The FFTC Journal of Agricultural Policy
http:/ap.fftc.org.tw/e-journal

Conserving a Precarious Agrarian Landscape Dynamic Conservation beyond Output Statistics at the Nishi-Awa GIAHS Site, Japan

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Received January 2, 2026; Accepted October 20, 2026

ABSTRACT

Mountain villages in Tokushima, Shikoku, Japan—designated as a GIAHS site in 2018—sustain life on unstable, landslide-prone slopes through dense constellations of human and non-human actions. Drawing on ethnography, landscape reading, and historical materials, this paper traces how everyday small-scale interventions interact with geology, infrastructure, and markets to produce landscapes over time. This article shows how centuries of tobacco cultivation and the state monopoly system linked isolated mountain hamlets to national revenue structures and plantation-like modes of production; how post-1950s landslide-prevention projects, materials, and demographic aging reconfigured soil and water practices; and how folk notions such as zareru (surface collapse) and jigurui (ground shift) organize vigilant, iterative maintenance in a terrain assumed to be constantly moving. These practices reveal that contemporary agriculture in Nishi-Awa has shifted from commercial crop production to "life-making agriculture," sustained by elderly residents whose everyday interventions stabilize collapsing soils and maintain semi-natural grasslands. Rather than isolated "heritage" or an imagined "original Japan," these villages are active sites where geological time, capitalist ruins, and local labor co-produce livable niches. Reframing care as a multispecies, material landscape process clarifies why "dynamic conservation"—rather than static preservation—is essential for sustaining GIAHS landscapes. It also highlights the need for place-based synergies: Slow Food, Geopark, and OECM together support the long-term viability of collapsing mountain landscapes and their agrarian systems.

Keywords: GIAHS, dynamic conservation, unstable mountain landscapes, steep-slope agriculture, multispecies care, institutional synergies

EXTERNAL INTERACTIONS IN LANDSCAPE FORMATION

Landscapes beyond human scale

The purpose of this article is to consider the potential synergies between various ecosystem-conservation programs, including GIAHS, Slow Food, Geopark, and OECM, within GIAHS-registered areas, and to examine (1) the historical context of the Nishi-Awa GIAHS landscapes and (2) the practices for integrating these programs within a GIAHS site, using the Nishi-Awa Steep-Slope Land Agriculture System (Tokushima, Japan) as a case. To do so, this article describes the dynamics of landscape formation and its conservation, characterized by unique physical properties that enable diverse human and non-human entities to exist through conscious and unconscious interactions within the global expansion of industrial capitalism.

First, can we take care of the landscapes? There are limits to the ethics of mutual goodwill-based care, which is based on the relationship between two parties and the perspectives of the actors, namely the subjective response of the caregiver to the needs of the care recipient. First, it is impossible to assess the differences in perspective that may arise between the caregiver and the care recipient. It is well recognized in the fields of medical care,

development assistance, and humanitarian aid that actions taken by caregivers with good intentions can be perceived as meddling or harmful by those receiving care. In such contexts, care is linked to inequality and violence. That is why we need to be self-reflective about the conditions of care. In other words, care cannot be defined solely by the perspective of those who provide (or attempt to provide) care.

Second, the "world" in which we live has material characteristics. Here, we refer to places with certain material characteristics such as "landscapes." Reproducing a particular landscape requires constant effort. And the efforts involved in the production and reproduction of landscapes are made not only by humans but also by various living and non-living organisms. The places where we live are spatially and temporally separated and are sustained by entities and activities that we do not generally consider to be objects of interaction. In this article, to consider the "conditions of care" that go beyond the interaction model, we will examine the dynamics that often emerge from the accumulation of activities, including non-human entities, in a certain landscape, regardless of the perspectives of the parties involved.

Tsing (2015) conceptualized the contingent intertwining of humans and non-human entities under the influence of global capitalism as "unintended design." She argues that human exploitation of non-human entities can sometimes give rise to unexpected productive relationships. This implies that political-economic interests involving multiple species are not limited to the logic of specific humans, such as capital. This article aims to objectify the accumulation of minute interactions among various entities involved in the generation of specific landscapes and understand them within a broader political-economic context. Landscape ecology is an academic field that seeks to understand specific landscape elements holistically by capturing their relationships with various external landscape elements—in anthropological terms, by contextualizing them (Kamata 2022). Tsing et al., drawing on landscape ecology, focus on the connections between landscape elements that were once dependent on systems such as plantations and mines under colonialism and those now influenced by global capitalism through fossil fuel-based factory production and container transport. By borrowing this landscape ecological perspective and methodology, the approach of analyzing the dynamics of landscape elements embedded in imperialist or industrial capitalist systems is important to address the weakness pointed out by Kawai (2022) that action-centered landscape theory tends to overlook the global political-economic influences on landscape formation (Tsing, Mathews & Bubandt 2019).

To this end, Tsing et al. propose the concept of the "patchwork Anthropocene." The term "patch" is borrowed from landscape ecology to describe the historical dynamics through which landscapes, as assemblages of humans and non-human entities, are constituted (Tsing, Mathews & Bubandt 2019:188). By focusing on patch-like landscape elements, anthropologists aim to enhance landscape literacy—the ability to recognize and interpret the various entities involved in the form and structure of specific landscapes and their expansions—thereby improving their capacity to imagine and articulate the complex histories of diverse entities intertwined with places. Furthermore, this approach seeks to reframe humanities and social science discussions about the Anthropocene—which often tend toward speculative and abstract debates—as questions about the history of specific landscapes following the expansion of imperialism and industrial capitalism.

We will focus on the dynamics of landscape production in a decentralized manner amid the forces of industrial capitalism. In the post-logging matsutake forests Tsing describes, no single actor can be said to have designed the resulting landscape, and no conflict between competing visions of it can be identified. This article focuses on the dynamic process by which the physical landscape is created through the accumulation of often unconscious interactions and responses among various entities, including those beyond the human realm, which are viewed as a form of "care."

External-internal relations

To capture the influence of the state and the market on landscape formation from the early modern period to the present in Japan, we focus on the dynamics of landscape formation through plantation-like modes of production that developed after the early modern period. The term "Plantationocene" was generated in a recorded conversation held at Aarhus University in 2014 and published as Haraway, Ishikawa, Gilbert, Olwig, Tsing and Bubandt (2016); see also Haraway (2015). It names the era in which human society became the primary driver of Earth's transformation into the "Plantationocene." Plantations are a type of natural-social phenomenon that rapidly transforms ecological environments and landscapes by relocating human and plant communities, requiring the intervention of capital and state power. The concept of the Plantationocene offers the advantage of linking the origins of qualitative transformations in relationships between humans and entities beyond humans to the state and the market.

We are currently witnessing the depopulation of Japan's mountain villages. In this article, we examine these mountain villages not as small communities encountering the outside world in recent years, but as the cumulative effect of the capitalist production system that has developed since the early modern period. In Japanese mountain villages since the early modern period, plantation-like production systems and areal distribution systems involving the movement of people and plant communities operated under policies of the shogunate and feudal domains (Komeie 2002; Watanabe 2016). These systems were either strengthened or converted to other industries through modernization policies implemented by the government after the Meiji period. However, during the postwar period of high economic growth, rural areas were repositioned as labor-supply sources for cities, leading to their decline (Takaoka 2022). In this sense, Japanese mountain villages are not so many places where industrial capitalism is arriving late as they are ruins (Tsing 2015). If so, we can see beyond industrial capitalism in Japanese mountain villages.

To this end, we turn our attention to the theory of the "feral landscape." This refers to "a human-made landscape that comes into motion not only through the intentions of human engineers but also through the chain of effects arising from negotiations with entities beyond human control (Bubandt & Tsing 2018: 1). Such negotiations are less a resistance to engineers involved in landscape creation than practices that neutralize such power relations. Landscapes that proliferate according to a logic distinct from that of specific human planners, such as engineers, can become resources for them, or the opposite, or both. In this way, the theory of unmanageable landscapes aims to reveal the dynamic (feral dynamics) through which landscapes different from those imagined and created by specific humans are produced through the participation of various entities (Bubandt & Tsing 2018: 2–4).

Recent cultural anthropological studies of the relationship between science, technology, and society often highlight how science and technology mediate humans' relationship to the environment. Where workers at a composting facility monitor microbial activity through gauges and control panels rather than through the microbes themselves, a relationship of "extimacy" (Lacan 1992, Hoag, Bertoni & Bubandt 2018:100) emerges between different entities, existing outside human cognition or understanding yet indispensable to it. This aims to transcend the perspective that views "care" as fulfilling the demands of others in the relationship between supporters and supported individuals. By doing so, I seek to present a methodology for capturing the situation in which the actions or existence of someone (or something) are connected to others. To this end, this article examines the history and dynamics of various troublesome behaviors and extimacy-laden relationships surrounding the land in a mountain village in western Tokushima Prefecture. This will clarify the dynamics through which a heterogeneous landscape, one that cannot be said to have been imagined or created solely by specific individuals in the present moment, comes into being.

These arguments bear on the two questions set out above in a specific way. If a landscape is reproduced through the accumulated, largely unremarked interventions of many actors rather than designed by any of them, then two things follow for a conservation program. First, a historical account of the Nishi-Awa landscape has to explain not only what people intended but what they did repeatedly without regarding it as significant, and how those actions were conditioned by the state and the market at each period; this is the first question. Second, what dynamic conservation has to sustain is not a stock of objects, techniques, or crops but the capacity to keep performing those interventions, which depend on soils, grasslands, water systems, implements, the blacksmith who maintains them, and the households able to do the work. This gives us the criterion against which the second question is assessed: whether a given institutional arrangement supplies something that this capacity requires. We return to that criterion in the final section.

Methods

This article draws on fieldwork conducted in the Nishi-Awa area since 2014. The author’s involvement began not as an institutional assignment but through personal connections and has since combined ethnographic research with practical work on the GIAHS application and subsequent conservation planning. This dual position — researcher and practitioner — shapes the account offered here, and the author notes it because it determines what he was in a position to observe (see Naito and Ishikawa 2023).

Three bodies of material are used. The first is an implemented survey. In February 2019, staff and students of Tokushima University recorded every farming implement held by 16 households across ten settlements in three districts of Tsurugi Town (Sadamitsu, eight households; Ichiu, six; Handa, two), measuring weight, handle length and, for the sarae, the handle-to-blade angle, and interviewing owners about names, acquisition, use and maintenance. A parallel survey of 21 households in Higashi-Iya, Miyoshi City, was carried out in October and November 2021 by staff and students of Ikeda High School, as part of a collaboration between the two institutions

running since 2018. Because the surveyors differed, the Miyoshi data are used only to illustrate the range of local naming, and the two datasets are not compared statistically.

The second is interview and observational material gathered during repeated visits to settlements in Tsurugi Town and Miyoshi City, concerning tobacco cultivation and the state monopoly (residents aged over 60), soil management, and the maintenance of water systems. The account of water hoses draws on Kitano (2023).

The third is documentary and statistical material. The history of tobacco relies on the History of Tobacco in Awa-Ikeda (1992), a documentary compilation by the Ikeda Town Board of Education. Population and area figures are from the Population Census and the Geospatial Information Authority of Japan. Farm household numbers and agricultural output are from the Census of Agriculture and Forestry and MAFF municipal estimates, as compiled for this site by Mitsubishi UFJ Research and Consulting (2022). National assessments of designation effects are drawn from that report and from MAFF (2025).

THE MOUNTAIN VILLAGE LANDSCAPE OF THE SHIKOKU MOUNTAINS

The "Hidden Landscape"

This article focuses on the "Nishi-Awa steep slope land agriculture system," which the Food and Agriculture Organization of the United Nations (FAO) recognized as a Globally Important Agricultural Heritage System (GIAHS) in 2018. It consists of Miyoshi City, Higashi-Miyoshi Town, Tsurugi Town, and Mima City in Tokushima Prefecture, covering 1,405.88 km² (Geospatial Information Authority of Japan, as of 1 October 2025). Its population fell from 72,997 in the 2020 Census to 65,366 in the 2025 Census, a decline of 10.5% in five years, against 6.1% for Tokushima Prefecture as a whole (Statistics Bureau of Japan; 2025 figures are preliminary). Population density is 46.5 persons per km². Miyoshi City recorded the steepest decline among the prefecture's eight cities (−13.0%) and Tsurugi Town the third steepest among its twenty-four municipalities (−14.8 per cent). Households fell by only 5.2% over the same period, roughly half the rate of population decline, indicating a residual population of elderly single- and couple-person households (Table 1). Primary sources of income are agriculture, forestry, and tourism. This basic context shapes both constraints and opportunities for conservation. The mountain villages in this area are located on mountain slopes at elevations of 400–800 meters. There, one can observe a unique mountain village landscape composed of slope fields with slopes of 25–35 degrees.

Table 1. Population of the four municipalities of the Nishi-Awa GIAHS site

	2020 Census	2025 Census (prelim.)	Change
Mima City	28,055	25,519	−9.04%
Miyoshi City	23,605	20,549	−12.95%
Tsurugi Town	7,715	6,572	−14.82%
Higashi-Miyoshi Town	13,622	12,726	−6.58%
Total	72,997	65,366	−10.45%
Households	30,158	28,588	−5.21%
Tokushima Prefecture	719,559	675,489	−6.12%

Source: Statistics Bureau of Japan, Population Census 2020 and 2025 (preliminary tabulation, released 29 May 2026).

The sloping fields of mountain village settlements are composed of poor soil consisting of clay, silt, and gravel. In such sloping fields, crops such as potatoes and konjac, as well as grains like buckwheat, common millet, foxtail millet, Japanese millet, sorghum, and finger millet, wheat, and corn, and vegetables are cultivated. In this area, slash-and-burn agriculture was once practiced. The cycle involved burning the land, planting buckwheat and millets in the first year, azuki beans and soybeans in the second year, and pepperbush in the third year and beyond, followed by planting cedar trees in the sixth year. However, this practice ceased almost entirely in the 1970s, and field cultivation is now limited to fields on slopes.

The mountainous terrain of the Shikoku Mountains and Sanuki Mountains, where these mountain villages are distributed, was formed by tectonic plate movements. In particular, the rocks of the Sambagawa and Mikabu Belts south of the Median Tectonic Line, which constitute the northern flank of the Shikoku Mountains, are fragile, making this area one of Japan's most landslide-prone regions. Terado (1986) counted large-scale slope-failure landforms across Shikoku and found the highest density in the Mikabu Belt, at 40.7 per 100 km², followed by the Sambagawa Belt at 17.8 per 100 km². Overlaying landslide-topography maps on the geological map shows that most of the settlements discussed here occupy the gentler ground and spring lines created by earlier landslides

(Naito and Tono 2023). As a result, this area has been one of the areas in Japan where the most landslide prevention projects have been implemented. Consequently, many residents in this area rely on the construction industry for their livelihood. In this sense, the mountain villages in this area may appear isolated from the rest of the country at first glance, but they have strong ties to the national government through public works related to landslide prevention.

This area also had strong ties to markets. Leaf tobacco cultivation, practiced from the Edo period to the Heisei era, was well-suited to the sloping terrain. To fertilize sloping fields and prevent and restore soil erosion, farmers used extensive grassland management and unique farming tools, combining these practices with the cultivation of grains and other crops. In other words, the unique mountain village landscape of this area bears the imprint of not only human, terrestrial, and diverse biological activities but also the historical influence of the state and the market.

The focus of this article is not on the production or interpretation of the landscape as a whole or the expansive view of the mountain village from across the river, but rather on the interconnections of external activities often transcending time and space that contribute to the physical formation of the landscape, such as a single slope along a mountain path.

Overview of the Globally Important Agricultural Heritage Systems (GIAHS)

GIAHS is an abbreviation for Globally Important Agricultural Heritage Systems, launched at the World Summit on Sustainable Development in Johannesburg in 2002. As of 2026, FAO had designated 104 systems in 29 countries. East Asia (Japan–China–Korea) hosts many sites. Japan hosts 17 sites, the second-largest number worldwide after China (MAFF, as of February 2026).

The GIAHS are not limited to agriculture, but include diverse food production systems such as hunting, gathering, fishing, animal husbandry, aquaculture, forestry, and salt production. The purpose of this program is to preserve family farming and traditional food production systems that are highly sustainable and are undergoing significant changes in the context of globalization. It is a system in which the land use for food production that has been shaped over generations while adapting to society and the environment, as well as the culture, landscape, and biodiversity nurtured through traditional food production, are recognized by the Food and Agriculture Organization of the United Nations (FAO) as being of global importance.

The distinctive feature of the GIAHS is that it rejects the notion of a "fossilized landscape" (Koohafkan & Altieri 2016: 28), a term coined by its founder, Koohafkan, that refers to a state in which the co-evolutionary process between humans and the environment has halted. Instead, it actively values and promotes farmers' efforts to adapt their food production systems to environmental and socio-economic changes. While GIAHS preserves traditional food production systems, it does not simply preserve old agricultural practices or methods as they were in the past, nor does it display or preserve them as museum exhibits or documentary materials. In this regard, the objectives and means of the GIAHS differ significantly from those of UNESCO's World Heritage System. The GIAHS focuses not on "relics of the past" displayed in museums, but on the knowledge and techniques related to food production that are passed down while adapting to social, economic, and ecological changes as "living heritage." Therefore, for registration as GIAHS, it is important to have "dynamic conservation," in which local stakeholders cooperate and pass on traditional knowledge and practices to the next generation while adapting to environmental changes.

The four municipalities in the western part of Tokushima Prefecture, which are the focus of this article, began preparations in 2014 to apply for the designation of their farming systems, including steep slope farming fields found in mountain villages, as a GIAHS. After being designated as a Japanese Important Agricultural Heritage Systems in 2016, they were recognized as a Globally Important Agricultural Heritage System in 2018.

Two national assessments have examined whether designation produces measurable economic effects in Japan. The first, commissioned by FAO, compared year-on-year changes in agricultural output for the seven sites designated since 2015 and found no clear designation effect: year-to-year volatility in output exceeded any effect attributable to designation (Mitsubishi UFJ Research and Consulting 2022). The same study surveyed municipal budgets at designated sites. Of thirteen responses, eleven reported an increase in GIAHS-related spending, but the largest single category was external promotion and visitor attraction (six responses), while only one reported increased spending on production, distribution or marketing of the core crop. Public awareness remains a binding constraint: a 2021 Cabinet Office survey found that 11.7% of respondents knew of agricultural heritage and 37.1 per cent knew at least the term, against 84.0% awareness of World Heritage.

The second assessment applied propensity score matching and difference-in-differences to all 131 municipalities designated between 2011 and 2023 (MAFF 2025). Designated areas showed higher growth than matched controls on most indicators, though rarely significantly so. Two results matter here. First, for the cluster of municipalities with few agricultural operators, small populations, and low sales — the type to which Nishi-Awa belongs — agricultural output grew no faster than in control municipalities (0.05 against 0.09, $p = 0.38$). Second, farm-stay guest numbers and facility counts increased significantly in designated areas, while general tourist arrivals did not. Nishi-Awa is classified in that study as a site with many farm-stay guests but few tourist arrivals, ranking fourth of twenty-eight sites in cumulative farm-stay guests between 2017 and 2022, yet it is not among the sites where those numbers have recently grown (Table 2).

Two features of the Nishi-Awa case sharpen the problem. The FAO study had to exclude the site's defining crops from its own analysis, noting that millet output is close to zero in the agricultural statistics and substituting vegetables as the proxy core crop. Japanese GIAHS sites receive no dedicated national subsidy for conservation; they are expected to secure funding through their own efforts (Nagata and Yiu 2021). Our key question is therefore not how to raise measured output, but how to conserve and sustain the agricultural system itself where the standard economic indicators do not register their core and where no dedicated funding exists.

Table 2. Two national assessments of the economic effects of agricultural heritage designation in Japan

	FAO / MUFJ (2022)	MAFF (2025)
Scope	7 sites designated 2015 or later	131 municipalities, 32 sites, 2011–2023
Method	Year-on-year change vs national average; no control group	Propensity score matching + difference-in-differences
Agricultural output	No measurable effect; volatility exceeds any effect	Higher but n.s. overall (0.08 vs 0.02, $p = 0.25$); significant for cluster ID:3 ($p = 0.04$)
— cluster of small, low-sales municipalities (Nishi-Awa type)	—	0.05 vs 0.09, $p = 0.38$ (designated lower)
Tourist arrivals	Cannot be separated from general tourism statistics	Higher but n.s. (0.07 vs 0.00, $p = 0.68$)
Farm-stay guests	—	Significantly higher (2017 cohort 0.69 vs −1.15, $p = 0.01$; 2019 cohort 1.13 vs 0.05, $p = 0.09$)
Public awareness	11.7% knew of it; 37.1% incl. "knew the term only"; 84.0% for World Heritage	Social media mentions increased around designation

n.s. = not statistically significant.

Nishi-Awa faces demographic decline and aging, low farm income in mountainous terrain, low public interest in agricultural landscapes compared with other heritage, and an overreliance on public investment. These are interrelated. It is important to build local synergies across programs so that budgets and activities shift from promotion toward durable conservation outcomes.

LANDSCAPE HISTORY OF THE MOUNTAIN VILLAGE

Tobacco cultivation in the early modern era

There are no tobacco farmers in this area, but we should look at the farming system that no longer exists to understand the dynamics of the landscape. Indigenous peoples spread tobacco (*Nicotiana tabacum*) throughout the Americas about 8,000 years ago. Nicotine, a plant alkaloid that acts similarly to human neurotransmitters, is ingested through smoking or through the mucous membranes of the nose and mouth (Goodman 1996). From the end of the 15th century, tobacco spread throughout the world via Europe. This section examines the history of leaf tobacco cultivation in the Nishi-Awa area based on Awa Ikeda Tobacco History (Awa Ikeda Tobacco History Editorial Committee, 1992).

Leaf tobacco cultivation began in Japan during the Keicho era (1596-1614). Initially, the shogunate and

feudal domains prohibited the cultivation, trade, and use of leaf tobacco. However, despite these prohibitions, tobacco was cultivated as a luxury item. In 1682, records indicate that 120 kg of tobacco was taxed in the mountain villages of this area. By 1686, smoking had become widespread, and leaf tobacco cultivation flourished.

Subsequently, in the Nishi-Awa area, machines for finely cutting tobacco were developed, and tobacco leaf varieties and blends were improved, leading to tobacco gaining a certain level of national recognition as "Natsu-tabako" and "Awa-ha." The current town of Ikeda in Miyoshi City, Tokushima Prefecture, is the center of tobacco leaf processing and distribution. All tobacco leaf processed in Ikeda was carried out in the mountain villages of Nishi-Awa. In the Awa domain, tobacco was recognized as a substitute for rice for tax payments as early as 1864. As a result, Ikeda Town developed into a city specializing in tobacco processing and distribution, while the mountain villages of the Nishi-Awa area became production areas supplying the raw material, leaf tobacco. In the late modern period, the Awa domain also began officially protecting and encouraging the tobacco industry.

The tobacco industry in Nishi-Awa, based in Ikeda Town, peaked in the early 1890s. At that time, tobacco leaves from Nishi-Awa were distributed to Hokkaido and the Tohoku area. In 1889, 98% of the annual sales of a tobacco merchant were from Hokkaido. Additionally, in 1894, approximately 55% of adults in Ikeda Town were employed in tobacco-related work. Some of the wealth generated by tobacco processing and distribution was allocated to infrastructure development in Ikeda Town, such as water supply and sewer systems.

In March 1896, the Leaf Tobacco Monopoly Act was enacted, placing the cultivation, processing, distribution, and sale of leaf tobacco under state control as a revenue source. In April 1898, the Ikeda Monopoly Office was established along with three branch offices in Yamashiroya, Nishi-U, and Higashi-Soya. The jurisdiction of the Ikeda Monopoly Office overlapped with the former Miyoshi and Mima districts, which are the subject of this article. Additionally, the Sadamitsu Monopoly Office was established in what is now Tsurugi Town. The Ikeda Monopoly Office accounted for one-third of the total revenue from tobacco sales in Shikoku. In 1902, the Ikeda Monopoly Office was renamed the Ikeda Monopoly Branch Office and merged with the Sadamitsu Monopoly Branch Office to oversee the entire Tokushima Prefecture. In October 1902, when the Monopoly Branches nationwide were reorganized, the Ikeda Monopoly Branch remained as one of 20 branches nationwide. In November of the following year, it merged with the Gomen Monopoly Branch, which had jurisdiction over Kochi Prefecture, and the Ikeda Monopoly Branch came to have jurisdiction over both Tokushima and Kochi Prefectures. Additionally, the Ikeda Manufacturing Plant was established in February 1905. Its purpose was to establish a tobacco production system capable of ensuring national uniformity and quality management. Both national products and areal products unique to each manufacturing plant were produced there. Leaf tobacco production under the monopoly system peaked in 1922 and gradually declined thereafter, with Japan Tobacco Industries (JT) ceasing purchases in 2009.

The mountain villages in this area supplied raw leaf tobacco to Ikeda Town, which flourished as a tobacco-industry town. By the end of the Edo period, leaf tobacco was produced in mountain villages located at an altitude of 600–700 meters. Additionally, the Tokushima Newspaper of 1942 (Showa 17) records that "the tobacco-growing areas in Tokushima Prefecture are distributed across 1,600 mountainous and hilly areas in seven counties and 41 municipalities, with cultivation taking place even at elevations of 1,000 meters." Thus, the tobacco leaves that sustained the tobacco industry for approximately 400 years were produced on the sloping fields of these mountain villages.

According to "Awa Leaf Tobacco Cultivation Manual" (1937), a manual for leaf tobacco cultivation in mountain villages, the ideal land for leaf tobacco production is located at the foot of mountains, with slopes and good drainage. Land with gravel and sand, low fertility, and slopes were suitable for leaf tobacco cultivation. Until the mid-Meiji period, roads in such areas were poorly developed, and transportation relied on human or animal labor. As a result, valuable and precious items like timber or fresh vegetables could not be transported for sale. In mountain villages, only lightweight or easily transportable products that could be converted into cash were considered valuable commodities. Tobacco leaves, which could be dried to reduce weight, did not spoil, and could be sold for cash, became an indispensable cash crop for mountain village life.

Additionally, tobacco leaf cultivation on the steep slopes of mountain villages was often combined with grain cultivation. For example, buckwheat was planted the year after tobacco leaves, followed by barley the next year. Another pattern involved planting sorghum the year after tobacco leaves were planted, followed by wheat the next year.

According to interviews with individuals over the age of 60, tobacco farmers were permitted to purchase on credit. This was because tobacco farmers in mountain villages had a reliable source of cash income from several

shipments per year. Additionally, the fact that tobacco was subject to a monopoly system in modern times indicates that agricultural activities in mountain villages were closely tied to external markets and were also subject to state regulation.

Original landscape of Japan?

After the decline of tobacco leaf production, efforts were made to promote sericulture and livestock farming. However, no alternative cash crops were found to replace tobacco leaves. Furthermore, the post-war outflow of population to urban areas led to a sharp decline in the number of commercial farming households (cf. Hirai et al. 2007).

Currently, mountain villages are predominantly inhabited by the elderly. A one-week time-allocation record kept in 2015 by a single elderly resident living alone shows an average of 4.5 hours per day spent on agricultural work (Yoshida 2016). They say, "The fields are my life, so I want to stay here in this remote mountain village as long as I'm healthy," and "I want to keep farming as long as I'm healthy so that my children and grandchildren who come back can eat the vegetables I grow and tell me they're delicious." The current landscape of mountain villages is maintained not by commercial crop production but by agriculture as a source of meaning in life. The agricultural census is consistent with this reading, though it does not demonstrate it on its own. Between 2010 and 2020 the number of commercial farm households in the four municipalities fell by 42.1 per cent while subsistence farm households fell by 29.8%; both categories contracted sharply, but the commercial category contracted faster (Table 3). Agricultural output over the same period shows no break at designation, although the share accounted for by vegetables, the crop group the FAO assessment used as a proxy for the heritage system, has been broadly stable (Table 4). The census distinction between commercial and subsistence households is defined by cultivated area and sales value and does not map directly into the distinction between commercial production and agriculture as a source of meaning in life.

Table 3. Farm households in the Nishi-Awa area

	2010	2015	2020	2010→2020
Commercial farm households	3,005	2,333	1,740	−42.1%
Subsistence farm households	5,195	4,486	3,649	−29.8%
Total	8,200	6,819	5,389	−34.3%
Share commercial	36.6%	34.2%	32.3%	−4.3 pt

Table 4. Agricultural output of the Nishi-Awa area

¥10 million	2014	2015	2016	2017	2018	2019
Total output	948	1,032	1,047	990	969	924
Core crop (vegetables)	178	200	231	207	193	197
Share of core crop	18.8%	19.4%	22.1%	20.9%	19.9%	21.3%

GIAHS designation: March 2018. Millet output is close to zero in the agricultural statistics, so the FAO assessment used vegetables as the proxy core crop. Source for Tables 3 and 4: Mitsubishi UFJ Research and Consulting (2022), based on MAFF statistics.

Ironically, the landscape of mountain villages where intensive leaf tobacco production has declined and agriculture as a source of fulfillment is the only remaining practice has recently gained attention as a focal point for regional revitalization and inbound tourism in Japan. In his policy speech at the 187th extraordinary session of the Diet on September 29, 2014, then-Prime Minister Abe quoted Alex Kerr, a scholar of East Asian culture, and described the Iya region of Tokushima Prefecture as "a different world like the Land of Eternal Spring." The speech praised tourism and brand development that utilizes nature, culture, and history in rural areas where depopulation is progressing. The rugged cliffs, swift rivers, and landscapes featuring the Kazura Bridge spanning the gorges and mountain villages clinging to the slopes of the Ooboke and Koboke gorges have garnered attention as a "hidden paradise" and "the original landscape of Japan."

CARE FOR THE COLLAPSING LAND

Addressing collapsing soil

The slope fields in mountain villages are composed of poor soil made up of clay, silt, and gravel. Currently, these slope fields are used to cultivate crops. The topsoil layer (A layer) suitable for farming on slope fields is approximately 5–10 cm thick, with the next 20 cm consisting of a layer (B layer) of clay and fine gravel, and the

layer below that (C layer) composed of gravel of various sizes. To sustain agriculture in this area, it is essential to maintain and create the top-soil layer. This is achieved through three main practices: (1) applying thatch (straw) collected from grazing areas, (2) deep plowing, and (3) restoring eroded soil. The effectiveness of the first has been measured directly. In field trials on 15-degree slopes in Shikoku, plots receiving not much suffered severe soil loss, while loss declined as application rates rose; at 10 t/ha erosion was almost entirely suppressed (Yamamoto *et al*., 1995). Application rates in this area reach 19.3 t/ha per year at the maximum, equivalent to roughly 130 kg of nitrogen per hectare per year (Tokushima Prefectural Museum, 1994).

Various agricultural tools are also indispensable for sustainable farming on slopes. In February 2019, we recorded every farming implement held by 16 households across ten settlements in three districts of Tsurugi Town (Sadamitsu, eight households; Ichiu, six; Handa, two), measuring weight and handle length and interviewing owners about names, acquisition, use, and maintenance. We recorded 407 implements, of which 391 fell into 18 named categories made by local blacksmiths and 16 were mass-produced items without local names. Households held an average of 25.4 implements, ranging from 10 to 52. Of the eighteen named categories, only the sarae, the implement used for tsuchiage, was held by every one of the sixteen households; no other implement was universally held (Table 5). A parallel survey of 21 households in Higashi-Iya, Miyoshi City, carried out in October and November 2021 by staff and students at Ikeda High School, recorded 401 implements in 24 categories; because the surveyors differed, we use it only to illustrate the range of local naming and do not compare the two datasets statistically.

Table 5. Indigenous farming implements recorded in Tsurugi Town (16 households, February 2019)

Implement	Function	n	Households (of 16)	Weight (kg)	Handle length (cm)
Mitsukumade	weeding	73	15	0.85 ± 0.45	81.3 ± 31.4
Sasaba	weeding, sowing, ridging	55	14	0.44 ± 0.21	54.0 ± 18.4
Futatsuba	grass cutting	52	14	0.51 ± 0.39	56.8 ± 18.3
Sarae	restoring eroded soil	34	16	2.06 ± 0.52	139.1 ± 21.4
Sakibiro	digging	29	11	1.77 ± 0.39	95.7 ± 19.8
Furo	ridging	19	12	0.97 ± 0.18	129.7 ± 17.7
Unehiki	ridging	18	11	1.04 ± 0.35	108.1 ± 25.3
Shinkogua	deep tillage	17	10	1.55 ± 0.37	103.2 ± 12.9
Sakitongari	digging	16	6	1.69 ± 0.49	92.3 ± 12.8
Joren	ridging	16	9	1.09 ± 0.32	121.4 ± 33.3
Tsuruhashi	digging	15	8	2.15 ± 0.71	90.7 ± 22.4
Bicchu	tillage	12	8	1.42 ± 0.42	100.1 ± 20.3
Kusakezuri	weeding	11	8	0.61 ± 0.33	88.7 ± 44.6
Mutsugo	compost making	9	7	1.22 ± 0.20	125.1 ± 14.9
Azekezuri	levee maintenance	7	5	1.81 ± 0.49	115.0 ± 10.5
Fork	compost making	3	2	1.30 ± 0.10	109.3 ± 3.1
Yotsugo	compost making	3	3	2.12 ± 0.15	132.0 ± 23.3
Itsutsugo	compost making	2	1	1.00 ± 0.14	111.5 ± 53.0
Subtotal, blacksmith-made		391			
Mass-produced implements	—	16	8	—	—
Total		407			

Values are mean ± SD. Source: field survey by the author; see also Kitano and Naito (2020).

Local blacksmiths crafted these tools in each village, taking into account field slope and the owners' physical strength. The tips of tools used to deeply plow fields with high gravel content wore out quickly, requiring frequent sharpening. However, as the population declined, the number of local blacksmiths decreased sharply, and at one point, they disappeared completely. Since 2017, one blacksmith has resumed activities.

For example, the *sarae* is a large, rake-like tool with six teeth, with steel attached to the tip. It is used to scoop up displaced soil like a shovel and return it to the upper part of the field (Photo 1). This work is called *tsuchiage. Tsuchiage* begins at the top of the field, moving horizontally while repeatedly lifting the soil from below to the top. Manually lifting all the topsoil of a sloped field is extremely labor-intensive. In this way, people have sustained the use of sloped fields by introducing thatch from above and crushing rocks from below to create soil. Through *tsuchiage,* they aim to minimize soil erosion. The measurements we took show that this implement stock is not uniform. The most numerous implements, the mitsukumade, occurs in two morphologically distinct forms under a single local name: a short, light form used by older people and women for weeding gardens and fields, and a long, heavy form used by men of working age for managing and cutting thatch grass. The two differ significantly in weight (Welch's $t = 9.08$, $p < 0.001$), though local farmers do not distinguish them by name (Table 6). For the sarae, the angle between handle and blade, which farmers call fukuro, varies from 31 to 57 degrees and is inversely correlated with the weight of the implement ($r = -0.607$, $p = 0.0008$, $n = 27$), falling by approximately ten degrees for each additional kilogram (Table 7). Farmers explain that the blacksmith sets this angle to suit the field's gradient and the user's stature and strength; we did not measure gradient or stature, so the correlation shows the variation is systematic rather than incidental, not what produces it.



Photo 1: A scene of communal work for tsuchiage in Tsurugi Town during the 1960s.

Table 6. Two morphological forms of the mitsukumade

Form	n	Handle length (cm)	Weight (kg)
Short-handled	50	61.9 ± 11.9	0.61 ± 0.20
Long-handled	23	123.7 ± 13.7	1.37 ± 0.38

Welch's t-test on weight: $t = 9.08$, $df = 27.8$, $p < 0.001$.

Table 7. Handle-to-blade angle (fukuro) of the sarae and its relation to weight

	Value
n	27 (of 34 sarae recorded)
Mean ± SD	44.3 ± 5.9°
Median	43.0°
Range	31–57°
Correlation with weight	$r = -0.607$, $p = 0.0008$
Correlation with handle length	$r = 0.232$, $p = 0.245$ (n.s.)
Regression	angle = 66.1 − 9.9 × weight (kg), $R^2 = 0.37$

Angle was not recorded for 7 of the 34 sarae.

A way of life where landslides are given

The sense that the earth is constantly in motion is not limited to slope fields but is a given for people living in mountain villages. For example, the term *zareru* is a folk concept that describes the collapse of surface soil, regardless of scale. In the mountain village communities of Miyoshi City, when heavy rain is forecast due to a typhoon, villagers gather before the storm arrives and cut *nouzu*. This work involves digging trenches in the soil above the village to divert water into the valleys alongside the village, preventing floodwaters from entering the settlement.

Additionally, small stone walls are built at the edges of rock formations called *hanatare* to prevent collapsed stones from entering the side ditches. If gravel enters the side ditches, water will overflow onto the road surface during heavy rain, so these small stone walls are constructed to prevent this.

Furthermore, *jigrui* is a folk concept that describes the shifting, tilting, or collapsing of land, as well as the deterioration of house structures. Houses built on the slopes in this area are constructed on horizontal surfaces made of stone walls that can reach several meters in height. *Jigrui* progresses gradually, by several millimeters to several centimeters each year. The progression of *Jigurui* is expressed as "*Jigurui* is advancing." As *Jigurui* progresses and house structures deteriorate, repairs were once carried out by stacking the highly foliated crystalline schist commonly found in this area like bricks. Currently, houses are partially lifted using jacks and partially leveled. Additionally, to prevent further progression of *jigurui*, construction work is sometimes carried out to drain moisture from the soil by digging horizontal drainage wells from the slope. Such construction work is often commissioned by relatives or friends of construction companies involved in landslide-prevention projects, a unique public works initiative in this area. However, predicting where and to what extent *jigurui* will progress is difficult. As a result, people can only respond on a case-by-case basis, assuming that the ground will continue to shift. Of course, there are cases where *jigurui* progresses to the point where repairs are no longer possible.

In mountain villages, water hoses are not fixed to the roadside slopes but are temporarily secured with tree branches (Photo 2). However, this practice has no name, and the people who manage and use the hoses are not aware of its significance. In this area, villages bring water from springs located hundreds of meters to several kilometers away using plastic water hoses (Kitano, 2023). This is not a public water supply as defined by the Waterworks Act, but rather a "water hose" system maintained and managed autonomously by individuals or a few households. The material used for the water hoses, polyvinyl chloride, was introduced in the 1950s (Kitano 2023). Before then, water from springs on each household's premises was drawn to the vicinity of the house using bamboo pipes split in half. However, current water sources are often located several hundred meters to several kilometers from homes. This necessitated the use of durable PVC water hoses.



Photo 2: Water pipes along the road

The introduction of PVC water hoses is reportedly linked to landslide prevention projects implemented after the 1950s. As part of these projects, drainage wells like those used for landslide prevention were sometimes dug. While the impact of such public works on groundwater flow is unclear, residents report that groundwater flow has changed due to the construction. Currently, water from mountain streams or public wells is drawn into homes for firefighting and drinking purposes.

Today, to continue living in the mountains, it is essential to lay water pipes independently or collectively with neighboring households and maintain them. After heavy rains, leaves and soil can clog the water intake points, requiring cleaning. Additionally, mountain animals or soil movement may sever water hoses. Much of this maintenance is performed by men. As a result, some elderly women in households with only an elderly husband say, "If my husband dies, I will move down from the mountains." (Kitano, 2023).

Water hoses running along the slopes beside mountain paths need support to prevent them from falling into the ditches. However, since the ground is constantly shifting, as in the case of *jigurui*, the hoses are not fixed in place. Instead, branches from trees are placed across the ditches, and the water hoses are laid over them. Residents consider this a "makeshift" solution using "whatever materials are available." However, from the perspective of geoscientists, this is nothing more than an external human intervention on the moving earth. It is not so much traditional, stable folk knowledge related to geological environments, but rather a practical knowledge that has emerged through the interplay of various factors such as the relationship between mountain villages and the state (public works), the geological impacts of landslide prevention projects, the introduction of new materials for water hoses, and the aging of households (Kitano, 2023).

Overall, "living in the mountains" today means accepting the situation of "staying with trouble" (Haraway, 2016). Folk concepts and practices related to geology and topography, such as cutting roots, building stone walls, digging ditches, and temporarily securing water hoses, show that people do not try to stop the movement of the earth with large-scale retaining wall construction, but rather live with the moving earth through small-scale, repetitive actions. However, the people involved have neither the perspective of "interacting with the earth" nor any attachment to it. These practices are connected to transdisciplinary science, technology, and politics related to landslide countermeasures, but external, repetitive interventions in daily life have shaped the landscape of mountain village settlements.

LOCAL SYNERGIES TO CONSERVE AGRARIAN LANDSCAPE

The preceding sections identified four constraints on conservation at this site: depopulation and aging, low farm income on mountainous terrain, low public awareness of agricultural heritage relative to other heritage categories, and the absence of any dedicated public funding for GIAHS conservation. Below we assess each of the three programs against three questions: which of these constraints it addresses, what resource it actually supplies, and what its limits are. We do not claim that the three together resolve all four constraints; as the assessment shows, none of the three addresses one of them.

Slow food international

The Higashi-Iya Millet Production Cooperative was organized in 2016 by local farmers. It reclaimed abandoned farmland as semi-natural grassland and started small-scale but commercial millet production. This is a consequence of GIAHS conservation. To empower these kinds of practices, Nishi-Awa GIAHS conservation committee collaborated with other biodiversity-related initiatives.

The constraint Slow Food addresses is the second one, and in a particular form. As shown above, the millets that define this farming system register almost no output value in the agricultural statistics, which is why the FAO assessment substituted vegetables as the proxy core crop. A crop with no measurable market value cannot be supported by production subsidies calculated on output, and it cannot be defended by arguments about agricultural productivity. What can be given is a form of value that operates outside price statistics.

This is what the Ark of Taste supplies. It is a Slow Food register of foods produced in small quantities by traditional local producers, assessed against criteria of distinctiveness and risk of loss rather than volume or price. Students from Tokushima University, working with Slow Food Nippon, registered six Nishi-Awa millets in the Ark of Taste. Registration does not create a market by itself, but it establishes a documented basis on which small volumes can be sold at a premium and on which the Higashi-Iya Millet Production Cooperative, formed in 2016, can position its product.

Slow Food also addresses the first constraint, though only partially. The Young Farmer Reproduction Program, funded by the Mitsubishi Mirai Foundation, brings urban university students and local high-school students into contact through project-based learning with international bodies and local communities in Italy and Japan. In 2024, selected students attended Terra Madre in Turin, where they translated for and promoted the products of Nishi-Awa millet farmers; they then acted as mentors for high-school projects and visited the site together. In 2025, a further cohort took a short course at the University of Gastronomic Sciences and conducted a field study in Piedmont and Rome, including at FAO headquarters. The design intention is a pipeline from awareness to contact to succession, rather than awareness alone.

The limits should be stated plainly. Cohort sizes are small, the programs are funded by time-limited foundation grants, and no succession into farming has yet been recorded. What can be claimed at present is that Slow Food supplies a valuation mechanism for crops that output statistics cannot see, and a structured route through which people from outside can encounter the system; neither has yet changed the number of people farming.

Geopark

The Geopark program addresses the third constraint. The MAFF assessment discussed above found that agricultural heritage designation produced no statistically detectable increase in general tourist arrivals, while farm-stay guest numbers did increase significantly, and that Nishi-Awa is a site with high farm-stay use and low

general arrivals. Promotion aimed at raising arrival numbers is therefore working against the grain of what this site actually receives. The site receives visitors who stay, and staying visitors require interpretation rather than signage.

Part of Nishi-Awa was registered as a Japanese National Geopark in 2024. The UNESCO Global Geoparks program, whose guidelines the Japanese scheme follows and against which it is revalidated every four years, aims at the conservation of geological, ecological and cultural heritage together with sustainable local development, and encourages both resident participation and partnership with other programs.

What it supplies here is training. Key farmers are trained as local geo-guides, giving them a way to explain their own fields in geological terms: why the settlements sit where they do, why the soil behaves as it does, why the implements are shaped as they are. Some of these farmers work as guides in the tourism sector; they also carry out geosite maintenance and erosion control, which is the same work as GIAHS conservation under a different heading. The program additionally draws university geological research to the area, which creates a second and more durable channel of contact with young people from outside.

The limits are that the designation is recent, that guide numbers are small, and that no measured effect on visitors' behavior or on farm succession is yet available. The claim here is about fit rather than demonstrated outcome: a program that converts residents into interpreters of their own landscape matches a site whose visitors stay, whereas promotional expenditure aimed at arrival numbers does not.

OECMs

OECM stands for Other Effective area-based Conservation Measures: areas outside formally protected areas that nonetheless deliver long-term biodiversity conservation. In the G7 2030 Nature Compact agreed at the 2021 Cornwall Summit, G7 countries committed to conserving or protecting at least 30% of their land and sea by 2030, a commitment subsequently carried into the Kunming-Montreal Global Biodiversity Framework and Japan's National Biodiversity Strategy 2023-2030. Japan published a 30 by30 Roadmap in April 2022. At present 20.5% of national land and inland waters and 13.3% of coastal and marine areas are designated protected areas (Ministry of the Environment), so the gap to 30% is intended to be closed largely through OECMs.

The mechanism matters for this argument. From FY2023 the Ministry of the Environment began certifying privately managed areas where biodiversity is conserved as Nationally Certified Sustainably Managed Natural Sites; the scheme was placed on a statutory footing by the Act on Promotion of Activities for Enhancement of Regional Biodiversity, in force from April 2025, under which plans are certified by the Ministers of the Environment, of Agriculture, Forestry and Fisheries, and of Land, Infrastructure, Transport and Tourism. Certified maintenance areas are then registered as OECMs in the international database. By the first certification round of FY2026 the national total had reached 610 sites.

This addresses the fourth constraint, the one that neither Slow Food nor Geopark touches. Japanese GIAHS sites receive no dedicated national subsidy for conservation. Certification under this scheme gives privately managed land a nationally and internationally recognized status that corporate biodiversity disclosure can reference, and it is the only one of the three routes that can plausibly attach external capital to the maintenance of specific parcels of land. The semi-natural grasslands that supply thatch and the slope fields themselves fit the maintenance type directly: they are privately managed, their biodiversity value depends on continued management rather than non-intervention, and abandonment is the principal threat. Nishi-Awa has been preparing for certification, with candidate areas at Ochiai, Kiriu, Izumino and Fuchimyo.

The limit is important and we do not want to overstate the case. Certification confers status, not money. Whether status translates into investment in these grasslands has not been demonstrated anywhere, and the national scheme is too new for such evidence to exist. What can be said is that this is the only available instrument that attaches a financeable designation to the physical base on which the farming system depends, and that its unit of certification, a managed parcel, is the same unit at which the system is actually failing.

Set against the four constraints, the three programs divide as follows. Slow Food addresses low farm income by supplying a valuation mechanism for crops that output statistics do not register. Geopark addresses low public awareness, by converting residents into interpreters for the stay-based visitors this site receives rather than pursuing arrival numbers it does not. OECM addresses the absence of dedicated funding by attaching a financeable designation to managed parcels. Depopulation and ageing, the first constraint and the most severe, is not addressed directly by any of the three. The population of the four municipalities fell by 10.5% between 2020 and 2025, and

no program mentioned here operates at that rate. What the three can do is act on the conditions under which a smaller number of people might continue to work these slopes: whether their crops are worth growing, whether outsiders understand what they are looking at, and whether the grasslands and fields can attract investment. That is a more modest claim than the one we made in the original version of this paper, and we think it is the defensible one.

CONCLUSION

Care for the collapsing land

The Shikoku Mountains formed as the seabed uplifted due to plate movement and are composed of fragile geology that is still collapsing today. On a geological timescale, the mountain villages where people have lived are remnants of a large-scale landslide that occurred in the past. Springs are likely to emerge from such landslide sites. The formation of villages in the mountains was a human response to the geological time scale of these activities.

Since the introduction of tobacco from the Americas to Europe and then to Japan in the early modern period, this area has prospered as a tobacco leaf production area. This was due to the characteristics of the tobacco plant, which suited the conditions of this land with its gravelly soil and low nutrient content, as well as the preference for lightweight, highly mobile products in mountain villages where the infrastructure necessary for distribution was underdeveloped. The mountain village landscape of this area has been strongly influenced by the production and distribution of leaf tobacco as a cash crop from the early modern period to the 20th century. To understand the seemingly isolated, patchwork-like landscape, it is necessary to consider the historical connections to distant markets and nations.

Tobacco leaf production in this area has declined since the 1970s. The current agriculture is a form of life-making agriculture that emerged amid the failure to shift from tobacco leaves to other cash crops and the experience of depopulation. Researchers and politicians have sought to find "the original landscape of Japan" there. However, when we closely examine the everyday agricultural practices and lifestyles of people living in landscapes others represent as the original landscape of Japan, we can see how they interact with the ever-changing land. The people of this area do not necessarily view terrain or geology as "agents with personalities" or feel affection or attachment toward them. Yet, when we look closely at their daily practices, we see that they repeatedly work to counteract the erosion of the land.

Cultural anthropology has emphasized the importance of "taking seriously" the images and values that specific individuals, such as local people and stakeholders, have regarding landscape formation. On the other hand, questions remain as to how we should perceive "unspoken things," such as the history of leaf tobacco cultivation, which has been forgotten or avoided, and unconscious acts, such as the temporary fixing of water pipes. In this article, I attempt to present an approach to understanding the intertwining activities of humans and entities beyond humans that are involved in the physical creation of landscapes by "taking seriously" these secretive and repetitive activities that the parties involved do not recognize.

This article is an ethnography that traces the history of how various entities across time and space have shaped the physical landscape of a certain area. It deliberately refrains from discussing the values and images of the various people in the area and attempts to describe covert activities. By doing so, we can see beyond landscapes described as the "foundation of Japanese culture," "hidden lands," or "paradise" and observe the intertwining activities of various entities that transcend time and space. In other words, our "irreplaceable lives" may be shaped by the accumulation of invisible “care” provided by entities that transcend time and space. Care for the creation of landscapes as places where we live is open to encounters with such unnoticed entities.

Conserving agrarian landscape

This article also illustrated how Slow Food, Geopark, and OECM can be braided into a single place-based strategy: Slow Food activates youth and upgrades product value through the Ark of Taste; Geopark provides bottom-up training for geo-tourism and citizen science; OECM aims to gain corporate investment in privately managed semi-natural grasslands and slope farms toward 30×30. Together, these address four key challenges—aging/depopulation, low farm income, limited public interest, and reliance on public budgets.

GIAHS are living, evolving farming, pastoral, forestry, and fisheries systems in which communities have co-adapted with their environments, generating food/livelihood security, agrobiodiversity, traditional knowledge,

culture, and distinctive landscapes. Because of this hybrid nature, no single approach can fully conserve GIAHS landscapes; synergies with related initiatives are essential. Many programs aim to safeguard biocultural diversity and its landscapes—e.g., Slow Food, UNESCO Global Geoparks, and OECMs. We must strengthen these synergies to conserve agrarian landscapes for future generations.

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ACKNOWLEDGEMENTS

The author thanks the farmers and residents of Tsurugi Town and Miyoshi City who gave their time to this research, the staff and students of Ikeda High School who carried out the Higashi-Iya implement survey, and Azusa Tono and Maho Kitano, whose collaborative work this article draws on. This research was supported by the National Museum of Ethnology joint research project “An Ethnography of Money and Power: Towards an Ecology of Publicness”; by the joint research project “Comparative Research on the Ecological and Historical Characteristics of GIAHS Sites in East and Southeast Asia: State, Market Economy and Ecosystem” (2019–2020), Center for Southeast Asian Studies, Kyoto University; by the Toyota Foundation Domestic Grant Program 2020, “Building a Richer Local Society through Connections between Millets and Young People”; and by JSPS KAKENHI Grant Number JP20K20728.