, efforts are underway to promote conservation through a collaborative approach that links multiple systems, including the national park, the Nature Restoration Council, and the Important Cultural Landscape. By fostering mutual reinforcement among these systems, protected landscape conservation is being advanced. Additionally, Aso is currently striving for inscription on the World Cultural Heritage List, which represents a further expansion of this approach. However, it is important to acknowledge such a comprehensive approach has not been adopted in other grasslands, which cannot be compared to Aso, where a diverse range of initiatives is being implemented at an advanced level. Regardless, to effectively conserve secondary nature, including grasslands, in natural parks, it will be necessary to incorporate the concept of a "cultural landscape", and likewise, "biocultural landscape [36]" and "ecocultural landscape [37]", and establish a conservation framework based on the combined natural and cultural heritage of these landscapes.

4. Conclusions

Japan's natural park system has primarily been developed for the conservation and recreational use of outstanding natural scenic areas. Consequently, during the early stages of the natural park system, the value of grasslands in these parks was primarily recognized in terms of their scenic beauty and recreational opportunities. However, as the area of grasslands has steadily decreased, the value of grasslands as habitats for rare vegetation has become increasingly evident.

Grasslands that have historically relied on human activities have faced challenges in maintenance and conservation owing to the decline in traditional land use practices. Consequently, many grasslands have experienced a decline or disappearance in various regions. The absence of a direct mechanism within the natural park system to conserve nature maintained by human activities, such as semi-natural grasslands, has contributed to this situation. The findings of the present study highlight the limitations of the current natural park system in effectively conserving human-maintained nature, including grasslands.

To address these limitations, an innovative approach has been adopted in the Aso region, considering grasslands as "cultural landscapes" and implementing multiple strategies to actively maintain and conserve them comprehensively. However, it is important to note that the Aso case represents the most advanced conservation efforts in Japan, and similar examples are not observed in other regions. To overcome these challenges, it will be crucial to acknowledge the cultural value generated by human activities in these landscapes. The cultural value derived from maintaining grasslands provides numerous benefits to society. However, visitors can enjoy these benefits without bearing the costs of grasslands maintenance. Therefore, the cultural value of grasslands has externalities. The key challenge lies in internalizing the externalities of the benefits provided by grasslands.

In summary, it is crucial not only to link the diverse value provided by grassland landscapes to tourism, recreational activities, and the development of regional identity but also to establish mechanisms that channel the economic benefits generated by this

value back into conservation activities. With the decline in traditional land use practices, conserving grasslands becomes challenging unless the benefits associated with their cultural value are internalized. To ensure the future conservation of semi-natural environments, including grasslands, policy mechanisms must be integrated into the natural park system to channel the economic benefits derived from this value back into conservation efforts.

In Japan, the ongoing processes of urbanization and population decline pose significant challenges. The consequences include reduced ecosystem services due to underuse and increased negative impacts, such as wildlife hazards and natural disasters, resulting from the abandonment of land management. Additionally, depopulation and the aging of rural areas have increased the difficulty in finding a capable workforce to maintain and manage grasslands. These issues are rooted in broader changes within Japan's social structure and cannot be effectively addressed solely through the natural park system. To tackle these problems, Aso is actively seeking solutions, including the recruitment of volunteers from outside the region to participate in grassland maintenance activities. By engaging human resources beyond the local community, they aim to secure support for grassland conservation efforts. The successful incorporation of these human resources is another important issue that must be addressed in the future.

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References

1. Numata, M.; Iwase, T. An Illustrated Guide: Vegetation in Japan (Zusetsu Nihon no Shokusei). Kohdansha: Tokyo, Japan, 2002; p. 313.
2. Mauerhofer, V.; Ichinose, T.; Blackwell, B.D.; Willig, M.R.; Flint, C.G.; Krause, M.S.; Penker, M. Underuse of social-ecological systems: A research agenda for addressing challenges to biocultural diversity. *Land Use Policy* **2018**, *72*, 57–64. [CrossRef]
3. Ministry of Environment. *Biodiversity National Strategy 2012–2020*. 2021, p. 252. Available online: https://www.biodic.go.jp/biodiversity/about/initiatives5/index.html (accessed on 22 May 2023).
4. Miyanaga, K.; Shimada, D. 'The tragedy of the commons' by underuse: Toward a conceptual framework based on ecosystem services and satoyama perspective. *Int. J. Commons* **2018**, *12*, 332–351. [CrossRef]
5. Koyanagi, T.F.; Furukawa, T. Nation-wide agrarian depopulation threatens semi-natural grassland species in Japan: Sub-national application of the Red List Index. *Biol. Conserv.* **2013**, *167*, 1–8. [CrossRef]
6. Ichinose, T. The role of forests in ecosystem-based disaster risk reduction (Eco-DRR). *For. Econ.* **2022**, *74*, 3–7.
7. Shimatani, Y. The value of Miscanthus sinensis grassland as a water resource: Considering the benefits and restoration of the grassland (Mizu-shigen to siteno susuki sogen no kachi: Sogen no megumi to saisei wo kangaeru). *Kokuritsu Kouen* **2022**, *803*, 6–8.
8. Inoue, M. Change of landscape and ecosystem services of semi-natural grassland in Mt. Sanbe, Shimane Prefecture, Japan. In *Landscape Ecology for Sustainable Society*; Hong, S.K., Nakagoshi, N., Eds.; Springer: Cham, Switzerland, 2017; pp. 111–122.
9. IUCN. *Guidance for Using the IUCN Global Standard for Nature-Based Solutions. A User-Friendly Framework for the Verification, Design and Scaling up of Nature-Based Solutions*; IUCN: Gland, Switzerland, 2020; p. 62. Available online: https://portals.iucn.org/library/sites/library/files/documents/2020-021-En.pdf (accessed on 6 June 2023).
10. Yamaki, K.; Takahashi, Y. Present state and issues of semi-natural grassland management in Japan: A nationwide questionnaire survey. *Pap. Environ. Inf. Sci.* **2021**, *35*, 84–89.
11. Grassland Restoration Network. Grassland database. *Sogen Saisei Netw.* not in press.
12. Ohta, Y.; Tsutsumi, M.; Watanebe, S.; Inoue, M.; Shirakawa, K.; Yokogawa, M.; Sakuma, T.; Toma, M.; Takahashi, Y. Changes in the distribution of grassland in the twentieth century in the Chugoku region of western Japan. *Landsc. Ecol. Eng.* **2018**, *18*, 125–130. [CrossRef]
13. Inoue, T.; Okamoto, T.; Tanaka, K. Qualitative and Quantitative Analyses of Changes in the Grassland Area in the Sugadaira Highlands, Central Japan: A Case Study of Grassland Decline in a National Park. *Jpn. J. Conserv. Ecol.* **2021**, *26*, 2041. Available online: https://www.jstage.jst.go.jp/article/hozen/26/2/26_2041/_article/-char/ja/ (accessed on 22 May 2023).
14. Okayama, T.; Okano, T. The area determination and evaluation of grasslands in Aso-Kuju Nationla Park when it was designated as a national park. *J. Jpn. Inst. Landsc. Archit.* **2016**, *9*, 74–82.

15. Takahashi, Y. Changes and remaining issues in the pastures of Mt. Sanbe. In *Sanbe-San Bokuya no Hensen to Nokosareta Kadai*; Chugoku Nougyo Shiken-jo Chikusan-bu: Oda city, Japan, 1993; p. 39.
16. Yamato, M.; Hattori, T. A study of the actual vegetation conditions of the semi-natural grasslands in Mt. Higashi-otafukuyama and its management. *J. Jpn. Inst. Landsc. Archit.* **2000**, *63*, 473–476. [CrossRef]
17. Ogura, J. Vegetation landscape changes and their backgrounds in the west Chugoku mountains region since the rapid economic growth period as the turning point: Cases of Yawata highland northwest, Hiroshima prefecture and Akiyoshidai, Yamaguchi prefecture. *Bull. Natl. Mus. Jpn. Hist.* **2018**, *207*, 43–77.
18. Ohta, Y.; Okamoto, T. Changes in the distribution of grasslands from the late Edo period on Akiyoshi-dai Plateau. *Bull. Akiyoshi-Dai Mus. Nat. Hist.* **2019**, *54*, 17–25.
19. Sekido, A. Changes in forest-land ownership and use in Soni-mura, Nara prefeccture. *Gepgraphical Rev. Jpn.* **1992**, *65*, 373–394. [CrossRef] [PubMed]
20. Shimada, D. Multi-level natural resources governance based on local community: A case study on semi-natural grassland in Tarōji, Nara, Japan. *Int. J. Commons* **2015**, *9*, 486–509. [CrossRef]
21. Kurihara, M.; Nakano, K.; Kumada, S.; Furuya, K. A study on the traditional land use and its decline on secondary grassland in Kirigamine. *Pap. Environ. Inf. Sci.* **2002**, *16*, 115–120.
22. Masui, T.; Sawada, Y.; Tsuda, S. Changes in grassland vegetation in Mt. Kanpu, Oga peninsula of the Akita Prefecture. *Landsc. Plan. Hortic.* **2017**, *19*, 1–11.
23. Ogura, J. History of forests and grasslands: How the vegetation landscape of Japan has changed. In *Mori to Sogen no Rekishi: Nihon no Shokusei Keikan ha Donoyouni Utsuri Kawatte Kitanoka*; Kokon Shoin: Tokyo, Japan, 2012; p. 343.
24. Suka, T.; Okamoto, T.; Ushimaru, A. Grasslands and the Japanese People: Grassland Use and Ecosystems Since the Jomon Period. In *Souchi to Nihonjin: Joumon Jidai Kara Tsuzuku Souchi Riyou to Seitaikei*; Tsukiji Shokan: Tokyo, Japan, 2019; p. 256.
25. Sengokuhara Marsh Research Team. Report on the Basic Survey for the Conservation and Restoration of Vegetation of Sengokuhara marsh. In *Sengokuhara Shitsugen Hozen Oyobi Shokusei Fukugen ni Kansuru Kiso Chousa houkokusho*; Hakone town: Hakone town, Japan, 1985; p. 50.
26. Inoue, K. Four seasons in Sengokuhara marsh. In *Sengokuhara shitsugen no shiki*; Kanagawa Newspaper Co. Ltd.: Yokohama, Japan, 1988; p. 237.
27. Editorial Board of Company History of Hakone Onsen Supply Co, Ltd. History of Hakone Onsen Supply Company. In *Hakone Onsen Kyokyu-Sha Shi*; Hakone Onsen Supply Co. Ltd.: Hakone town, Japan, 1982; p. 260.
28. Honda, S. Hakone Landscape Use Policy. In *Hakone Fuukei Riyou Saku*; Kanagawa Prefectural Department of Internal Affairs: Yokohama, Japan, 1914; p. 26.
29. Kanagawa Prefecture. Great Hakone national park. In *Dai Hakone Kokuritsu Kouen*; Kanagawa Prefecture Urban Planning Division: Yokohama, Japan, 1930; p. 94.
30. Wildlife Conservation and Management Office. Report on the Survey Work for Ecosystem Restoration in Hakone area in Fuji-Hakone-Izu national park in 2014. In *Heisi 26 Nendo, Fiji-Hakone-Izu Kokuritsu Kouen Hakone Chiiki ni Okeru Seitaikei iji Kaifuku no Tameno Chousa Gyomu Houkokusho*; Yasei Doubutsu Hogo Kanri Jimusho Ltd.: Tokyo, Japan, 2015; p. 217. Available online: https://www.env.go.jp/park/fujihakone/mat_koen_151216_seitaikeiijikaihukunotemnotyousagyoumu.pdf (accessed on 22 May 2023).
31. Shibasaki, S. Yakushima Island: Landscape history, world heritage designation, and conservation status for local society. In *Natural Heritage of Japan: Geological, Geomorphological, and Ecological Aspects*; Chakraborty, A., Mokudai, K., Cooper, M., Watanabe, M., Chakraborty, S., Eds.; Springer: Cham, Switzerland, 2018; pp. 73–83.
32. Mori, O. On wilderness landscapes in our national parks: Classification, use, protection, and facilities (Honpou kokuritsu kouen ni okeru gen'ya fuukei ni tsuite: Bunrui, riyou, hogo and shisetsu). *J. Jpn. Inst. Landsc. Archit.* **1937**, *4*, 15–25.
33. Murakushi, N. Study on the history of the establishment of national parks: Focusing on the conflict between development and nature conservation. In *Kokuritsu Kouen Seiritsu-shi no Kenkyu: Kaihatsu to Shizen Hogo no Kakushitsu wo Chushin ni*; Housei University Publishing Office: Tokyo, Japan, 2005; p. 417.
34. Aso Grassland Restoration Council. *Aso Grassland Restoration Concept (Third Phase)*; Aso Grassland Restoration Council: Kumamoto city, Japan, 2021; p. 73. Available online: https://www.pref.kumamoto.jp/soshiki/21/139498.html (accessed on 22 May 2023).
35. Brown, J.; Mitchell, N.; Beresford, M. *The Protected Landscape Approach: Linking Nature, Culture and Community*; IUCN: Gland, Switzerland; Cambridge, UK, 2004; p. 270.
36. Hong, S.K.; Bogaert, J.; Min, Q. *Biocultural Landscapes*; Springer: Berlin/Heidelberg, Germany, 2014; p. 218.
37. Ramakrishnan, P.S.; Globally Important Ingenious Agricultural Heritage Systems (GIAHS): An Eco-Cultural Landscape Perspective. GIAHS Background Document. 2004. Available online: https://www.fao.org/fileadmin/user_upload/giahs/docs/backgroundpapers_ramakrishnan.pdf (accessed on 13 July 2023).