
The Role of Villagers in Domain and State Forest Management

Japan's Path from Tokugawa Period to the Early Twentieth Century

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This chapter investigates to what extent and in which ways Japanese villagers took initiative in forest management from the Tokugawa period to the early twentieth century, focusing on the path-dependent process of the modernization of forest management.

Early efforts at forest management in Japan can be traced to the Tokugawa period,¹ when villagers and local notables began to share their knowledge of forest management techniques. This pattern of development stands in contrast to what we see in Germany, which has long been regarded as the leader in forest management.

Japanese forestry administration is often thought to have had similar characteristics to Germany's, in that both tend to have a top-down structure.² This view is seemingly understandable because Meiji Government was also eager to adopt the German style of state forestry.

In fact, in Germany, the intensification of agricultural and forest land use was usually initiated by the officials of lords and state authorities from the early modern period onward. They established guiding principles for intensified land management that annually contributed to the lords' and state's finance.³ Therefore, the forestry administration in Germany of the same period as Tokugawa Japan had the literally top-down characteristics. The strong linkage between forest management and power also facilitated the juridification of forest usages that enabled various users, irrespective of the rulers and the ruled, to struggle over forest rights by legal means. In juridical processes, the ruled were often able to ward off encroachments on their forest-use rights from the authorities that tried to regulate and restrict customary forest use for intensified land management.⁴

The local domains in Tokugawa Japan also introduced sustainable forestry methods such as rotation cutting, which had been practiced in Germany. To draft wood-cutting plans, the domains' officers drew forest maps and quantified tree volume.⁵ Thus, the Japanese domains were seemingly oriented toward top-down regulation of forest use. However, in Tokugawa Japan, it was villagers or local notables that accumulated and disseminated experience in on-site forest management, such as tree planting and nurture. A good example of this is the publication of the books on agro-forestry by villagers or local notables that also provided the know-how to practice silviculture as subsidiary work in off-season for farmers.⁶ The villagers deeply involved in silviculture planted trees not only in their own fields, but also in the lords' forest lands, free from prior approval or monitoring by the authorities. The villagers' forestation activities often competed with communal forest use, such as cutting brushwood or procuring grass as green manure. In such cases, the struggles between different forest usage also in the lords' forest lands took the form of the disputes between fellow villagers or several villages. Japanese scholars have long discussed how local disputes among the different forest uses often broke out among villagers in Japan and how disputes were settled out of court. Villagers frequently achieved the local consensus on what kinds of forest use they considered suitable, free from interference by domains' authorities.⁷ This is because the authorities did not aspire to grasp the full extent of daily use of their forest lands to manage them directly. Accordingly, the domains in Tokugawa Japan could turn forest regulations into a reality only if villagers participated in the governance of forest use. What mattered for villagers' forest use in Japan was "informal institutions, unwritten law, and collective patterns of behavior established by long-standing custom."⁸

Japan and Germany followed different paths in regard to who accumulated and passed on silvicultural experience and in what manner. This difference persisted into the first half of the twentieth century: the primary actors in Japanese forest management continued to be villagers and rural communities, while in German forestry, forestry officials were the leading actors. This chapter considers the consistent characteristics of villagers' role in forest management from the Tokugawa period to the early twentieth century.

VILLAGERS' ROLES IN DOMAIN FORESTRY IN TOKUGAWA JAPAN

Tokugawa Japan consumed an enormous volume of timber in building its castle towns, particularly during the first half of the seventeenth century. The construction of these towns required considerable timber, not only for the lords' residences but also to house the common people who served the lords and their retainers. Urbanization also created a demand for fuel wood for domestic heating. Additionally, domestic monetization and the growth of metal exports in Tokugawa

Japan required the development of metal ore mines and nearby forests for firewood. Accordingly, lords especially in northeast Japan during the Tokugawa period often laid claim to entire timber forests or valuable forest products on their domains, prohibiting the unauthorized logging of certain valuable trees or declaring certain timber and firewood forests off-limits to villagers.⁹

However, most Japanese lords did not aspire to direct forest management to the extent of actually conducting activities such as tree nurture and lumbering, which were instead managed by the neighboring village communities. In most cases in northeast Japan during the Tokugawa period, forestry was implemented as natural regeneration. Villagers were authorized to cut and collect firewood or grass in lords' reserved forests to procure fuel for cooking and heating, or to collect green manure. In return, they took charge of patrolling timber forests, and participated in timber-cutting operations at the lords' request. In relation to natural regenerative forestry, the lords' claiming of timbers, including conifers, together with daily forest use by villagers, such as cutting brushwood and grass, significantly contributed to timber growth in the lords' forests: brushwood and grass grow more robustly than young conifers, especially in northeast Japan, and the young conifers tend to fail, if not given some assistance in their early years. In other words, forest use by villagers encouraged the growth of young conifers by removing competing vegetation that would otherwise have crowded out the young conifers. Valuable timber forests, including Japanese cedar (*sugi*) forests in the Akita domain in northeast Japan, resulted from intensive salvage-cutting by villagers during Tokugawa period.¹⁰

Therefore, the protection of timber forests that the lords in Tokugawa Japan considered important succeeded only if local villagers actively participated in the lords' forestry administration. A typical case can be found in the coppice forests near the castle town of the Akita domain.¹¹ The coppice forests had supplied the lords' vassals of the castle town with fuel wood, and the nearby villagers' living, including charcoal making, also depended on raw materials provided by the forests. During the second half of Tokugawa period, the coppice forests supplied the castle town with more and more fuel wood. For example, from 1792 to 1835, the volume of charcoal that the branch family of the lord received increased from twenty *hyo* to eighty *hyo*.¹² The domain's official and the village leaders had reported that most coppices in the forests were cut down, and more and more conifer trees, such as the Japanese cedar, grew in the cutover area, partly due to the prohibitions of illegal cutting of conifers. Thick-grown conifers interfered with the growth of brushwood and grass; they hindered villagers' charcoal making, so the villagers or the minor forestry officials requested permission from the high domain officers to remove crooked or poorly developed conifer trees to create space for the regrowth of shrubbery, even if the logging of these trees was banned.¹³

The lords or their officers understood the symbiosis between their forest protection and villagers' forest use, and they always tried to keep open the space

where villagers could collect or cut grass and brushwood at their discretion.¹⁴ The lords did not interfere with self-governance of villagers' forest access, and they did not usually investigate the actual conditions of villagers' forest use unless illegal cutting of valuable conifers was reported. This toleration policy toward the use of the lords' forest was a major factor blocking German-style top-down forestry administration that compiled information on all the usage of their forest lands to regulate villagers' forest use for intensified and rationalized land management.¹⁵

In addition to natural regeneration, another means of forest management was artificial forestation. Again, it was the villagers rather than the lords who played the central role in this process. While the lords' functionaries did not play an active role in forestation, tree planting by villagers in their lords' forests was officially recognized and promoted throughout the eighteenth and nineteenth centuries. When the trees were fully grown, the proceeds of mature trees in the form of logs or cash were shared among the lords and the villagers. These sharing agreements related to forest management were adopted by some lords in northeast and southwest Japan.¹⁶

A typical case can be found in the Akita domain in northeast Japan. By the early eighteenth century, there were already a number of informal examples of the sharing of proceeds, in which the lords and the villagers shared the proceeds of mature trees in a ratio of 7:3. Thereafter, the lord in this case came to recognize that villagers were reluctant to plant and nurture trees without being given a greater incentive to engage in forestation, which led the lord to authorize the sharing of proceeds with the villagers in a ratio of 5:5 in 1712. This sharing ratio remained fixed for more than a century. However, villagers excessively used the domain's forest to procure basic necessities during the years of the famines in the last quarter of the eighteenth century. To restore the degraded forest lands to health, the domain's authorities decided to promote villagers' forestation activities by further enhancing villagers' incentive, so they increased the villagers' share from one-half to seven-tenths of the total in 1811.¹⁷ But, according to the analysis of the forestry official in the Akita domain, only two-tenths of trees planted by villagers there from 1819 to 1823 completed their growth.¹⁸

The poor achievements from the viewpoint of the domains' officers notwithstanding, villagers' planting activities in the lords' forests certainly worked to their advantage: they would like to secure access also to the lords' reserved forests to gather their forest outgrowth (lower branches, weeds, and the like) rather than to claim a share of the plantation's profits. In other words, artificial forestation by villagers, who were compensated for their work by receiving extensive forest access, seems to have been one of the bottom-up means to secure communal use area.¹⁹

In consequence, the retention of some valuable forests during the Tokugawa period resulted from the tense and symbiotic relationship between the lords and the villagers over forest use.

APPLICATION OF GERMAN FORESTRY METHODS IN
MEIJI JAPAN

Forestry administration in the Tokugawa period was oriented toward the sustainability of their forest resources. However, lords and their functionaries did not play a proactive role in on-site forest management, so the enforcement of forest regulation depended mainly on villagers' cooperation. In addition, when Meiji government took over political control of the lands and their subjects from the lords in 1869, the domains' forestry officers did not usually transfer to positions as government officials. Instead, the experiences in on-site forest management, such as drafting of rotation cutting plans, had accumulated in the village communities in the former Akita and other domains.²⁰ For these reasons, the new Japanese government was less inclined to engage in direct forest management. Furthermore, the government considered the forest lands taken from the lords as the areas proposed for the former samurais' returning to the farming, and as financial sources to fund the early industrialization policy. First, the new government decreed the ordinance of land reclamation in 1870, and the forest lands suitable for clearing were assessed at two hundred thousand ha by the authorities. After that, in 1872, the new government tried to auction off all the forest areas.²¹

However, the Japanese government began to reconsider earlier practices as it became familiar with central Europe's experiences in the reform of forestry administration. For example, Toshimichi Ōkubo, a member of a high-ranking mission, traveled to America and Europe to seek the renegotiation of existing commercial treaties in the first half of the 1870s. During his stay in Berlin, he heard a lecture on the superiority of German forestry by Hazama (Kan) Matsuno, who had studied in Germany with funding from the Japanese government. After hearing this lecture, Ōkubo became a leading advocate for the establishment of modern forestry administration, and he influenced the government's decision in 1873 to stop selling forest lands. In 1882, after the government decided to model its modern forestry administration after that of Germany, it founded a governmental forestry school (Tokyo Sanrin Gakkō) in Tokyo. The faculty's first head teacher was Matsuno, who had returned from Germany in 1875 and who would train budding foresters to be well versed in German methods.²²

In contrast to Japanese lords, Germany's lords and their functionaries seemed to have accumulated experience in on-site forest management. During the nineteenth century, they advanced significantly toward developing a direct forest management system. This process often corresponded with the modernization of the forestry administration. Essential steps in the process were the nationalization of the lords' forests and the redemption of forest-use rights exercised by villagers.²³

To redeem forest-use rights, forestry authorities in Germany engaged in tough bargaining with other claimants. After long negotiations, the state redeemed villagers' rights in return for parceling out forests or providing fixed-benefit pension

plans. Through this step, the roles of the government and villagers in forest management became fundamentally separated in Germany in the course of the nineteenth century.²⁴

DIVISION OF FOREST OWNERSHIP IN MODERN JAPAN

As graduates from forestry schools in Japan attempted to put the German style of forestry into practice, they were challenged by the necessity of establishing a direct forest management system from scratch. As a first step in that direction, the Japanese government, beginning in the 1870s, set about dividing forests between the government and villagers while training its forestry officers.

In Germany, the division of forests meant eliminating or limiting villager access to state forests by formally redeeming forest-use rights. However, the Japanese government avoided being drawn into potentially interminable negotiations over forest-use rights. Instead, it placed the burden of proof of forest ownership on villagers. To present evidence of forest ownership, they were obliged to prove that they had spent a certain amount of money and labor in managing the forest they asserted their claim to. Between the 1870s and the 1890s, the government nationalized forests for which villagers could not present proof of ownership. This procedure created state-owned and imperial forest lands covering about nine million ha, or nearly one-third of the total forest area of Japan. The procedure of dividing forests created two types of regions.

In the first type of region, such as the Kinki, Chūgoku, and Chūbu regions, villagers' historical control of forests was relatively entrenched. In the Kinki region, the villagers in the Tokugawa period engaged in timber-planting and lumbering to bring forest products to the neighboring metropolitan markets, such as that of Osaka.²⁵ In the Chūgoku region in the pre-Meiji period, villagers in the hills managed the thickets and pine woodlands to supply the fuel for salt making in the coastal areas of the Inland Sea.²⁶ Accordingly, they were able to establish their claims to and retain their ownership of the forests they had managed. Thus, the percentages of the forest lands owned by the government as of 1936 were almost negligible in the Kinki and Chūgoku regions.²⁷

In Yamanashi prefecture, in the Chūbu region, grasses and trees in communal forest lands were used for fattening horses and wooden handicrafts. Local communities in Yamanashi Prefecture also asserted their claims to the forest lands, but they failed to present proof of ownership. The former communal forest lands were nationalized and later transferred to the imperial estate. Village communities resolutely petitioned the Imperial Property Office for the return of the converted forest lands. Furthermore, they pressured the imperial authorities to accept the petitions through illegal felling of trees, setting fires, or unauthorized grazing on the imperial forest lands. After these struggles against the Imperial Property Office, the

imperial authorities decided to hand over the ownership of the former communal forest lands to the prefectural authorities in Yamanashi in 1911. The relevant bureau in Yamanashi came to manage the forest lands, taking note of the local communities' needs.²⁸ The subtotal percentage of government and imperial forest lands in the Chubu region as of 1936 was 22%, so this region belonged to the first type of region, where the subtotal percentage of government and imperial forest lands was relatively low.²⁹

In the second type of region, where the lords had reserved control over extensive forests or valuable trees within their domains during the Tokugawa period, power relations in forest management favored a quick takeover of forest ownership by the state. Furthermore, the orientation of villagers toward securing forest ownership for communal use was relatively weaker, because they expected to be granted tax-free use of the underbrush and thinnings from the government's forest lands. This type of province was concentrated in northeast Japan, where the subtotal percentage of government and imperial forest lands was 47%.

THE CONFLICTS OVER POLICY DIRECTION ON NEW STATE FORESTRY IN JAPAN

Following the introduction of German state forestry methods in Meiji Japan, there were many who questioned the suitability of the new methods in the Japanese context.³⁰

When Zentarou Kawase, a Japanese forestry student a generation younger than Matsuno, visited Germany in the late nineteenth century, that nation had already advanced to a final stage in its modernization of the administration of forestry. According to Kawase's observations, German state forests were managed in conformity with officially drafted management plans, the goal of which was to assure regular harvests, and thus incomes, in perpetuity. Plans drafted in the nineteenth century were generally based on the scientific concept of the "Normal Forest," which favored setting out each high forest of even-aged conifer trees, with long cutting periods. Furthermore, operations in state forests, from tree planting to lumbering, were conducted under vertical integration only by the government sector. As for labor management, forestry authorities directly employed regular workmen, thus providing them with opportunities for life and pension insurance.³¹

During Kawase's stay in Germany, opinion became widespread in Japan that the complete separation of the roles of government and villagers in forest management would deviate from Japanese tradition, in which both actors worked together to manage and share proceeds from forests owned in common. Kaneko Kentaro, a current undersecretary of the Ministry of Agriculture and Commerce in 1893, who had once helped Ito Hirobumi with making the draft Meiji Constitution modeled

on that of Germany, agreed with this opinion. According to this opinion, extensive forest access for villagers to procure essential goods, along with their responsibility for patrolling forests and undertaking operations such as timber planting or lumbering, contributed to sustainable forest management.³²

In an article he submitted to a magazine well known in Japanese forestry circles, Kawase refuted this opinion, emphasizing that only the governments, as champions of the concept of “Normal Forest,” could manage forests sustainably. Because German forestry theory, which he studied, deemed villager participation detrimental to the performance of state forestry, he also took little notice of the roles of villagers in forest management during the Tokugawa period.³³ After returning from Germany, he, who had once served as an expert at the Forestry Bureau of the Ministry of Agriculture and Commerce, became the first professor of forestry at the College of Agriculture, University of Tokyo, and trained many budding forestry officers.³⁴ But the modernization of forestry administration in Japan, which Kawase’s former students promoted, would follow a path-dependent process different from its development in Germany.

In 1896, the Japanese government presented the Forest Bill to the Imperial Diet session. The bill included sections on state forest policing and administrative supervision of private forest management. However, it aroused fierce opposition among members of the House of Representatives, most of whom raised the question of whether the earlier division of forest ownership between the government and the villagers had been a suitable method of creating an area of state forestry in modernizing Japan.

Yaroku Nakamura, who had been a forestry teacher at Tokyo Sanrin Gakkō in the 1880s and was later elected to the House of Representatives, insisted that the method the government had adopted to divide forest ownership was inappropriate. According to Nakamura, the government had not conducted a German-style redemption of forest-use rights and hence failed to create state forests from which villagers’ access was eliminated. The German-style redemption of villagers’ rights may have taken the form of parceling out extensive bushlands suitable for producing fuel wood and low-grade timber to villagers. This redemption process would also enable the division of roles between state and private forestry, allowing the government to concentrate its funds and personnel in the management of the protected forest areas beyond the capacity of other business entities. His opinion was a result of a realization that the government had insufficient funds and personnel to manage the forests it had previously taken over. In other words, he questioned what the purpose of state forestry would be and how much forest land the government needed to achieve its goals.

In addition to discussions of Nakamura’s expert viewpoint, others spoke out about local residents’ complaints regarding the results of the division of forest ownership between the 1870s and the 1890s. Yukimoto Kudō, a member of the House of Representatives from the Aomori prefecture in northeast Japan,

argued that valuable state forests in the Aomori prefecture had been created by the tree planting and nurturing activities by villagers during the Tokugawa period. According to Kudō, villagers in the Aomori domain not only were granted extensive access to the lords' forests to procure basic necessities, but also shared profits from forest products with the lord as a reward for their forestation labor. Accordingly, he lamented the fact that the villagers in the Aomori prefecture who ought to have retained the ownership of forests they used had been unable to present positive proof of forest ownership in the earlier procedure of the division of forests. He complained that they had been extremely restricted in their traditional use of state forests after the division of forests, arguing that the government should revise the division of forest ownership so that more villager ownership of forest could be recognized.

Despite these discussions, the government at that time was not deeply involved in discussions regarding the appropriateness of the previously conducted division of forest ownership. All that the government did was to present a bill separate from the Forest Bill. This bill allowed those unsatisfied with the earlier division of forest ownership to petition the forestry administration for the return of forests under dispute on a case-by-case basis. Despite the strong opposition to the bill among some representatives, it passed in 1899.

Following criticism by those representatives versed in forestry, such as Nakamura, the government also presented a National Forest Bill to the Diet in 1899. However, the bill included only the procedures for the administration of national forest lands and clarified neither the division of roles between state and private forestry nor the purpose of state forestry. Interestingly, it included clauses recognizing the roles of villagers in state forest management, which aroused fierce opposition among some members of the House of Peers, including Takei Morimasa, an ex-bureaucrat who had once served as chief at the Forestry Bureau of the Ministry of Agriculture and Commerce. He supported the idea that forest management should be the special domain of the state and its forestry officers and that state forestry should make a sustainable amount of profit, contributing annually to its general account. Accordingly, he opposed the arguments in the House of Representatives that state forestry should limit itself to unprofitable activities such as management of protected forest areas. However, among the other members of the House of Peers, who rather appreciated the achievement of villagers' forest management, there were discussions supporting the clauses that recognized the roles of villagers in state forest management. In deliberations over the bill in sessions of the House of Peers, it was made clear that the government and most members of the House of Peers did not regard villagers' continuing access to state forests and their engagement with state forestry as problematic. Although the discussions on the purpose of state forestry remained unresolved, the National Forest Bill also passed in the 1899 Diet.

MODERN STATE FOREST MANAGEMENT IN JAPAN

Overview of State Forestry in Modern Japan

On June 30, 1900, the Japanese government officially closed petitions for the return of forests in accordance with the law of 1899. Petitions for the return of forests encompassed a total area of about two million ha. However, only an area of about three hundred thousand ha was authorized for return to the petitioners. The geographical distribution of state forest lands created by the division of forests between the 1870s and the 1890s was rarely changed through the procedures put into place by the law of 1899.³⁵

State forest lands in Japan consisted mainly of broadleaved trees. According to statistics from 1915 that described the composition of Japan's forest lands for the first time, total forest lands consisted of unforested fields of 3,638,887 ha, bamboo thickets of 121,895 ha, coniferous forests of 3,989,628 ha, broadleaved forests of 6,933,581 ha, and mixed forests of conifers and broadleaves of 7,645,770 ha. In comparison, the state-owned proportion of the total consisted of unforested fields of 491,761 ha, bamboo thickets of 344 ha, coniferous forests of 820,864 ha, broadleaved forests of 3,361,204 ha, and mixed forests of conifers and broadleaves of 3,147,237 ha. In view of these statistics, the composition of state forest lands of about eight million ha was rather broadleaved and natural, and broadleaved forests in state forest lands were located more in remote mountain zones than on level ground.³⁶

How did the forestry authorities in Japan try to change the existing composition of state forest lands? They began to draft a management plan for state forest lands in 1899 and finished drawing up the plan for the total area of about four million ha, except the nonmanaged woodlands, until 1921. According to the authorized management plan for an area of 4.13 million ha until 1924, 61% of the total area was left to the management of high forest, including conifers.³⁷

Forestation activities in state forest lands consisted of the afforestation of treeless wastelands in mountains near human settlements, and changeover forestation in remote mountain zones, from natural forest areas to artificial plantations. Between 1899 and 1921, these operations advanced in parallel. The proportion of annual forestation area to that of the total state forest lands hovered around 0.9%. However, after 1922 forestation activity was limited to the changeover forestation from natural forest areas to artificial plantations. Hereafter, the pace of forestation slowed. The proportions of annual forestation areas from 1922 to 1935 ranged between 0.38% and 0.24%. This slow pace of replanting was partly due to the lack of good markets for the broadleaved trees from the mountainous state forest lands; as a result, proceeds from sales did not cover the government's expenses in cutting, processing, and transporting. The reduced market for broadleaved trees at that time hampered their cutting and the replanting of the cutover area with conifers.³⁸

This lack of adequate marketability of state forest products, including broad-leaved trees, led to a low level of government logging of trees in terms of the proportions of the volume of governmental logging to total cut volume in state forest lands. Governmental logging began only after the beginning of the twentieth century, and the government focused on logging timber forests.³⁹ Indeed, the percentage of timber volume cut by governmental logging increased steadily from 16% in 1905 to 61% in 1935. However, the percentage of fuel-wood volume by governmental logging increased modestly from 1% in 1907 to 15% in 1935.⁴⁰ This low level of governmental logging is explained partially by the low cost-bearing capacity of broadleaved trees that had no use other than as fuel.

Another important feature of Japanese state forest management, in comparison with Germany's, is embodied in the structure of the organs of actual forest management. Regional and district forest offices in Japan were responsible for a much more extensive area of jurisdiction than their German counterparts. In Japan, during the interval between the two world wars, the average regional forest office in the home islands was in charge of a forest area of about seven hundred thousand ha, and the average district forest office was in charge of a maximum forest area of twenty-five thousand ha. In comparison, in Germany, a regional forest office was, on average, responsible for an area of about one hundred thousand ha and a district office was in charge of four thousand ha. This contrast also seems to explain Japan's low level of modern state forestry compared to Germany.⁴¹

As discussed in detail later, the slow pace of the governmental logging and forestation in Japan's state forest lands resulted mainly from villagers' continuous participation in forest management.

Villagers' Forest Use in State Forests

High rates of state ownership of forest lands in northeast Japan resulted from the relative weakness of the ownership claims presented by villagers or communities. Despite this weakness, villagers did not give up traditional forest use in state forests, and the government also took over the former lords' policy of tolerating villagers' self-governance of communal forest use.⁴² Thus, high rates of state forest lands, particularly in northeast Japan, coexisted with villager retention of extensive access to state forests.

Table 10 shows the areas of state forest lands in which traditional forest uses were officially recognized during the early twentieth century. The dedicated categories of traditional uses consisted mainly of forests with sharing of proceeds, grass-collecting areas, pasturing areas, and fuel-wood supply forests.

First, the institution of forests with sharing of proceeds dates back to the Tokugawa period. The modern Japanese government inherited the institution of the sharing of proceeds to promote artificial forestation by villagers in state forests. During the Tokugawa period, villagers in the domains of northeast Japan engaged

TABLE 10. Areas of State Forest in Traditional Use in 1935

| Region | Total of State Forest Lands (ha) | Nontraditional Use Area (ha) | Traditional Use Areas | | | | |
|-----------------|----------------------------------|------------------------------|-------------------------------|----------------------|-----------------------------|-------------------------------|---------|
| | | | Proceeds-Sharing Forests (ha) | Pasturing Areas (ha) | Grass-Collecting Areas (ha) | Fuel-Wood Supply Forests (ha) | |
| Northeast Japan | Tohoku | 2,224,182 | 1,136,598 | 7,177 | 100,046 | 68,944 | 911,417 |
| | | 100.00% | 51.1% | 0.3% | 4.5% | 3.1% | 41.0% |
| | Kantō | 408,730 | 324,188 | 6,730 | 6,802 | 17,562 | 53,448 |
| | | 100.00% | 79.3% | 1.6% | 1.7% | 4.3% | 13.1% |
| Central Japan | Chubu | 663,132 | 576,151 | 2,457 | 878 | 22,056 | 61,590 |
| | | 100.00% | 86.9% | 0.4% | 0.1% | 3.3% | 9.3% |
| | Kinki | 58,849 | 53,011 | 46 | 0 | 5,127 | 665 |
| | | 100.00% | 90.1% | 0.1% | 0.0% | 8.7% | 1.1% |
| Southwest Japan | Chūgoku | 112,575 | 98,196 | 12 | 6,577 | 6,137 | 1,653 |
| | | 100.00% | 87.2% | 0.0% | 5.8% | 5.5% | 1.5% |
| | Shikoku | 176,727 | 157,166 | 1,449 | 116 | 14,645 | 3,351 |
| | | 100.00% | 88.9% | 0.8% | 0.1% | 8.3% | 1.9% |
| Kyūshū | | 537,130 | 454,211 | 24,465 | 4,522 | 17,045 | 36,887 |
| | | 100.00% | 84.5% | 4.6% | 0.8% | 3.2% | 6.9% |

SOURCE: Nourin-shō Sanrin Kyoku 1937b.

NOTE: This table is drawn up on the assumption that 1 cho equals 1 ha.

in a certain amount of forestation activities under agreements for the sharing of proceeds with lords. The villagers practiced selective-cutting operations in forests under such agreements, so the composition of such forests was rather uneven in age. However, the government recognized only forests of even-aged conifer trees created by clear-cutting operations as subject to legitimate agreements for sharing of proceeds, so it disregarded most of the villagers' tree planting achievements.⁴³ Therefore, villagers were less and less inclined to continue planting trees under agreements for the sharing of proceeds from the time of the Meiji Restoration.⁴⁴

In modern Japan, a relatively successful case of the institution of the sharing of proceeds is found in Miyazaki prefecture in the Kyūshū Region, which had a relatively large area of state forest lands under a proceeds-sharing agreement between villagers and district forest offices (see table 10). For example, the Obi district forest office in Miyazaki Prefecture had jurisdiction over a state forest area of approximately 22,350 ha as of 1921, which amounted to 66% of the total forest lands in the district. In Obi district, there was an established custom whereby villagers gained access to the lord's forest and planted trees on the basis that the villagers received two-thirds or four-fifths of the total proceeds. Accordingly, they complained about the state's takeover of extensive forests at the time of the division of the forest. To mitigate their complaints, the Obi district forest office drafted a local management plan as of 1922 that designated 49% of the total state forest area as subject to agreements for the sharing of proceeds with villagers. Villagers planted *sugi* (Japanese cedar) sets in state forests under the agreements and set out forests suitable for the logging of ship-building timbers. The total area of forested lands in Obi district between 1923 and 1942 was 4,363 ha, a little less than three-fourths of which was areas forested by villagers. Judging from this case, the allowance of villagers' relevant access to state forests enabled them to participate in high forest management, which the German state forestry model considered to be the sole responsibility of forestry officers.⁴⁵

Second, the designation of pasturing and grass-collecting forests meant that state forest lands were left only to pasture and grass collection, particularly for animal husbandry. The lords in the Tokugawa period tacitly permitted their villagers to use their forest lands for animal breeding and husbandry. The villagers managed the pasturing and grass-collecting area communally, so they practiced also the controlled burning of a field for protection against the growth of thorny plants, as part of their work for sustainable use of fields as grassland.⁴⁶ But the afforestation activities of the treeless areas in state forest lands from 1899 tended to shrink the former pasturing and grass-collecting area unless there were protest movements by the local stock farmers. According to table 10, the Tōhoku region, a famous breeding center for horses and other animals, had a relatively large area of state forest land left to pasture and grass collection. This designation of pasturing and grass-collecting area was a result partly of a request by the Army Ministry of Japan, which had placed a premium on the production of warhorses

after the Russo-Japanese War.⁴⁷ This is also because the regional authorities of state forestry faced difficulties from the intentional and unauthorized burning of state forest lands by villagers and they accepted the villagers' petitions for protection of customary use for horse breeding and husbandry. Thus, in the Aomori regional forest office's jurisdiction, the villagers participating in horse breeding and husbandry could maintain a designated area almost as large as the customary use area.⁴⁸

Finally, the largest category of traditional use was for supplying fuel wood for villagers' domestic heating and cooking or producing charcoal for sale. In a state forest designated for the supply of fuel wood, the forestry authorities did not sell self-logged wood, but specified the places where villagers themselves could fell standing trees. Villagers bought the standing trees in the specified places. This sales method enabled villagers to receive relevant forest access to cut some firewood and make charcoal as commodities. The merit of this method for forestry authorities lay in the fact that the villagers cut down aged broadleaved trees at their own cost. But the forestry authorities were also obliged to keep open a certain area of broadleaved forests where villagers could get access to fuel wood.⁴⁹

In northeast Japan, the composition of state forest lands was more broadleaved. For example, in 1915, state forest lands there consisted of unforested fields of 136,365 ha, bamboo thickets of eight ha, coniferous forests of 214,010 ha, broadleaved forests of 1,291,751 ha, and mixed forests of conifers and broadleaves of 639,172 ha. Full-scale use of these extensive broadleaved forests began after the construction of a national network of railways in the 1890s that could transport the charcoal from rural areas to metropolitan markets like Tokyo.⁵⁰ As table 10 shows, fuel-wood supply forests amounted to 41% of the state forest lands of 2,224,182 ha in northeast Japan. In the jurisdictions of the Aomori and Akita regional forest offices in the Tōhoku Region, the supply of fuel wood to a large extent took the form of sales of standing trees. For example, as of 1920, the percentage of sales of standing trees that were for fuel wood was 96.2% in the area under the Aomori regional forest office and 90.3% in Akita.⁵¹ Furthermore, under the Aomori regional forest office's jurisdiction, most fuel wood was sold under private contract at a special price lower than the competitive contract price. This private contract price applied to sales of fuel wood both for domestic use and for villagers' production activities such as charcoal making. If the German experience is used as a model of state forestry, selling forest products at an uncompetitive price might not be seen as an ordinary practice. This is because German state forestry tried to transfer its proceeds to the general state account and reduce tax burdens by selling forest products at an increased profit.⁵² However, in Japan, the allotment of fuel-wood supply forests and this sales method guaranteed villagers' rights to participate in and profit from production activities in state forests, particularly during the charcoal booms after the First World War.⁵³

Villagers' Organization of Labor in State Forests

Japanese forestry authorities used the allotment of forests for traditional use as a lever to organize two types of villagers' units to engage in forestation-related operations such as nurturing trees or patrolling state forest lands. The first type of organization was the labor units, taking on regular patrols of state forest lands while being compensated for their work by receiving forest access to gather forest outgrowth, such as lower branches, weeds, mushrooms, and edible wild plants. The second type of organization was that of units engaged in tree planting and nurturing operations while being granted free cutting of fuel wood for domestic use.

A typical case in the first type of organization can be found in the Aomori regional forest office.⁵⁴ The Aomori regional forest office began to use the grant of free use of forest outgrowth as a lever to prompt villagers to patrol state forest lands as early as 1910. In the Aomori regional forest office's jurisdiction, which as of 1937 included 313 municipalities containing state forest lands, there were 522 labor units to which the forest offices subcontracted the operations in 1933. These data suggest that one or more units were organized in each municipality. These labor units, as a whole, took charge of most of a state forest area under the jurisdiction of the Aomori regional forest office.⁵⁵

A good example of the second type of organization can be found in the Akita regional forest office. In the Akita office's jurisdiction, from the early 1920s, the weight of forestation activities had begun to shift away from the afforestation of wasteland in mountain zones near human settlement to changeover forestation in remote mountain zones, from natural forest areas to artificial plantations. This shift in forestation activities would only work if the forestry authorities could secure more industrious laborers for forestation operations at much lower wages. Accordingly, the authorities organized villagers' units, which would take collective responsibility for working on state forest operations. In the jurisdiction of the Akita regional forest office, which as of 1937 included 224 municipalities containing state forest lands, there were ninety-nine municipalities where villagers' units were placed, or about one villagers' unit for every other municipality.⁵⁶

One illustrative example of the forestation labor units can be found in the state forest within the Noshiro district, under the jurisdiction of the Akita regional forest office (*Nibuna Kokuyū-rin*). This state forest covered approximately thirty-six hundred ha. In 1918, tree planting was conducted on approximately 133 ha, with tree nurturing being conducted on 341 ha and logging being conducted on 78 ha. Subcontracting units employed 243 workmen, who were local inhabitants either serving as full-time forestry laborers or working in state forests as a side job. There were 662 households in the communities, so the ratio of state forest workmen to local households was approximately 1:3. In return for engaging in these operations, full-time forestry laborers were supplied with timber at a specially reduced price; temporary workmen received fuel wood in the same way.⁵⁷

At the beginning of Meiji period, the Japanese government decided to model its state forestry after that of Germany. In fact, the existing tradition of forestry administration in Japan was already similar to that of Germany. As with the German method by lords' authorities, Japanese domain lords during the Tokugawa period often laid claim to timber forests or valuable trees on their domains, intending to use them for their own use and for their timber dealing business in the metropolitan markets, such as those of Edo and Osaka.

However, generally, the domain lords and their forestry officials in Tokugawa Japan were not directly involved in domain forest management, leaving substantial activities such as timber nurture and lumbering to local villagers' initiatives. Villagers' active roles in domain forestry often led them to check the excessive expansion of conifers in the lords' forests, and they tried to secure the coppiced area subject to their communal use. The villagers' forest access was regulated by customary laws that had been updated through many intravillage or intervillage disputes, and their informal settlement, free from lords' interference. The lords' toleration of villagers' self-governance of informal communal forest use, however, not only eliminated the chance of villagers' legally protecting their forest usage, but also decreased the opportunities for forestry officials to regulate villagers' usage for rationalized land management. Thus, the state forestry that took over the domain lords' forests followed a historically path-dependent process different from that of Germany.

First, the Japanese government left the neighboring villagers' access to state forests intact. After taking over domain lords' forests, the government incorporated those forests for which villagers could not present proof of ownership into the state forests. During the 1899 Diet's deliberation on the National Forest Bill and other matters, some representatives who were experts in forestry insisted that the government had failed to create state forests from which villagers' access was eliminated because it had neglected the redemption of forest-use rights as accomplished in Germany. However, the government that had ended up taking over the lords' toleration policy toward communal forest use strongly denied the necessity of redeeming villagers' forest access. Thus, the government did not regard villagers' continuous access to state forests as problematic.

Second, the government, which had learned to apprehend the established symbiosis between forest management and villagers' forest use, recognized the neighboring villagers' involvement in state forest management. As the case of the regional forest office in northeast Japan shows, the fuel-wood sales method in state forests was generally stumpage sale, which allowed villagers to cut standing trees in state forest areas themselves. It enabled villagers not only to meet their basic daily needs but also to participate in and profit from production activities such as charcoal making. The merit of this method for forestry authorities lay in the fact that the villagers cut down aged broadleaved trees at their own cost. However, this method obliged the authorities to leave a certain proportion of the cutover area

open for the regrowth of broadleaved forests where villagers could get access to fuel wood again. This is a basic reason why broadleaved and natural woodlands remained dominant in the Japanese modern state forest lands. In addition, as the records of a proceeds-sharing arrangement in southwest Japan show, allowing villagers to plant and nurture saplings in state forests could contribute directly toward the creation of high forest management, which the German state forestry model considered to be the sole responsibility of forestry officials. Japan's modern forestry authorities used the allotment of forests for these traditional uses as a lever to secure villagers' labor units that were engaged in forestation-related operations such as nurturing trees or patrolling state forest lands. The villagers' labor organizations enabled the authorities to manage a much more extensive area of jurisdiction.

In sum, the development of modern forestry in Japanese state forests should be considered as a history of the ongoing interaction of villagers' forest use with the tradition of forestry administration that tried to use the granting of forest access as a lever to keep order in forest management.

NOTES

1. Totman 1998, Diamond 2006, 294–295.
2. Caradonna 2014, 32–46.
3. Bennett 2015, 25.
4. Radkau 2008, 187, Radkau 2012, 324–325.
5. The illustrative case of rotation cutting can be found in the Akita domain starting in the mid-eighteenth century. For more details, see Iwasaki 1939, 112–121, 257, Tsutsui 1987, 48–51.
6. Bennett 2015, 28.
7. Tsuji 1978, Tsutsui 1973, 407–444, Nishikawa 1978, Watanabe 2017.
8. Radkau 2008, 185.
9. Nishikawa 1978, 3–4.
10. Totman 1985, 36–37.
11. Tsukii 1905, 72–91.
12. Tsukii 1905, 83.
13. Iwasaki 1939, 329–334, 370–371. For a similar case of Japanese cypress, see Endō 1938, 132–133. The officers in the Akita domain observed a negative correlation between thick-grown timber forests and shrub vegetation also in the case of management of copper mine and nearby forests for fuelwood. See Haga 2011.
14. In the closing days of the Tokugawa period, an officer of the Sendai domain (the Akita's nearby domain) still put importance on the various uses of coppices, so he insisted that the excessive expansion of timber forests should be checked also in the lord's forests. For details, see Endō 1938, 123–124.
15. Bennett 2015, 24–29.
16. Saito 2009, 2014, Shioya 1959.
17. Hattori 1967, 120–165, Totman 1985, 50–53.
18. See Akita-ken 1973, 201.
19. Sugimoto 1976, 134, Nishikawa 1978, 407–411.
20. Haga and Kato 2012, 23.
21. Arimoto 1968, 301–310.

22. Tezuka 1987, 7–18, 32–39.
23. Iida 2013.
24. Kawase 1912.
25. Kasai 1978, 173–180, Fujita 1995.
26. Chiba 1956, 146–175, Arimoto 1968, 345–368.
27. Rinya-chō 1971.
28. Ringyō Hattatsushi Chōsakai 1960, 118–125, Totman 2007, 43–56.
29. Rinya-Chō 1971.
30. For the source of the description of the sessions of the Imperial Diet in this section, see Aoki 2014.
31. Kawase 1893, 51–52.
32. Kaneko 1893a/1893b.
33. Kawase 1893, 51.
34. Tezuka 1987, 121.
35. Akiyama 1960, 77.
36. Akiyama 1960, 198–208, Rinya-Chō 1971.
37. Akiyama 1960, 108.
38. Akiyama 1960, 237–238.
39. Hattori 1967, 5–10.
40. Rinya-Chō 1969, 9.
41. Akiyama 1960, 229–231.
42. Nishio 1988, 89–111.
43. Aomori Dairinku-sho 1919, 46.
44. Shioya 1959, 444–464.
45. Shioya and Washio 1965, 84–89.
46. Aomori Eirinkyoku 1927, 17, 407–411.
47. Dainihon Sanrinkai 1983, 94–99.
48. Aomori Eirinkyoku 1927, 24–26, 223–225.
49. Nourin-shō Sanrinkyoku 1937a, 82–32.
50. Okuchi 1974, 463.
51. Noushōmu-shō Sanrinkyoku 1922.
52. Heske 1938, 84.
53. Dainihon Sanrinkai 1983, 357–376.
54. Aomori Dairinku-sho 1919, 65–69.
55. Aomori Eirinkyoku 1937, 124–125.
56. Nourin-shō Sanrinkyoku 1937b, Kikuma 1976, Dainihon Sanrinkai 1983, 88.
57. Noushōmu-shō Sanrinkyoku 1921, 217–221, 230–231.

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