

# JOMON SEDENTISM AND INTERSITE VARIABILITY: COLLECTORS OF THE EARLY JOMON MOROISO PHASE IN JAPAN

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**Abstract.** This paper examines residential mobility of prehistoric Jomon hunter-gatherers in Japan. Despite the common assumption of Jomon people as fully sedentary, living in permanent residential bases year-round, Jomon settlement systems are in fact poorly understood. In this paper, intersite variability in lithic assemblages and site size are used to interpret Early Jomon Moroiso phase subsistence-settlement systems. The results of the analysis indicate that, while the Moroiso phase people were relatively sedentary, they did not necessarily remain in the same settlement throughout the year. These results are then used to address the question of the development of sedentism and cultural complexity through the Jomon Period.

## Introduction

One of the main foci of recent prehistoric archaeology is the study of hunter-gatherer sedentism and its relation to other aspects of cultural complexity (Ames 1985, 1991; Bar-Yosef and Belfer-Cohen 1991; Kelly 1992; Lieberman 1993; Soffer 1989). Traditional archaeological approaches to residential mobility tended to view increasing sedentism as a by-product of increased reliance on food production. Price and Brown (1985a) point out that such approaches are facilitated by the idea of the Neolithic revolution developed by Childe (1942, 1951), and call these views "traditional evolutionary stage perspectives." Adherents of these approaches have considered sedentary hunter-gatherers to be anomalies.

Developments in the study of hunter-gatherer subsistence and settlement, however, have revealed that, historically, sedentary hunter-gatherers were relatively widespread. Accordingly, many archaeologists have begun to argue that sedentism is not a phenomenon limited to agricultural soci-

eties (Hayden 1981; Price and Brown 1985b; Teyssier 1982; Woodburn 1980; Yesner 1987).

The word "sedentism" in hunter-gatherer studies is a fairly loosely defined concept. Strictly speaking, the word sedentism should be reserved to refer to settlement systems in which hunter-gatherers occupy a single residential base throughout the year (i.e., fully sedentary hunter-gatherers). However, many researchers expand the concept of sedentism to include hunter-gatherers who move their residential bases seasonally. For example, Kent (1989) defines sedentism as "a situation in which a group spends over six months a year continuously at one locus, even if at other times during the year the group leaves, returning to the community after short, often seasonal, absences" (Kent 1989:2; for discussions on various definitions of sedentism, see also Rafferty 1985). Ethnographic examples of these relatively sedentary hunter-gatherers include many groups in California, the Northwest Coast of North America, and the Arctic.

In terms of prehistoric complex hunter-gatherers, quite often it is not known whether they

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were fully sedentary or only relatively sedentary (e.g., Bar-Yosef and Belfer-Cohen 1991). In many cases, full sedentism is simply assumed on the basis of large settlement size or seemingly permanent dwelling structures. However, it is apparent from ethnographic examples that these criteria do not always help us distinguish fully sedentary hunter-gatherers from relatively sedentary ones (for discussions on archaeological indicators of sedentism, see Rafferty 1985; H. Watanabe 1986).

Given the above considerations, the identification of the degree of sedentism among prehistoric complex hunter-gatherers is critical to an understanding of the development of cultural complexity in human history. Two important questions related to the origins of hunter-gatherer sedentism can be asked. First, how is sedentism related to other aspects of hunter-gatherer cultural complexity including subsistence, population, and social inequality? Second, which level of sedentism is more critical in discussing the development of complex hunter-gatherer cultures, full sedentism or relative sedentism?

In order to answer these questions, it is important for archaeologists to analyze data from various prehistoric cultures, and identify the degree of sedentism in each case. In this regard, the archaeological record for the Jomon Period (ca. 13,000–2300 BP) in Japan offers excellent data for the study of hunter-gatherer sedentism. Many Japanese archaeologists believe that the Jomon hunter-gatherers were fully sedentary, maintaining permanent residential bases throughout the year (e.g., Koyama 1978; Nishida 1986). The basis of this assumption is the prevalence of large settlements, dating from the Early to Late Jomon Periods, with many pit-dwellings arranged in horse-shoe-shaped or semicircular configurations (Wajima 1958). In accordance with this assumption, researchers in the broader field of hunter-gatherer studies have cited the Jomon people as an example of fully or nearly fully sedentary hunter-gatherers (Aikens 1981; Aikens et al. 1986; Hayden 1990; Price and Brown 1985a; Soffer 1989).

Developments in Jomon settlement archaeology in the 1970s and 1980s, however, have led some Japanese archaeologists to question the assumption that the Jomon people lived in large villages throughout the year. In particular, the rapid increase in the number of salvage excavations in Japan (Habu 1989a; Tsude 1995) has revealed that, in addition to the previously studied large settlements with multiple pit-dwellings, there are many small habitation sites with only one, or at most only a few, pit-dwellings (Doi 1985; Habu 1988, 1989b; Kobayashi 1986). In this respect, an examination of variability among Jomon settlements, as well as the study of regional settlement patterns, is

necessary in order to improve our understanding of Jomon subsistence-settlement systems.

Accordingly, this paper examines Early Jomon settlement patterns through an analysis of intersite variability in lithic assemblages and site size. The results of the analysis are interpreted in the context of an ethnographic model of residential mobility (Binford 1980, 1982). These results are then used to address the question of the development of sedentism and cultural complexity through the Jomon Period.

## Approaches to Hunter-Gatherer Mobility

Recent developments in hunter-gatherer studies in North America indicate that the degree of hunter-gatherer residential mobility is closely related to their subsistence strategies. Binford (1980, 1982) has presented a model which identifies two basic types of hunter-gatherer subsistence-settlement systems: collector systems, which are generally characterized by low residential mobility and high logistical mobility, and forager systems, which are characterized by relatively high residential mobility and low logistical mobility. Residential mobility refers to the movement of all members of a residential base from one locality to another. Logistical mobility, on the other hand, refers to the movement of specially organized task groups on temporary excursions from a residential base.

According to Binford (1980), collectors are adapted to environments where the distribution of critical resources is spatially and seasonally uneven. On the contrary, the subsistence-settlement systems of foragers are responses to environments where the distribution of critical resources is homogeneous. Applications of this model to studies of archaeologically or ethnographically known hunter-gatherers include those of Kelly (1983), Savelle (1987), Savelle and McCartney (1988), Schalk (1981), and Thomas (1981, 1983).

As noted by Binford (1980), the differences in these two systems will be reflected in the archaeological record. Foragers typically generate only two types of sites: residential bases and resource extraction locations (hereafter simply referred to as locations). Collectors, on the other hand, generate some additional types of sites beyond those of residential bases and locations. These are temporary field camps for specially organized task groups, stations for information gathering, and caches for storing food.

Comparison of assemblage diversity (i.e., the extent of variation in artifact and feature types) from each site type provides us with useful information in examining site function (Binford 1978). It is expected that residential bases, where many



kinds of activities took place, will yield a wide variety of artifacts and features. On the other hand, temporary field camps, locations, caches, and stations will yield only a limited variety of artifacts and features, since the activities which were carried out at these sites were quite specific.

It should be pointed out that a number of additional factors complicate the interpretation of archaeological settlement patterns. First, not all sites are archaeologically recognizable. Stations in particular may be difficult, if not impossible, to recognize. Second, in a collector system, different logistical functions may not necessarily be located in separate places (Binford 1980:12). In some cases, one site may have been used for two or more purposes. Third, in a collector system, the function of one place might have changed according to the seasonal movement of the residential group. For example, a residential base during the summer might have been used as a field camp during the fall, after the group had relocated its residential base.

Given these additional factors, we must be aware that archaeological site classification does not necessarily correspond directly with the function of each site at a specific time. Rather, it reflects multiple use of each place over an extended period of time (Binford 1978, 1982). In this paper, the dichotomy between residential sites (i.e., sites which were used as a residential base at least once) and special-purpose sites (i.e., sites which were only used as field camps, caches, stations, and/or locations) will be used as a broad archaeological classification.

## Background to the Study: The Jomon Culture

Before applying the collector-forager model to the study of Jomon subsistence-settlement systems, it will be useful to briefly summarize previous studies on the Jomon Period. Jomon is the name given to the prehistoric period in Japan which follows the Palaeolithic Period and precedes the Yayoi Period. Radiocarbon dating indicates that the Jomon Period spans the time range of circa 13,000 BP to 2300 BP (Ikawa-Smith 1980). The Jomon Period is conventionally divided into six subperiods: Incipient (ca. 13,000–9500 BP), Initial (9500–6100 BP), Early (6100–4800 BP), Middle (4800–4000 BP), Late (4000–3000 BP), and Final (3000–2300 BP) Jomon Periods (for Jomon radiocarbon dating, see Keally and Muto 1982).

Most archaeologists suggest that the subsistence economy of the Jomon people was based primarily on hunting, gathering, and fishing. Although recent studies of plant remains indicate that at least a few cultigens were used during and

after the Early Jomon Period (Crawford 1992; Kotani 1981; Matsutani 1988), most believe that plant cultivation was relatively unimportant in the total range of Jomon subsistence activities (e.g., Akazawa 1986). The manufacture and use of sophisticated pottery, various kinds of polished stone tools, and archaeological remains suggesting complex ritualism, also characterize Jomon culture.

Studies of faunal and floral remains from Jomon sites indicate that four activities were important in Jomon subsistence systems: (1) gathering plant foods, (2) hunting terrestrial animals, (3) fishing, and hunting of sea mammals, and (4) collecting shellfish. Many archaeologists suggest that seasonal changes of available food resources must have had a significant effect on the subsistence strategies of the Jomon people (e.g., Kobayashi 1977).

(1) *Plant Foods.* Plants are believed to have formed an important part of the Jomon people's diet. According to M. Watanabe (1976:12), 39 taxa of edible plants have been reported from 208 Jomon sites. Most of these plant remains are nuts such as chestnuts, walnuts, and various kinds of acorns (Koyama 1978). Pits containing nut remains indicate that nut storage was an important part of the Jomon people's subsistence strategy (Tsukamoto 1993). Various kinds of smaller seeds have also been recovered (e.g., Crawford 1983). In addition, edible roots, which are unlikely to be preserved in an archaeological context, might also have been important foods.

(2) *Terrestrial Animals.* Deer and wild boar are the two dominant species found at Jomon sites, except in Hokkaido. Dental annuli analyses of deer from the Torihama shell midden in Fukui Prefecture (Nishida 1980; Ohtaishi 1983) indicate that most deer hunting occurred during the winter. Kaneko (1979) also suggests that winter was the optimum time for hunting because both deer and boar form large groups during this season. Niimi's (1991) dental annuli study of wild boar from the Ikawazu shell midden in Aichi Prefecture, on the other hand, indicates that wild boar hunting was practiced throughout the year.

(3) *Fish and Sea Mammals.* Fishing and sea mammal hunting were also important subsistence activities of the Jomon people (e.g., Akazawa 1982b, 1988). Summer would have been the best season for fishing because the water is warmer and certain migratory fish, such as bonito and tuna, would have been available then. Some archaeologists suggest that salmon fishing in autumn also formed an important part of Jomon subsistence activities (Matsui 1985; Yamanouchi 1964). It should be emphasized, however, that salmon migrated primarily to the northern part of Japan, i.e., the Tohoku region and Hokkaido (Yotsuyanagi 1983). Thus, even if salmon fishing was important, its significance was limited to northern Japan.

(4) *Shellfish*. The common presence of Jomon shell middens throughout the Japanese Archipelago indicates that shellfish collecting was an important part of Jomon subsistence activities. Archaeologists assume that shellfish were mainly gathered in the spring, since spring tides would have provided excellent conditions for shellfish gathering, and since most other food resources were scarce during this season. Koike's (1983) analyses of the daily growth lines of clams demonstrate that about 70% of her samples were collected during spring and early summer (i.e., March to June).

## Research Objectives

Having reviewed the outline of Jomon archaeology, we can now consider how to approach Jomon subsistence-settlement systems. Despite the common assumption that the Jomon people were fully sedentary, occupying permanent residential bases throughout the year, the actual Jomon settlement systems are poorly understood. In view of the evidence of food storage and seasonal changes in resource availability throughout the Japanese Archipelago, the Jomon people in general appear to have been close to the collector end of the forager-collector spectrum (Ikawa-Smith and Sahara 1985). However, the question whether the Jomon people moved their residential bases seasonally still remains unresolved.

One obvious approach to this question is through the determination of site seasonality using the result of faunal analysis. Unfortunately, however, preservation of Jomon faunal remains in open sites is generally poor because of the acidity of soil (N. Watanabe 1950). The majority of Jomon faunal remains have been recovered from shell middens, where the calcium from the shells helped preserve organic materials. Since the distribution of Jomon shell middens is largely restricted to coastal areas, studies of faunal remains provide very little information about the subsistence activities associated with inland sites. In other words, currently available faunal data from Jomon sites do not provide us with a total picture of Jomon settlement systems at the regional level. The bias could be particularly serious if both coastal and inland sites were part of a single settlement system.

Another way to examine the degree to which the Jomon people moved their residential bases by season is to compare residential sites in terms of both their size and their associated lithic assemblages. People who moved their residential bases seasonally would have used each of these sites for seasonally different subsistence activities. Consequently, we would expect considerable variability in lithic assemblages among residential sites. We would also expect that the residential sites would

vary considerably in size since the dispersion and amalgamation of residential groups is common among ethnographically documented hunter-gatherers who move their residential bases seasonally. On the other hand, if the Jomon people stayed in the same residential base throughout the year, we would expect variability in lithic assemblage and site size among residential sites to be relatively small.

## Analysis of Intersite Variability and Settlement Patterns

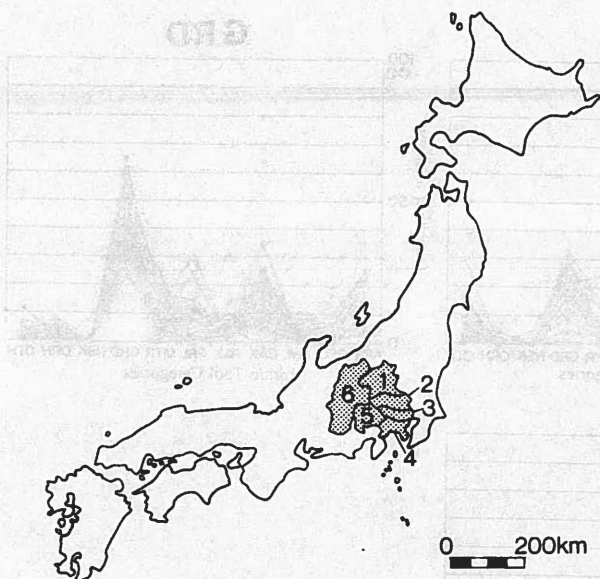
### Materials and Methods

To address the above questions, lithic assemblage variability of dwelling sites from the Moroiso phase of the Early Jomon Period was examined. "Moroiso" refers to a style of Early Jomon pottery distributed throughout the Chubu region and the southern and northwestern parts of the Kanto region. Radiocarbon dating indicates that Moroiso style pottery was used around 5000 BP (Keally and Muto 1982). "Dwelling site" refers to a site in which at least one pit-dwelling was excavated or identified. Since constructing a Jomon pit-dwelling was fairly labor-intensive, requiring the digging of a pit approximately 30–40 cm into the ground, it can be assumed that many of these dwelling sites were not temporary field camps but residential sites.

Data were taken from six prefectures (Gumma, Saitama, Tokyo [with the exception of Izu Islands], Kanagawa, Yamanashi, and Nagano) in the Kanto and Chubu regions of Japan. These six prefectures are contiguous (Fig. 1), and cover a substantial part of the areas in which Moroiso phase pottery has been reported. The research area was divided into three areas based on conventional geographic division (see Fig. 4, below). Area I is the northwest Kanto area (ca. 50–550 m above sea level). The southwestern part of this area is the northwestern edge of the Kanto Plain, whereas the remainder is more mountainous. Area II is the south Kanto area (5–150 m above sea level). This area incorporates a relatively flat coastal section, which includes several shell midden sites, while the inland section is hilly. Finally, Area III (350–1000 m above sea level) represents the Chubu Mountainous area.

A total of 241 sites from the six prefectures were identified as Moroiso phase dwelling sites. However, in many cases the lithic assemblage sample sizes from these sites were too small and inadequate for lithic assemblage comparison. As a result, only 94 of the dwelling sites, in which substantial numbers of Moroiso phase lithic tools were recorded, were used for the final analysis of lithic assemblage variability.





**Figure 1.** Map of Japan showing the six prefectures studied (shaded area). (1) Gumma; (2) Saitama; (3) Tokyo; (4) Kanagawa; (5) Yamanashi; (6) Nagano.

Quantitative data for 11 categories of lithic tools were recorded from the 94 sites. These 11 categories were (1) arrowheads (abbreviated as ARH), (2) stemmed scrapers (SSC), (3) awls (AWL), (4) chipped stone axes (CAX), (5) polished stone axes (PAX), (6) pebble tools (PBL), (7) stone mortars (MTR), (8) grinding stones (GRD), (9) net sinkers (NSK), (10) ornaments (ORN), and (11) others (OTH). Relative frequencies of these lithic tool types for each site were used as raw data for the analysis.

## Results

Figure 2 illustrates various site types based on lithic assemblage composition. In these graphs, each line represents one site. As indicated in Figure 2, the 94 sites were first divided into five types, according to the most abundant category of lithic tools in each assemblage: arrowhead peak, chipped stone axe peak, grinding stone peak, pebble tool peak, and net sinker peak sites. The majority of the 94 sites are characterized by the highest peak in the categories of either arrowheads, chipped stone axes, or grinding stones. Other than these, two sites are characterized by the highest peak in pebble tools, and one site by the highest peak in net sinkers.

In terms of assemblage variability, these sites can be classified into two subtypes (Fig. 3): multiple peak (abbreviated as m) and single peak (s). In this study, when the highest peak accounts for more than 50% of the assemblage, the site was classified as a single peak site. Single peak sites

were identified in three categories of lithic tools: arrowheads, chipped stone axes, and grinding stones.

Figure 4 illustrates the overall distribution of the 94 dwelling sites according to their lithic assemblage types and site size. The shapes of the symbols represent the highest lithic tool peaks in each assemblage. The solid symbols represent multiple peak sites, whereas the empty symbols represent single peak sites. The size of the symbols reflects site size using the maximum number of simultaneously occupied pit-dwellings in each site: small (one to four pit-dwellings), medium (five to ten pit-dwellings), and large (more than ten pit-dwellings).

## Interpretation

Three aspects of the distribution patterns presented in Figure 4 are relevant to the present discussion. First, the sites are not randomly distributed, but instead tend to form several clusters in each of the three areas. This pattern is particularly evident in Areas I and II. Such a pattern would not have been observed had the Moroiso phase people been foragers. As Savelle (1987:45) suggested, the presence of concentrations of residential sites is characteristic of collecting systems, i.e., systems adapted to natural environments in which the distribution of critical resources is uneven. It is very likely that the clusters of sites in Areas I and II indicate the presence of major resource concentrations near these site clusters.

The site cluster pattern in Area III is not as well defined as in the other two areas, probably due to the small sample size in this area. Since Area III is mountainous, and is the least developed part of the entire research area, it can be assumed that a number of sites are present but have not yet been reported.

Second, it is apparent from Figure 4 that there is considerable intersite variability among Moroiso phase dwelling sites in both (a) site size based on the total number of pit-dwellings and (b) lithic assemblage composition. Such a pattern is consistent with the model of collectors in which residential bases are moved seasonally. In terms of site size, the majority of dwelling sites are classified as small, with only one to four pit-dwellings. On the other hand, there are relatively few sites classified as medium (five to ten pit-dwellings) and large (more than ten pit-dwellings). If we assume that the majority of these dwelling sites are residential, such variability in site size may represent seasonal dispersion and amalgamation of residential groups.

In terms of lithic assemblage composition, it is important to note that arrowhead peak, chipped stone peak, and grinding stone peak sites are never

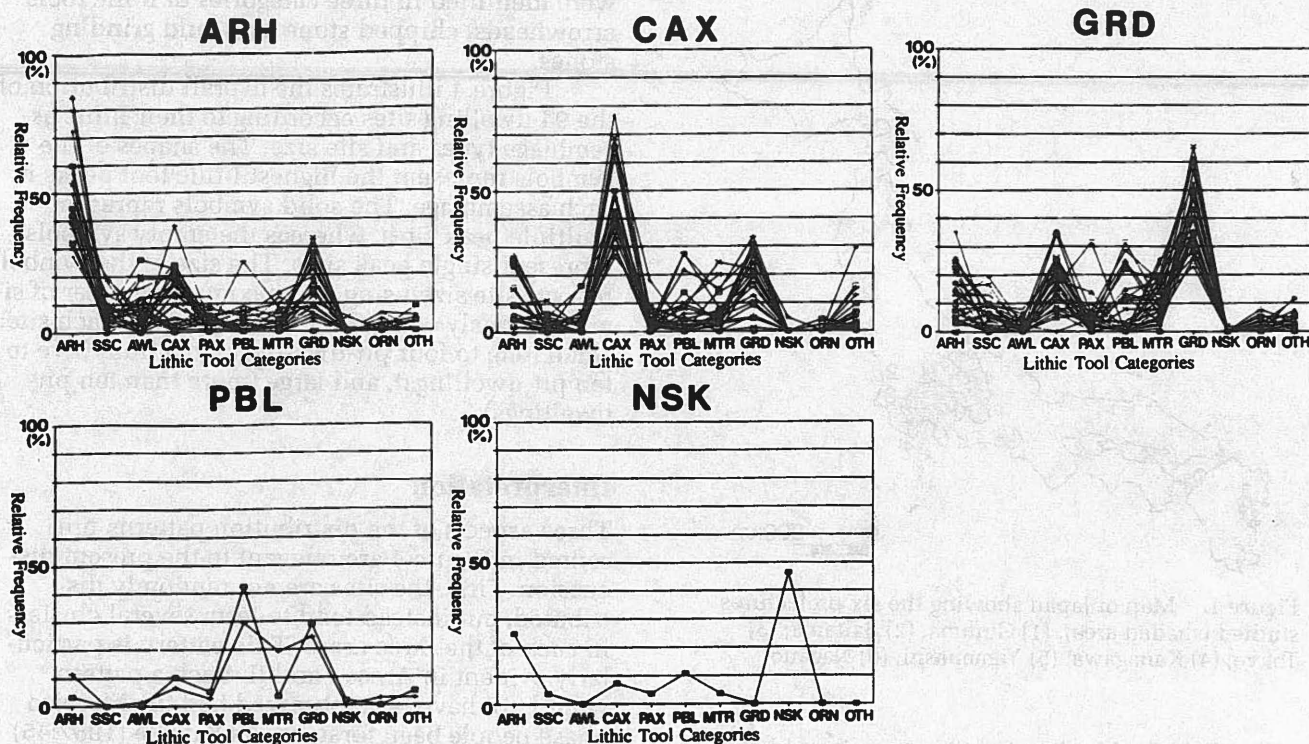


Figure 2. Five site types based on highest peak in lithic assemblage composition. ARH: arrowhead peak sites; CAX: chipped stone axe peak sites; GRD: grinding stone peak sites; PBL: pebble tool peak sites; NSK: net sinker peak site.

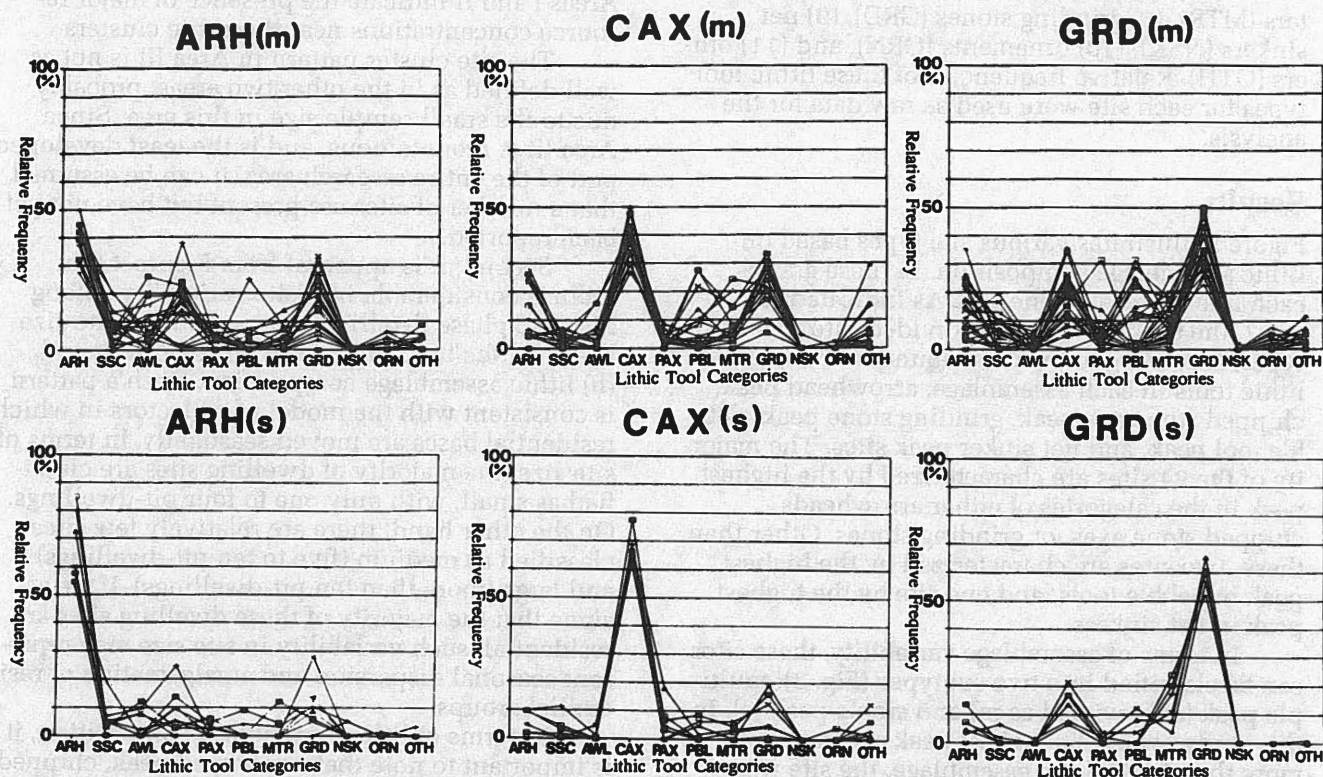
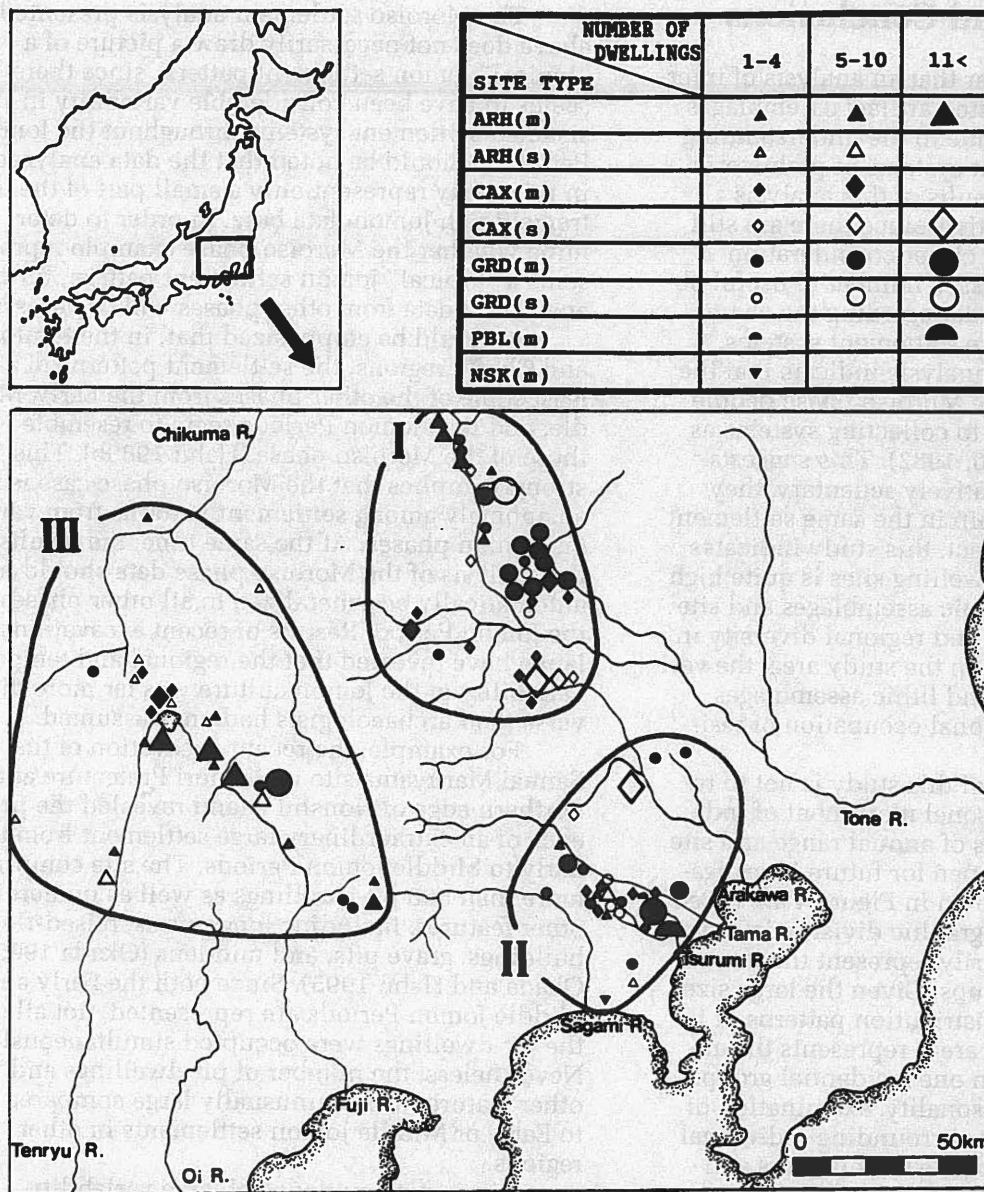


Figure 3. Multiple peak sites (m) and single peak sites (s) for three categories of lithic tools.





**Figure 4.** Distribution of sites according to site type and number of dwellings.

found exclusively in any of the three areas. Such a pattern seems to represent a great diversity of subsistence activities associated with the residential bases within each area. Of these three tool types, arrowheads must have been associated with hunting. Chipped stone axes are believed to have been used as hoes for digging; many archaeologists suggest that an abundance of chipped stone axes reflects the importance of either plant food collecting or primitive plant cultivation (Fujimori 1950, 1970; Oyama 1927). Grinding stones were probably used for processing plant food such as acorns. Given the seasonal and regional diversity in available food resources in the study area, the differences in assemblage composition may reflect seasonal occupations of the residential bases.

Finally, the presence of single peak sites (empty symbols in Figure 4) seems to indicate the dominance of a particular type of subsistence activity during the occupation period of these sites. Such a pattern can be explained by assuming seasonal occupation of these sites with associated intensive hunting/gathering activities. Alternatively, these single peak sites could be interpreted as residential sites which were also used for logistical purposes when the group relocated its residential base elsewhere. As described previously, this type of behavior is also a characteristic of collectors who move their residential bases seasonally.

## Discussion and Conclusions

From the above, it is clear that an analysis of intersite variability in associated artifact assemblages and site size can contribute to the understanding of subsistence-settlement systems of prehistoric hunter-gatherers. The results of this analysis should be taken as tentative, since there are still several factors that need closer consideration (Habu 1995). Nevertheless, a number of useful observations have been made regarding the characteristics of Moroiso phase settlement systems.

The results of this analysis indicate that the settlement systems of the Moroiso phase people correspond very closely to collecting systems as defined by Binford (1980, 1982). This suggests that while they were relatively sedentary, they did not necessarily remain in the same settlement throughout the year. In fact, this study indicates that variability among dwelling sites is quite high in terms of associated lithic assemblages and site size. Given the seasonal and regional diversity in available food resources in the study area, the variability in both site size and lithic assemblages seems to reflect the seasonal occupation of residential bases.

Since the purpose of this study is not to reconstruct the actual seasonal movement of individual groups, the issues of annual range and site seasonality will be left open for future investigation. The three areas shown in Figure 4 are based on the conventional geographic division in Japan, and thus do not necessarily represent the annual ranges of individual groups. Given the large size of these areas and site distribution patterns, it is likely that each of these areas represents the annual ranges of more than one residential group.

In terms of site seasonality, examination of the natural environment surrounding individual sites will be useful. Studying the numbers and types of various associated features, such as storage pits and grave pits, will also help clarify the characteristics of these sites. In the case of some coastal sites, results of faunal analysis may be used to interpret site seasonality.

The results of this analysis are particularly instructive when compared to the work of Akazawa (1982a, 1982b, 1986, 1988) and Akazawa and Maeyama (1986). These scholars conducted discriminant function analyses of Jomon settlements using relative frequencies of associated bone and lithic tools as variables. They used the results of these analyses to infer the differences in subsistence strategies *between* areas with different environmental conditions. In contrast, the present study focuses on intersite variability *within* each area. The differences in the results of these two analyses suggest that different levels of settlement studies can reveal different aspects of Jomon people's behavior.

The Moroiso settlement analysis presented above does not necessarily draw a picture of a "typical" Jomon settlement pattern, since there seems to have been considerable variability in subsistence-settlement systems throughout the Jomon Period. It should be noted that the data analyzed in this study represent only a small part of the extremely rich Jomon data base. In order to determine whether the Moroiso phase example represents a "typical" Jomon settlement pattern, further analysis of data from other phases will be necessary.

It should be emphasized that, in the Kanto and Chubu regions, the settlement patterns of at least some of the other phases from the Early, Middle, and Late Jomon Periods seem to resemble those of the Moroiso phase (Habu 1989b). This strongly implies that the Moroiso phase case is not an anomaly among settlement patterns from various Jomon phases. At the same time, the results of the analysis of the Moroiso phase data should not automatically be generalized to all other phases of the Jomon Period. Results of recent excavations in Japan have revealed that the regional and temporal variability of the Jomon culture was far more diverse than archaeologists had once assumed.

For example, the recent excavation of the Sannai Maruyama site in Aomori Prefecture at the northern edge of Honshu Island revealed the presence of an extraordinary large settlement from the Early to Middle Jomon Periods. The site comprises more than 500 pit-dwellings as well as numerous other features, including longhouses, raised-floor buildings, grave pits, and middens (Okada 1995; Okada and Habu 1995). Since both the Early and Middle Jomon Periods are represented, not all of the pit-dwellings were occupied simultaneously. Nevertheless, the number of pit-dwellings and other features seems unusually large compared to Early or Middle Jomon settlements in other regions.

Given such evidence of large variability among the Jomon culture, any "typical" picture of Jomon settlement patterns would appear to be inadequate. This point should be particularly emphasized when we examine changes in, and the development of, sedentism and other aspects of Jomon cultural complexity. Several lines of evidence indicate that Jomon cultural complexity developed gradually through time, reaching its highest point in the Final Jomon Period. In particular, the common presence of highly artistic artifacts, such as lacquer ware, and an abundance of religious artifacts, can be interpreted as the reflection of high cultural complexity achieved by the Final Jomon people.

Other archaeological evidence, however, indicates that the Middle Jomon culture in the Kanto and Chubu regions was the highlight of the Jomon cultural sequence. Population estimates by



Koyama (1978, 1984), based on the total number of sites from each Jomon subperiod, indicate that the population of the Japanese Archipelago increased relatively rapidly and with great stability from the Initial to Middle Jomon Periods. The population peaked at the Middle Jomon Period and then declined through the Late and Final Jomon Periods. In other words, the population history of the Jomon people does not seem to correspond with the elaboration of Jomon material culture which culminated in the end of the Jomon Period.

Which of these two trends actually reflects changes in cultural complexity during the Jomon Period? Did the Jomon culture evolve unilinearly through time, or did it reach its maximum extent during the Middle Jomon Period, and then decline gradually? How was the degree of sedentism related to these changes? These questions are also related to the issue of the transition from Jomon to the succeeding agricultural Yayoi Period. Many Japanese archaeologists interpret the complexity of the Jomon culture from the perspective of long-term cultural evolution and suggest that the high level of complexity of the Jomon culture facilitated the adoption of rice cultivation and other advanced techniques from mainland Asia at the beginning of the Yayoi Period (see Akazawa 1982b, 1986; Suzuki 1984). On the other hand, it is also possible to argue that, although the Jomon culture, especially the Jomon culture in eastern Japan, seems to have been extremely prosperous on the surface, it was essentially at an impasse which did not lead to agricultural societies (e.g., Toma 1951). These questions become particularly relevant when it is considered that the Jomon people maintained essentially a hunter-gatherer lifeway for about 10,000 years. This is in sharp contrast to the prehistoric record in mainland Asia: origins of rice agriculture in south China and millet agriculture in north China can be traced back at least to 7000 years ago (Barnes 1993), which corresponds to the Initial Jomon Period in Japan.

The only way to answer these questions is to analyze changes in various aspects of Jomon cultural complexity, including the degree of sedentism, subsistence strategies, and population density, and examine how they were interrelated. In this respect, an understanding of Jomon sedentism, and in turn their subsistence-settlement systems, is critical to improving our understanding of the nature of the Jomon culture.

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