

# Visualization and Analysis of Small Place Names in Japan Using Data from Official Surveys and Cadastral Maps from the Meiji Era

## ——A Case Study of *Koaza* Names in Ritto City, Shiga Prefecture, Japan

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### 要旨

本稿は、小地名が「政治的な」分析の対象となりうるかを検討したものである。そのために、いずれも明治期の史料である、滋賀県立公文書館所蔵の公的調査結果と、栗東歴史民俗博物館所蔵の地籍図を用いて小字データベースと GIS データを作成して分析を行った。その結果、命名に関する地域特性が先行研究との比較から明らかになった。また、一大字一集落の原則や、命名規則における集落部と非集落部の差異が明らかになった。以上から、適切なデータの整備を行えば小地名もまた「政治的な」分析の対象となりうると結論付けた。

### abstract

This paper examines whether small place names can be the subject of “political” analyses. For this purpose, a small land title database and geographic information system data were created and analyzed using the results of official surveys and cadastral maps from the Meiji era. Consequently, regional characteristics related to naming were clarified through a comparison with preceding studies. In addition, the principle of “one hamlet per village” and the differences between hamlet and non-hamlet areas in the naming conventions were clarified. The findings of this paper suggest that small place names can also be the subject of “political” analyses if appropriate data are prepared.

## 1. Introduction

The place names of small areas in Japan have been studied extensively. Kunio Yanagita (柳田国男), considered the founder of Japanese folklore, wrote several essays on small place names in the first half of the twentieth century, including his “Study of Place Names” (『地名の研究』).

The small place names covered by Yanagita are divided into multiple layers. Two representative ones are *Aza* (字), or *Oaza* (大字, literally, a large *Aza*), and *Koaza* (小字, literally, a small *Aza*), which comprises *Oazas*. Although the formation of *Oazas* and *Koazas*

during the Meiji era (1868–1912), the old villages that existed before that time became part of the new villages and were called *Oazas*. The part that constituted the old village was then called a *Koaza*. Therefore, *Oazas* are referred to as natural villages, whereas villages established in the Meiji era are sometimes referred to as administrative villages<sup>1)</sup>.

Although it cannot be said that *Oazas* were modern self-governing entities, they were regarded as a tax-paying unit by the local government and thus had a direct connection to the political realm.

For areas that correspond to *Oazas*, it is impossible to avoid Eitaro Suzuki (鈴木栄太郎)'s research. Suzuki, who played an important role in the establishment of rural and urban sociology in Japan, is one of the leading scholars who regarded *Oazas* as natural villages. He highlighted that the cumulative relationships among people in a region can be divided into three layers. The smallest layer, the First Social Area, is an accumulation of multiple relationships, some of which overlap. However, the First Social Area overlaps within the scope of a specific region, not beyond it. He referred to this particular area as the Second Social Area. He also referred to the larger (but still able to have a border) unit that encompasses the Second Social Area as the Third Social Area. Of these, as shown in Fig. 1, the First Social Area is discussed as approximately corresponding to a *Koaza*; however, the First Social Areas overlap, while *Koazas* divide *Oazas* without overlapping, the Second Social Area corresponds to a hamlet or *Oaza*, and the Third Social Area to an administrative village. (鈴木 1940=1968: 99–101) His perspective of seeing the community through the accumulation of relationships is influenced by Pitirim A. Sorokin (1930). According to Yoshino (吉野 2001), Suzuki contrasted Sorokin's concept of "cumulative community" with that of "functional association" to promote an understanding of rural communities. However, Suzuki criticized Sorokin for lacking an analysis of the uniformity in the cumulative body, although Sorokin's cumulative community "clearly refers to something like a Japanese natural village." (鈴木 1940=1968: 108–117)

As mentioned above, Suzuki's attention was also focused on *Oazas*. However, the present paper deliberately focuses on what he calls the First Social Area. Several lines can be drawn in this layer as well. For example, there are multiple overlapping purpose-built associations called *Koh*, some of which have a strong community character, as distinguished from associations by MacIver (1917) (笠井 2022). In this respect, their relation to the political realm can also be observed. However,

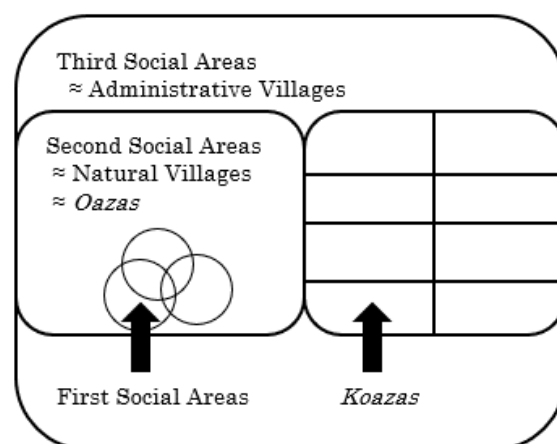


Fig. 1. Schematic diagram of the relationship between the three-layer Social Areas and *Oazas/Koazas*.

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as this paper is a place name study, it focuses not on *Koh*, but on *Koaza* groups, which are divided and named without gaps within *Oazas*.

According to Rose-Redwood et al. (2010: 455–466), “‘political’ has become one of the central concerns of critical approaches to place name studies”, and “we must broaden our analysis by considering how the ‘political’ is related to other relatively unexplored questions in place name studies.” They also mention methodology, adding that “the traditional reliance on maps and gazetteers to study place names is inadequate and should be supplemented with some combination of archival research, participant interviews, interviews, and ethnographic methods.” (2010: 466)

The fact that they themselves are oriented toward “critical place name studies” suggests that there is a certain bias in the image of the word “political” in place name studies. Often, ideological conflicts are assumed at the national level, as in the case of unilateral naming by colonizers or occupiers and the resistance of indigenous peoples, or in multinational struggles over the names of oceans and islands. However, they also refer to street and house numbering and cadastral mapping for the purposes of property management, and consider the systems of daily life that are not involved in the struggle

to be “political” subject matter. In addition, they discuss the importance of spatial structure in place name analysis, stating that “(t)he naming of places, then, is not an isolated semiotic activity but rather a form of spatial inscription.”

In response to these trends and issues in place name research, this paper analyzes *Koaza* as a subject. Unlike *Oaza*, which is still widely used in addresses and the names of organizations, *Koaza* is not necessarily a subject whose relationship with daily life and the politics of naming can be easily deciphered. Therefore, with a few exceptions, the analysis of *Koaza* place names, while an extremely important achievement in itself, has been biased toward the analysis of the origin of individual place names. By contrast, the present paper focuses on the spatial distribution of *Koaza* place names and includes the creation of a database based on historical documents and analysis using geographic information system (GIS) tools.

The purpose of this paper is to clarify whether it is possible to analyze some “political” elements from small place names by focusing on such micro place names, especially *Koazas* in Japan, and analyzing their spatial distribution.

So what makes *Koaza* names a “political” subject of study? In this study, we aim to examine whether the naming and transition of *Koazas* contain elements of the systematization of society, which may begin institutionally and centrally, but permeates everyday life by overlapping with people’s lives and perceptions.

To achieve this objective, a series of steps are required, including (1) the establishment of an appropriate target area, (2) the selection and collection of appropriate historical materials, (3) the creation of a database for verification and GIS data, (4) the verification of regional characteristics through preceding studies, and (5) an analysis of spatial distribution using GIS tools.

## 2. Target Area and Preceding Studies

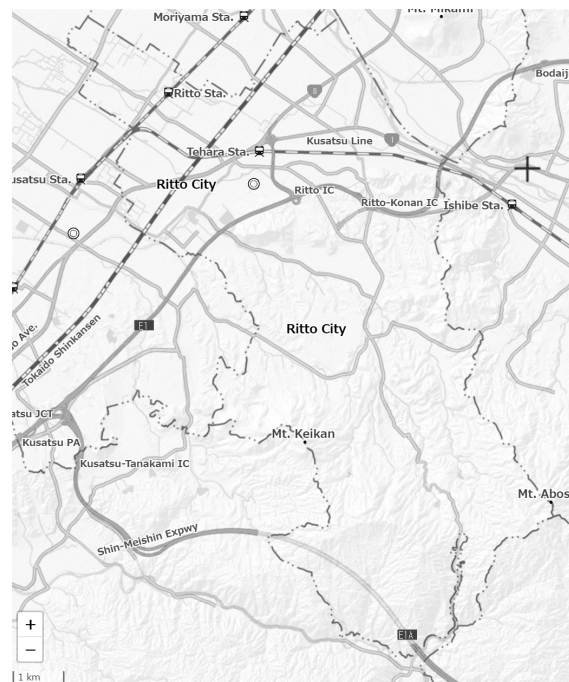


Fig. 2. The latest map of Ritto City

Source: Geospatial Information Authority of Japan, GSI Maps. <https://maps.gsi.go.jp/multil/>

### 2-1. Collection Methods for *Koaza* Place Names

*Koazas*, a term that is seldom used in daily life, are often not identified on modern maps. Therefore, a specific method is needed to prepare a dataset of place names; such a method was outlined by Kasai (笠井 2023). This method involved checking the following seven resources: (1) old land records and attached maps, (2) results of official place name surveys, (3) information contained in the eMAFF Farmland Navigator, (4) an appendix to the Kadokawa Dictionary of Japanese Place Names, (5) maps such as cadastral maps, (6) preceding studies, and (7) interviews with local residents.

However, it is important to note that the characteristics of each resource differ. The eMAFF Farmland Navigator is the official database of the Ministry of Agriculture, Forestry and Fisheries, but it basically covers only farmland, and not all farmland is assigned the name of the *Koaza* site. Interviewing residents can be effective, especially in terms of what they call a particular space, but such interviews do not

always provide rich information on the names of *Koaza* sites. Maps attached to old land records are often identical to *Azakirizus* (字限図), which are cadastral maps created for each *Koaza*. Therefore, instead of referring to the records, it is sufficient to refer directly to cadastral maps. The Kadokawa Dictionaries (角川日本地名大辞典), which are published for each prefecture, are often referred to by people who want to look up *Koaza* names, but in practice, they contain several transcription errors compared with the original source material. As an example of such errors, several name mix-ups have been identified between *Oazas* and *Koazas*; these mix-ups have led to a misalignment of *Oazas* as a major category (see Kasai (2023) for a detailed explanation of these errors). Therefore, it is necessary to be cautious when using them in academic research, and to refer to the original source material, which is the accumulation of the results of official place name surveys.

Accordingly, the results of official place name surveys and cadastral maps are the two most suitable primary source documents for collecting comprehensive place names.

## 2-2. Ritto City Area as a Target Area

To analyze small place names, this paper is designed to cover a specific region. The reason for this is that while it is considered that there are certain tendencies in the distribution of place names, it is impossible to extract such tendencies if the target is overly broad. In particular, the number of small place names is enormous, even when limited to *Koaza* names. The area selected for this paper is the current Ritto City area in Shiga Prefecture, Japan (see Fig. 2). At the beginning of the Meiji era, the Ritto City area had four administrative villages. Since that time, the spatial boundaries have remained almost unchanged, with only four administrative villages merging into one. In other words, continuity regarding spatial

boundaries has been maintained since the Meiji era. In addition, the Ritto History Museum has cadastral maps for each *Oaza* in nearly half of the city area and an *Azakirizu* for each *Koaza*, excluding mountainous areas.

The Ritto City area includes four former villages, 34 *Oazas*, and approximately 1320 *Koazas*. The city, former villages, *Oazas*, and *Koazas* form a vertical hierarchical structure. That is, one layer is divided by the layer below. Alternatively, it may be more historically accurate to say that one layer above is a grouping of preceding layers.

As for preceding studies referring to *Koazas* in the Ritto City area, one series of studies focuses on the overlapping of different types of grids based on different orientations in the grid system allotment that has continued since ancient times<sup>2)</sup>. In addition, there is a study by Hata (秦 2011), who produced a map with *Koaza* boundaries to understand the spatial structure of the village and used *Koazas* as units for analyzing livelihoods. Although the grid system allotment cannot be understood by referring only to place names, it is relevant to the naming of places and is therefore discussed below.

## 3. Analysis of Small Place Names

### 3-1. Analysis of the Results of Official Surveys

As mentioned above, the results of official place name surveys and cadastral maps were used in this research.

First, in Shiga Prefecture, an official survey of *Koaza* place names was conducted for each county in 1883. A document from the Shiga Prefectural Archives (No. 明・こ-14-2) shows the results of the survey conducted in Kurita County. This document is also the source material for the Kadokawa Dictionary of Japanese Place Names (Shiga edition); however, as mentioned above, this dictionary is riddled with transcription errors.

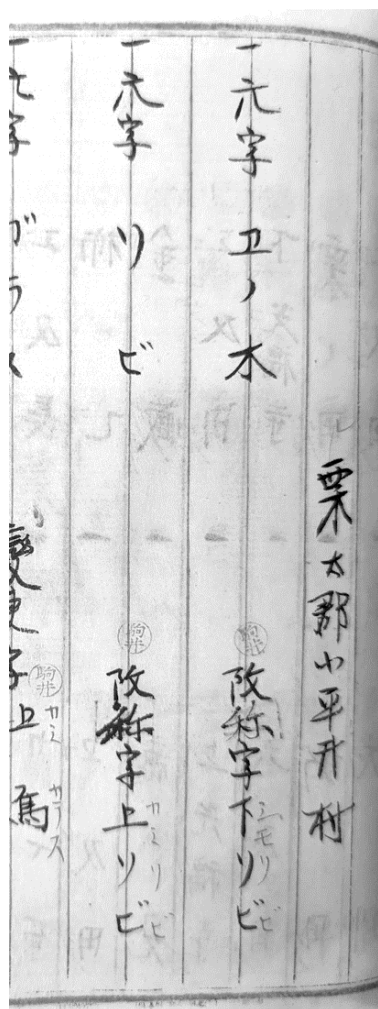


Fig. 3. Document showing the results of an official survey of *Koaza* place names in Kurita County in 1883

Source: Shiga Prefectural Archives  
(No. 明-こ-14-2)

A portion of that document is shown in Fig. 3. On the right side of the image, i.e., at the top of the page, the words “Kobirai Village, Kurita County” (栗太郡小平井村) are written, indicating that this survey was conducted for each village, or *Oaza*. The next line states, “The original name of *Aza* was *Enoki*, which was renamed *Shimo-sobi*.” The next line reads, “The original name of *Aza* was *Sobi*, which was renamed *Kami-sobi*.” The meaning or origin of the name *Sobi* cannot be determined here. However, we do know that each in turn became a name with the prefixes *kami* and *shimo*, meaning upper and lower, respectively. This makes the two regions *Enoki* and *Sobi*

Table 1. Relationship between *Koazas* at the time of the survey and former *Koazas*

Villages	<i>Oazas</i>	Relationship with former <i>Koazas</i> (Number of <i>Koazas</i> at the time of survey)					
		Continuance	Renaming	Merger	Division	Restructuring	Total
A	A1	9	0	3	0	0	12
	A2	34	0	0	0	0	34
	A3	5	1	24	0	0	30
	A4	99	0	0	0	0	99
	A5	7	0	12	0	0	19
	A6	0	0	7	0	0	7
	Subtotal	154	1	46	0	0	201
	Rate	77%	0%	23%	0%	0%	100%
B	B1	18	0	13	0	0	31
	B2	0	0	11	0	0	11
	B3	92	7	3	0	0	102
	B4	3	1	8	0	0	12
	B5	44	5	11	4	0	64
	B6	27	9	7	0	0	43
	B7	10	3	6	0	0	19
	B8	21	0	0	0	0	21
	B9	4	0	2	0	0	6
	B10	3	3	8	2	0	16
	Subtotal	222	28	69	6	0	325
	Rate	68%	9%	21%	2%	0%	100%
C	C1	1	0	4	0	0	5
	C2	12	0	0	0	0	12
	C3	29	0	0	0	0	29
	C4	29	3	0	2	0	34
	C5	60	0	4	2	0	66
	C6	30	1	4	14	0	49
	C7	33	0	0	0	0	33
	C8	21	0	1	0	12	34
	C9	26	3	17	2	0	48
	Subtotal	241	7	30	20	12	310
	Rate	78%	2%	10%	6%	4%	100%
D	D1	15	0	0	0	0	15
	D2	39	0	5	0	0	44
	D3	34	0	3	0	0	37
	D4	78	19	12	16	0	125
	D5	71	0	0	0	0	71
	D6	46	0	0	0	0	46
	D7	20	3	6	8	0	37
	D8	38	1	0	2	0	41
	D9	59	1	8	0	0	68
	Subtotal	400	24	34	26	0	484
	Rate	83%	5%	7%	5%	0%	100%
Total		1017	60	179	52	12	1320
Rate		77%	5%	14%	4%	1%	100%

Created by the author.

related by name. It should be noted, however, that the original *Sobi* was not split into two.

This document summarizes not only the renaming, but also the merger, division, and restructuring processes. This means that there was a rearrangement of *Koazas* before this investigation was conducted.

To confirm the status of the reorganization, Table 1 summarizes the relationships among all and former *Koazas*. As indicated in the table, 1017 (77%) of the names did not change before or after the survey. The

Table 2. Name change process for *Koazas*

Status	No change	Partial change			New	Total
		Adding prefix	Synthetic	Others		
Continuance (ratio)	1017 100%	0 0%	0 0%	0 0%	0 0%	1017 100%
Renaming (ratio)	0 0%	17 28%	1 2%	8 13%	34 57%	60 100%
Merger (ratio)	128 72%	5 3%	4 2%	10 6%	32 18%	179 100%
Division (ratio)	12 23%	10 19%	0 0%	1 2%	29 56%	52 100%
Restructuring (ratio)	0 0%	0 0%	0 0%	0 0%	12 100%	12 100%
Total (ratio)	1157 88%	32 2%	5 0%	19 1%	107 8%	1320 100%

Created by the author.

table also shows the numbers of *Oazas* per village and the numbers of *Koazas* per *Oaza*. In particular, the number of *Koazas* per *Oaza* has a wide range, from 6 to 125. The number of former *Koaza* is 1607. Mergers reduced the number by 318, divisions increased the number by 32, and restructuring had no effect on the number, for a total reduction of 286. Thus, just by following the changes in the names of the sub-districts, the characteristics of each *Oaza*, one layer above the other, can be highlighted. For example, A3 and B2 have a high percentage of mergers. In addition, C8 is the only *Oaza* that underwent reorganization. Moreover, in D4, which has the most *Koazas*, simple name changes occur approximately 15% of the time. It is possible that some “political” factor is involved.

In addition, there are several types of name changes. Table 2 summarizes the name change process according to the relationship between old and new *Koazas*. Needless to say, *Koazas* with the status of continuance showed no name change. More than half of the *Koazas* with the status of renaming had a new name with no relation to the old name, but more than a quarter of those with a prefix to the name constituted a divisional place name. More than 70% of those with merger status were recorded as having no change. This is because they used one of the former names before the merger. Finally, all those with restructuring status were found to have two *Koazas* using two new names.

### 3-2. Comparison with Another Area

Here, we compare the present results with those from a significant preceding study to clarify the characteristics of small place names in the area covered by this paper. Small place names require analysis in relation to history and space, rather than consideration of the name itself. For example, Kinda (1982) offered an important discussion of the relationship between the grid system and small place names. Sekido (1989) analyzed small place names in two mountain villages, paying particular attention to suffixes, and discussed the classification of land by residents. Among many previous studies, the present paper also attempts to compare the results with those of Sasatani and Koyanagi (1990). The analysis in that paper was characterized by (1) counting both prefixes and suffixes and comparing their quantities, (2) the large number of *Koazas* and types of words covered, and (3) the ease with which similar analytical methods can be applied to other cases. It attempted to clarify the spatial structure of settlements through an analysis focusing on the vocabulary of small place names. The target area comprised 14 municipalities in the northern part of Ibaraki Prefecture, covering a total of 21,550 *Koazas*.

They classified nine types of word elements commonly used in small place names. Then, for each element, they counted whether it was used alone (simple) or as a prefix, suffix, or medial word. In addition, the trend of whether the element was used as a suffix or

Table 3. Number of small place name lexicon elements by word composition category

Category	Vocabulary		Ibaraki Prefecture Area (笹谷・小柳 1990)						Ritto City Area					
	Japanese	English (for reference)	Count of vocabulary of small place names						Count of vocabulary of small place names					
			Simple	Prefix		Suffix	Middle of a word	Total	Simple	Prefix		Suffix	Middle of a word	Total
Direction	東	East	28	258	>	103	19	408	0	28	>	7	3	38
	南	South	6	200	>	39	12	257	0	55	>>	3	2	60
	西	West	7	357	>	98	28	490	0	41	>	7	5	53
	北	North	1	305	>>	25	17	348	0	45	>>	3	7	55
Vertical	上	Top		159	<	402	35	596	0	0		6	0	6
	下	Bottom		54	<<	1272	68	1394	0	1	<<	19	0	20
Hydrodynamical	上	Upper	1	443	>	79	34	557	0	82	>	17	2	101
	下	Lower	3	532	>>	39	27	601	0	78	>>	3	1	82
Body orientation	本・元	Origin		37	~	59	29	125	0	0	<<	22	3	25
	前	Front	2	274	<	810	54	1140	0	3	<	18	2	23
	後	Back	4	250	~	267	22	543	0	0		7	0	7
	表	Front	5	22	~	19	5	51	0	0		0	0	0
	裏・裡	Back		7		9	3	19	0	0		2	0	2
	脇	Side		11	<	90	6	107	0	2		2	1	5
	奥	Inner		8			9	17	0	14	>	2	2	18
	横	Across		76	>>		25	101	0	8		0	2	10
Shape orientation	向	Opposite	9	97	~	128	9	243	0	4		3	1	8
	向	Over	1	59	<	121	3	184	0	0		0	0	0
	添・側	Side		2	<<	83	8	93	0	1		5	0	6
	端・端	Outside		3	<<	53		56	0	1		1	0	2
	巡り	Fringe		4		9		13	0	0		0	0	0
	廻り	Around		3	<	11		14	0	0		0	0	0
	妻	End	2	1	<<	31	3	37	0	0		0	0	0
	角・門	Corner	1	16	>	6		23	0	5		5	2	12
Geographical part	合・相	Gap		39	~	52	23	114	0	3		4	0	7
	口	Mouth		2	<<	309	34	345	0	5	<	23	0	28
	尻	Buttocks (bottom)		10	<<	127	6	143	0	1		3	0	4
	頭	Head		1		9		10	0	0		3	0	3
Distance	腰	Waist		4	<	27	4	35	0	0		0	0	0
	外	Outside		23	>	4		27	0	1		0	0	1
	近	Near		7		4	1	12	0	0		0	0	0
	遠	Far		31	>>			31	0	1		0	0	1
	境	Border		40	>	18	10	68	0	0		0	0	0
	出・手	Part		38	~	50		88	0	5	<	27	4	36
Repetition vocabulary	中・仲	Inside	5	771	>	80	110	966	0	40	>	14	5	59
	内	Inside		66	<<	827	170	1063	0	1	<<	21	0	22
	場	Place		4	<<	318	93	415	0	0		5	3	8
Sunshine	日向	Sunny place	12	29	~	46	2	89	0	0		0	0	0
	北向	Northern aspect	19	18	<	55	3	95	0	0		0	0	0
	日照	Sunlight	2	10	>>		1	13	0	0		0	0	0
	朝日	Morning sun		8			1	9	1	0		0	0	1
	夕日	Evening sun	1	1			1	3	0	0		0	0	0
	陰・影	Shade	1	12	>	5	3	21	0	0		0	0	0

Prefix frequencies vs. suffix frequencies. However, this is not applicable if both are less than or equal to 10.

[LEGEND] >> more than 10 times; > more than double; ~ within double.

The columns for category, vocabulary in Japanese, and Ibaraki are by 笹谷・小柳 (1990);

the columns for vocabulary in English and the Ritto City area are by the author.

prefix was determined. For example, the character “上”, pronounced as “Ue,” means vertical top and tends to be used as a suffix. However, when the same character is

pronounced as “Kami,” it means upstream of the water flow and tends to be used as a prefix.

The present work also checks whether this pattern can be observed in the names of *Koazas* in the Ritto City area. The author



conducted the same analysis using a dataset of 1320 *Koaza* names described in the previous section, which is also included on the right side of Table 3. However, comparing *Koazas* in the Ritto City area is somewhat difficult because the number of *Koazas* is relatively small. Nevertheless, Table 3 shows similar trends for the three categories of Direction, Vertical, and Hydrodynamical highlighted in previous studies.

Several points are discussed where the results differ. The Body Orientation category “本 or 元” (origin) is used as a suffix in 22 cases in the Ritto City area, which is not a small number. However, this word is not used as a prefix at all. This word refers to a reference point for houses, villages, temples, and shrines, and it is assumed that the words front, back, and side are used as relative expressions from the area where this word is used. In the Ritto City area, however, the frequencies of the front, back, and side are also relatively low. However, the degree of “奥” (inner) as a prefix is high. This is because in the Ritto City area, this word is used in pairs with “口” in more than five cases; “口” literally means mouth, but it can be used in contrast to a place at the back of the building, which has the meaning of an entrance.

In addition, the frequency of occurrence of “出 or 手”, especially as a suffix, is relatively high. The study by Sasatani and Koyanagi (1990) seems to interpret these words in a sense similar to that of “far.” However, the trend observed in the Ritto City area indicates a different usage. That is, the word is used to refer to the parts that make up the settlement. Of the 27 cases where these elements are used as suffixes, 22 (81%) contain elements from other Direction or Body Orientation categories as prefixes. For example, “[the] east[ern] part [of the hamlet]” would be a place name in the composition.

It is also notable that the use of the Sunshine category is almost entirely absent. Nevertheless, the name of the mountain at the

base of the grid system land division can be translated as Mt. Sunshine, and we can think of no reason why a place name about sunshine would not be used here. Therefore, when we verified the use of a single character “日” for the sun, we observed nine use cases. If we exclude the middle of a word in two of these cases because it is an element that constitutes a proper noun, seven of the cases can be directly related to the sun.

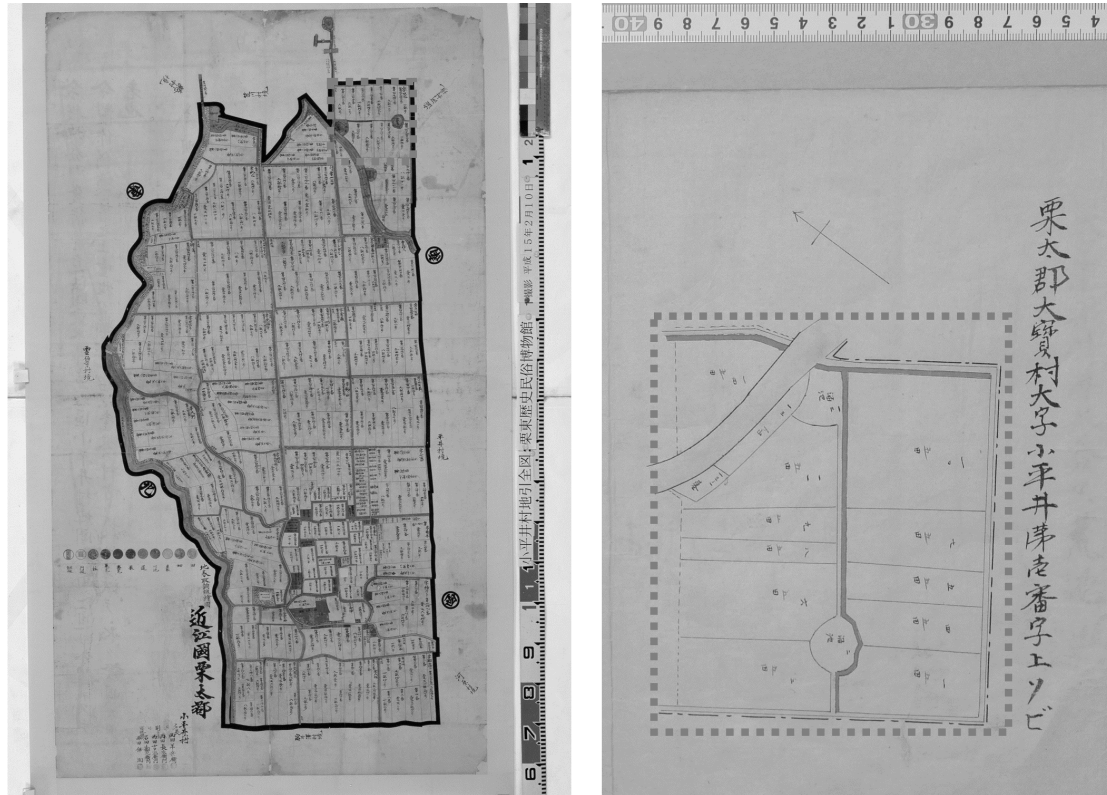
Thus far, we have examined 53 elements that have been used in previous studies. However, of the 1320 target place names, 728 (55%) do not include any of the 53 elements. The study by Sasatani and Koyanagi (1990) listed the components of the words that fit the purpose of analyzing the spatial structure. Although there may be other word elements that fit the same purpose in the areas covered in this paper, it is impossible to determine whether a given word element is suitable for revealing the spatial structure without confirming its spatial distribution. Therefore, let us now proceed to a map-based analysis.<sup>3)</sup>

### 3-3. Analysis of a Cadastral Map

The map used in this paper is a cadastral map made during the Meiji era, when title deeds (*Jinshin Chiken* 壬申地券) were issued to clarify landowners and prices as the basis for tax collection. Maps called “*Jibiki Ezu*” (字引絵図, land survey maps) were compiled in conjunction with title deeds.

Jinjiro Sato conducted a comprehensive study of these land registry maps in the early Meiji period. Sato (佐藤 1986: 13) states, “In the early Meiji period, cadastral maps were prepared four times for each of the following projects: issuance of *Jinshin Chiken*, the Land Tax Reform, land survey, and compilation of cadastral registers.” As cadastral maps have multiple purposes and uses, it is necessary to clarify what the cadastral maps used in the analysis refer to<sup>4)</sup>.





The dotted line indicates the corresponding areas.

Fig. 4 Cadastral map of Kobirai (*Oaza*) and the *Azakirizu* of Kami-sobi (*Koaza*)

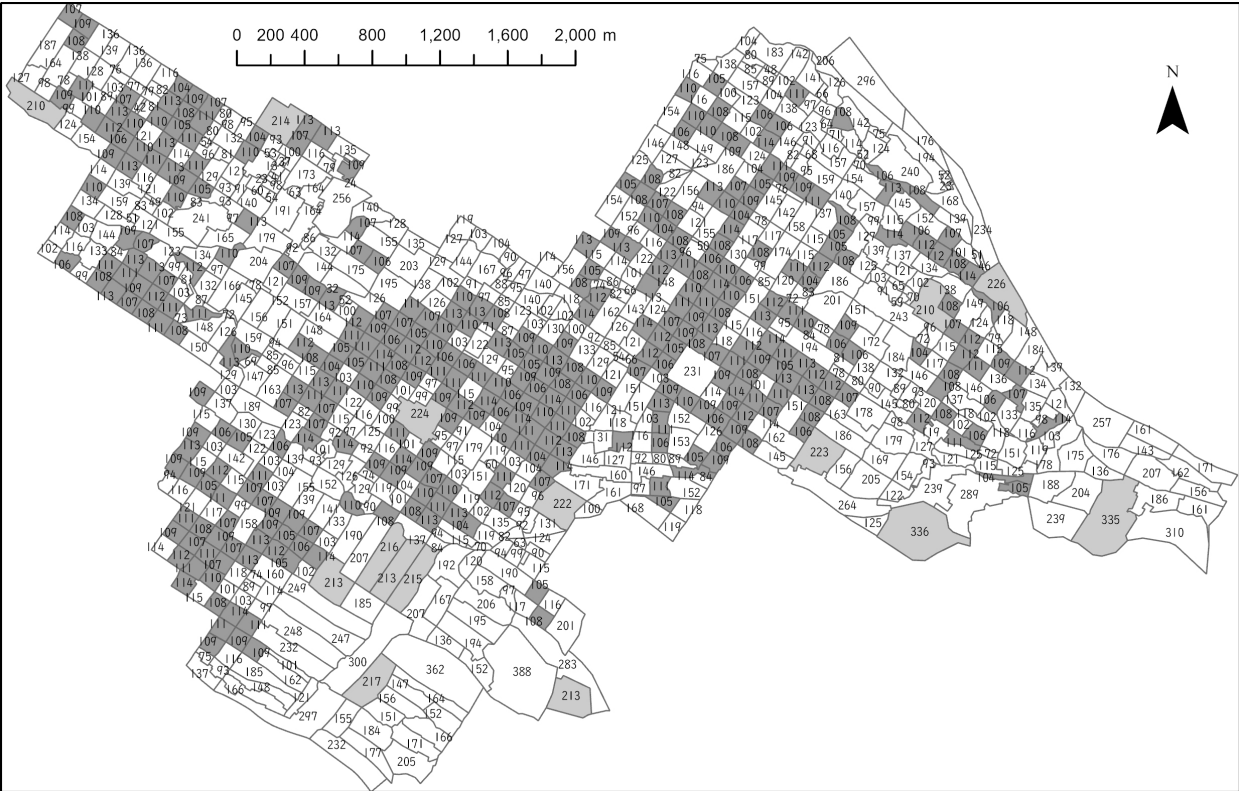
Source: Ritto History Museum

Daiju Koseki (古関 2019a, 2019b) conducted a series of studies on Meiji era cadastral maps created in Shiga Prefecture. He highlighted the fact that Sato's study "is fraught with difficulties when trying to apply it to local examples and interpret it" and proceeded to analyze it for each locality (2019a: 25). Through his analysis of cadastral maps of several areas in Shiga Prefecture, he found that "some points on the same map have small errors, while others have large errors." Even if the shapes and distances represented on the maps are not accurate, land registers and related documents may contain the original values and prove to be sufficient for verification (2019b: 46).

The cadastral maps used in this paper were drawn for each *Oaza* around 1876, and their errors and distortions were analyzed by Kasai et al.<sup>5)</sup> The method used was to find the same points on both cadastral and modern maps, explain the distortion in the cadastral map as a whole using a regression equation,

and find local distortions in the map using the residuals of the same equation. Consequently, it was found that local distortions occurred in lakes, marshes, mountain forests, and cemeteries, which have little relation to tax payment. It was also shown that, despite the overall distortion, except in mountainous areas, the boundaries with other districts were not obscured, and there were no problems in using the map to understand the topology.

These cadastral maps are drawn for each *Oaza*, but the names and locations of the *Koazas* that comprise them are not known. Therefore, *Azakirizus*, which were produced for each *Koaza*, are used together. Although the date of production of *Azakirizus* cannot be determined, the place names are almost identical to those appearing in the official survey of 1881; therefore, this does not pose a problem for the present study. As an example, Fig. 4 shows a cadastral map of the Kobirai (小平井) *Oaza* and its part, *Azakirizu*, in the Kami-sobi (上ソビ) *Koaza*.



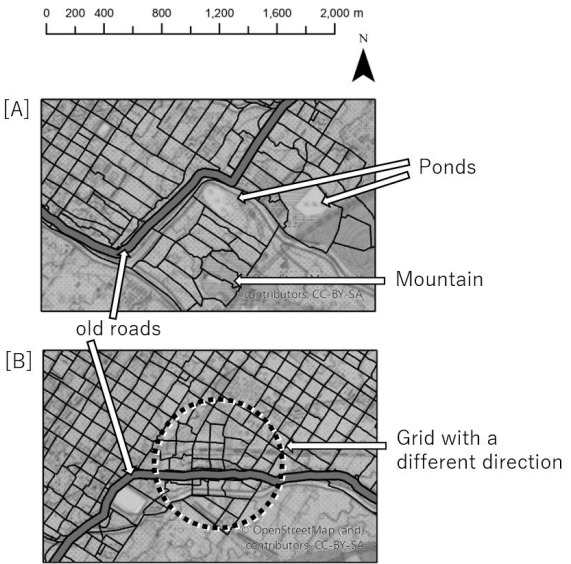
*Koazas* are delimited by lines; the values are the square root of the area (in meters) calculated using GIS tools.

Fig. 5 *Koaza* boundary of the Ritto City area and square root of each *Koaza*

Created by the author.

As a limitation of the data, the Ritto History Museum does not list *Azakirizus* for the six *Oazas* in former Village A, so their existence is unknown. Even without a cadastral map, it may be possible to identify the location on the map by combining *Azakirizus*. Conversely, if there are no *Azakirizus*, the location on the map cannot be identified. In addition, the entire area of former Village A and the three *Oazas* in the other village areas are mountainous, and their boundaries cannot be determined from the cadastral map, which makes it difficult to identify their locations, even when *Azakirizus* are available. Consequently, nine of the 34 *Oazas* were not included in the subsequent analysis. The number of *Koazas* included in this range was 371 (28%) of 1320.

Based on the above limitations, the author created polygon data for each *Koaza* using a GIS tool. Fig. 5 shows the data generated. It can be seen that most of the Ritto City area, with the exception of the



The underlying map is the GSI Landform Classification Map for Flood Control.

Fig. 6. Examples of deviations from the square grid

Created by the author.

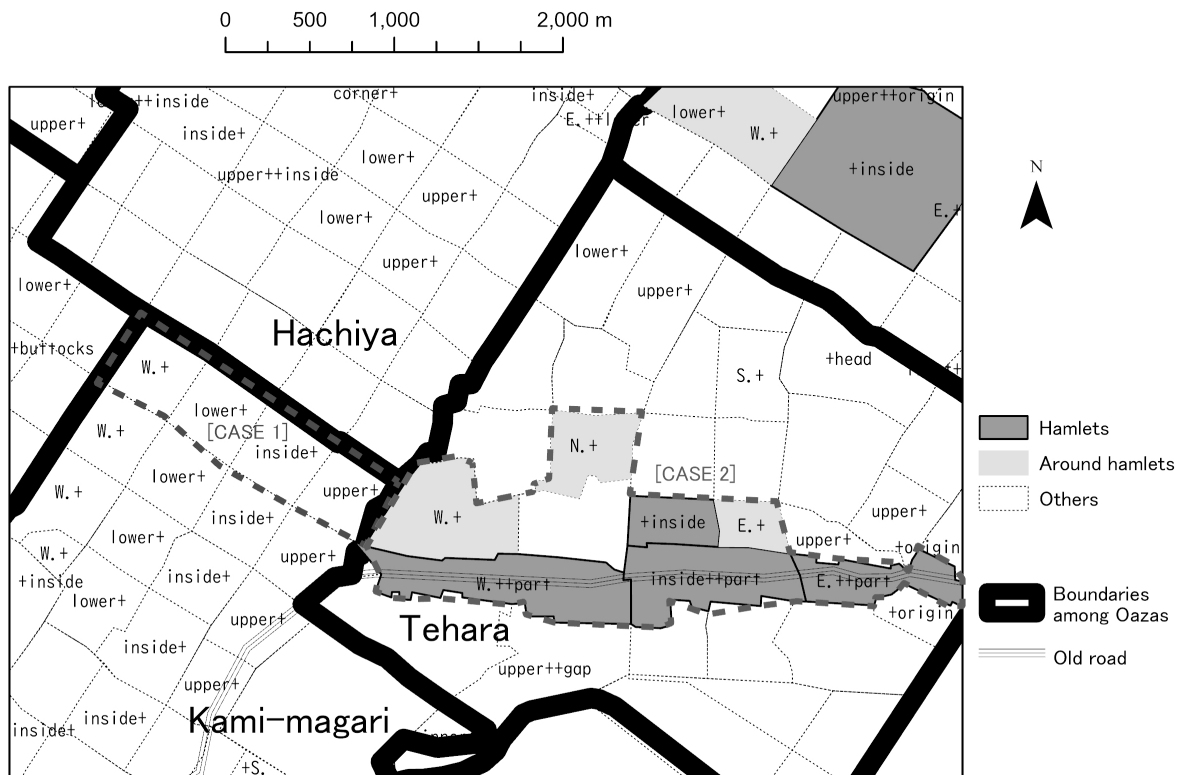


Fig. 7. Prefixes and suffixes of small place names (53 elements related to spatial structure)

Created by the author.

mountainous areas, is laid out on a grid system, as indicated by the neat arrangement of square-shaped *Koazas*. The grid has an area of 109 m<sup>2</sup> (Kinda 1982). To verify this, the square roots of the area calculated by the GIS tool are noted in the diagram. Then, the color of those in the 109 ± 5 range is darker. Other districts painted lighter in color are those that were double, triple, or quadruple that range. This process was performed to accommodate the case where *Koazas* were created by a merger. As a result, a few *Koazas* do not fit into the main grid because of natural features, such as mountains, rivers, old streets, or the adoption of another grid in a different orientation, as shown in Fig. 6.

Now that we are ready, we begin with Fig. 7, which displays the 53 word elements from the preceding studies. Prefixes are shown in the style of [prefix+] and suffixes in the style of [+suffix], within their respective boundaries. *Koazas* that are not lettered on the map do not contain either prefixes or

suffixes. However, because it would be complicated to show the entire city area, we have enlarged one part of the figure.

On the east side of this figure is an *Oaza* called Tehara, and on the west side are the *Oazas* called Hachiya and Kami-magari. On the west side, a grid system of land division is clearly observed, with many square-shaped *Koazas*. Looking at Tehara on the east side with this western grid as a reference, it appears quite distorted. There are two reasons for this. One is the formation of horizontal hamlets centered on the *Koaza* shown in the legend as a hamlet, which is due to the fact that the hamlets were formed along the old street. The other reason is that the area has a grid based on different orientations. This can be seen in the *Koazas* marked with [S.+] around the center of the east side and in several other *Koazas* to the south.

Four *Koazas* are enclosed as [CASE 1] in Fig. 7. They share a common stem X to which the prefixes [west], [lower], [inside (closer to

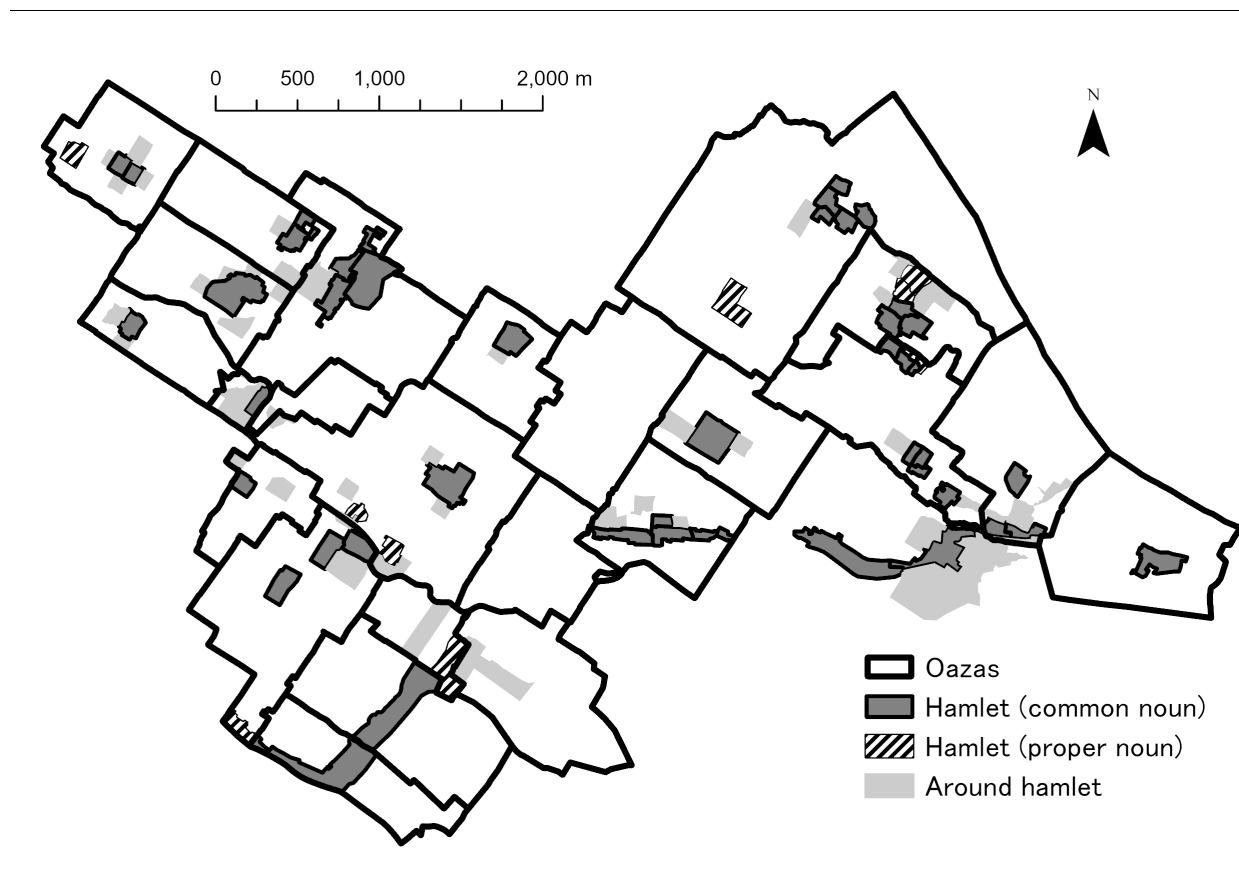


Fig. 8. Naming type of hamlets

Created by the author.

“middle” in this case)], and [upper] are assigned in order from west to east. The author checked whether former place names, including similar cases in the surrounding area, indicated that place names with a single word stem without a prefix were sometimes used; these prefixes are considered to have been used for place name division. However, this fact alone cannot be used as a basis for determining which came first, the establishment of the place name or the grid.

This is a rather complicated case that spans four *Koazas*, but there are many cases where two *Koazas* are paired, such as [upper+] and [lower+], or the aforementioned [inner+] and [mouth+]. These are all indicative of the relative spatial configuration within the set. By showing them on the map in this way, the distribution of the set can be easily confirmed.

Next, [CASE 2] in Fig. 7 is a case of place names around a hamlet. Before explaining this case, it is necessary to explain how to identify a certain *Koaza* as a hamlet rather than as

farmland or a grave. There are two main methods for identifying hamlets in the Ritto City area. One is that residential land is painted red on the cadastral map, and the areas where residential land is concentrated are hamlets. The second method is to draw an analogy from the place name. Except in the case of a few *Oazas* where there were mergers in the early Meiji period, there is one central hamlet in each *Oaza*. Alternatively, it is conceivable that a single hamlet could have constituted a single *Oaza* as its center. In principle, the central hamlet was not given a proper name, but a general word, *Sato* (里), was used with prefixes and suffixes to indicate the place where people lived. For example, the hamlet seen on the northeast edge of Fig. 7 is *Sato-uchi* (里内, hamlet + inside). The analogous word *Mura* (村), instead of *Sato*, was used for an *Oaza*, but with a similar structure. In any case, the use of a generic word for hamlet instead of a proper name suggests that hamlet simply referred to the

central hamlet of the *Oaza* to which the inhabitants themselves belonged. When residents simply used “hamlet” as a generic noun, they did not mean the hamlets of other *Oazas*, but rather, the central hamlet of the *Oaza* to which they belonged, so that the spatial-cognitive boundaries of their daily living area matched those of the *Oazas*.

Fig. 8 shows whether the names of hamlets are common or proper nouns. When adjacent areas are painted in Fig. 8, this is not an example of multiple hamlets, but rather an example of a single hamlet divided by a divided place name. And when there is a proper hamlet name, it is either (1) not a central hamlet, or (2) an merger of former villages that took place close to the formation of the *Oazas*.

However, in the case of [CASE 2] in Fig. 7, not even the word for hamlet is used. What is used here is the suffix “出・手” (interpreted by the author as “part”), which was explained earlier. In [CASE 2], the words colored as “hamlet” are [West + part], [inside + part], [East + part], and [*Sato* + inside]. In other words, the suffix [+part] was used when it was necessary to indicate the division of the central settlement by several *Koazas*. Note that this word is always used as a suffix because it does not contain the meaning of hamlet by itself.

In [CASE 2], there is a *Koaza* thinly painted as “around hamlet.” Unlike [CASE 1], these instances do not have a stem that can stand alone as a place name, but rather, are formed by prefixes such as *Ura* and *Hara* with a relative position from a reference point (here, hamlet). In other words, although they use a prefix indicating direction, these are not place names that divide *Ura* or *Hara*.

Therefore, it can be seen that in each *Oaza* unit in the subject area, place names were distributed based on the central hamlet. Here, an interesting result can be obtained upon reanalysis of the case of C8, the only one of the *Oazas* listed in Table 2 that underwent *Koaza* restructuring, in terms of its relationship to the settlement. The pre-reconstruction *Koazas* also had place names that were paired by prefixes. However,

after the reorganization, only the prefixes that indicated the location in relation to the hamlet were newly added to the place names, and the orientation prefixes that were not related to the hamlet disappeared.

#### 4. Conclusion

This paper aimed to clarify whether it was possible to analyze some “political” elements from small place names by focusing on such micro place names, especially *Koaza*, in Japan, as well as their spatial distribution.

To achieve this goal, it was first necessary to set up a specific place. We selected Ritto City, Shiga Prefecture, because, historically, there have been few major changes in the boundaries of the region.

Second, it was necessary to select and collect the appropriate historical materials. Shiga Prefecture was one of the first areas to develop cadastral maps following the publication of the *Jinshin Chiken* during the Meiji era. In this paper, we selected *Oaza* unit cadastral maps and *Azakirizus*, which are *Koaza* unit cadastral maps, as per the main archives. In addition, the results of official surveys conducted during the Meiji era were used as sources that could be used to match place names and confirm the names of former places. The cadastral maps and *Azakirizus* were from the collection of the Ritto History Museum, whereas the official survey results were from the Shiga Prefectural Archives.

Third, the author used historical documents to create a database containing 1320 *Koaza* place names. Of these, with the exception of 371 in mountainous areas with ambiguous boundaries, the author created polygon data using a GIS tool to visualize spatial distribution patterns and prepare for verification. This comprised the preparatory work for the validation.

Fourth, because some regional characteristics may be present in the target area, the results were compared with those from a preceding study that examined spatial configuration patterns using *Koaza* place names. Consequently, most of the views on word components were consistent with those of the preceding studies, but a situation unseen

in the preceding studies arose with respect to paired word groups and words that form specific meanings.

Fifth, the data were visualized and analyzed using a GIS tool. In the first example, it was shown that prefixes work to divide place names. Different considerations could be drawn in this regard, depending on what occurred first, boundary formation or place name division. If boundary formation occurred first, then common stem place names were assigned later so that multiple districts had some relationship with each other. If, however, place name division occurred first, then the place name existed long before the grid system was introduced, and continuity from ancient Japan could occur.

However, this is a presentation of the possibilities obtained when considering only the analysis in this paper. The transition of place names needs to be carefully examined with reference to earlier studies. For example, Kinda (2021) summarized the evolution of *Koaza* names in the following five stages, distinguishing between immature names from before the grid system was established, which are “names like *Koaza* place names,” and names that are based on the grid system: (1) from the middle of the eighth century to the ninth century, “names like *Koaza* place names” were listed after grid system names; (2) once the grid system was established, only grid system names were used; (3) new names that would later lead to *Koaza* place names began to follow the grid system names; (4) in some cases, *Koaza* place names were written first, and grid system names were written incidentally; and (5) *Koaza* place names became the main focus, and grid system names lost their systematic nature. Here, grid system designations are used to indicate a specific location by noting the row and column numbers. The naming and transition of *Koaza* place names or similar names is thus a complex process.

The second example shows that a distinctive feature of place naming in and around hamlets can be observed. In the process of confirming this, a one-to-one relationship between the *Oaza* and central

village was confirmed. In addition, prefixes indicating relative position with respect to a hamlet were assigned around a hamlet, and the stem of the word was a term that could not be a village name by itself. These findings suggest that the presence or absence of a hamlet in the same *Koaza* is an important difference in the analysis.

From the above, we believe that even when using a micro group of place names among small place names, such as *Koazas*, there is sufficient room to read about place name changes and relationships among place names, which makes it possible to analyze the “political” elements of place names.

In the target areas, one central hamlet was designated for each *Oaza*, which coincided with the spatial cognition of people’s daily lives. In the process of systematizing the central hamlets, cases were seen where only the prefix indicating the location of the central hamlet was retained in the reorganization of the *Koazas*. Therefore, it can be concluded that a “political” analysis was possible through a spatial analysis of the small village names in the target area of this study.

In addition, the author conducted a survey of folk customs in the area and found that the bearers of folk customs are neither *Oaza* nor *Koaza*, but a different kind of regional division (Kasai 2022). Although it is natural for there to be multiple units of local communities, their names have not yet been examined. Therefore, the author would like to initiate a comparative study with different sub-district names using the *Koaza* database that was created in this study.

In any case, the process described in the present paper was highly versatile, involving collaboration with public museums and the use of GIS tools.

#### [Notes]

- 1) The natural characteristics of *Oazas* need to be carefully discussed. Eitaro Suzuki, who is introduced later, also shows a turn in understanding whether administrative or natural villages arise first. (山崎 2015)
- 2) For example, Takahashi et al. (高橋 1979), Suizu (水津 1957) and Kinda (金田 1985) for changes in the relationship between the grid system and *Koazas*.

- 3) The aspects that are not spatial structures are mentioned here. As already mentioned, Sekido (1989) paid particular attention to the suffixes of place names. Her paper shows an interest in not only spatial structure, but also social elements. Suffixes that indicate social elements include *Kaito*, *Ya*, *Tsuji*, *Hata*, *Ji*, and *Ba*. Of these, *Kaito* is unlikely to be confused with other components because of its multiple syllables. As the present paper focuses on spatial structure, please refer to Kasai (2023) for a detailed analysis of *Kaito*. Here, it is only briefly concluded that there are 15 *Koazas* with the suffix *Kaito* in the target area, and that *Kaito* does not refer to the hamlet itself, but rather, to the land near the hamlet.
- 4) The map used in this paper is a cadastral map made mainly in 1872–1873, in conjunction with the *Jinshin Chiken*. The process of issuing the *Jinshin Chiken* was complicated throughout the country, but Shiga Prefecture, including the current Ritto City area, was able to issue it at an early stage under the leadership of the first prefectural governor, Michiyuki Matsuda.
- 5) The analysis was presented orally at the Geographic Information System Association's annual conference under the title "A Study on Local Distortions of the *Chiken-torishirabe-soezu* in the Collection of the Ritto History Museum".

## [References]

## [Research papers in journals]

- Hata, Kazuyuki. "The Land Allotment of the Jyori-grid System and the Flow of Water for Irrigation, the Formation of the Village's Residential Area: Study on the Land Allotment of the Jyori-Grid System and the Area Formation of Typical Plain Villages on the Lower Reaches of the Yasu River in Oumi Plain, Part 1", *Journal of Architecture and Planning* 2011, Vol. 76, No. 659, pp.43–51. (=秦憲志. 「近江平野野洲川下流域条里地割における用水系統と集落居住域形成—近江平野野洲川下流域における条里地割と平地集落の空間形成に関する研究 その1—」. 『日本建築学会計画系論文集』.)
- Kasai, Yoshinori. "A Villager Group as Fundamental Association: Case Study of Isekoh Account Books from Megawa, Ritto City, Shiga Prefecture, Japan", *Journal of Lifology* 2022, Vol. 41, pp.15–29. (=笠井賢紀. 「基盤型アソシエーションとしての講—

滋賀県栗東市目川の伊勢講勘定帳を読み解く—」. 『生活学論叢』.)

- Kasai, Yoshinori. "The Process of Creating a Database of Small Surnames in the Ritto City Area: With an Analysis Focusing on Divided Place Names and *Koaza* Names of Hamlets", *Ritto History Museum Bulletin* 2023, Vol. 29, pp.1–9. (=笠井賢紀. 「栗東地域の小字データベース作成過程—分割地名と集落小字名に着目した分析を添えて—」. 『栗東歴史民俗博物館紀要』.)
- Kinda, Akihiro. "The Jory Grid Pattern System and Small Place Names in Ancient and Medieval Japan", *Japanese Journal of Human Geography* 1982, Vol. 34, No. 3, pp.1–22. (=金田章裕. 「条里プランと小字地名」. 『人文地理』.)
- Kinda, Akihiro. "Ko-chizu no naka no Chimei", *Chizu Chushin* 2021, No. 585, pp.14–16. (=金田章裕. 「古地図の中の地名」. 『地図中心』.)
- Rose-Redwood, Reuben; Alderman, Derek; Azaryahu, Maoz. "Geographies of Toponymic Inscription: New Directions in Critical Place-name Studies", *Progress in Human Geography* 2010, Vol. 34, No. 4, pp.453–470.
- Sasatani, Yasuyuki; Koyanagi, Takekazu. "Spatial Structure of Settlements Using Vocabulary of Little Place Names", *Journal of the Japanese Institute of Landscape Architects* 1990, Vol. 53, No. 5, pp.293–298. (=笹谷康之・小柳武和. 「小地名相互の位置関係に基づいた村落空間構成の研究」. 『造園雑誌』.)
- Sekido, Akiko. "The Spatial Organization of Mountain Villages and Their Lands as Revealed in Place Names: A Case Study of Nishiyoshino-mura, Nara Prefecture" *Japanese Journal of Human Geography* 1989, Vol. 41, No. 2, pp.22–43. (=関戸明子. 「山村社会の空間構成と地名からみた土地分類—奈良県西吉野村宗川流域を事例に—」. 『人文地理』.)
- Suizu, Ichiro. "Koaza no Rekishi Chirigaku: Kiso Chiiki no Kosei Yoso toshiteno Koaza", *Bulletin of the Graduate School of Literature and Human Sciences, Osaka Metropolitan University* 1957, Vol. 8, No. 10, pp.1075–1096. (=水津一朗. 「小字の歴史地理学—基礎地域の構成要素としての小字—」. 『人文研究』.)
- Takahashi, Seiichi; Kobayashi, Kentaro; Miyahata, Mineo. "A Study of Development in *Kurita* and *Yasu Gun* in Ancient Ohmi", *Memoirs of Faculty of Education Shiga University* 1979, Vol. 29, pp.98–110. (=高橋誠一・小林健太郎・宮畑巳年生. 「古代栗太・



野洲郡の開発と条里」．『滋賀大学教育学部紀要』.)

Yamazaki, Kimiaki. “Changing Process of Eitaro SUZUKI’s Concept of Natural Village”, *Journal of Rural Studies* 2015, Vol. 22, No. 1, pp.37–46. (=山崎仁郎. 「鈴木榮太郎における自然村理解の転回過程について」．『村落社会研究』.)

Yoshino, Koji. “Critical Note on Sorokin Study in Japan”, *Hitotsubashi Journal of Social Science* 2001, Vol. 24, No. 4, pp.81–110. (=吉野浩司. 「日本におけるソローキン研究：書誌学的考察」．『一橋研究』.)

#### [Books]

Kinda, Akihiro. *Jori to Sonraku no Rekishi Chirigaku Kenkyu*. 1985, Taimeido. (=金田章裕. 『条里と村落の歴史地理学研究』. 大明堂.)

MacIver, Robert M. *Community: A Sociological Study*. 1917, Routledge.

Sorokin, Pitirim A.; Zimmerman, Carle C.; Galpin, Charles Josiah. *A Systematic Source Book in Rural Sociology*. 1930, Vol. 1, University of Minnesota Press.

Sato, Jinjiro. *Meiji-ki sakusei no Chiseki-zu*. 1986, Kokon Shoin. (=佐藤甚次郎. 『明治期作成の地籍図』, 古今書院.)

Suzuki, Eitaro. *Suzuki Eitaro Chosaku-shu I: Nihon Noson Shakai-gaku Genri (jo)*. 1940=1968, Mirai-sha. (=鈴木榮太郎. 『鈴木榮太郎著作集 I 日本農村社会学原理(上)』.)

Yanagita, Kunio. *Chimei no Kenkyu*. 1981, Chuo Koron Shinsha. (=柳田国男. 『地名の研究』.)

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