

# Changes in the Environment and User Preferences in Oze Wetland as a Mountain Tourist Destination and Response to Them

Kiyotatsu YAMAMOTO

*Graduate School of Agricultural and Life Sciences, The University of Tokyo  
Yayoi 1-1-1, Bunkyo-ku, Tokyo 113-8657, Japan  
E-mail: kiyo@fr.a.u-tokyo.ac.jp*

## Abstract

This paper takes Oze Wetland as a case study area known as a mountain tourist destination and outlines the characteristics of the natural environment of the Oze Wetland and the history of its use. It then clarifies how to respond to shifts in user preferences. The history and environment of Oze reveal the geological value of Oze as a wetland facing a rapid decline in its wetland environment and has come to symbolize the nature conservation movement in Japan. In addition to this, various efforts such as programs to educate visitors to carry their waste with them have been developed as a response to changes in the natural ecosystem and changing user preferences. In recent years grazing damage to vegetation and destruction of floor vegetation due to an increase in Japan's sika deer population has become a serious issue and this paper examines the possibility of establishing a fund to protect the wetland.

**Key words:** fund, nature conservation movement, Oze National Park, sika deer, user preference, wetland

## 1. Introduction

National Parks of Japan are designated as outstanding natural scenic areas. Their beauty attracts many tourists, resulting in problems such as the destruction of ecosystems in water and land areas, and the deterioration of visitors' experience due to a sense of overcrowding and bad manners. For example, Kamikochi and Mt. Fuji, which are located in national parks and considered "mountain tourist destinations," have welcomed many climbers. On the other hand, the environmental damage caused by overuse was reported in newspapers and other media, becoming a social problem, and measures were promptly taken. Kamikochi is a part of Chubu-Sangaku National Park, where visitors can enjoy the magnificent scenery of a series of steep mountains reaching up to 3,000 m. More than a million tourists visit Kamikochi every year (the number decreased by about 70% in 2020 due to the COVID-19 pandemic). Historically, Kamikochi introduced Japan's first traffic restrictions for private cars in 1975 to cope with the rapid increase in private car access (Kato, 2008). As another example, Mt. Fuji is the highest mountain in Japan at 3,776 m asl and is located in Fuji-Hakone-Izu National Park. It receives not only 200,000 to 300,000 climbers to the summit annually, but also more than 2 million tourists at the fifth station

halfway up the mountain. The problem of garbage and human waste has been widely discussed, and a campaign to encourage visitors to take their garbage home was launched earlier here than at most of Japan's national parks. After being inscribed in the World Heritage List in 2013, succession of cultural traditions and visitor management have become major issues. Thus, various visitor management measures have been introduced in mountain areas with large numbers of visitors in order to conserve resources.

The environment surrounding national parks has changed dramatically in the 90 years since the establishment of Japan's national park system. One of these changes is a shift in user preferences. Park visitors are switching from a "circular touring and sightseeing-type" use, in which they see and enjoy the natural environment, to a "staying and experience-based learning-type" use, in which they stay in the parks for a longer period of time and enjoy experiencing nature. Another is a shift in management methods from static to dynamic, from artificial exclusion through regulation to adaptive management. In recent years, cooperation and collaboration between the national government and local communities managing national parks has also been discussed (Ministry of the Environment, 2007, 2014). In particular, the expansion of wildlife habitat poses a threat

to the management of park resources. Furthermore, as Japan faces a shrinking population, there is a need to address issues such as a decrease in the number of people assigned to resource management and a lack of financial resources for park resource management.

As described above, mountain tourist areas, including national parks, face many challenges closely related to human society, typified by climate change (Steiger *et al.*, 2022) and a conflict between the need to generate economic growth and the need to protect environmental resources (UNWTO, 2018). To develop plans and strategies for promoting environmental conservation and appropriate use, it will be necessary to adapt to dynamic changes in the social environment, including shifts in user preferences. This paper takes Oze Wetland as a case study area which is also known as a mountain tourist destination, as are the aforementioned Kamikochi and Mt. Fuji, and outline the characteristics of the natural environment of Oze Wetland and the history of its use, and then clarify how to respond to shifts in user preferences. As described later, Oze is the birthplace of Japan's nature conservation movement and has been taking a leading role such as the "take back your own garbage" program. Thus, the history of the changes in the environment and the user preferences in Oze Wetland could inform us on how we should respond to natural and social changes.

## 2. Geological Features of Oze Wetland

Due to the topography of the Japanese Islands, low-lying lands are sparse and for this reason, marshes or wetlands have been subjected to reclamation and cultivation from ancient times. Among the remaining wetlands, Oze Wetland (Fig. 1) is among the largest, apart from those found on Hokkaido Island. A list of 20 large wetlands of Japan reveals that most of the large wetland areas are located in Hokkaido and the only entries from outside Hokkaido are Watarase (20 km<sup>2</sup>) and Oze. During the Meiji (1868–1911) and Taisho (1912–1926) periods the total area covered by wetlands in Japan was 2,111 km<sup>2</sup> but that area had dwindled to only 821km<sup>2</sup> by 1999 (Geospatial Information Authority of Japan, 2023). Due to this rapid decline in the wetland environment, conservation of Japan's wetlands is of special value for conserving the archipelago's biodiversity and geomorphological diversity.

Within the area known as Oze, Ozegahara (literally, Oze plain) is the actual wetland (Fig. 2). It is the largest high altitude wetland on Honshu Island and is flanked by two peaks, the 2,356 m asl Mt. Hiuchigatake and 2,228 m asl Mt. Shibutsusan. The mean elevation of the wetland is 1,400 m asl, and it has a total area of 7.6 km<sup>2</sup> with an east-west spread of 6 km and a north-south spread of 1 km (Fukada, 1982). A large number of endangered and rare vegetation species inhabit this area. These include *Nuphar pumilum* var. *ozeense* (Oze yellow pond-lily),

*Japonolirion osense* Nakai (indigenous to Mt. Shibutsusan) and popular flowering plants such as *Lysichiton camtschatcense* Schott (Asian skunk cabbage; a plant that is almost symbolic of Oze) that blooms in June, *Hemerocallis middendorffii* var. *esculenta* (daylily) that blooms in early July, and several broad-leaved tree species known for their fall colors (Natural Parks Foundation, 2009).

A geographical characteristic of Oze is that the wetland is located in a comparatively high-altitude area of Honshu Island, Japan and supports a large number of native species. The easy accessibility of Oze from Tokyo means it is visited by large numbers of tourists throughout the year. This in turn creates overuse pressure on a landscape that is an important habitat for rare species. The most notable threats to the wetland, apart from tourism related overuse (Nakajima, 1998) are: damage to plants due to trampling, sewage problems, invasive species and overgrazing by sika deer (*Cervus nippon*) (Natural Parks Foundation, 2009).



Fig. 1 Oze Wetland.

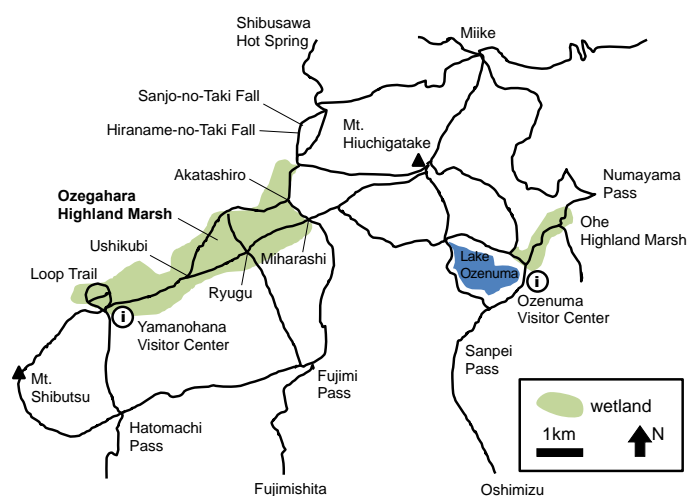


Fig. 2 Overall map of Oze Wetland.

### 3. History and Changes in the Environment of Oze Wetland

#### 3.1 Birthplace of Japan's Nature Conservation Movement

Oze National Park itself is relatively new (Tables 1 and 2). It came into existence in 2007 as the 29<sup>th</sup> national park of Japan, when the area was separated from the Nikko National Park. The hallmarks of this national park include landscapes of exceptional beauty and high biodiversity.

However, Oze had played a major role in shaping the nature conservation movement in Japan for a long time prior to its listing. It is also referred to as the “birthplace of nature conservation movement in Japan” by many. This is because of the activities of the Oze Hozon Kisei Domei (Association for the Preservation of Oze) that began in 1949 as a protest movement against a planned dam at the site; this organization was the predecessor to the Nature Conservation Society of Japan (NACS-J) which currently spearheads nature conservation movements at the national

level (the NACS-J was born in 1951, after the Kisei Domei was dissolved that year) (NACS-J, 1985). The main objective of the Kisei Domei was to preserve the natural environment of Oze from the threat of a hydroelectricity project. The issue of energy development and the conservation of a landscape of outstanding beauty became a highly contentious one, and along with similar problems surrounding the development schemes of the Kurobe and Kitakami river valleys, it reverberated in contemporary society and affected the politics of that time (Tamura, 1954). Thus, the movement has a relatively long legacy as a nature conservation scheme in Japan.

According to Hatakeyama (2001) the movement to preserve the Oze Wetland from being submerged in a dam reservoir became a key connecting factor to the nature conservation movements of post WWII Japan. Hatakeyama points out that the nature conservation movement took shape as a protest movement against the comprehensive hydroelectricity development plan in the post WWII period, and that the formation of the Kisei Domei as an organization devoted to this cause was a key feature in the history of nature conservation movements. Murakushi (2005), on the other hand, points out the key roles played by people such as Chozo Hirano who is often credited as one of the pioneers of nature conservation in Meiji Era Japan; several scholars, educators,

**Table 1** Chronological table of Oze Wetland.

Era	Year	Related Events in Oze Wetland
Meiji 1868-1911	1868	Meiji Restoration
	1889	Chozo Hirano becomes first settler in Oze
	1895	Oze featured in a magazine ( <i>Taiyo</i> )
	1903	First Oze dam project made public
Taisho 1912-1925	1912	Petition for establishment of Nikko Imperial Park (including Oze) granted at Imperial Diet
	1914	Landscape plans for Hakone, Nikko and Onuma proposed by Dr. Seiroku Honda
	1920	Petition for protection of landscapes around Ozenuma pond submitted by Chozo Hut; 840 ha of forest designated as forest reserve
Showa 1926-1988	1927	Power generation plan for Ozegahara highland marsh comes to light
	1931	National Park Act promulgated in Japan
	-the end of the WWII	Setonaikai, Unzen, Kirishima, Akan, Daisetsuzan, Nikko, Chubu-Sangaku and Aso designated first national parks in Japan
	1935	Dam plan for Oze highland announced by Tokyo Dento (electric power company)
	1938	Oze highland marsh designated as a strictly controlled special conservation area within Nikko National Park
	1939	Second World War (1939-1945)
Showa 1926-1988 after WWII	1948	General development plan including a dam project revealed (in Tokyo)
	1949	NHK's morning TV show series “Summer Memories” televises and publicizes Oze Oze March Conservation Union formed and public interest in Oze rises
	1950	First Oze Scientific Project (1950-1952)
	1951	Nature Conservation Society of Japan (NACS-J) established
	1952	Wooden walkway constructed in Oze marsh
	1953	One of 6 national park rangers assigned to Nikko Yumoto. Oze designated a special protection zone
	1956	Oze designated a natural monument (national designation)
	1957	National Park Act abolished and Natural Parks Act promulgated
	1958	Oze Ringyo Corp. starts constructing wooden paths in Oze marsh
	1959	First national parks congress held in Nikko

NB: revised to Yamamoto (2017)

**Table 2** Chronological table of Oze Wetland.

Era	Year	Related Events in Oze Wetland
Showa 1926-1988	1960	Number of tourists using automobiles increases rapidly in national park areas (1960s) Nikko National Park office established
	after 1960s	Oze designated a special natural monument
	1962	Visitors to Nikko National Park (including Oze area) exceed 10 million for the first time
	1965	Council for Tourism Promotion in Oze and Oku-Tadami created, 3 prefectures (Gunma, Niigata, Fukushima) participate
	1966	Committee for Nature Conservation in Oze inaugurated in Gunma Prefecture Project for restoring vegetation starts in Oze marsh (Ayamedaira)
	1967	Oze conservation plan approved by the Ministry of Welfare
	1970	Plan for paved road for motorized access approved
	1971	Environment Agency established Chosei Hirano successfully petitions first Director General of the Environment Agency to stop road construction Network for nature conservation in Oze established
	1972	Campaign for visitors to take their garbage home begins Oze Charter approved
	1974	Private car restriction begins in Hatomachi and Numayama Pass access routes
	1995	Oze Preservation Foundation established
	2005	Oze registered as a Ramsar Convention site
	2007	Oze area separated from Nikko National Park and brought into existence as Japan's 29th national park
	2008	Oze Certified Guides Association established
	2017	Fourth Oze Scientific Research Project (2017-2019)

NB: revised to Yamamoto (2017)

mountaineers and publishers who followed Hirano; enlightened bureaucrats from the internal affairs, agriculture and forestry, and culture ministries; as well as the contributions from national-park-related organizations, and the committee for ascribing historical and natural landmarks, as key factors behind the success of the nature conservation movement. According to Numata (1994) the fact that the Kisei Domei was a private organization was key for nature conservation at that time to promote nature conservation actions such as submission of requests for nature conservation to the national government. The famous mountaineer and botanist of that generation, Hisayoshi Takeda, mentioned that the Japanese Alpine Club had also played a pivotal role in the formation of the conservation agenda in Oze (Ishikawa, 2001). There is one point that ought to be mentioned, however, with regard to Numata (1994)'s claim: it is that the Kisei Domei was not a completely private organization. The contemporary Ministry of Education, Science, Sports and Culture and Ministry of Health and Welfare had two and three representatives, respectively (NACS-J, 2002). Because the Kisei Domei was related to the birth of NACS-J, which became the main nature conservation association in postwar Japan, Oze can be considered the "birthplace" of such activities (Hatakeyama, 2001; Numata, 1994; Ishikawa, 2001). Based on this logic it is acceptable for us to recognize Oze as a pioneering place that shaped the post WWII nature conservation movement and its discourse.

### 3.2 Designation as a National Park

Although Oze is a highland marsh and the Japanese Alpine Club played an important role in the conservation of this area; Oze does not have a particularly long history of association with mountaineers. Furthermore, the region was made accessible only after the famous alpinist and nature conservationist Chozo Hirano opened a mountain hut there in 1889. Oze does not have the long history of pilgrimage visits of faith either, which puts the area in contrast with other popular destinations. It is also thought that the area was virtually unknown before it was featured in the magazine *Taiyo* (Sun) in 1895 (Kikuchi and Sudou, 1991). Oze became widely known only when the hydroelectricity development plan was formulated in 1903 and the struggle between the developers and the nature conservation activists was reported in the contemporary media. On the other hand, Oze enjoyed a swift transformation as a national park. A petition for designating the area (the Nikko area) was presented to the imperial parliament in 1912 (Bansho, 2013). This indicates that the conservation values of Oze and Nikko had been recognized at that point. The area was eventually designated as a national park in 1934; following the Seto Naikai, Unzen and Kirishima national parks along with the Akan, Daisetsuzan, Chubu Sangaku, and Aso national parks.

### 3.3 Changes in the Environment and Use after WWII

In 1949, NHK aired a program on the area that led to a rapid rise in the popularity of Oze. This rise in its popularity was reflected in the increase of visitor numbers and the Ministry of Health and Welfare—the principal organ behind national parks designation—also recognized the value of Oze along with other major tourist destinations such as Nikko, Fuji-Hakone and Seto Naikai (inland sea). This combination of various factors paved the way for the recognition of Oze's landscape within the bureaucracy.

Thus, it is important that we emphasize the events that immediately preceded or followed the 1949 announcement of the hydroelectric dam project. In February 1947, the Ministry of Commerce and Industry passed a unilateral order to build the hydroelectric dam without referring to the opinions of the relevant ministerial organs such as the ministries of the interior, education, and health and welfare. This development immediately met with opposition; at a meeting on 4 July 1949, opposing views were expressed centered around the opinion of Masayoshi Takeda at the Ministry of Education. Tsuyoshi Tamura, the most influential figure behind the designation of Japan's national parks, also weighed in with his negative observations at the Ministry of Health and Welfare. On 23 July 1949, a verbal pledge was secured from the developers, who agreed not to disturb the natural environment of Oze in return for access to the water resources from the marsh. However, on 19 February 1949 a proposal to build an 80 m tall dam that would have transformed the entire wetland into a big reservoir came to light; this implied that the developers never considered the verbal pledge as binding. The ministries of education and health and welfare joined hands to stop the project and started raising awareness about Oze through a pamphlet entitled *On the Scientific Value of the Oze Wetland*. On the other hand, the developers invited experts from the US to implement a feasibility study regarding hydroelectric generation at Oze. The Kisei Domei was born at this juncture on 27 October 1949. The list of the 27 initial members included scientists, agricultural experts, mountaineers, artists, photographers, and managers of the Chozo Hut (set up by Chozo Hirano). The organization subsequently grew and played a role in opposing the development project by raising signatures. In 1951, after its immediate goal had been achieved; the Kisei Domei was dissolved and NACS-J was born with a wider mandate for nature conservation across Japan.

In the years that followed, the number of visitors to Nikko National Park increased steadily. In 1952 the Yamaguchi Forestry Office undertook a project to construct wooden walkways. However, some problems remained, such as the contrast between the approaches of Fukushima and Gunma prefectures. Whereas in Fukushima Prefecture there was an early effort to develop trails for safeguarding plant colonies with Forestry

Agency funding because the land had been designated a national property, such efforts did not materialize in Gunma Prefecture, where the land belonged to private operatives, leading to problems of unregulated trampling of plants by visitors (The Asahi Shimbun, 1957). This indicates that at that initial stage, the planning and management styles of the national and prefectural organs were poorly coordinated and the management structure was still at its infancy. In 1953, the first “ranger,” who was one of six initial rangers assigned to national park management that year, was stationed at Nikko Yumoto. In that same year Oze was designated a specially protected area within the national park. Nature conservation and management efforts were further strengthened as Oze became a natural monument in 1956, and a special natural monument, which has more stringent regulations, in 1960. However during this period so many visitors flocked to Oze that the modest mountain huts could not handle the pressure, and serious problems due to trampling and littering of waste arose. This led to a clean-up drive, which was another pioneering activity as far as managing national parks is concerned.

From 1960, most visitors started traveling to Oze by car and the Oze-Oku Tadami Tourism Association was created in 1965 jointly by Fukushima, Gunma and Niigata prefectures. Although this was an effort to promote tourism and local development, the environmental problems at Oze were also highlighted in this process. In 1965 the Committee for the Protection of Cultural Properties began considering whether to restrict access to some of the preserved area (The Asahi Shimbun, 1965). The Ministry of Health and Welfare, which was in charge of national park management, added that it would not allow cable car lines to be constructed at Oze, and a statement from that ministry proposed doubling the extent of walkways to protect plant colonies (The Asahi Shimbun, 1966). In 1966, a committee for conserving the wetland came into existence in Gunma Prefecture; this committee highlighted the denudation of vegetation in the Ayamedaira area, and began efforts for landscape restoration.

In 1970, a second threat appeared: in response to the rapidly growing tourist numbers a plan to construct a roadway adjacent to the special protection zone was mooted. In 1971 the director general of Environment Agency, Buichi Oishi, conducted a spot survey and demanded either the plan be scrapped or the road be redirected to a different location (Hirano, 1972). This was reported in the media and soon momentum for protection of the natural environment built up across the country. Finally, in August 1971 the road construction plan was officially scrapped after a direct petition was submitted to Oishi by the then Chozo Mountain Hut owner and nature conservationist Chosei Hirano, and a signature campaign against the project was held. In 1972, a program to educate visitors to carry their waste out with them was

launched, and in the same year Gunma Prefecture formulated the Oze Charter, a pledge to protect the area (Oze Preservation Foundation, 2002). In 1974 car access restriction was brought into effect in the Hatomachi and Numayama Pass areas (Furuya *et al.*, 2001); this was another pioneering initiative at the national level. In this way, several conservation initiatives were launched; but in effect, the waste problem could not be remedied swiftly and several years were required to gradually phase out the litter bins. From the 1980s, water quality standards were established, and in the years that followed restrictions on using soap and shampoo were introduced in the mountain huts (The Asahi Shimbun, 1983).

In 1988, efforts to address the problem of visitor overuse began, and demands were soon made for swift implementation of user restrictions and payment of access fees. From this time, local administrative units also started collaborating on management, and a collaborative management framework came into existence. In 1988 the Committee for Conservation of the Oze Area of Nikko National Park was formed with participants from the Bureau of the Environment, and Fukushima, Gunma and Niigata prefectures. In 1989 sensors to count visitors on the trail were established. However, the proposed fee collection scheme could not be implemented due to opposition from the Japan Workers' Alpine Federation and local administrative bodies. In 1992 an ‘Oze Summit’ was held at the Ozenuma Mountain Hut, and in 1995 the Oze Preservation Foundation was launched (Oze Preservation Foundation, 2002). In 1996 a total of 647,523 visits were recorded in Oze, this was a record number (Oze Preservation Foundation, 2023). At this point, the Oze Preservation Foundation began performing surveys to grasp visitor impacts and control those by dispersing visitors through schemes such as differentiating weekend and weekday lodging costs, and implementing ‘no bathing’ days, in coordination with the mountain huts.

### 3.4 Recent Environmental Changes and Responses

The annual number of visitors to Oze National Park has been steadily decreasing since 1996, when it reached an all-time high of about 650,000. In particular, the COVID-19 pandemic had such a severe impact that the number of visitors in 2020–2021 fell to about 110,000, threatening the mountain lodges' operations.

The natural and social environmental changes at Japan's natural tourist attractions, including national parks, are presented above in Section 1. In the Oze region, the following six changes have also been considered: (1) depopulation and industrial decline due to Japan's low birthrate and aging society, (2) a shift away from mountain hiking due to changes in lifestyles, diversification of leisure activities, and aging of users, (3) increases in the number of foreign tourists, (4) drying of the wetlands, shrinking of areas of plant distribution and changes in species composition due to climate change,

(5) grazing damage to vegetation and destruction of floor vegetation due to the increased population of Japanese deer, and (6) difficulty in securing funds for maintaining the wooden trails due to the financial decline of the national and local governments, and financial difficulties in operating mountain lodges due to decreased numbers of mountain climbers (Oze National Park Council, 2018). In this way, the circumstances surrounding Oze have been changing drastically with decreased numbers of visitors in contrast with the overtourism occurring elsewhere in the world (Dodds and Butler, 2019; Sharpley, 2020), and Oze has come to be faced with new challenges.

In particular, the deer problem has become one of the most serious issues not only in Oze but throughout Japan. As the deer population increases and its habitat changes and expands, the damage is becoming more serious in many areas. For example, the damage to agriculture and forestry in the eastern part of Hokkaido has been reported to be 1.5 billion yen. In the Kushiro Marshland, the density of Yezo sika deer (*Cervus nippon yezoensis*) increased rapidly in the five years from 2004, causing them to form wallows in the meandering parts of rivers in the wetland. In addition, the Yamanakatoge wetland in mainland Japan has experienced a decline in Asian skunk cabbage, which has been attributed to foraging and digging by Japanese deer and wild boars. However, given the difficulty of surveying the wetland, it is likely that there is considerable unreported damage. On the other hand, the Senjogahara moor is taking successful measures against deer. Although the effectiveness of installing anti-intrusion fences on public rivers and gratings on roads has been verified, the installation of a 900-hectare fence alone has had a limited effect. There have also been reports of vegetation recovery through additional measures such as trapping, suggesting that comprehensive measures are needed to protect the wetlands.

According to our postal questionnaire survey of visitors to Oze National Park in 2018, a certain percentage of visitors had witnessed the impacts of deer on the wetlands (Fig. 3), and the impacts were strongly perceived as severe. They also strongly affirmed the scenic, recreational and ecological values of Oze, especially its cohesive and spectacular landscape. When asked what areas they would like to have protected from deer impacts, the respondents were more likely to choose large areas than specific localities. Therefore, maintaining the integrity of the continuous wetland landscape of Oze while preserving the natural environment was considered an important issue. In terms of deer control measures, the majority of the respondents supported the construction of fencing to prevent encroachment, and they placed the highest importance on management measures that could preserve the integrity of the continuous wetland landscape of Oze. At the same time, the respondents were less supportive of passive conservation measures that would allow some deer impacts, and were more supportive of

active conservation measures overall (Fig. 4) (Yamamoto, 2019).

However, the cost of installing and maintaining fences on a large scale to protect wide areas of the wetlands is expected to be substantial. Raising funds for active deer management would also be a challenge. Therefore, a survey was conducted in 2019 to assess the need for and willingness to pay for an environmental conservation fund. There were 461 respondents to the survey, with 95% in favor of establishing an environmental conservation fund and only 5% opposed. The ratio of willingness to pay, by amount, was 96% for 300 yen, 90% for 500 yen, 74% for 1,000 yen, 37% for 2,000 yen, and 17% for 5,000 yen, from which we derived a willingness to pay curve as a theoretical value (Fig. 5). Compared with other national parks, the median willingness to pay of 1,439 yen in Oze National Park is higher than the 723–781 yen in the Aso area of Aso-Kuju National Park, 756–770 yen in the Toba-Shima area of Ise-Shima National Park, and 601 yen in the Okunikko area of Nikko National Park, indicating that the value of the Oze Wetland is highly evaluated. In the 2018 survey, Oze was regarded as having value not only for its magnificent landscape and outdoor recreation opportunities but also for its rare wetland environment and indigenous plants and animals, and this awareness was thought to contribute to the greater willingness to pay. Additionally, as to the method of collecting money, charging as much as possible from all visitors was supported by 76% of the respondents, followed by

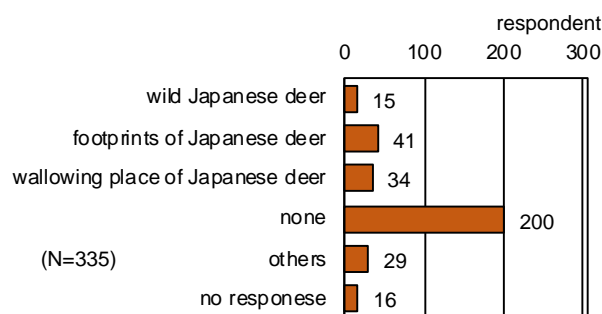


Fig. 3 Observations of the impact of Japanese deer by Oze Wetland visitors.

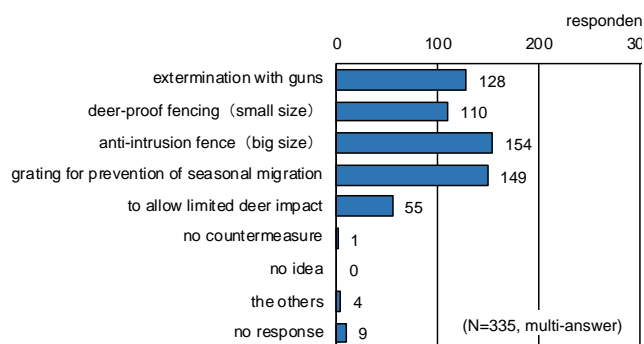


Fig. 4 Countermeasures expected by visitors for Oze Wetland conservation.

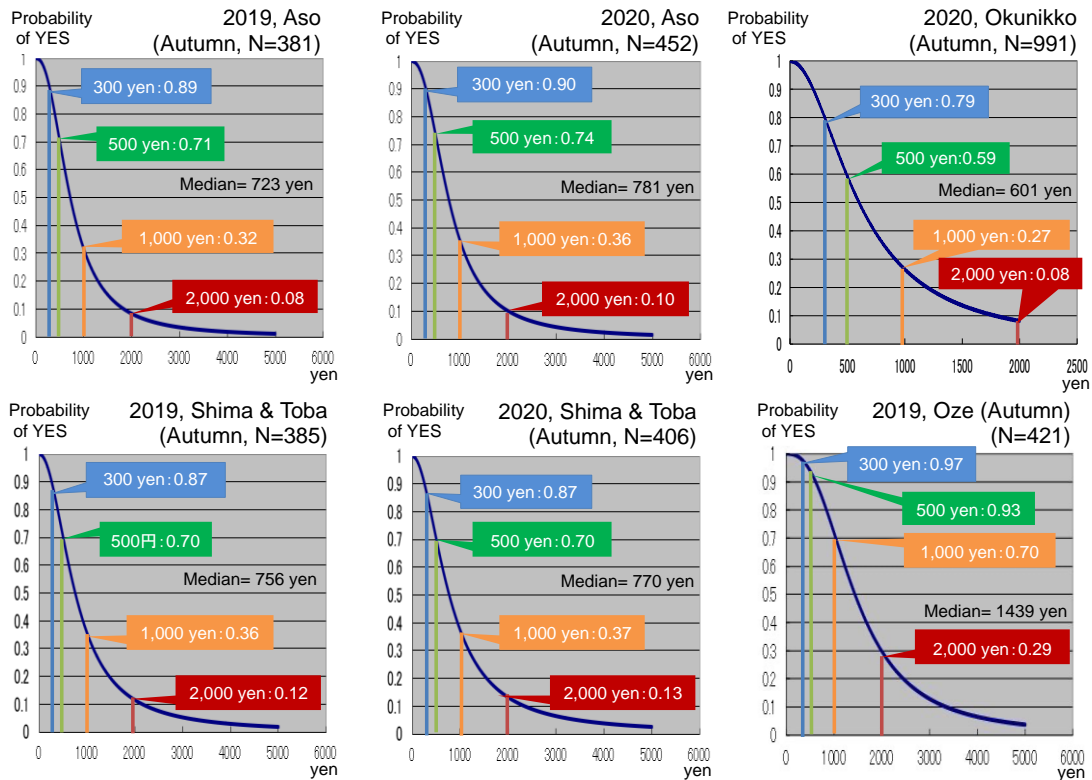


Fig. 5 Visitors' willingness to pay for nature conservation in four national parks in 2019 and 2020.

providing discounts for children, the elderly and the disabled at 31%. The most common response to the desired use of the fund was the preservation and restoration of natural landscapes such as the wetlands (86%), followed by removal of trash and human waste (75%). In summary, the majority of Oze National Park visitors were positive about establishing a fund for environmental conservation and would accept a contribution of up to about 500 yen. They also expected that the visitors as a whole would bear the contribution to and support for the fund system and its use for the conservation and restoration of the wetland (Yamashima *et al.*, 2021).

#### 4. Conclusion

This paper takes Oze Wetland as a case study, outlines the features of its natural environment and the history of its use, and clarifies how it has responded to shifts in user preferences. In addition to that, Oze Wetland has a unique history as the birthplace of the nature conservation movement in Japan. Various efforts have been developed in response to changes in the natural ecosystem and changing user preferences. Oze Wetland is a symbol of the nature conservation movement among Japan's national parks. The discussions and efforts in the region are considered to be at the forefront of Japan's environmental efforts, and the sharing of experience there will provide inspiration to other national parks.

#### Acknowledgement

This study is part of the results of my participation in the "National Park Appropriate Use Promotion Project" commissioned by the Ministry of the Environment to the Oze Preservation Foundation in the 2000s, the 4th Oze Scientific Research Project in 2018–2019, and a survey funded by the Environment Research and Technology Development Fund (Assignment No. 4-1906) from 2019 to 2021. I would like to express my gratitude to all parties involved for their understanding and cooperation.

#### References

- The Asahi Shimbun (1957) *Fumiarasareru Tennenkinenbutsu* (Trampled natural monument). *The Asahi Shimbun*, Morning Edition, June 9. (in Japanese)
- The Asahi Shimbun (1965) *Oze ni Hogoku* (A project to establish a new protected area in Oze) *The Asahi Shimbun*, Morning Edition, August 5. (in Japanese)
- The Asahi Shimbun (1966) *Meibutsu no Mokudo wo Fukusenka* (Iconic wooden walkways become multi-lane). *The Asahi Shimbun*, Evening Edition, June 23. (in Japanese)
- The Asahi Shimbun (1983) *Oze no Kiseki* (A miracle of Oze). *The Asahi Shimbun*, Evening Edition, August 20. (in Japanese)
- Bansho, K. (2013) Change of the conservation consciousness and the conservation measures on Senjogahara moor of Nikko National Park. *Bulletin, University of Tokyo Forests*, 128: 30–31. (in Japanese with English abstract)
- Dodds, R. and Butler, R. (2019) The phenomena of overtourism: a review. *International Journal of Tourism Cities*, 5(4): 519–528.
- Fukada, K. (1982) *Nihon Hyakumeizan* (The one hundred mountains of Japan). *The Asahi Shimbun*, Tokyo. (in Japanese)
- Furuya, K., Yui, M., Akasaka, M., Tada, M. and Ohata, T. (2001)

- Various problems of use under traffic control at Oze area in Nikko National Park. *The Technical Bulletin of Faculty of Horticulture*, Chiba University, 55: 21–41. (in Japanese with English abstract).
- Geospatial Information Authority of Japan (2023) *Nihon Zenkoku no Shitchi Menseki Henka no Chosa Kekka*. (Research results of the area change of marshes and wetlands in Japan) (in Japanese) [http://www.gsi.go.jp/kankyochiri/shicc\\_himenseki2.html](http://www.gsi.go.jp/kankyochiri/shicc_himenseki2.html) (Accessed 30 April 2023)
- Hatakeyama, T. (2001) *Shizenhogohou Kougi* (Lecture on nature conservation laws), Hokkaido University Press, Sapporo. (in Japanese)
- Hirano, C. (1972) *Oze ni Shisu* (I shall die in Oze). Shinchosha, Tokyo. (in Japanese)
- Ishikawa, T. (2001) *Nihon no Shizenhogo* (Nature conservation of Japan). Heibonsha, Tokyo. (in Japanese)
- Kato, M. (2008) *Shizenkouen no Hou to Seido* (Laws and systems of natural parks). *Kokinshoin, Tokyo*, 165–171. (in Japanese)
- Kikuchi, K. and Sudou, S. (1991) *Towa no Oze* (The eternal Oze) *Jomo Shinbun, Maebashi*, 150–152. (in Japanese)
- Ministry of the Environment, Japan (2007) *Kokuritsu, Kokutei Kouen no Shitei oyobi Kanri Unei ni Kansuru Teigen* (Suggestions on designation and management of national parks and quasi-national parks). (in Japanese) <https://www.env.go.jp/press/files/jp/9288.pdf> (Accessed 30 April 2023)
- Ministry of the Environment, Japan (2014) *Kokuritsu Kouen niokeru Kyodogata Kanriunei wo Susumeru tameno Teigen* (Recommendations for promoting collaborative management in national parks). (in Japanese) <https://www.env.go.jp/press/files/jp/24150.pdf>
- Murakushi, N. (2005) *Kokuritsukouen Seiritsushi no Kenkyu* (Studies of the establishment of national parks), Hosei University Press, Tokyo. (in Japanese)
- Nakajima, K. (1998) *Oze Mondai to Kokuritsukouen Kanri* (Issues of Oze and management of national parks). *Kokuritsu Koen (National Parks)*, 562: 8–11. (in Japanese)
- Natural Parks Foundation (2009) *Nihon no Kokuritsukouen* (National Parks of Japan). Natural Parks Foundation, Tokyo. (in Japanese)
- The Nature Conservation Society of Japan (NACS-J) (1985) *Shizenhogo no Ayumi: Oze kara Tenjinzaki made* (The history of nature conservation: from Oze to Tenjinzaki). The Nature Conservation Society of Japan, Tokyo. (in Japanese)
- The Nature Conservation Society of Japan (NACS-J) (2002) *Shizenhogo NGO Hanseiki no Ayumi* (The history of 50 years as nature conservation NGO). Heibonsha, Tokyo. (in Japanese)
- Numata, M. (1994) *Shizenhogo toiu Shisou* (The concept of nature conservation). Iwanami Shoten, Tokyo.
- Oze National Park Council (2018) *Shin Oze Vision* (A new Oze vision), pamphlet. (in Japanese)
- Oze Presevation Foundation (2002) *Oze Shizen Kansatsu Gaido* (Guidebook for nature observation). Yama-kei Publishers, Tokyo.
- Oze Presevation Foundation (undated) Changes in the number of entrants (at Oze National Park). (in Japanese). <https://oze-fnd.or.jp/oza/a-sg/nbp/> (Accessed 30 April 2023)
- Sharples, R. (2020) Tourism, sustainable development and the theoretical divide: 20 years on. *Journal of Sustainable Tourism*, 28(11): 1932–1946.
- Steiger, R., Knowles, N., Pöll, K. and Ruddy, M. (2022) Impacts of climate change on mountain tourism: a review. *Journal of Sustainable Tourism*. (<https://doi.org/10.1080/09669582.2022.2112204>)
- Tamura, T. (1954) *Shizenhogo Undou no Tenkai* (The evolution of nature conservation movements in Japan). *Kokuritsu Koen (National Parks)*, 61: 2–6. (in Japanese).
- UNWTO (2018) *Sustainable Mountain Tourism – Opportunities for Local Communities*, 149 pp. <https://doi.org/10.18111/9789284420261>
- Yamamoto, K. (2017) Oze Wetland: The birthplace of the nature conservation movement in Japan. In: Chakraborty, A. et al., eds. *Natural Heritage of Japan: Geological, Geomorphological, and Ecological Aspects (Geoheritage, Geoparks and Geotourism)*, 161–166, Springer.
- Yamamoto, K. (2019) Visitors awareness of the impact on the moor by Sika deer and intention of support for management program in Oze National Park, *Environmental Information Science*, 33: 25–30. (in Japanese with English abstract)
- Yamashima, Y., Yamamoto, K., Kohori, T. and Shimomura, A. (2021) Examination of the Size of the Environmental Conservation Fund based on the awareness of visitors to National Parks, *Proceedings of JITR (Japan Institute of Tourism) Annual Conference*, 36: 173–178. (in Japanese)



### Kiyotatsu YAMAMOTO

Kiyotatsu Yamamoto is currently an associate professor at the University of Tokyo in Landscape Planning and Tourism. He also works part-time as a senior researcher at the National Museum of Ethnology, in Osaka, Japan. He completed research for his PhD at the University of Tokyo, where he specialized in forest landscape planning and design. He has conducted special research in planning and management in national parks and protected areas, behavioral psychology of tourists, and eco-based disaster risk reduction, and is interested in teaching these subjects. Since the Great East Japan Earthquake and Tsunami on 11 March 2011, he has been tackling reconstruction with the aim of creating communities, conserving regional resources and promoting tourism along the coasts of Iwate and Aomori prefectures.

(Received 28 June 2023, Accepted 13 October 2023)