

THE EVOLUTION OF THE BOGOTÁ CHIEFDOM: A HOUSEHOLD VIEW

by

Michael H. Kruschek

BA, Arizona State University, 1996

MA, University of Pittsburgh, 1999

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This dissertation was presented

by

Michael H. Kruschek

It was defended on

March 13, 2003

and approved by

Marc Bermann

Olivier DeMontmollin

John Frechione

Robert D. Drennan
Dissertation Director

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Michael H. Kruschek, Ph.D.

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The purpose of this investigation was to examine the evolution of Muisca chiefdoms from the viewpoint of household dynamics at the scale of a particular polity. The Bogotá polity, located near the modern town of Funza, was the core of one of the most powerful Muisca chiefdoms encountered by the Spanish. The investigation focused on the evolution of the Bogotá polity through the Herrera (800 B.C. - A.D. 800), Early Muisca (A.D. 800-1200), and Late Muisca (A.D. 1200-1600) periods. Artifacts were recovered through shovel probes and surface collections at 40 sites in order to identify discrete residential areas and recover samples of artifacts for inter-household comparison. Artifact distribution maps were used to delimit individual houselots from each of the three periods. Evidence for wealth and status differences among households was apparent as early as the Herrera period. The evidence from the Early Muisca and Late Muisca periods indicated increasing restrictions on access to wealth and status within the Bogotá polity over time. Feasting activities as a means of elite competition seem to have been more important early in the

development of the Bogotá chiefdom. Evidence for craft production and regional exchange were scarce, indicating that these activities were not particularly intensive. Furthermore, such evidence was not exclusively associated with elite households. Some elite households may have had a slight advantage in access to better quality soils, although the soils in the area are generally quite good for agriculture. The examination of the relationship between households and raised fields within the Bogotá polity produced mixed results. From the perspective of top-down elite control, there was little evidence of elite association with the construction and maintenance of raised fields. However, the contrasting bottom-up perspective of intensive agriculture as a commoner initiative was also not supported, as there were no indications of any economic advantage for the households located nearby raised fields. Overall, the results of the investigation are somewhat puzzling given the ethnohistoric accounts of powerful chiefs, social complexity, and intensive economic activities. Based on the evidence presented here, economic factors do not appear to be central to the development of Muisca chiefdoms.

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CHAPTER 1

INTRODUCTION

The Muisca are considered one of the most complex and highly developed societies of the Intermediate Area, the region between Mesoamerica and the Central Andes (Figure 1.1). While Muisca studies have primarily relied on the numerous ethnohistorical sources (e.g. Aguado (1956); Castellanos (1955); Simón (1981); along with a large number of parish records, colonial court records, and other official documents), the archaeology of the region has generally devoted more attention to artifact descriptions and ceramic chronologies than to understanding the evolution of socio-political organization. Although an increasing amount of archaeological attention has been given to the area in the last two decades (Enciso and Therrien 1996), research has also been primarily site centered rather than regional in focus. The recent surveys by Langebaek (1995; 2001) in the Fúquene and Susa valleys and the Valle de Leiva along with the initiation of a regional survey project focused on the Bogotá chiefdom located in the southern Sabana de Bogotá by Boada have begun to remedy the lack of regional studies in the Muisca area. The latter regional survey project by Boada has also led the way for the investigation that is the subject of this dissertation.



Figure 1.1. Map of Colombia showing location of the Muisca area.

The objective of the current investigation is to examine the evolution of Muisca chiefdoms from the viewpoint of household dynamics at the scale of a particular polity. The Bogotá polity was chosen as the focus for this investigation. The Bogotá chiefdom, located near the modern town of Funza, was one of the most powerful chiefdoms in the Eastern Highlands in the 16th century. The prominence of the Bogotá chiefdom, along with the availability of settlement data from Boada's survey, made it a good choice for such an investigation. The investigation examines a sample of residential occupations from different time periods within the Bogotá chiefdom in order to explore the relationship between household economy and the socio-political development of the Bogotá polity.

Muisca Chiefdoms

When the Spanish expedition commanded by Jiménez de Quesada entered the Eastern Highlands of Colombia in 1537, it found a number of large and socially complex chiefdoms living on the Sabana de Bogotá and in the valleys to the north. Population numbers for the region at this time have been estimated to be on the order of 600,000 to 1 million (Fowler 1992). Although the peoples that made up these chiefdoms all spoke Chibchan languages, there was a considerable amount of regional variation among the various Muisca polities (Langebaek 1995, 2001). At

the time the Spaniards arrived, there were four large, dominant polities (Bogotá, Tunja, Sogamoso, and Duitama) that had, for the most part, absorbed or expanded their influence over the other smaller chiefdoms and towns in the region (Figure 1.2). According to ethnohistoric accounts, the Bogotá chiefdom was the most powerful of these polities and controlled most of the Sabana de Bogotá (Broadbent 1964; Langebaek 1987).

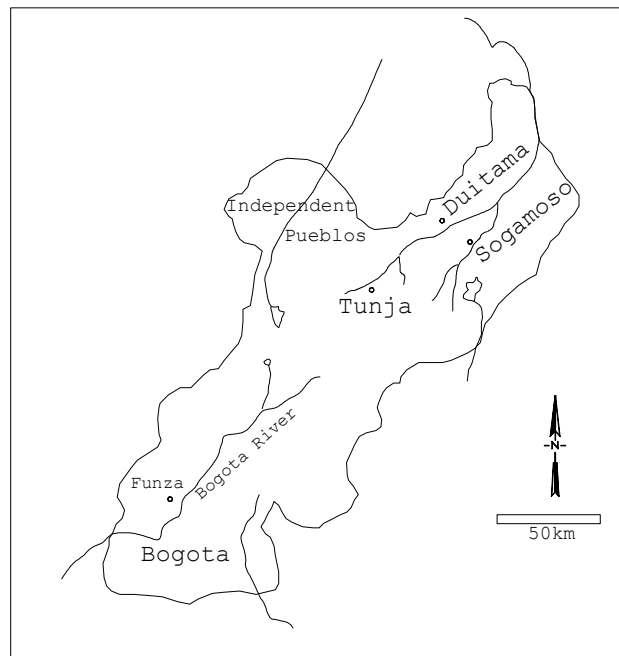


Figure 1.2. The Muisca area at the time of Spanish conquest (after Falchetti and Plazas 1973).

Chronology and Evolution

The Muisca polities encountered by the Spaniards correspond to one point in an evolutionary sequence of thousands of years. The chronological sequence for the Muisca region has been divided into four periods. The earliest period of human occupation in the Eastern Highlands is the Pre-ceramic period. Archaeological sites from this period consist of rock shelters and open-air sites utilized by hunter-gatherers dating as far back as 10,500 B.C. (Botiva 1989). Archaeological evidence from the Herrera period (800 B.C. - 800 A.D.) indicates the beginnings of sedentary villages and agriculture in the region. Current evidence from the few settlement studies available indicates very small populations distributed in small, dispersed settlements. Although some villages have been identified, most occupations probably represent single households and there is no indication of regional administrative hierarchies in the Herrera period (Langebaek 1995, 2001). Evidence for maize agriculture during the Herrera period in the form of pollen and macrobotanical remains has been identified at several locations (Cardale 1981; Correal and Pinto 1983; Botiva 1989). Additionally, the existence of intensive salt production and participation in widespread exchange networks has been documented at the site of Zipaquirá (Cardale 1981). Despite such intriguing findings, the Herrera period has generally

received less attention than the Late Muisca period and remains inadequately understood.

Evidence for settlement patterns from the Early Muisca period (800 - 1200 A.D.) suggests an increase in population and the further development of site size differences with some noticeably larger villages along with the smaller settlements (Langebaek 1995, 2001). These trends continue in the Late Muisca period (1200 - 1600 A.D.). Current evidence indicates continued population growth, increased settlement nucleation, and increased political complexity and centralization of authority from the preceding periods (Boada 1998a; Botiva 1989; Langebaek 1995, 2001). The Late Muisca period also has the benefit of a great deal of ethnohistoric documentation in addition to the archaeological evidence. In fact, most of what is known of Late Muisca society comes from these ethnohistoric sources.

Muisca Social Organization and Settlement Patterns

As might be expected for a society that we would describe as a chiefdom (Carneiro 1981; Drennan and Uribe 1987; Earle 1987, 1991), there was a certain amount of variability and flexibility in Muisca social organization. Generally speaking, at the highest level of Muisca socio-political organization the four paramount chiefs controlled large regions and received

allegiance and tribute from a number of sub-regional chiefs and local chiefs of individual towns or *pueblos*. At the local level, what the Spaniards referred to as *pueblos* were local polities headed by local chiefs. These local chiefdoms were sub-divided into a number of smaller social units that the Spaniards variously called *capitanías*, *partes*, or *parcialidades*. The number of *capitanías* in each local *pueblo* varied depending on the size of the population and probably the particular history of the *pueblo*. A sample of twenty-one *pueblos* gathered from Colonial documents (Broadbent 1964; Langebaek 1995) provides a mean of 5.7 *capitanías* per *pueblo*, ranging from one to thirteen. Each *capitanía* was lead by a hereditary *capitán*, a lesser chief who owed tribute and allegiance to the chief of the *pueblo*. Very often, the chief of the *pueblo* was himself the head of a particular *capitanía* that was distinguished in Spanish as *del cacique* or that of the chief.

Based on evidence from both ethnohistory and archaeology, *capitanías* were minimally a territorial unit (Broadbent 1964, 1966; Bernal Ruiz 1990; Langebaek 1995). It has been suggested that they were also exogamous matrilineal kin groups. However, Broadbent (1964) provides evidence in the form of Colonial period parish records demonstrating occasional marriages within *capitanías*, indicating that, at least at that time, they were probably not strictly kin groups. However, given their size and

territoriality, along with the Muisca avunculocal post-marital residence patterns, where the men brought their wives to live in the village of their maternal uncle (Correa 2001); it seems reasonable to think that some correspondence between kinship and membership in a particular *capitanía* probably developed over time.

In terms of settlement patterns, the *pueblos* that the Spaniards referred to likely identified the settlement where a particular chief had his residential compound, which probably formed the residential nucleus of at least one *capitanía*. The nuclei of other *capitanías* were generally located nearby or, in some cases, many kilometers away. Smaller and more isolated farmsteads were also dispersed around these areas of denser settlement (Broadbent 1964, 1966; Bernal Ruiz 1990; Langebaek 1987, 1995).

The Bogotá chiefdom that is the focus of the present dissertation follows just this pattern. The examination of ethnohistoric sources and parish records by Broadbent demonstrates that the modern town of Funza is the location of the ethnohistorically known Bogotá polity. According to ethnohistoric accounts, the location of the Colonial period foundation of the city of Santa Fé de Bogotá was across the Bogotá River and approximately five leagues from the Indian *pueblo* of Bogotá (Broadbent 1966: 3-4). In addition, parish

records from the town of Funza indicate that the town was known as Bogotá until around 1825 - 1832, the same era in which the name of the capital, Santa Fé, was officially changed to Bogotá (Broadbent 1966: 5).

The parish records from Funza further indicate that the Bogotá *pueblo* was composed of thirteen *capitanías*: *del Cacique*, *Say*, *Canro*, *Chinsa* (or *Chimsa*), *Tauta* (or *Tabta*), *Catama*, *Neuque* (or *Nebque*), *Busia* (or *Bucia*), *Sosatama*, *Gacha Grande*, *Gacha Chiquito* (or *Gacha Chica*), *Tibaque*, and *Chicaque*. The general locations of a number of these *capitanías* have been proposed by Broadbent (1966) and Bernal Ruiz (1990) in and around the modern town of Funza (Figure 1.3). Archaeological excavations (Broadbent 1966; Bernal Ruiz 1990) and the regional survey completed by Boada have indeed demonstrated the existence of concentrations of prehispanic settlement in the Funza area along with smaller isolated sites dispersed around them that correspond well to the proposed locations of some of these *capitanías*. One of these settlement concentrations is located within a cattle ranch known today as El Cacique, which seems to correspond to the historically documented division where the chief lived (Broadbent 1966).

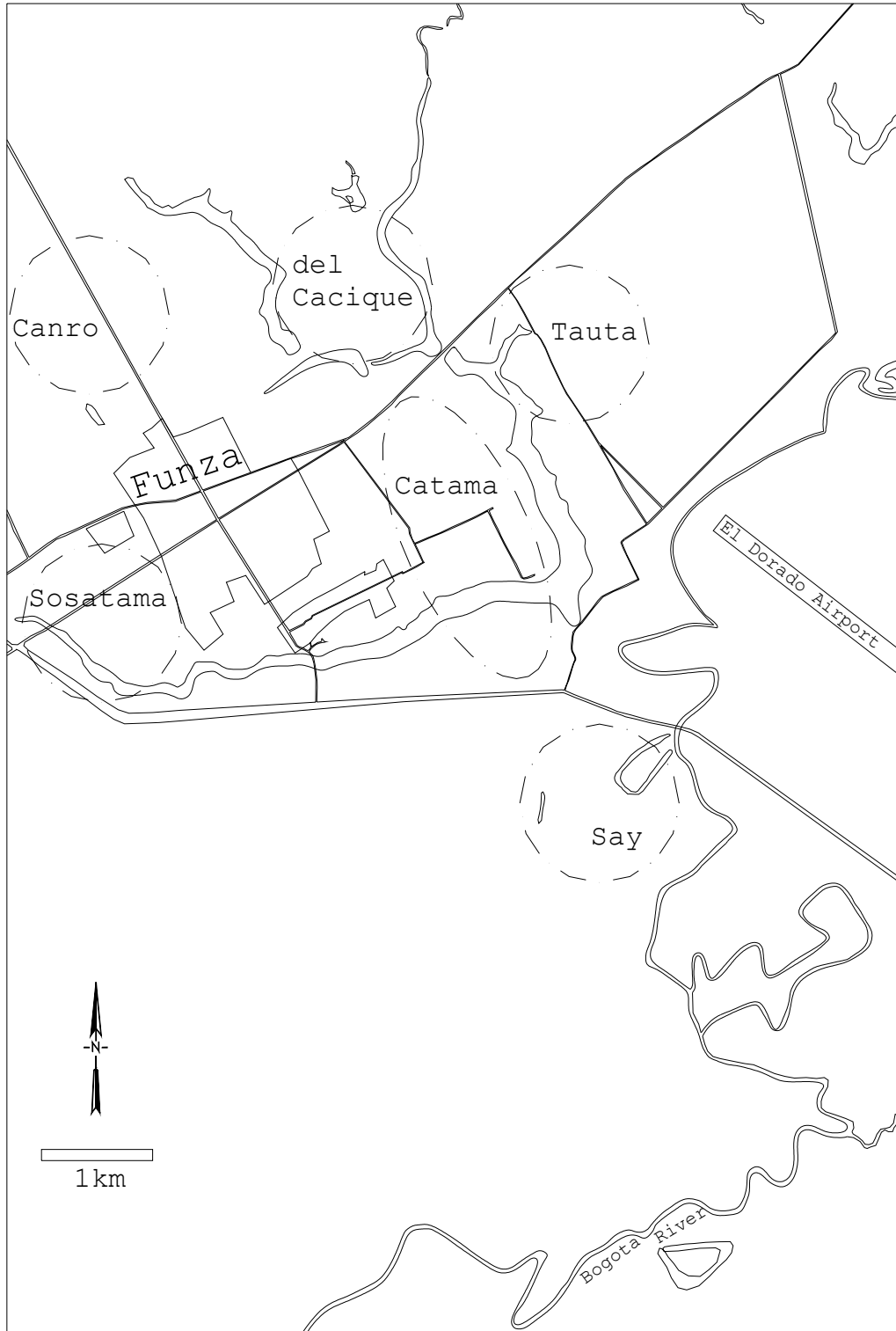


Figure 1.3. Proposed locations of six *capitanías* around the modern town of Funza.

Social Status

Although moderate status distinctions have been identified archaeologically within Muisca burials and households (Boada 1998a, 1998b, 2000), what we know of Muisca social status comes primarily from ethnohistoric sources. According to the ethnohistoric sources, the position of chief in Muisca society was passed on through matrilineal descent with a nephew of the previous chief inheriting the position. Muisca chiefs apparently varied in power and wealth. The paramount chiefs of the four major polities (Bogotá, Tunja, Sogamoso, and Duitama) were able to demand large amounts of tribute in labor, deer meat, textiles, gold, and other luxury goods. These powerful chiefs reportedly lived in large, palisaded compounds constructed with commoner labor. Such compounds were elaborate constructions that included houses for multiple wives and storehouses for surplus and tribute. There was also a hierarchical array of lesser chiefs that were ultimately subjects of the paramount chiefs, although even at the time of Spanish contact there were a number of small independent chiefdoms particularly in the northwest area of the Muisca territory. Such lesser elites were apparently entitled to better cuts of deer meat and had great social status, but were probably forced to rely more on persuasion to mobilize labor for the construction of their houses and for agricultural

production. Even the most powerful chiefs had the obligation to provide feasts and sponsor rituals for their followers, however (Boada 1998a; Langebaek 1987, 1995). Archaeologically, excavations at the central village of El Venado, in the Valle de Samacá, indicate clear but modest wealth differences along with evidence for feasting throughout the history of the village (Boada 1998a).

Economy

Spanish accounts suggest that the Muisca had a highly developed economy (Langebaek 1987, 1991; Kurella 1998). The Muisca economy was potentially founded on highly productive raised field agriculture, which could have produced sufficient surpluses to support both the chiefly elite and craft specialization. The remains of such raised field systems can still be seen on air photos and occasionally from the ground (Broadbent 1968, 1987). There are ethnohistoric accounts of evidence for Muisca craft specialization in a number of areas including ceramics, salt, textiles, and goldwork (Boada 1998a; Langebaek 1991, Cardale 1981). Archaeological evidence from the El Venado site indicates that certain households seemed to have specialized in different products, but also suggests that the elites there probably did not directly control craft production. For example, in the case of textile production, although spindle

whorls and needles were found in greater concentrations within the apparently elite La Esmeralda barrio, they were also found in the domestic refuse of other barrios at the site (Boada 1998a: 317-318).

According to Langebaek (1987, 1991), trade with neighboring lowland populations was an important component of the Muisca economy. Based on early colonial documents, Langebaek argues that lowland populations provided primarily raw cotton, gold, and animal feathers and skins in exchange for finished cotton cloth and gold ornaments from the Muisca in the highlands. However, archaeological evidence suggests that most trade was confined to the extensive intra-Muisca market network in the highlands. Actual imported items are quite rare in the Muisca area, although perishable goods such as textiles, skins, and feathers do not preserve well and are possibly underrepresented in the archaeological record (Boada 1998a; Langebaek 1995).

Research Questions

The view that we have of Muisca society from ethnohistory is of very complex chiefdoms with powerful chiefs and a highly developed economy. Archaeological evidence has begun to add an evolutionary perspective to Muisca development that indicates rather modest beginnings and slow development from low

populations and relatively little social differentiation in the Herrera period to dramatic population increases and strong centralization of political authority in the Early Muisca and Late Muisca periods. The research presented here was undertaken to investigate specific questions about the evolutionary processes that led to the socio-political changes that occurred between the Herrera and Muisca periods within the Bogotá polity. The investigation also has wider implications for understanding the nature of the evolution of Muisca chiefdoms in general as well as the evolution of chiefdoms in other parts of the world.

The present investigation is aimed at evaluating a number of factors that have been proposed to explain the development of chiefdoms in both the Muisca area and other areas of the world. However, pinpointing the prime mover in the evolution of chiefdoms in the Muisca region is not the objective of this project. Obviously, the various factors are not necessarily mutually exclusive and a number of different factors could have been present simultaneously. Moreover, some factors may have been more important at one point of the evolutionary sequence while others may have played important roles at other points in the sequence. Thus, the overall objective is to better understand what factors or combinations of factors were important in the evolutionary development of chiefdoms in the Muisca region throughout the time periods covered, and to

consider how the Muisca case compares to chiefdom development in other parts of the world.

Wealth and Status

The origin of wealth and status differences is an important topic in the evolution of complex societies (Earle 1987, 1991; Hirth 1993; Price and Feinman 1995). The examination of the development of elites in the Muisca region is central to the goals of this project. In order to do this, it is necessary to be able to identify elites in the archaeological record. Elites are typically identified through their larger and more elaborate houses, more elaborate burials, and the presence of luxury goods (obsidian, precious stones, metal, shell, textiles, bird feathers, and animal skins), decorated ceramics, and serving vessels in household assemblages or burials (Chase and Chase 1992:4; Earle 1987; Smith 1987). The lack of preserved architecture in the Muisca area makes it difficult to use house characteristics to identify elites. Also, Muisca burials excavated thus far have not demonstrated a great deal of wealth, making the excavation of burials an unattractive means of identifying Muisca elites. Instead, it should be possible to identify elites by comparing household artifact assemblages in terms of the relative proportions of the luxury goods mentioned above. Households with especially large quantities of such

items can be considered elite and it will be possible to determine when elite households appear in the Muisca area.

Economic Specialization and Exchange

Economic factors are basic elements in many theories of the evolution of complex societies. Craft specialization and networks of exchange are two specific economic factors that are often discussed. The development of craft specialization is often viewed as a defining characteristic of social complexity (Blanton et al. 1993:17) and an important foundation for chiefly power (Earle 1987, Hirth 1993, Muse 1991). The rationale for this is that aspiring elites may employ intensified craft production to create an economic advantage over others or as a source of social prestige. This intensified craft production would likely focus on the production of the highly valued prestige items often noted in chiefdom level societies, but could also involve more utilitarian items such as ceramics and chipped stone tools.

Elite control of craft production could occur in a number of ways. For example, aspiring elites could intensify craft production within their own households by increasing the size of their household labor pool or increasing their household labor output in order to support intensified craft production (Earle 1987; Hirth 1993). The craft items produced in this manner

could then be exchanged with other households in return for political alliances or staple goods. Alternatively, aspiring elites might be able to mobilize staple production to subsidize the labor of attached specialists to produce prestige items for them (Earle 1987). Another possible strategy might be to encourage craft specialization among commoner households by establishing and/or managing markets for the exchange of craft goods. Sponsoring markets in this way could generate prestige for the elite sponsor or provide opportunities to demand some form of tax or tribute from the other participants (Langebaek 1987; Kurella 1998:204).

Involvement in long distance and regional exchange networks is another characteristic often linked to chiefdom societies (Earle 1987; Flannery 1968; Helms 1994; Hirth 1992; Muse 1991; Spencer 1994; Steponaitis 1991). Access to luxury trade goods that are not available locally lends prestige to elites who are able to obtain such items. The redistribution of such luxury goods can also be used, more directly, as a means to reward loyal supporters.

According to ethnohistoric accounts, economic factors seem to have been very important in the Muisca case. Langebaek (1987, 1991) has argued that economic specialization and exchange were the foundations of Muisca social complexity. While the Muisca at the time of Spanish contact were self-

sufficient in terms of food, they maintained active trading relationships with their neighbors living on the lower slopes of the Eastern Highlands. These less complex societies reportedly traded raw materials such as cotton, animal skins and feathers, and gold to the Muisca in exchange for finished items such as textiles and gold ornaments. As indicated by Langebaek (1987, 1991) and Kurella (1998), the Muisca also had a highly developed internal exchange system with market centers that distributed items such as textiles, ceramics, salt, and fish among the various Muisca settlements.

The importance of such economic exchange within the Bogotá polity could be assessed by investigating whether exchange goods were present in the archaeological assemblages of households and whether they were concentrated in only a few households or were generally available to all households during all time periods. If exchange goods were to appear in only a few households it would suggest a very limited access to exchange networks. This might indicate that participation in such exchange networks was not important during that particular time period. Alternatively, it might indicate that elites were tightly controlling access to the exchange networks. Demonstrating this would require evidence that the households with exchange goods also appeared to be wealthier or otherwise better off than other households in the polity. If the evidence indicates that

exchange goods were not present or not restricted to only part of the population, it would indicate that participation in or the control of exchange networks was not an important factor in the development of chiefly power within the Bogotá polity.

Similarly, in terms of economic specialization, it would be possible to investigate whether evidence for craft production, as indicated by greater amounts of spindle whorls and waste products of lithic or ceramic production, was concentrated at only some households or if all households appear to have participated in craft production to the same degree. If all households did not participate equally in craft production, then it might indicate that some households were specializing in particular economic activities such as ceramic, lithic, or textile production. If some houses were specializing in the production of such items, the next consideration would be whether elites were controlling this craft production. If elites were controlling craft production, then elite households, those that appear to be wealthier or higher in status, should be the ones with the most evidence of craft production. Alternatively, in the case of attached specialists, the households with the most evidence of intensive craft production should be located close to the wealthier elite households. If evidence for intensive craft production were not associated with elite households in this manner, it would indicate that the

control of craft production was not an important factor in the development of chiefly power in the Bogotá polity.

Resource Control

The control of basic productive resources is also frequently discussed as an important factor in the development of chiefdoms (Earle 1987, 1991; Gilman 1991; Spencer 1993). The control of valuable productive resources such as farmland, irrigation facilities and water sources, or mineral sources is one means that elites could use to establish and maintain power over non-elites in a society. Such control could be established in a number of ways. For example, the first settlers in a region might claim the best lands forcing later arriving households onto more marginal lands. Productive resources could also be seized outright through military force. A third possibility would be through investment in intensive agricultural facilities such as irrigation systems or raised fields. Elites might construct these facilities themselves or direct the labor of commoners in their construction and maintenance. By whatever means, controlling these key productive resources would provide an economic basis for chiefly power.

In the Muisca case, Langebaek (1987, 1991) claims that the Muisca controlled parts of the slopes of the Eastern Highlands

in order to have access to variable environmental zones for the production of crops that did not thrive in the *altiplano*. The evaluation of this claim would require the study of regional settlement patterns on a very large scale and is beyond the scope of the present investigation. However, at the smaller scale of the Bogotá polity studied here, it is possible to examine whether the control of certain resources was important. For instance, there is clear evidence that raised fields were employed for agriculture on the Sabana de Bogotá and remnant raised fields have been identified within the Bogotá polity (Broadbent 1968, 1987; Bernal Ruiz 1990).

The present investigation will be able to examine the role of two aspects of resource control in the development of the Bogotá polity. Specifically, this investigation will consider whether there are differences between the artifact assemblages of households in areas of better soil or those located near raised fields and households located farther away from these resources. If households located close to good soils or raised fields appear to be wealthier than other households, it would indicate that elite households were able to control better farmland and raised fields and that the control of these resources may have served as an important source for chiefly power.

Feasting and Prestige Competition

A final factor relevant to the development of Muisca chiefdoms is prestige competition among elites. It is often theorized that aspiring elites compete for followers by giving feasts or sponsoring rituals that are used to recruit and maintain followers through gift giving and also creating debt relationships (Clark and Blake 1994; Earle 1991). According to such models, elites arise in a context of factional competition (Brumfiel 1994) where they are competing with other aspiring elites for the allegiance of followers. Therefore, economic power is not necessarily a requirement for chiefly power. Instead, aspiring elites may gain power through the development of great social prestige within their communities and the ability to mobilize support and resources through personal relationships.

Boada (1998a) and Langebaek (1991) have both proposed that Muisca elites competed for followers by hosting feasts and/or religious rituals. Since frequent feasting activities tend to involve serving large quantities of food and drinks, such as *chicha* or maize beer, they are often identified archaeologically through the presence of large quantities of serving vessels. Thus, the use of feasting as an elite strategy in prestige competition might be detected within the Bogotá polity if

ostensibly wealthier or higher status households have greater percentages of serving vessels relative to other households.

Program of Research

Perhaps not surprisingly, most of the chiefdoms literature and theory are very elite centered and do not directly address the effects on commoners. Although particular benefits or costs to commoners are generally assumed to have existed, an adequate sample of commoner households is rarely examined to see if this is actually the case. This investigation is different in that it is not chief-centered, but examines a wider range of households within the polity rather than focusing exclusively on elite burials and activities at a regional or ceremonial center.

The aim of this research is to examine the relationship between domestic organization and the evolution of chiefdoms of the Sabana de Bogotá. In order to accomplish this goal, the project attempts to make comparisons between pre-historic households within one of the most highly developed polities in the Muisca region of Colombia. The intent of the project is to provide information that would help to fill the gap between regional scale studies and household scale studies in the Muisca region, integrating detail on the smaller scale household dynamics with the wider view of the socio-political development

of the Bogotá chiefdom. Regional scale studies, such as those by Boada in Funza and Langebaek (1995 and 2001) farther north, have begun to give us an idea of Muisca regional settlement patterns, population levels, and the development of social hierarchies at the regional scale. Yet these studies lack detail on household scale processes and variation in their respective regions. Household scale studies (Broadbent 1962; Enciso 1989; Boada 2000) have provided some of the missing data on Muisca household processes and variation. Recent work by Boada (1998a, 1998b) has been especially notable in examining Muisca households in the context of a wider community, although still from the perspective of single, relatively nucleated sites.

In order to examine the research questions posed above, the present investigation tries to move between the regional scale and household scale. Recently, this intermediate or community scale analysis has been the subject of increased attention in the archaeological literature (Kolb and Snead 1997; Yaeger and Canuto 2000; Marcus 2000). Thus, the project investigates individual households, yet keeps them in the context of the wider Bogotá polity. In addition, the investigation also takes a diachronic perspective looking at the evolution of the Bogotá polity through the Herrera, Early Muisca, and Late Muisca periods. To meet these goals, the project requires, first of

all, regional settlement data from each of the three chronological periods in order to identify locations where the archaeological remains of households are likely to be found and to provide a regional context for the relationships between households within the Bogotá polity. These data were largely provided by Boada's survey and ethnohistoric accounts (Broadbent 1966; Bernal Ruiz 1990). At the household scale, the project requires data from individual households from each of the three time periods. It is first necessary to identify the locations of individual households to investigate. Then, at each of these household locations it will be possible to recover a sample of artifacts that are representative of the activities that occurred at each household in order to compare with other households. One strategy to recover such household data would be to locate and completely excavate a number of Muisca houses. However, given the time and financial constraints that we were under, we would have been able to locate and excavate perhaps 3-5 houses. Thus, to investigate the three periods would mean working with only one or two houses from each period and would entail a very limited regional distribution as well. With only one or two houses in each period it is rather unlikely to capture the full range of variation within the population of each period. A sample of perhaps 30 households from each period would be more likely to represent the full range of variation.

A program of shovel probes and surface collections is a quick and effective means to obtain a sample of households that large and at the same time collect the necessary sample of artifacts to characterize the household assemblages.

An initial phase of regional survey was carried out in the area to the south of the limits of the survey completed by Boada (Figure 1.4), an area of approximately 8.65 km². Since aerial photos indicated that this area contained raised fields along the Bogotá River, it was hoped that it would be possible to locate occupational sites associated with the raised fields. An additional motivation for surveying the zone was that the archaeological record there is under immediate threat of destruction by the continued expansion of the city of Bogotá. The area is primarily utilized for commercial cattle pasture along with small amounts of flower and vegetable cultivation. The dense grassland vegetation on the Sabana de Bogotá severely hinders visibility of the ground surface, making surface collection methods impractical except within present day cultivated fields. Therefore, the methods employed in the survey included shovel probes in pasture areas and surface collection in cultivated fields. Shovel probes were excavated at intervals of approximately one every hectare and consisted of 40 cm x 40 cm holes generally 40 cm in depth. Surface collections made in cultivated fields consisted of collection of

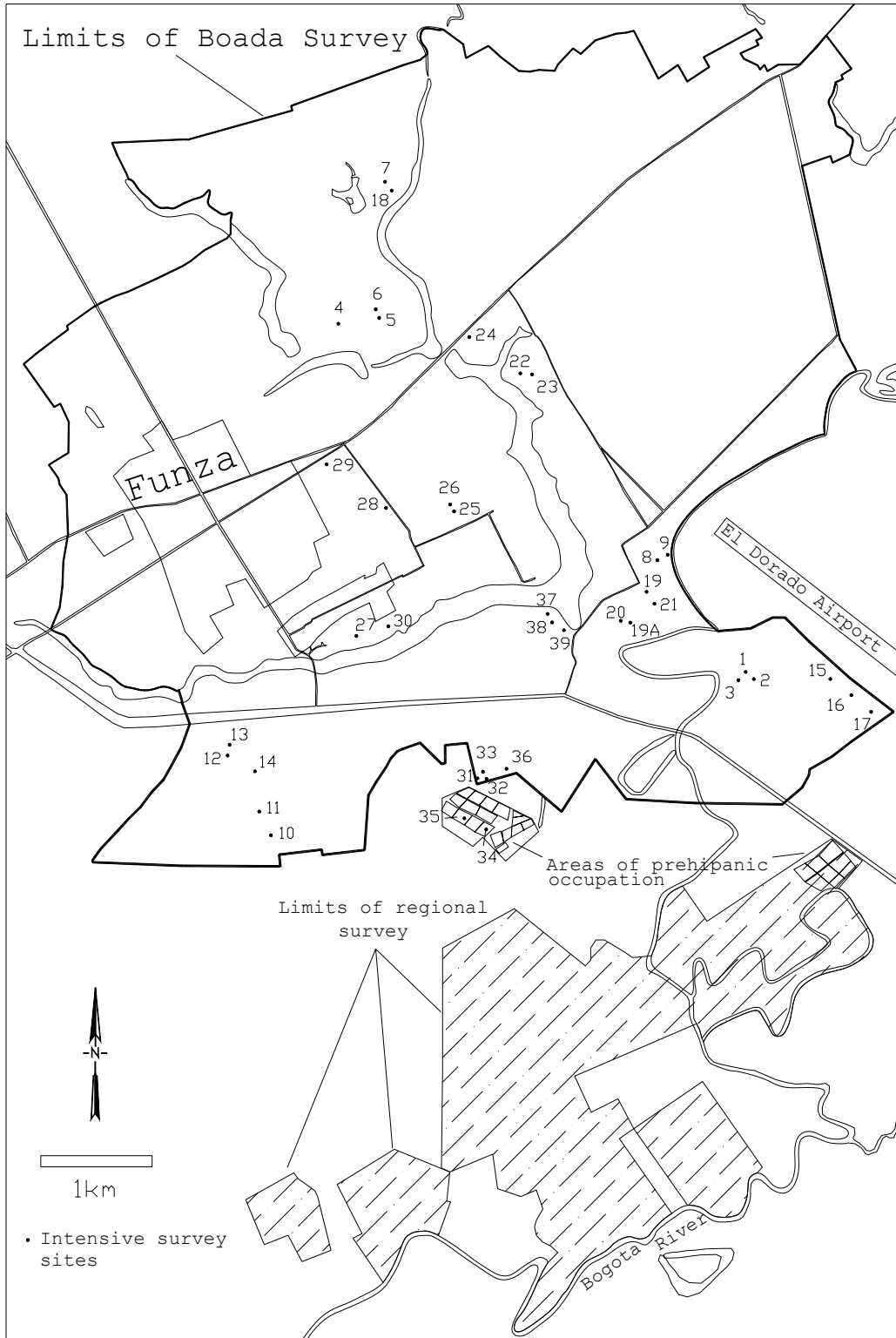


Figure 1.4. Area surveyed and location of intensive survey sites.

all artifacts discovered on the ground surface while walking along the plow furrows of each field. In general, very little evidence for prehistoric settlement was encountered in the zone surveyed. However, two areas of prehistoric occupation were identified. Ceramics from the Herrera, Early Muisca, and Late Muisca periods were encountered at both locations.

Following the regional survey, a second phase of more intensive investigation was carried out at 39 locations of prehistoric occupation identified by regional survey (Figure 1.4). The purpose of this more intensive phase of research was to identify the locations of individual houselots and recover samples of artifacts from them. These locations were selected for additional testing based on the presence of prehistoric ceramics identified in the regional survey and the ability of the author to obtain permission from landowners to work on their property. Thirty of the sites investigated are located in pasture areas. These sites were investigated through intensive shovel probe testing. Artifacts were recovered using transects of 40 cm x 40 cm shovel probes excavated at 5 m intervals. An average of approximately 88 shovel probes were excavated at each site.

Nine regional survey sites that were located in cultivated fields were also selected for intensive testing. Large quantities of ceramics were recovered at these nine sites during

the regional survey, which suggested that surface collection might be an effective means of data collection. Therefore, intensive surface collection was carried out in these nine cultivated fields. At each cultivated field investigated in this manner, the farmers had already created evenly spaced plow furrows. These plow furrows were used as convenient transects for the collection of artifacts within the fields and artifacts were recovered from the ground surface by walking along the plow furrows. This method allowed a nearly complete coverage of each field.

A total of 2,403 shovel probes and 3,128 surface collections were made during the intensive survey portion of the project. Based on the distributions of artifacts discovered in the shovel probes and surface collections, the locations of 101 discrete household occupations have been defined corresponding to the Herrera, Early Muisca, and Late Muisca periods.

CHAPTER 2

CERAMIC CHRONOLOGY

A great deal has been written about ceramics in the Muisca area and there have been many debates over the 'correct' or preferred typology of Muisca ceramics (Boada, Mora, and Therrien 1987; Castillo 1987; Lleras Pérez 1987; Langebaek 1995). Since such discussions of Muisca ceramics are already available elsewhere and not central to the objectives of the present study, there is little need to devote too much attention to the topic here. Instead, this chapter will concentrate on those aspects of Muisca ceramics and chronology that are most relevant to this study.

Since the present project utilizes shovel probes and surface collections, rather than stratigraphic excavations, as the means of artifact recovery, it is dependent on the use of ceramic classification to establish chronology. The ceramic classification for this project was therefore geared towards chronology - namely a fairly quick and simple way to assign recovered material, and ultimately individual houselots, to a particular time period. Obviously there are other methods and objectives to ceramic classification, classifying by vessel form, for example. However, a focus on chronology was essential for the purposes of the current study. Of course, the ceramic

classification utilized in this study does not preclude future reclassifications of the ceramic collection recovered with different goals.

The ceramic classification that was used largely follows Broadbent (1970, 1971, 1986) and was consistent with the ceramic classification of the regional survey material collected by Boada. Sherds were assigned to particular types based primarily on surface treatment and characteristics of the paste. Since relatively few rims were recovered in the investigation, considerations of vessel form were simply not possible for the vast majority of sherds analyzed.

The three chronological periods of principal interest to this study are the Herrera (800 B.C. - A.D. 800), Early Muisca (800 - A.D. 1200), and Late Muisca (A.D. 1200 - 1600). The ceramic types which correspond to these three periods are the following:

Herrera Period

Mosquera Rojo Inciso (MRI) was originally defined by Broadbent (1970, 1971). It is the most common Herrera period ceramic type in the Funza area, accounting for 7.33% (1445 sherds) of the ceramics recovered in the intensive survey program of this investigation. MRI sherds have been recovered at many sites of the Sabana de Bogotá (Bernal Ruiz 1990; Broadbent 1970, 1971;

Cardale 1981; Ardila 1984; Correal and Pinto 1983) and also the western slopes of the Eastern Highlands (Peña 1991). The type becomes rarer as one moves from south to north and is largely absent in the ceramic assemblages of the northern Muisca area. As the name suggests, this type is characterized by a thick red slip and frequent linear incisions. Such surface decoration is extremely common. The paste ranges from light and dark brown to dark gray in color and tends to be coarse grained with sand, quartz, and mica temper.

Mosquera Roca Triturada (MRT) was defined by Broadbent (1970, 1971). This type is found throughout the Muisca area (Broadbent 1970, 1971; Cardale 1981; Ardila 1984; Correal and Pinto 1983; Peña 1991; Lleras Perez 1989; Langebaek 1986, 1995; Castillo 1984; Boada 1998a) and made up 2.13% (419 sherds) of the ceramics collected in the intensive survey program of the current investigation. MRT is most easily identified by the presence of pitting on the surface from the dissolution of calcite temper in the paste. Color ranges from buff to dark brown or dark gray. Incisions and punctations are fairly common forms of decoration.

Zipaquirá Desgrasante Tiestos Doméstico (ZDTD) was originally described by Cardale (1981). The type has been found at a

number of sites on the Sabana de Bogotá (Cardale 1981; Ardila 1984) and comprised 0.85% (168 sherds) of the ceramics recovered in the intensive survey program of this investigation. ZDTD sherds are characterized by a very compact paste with the inclusion of pieces of crushed sherd as temper. While the interior is generally dark gray (almost bluish) in color, the surface ranges from buff to dark gray and sometimes has a red or buff slip.

Zipaquirá Desgrasante Tiestos para Sal (ZDTS) was originally identified by Cardale (1981) at the site of Zipaquirá where such vessels were used in the evaporation and transportation of salt. The type has been recovered from sites throughout the Muisca area (Ardila 1984; Correal and Pinto 1983; Peña 1991; Langebaek 1986; Boada 1987, 1998a; Castillo 1984) and made up 1.79% (353 sherds) of the ceramics collected in the intensive survey program of this investigation. It is often easily identified by a distinctive pale orange or pink color and a distinctive erosion pattern on edges. Crushed pieces of sherd are commonly used as temper.

Early Muisca Period

Tunjuelo Arenoso (TA) was identified by Broadbent (1970, 1971). The type has been found in the Funza area (Broadbent 1970, 1971;

Bernal Ruiz 1990) and is likely related to the Arenoso wares that are common in the northern Muisca area (Boada 1987, 1998a; Langebaek 1995; Castillo 1984; Falchetti 1975). The type comprises 1.45% (285 sherds) of the ceramics collected in the intensive survey program of the present investigation. TA sherds generally have a light to dark brown surface and are occasionally decorated with orange paint. The paste is generally light orange in color with large particles of sand as temper.

Cuarzo Fino (CF) was first described by Broadbent (1970, 1971) who argued that it was similar to many sherds identified by Haury and Cubillos (1953) as Types D and E. The type seems to be very common on the Sabana de Bogotá (Broadbent 1970, 1971; Bernal Ruiz 1990; Lleras Perez 1989; Correal and Pinto 1983; Peña 1991) and very rare in the northern Muisca area. *Cuarzo Fino* was the most common ceramic type recovered in the current project, accounting for 25.94% (5114 sherds) of the ceramics from the intensive survey program. The paste is fine grained and compact with small pieces of sand and quartz temper. Surface color ranges from buff to brown or gray. Decoration is fairly common and includes linear incisions and punctuations on rims and a red slip or paint. Many examples of *Cuarzo Fino* sherds clearly come from very fine vessels, suggesting that they

may have served as ritual or prestige goods, although plainer, more utilitarian vessels were also made.

Cuarzo Abundante (CA) was first described by Broadbent (1970, 1971). The type is common on the Sabana de Bogotá and has also been found in the northern Muisca area (Broadbent 1970, 1971; Ardila 1984; Langebaek 1986; Boada 1987; Castillo 1984). *Cuarzo Abundante* was the third most common type recovered in the current investigation, making up 16.19% (3191 sherds) of the ceramics from the intensive survey collections. Surface color ranges from cream to brown or gray. The paste is compact, generally dark in color with abundant fine quartz temper. Occasionally there is a cream, reddish brown, or a very distinctive dark reddish-purple slip.

Late Muisca Period

Desgrasante Gris (DG) was defined by Broadbent (1970, 1971). The type is found throughout the Muisca area (Broadbent 1970, 1971; Bernal Ruiz 1990; Lleras Perez 1989; Langebaek 1986, 1995; Boada 1987, 1998a; Castillo 1984) and is the second most common ceramic type recovered in the current project, comprising 21.02% (4144 sherds) of the ceramics from the intensive survey collections. Surface color ranges from white and light gray to brown, but often is a very distinctive pinkish orange. The

paste is compact and has abundant spherical or lenticular mineral temper that is generally visible on the surface. Red and white paint are the most common form of decoration.

Laminar Duro (LD) was first described by Broadbent (1970, 1971). The type is found on the Sabana de Bogotá and makes up 7.11% (1401 sherds) of the ceramics from the intensive survey program of this investigation. *Laminar Duro* sherds range from cream or light gray to brown, but a pinkish orange surface color is common. The paste is light to dark gray in color and has a very compact and laminated appearance. Sherds of this type make a very distinctive high-pitched sound when struck.

Guatavita Desgrasante Tiestos (GDT) was initially described by Broadbent (1970, 1971). Broadbent (1970, 1971) states that GDT ceramics are very common at sites near Guatavita, Tocancipá, and Sopó on the Sabana de Bogotá while they appear to have been rarer at other sites throughout the Muisca area. This pattern suggests to Broadbent that they may have been used as ritual vessels and is supported by the wide distribution but small numbers of GDT sherds found at various sites in the Muisca area (Broadbent 1970, 1971; Bernal Ruiz 1990; Ardila 1984; Lleras Perez 1989; Langebaek 1986, 1995). In the current investigation, GDT ceramics comprise 4.84% (955 sherds) of the

ceramics from the intensive survey collections. This type usually has a buff or gray surface color. The paste is very compact, often laminar, and typically has a temper composed of red or brown crushed sherds. Red and white slips and painting are very common forms of decoration.

Discussion

The chronological periods in the Funza area that are most clearly identifiable archaeologically are the Herrera and Late Muisca periods. These two periods show an unambiguous differentiation in terms of ceramic style and technology, stratigraphy (Boada 1998a; Cardale 1981; Castillo 1984), Carbon-14 dates (Langebaek 1995), and spatial distribution (Boada 1998a; Broadbent 1970, 1971; Langebaek 1995). Identifying Early Muisca period occupations is more problematic for the Sabana de Bogotá than it is in the northern Muisca area. The Arenoso wares that are typical markers of Early Muisca occupations in the northern part of the Muisca area, particularly in parts of Boyacá (Langebaek 1995, Boada 1998a,b), are not very common in ceramic assemblages from the Sabana de Bogotá. As mentioned above, *Tunjuelo Arenoso* sherds made up only 1.45% of the ceramics collected during the intensive survey portion of this investigation. The two common ceramic types that are

attributable to the Early Muisca period on the Sabana de Bogotá, *Cuarzo Fino* and *Cuarzo Abundante*, are somewhat problematic. These two types likely overlap chronologically to an unfortunate degree with ceramic types of the other two periods. For example, many examples of *Cuarzo Fino* and *Cuarzo Abundante* sherds have clear continuities with certain Herrera types in terms of paste and decoration. Yet, in the collections recovered in the intensive survey of the current project, the two types also seem to share a good degree of spatial continuity with Late Muisca ceramic types as well. This degree of continuity in ceramic styles makes it difficult to sustain arguments about foreign invasions and population replacements as explanations for social and technological changes that occurred on the Sabana de Bogotá between the Herrera and Early Muisca periods. However, it also makes the use of these two ceramic types for chronological purposes more difficult. Nonetheless, recent comparisons with ceramics from Boyacá suggest that many of the ceramics classified as *Arenoso* wares dating to the Early Muisca period in Boyacá are very similar to types that this investigation on the Sabana de Bogotá classified as *Cuarzo Abundante* (Francisco Romano personal communication). Thus, there is reason to believe that *Cuarzo Abundante* ceramics can be dated to the Early Muisca period on the Sabana de Bogotá as well.

The use of *Cuarzo Fino* and *Cuarzo Abundante* as markers of the Early Muisca period can also be supported by the distribution of ceramics at the sites from the intensive survey portion of the present investigation. However, simply utilizing the varying proportions of ceramic types from the assemblages discussed here to establish chronology is not a straightforward matter and must be done with caution. Since shovel probes and surface collections lack distinct stratigraphic units, one cannot assume that the relative proportions from such shovel probes and surface collections are chronologically meaningful. In other words, shovel probes and surface collections may include a mix of material from chronologically distinct occupations with no stratigraphic clues to distinguish which material is associated with each occupation. Nevertheless, even without stratigraphic information, the proportions of different ceramic types at the sites investigated in the current study do suggest some chronological patterns. Broadbent (1970, 1971) made similar arguments based on regional survey data from the nearby Laguna de la Herrera. Figure 2.1 illustrates the proportions of the ceramic types discussed above at sites investigated in the intensive survey program. Some of the sites investigated appear to have overwhelming amounts of certain types, such as *Cuarzo Fino* and *Cuarzo Abundante* at Site 4, Site 5, Site 6, Site 16, and Site 17. The Herrera period ceramics

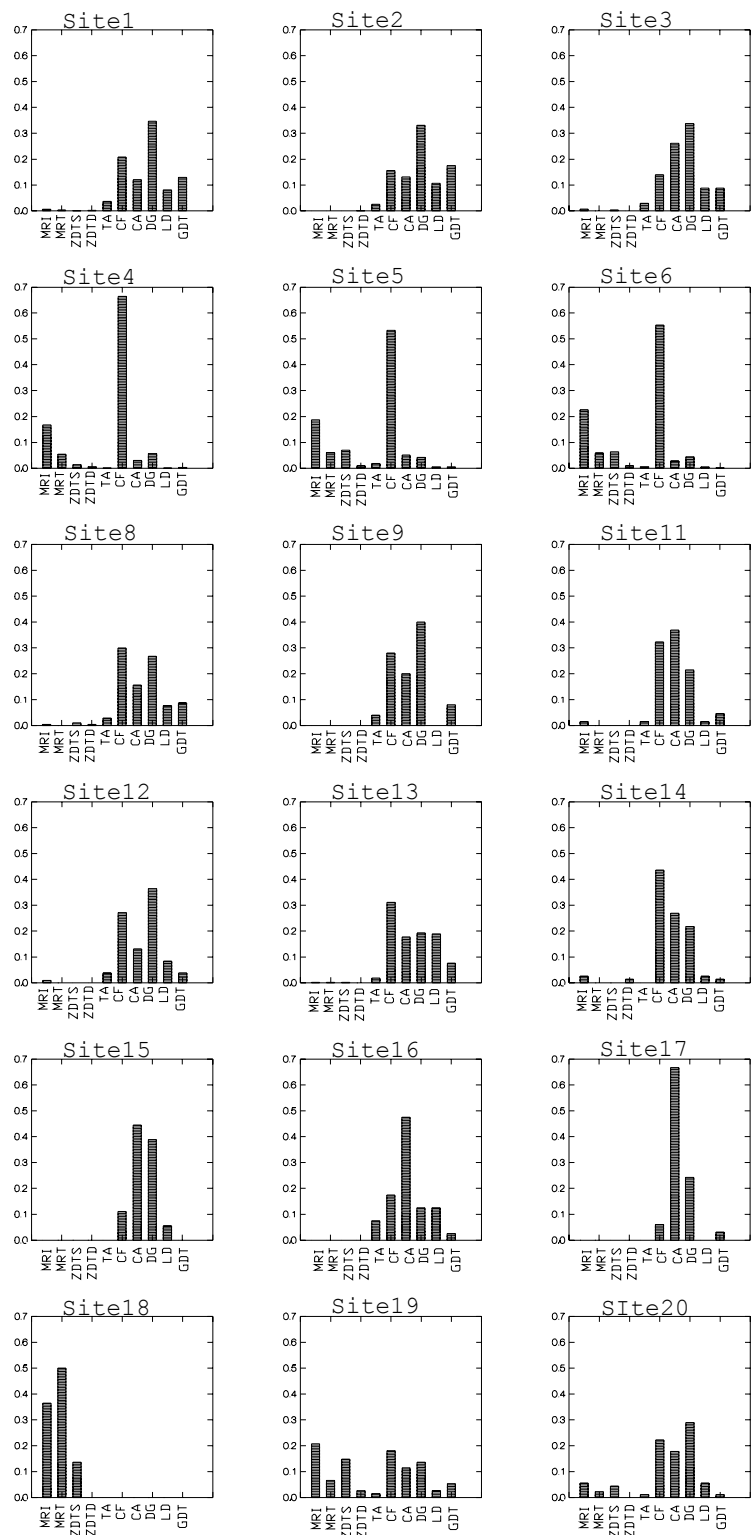


Figure 2.1. Ceramic type proportions at intensive survey sites.

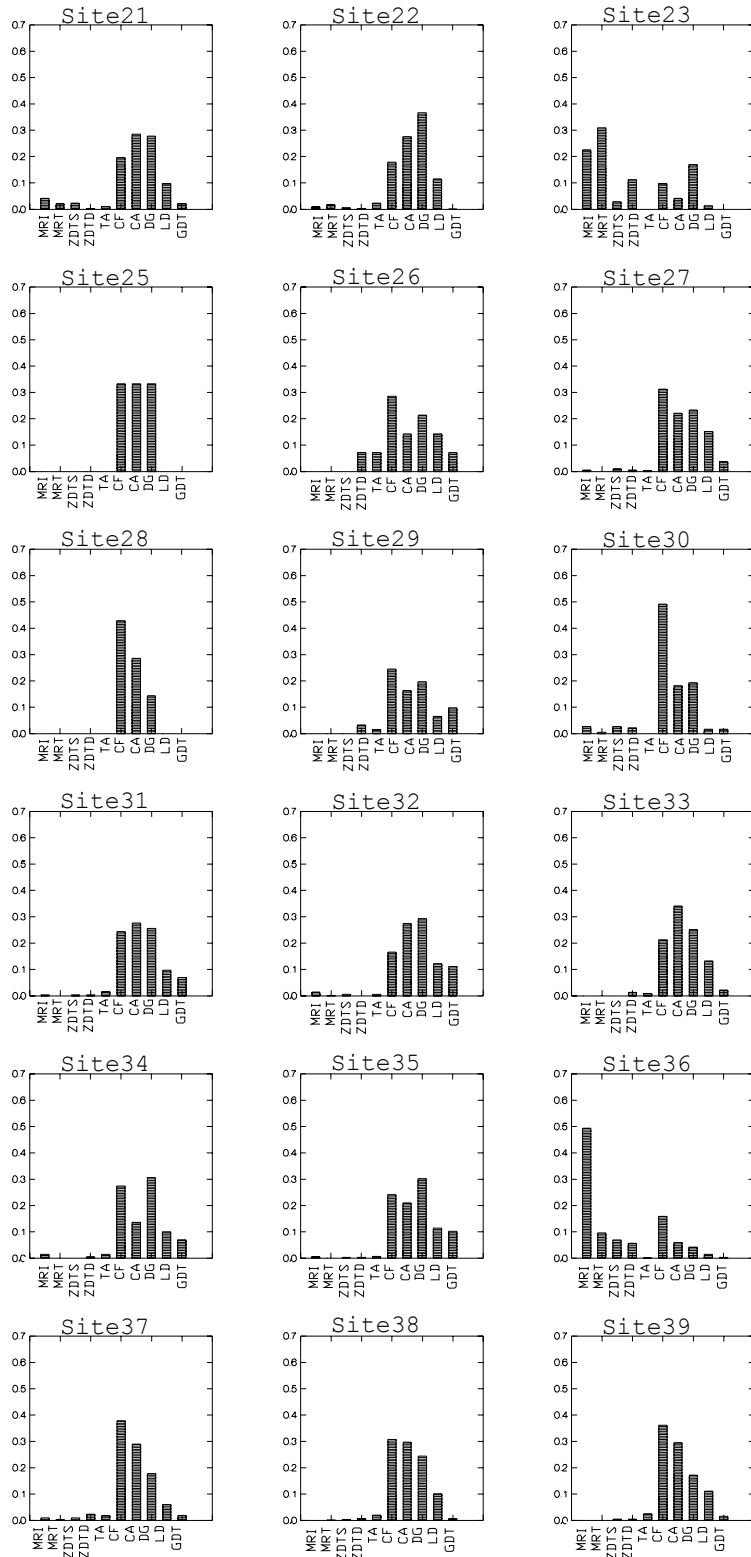


Figure 2.1. (continued)

(MRI, MRT, ZDTD, and ZDTS) are generally less abundant but at a few sites, such as Site 4, Site 5, Site 6, Site 18, Site 19, Site 23, and Site 36 are found in unusually large proportions. The Late Muisca ceramic types also seem to occur in somewhat consistent proportions at most sites. For example, LD and GDT never appear in greater proportions than DG and are almost always less than about half of the proportion of DG at each site. These patterns suggest that the Herrera, Early Muisca, and Late Muisca ceramic types have independent distributions. These are just the kinds of patterns that we would expect to see with chronologically distinct ceramic types.

An alternative way to look at the patterns in the ceramics from the intensive survey collections is to look at what ceramic types tend to be found together at a given site. All things being equal, we would expect contemporaneous ceramic types to vary in similar patterns. For example, the presence of the Herrera period ceramic types, like MRI and MRT, should be correlated. When MRI is present at a site in large quantities, MRT should also be present in relatively large quantities. Similarly, when MRI is present at a site in small quantities, MRT should also be present in relatively small quantities. This approach is complicated to some extent by the mixing of distinct temporal occupations. But, such mixing should tend to randomize correlations between chronologically distinct types, producing

few clear patterns. However, if the Herrera period ceramic types have strong positive correlations with each other and weak or strong negative correlations with Early Muisca and Late Muisca ceramic types, it would be evidence that the Herrera types do indeed have some chronological validity (Table 2.1). Likewise, if the Early Muisca period ceramic types have strong positive correlations with each other and weak or strong negative correlations with Herrera and Late Muisca ceramic types, it would be evidence that the Early Muisca types have some chronological validity. Similarly, if the Late Muisca period ceramic types have strong positive correlations with each other and weak or strong negative correlations with Herrera and Early Muisca ceramic types, it would be evidence that the Late Muisca types have some chronological validity, as well. However, if the correlations do not produce these patterns, then it would indicate that either the ceramic types are not

Table 2.1. Summary of possible outcomes supporting the current ceramic chronology.

	Herrera	Early Muisca	Late Muisca
Herrera	strong positive	weak or strong negative	weak or strong negative
Early Muisca	weak or strong negative	strong positive	weak or strong negative
Late Muisca	weak or strong negative	weak or strong negative	strong positive

chronologically valid or that most of the sites represent mixes of different temporal occupations. Thus, this type of analysis could either support or undermine the chronological ordering of the ceramic types.

The sites from the intensive survey can be used as a sample to examine the chronological relationships between the different ceramic types in the manner discussed above. Five of the sites tested in the intensive survey were excluded from the sample because there were fewer than 20 collections made at each of these sites. The remaining 34 sites provided the data for the analysis. The data consist of the number of sherds of each type recovered from each of these 34 intensive survey sites.

Table 2.2 provides the matrix of Pearson's r correlation coefficients for the ceramic types at the sites in the sample. As the correlations in Table 2.2 show, the Herrera Period types (MRI, MRT, ZDTD, and ZDTS) all have moderately strong to very strong correlations with each other and very weak correlations with the Early and Late Muisca types (with the exception of the moderate correlation between MRT and CF, $r=0.608$). Similarly, the Late Muisca types (DG, LD, and GDT) all have strong to moderately strong correlations with each other, while they have very weak correlations with the Herrera types. The proposed Early Muisca types (TA, CF, and CA), on the other hand, present a more confusing situation. TA actually shows a weak

Table 2.2. Pearson's r correlation matrix for ceramic types at intensive survey sites (n=34).

	MRI	MRT	ZDTD	ZDTS	TA	CF	CA	DG	LD	GDT
MRI	1									
MRT	0.954	1								
ZDTD	0.915	0.811	1							
ZDTS	0.867	0.879	0.740	1						
TA	-0.087	-0.034	-0.052	-0.017	1					
CF	0.465	0.608	0.203	0.477	0.327	1				
CA	-0.007	0.109	0.030	0.160	0.613	0.356	1			
DG	-0.054	0.041	-0.028	0.054	0.880	0.402	0.868	1		
LD	-0.101	-0.023	-0.050	0.018	0.744	0.326	0.904	0.928	1	
GDT	-0.118	-0.141	-0.073	-0.112	0.796	0.240	0.408	0.749	0.658	1

correlation with CF and only a rather modest correlation with CA, while it has moderately strong correlations with the Late Muisca types. Somewhat surprisingly, CF has only weak correlations with all of the other types, except possibly MRT. This seems rather odd since CF was the most common ceramic type recovered. It is likely that the overall ubiquity of CF sherds in the Funza area makes it a poor predictor of the presence or absence of the other ceramic types. In other words, CF is so common in the Funza area that it co-occurs to some degree with all of the other ceramic types. CA also shows surprisingly strong correlations with Late Muisca DG and LD ceramics, while it has weak correlations with the Herrera types.

These results indicate a clear distinction between the Herrera types and the Late Muisca types. Yet, the results also suggest that there is some difficulty distinguishing the TA and CA types from the Late Muisca period types. In addition, CF is not strongly correlated with any of the other types. At first glance, the results seem to indicate either that TA, CF, and CA are not chronologically useful types or that there is quite a bit of temporal mixing at the sites. However, there is another possibility. Figure 2.1 indicates that Site 4 and Site 6 have particularly high proportions of CF sherds (as does Site 5, although in that case the actual sherd count is considerably lower than the other two sites). Sites 4, 5, and 6 are all

located within the area proposed as the location of the chief's *capitanía*. These sites also yielded unusually high proportions of sherds from very fine vessels, a further indication that these sites were rather unusual relative to the rest of the sample. Thus, it seems possible that the enormous quantities of CF sherds at Site 4 and Site 6 are skewing the correlations. To determine if this was the case, Site 4 and Site 6 were dropped from the sample (removing Site 5 from the sample had very little effect on the correlations, so it was kept in the sample). As Table 2.3 indicates, removing these two sites from the sample does indeed change the overall pattern. The odd moderately strong correlation between CF and MRT (see Table 2.2) has been eliminated and CF now shows strong and moderately strong correlations with CA ($r=0.842$) and TA ($r=0.747$), respectively. Now the CF, CA, and TA types seem to correlate with each other quite well and have only weak correlations with the Herrera types. On the other hand, CF, CA, and TA are now all more strongly correlated with the Late Muisca types as well. This would seem to indicate either that the CF, CA, and TA types are not chronologically distinct from the Late Muisca types or that there is considerable mixing of Early Muisca and Late Muisca occupations within the intensive survey sites. Since there is independent evidence linking TA and CA to Early Muisca ceramic types in the northern Muisca region, it is reasonable to

Table 2.3. Pearson's r correlation matrix for ceramic types at intensive survey sites (excluding Site 4 and Site 6, n=32).

	MRI	MRT	ZDTD	ZDTS	TA	CF	CA	DG	LD	GDT
MRI	1									
MRT	0.956	1								
ZDTD	0.978	0.928	1							
ZDTS	0.875	0.918	0.832	1						
TA	-0.060	0.016	-0.046	0.002	1					
CF	0.222	0.304	0.245	0.337	0.747	1				
CA	0.051	0.216	0.041	0.261	0.611	0.842	1			
DG	-0.019	0.107	-0.020	0.116	0.882	0.868	0.868	1		
LD	-0.028	0.094	-0.036	0.113	0.744	0.885	0.904	0.931	1	
GDT	-0.075	-0.093	-0.063	-0.071	0.796	0.624	0.399	0.747	0.652	1

conclude that temporal mixing of Early Muisca and Late Muisca occupations is the most likely explanation for the strong correlations between CF, CA, TA, and the Late Muisca types seen in Table 2.3, although, as mentioned previously, there was probably a degree of temporal overlap in the use of the Early Muisca and Late Muisca ceramic types as well.

Stratigraphic Test Pits

Three stratigraphic test pits were excavated at Site 1 and Site 2 on the finca El Escritorio in order to help clarify the chronology. These stratigraphic test pits consisted of 1m x 1m excavations that were placed subjectively in locations where previously excavated shovel probes suggested fairly deep deposits with large amounts of ceramics. Since the shovel probes did not indicate the clear presence of cultural or natural stratigraphic units, the stratigraphic test pits were excavated in 10cm levels (Figure 2.2). The water table was encountered at about 40cm in Test Pit 1. Postholes or small pits were found in both Test Pit 2 and Test Pit 3.

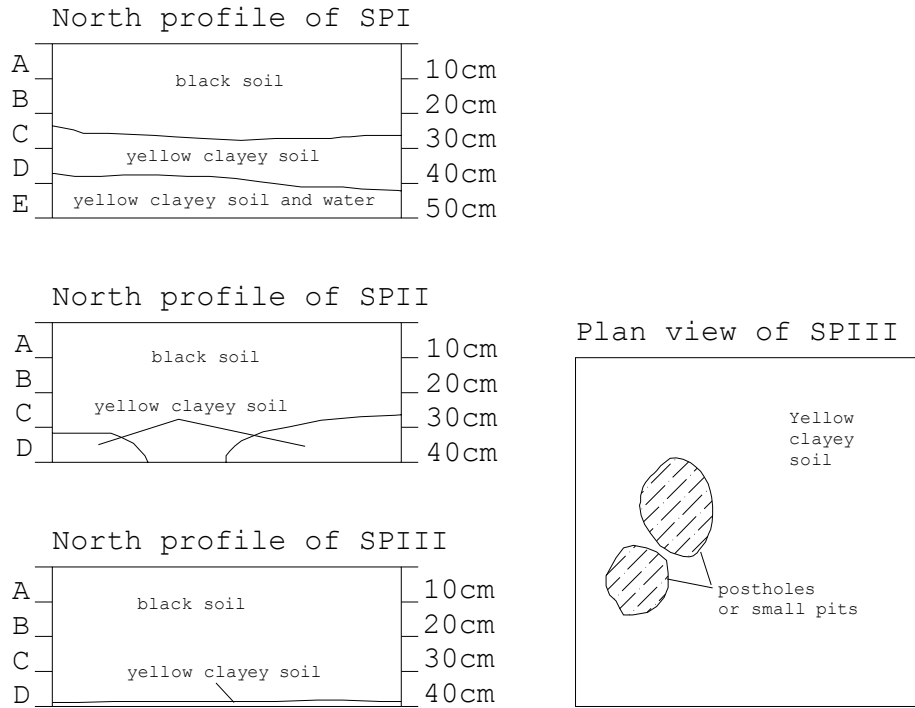


Figure 2.2 Profiles of stratigraphic test pits.

Unfortunately, the three stratigraphic tests show somewhat mixed deposits (Tables 2.4 and 2.5) with the lack of a clear relationship between depth and ceramic types. For example, in Test Pit 1 and Test Pit 3 we see Herrera MRI and ZDTD sherds in the same levels with modern ceramics. At the same time, it is possible to detect some overall patterns suggestive of chronological differences. For instance, in Test Pit 1 and Test Pit 3 most of the Herrera ceramics (all but one sherd) were found in levels below the greater part of the Early Muisca and Late Muisca sherds. Also, ignoring the modern ceramics for the

Table 2.4. Ceramics from stratigraphic test pits by level.

Level	Herrera		Early Muisca		Late Muisca			MODERN	TOTAL		
	MRI	ZDTD	TA	CF	CA	DG	LD			GDT	
Stratigraphic Test I	I/A	0	0	1	11	13	10	1	12	6	54
	I/B	1	0	1	17	21	14	8	13	6	81
	I/C	0	4	0	9	10	10	2	8	4	47
	I/D	0	0	0	2	3	2	1	0	0	8
	I/E	0	0	0	0	1	0	0	1	0	2
Stratigraphic Test II	II/A	0	0	1	1	0	0	0	2	0	4
	II/B	0	0	2	6	2	5	1	2	4	22
	II/C	0	0	0	1	0	2	0	2	0	5
Stratigraphic Test III	III/A	0	0	1	2	3	3	0	6	1	16
	III/B	0	0	0	1	1	2	1	3	1	9
	III/C	0	0	0	5	9	3	1	2	4	24
	III/D	0	2	0	0	0	1	0	0	2	5

Table 2.5. Percentages of ceramics from stratigraphic test pits by level.

Level	Herrera		Early Muisca		Late Muisca			MODERN	TOTAL	
	MRI	ZDTD	TA	CF	CA	DG	LD			GDT
Stratigraphic Test I	I/A		2%	20%	24%	19%	2%	22%	11%	100%
	I/B	1%		1%	21%	26%	17%	10%	7%	100%
	I/C		9%		19%	21%	4%	17%	9%	100%
	I/D				25%	38%	25%	13%	0%	100%
	I/E					50%			50%	100%
Stratigraphic Test II	II/A			25%					0%	100%
	II/B			9%		9%		5%	18%	100%
	II/C				20%		40%		40%	100%
Stratigraphic Test III	III/A			6%	13%	19%	19%		6%	100%
	III/B				11%	11%	22%	11%	11%	100%
	III/C				21%	38%	13%	4%	17%	100%
	III/D		40%				20%		40%	100%

moment, Test Pit 3 does suggest a pattern with the highest proportions of Herrera ceramics on the bottom level, the highest proportion of Early Muisca ceramics in the middle levels, and the highest proportion of Late Muisca ceramics in the upper levels.

These ambiguous results are quite similar to other excavations that have noted considerable mixing of ceramic types in the relatively shallow deposits found on the Sabana de Bogotá (Haury and Cubillos 1953; Correal and Pinto 1983). While the results of the three stratigraphic tests do not help clarify the ceramic chronology of the Sabana de Bogotá, they do however support the utility of shovel probes and surface collections as methods of data collection on the Sabana de Bogotá. Indeed, the high degree of mixing suggests that older ceramics can be found near the ground surface and that extensive stratigraphic excavations would not be likely to help much in distinguishing the chronology of household remains.

Summary

This chapter has discussed the ceramic chronology for the Muisca area as it has been used in the present study. The objectives and methods of this investigation required a relatively simple ceramic classification capable of making

chronological distinctions in the materials collected in the field. The patterns in proportions of the different ceramic types (Figure 2.1) and the correlations between the different ceramic types (Table 2.3) from the intensive survey sites have established the effectiveness of the ceramic chronology used in this study. The MRI, MRT, ZDTD, and ZDTS types have been demonstrated to be effective markers of the Herrera period with a distribution distinct from the Early Muisca and Late Muisca ceramics. Table 2.3 clearly indicates the kind of correlations that we would expect to see if there was a chronological difference between the Herrera types and the other ceramic types discussed. Likewise, the DG, LD, and GDT types have been shown to be useful markers of the Late Muisca period with a distribution distinct from the Herrera period ceramics. Again, the correlations are consistent with a chronological difference between the Late Muisca and Herrera types. Distinguishing the Early Muisca period ceramics in the Funza area has been more challenging. Nevertheless, this chapter has provided reason to believe that the TA, CF, and CA types are useful markers of the Early Muisca period. These ceramic types are found in different proportions than the Herrera and Late Muisca period ceramics. The correlations of Early Muisca ceramics with the Herrera period ceramics also imply a chronological difference. While a clear distinction between the Early Muisca and Late Muisca

ceramics was more problematic, the TA and CA types can be linked to ceramics in the northern part of the Muisca region that exhibit clear associations with the Early Muisca period. Furthermore, the data from the three stratigraphic test pits excavated at Site 1 and Site 2 indicated that shovel probes and surface collections are capable of recovering material from all three periods. The results obtained in the chapters that follow will further confirm the effectiveness of the ceramic classification utilized in this study.

CHAPTER 3

REGIONAL SURVEY

The first phase of fieldwork consisted of a small regional survey of approximately 8.65 km² in the area immediately south of the regional survey completed by Boada (Figure 3.1). Air photos show traces of raised fields along the Bogotá River in this area (Figure 3.2). Thus, it seemed a likely area to find residential sites associated with raised fields. One objective of the investigation was to study the relationship between intensive agriculture and the development of social complexity in the Bogotá polity. Therefore, it was hoped that the regional survey would identify sites that could be studied more closely in the intensive survey phase of the research.

The area that was surveyed is also located adjacent to the expanding city of Bogotá, and therefore, in immediate danger of destruction as new buildings and roads are built. So, it was also important to recover potentially valuable archaeological data from the area before it was destroyed by modern construction. We witnessed such destruction first hand, as one of the sites of prehispanic occupation that we discovered in the survey had buildings already being constructed on it only a few months after we had surveyed there.

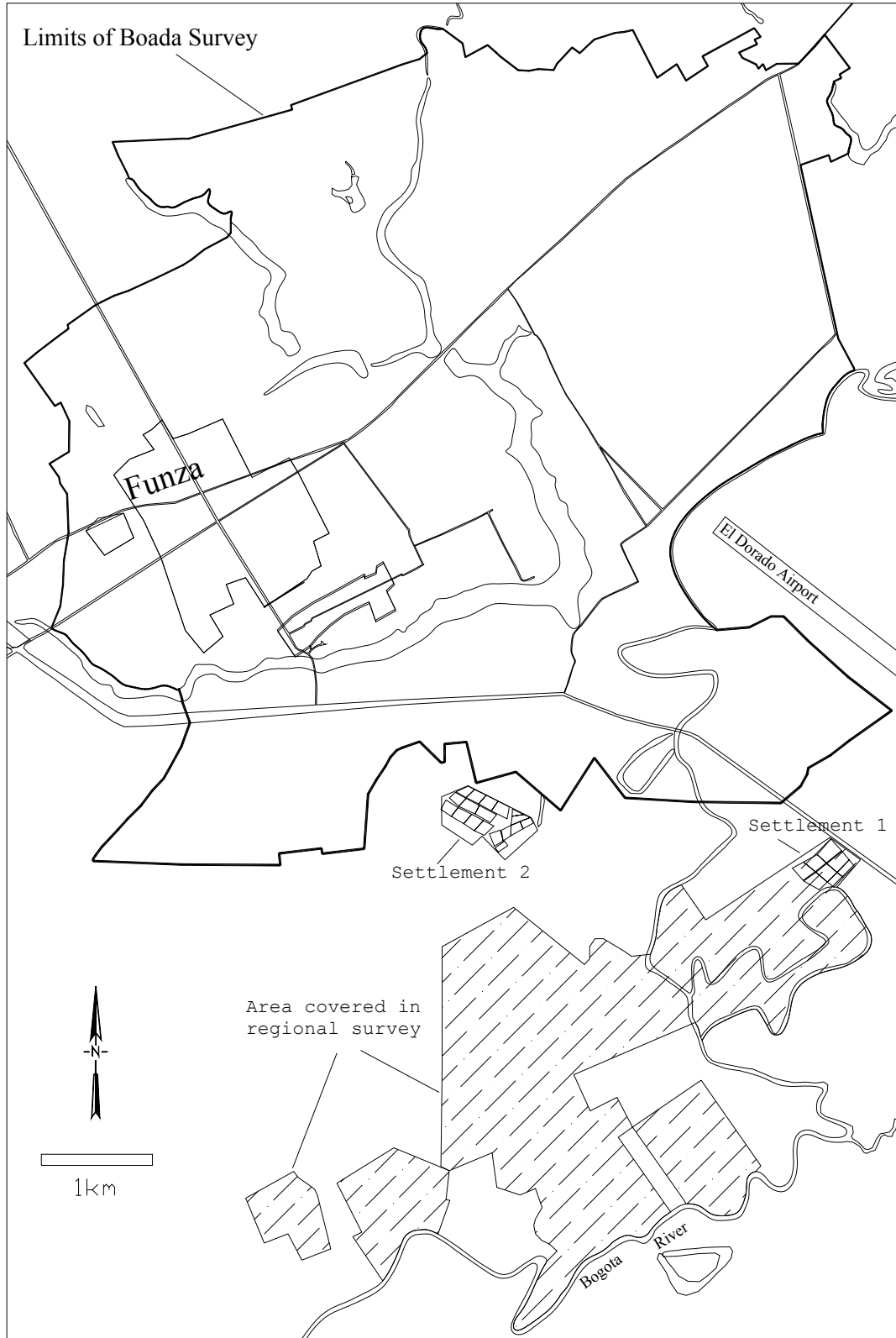


Figure 3.1. Area surveyed and relation to survey by Boada.

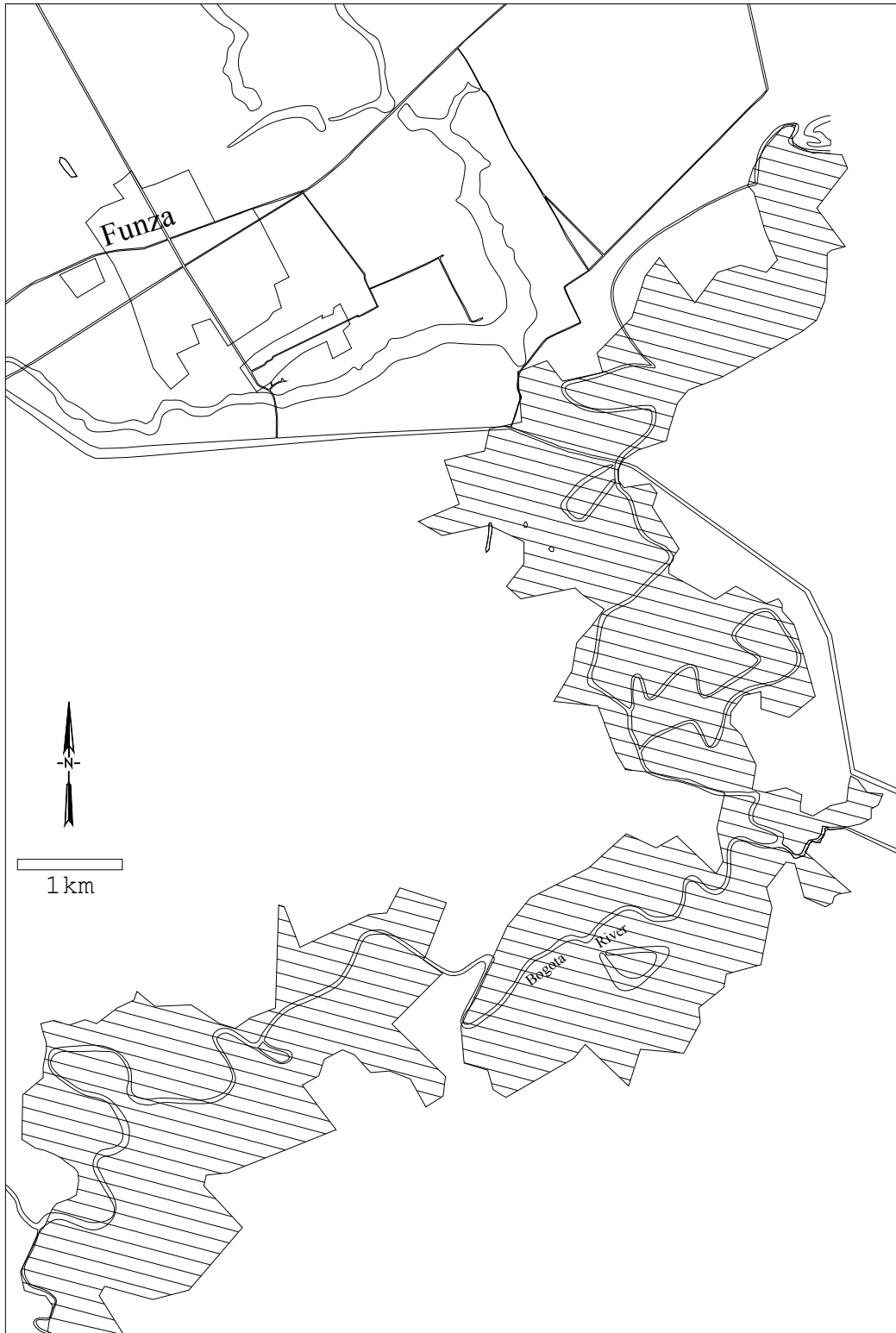


Figure 3.2. Raised fields in the Funza area, based on drawing by Boada.

The area surveyed is part of the Sabana de Bogotá, a large valley within the Eastern Highlands of Colombia at an altitude of about 2600 m above sea level. The area is generally quite flat, except for the river levees of the Bogotá River, and is cut by a network of modern canals in most areas. Many areas within the survey zone are somewhat swampy and poorly drained. Today, the surveyed area is primarily used as pasture for commercial cattle and milk production, although there are a few farms devoted to commercial flower and vegetable cultivation as well. Unfortunately, it was not possible to survey the area as a single contiguous block and there are a number of large gaps that remain unsurveyed (Figure 3.1). This is a result of the difficulty in contacting the landowners in the area to ask for and obtain permission to work on their lands. It is entirely understandable that, given the current political situation in Colombia with an active *guerrilla* and frequent kidnappings, the landowners generally do not live on site and are wary of strangers. It often takes weeks just to locate the landowners in order to explain the nature of the project and to ask for permission. Also, since the area is largely devoted to commercial cattle pasture, it is understandably difficult to convince landowners that digging large numbers of holes in their pastures is a desirable thing to do. In the end, we worked

where we were able to and did manage to cover a sizeable portion of the area.

Methods

Since the Sabana de Bogotá is principally grassland, the kind of good surface visibility for artifact collection typical in other regional survey projects is virtually non-existent. With the exception of cultivated fields, the grass-cover on the Sabana de Bogotá prevents the surface collection of artifacts. However, these conditions do not eliminate the possibility of regional survey investigations. Instead, methods need to be adapted to effectively sample beneath the grass-cover, as is done in many cultural resource management projects in the eastern United States. The regional survey phase discussed here followed the methods that were successful in the previous survey completed by Boada and that have also been proven effective under similar conditions in the Alto Magdalena region of Colombia (Drennan 1985, 2000). In fact, a number of our workers had experience from working on Boada's survey. As in Boada's survey, shovel probes were the primary means of data recovery in the current regional survey. Teams of two to three fieldworkers walked across the survey zone following transects with approximately 100 m between each team. In pasture areas, where surface visibility does not permit surface collection of

artifacts, shovel probes were excavated at intervals of approximately 1 per ha. Pastures in the area are generally fenced off in convenient sections ranging from about 0.5 - 2 ha in size, which facilitated a fairly even positioning of shovel probes across the zone. The shovel probes were excavated to a size of 40 cm x 40 cm and were generally about 40 cm deep as the quantity of cultural material often drops off dramatically around that depth. The soils in the survey area generally contain too much clay to pass through a screen. Therefore, excavated soil was placed on large sheets of plastic and inspected by hand for artifacts. Any artifacts detected were bagged and labeled and the soil and turf cap were replaced.

In a few areas the presence of cultivated fields made surface survey and collection possible. In these cases, fields were subdivided into arbitrary collection units using existing features such as field boundaries and drainage canals for demarcation. This produced collection units with areas in the range of 0.5 ha to 1.5 ha. These collection units were given a lot number and mapped. Work crews walked over the fields generally following the existing plow furrows, and collected all artifacts observed on the ground surface within the plow furrow and to either side. All artifacts recovered from a given collection unit were bagged together under that lot number.

Prehispanic occupation in the surveyed zone

Only two areas of prehispanic settlement were discovered in the regional survey. These two areas of occupation have been designated Settlement 1 and Settlement 2. Both areas were discovered by surface collection within modern cultivated fields. No artifacts were recovered in the shovel probes excavated within the survey area.

Settlement 1

One site of prehispanic settlement was discovered in an area known as La Madre Vieja (Figure 3.3). The site is situated within a large cultivated field located along the Avenida Centenario, a major roadway leading into the city of Bogotá. The field was planted with carrots at the time of the survey. Fortunately, on the day we passed by and received permission to survey the field, they were in the process of harvesting the field, which provided excellent surface visibility. However, there was one fairly large tract in the northwest corner of the field that had not yet been harvested and was too thickly covered with carrot plants to be surveyed. The fields were subdivided into manageable collection units, eight of which yielded artifacts. The surveyed portion of the settlement is about 12 ha in size although it may have extended beyond into

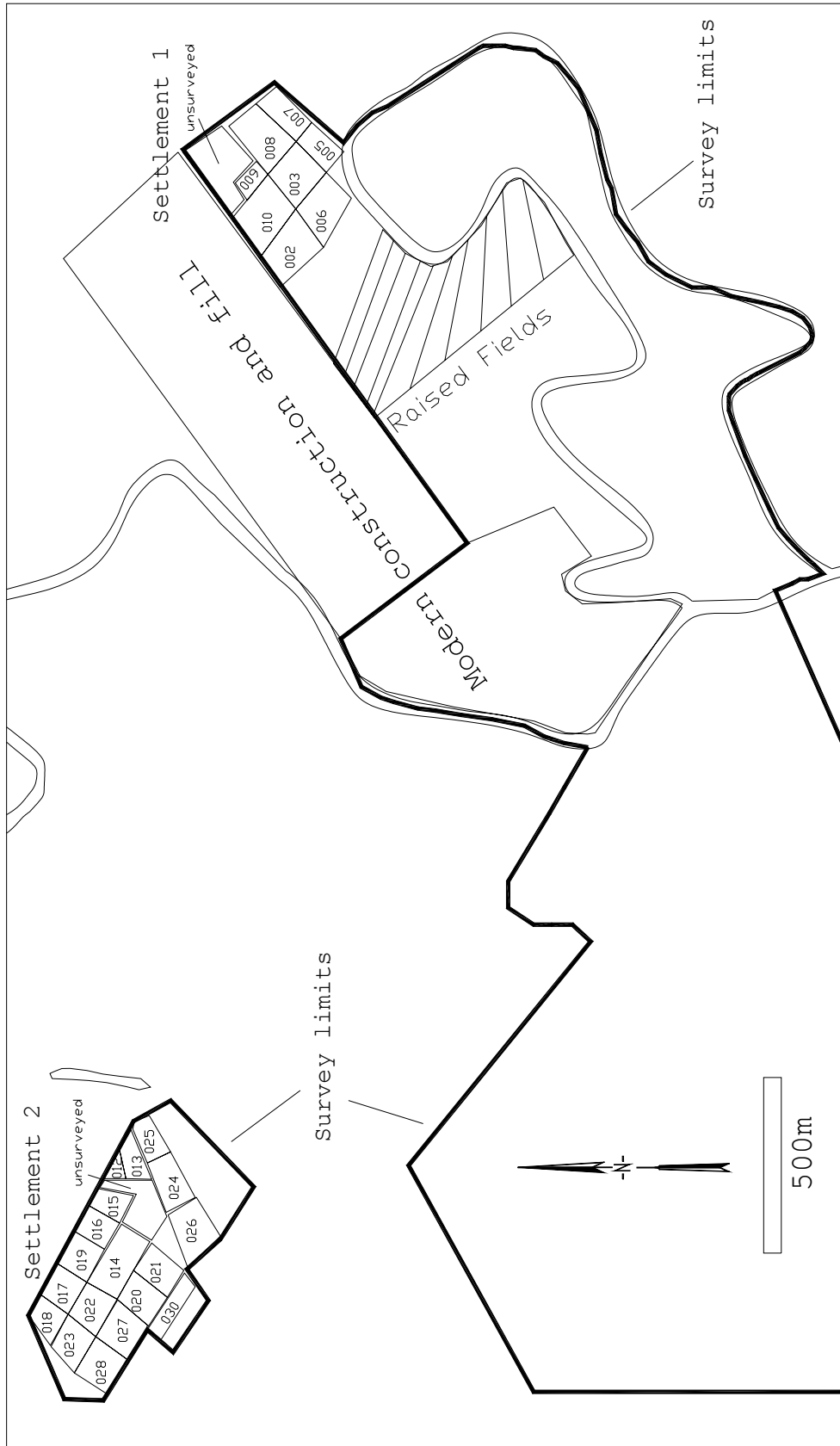


Figure 3.3. Close-up of Settlement 1 and Settlement 2.

the surrounding areas that are currently covered by roads and buildings.

The artifacts recovered consist primarily of ceramics from the Herrera, Early Muisca, Late Muisca, and Colonial/Modern time periods along with one lithic flake and two small polishing stones. The artifacts recovered are summarized in Table 3.1. Only lots 2, 3, and 9 yielded Herrera period ceramics, indicating that the site population was considerably smaller in that period. All lots yielded Early Muisca and Late Muisca ceramics, although some lots clearly indicate lower sherd densities suggesting differences in the intensity of occupation. Table 3.1 also indicates a general pattern consistent with population growth from the Herrera period through the Late Muisca period. This pattern of population growth is particularly dramatic between the Herrera period and the Early Muisca period. Considering that the Herrera period was about four times as long as the Early Muisca period, there clearly was an enormous difference in the amount of sherds deposited during those two periods. This trend continues in the Late Muisca period. Since the Late Muisca period was about the same length as the Early Muisca period, the population growth does not seem to have been as impressive as it was between the previous periods, although it was still considerable. It may be of interest to note that the three lots with Herrera ceramics

Table 3.1. Summary of artifacts recovered from Settlement 1.

Lot Number	Ceramics					Ground Flakes	Ground Stone
	Herrera	Early Muisca	Late Muisca	Colonial/ Modern	Other*		
2	8	216	363	29	5	0	0
3	2	84	178	16	1	0	0
5	0	5	5	0	0	0	0
6	0	20	360	3	0	0	1
7	0	10	62	4	5	0	1
8	0	8	29	1	2	1	0
9	2	73	137	20	2	0	0
10	0	4	2	0	0	0	0
Total	12	420	1136	73	15	1	2

* Includes sherds that are either unidentifiable or of types not confidently assignable to a particular period.

(2, 3, and 9) also tend to have higher amounts of Muisca period ceramics. This suggests that perhaps the locations of the founding households of the settlement remained the nuclei for the settlement in the later periods.

Ethnohistoric sources indicate that there was a Muisca settlement at Fontibón, which was the ancestral town to the neighborhood that borders the site and still bears the name Fontibón (Broadbent 1966). Fontibón seems to have been the central town of a separate polity headed by its own chief, although, at least by the time of the Conquest, it had been subjugated by the neighboring Bogotá polity. Given the close proximity to Fontibón and its position on the opposite side of

the Bogotá River from Funza, Settlement 1 was likely part of that prehispanic Fontibón polity.

A large area with the remnants of raised fields is located adjacent to Settlement 1. The area of visible raised fields is situated along the course of the Bogotá River and covers an area of about 20 ha. However, the total area of prehispanic raised fields near the settlement was likely much greater, as much of the surrounding area has been modified or covered by recent construction. The fields are composed of parallel ridges extending for hundreds of meters nearly perpendicular to the river levees. Shovel probes excavated within this region of raised fields in the course of the regional survey work did not recover any artifacts. The close association between Settlement 1 and these raised fields would have made the site an ideal candidate for additional testing in the intensive survey phase of the research. Unfortunately, when we returned to the site several months later, there was already modern construction underway preventing further testing.

Settlement 2

The second site of prehispanic settlement identified by the regional survey is situated within a farm known as Lancheros (Figure 3.3). The farm is utilized for commercial flower and vegetable cultivation and is located just south of the limits of

Boada's survey. Thus, Settlement 2 is more or less contiguous with the settlements in the southern portion of Boada's survey. The farm was subdivided into collection units based on the existing field divisions. Eighteen of these collection units yielded artifacts. The portions of the farm with evidence for prehispanic occupation cover approximately 19 ha. Like Settlement 1, the artifacts from Settlement 2 include ceramics from the Herrera, Early Muisca, Late Muisca, and Colonial/Modern periods along with two lithic flakes and one small polishing stone. The artifacts recovered from the different collection units are summarized in Table 3.2. The greatest concentration of sherds occurs in the area of lots 22, 27, and 28 suggesting that it may have been the nucleus of settlement. The low number of Herrera ceramics at this site is interesting since other sites close by (across road to the north) located in Boada's survey have very large amounts of Herrera period ceramics. The quantities of Early Muisca and Late Muisca sherds at Settlement 2 are considerably lower than those encountered at Settlement 1. In general, the number of sherds in the collection lots from Settlement 2 is also considerably lower than the number recovered from Settlement 1, suggesting that the population at Settlement 2 was smaller. Also, the overall pattern of population growth does not seem to be as dramatic as it was at

Table 3.2. Summary of artifacts recovered from Settlement 2.

Lot Number	Ceramics					Flakes	Ground Stone
	Herrera	Early Muisca	Late Muisca	Colonial/ Modern	Other*		
12	0	5	0	0	0	0	0
13	1	1	1	0	0	0	0
14	0	2	1	0	0	1	0
15	0	6	2	2	0	0	0
16	0	7	3	2	1	0	0
17	0	0	5	4	3	0	0
18	0	3	6	1	0	0	0
19	0	10	5	3	0	1	0
20	0	4	8	1	1	0	0
21	1	6	8	1	0	0	1
22	0	8	19	0	3	0	0
23	0	0	1	0	0	0	0
24	0	0	2	1	0	0	0
25	0	0	1	1	0	0	0
26	0	0	0	0	1	0	0
27	1	34	84	0	2	0	0
28	0	8	26	7	2	0	0
30	3	4	2	2	0	0	0
Total	6	98	174	25	13	2	1

* Includes sherds that are either unidentifiable or of types not confidently assignable to a particular period.

Settlement 1. Lot 27 is the only collection unit at Settlement 2 that shows a similar growth pattern to Settlement 1. In general, Settlement 2 appears to have been more sparsely populated and exhibits less population growth than Settlement 1. Two of the survey lots (21 and 27) from Settlement 2 were also subject to more intensive surface collection discussed in Chapter 4.

Discussion

The small size of the survey makes it difficult to draw clear conclusions about the nature of settlement in the area. The survey zone is simply too small to fully document the overall settlement system. Nevertheless, it is possible to suggest some possible settlement patterns. Both of the settlements that were located in the regional survey portion of the project are situated near the edge of the survey zone. There was no evidence of settlement detected in either the central portion of the survey zone or along most of the river portion of the survey zone. Thus, the regional survey suggests that there was little or no settlement within most of the zone surveyed. Given the abundance of prehispanic occupation identified in the regional survey by Boada, the lack of settlement in the survey zone here is somewhat puzzling. A

number of explanations may account for the relative lack of prehispanic occupation in this area.

First of all, much of area has very clayey and poorly drained soils that are inundated with water when wet and very hard when dry. Such soils would probably not be ideal for cultivation or the location of settlements. The Bogotá River is also prone to flooding which might have discouraged settlement in the area. However, this does not fit well with the indications of remnant raised fields along the Bogotá River identified in the vicinity of the survey and seen on air photos (Figure 3.2). The evidence for raised fields indicates that the area was utilized, although actual residential occupation in the area may have been limited.

A second possibility is that the flooding of the Bogotá River may have buried prehispanic settlements in the survey zone with flood sediments. Broadbent (1966) mentions the frequent flooding that can inundate much of the zone when the Bogotá River overflows its levees. Similar floods may have occurred periodically in the past and covered evidence of prehispanic occupation in the survey area. Our shovel probes did not generally go deeper than 40 cm and there is some indication that cultural material may be found as much as 1 m below the surface at one location within the survey zone, not far from Settlement 1 (Romano personal communication).

A third explanation involves the local settlement patterns. Boada's survey identified areas with less dense settlement and also a number of apparently vacant zones. Thus, the lack of settlement in our survey zone could reflect a similar phenomenon. Perhaps somewhere near Settlement 2 is more or less the southern limit of the Bogotá polity and some sort of lightly settled buffer zone with neighboring polities. Likewise, the location of Settlement 1, along the river, may be near the limits of the Fontibón polity and bordering on the Bogotá polity. It is possible that there were settlements located on the opposite side of the Bogotá River that was not surveyed. If such settlements existed, they may have been associated with the raised fields in the area and perhaps were part of yet another polity. The confirmation of this possibility would require further investigation to identify the locations and extents of other polities on the Sabana de Bogotá. However, in this particular case, locating other prehispanic polities to the south and east of the survey zone will be difficult due to urban construction, a problem that becomes worse every day.

Which of these three explanations is responsible for the lack of evidence for prehispanic occupation in the survey zone remains unresolved. However, it seems likely that some combination of the three is responsible. Further archaeological investigation, especially more regional survey, will be crucial

to fully understanding the broader patterns of prehispanic settlement on the Sabana de Bogotá.

Summary

A small regional survey phase was carried out in the zone with evidence for raised fields located south of the modern town of Funza. The objective was to identify residential sites that could be further tested in the following intensive survey phase in order to study the role of raised field agriculture in the development of the Bogotá polity. A secondary objective was to document the settlement patterns of the zone, which is under threat of urbanization.

Shovel probes and surface collections made in the survey zone indicated the presence of only two areas of prehispanic settlement. Of these two sites, Settlement 1 shows greater population density and population growth. The presence of raised fields adjacent to Settlement 1 also made it a desirable candidate for further study with regard to the relationship between raised field agriculture and the development of social complexity. However, further testing was not possible at the site due to modern construction.

Although the surveyed area was too small to document the overall settlement system, some explanations were presented to explain the settlement patterns detected. The general lack of

occupation in the survey zone is best explained as a combination of the presence of a sparsely settled buffer zone between several chiefly polities and the presence of poorly drained soils subject to frequent flooding which may have buried evidence for settlement under sediment. However, our understanding of the full relationship between settlement and raised fields in the Funza area remains unresolved.

CHAPTER 4

INTENSIVE SURVEY

This chapter discusses the methods, data, and interpretations of the intensive survey portion of the project. The objectives of the intensive survey program were 1) to identify prehispanic residential houselots within the Bogotá polity and 2) to recover samples of artifacts to characterize the households associated with those houselots.

Houses in the Muisca region

The interpretation of the data recovered from the intensive shovel probe and intensive surface collection programs is best considered in the context of what is known ethnohistorically and archaeologically of Muisca settlement patterns and households. Muisca settlements were fairly dispersed with clusters of residences forming the centers of the *capitanías* along with a number of scattered hamlets or homesteads surrounding them (Broadbent 1964; Langebaek 1987, 1995, 2001). Muisca houses were generally circular with identifiable post molds and packed earth or clay floors. A number of houses have been excavated at various locations in the Muisca region (Boada 1998a, 1998b, 2000). Table 4.1 summarizes some of the information on house

Table 4.1. House structures excavated in the Muisca area.

Diameter (m)	Area (m ²)	Location	Reference
2.5	4.9	Valle de Samacá	Boada 1998b: p.60
7.4	43.0	Valle de Samacá	Boada 1998b: p.60
5.0	19.6	Valle de Samacá	Boada 1998b: p.60
3.0	7.1	Valle de Samacá	Boada 1998b: p.60
4.0	12.6	Valle de Samacá	Boada 1998a: p.353
4.0	12.6	Valle de Samacá	Boada 1998a: p.358
4.4 x 3.52	12.32	Valle de Samacá	Boada 1998a: p.357
6.2	30.2	Sabana de Bogotá	Boada 2000: p.25
5.5	23.8	Sabana de Bogotá	Boada 2000: p.25
6.2	30.2	Sabana de Bogotá	Boada 2000: p.25
5.3	22.1	Sabana de Bogotá	Boada 2000: p.25
5.9	27.3	Sabana de Bogotá	Boada 2000: p.25
5.5	23.8	Sabana de Bogotá	Boada 2000: p.25
5.8	26.4	Sabana de Bogotá	Boada 2000: p.25
7.0	38.5	Sabana de Bogotá	Boada 2000: p.35
5.5	23.8	Sabana de Bogotá	Boada 2000: p.35
5.2	21.2	Sabana de Bogotá	Boada 2000: p.35
6.0	28.3	Sabana de Bogotá	Boada 2000: p.35
9.5	70.9	Sabana de Bogotá	Boada 2000: p.35
5.0	19.6	Sabana de Bogotá	Boada 2000: p.39
5.0	19.6	Sabana de Bogotá	Boada 2000: p.39
5.0	19.6	Sabana de Bogotá	Boada 2000: p.39
4.0	12.6	Sabana de Bogotá	Boada 2000: p.39
4.7	17.3	Sabana de Bogotá	Boada 2000: p.39

sizes from excavated houses available in published sources. The houses listed in Table 4.1 have a mean diameter of 5.4 m and a mean area of 23.6 m² (21.6 m² excluding the 70.9 m² house). Houses are generally surrounded by associated burials, hearths, storage pits, and ring shaped trash middens (Boada 1998a, 1998b, 2000). In addition, at the site of Marín, Boada (1998b) found an inter-house spacing of about 15 m. Ethnohistoric accounts suggest that men may have slept in different structures than women and their children (Boada 1998a: 45). Even if this was the typical pattern, a nuclear family still seems to have occupied the same houselot. Ethnohistoric accounts also suggest that the Colonial period Muisca often practiced dual residency, having houses both in town and near their cultivated fields, often at a considerable distance from the town (Langebaek 1987, 1995).

Identifying houselots within the Bogotá polity

Applying the term household to the archaeological record is not a straightforward process. The archaeological remains of houses are not households, yet they are causally related by-products of households. I prefer to use the term houselot (Killion 1990, 1992) to refer to the remains produced by a household as it combines the notions of the actual house

structures, ancillary features, activity areas, and patterns of refuse deposition. These are the same kinds of features that Winter (1976) has discussed in terms of a household cluster. As will be seen below, the term *houselot* has great utility for interpreting the archaeological remains from the Sabana de Bogotá.

Although other household scale excavations, as discussed above, indicate that house floors, post molds, and hearths can be identified, a limited excavation strategy best met the objectives of this investigation. The aim of the investigation was to study the development of the Bogotá polity through the Herrera, Early Muisca, and Late Muisca periods from the perspective of individual households. Given the budgetary constraints of the project, it would have been possible to locate and completely excavate maybe 3-5 houses total. However, this would entail studying only one or two houses from each of the three periods that we would like to examine. This would also result in a very limited spatial coverage within the Bogotá polity. Such limited chronological and spatial coverage would greatly decrease the likelihood that the houses investigated were representative of houses from their respective time periods or locations within the Bogotá polity. In other words, such a small sample of houses would be unlikely to include examples

representing the full range of households of the population from each chronological period. For example, this would make it especially difficult to detect the emergence of elites within the Bogotá polity, as one would expect elites to be a relatively small portion of population. Therefore, it would be preferable to have a sample large enough to be likely to investigate both elite and non-elite houses. Likewise, it would be difficult to detect the presence of craft specialization with only one or two households from each period. By definition, craft specialization implies that not all households are engaged in activities at the same intensity. Therefore, investigating the presence or absence of craft specialization requires a sample large enough to be likely to be representative of the larger population.

An extensive excavation strategy, involving the complete excavation of houses, would be too expensive and time-consuming to permit the investigation of a large enough sample of households to reveal the full range of inter-household variability. A strategy of more limited excavations and surface collections would be more practical. While such a strategy would lack the detail of complete household excavations, it would also increase the size of the sample of households investigated. Thus, there is a deliberate trade off in this strategy, exchanging great detail about a few houses for less

detail about many houses. Furthermore, the aim of the investigation is to compare and contrast households in terms of economic activities and wealth and status as revealed in their artifact assemblages. Therefore, recovering a sample of artifacts likely to be representative of the activities carried out at each household is what is needed for this investigation, rather than the architectural remains of houses. The collection of such samples of artifacts can be accomplished quickly and efficiently with shovel testing and surface collection.

Previous household scale excavations in the Muisca region and in the Alto Magdalena region of Colombia indicate the presence of high-density rings of artifacts immediately surrounding residential structures (Blick 1993; Boada 1998a: 44; Drennan 1985: 133-135; Jaramillo 1996; Quattrin 2001). Killion's (1990, 1992) houselot model provides an ethnographic analogy for the formation of such household artifact patterns. The rings of high-density artifacts correspond to the intermediate area in Killion's houselot model, where household trash was deposited, and the area within the ring corresponds to Killion's clear area and structural core zones, where most household activities took place. These different zones are the result of the periodic cleaning of living and activity spaces

within and around the home and the deposit of refuse in nearby household midden areas (Killion 1990, 1992).

Figure 4.1 and Figure 4.2 illustrate an idealized cross-section and plan-view of the artifact distribution surrounding a house. The location of the house and surrounding activity areas have a very low artifact density due to cleaning activities related to the maintenance of household living and work space. This area of low density is ringed by an area of higher density artifacts from the deposition of household refuse that tapers off as one moves away from the center.

While less detailed than post mold patterns, this ring-like artifact distribution provides an alternate means of identifying prehispanic houselots. Based on the information on houses in the Muisca region in Table 4.1, one would expect the intensive survey to identify ring-like clusters of higher artifact density surrounding areas of lower density artifacts. The area within such higher density artifact rings might be approximately 5-10 m in diameter and we might expect the total extension of the midden ring to be as much as 30 m in diameter.

Shovel probe collection methods

The research used the same methodology for locating prehispanic houses that has proven effective for previous investigations in the Alto Magdalena region. Researchers have

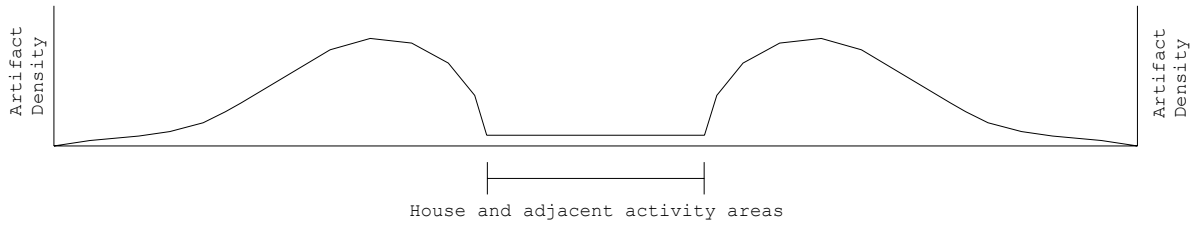


Figure 4.1. Idealized houselot cross-section.

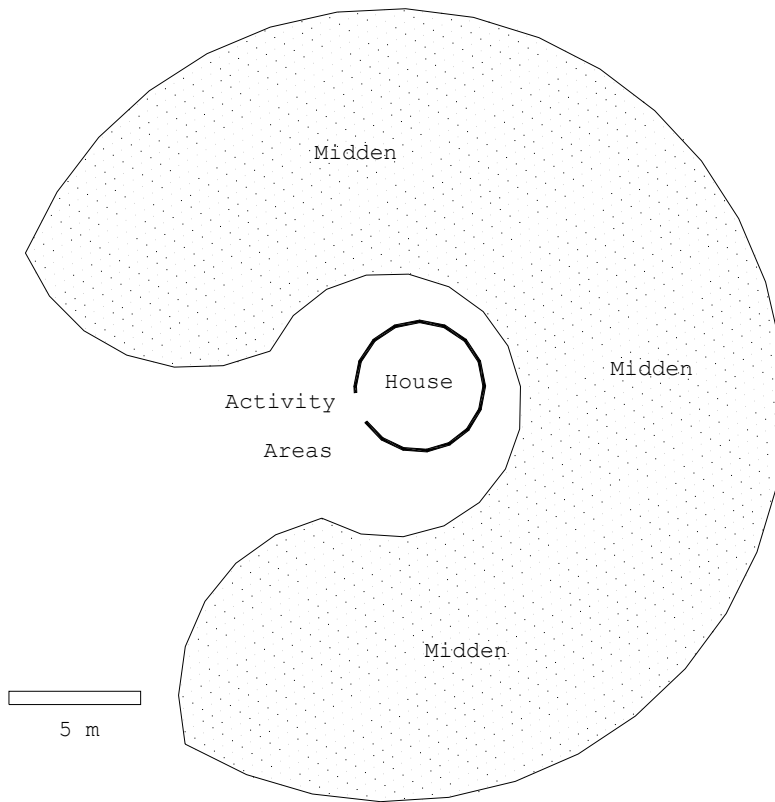


Figure 4.2. Idealized houselot in plan-view.

been successful in locating prehispanic houses by excavating a series of shovel probes within areas featuring high concentrations of ceramics detected by regional survey methods (Blick 1993; Jaramillo 1996; Quattrin 2001; González 1998). Similar to the Alto Magdalena, the Funza area tends to have relatively shallow deposits, rarely more than 40 cm deep, and also tends to have a high water table, making shovel probes a useful means of recovering artifacts. The methodology involved the selection of a sample of survey lots from the Funza regional survey database for each period based on the presence of diagnostic ceramics. At each survey lot selected for the sample, transects of 40 cm x 40 cm shovel probes at 5 m intervals were made to identify probable house locations as areas of high artifact density (Figure 4.3). This required the excavation of approximately 80 shovel probes per survey lot depending on local topography, vegetation, overall survey lot size, and landowner consent. At each site a baseline for transects was established using a Brunton compass and tripod. Flags were placed along the baseline to indicate the locations of shovel probes to be excavated. Additional shovel probes were then located by triangulation off of the baseline transect using a 10 m line with a knot at the 5 m mark such that each shovel probe was 5 m from its neighboring shovel probes. This proved to be a simple, quick, and easily expandable way to position

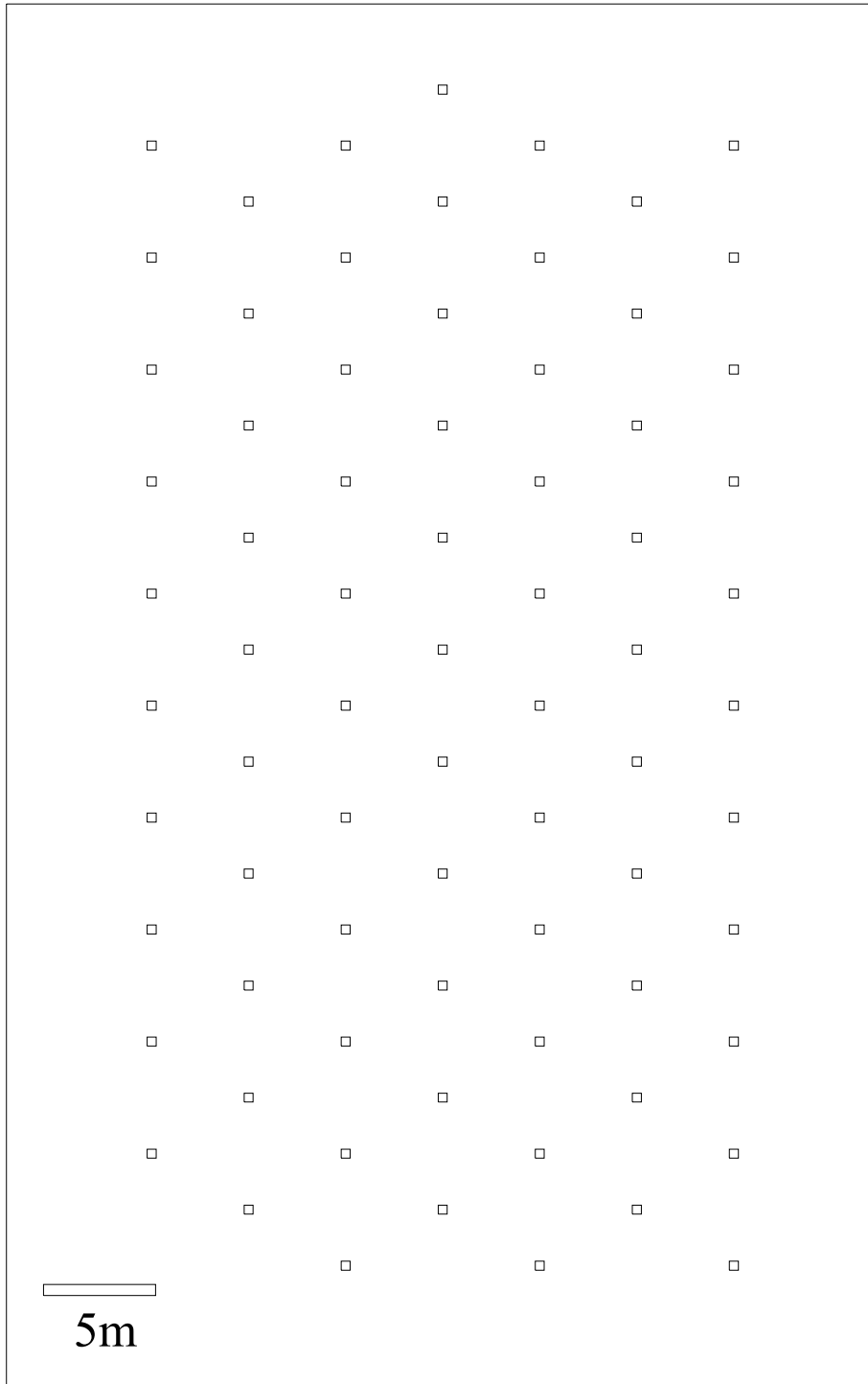


Figure 4.3. Illustration of shovel probe layout for intensive survey sites.

shovel probes at each site. In contrast to the shovel probes from the regional survey (see Chapter 3), the soil from the intensive survey shovel probes was passed through 1/4" mesh screens to assist with artifact recovery.

Surface collection methods

There were a number of cultivated fields that the previous regional surveys suggested contained abundant evidence for prehispanic occupation. Since excavating shovel probes in these planted fields was not feasible and artifacts were readily found on the ground surface, it was decided that an intensive surface collection strategy would be an effective means of data collection. The already existing planting rows made ideal transects across the fields for controlling the collection (Figure 4.4). The more difficult aspect involved delimiting the lengths of the collection units along each transect. This was solved by giving each field worker two flags connected with a 1 m cord such that, when planted in the ground, the two flags delimited a 1 m section along the transect (at three sites 2 m cords were used). It was then possible to mark off 1 m sections along each transect by moving the trailing flag ahead after surveying the current unit. Planting rows are quite consistent in the area with a distance of about 1.5 m between rows. Therefore, it was decided to survey along every other row in a

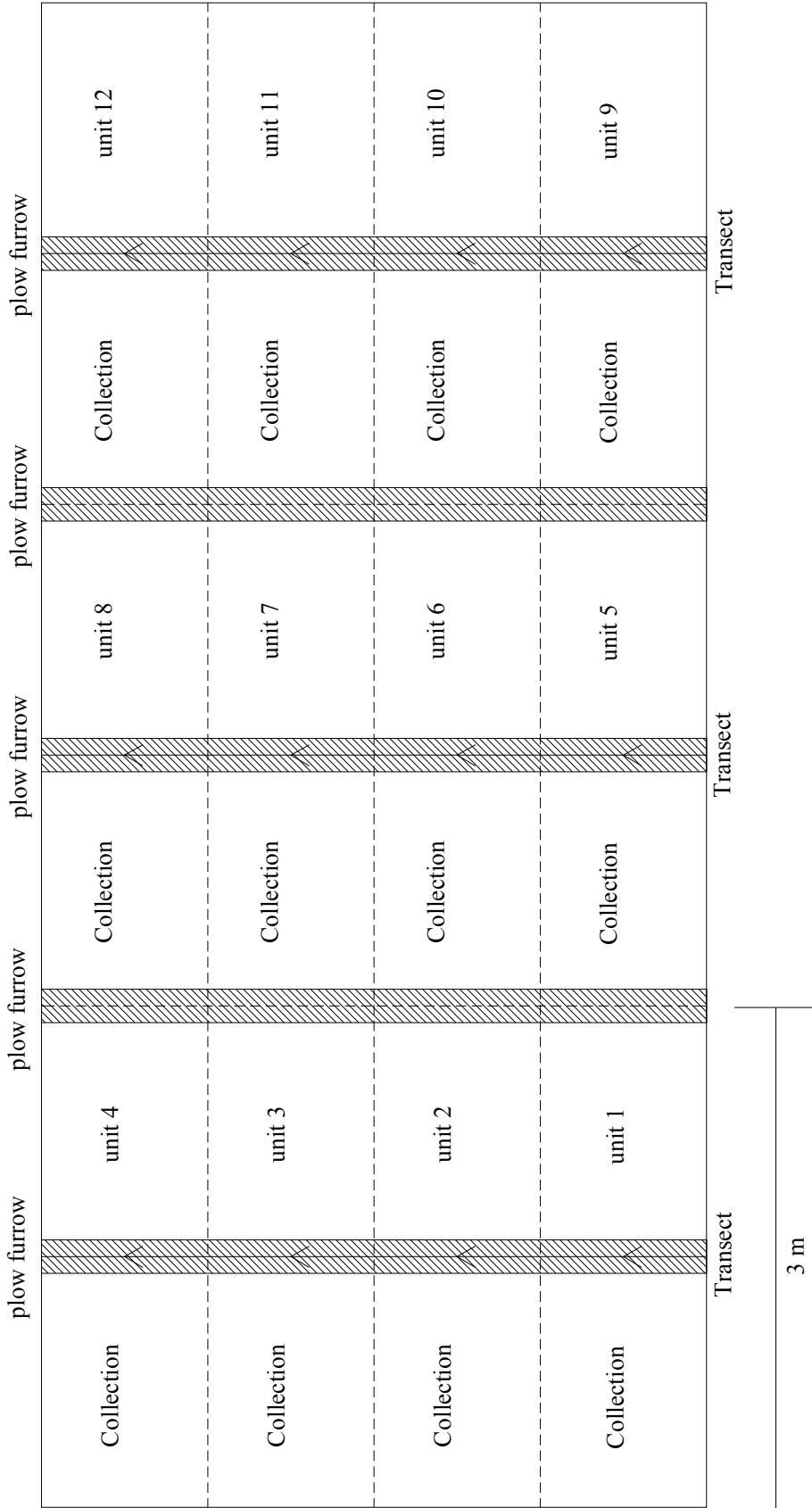


Figure 4.4. Illustration of surface collection units in cultivated fields.

given field with each field worker responsible for surveying the area at his or her feet and about 1.5 m to the left and right for each survey unit along a transect. Artifacts recovered were bagged and left in place to mark the location of the units, which were later recorded and mapped. In this way it was possible to have nearly complete coverage of the fields that were sampled.

Intensive survey sites and findings

A total of 31 sites were tested with shovel probes, and nine other sites were tested with surface collections. Table 4.2 summarizes the artifacts recovered from each site. In addition, contour maps depicting the density of ceramics from each period were created to examine the distribution of ceramics at each site. These contour maps were produced by importing the spatial locations of shovel probes or surface collections along with the number of sherds in each collection unit into the computer program Surfer. Surfer was used to produce contour surfaces of the density of Herrera, Early Muisca, and Late Muisca ceramics at each site. This was done by interpolating from the known values of sherds in the shovel probes and surface collections to estimate the overall distribution of sherds at

Table 4.2. Summary of ceramics and houselots for intensive survey sites.

SITE	LOTS	HERRERA	EARLY MUISCA	LATE MUISCA	MODERN	OTHER	HERRERA HOUSELOTS	EARLY MUISCA HOUSELOTS	LATE MUISCA HOUSELOTS
1	309	22	690	1056	138	127	H1	H23,H24,H25	H66,H67
2	128	1	330	644	72	77		H26,H27	H68,H69
3	111	7	287	343	88	30	H2	H28	H70
4	89	333	953	83	26	4	H3,H4	H29,H30	H71,H72
5	65	70	129	11	5	4	H5	H31	H73
6	94	440	724	63	10	9	H6,H7	H33,H34	H74,H74B
7	0	0	0	0	0	0			
8	81	9	239	213	25	33	H8	H35	H75
9	0	0	10	9	0	0			
10	0	0	0	0	0	0			
11	82	1	46	18	5	0		H36	H76
12	73	1	47	52	4	7		H37,H38	H77
13	158	3	339	307	35	21		H39,H40	H78,H79
14	82	3	55	20	1	0		H41	H80
15	72	0	10	8	1	0		H42	H81
16	71	0	29	11	1	0		H43,H44	H82
17	88	0	24	9	7	0		H45	
18	88	22	0	0	0	0	H9		
19	99	151	105	73	92	9	H10	H46	H83
19A	1	1	1	0	0	0			
20	74	11	37	32	34	10	H11	H47	H84
21	70	176	976	787	165	42	H12, H13	H48,H49	H85,H86
22	139	49	645	653	30	4	H14,H15	H50	H87
23	78	48	10	13	0	0	H16		H88
24	0	0	0	0	0	0			
25	40	0	2	1	0	0			
26	57	1	7	6	1	0			
27	67	7	170	134	42	6		H51,H52	H89
28	6	0	5	1	10	1			
29	81	2	26	22	317	11		H53	H90

Table 4.2 (continued)

SITE	LOTS	HERRERA	EARLY MUISCA	LATE MUISCA	MODERN	OTHER	HERRERA HOUSELOTS	EARLY MUISCA HOUSELOTS	LATE MUISCA HOUSELOTS
30	75	15	122	41	78	3	H17	H54	H91
31	204	3	128	103	82	7		H55	H92
32	352	9	217	256	77	2		H56	H93
33	134	3	120	89	55	4		H57	H94
34	384	9	200	224	55	37		H58	H95
35	704	16	574	648	48	14	H18	H59,H60,H61	H96,H97
36	563	930	287	79	28	3	H19,H20	H62	H98,H99
37	237	24	351	132	41	6	H21	H63	H100
38	265	7	373	212	119	7		H64	H101
39	231	4	288	129	59	4		H65	H102

each site. This produces contour maps of each site indicating the relative densities of ceramics across the site. In this manner, it is possible to identify areas with high and low densities of sherds for each period.

The sites sampled in the intensive survey likely represent either segments of villages or isolated houselots from within the area of the Bogotá polity. In some cases, the artifact density maps from the sites investigated reveal artifact distributions of about the right size and shape to be prehispanic houselots. In those cases it is relatively easy to determine which collection units compose the assemblage of that particular houselot. In other cases, such as the Late Muisca ceramics at Site 1, where there was an overwhelming amount of ceramic material or clusters of high density in close proximity to each other, identifying individual houselots is more difficult. In some of these cases, such as Site 1, the overall size of the site clearly suggests that more than one houselot contributed to the ceramics present, yet there is no indication of a clear boundary between houselots. In such cases, the boundaries between houselots must be made somewhat arbitrarily based on the locations of clusters of high density and areas of relatively lower density to decide which collection units should be included in the assemblage of each houselot. Because of these arbitrary decisions material of a single houselot may have

been artificially separated into multiple houselots or material from more than one houselot may have been combined into a single houselot.

However, this is not necessarily a serious problem for the investigation. After all, if a houselot was artificially divided into two discrete houselots, but there turned out to be no apparent differences between their assemblages, then no great harm was done to the overall interpretation of houselot variability within the Bogotá polity.

It could be a potential problem if, in the same manner, a houselot was artificially divided into two discrete houselots and it turned out that there was a great difference between their assemblages. For example, if one of the houselots had a much greater quantity of spindle whorls than its neighbor. This could create a situation where it appeared that the one household was engaged in more intensive textile production than the household next door, when in reality, both houselots were actually part of the same household. This would be a potential outcome to be concerned about. However, the likelihood that all or most of a particular category of artifact, like spindle whorls, would be systematically dumped in one particular area of the houselot while the rest of the household waste was more evenly discarded around the houselot seems remote. Therefore,

the occasional arbitrary splitting of houselots at some of the sites is not of great concern.

The possibility that separate houselots may have been artificially combined into a single houselot could potentially make it more difficult to identify inter-houselot variability. This can be illustrated if we consider some simplified examples. Imagine, for example, if two houselots were arbitrarily combined. If both of these houselots had many spindle whorls, for instance, then the combined houselot would also appear to have many spindle whorls. This is not necessarily a problem, since we would still correctly conclude that some houselots had many spindle whorls. Likewise, if the two houselots both had very few spindle whorls, the combined houselot would also appear to have very few spindle whorls. Once again, we would still correctly conclude that some houselots had very few spindle whorls. However, a problem might arise if two houselots with very different amounts of spindle whorls were combined. For example, if one houselot had many spindle whorls but the other houselot had very few spindle whorls, the large quantity of spindle whorls at the one houselot could overwhelm the smaller number of spindle whorls from the other houselot leading us to overlook the actual variability between the two houselots. Thus, the arbitrary combination of separate houselots could potentially obscure patterns of inter-houselot variation. This

could indeed be a problem in our sample of houselots. However, since we sampled sites from various locations, the likelihood that the kind of high-low combinations of neighboring houselots from our example above occurred at all or most of the sites tested seems remote. Therefore, by sampling houselots from various locations, we will likely be able to detect inter-houselot variability in our sample of houselots if such variability was common.

Site descriptions

The locations of the 40 sites tested in the intensive survey program can be found in Figure 4.5. The results of the investigations at each site are summarized in Table 2.2 and the accompanying figures.

Sites 1 - 3

Sites 1, 2, and 3 are located within a finca known as El Escritorio, which is adjacent to the El Dorado Airport runway. The sites are all situated in cattle pasture. An area with the remains of prehispanic raised fields within a loop of the Bogotá River is adjacent to these sites. The three sites are located in adjacent pastures. Thus, the houselots identified at the three sites would likely have been associated with the same community.

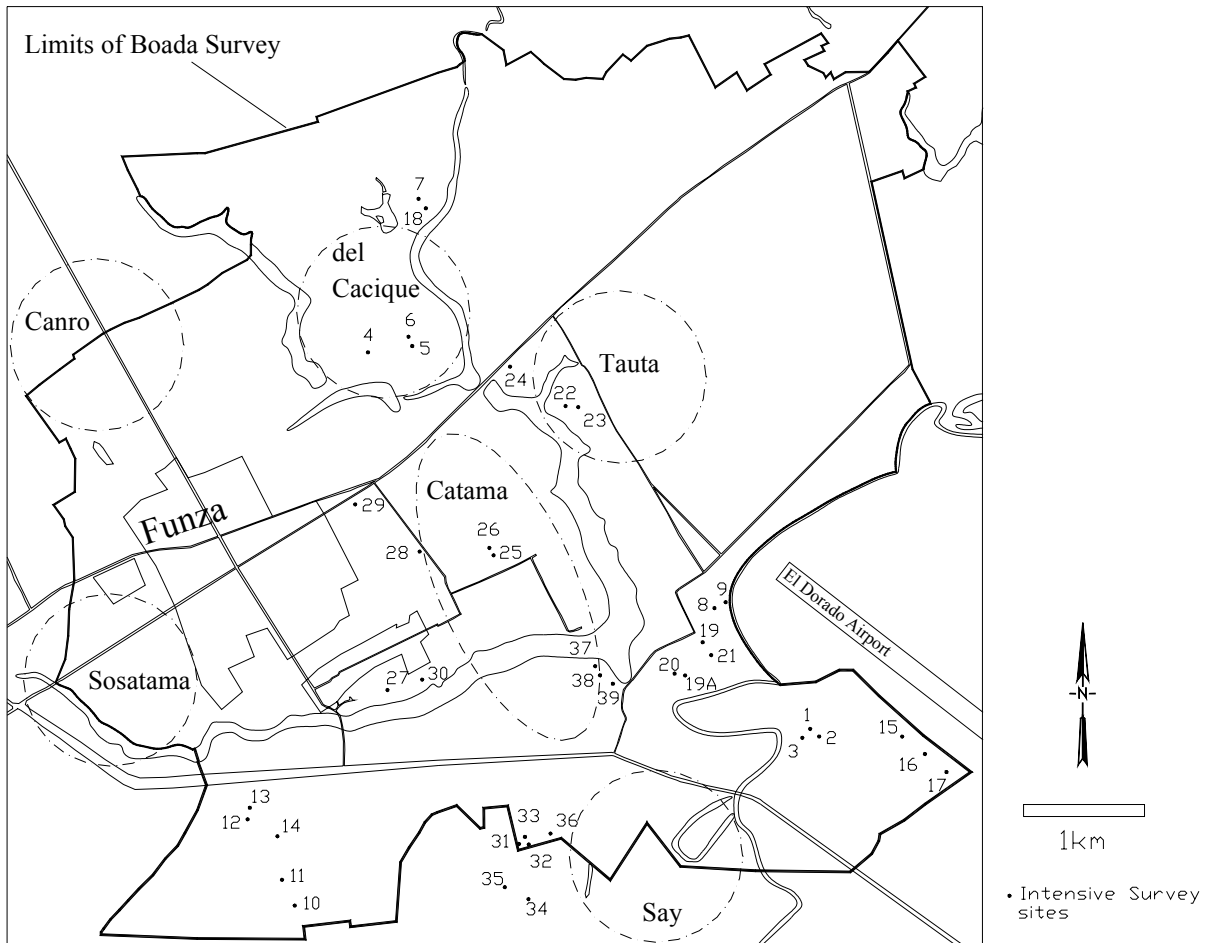


Figure 4.5. Locations of intensive survey sites.

Figure 4.6 shows the distribution of Herrera period sherds in shovel probes at Site 1. The pattern of sherds indicates the presence of at least one houselot, which was designated H1. Figure 4.7 shows the distribution of Early Muisca sherds at Site 1. The large quantity of Early Muisca period sherds at the site makes it difficult to delimit houselots for this period. Nevertheless, the size of the site clearly indicates that more than one houselot was present. There appear to be at least three areas with low sherd density surrounded by areas of higher density of approximately the right size and shape to be houselots. These were designated H23, H24, and H25. Detecting clear boundaries between these three houselots is problematic. As a result, arbitrary lines were drawn through the areas of relatively lower density between the three houselots to divide the collection units between them. Figure 4.8 indicates a similar situation for the Late Muisca period at Site 1. The two large concentrations of Late Muisca sherds at either end of the site seem to indicate the presence of at least two houselots, which were designated H66 and H67. An arbitrary boundary was drawn through the area of relatively lower sherd density between the two houselots to distinguish which collection units would be associated with each houselot.

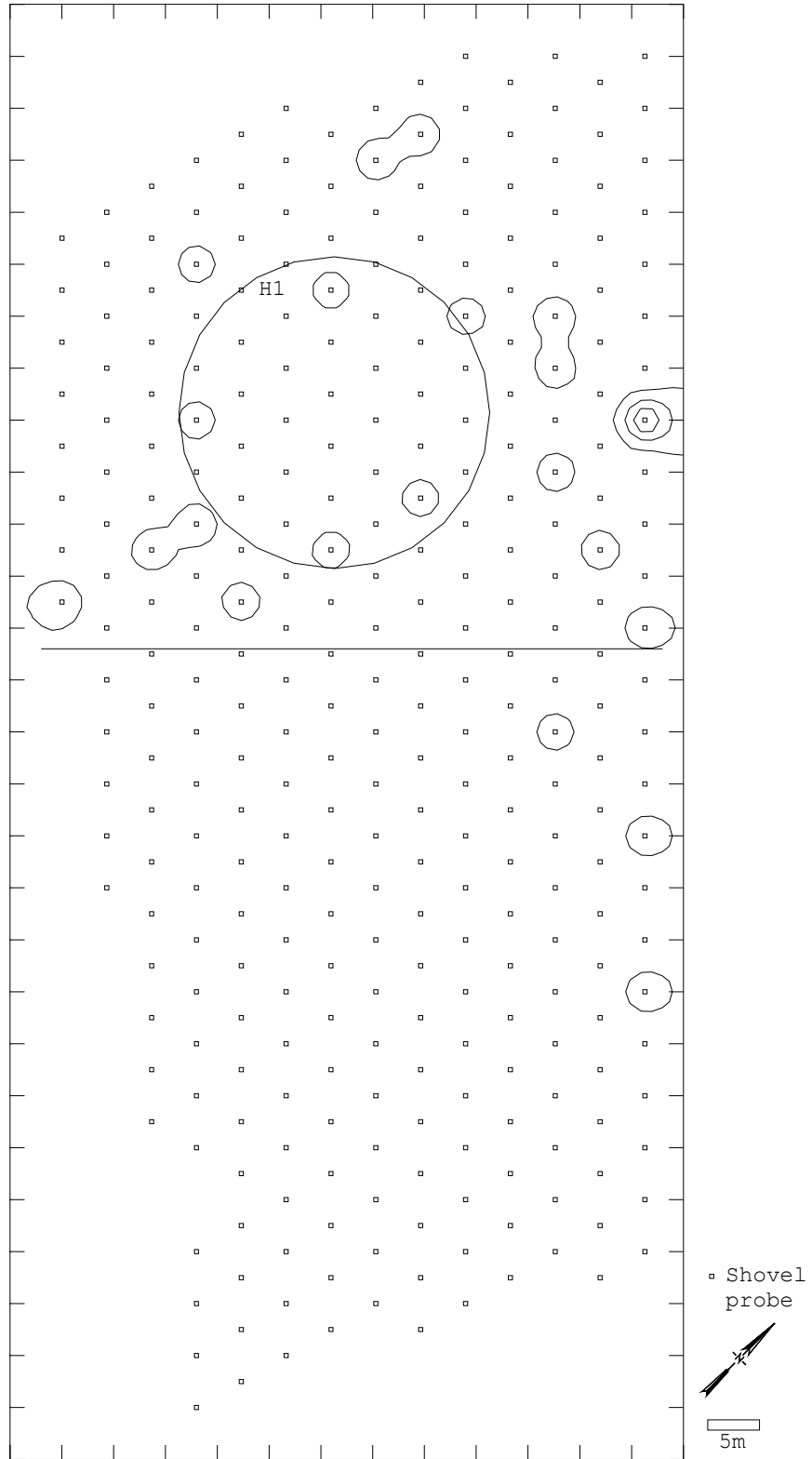


Figure 4.6. Contour map of Herrera period ceramics at Site 1.

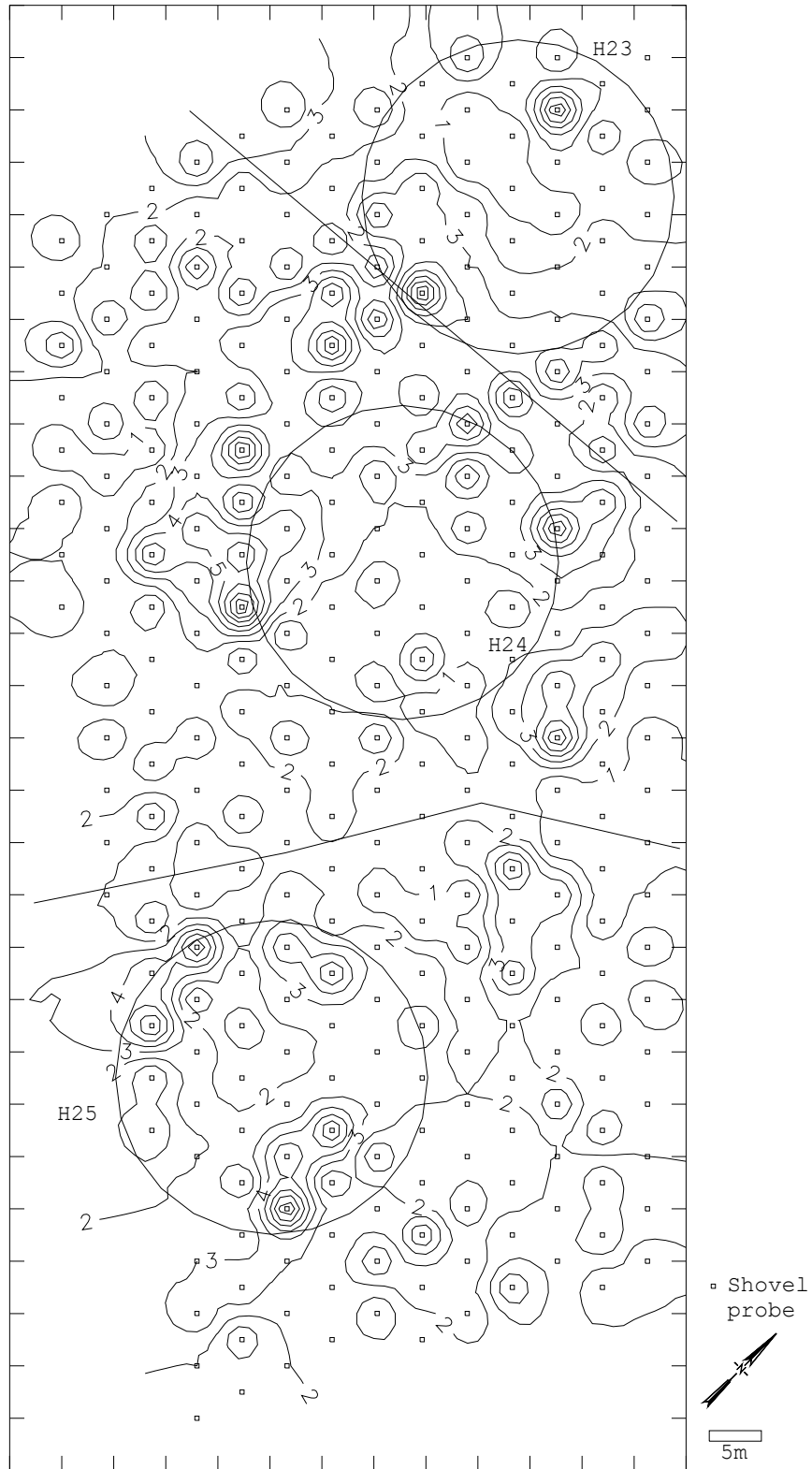


Figure 4.7. Contour map of Early Muisca period ceramics at Site 1.

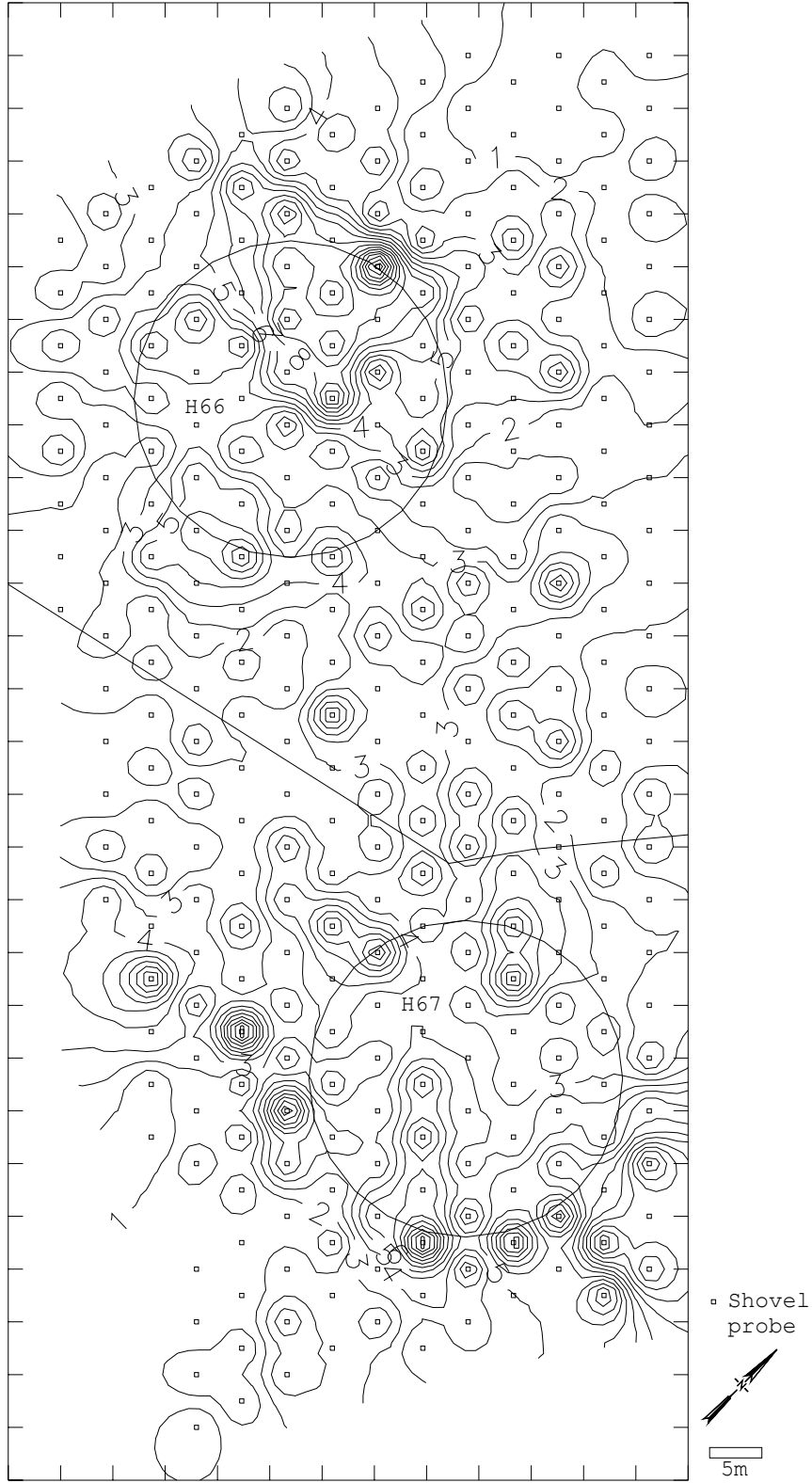


Figure 4.8. Contour map of Late Muisca period ceramics at Site 1.

Only one Herrera period sherd was found at Site 2. Therefore, there is little evidence for the presence of a Herrera period occupation at Site 2. Figure 4.9 shows the distribution of Early Muisca sherds at Site 2. The two large concentrations of Early Muisca period sherds at either end of the site suggests the possibility of the presence of two houselots, which were designated H26 and H27. An arbitrary line was drawn through the area of relatively lower density between the two houselots to divide the collection units between them. Figure 4.10 indicates a similar situation for the Late Muisca period at Site 2. The two large concentrations of Late Muisca sherds that appear at either end of the site seem to indicate the presence of at least two houselots, which were designated H68 and H69. An arbitrary boundary was drawn through the area of relatively lower sherd density between the two houselots to distinguish which collection units would be associated with each houselot.

Figure 4.11 shows the distribution of Herrera period sherds at Site 3. Although only seven Herrera sherds were found at Site 3, it seems likely that at least one houselot, designated H2 was located there. The pattern of Early Muisca sherds at Site 3 indicates the presence of at least one Early Muisca houselot, which was designated H28 (Figure 4.12). Similarly,

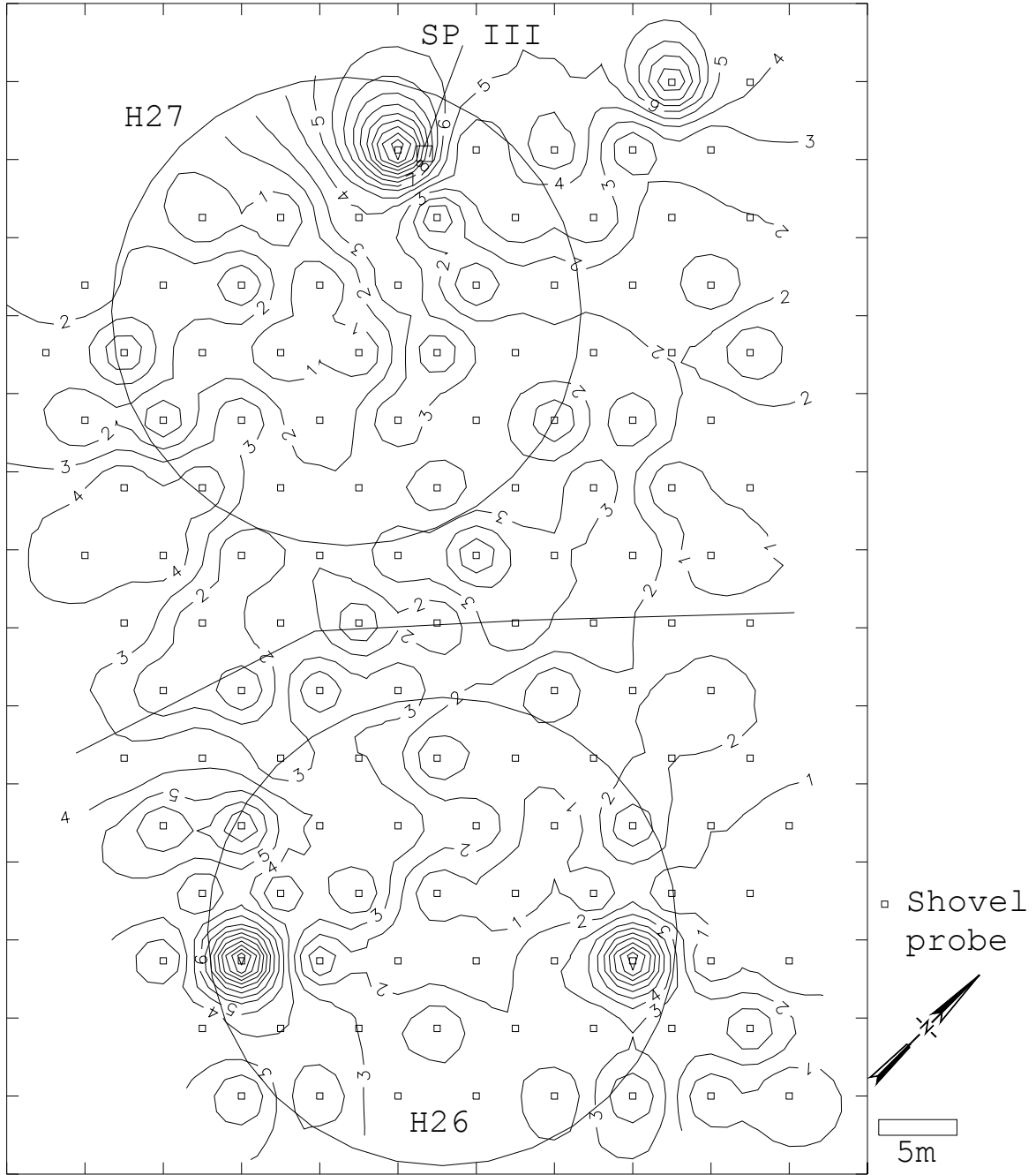


Figure 4.9. Contour map of Early Muisca period ceramics at Site 2.

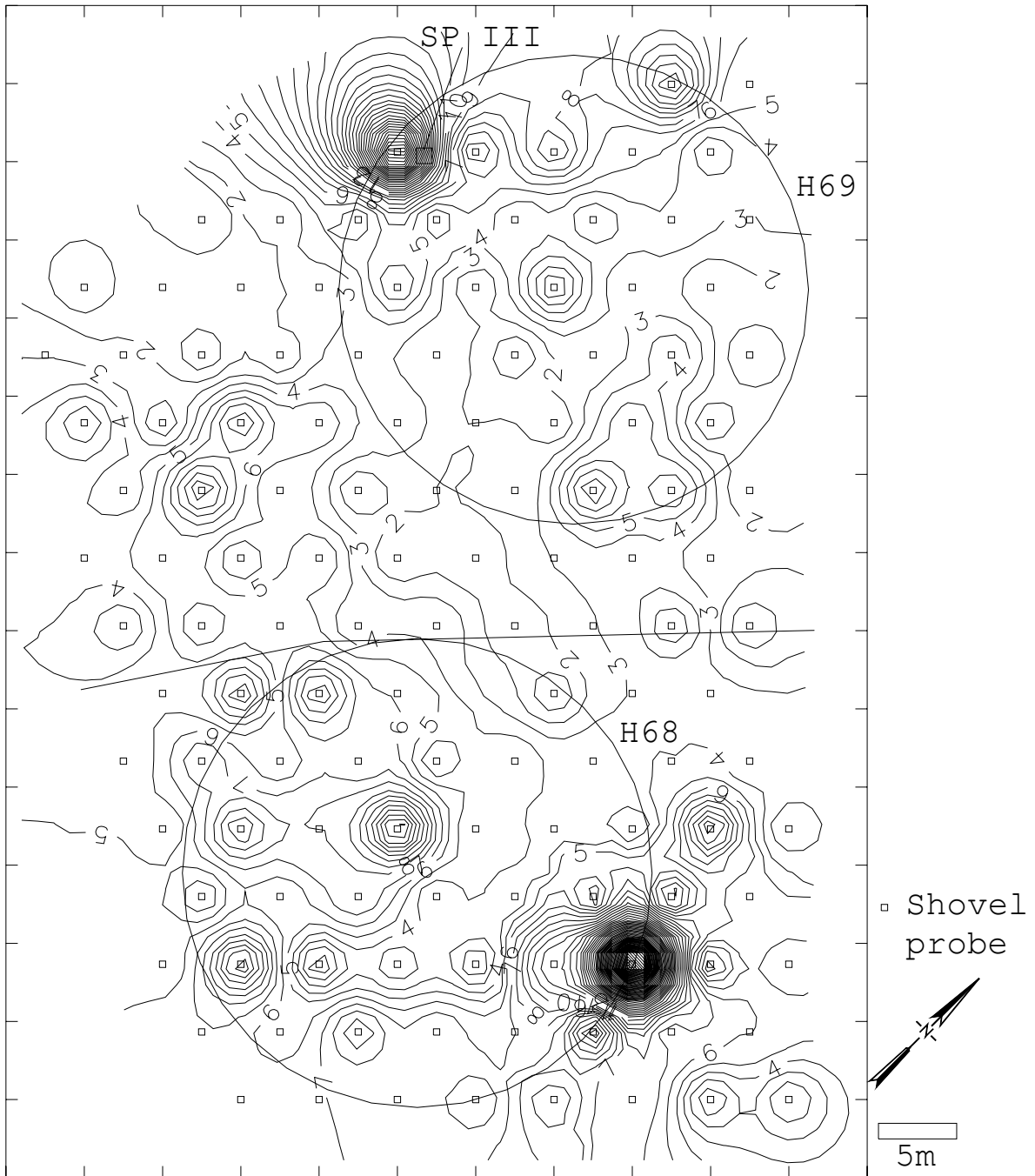


Figure 4.10. Contour map of Late Muisca period ceramics at Site 2.

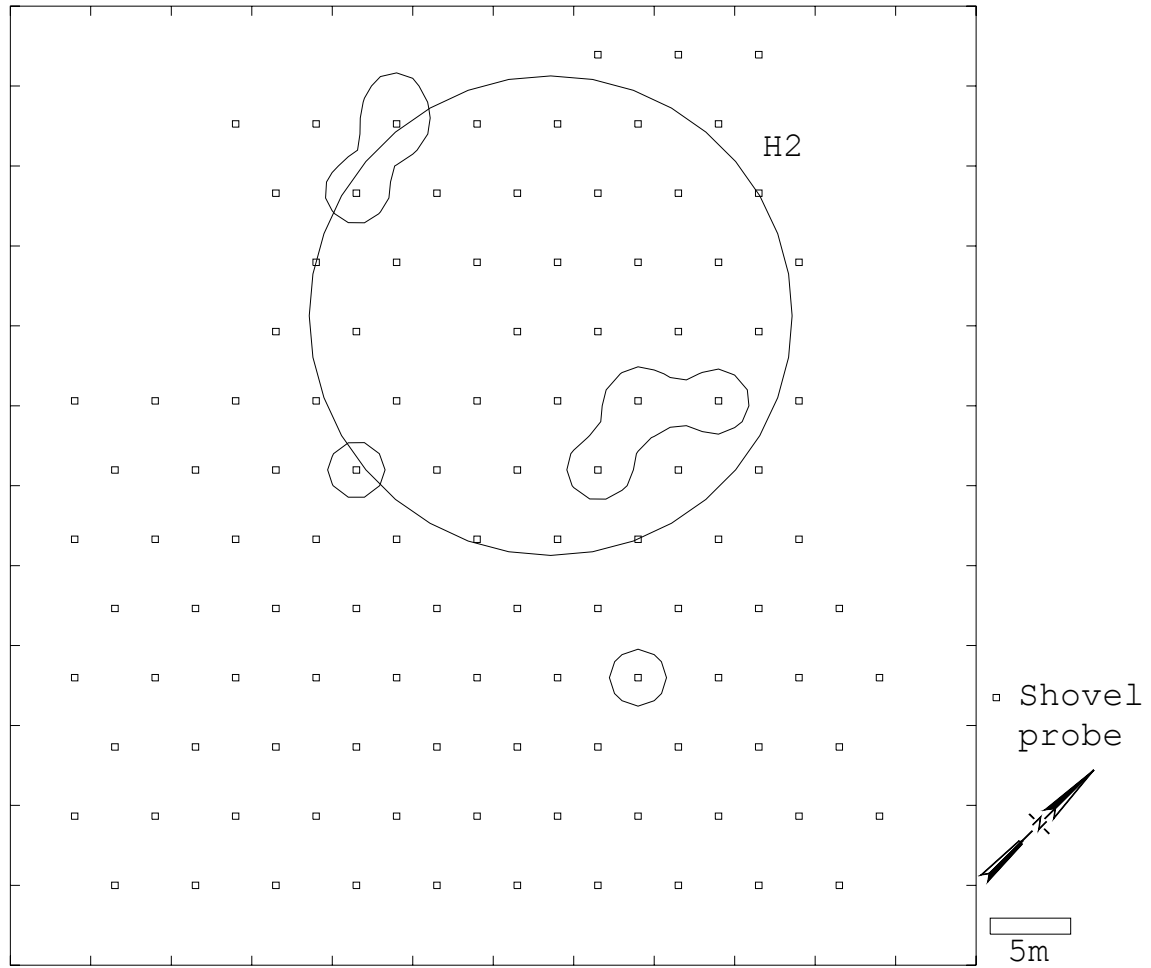


Figure 4.11 Contour map of Herrera period ceramics at Site 3.

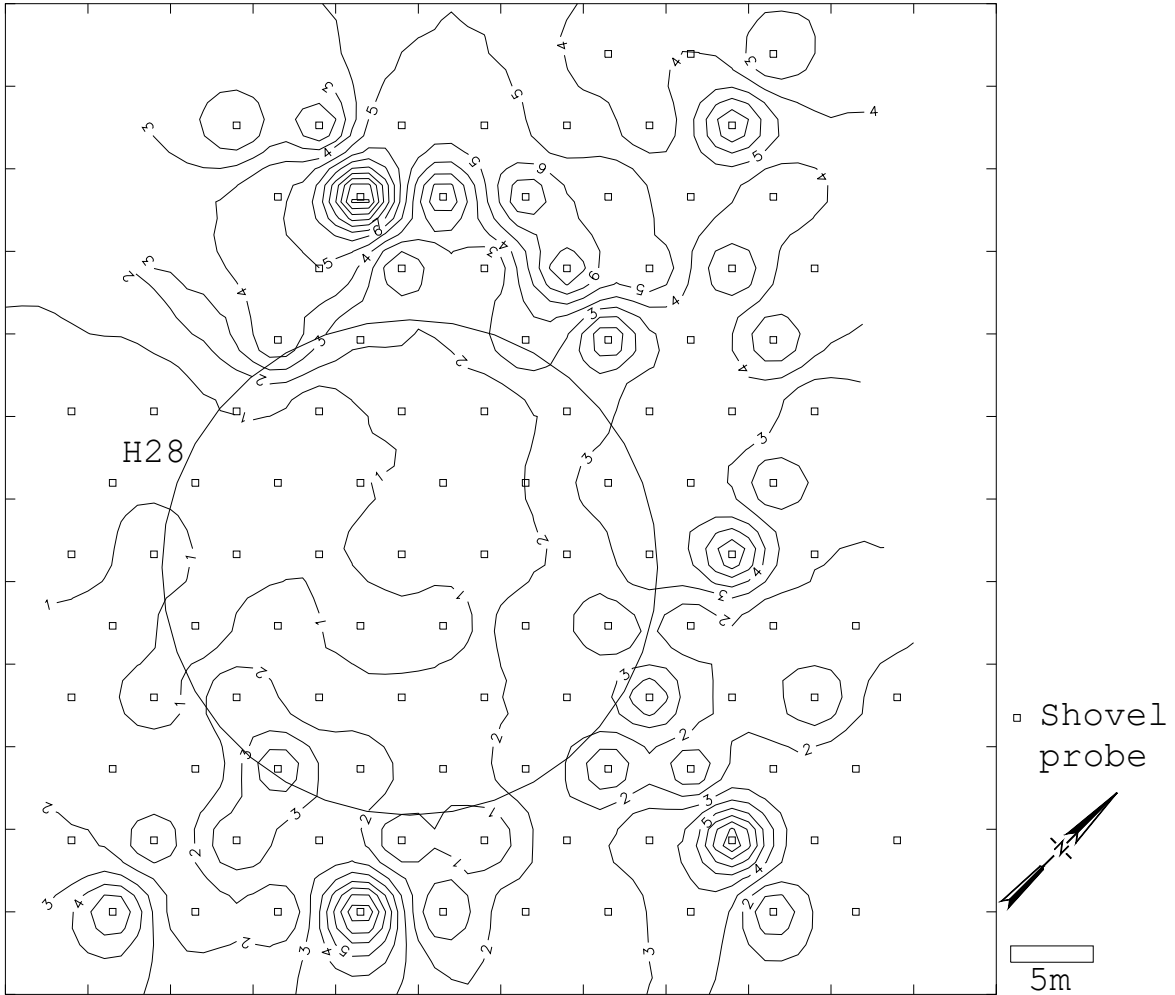


Figure 4.12. Contour map of Early Muisca period ceramics at Site 3.

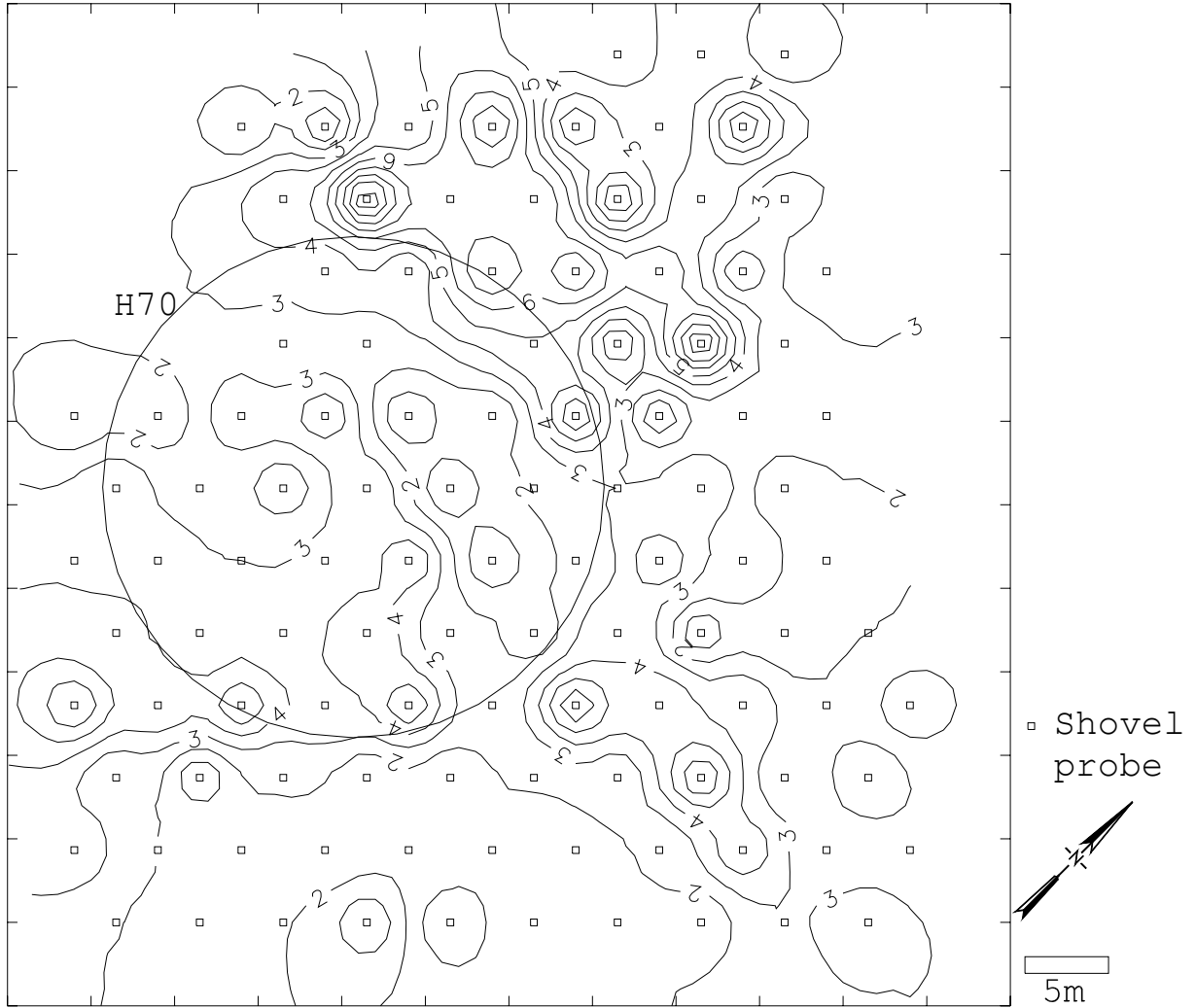


Figure 4.13. Contour map of Late Muisca period ceramics at Site 3.

Figure 4.13 indicates the location of one Late Muisca houselot, H70.

Sites 4 - 6

Sites 4, 5, and 6 are located within a finca known as El Cacique. This finca is likely the location of the *capitaná del Cacique* at the time of the Spanish conquest, and therefore, the location of the chief's compound. The finca is currently a commercial dairy farm and there have been extensive modifications to the landscape through the installation of underground irrigation pipes and drainage canals. The extent of these modifications causes some worry as to the integrity of the archaeological remains at the site. All three sites are located in pasture areas. Sites 5 and 6 are located in adjacent pastures, although the sites are separated by a recently constructed drainage canal and fence.

Figure 4.14 illustrates the distribution of Herrera period sherds at Site 4. The two clusters of Herrera sherds seem to indicate the presence of at least two houselots, H3 and H4. Figure 4.14 shows the distribution of Early Muisca period sherds at Site 4. The large quantity of Early Muisca sherds makes it difficult to clearly delineate the locations of Early Muisca houselots at Site 4. Nevertheless, the size of the site and the presence of clusters of high density on both ends of the site suggest the presence of at least two houselots, designated H29

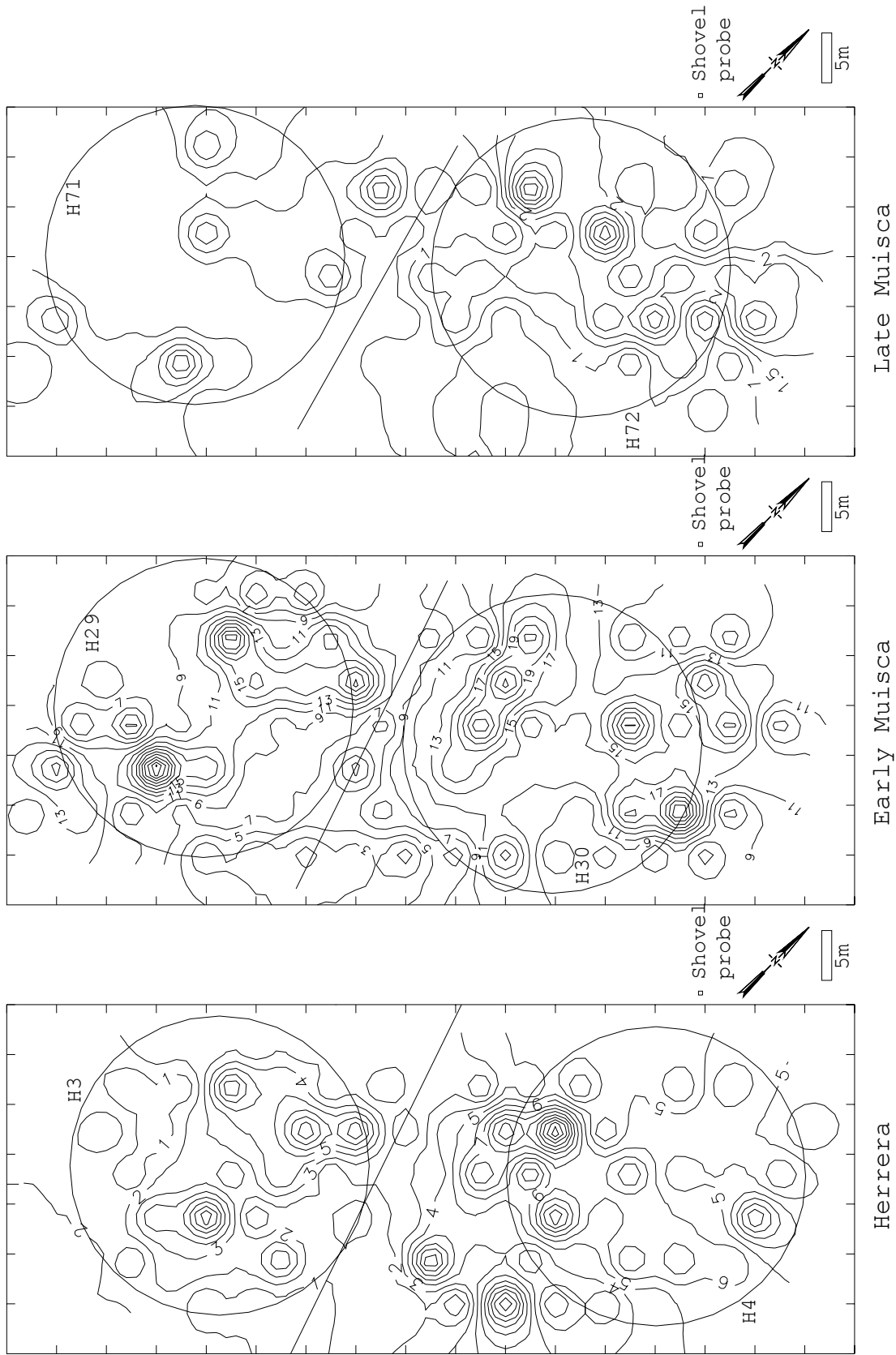


Figure 4.14. Contour maps of ceramics at Site 4.

and H30. Figure 4.14 shows the presence of a clear cluster of Late Muisca sherds on one side of Site 4, which was designated H72. The cluster of smaller peaks on the other side of the site was designated H71.

Figure 4.15 shows the distribution of Herrera period sherds at Site 5. The pattern of sherds indicates the presence of at least one Herrera period houselot, H5. The pattern of Early Muisca sherds at Site 5 indicate the presence of at least one Early Muisca houselot, which was designated H31 (Figure 4.16). Although only eleven Late Muisca sherds were found at Site 5, they seem to indicate the presence of at least one Late Muisca houselot, H73 (Figure 4.17).

Figure 4.18 shows the pattern of Herrera period sherds at Site 6. The large cluster of sherds on the south side of Site 6 clearly indicates the presence of at least one houselot, designated H6. Herrera period sherds are sparser on the northern side of Site 6, but the pattern seems to indicate the presence of at least one other houselot, which was designated H7. Figure 4.19 illustrates the distribution of Early Muisca sherds at Site 6. Based on the pattern of sherds, two Early Muisca houselots, H33 and H34, were designated. Figure 4.20 shows the distribution of Late Muisca sherds at Site 6. Two Late Muisca houselots, H74 and H74B, were delimited.

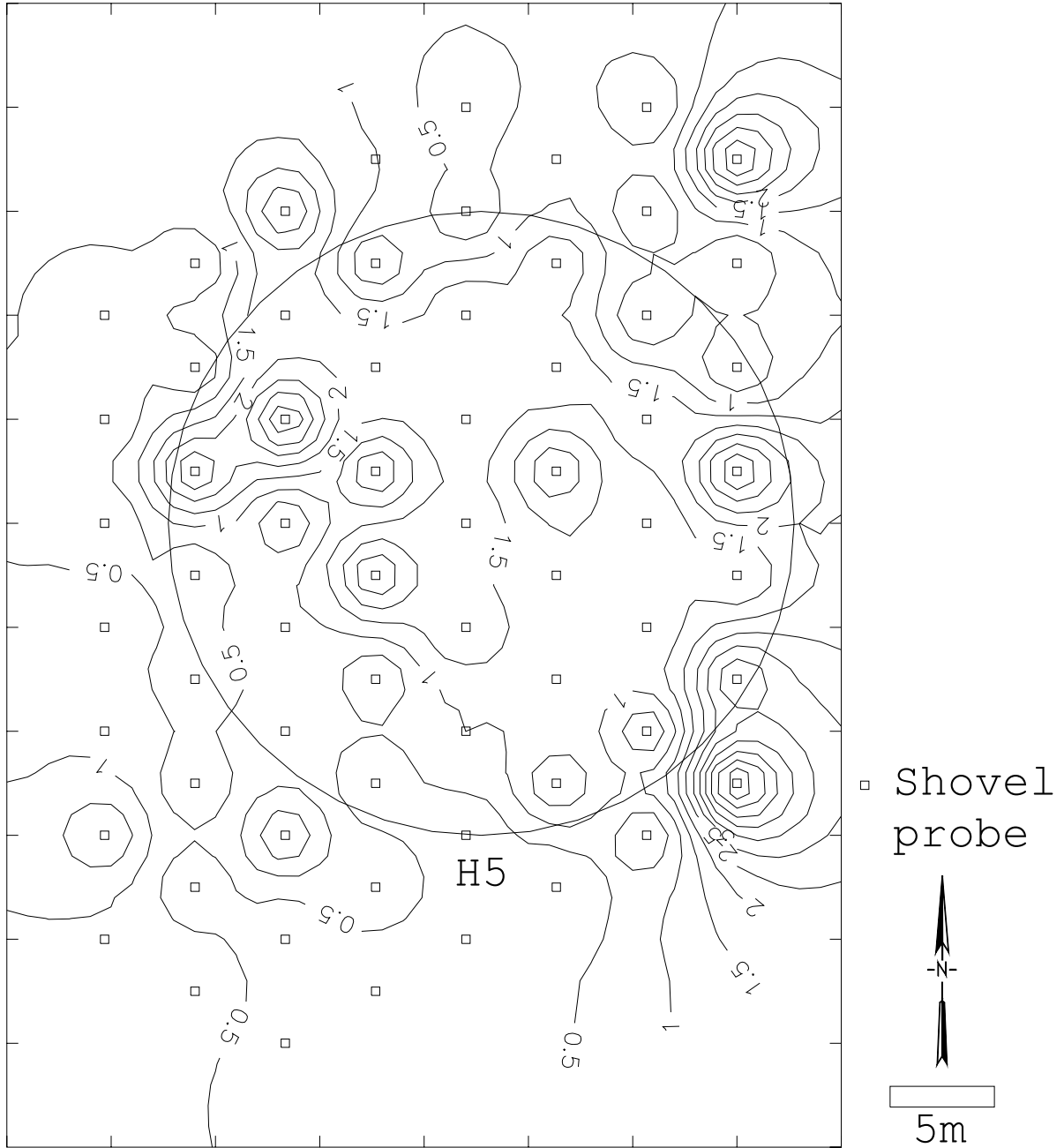


Figure 4.15. Contour map of Herrera period ceramics at Site 5.

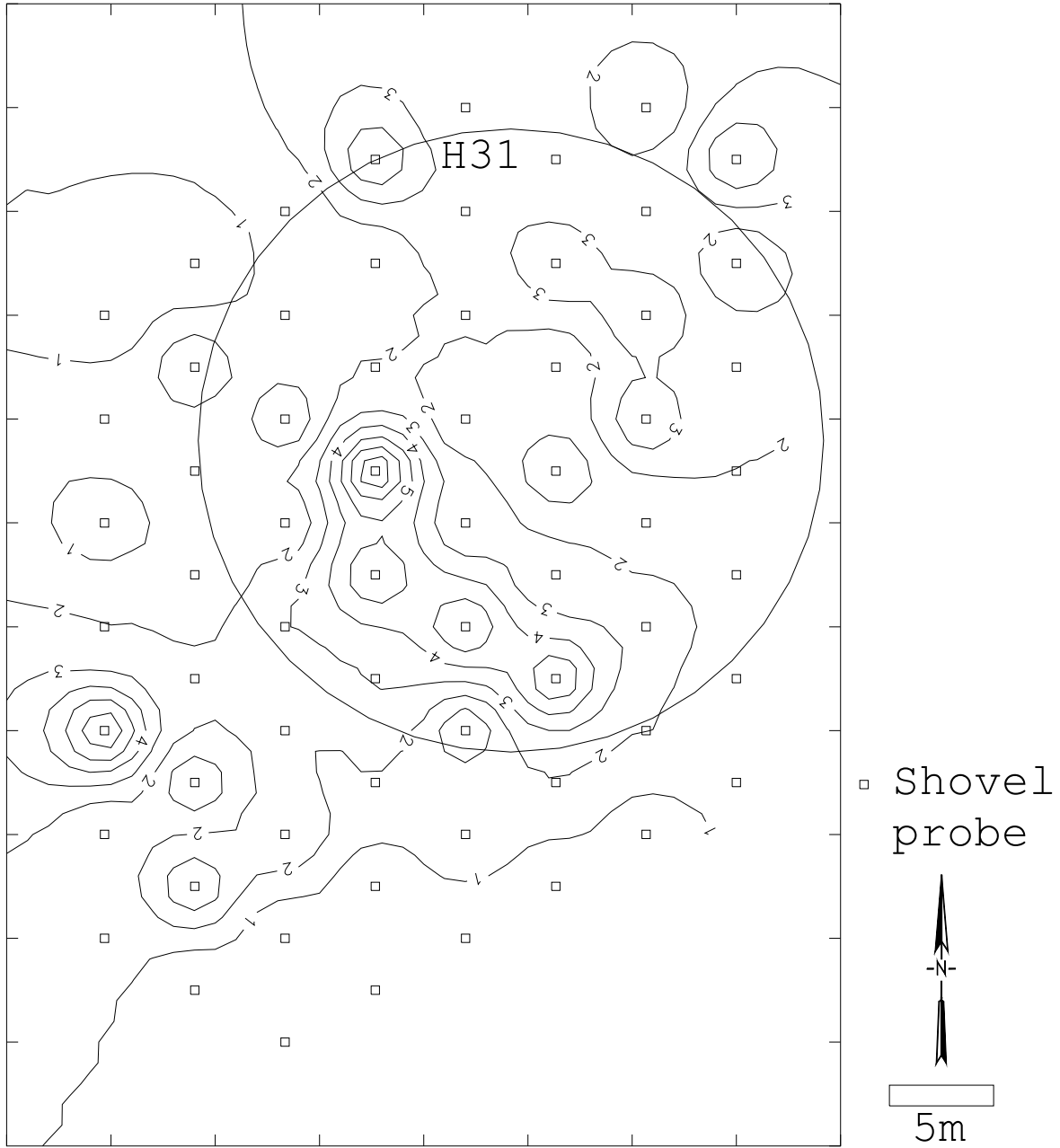


Figure 4.16. Contour map of Early Muisca period ceramics at Site 5.

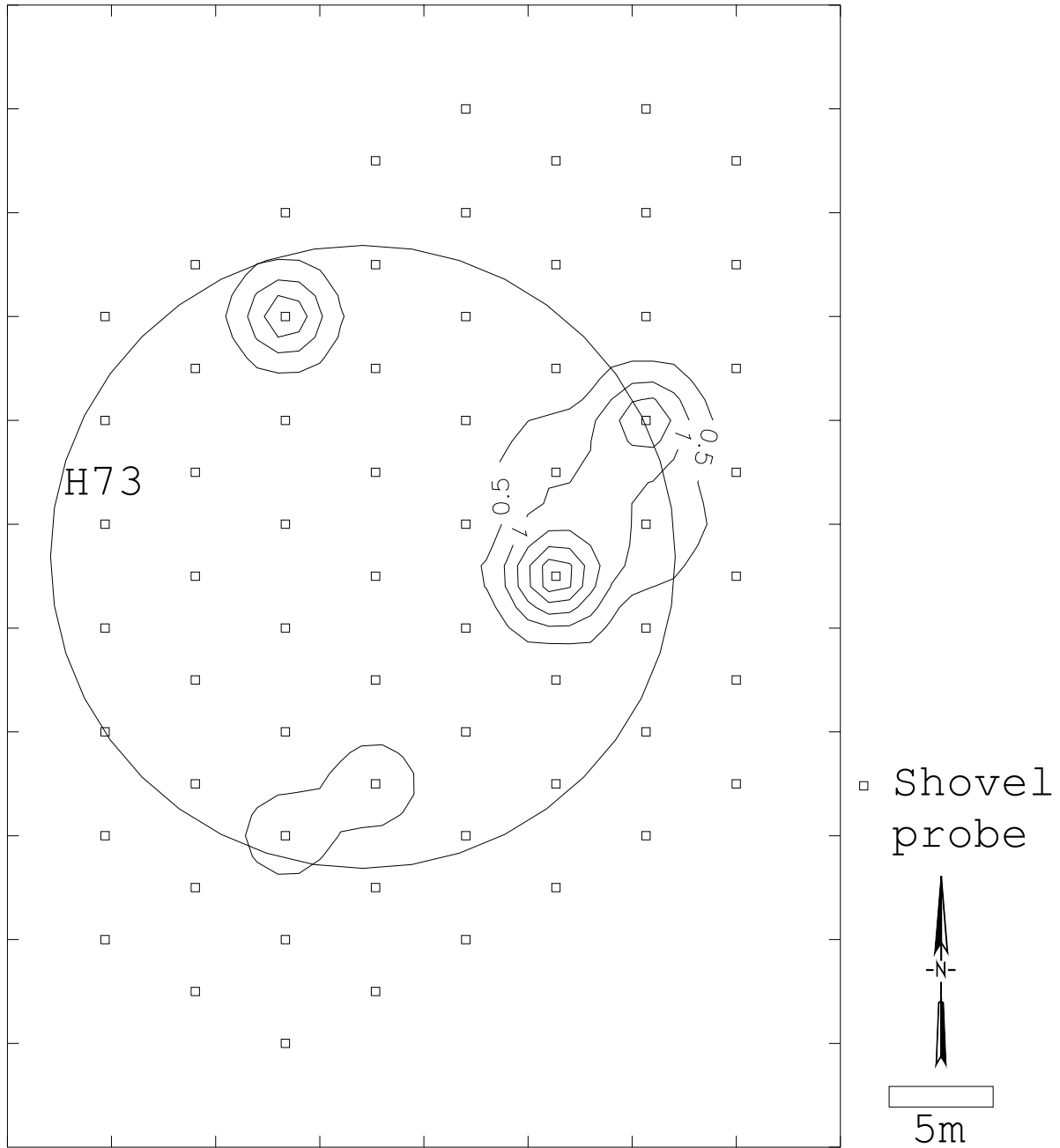


Figure 4.17. Contour map of Late Muisca period ceramics at Site 5.

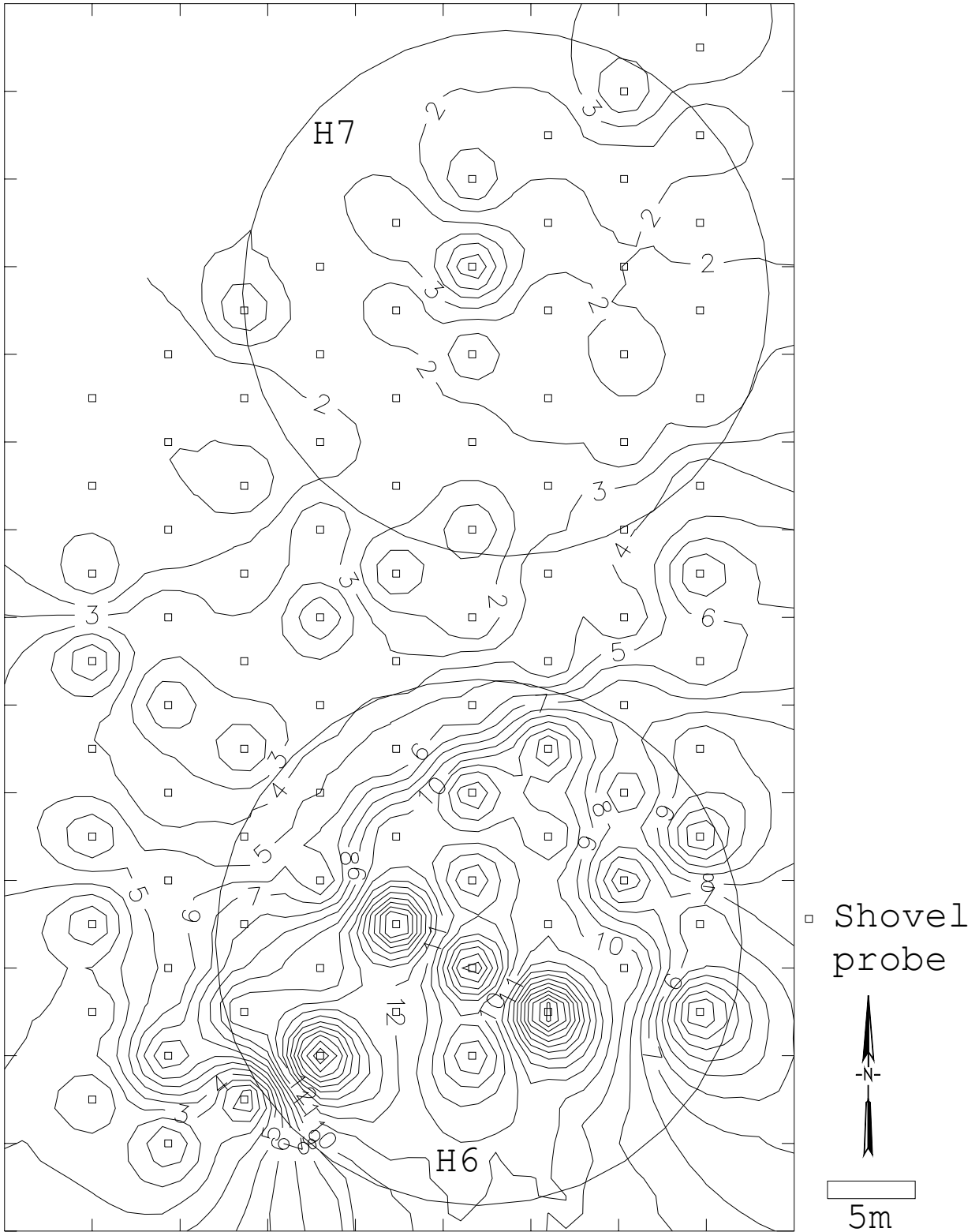


Figure 4.18. Contour map of Herrera period ceramics at Site 6.

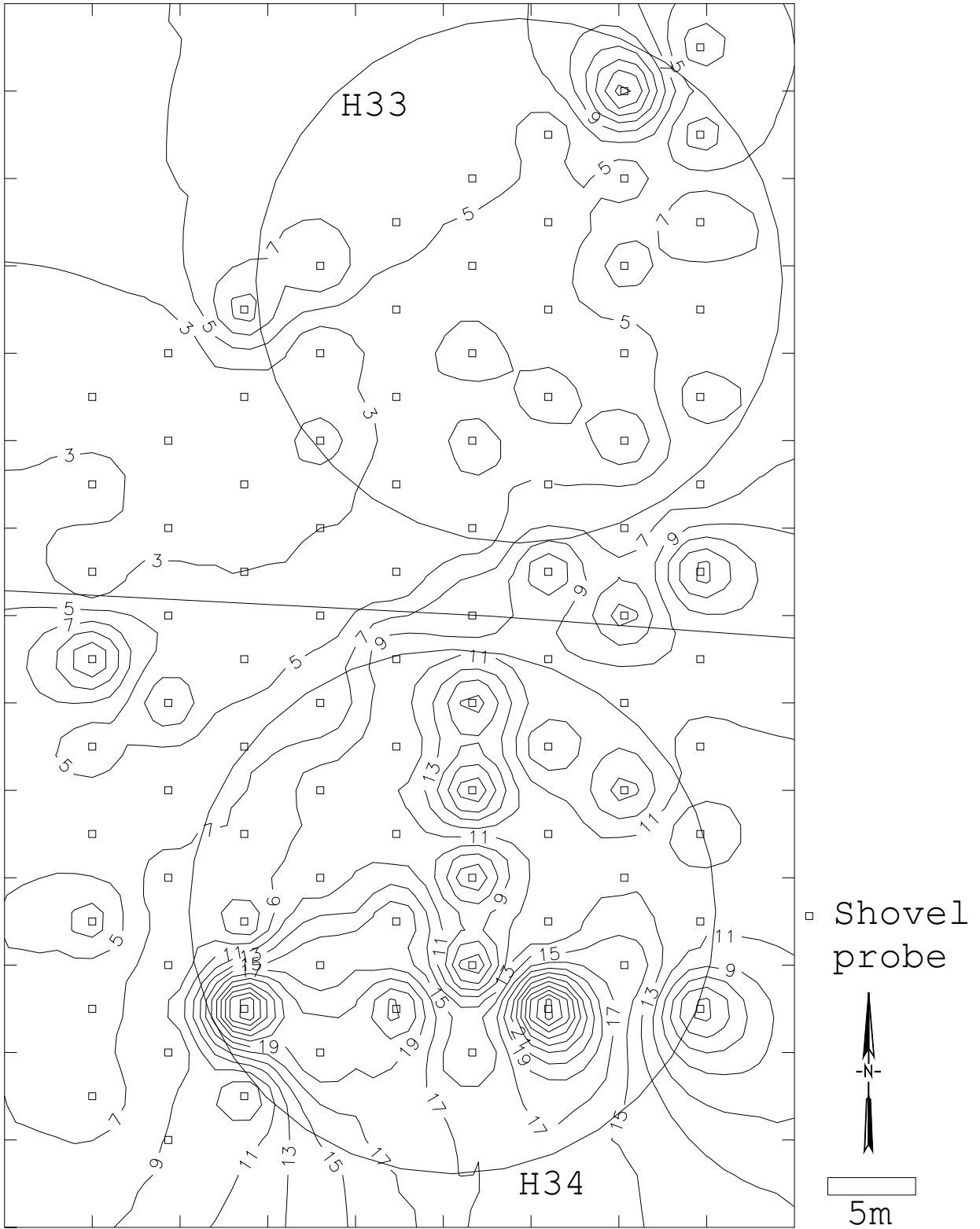


Figure 4.19. Contour map of Early Muisca period ceramics at Site 6.

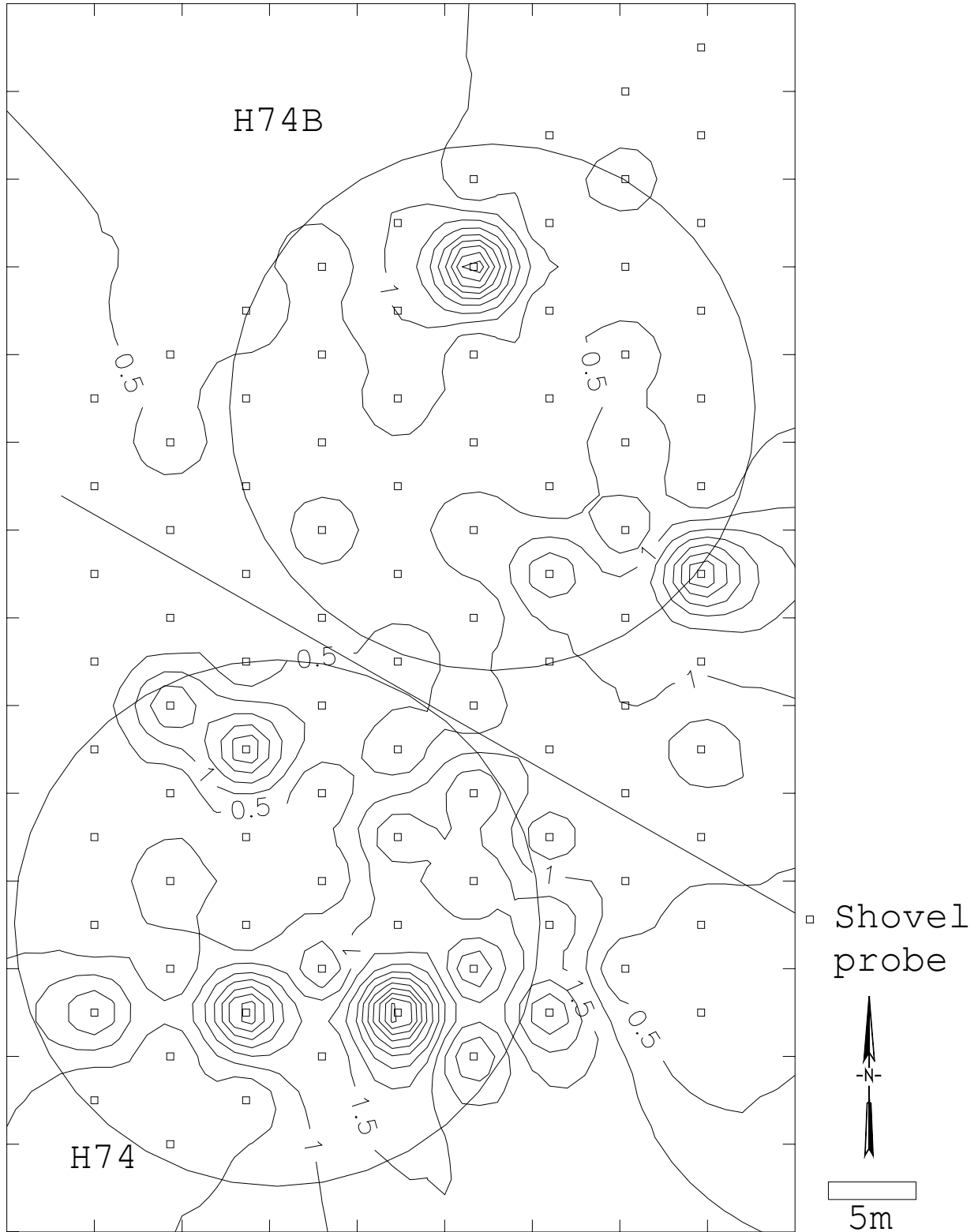


Figure 4.20. Contour map of Late Muisca period ceramics at Site 6.

Site 7

Site 7 is located in a pasture within a dairy farm known as San Ramon. Since the survey lot that we wanted to test was occupied by cows when we visited the site, we decided to work in an adjacent pasture area. However, no archaeological remains were recovered from the 27 shovel probes excavated at site 7.

Sites 8 and 9

Site 8 is located in a pasture at the finca La Esperanza located next to the end of the runway of the El Dorado airport. The site is located close to the zone of raised fields along the Bogotá River, so the prehispanic residents of the site may have been involved in the construction and use of the raised fields. Figure 4.21 shows the locations of Herrera period sherds recovered in shovel tests at Site 8. Although only nine Herrera period sherds were found at Site 8, they seem to indicate the presence of at least one Herrera period houselot, H8. The pattern of Early Muisca sherds at Site 8 indicate the presence of at least one Early Muisca houselot, H35 (Figure 4.22). Likewise, the pattern of Late Muisca sherds indicate the presence of at least one Late Muisca houselot, H75 (Figure 4.23).

Site 9 is located in a pasture adjacent to Site 8 at La Esperanza. We were only able to excavate eleven shovel probes

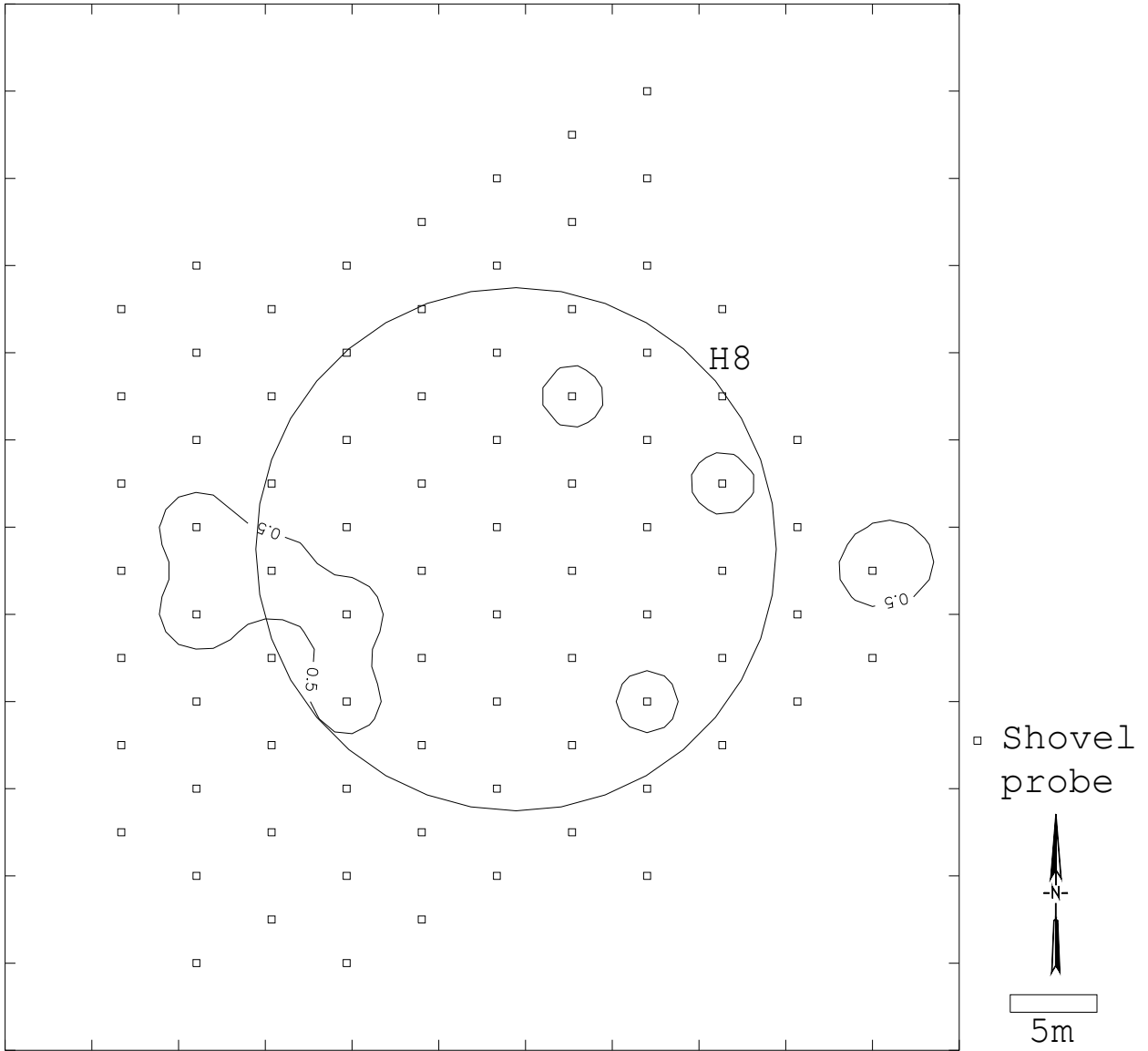


Figure 4.21. Contour map of Herrera period ceramics at Site 8.

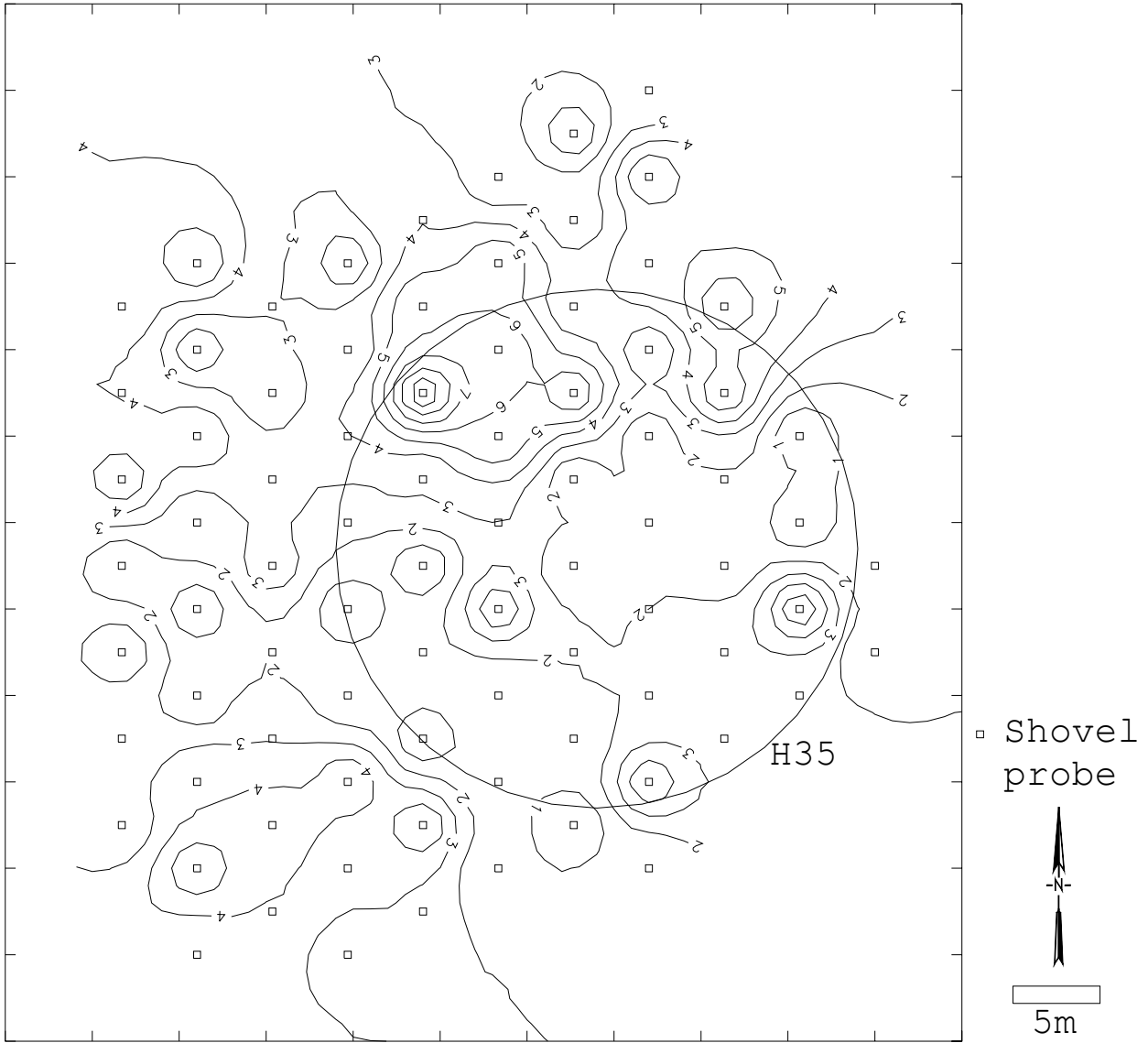


Figure 4.22. Contour map of Early Muisca period ceramics at Site 8.

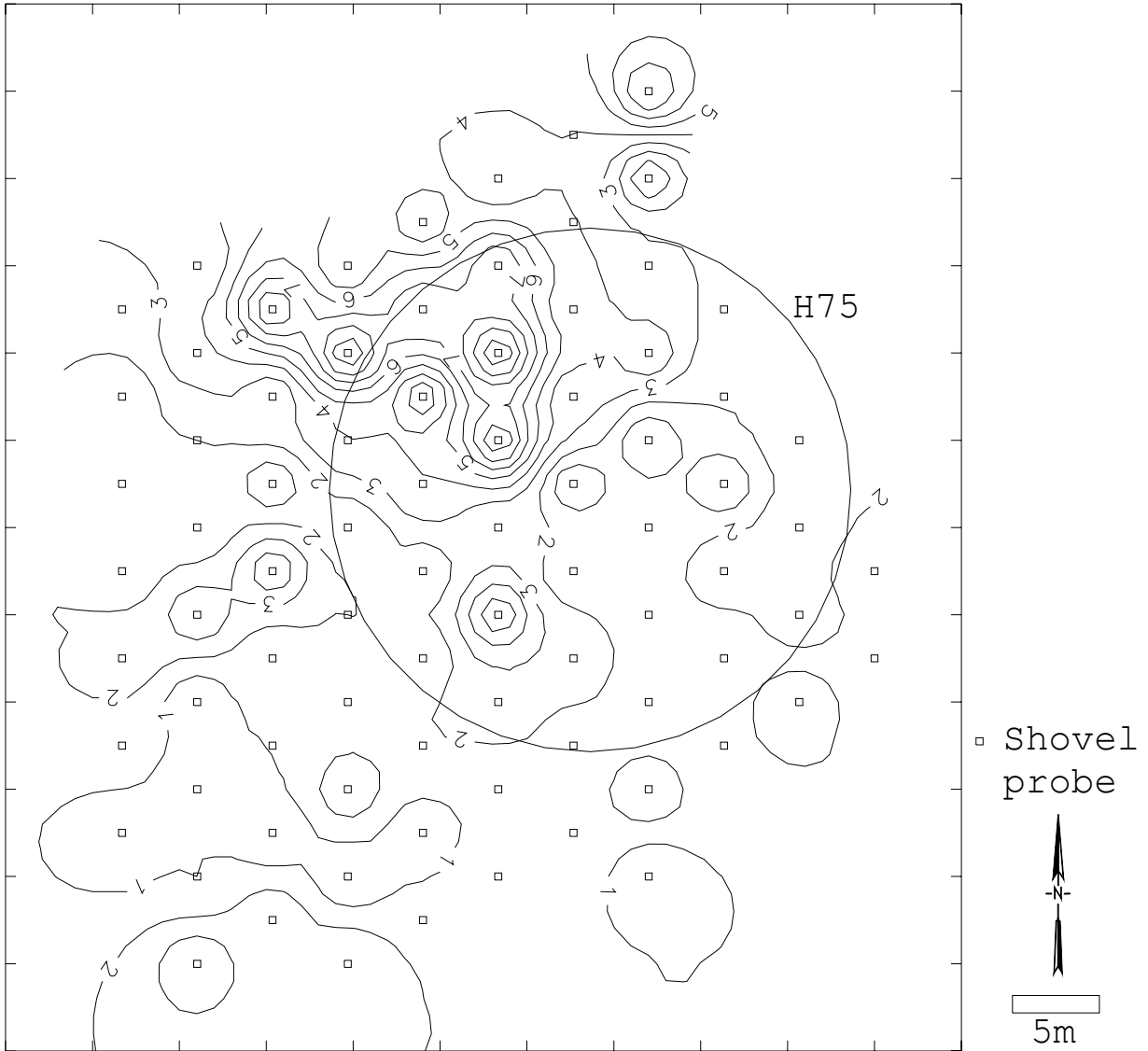


Figure 4.23. Contour map of Late Muisca period ceramics at Site 8.

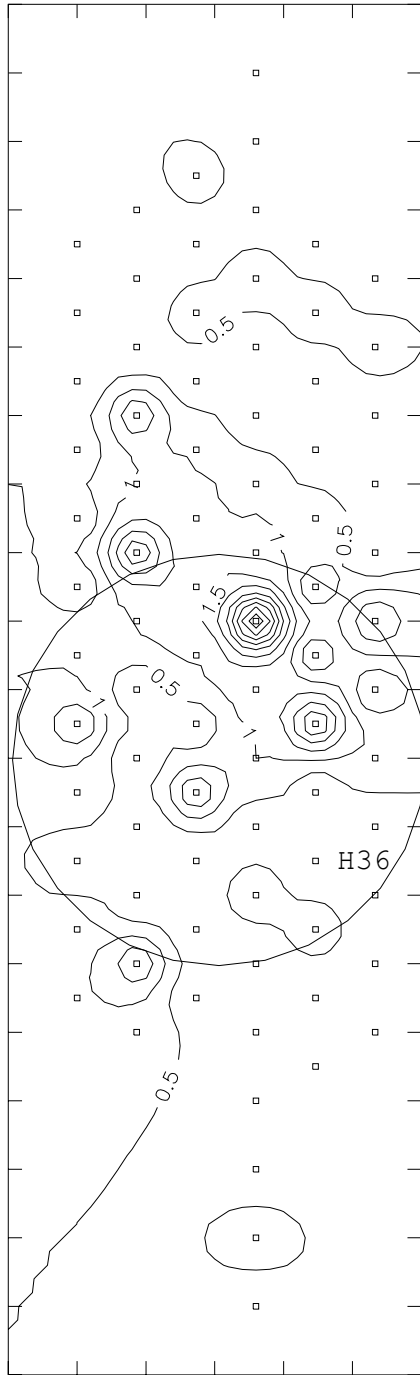
at the site, as the landowner did not want us to continue working there. Although Early Muisca and Late Muisca ceramics were recovered, there are not enough shovel probes to confidently assign the materials to individual houselots.

Sites 10 - 14

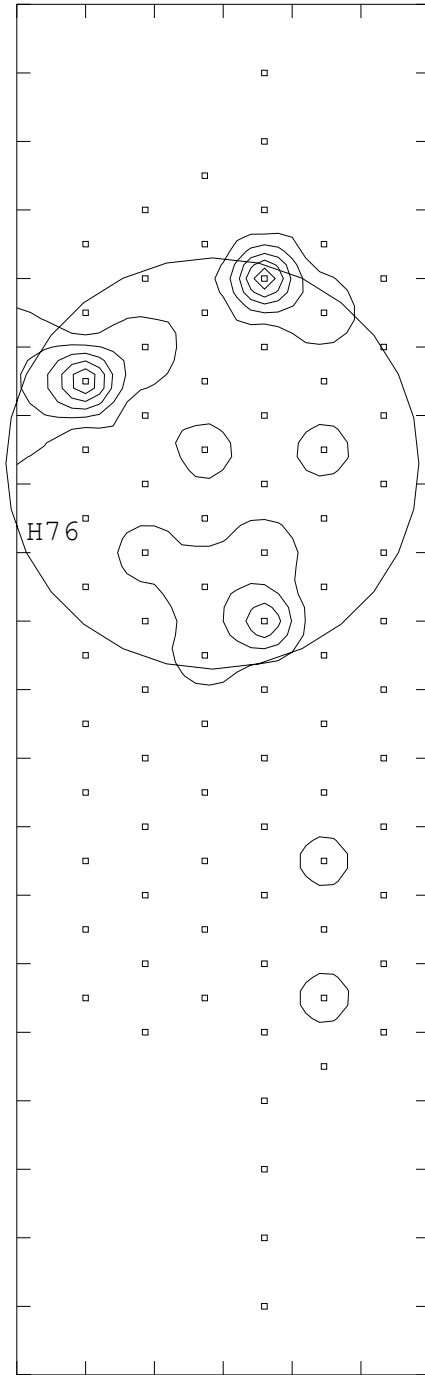
These sites are all located in pasture areas within a government run agricultural research facility known as Tibaitatá. No archaeological remains were recovered from the eleven shovel probes excavated at Site 10.

No Herrera period ceramics were recovered in the shovel probes at Site 11. Figure 4.24 shows the distribution of Early Muisca sherds at Site 11. The pattern of sherds indicates the presence of at least one Early Muisca houselot, H36. Figure 4.24 shows the distribution of Late Muisca sherds at Site 11. The pattern of sherds indicates the presence of at least one Late Muisca houselot, H76.

Like Site 11, no Herrera ceramics were found in the shovel probes excavated at Site 12. Figure 4.25 shows the distribution of Early Muisca sherds at Site 12. The pattern of sherds indicates the presence of at least two Early Muisca houselots, H37 and H38. Figure 4.26 shows the distribution of Late Muisca sherds at Site 12. The pattern of Late Muisca sherds at Site 12



Early Muisca



Late Muisca

Figure 4.24. Contour map of Early Muisca and Late Muisca period ceramics at Site 11.

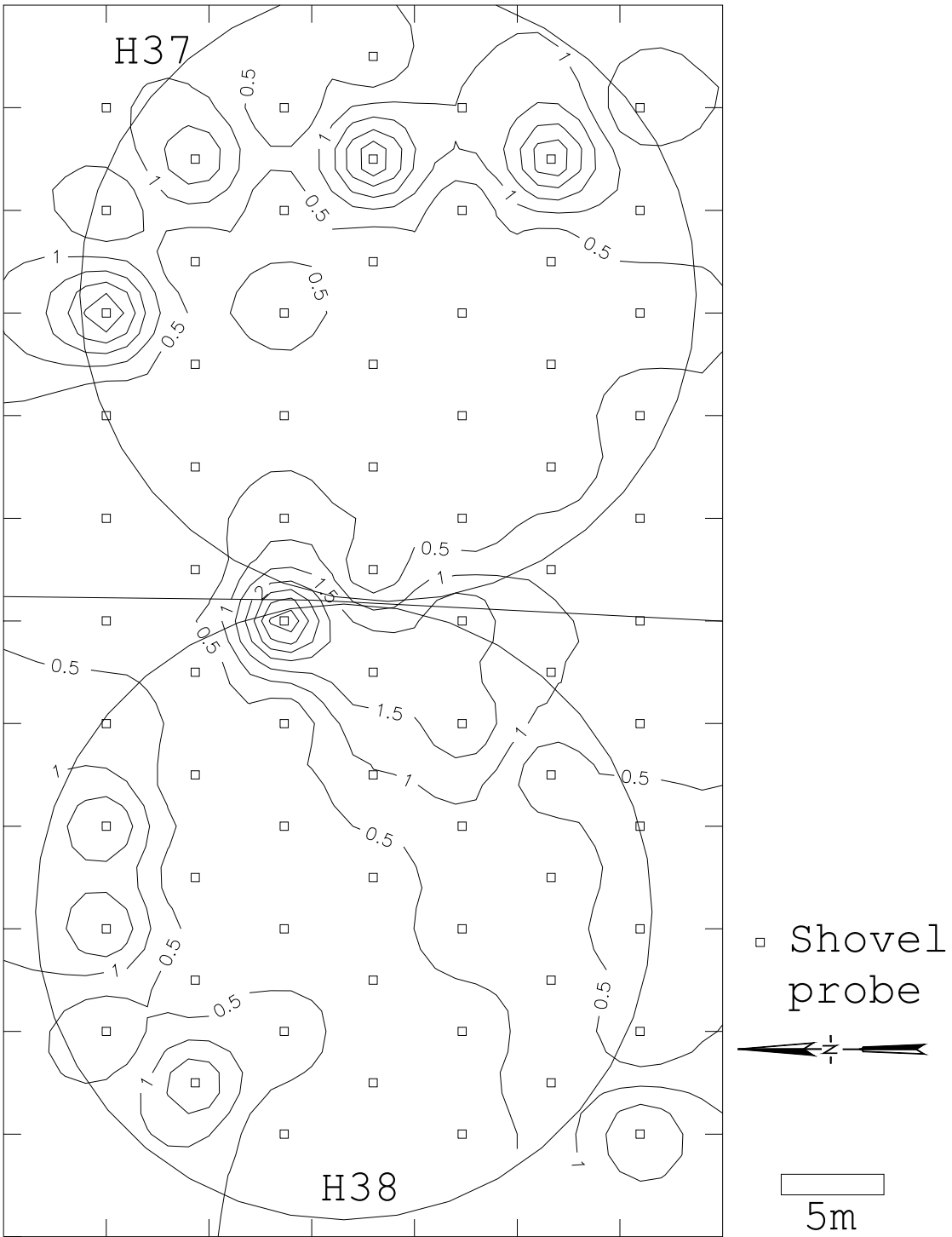


Figure 4.25. Contour map of Early Muisca period ceramics at Site 12.

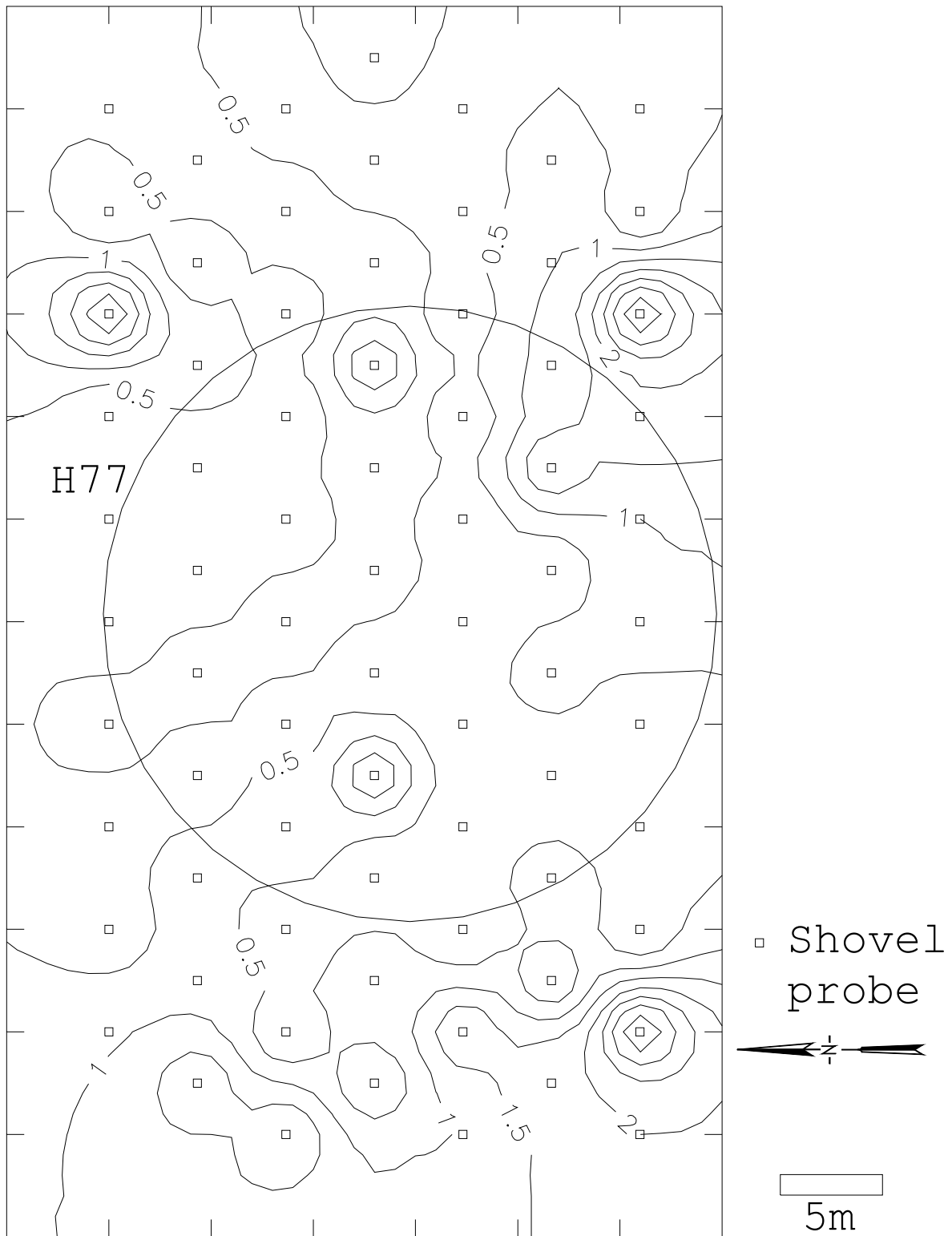


Figure 4.26. Contour map of Late Muisca period ceramics at Site 12.

indicates the presence of at least one Late Muisca houselot, H77.

Only three Herrera period sherds were recovered from the shovel probes excavated at Site 13. Therefore, no Herrera period houselots were designated. Figure 4.27 illustrates the distribution of Early Muisca sherds at Site 13. The pattern of sherds indicates the presence of at least two houselots, H39 and H40. Likewise, Figure 4.28 indicates the presence of at least two Late Muisca houselots, H78 and H79.

Like at Site 13 above, only three Herrera period sherds were recovered in the shovel probes excavated at Site 14. Therefore, no Herrera period houselots were designated at Site 14. The distribution of Early Muisca sherds in Figure 4.29 indicates the presence of at least one houselot, H41. Similarly, Figure 4.29 indicates the presence of one Late Muisca houselot, H80, at Site 14.

Sites 15 - 17

Sites 15, 16, and 17 are located in a pasture area of a finca that is situated adjacent to the runway of El Dorado Airport. No Herrera period sherds were recovered from the shovel probes excavated at Site 15. Therefore, no Herrera period houselots were designated. Figure 4.30 shows the distribution of Early Muisca sherds at Site 15,

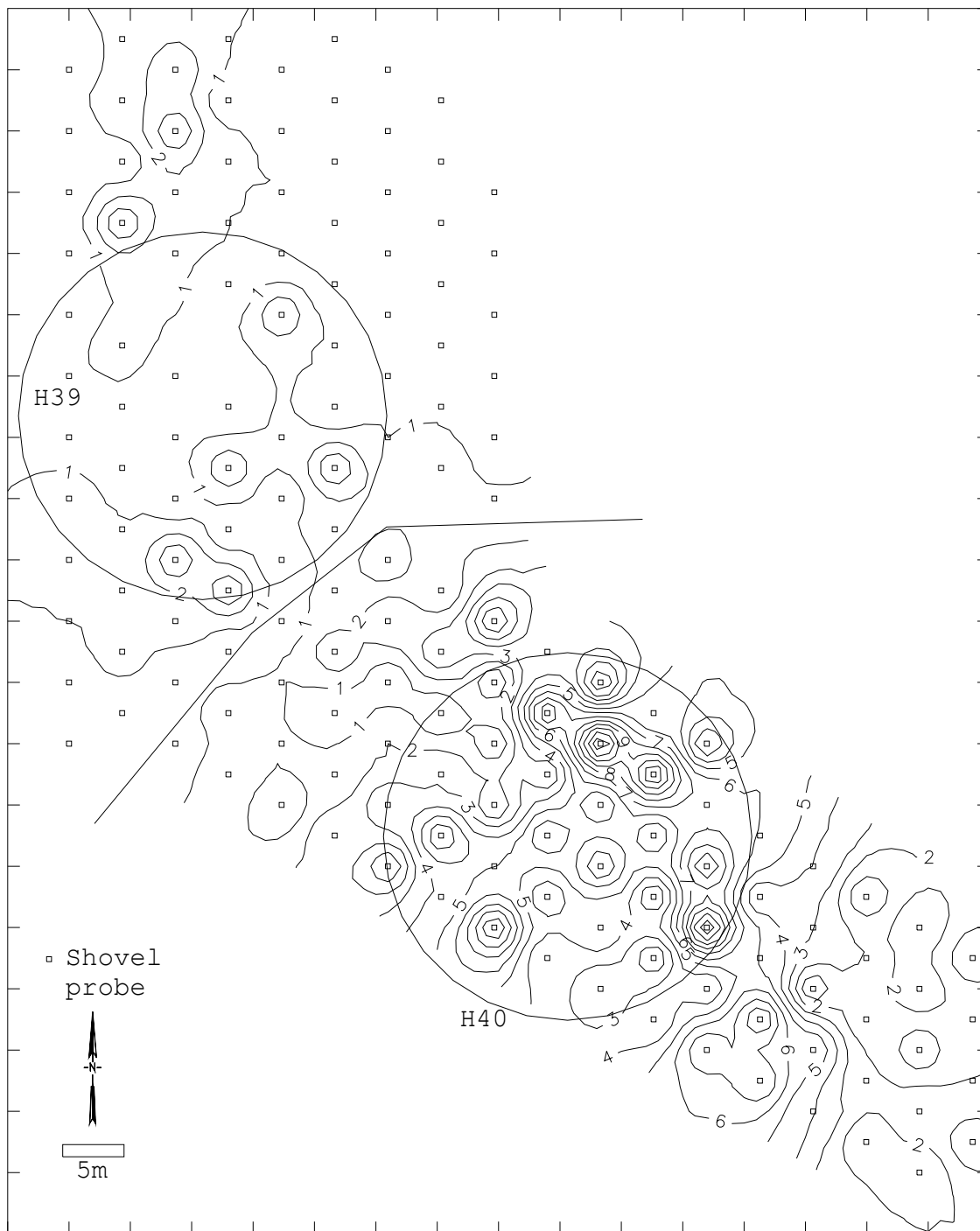


Figure 4.27. Contour map of Early Muisca period ceramics at Site 13.

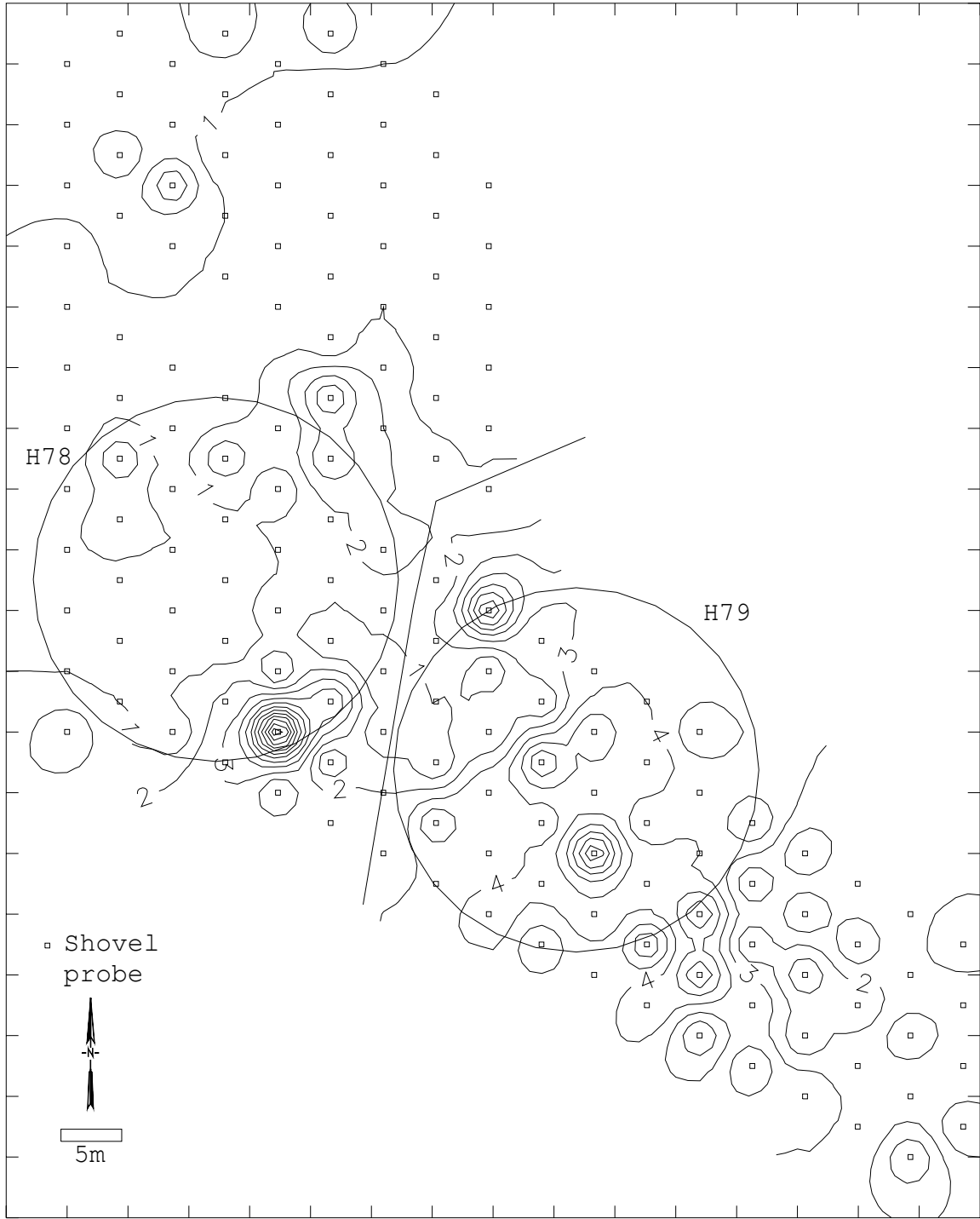


Figure 4.28. Contour map of Late Muisca period ceramics at Site 13.

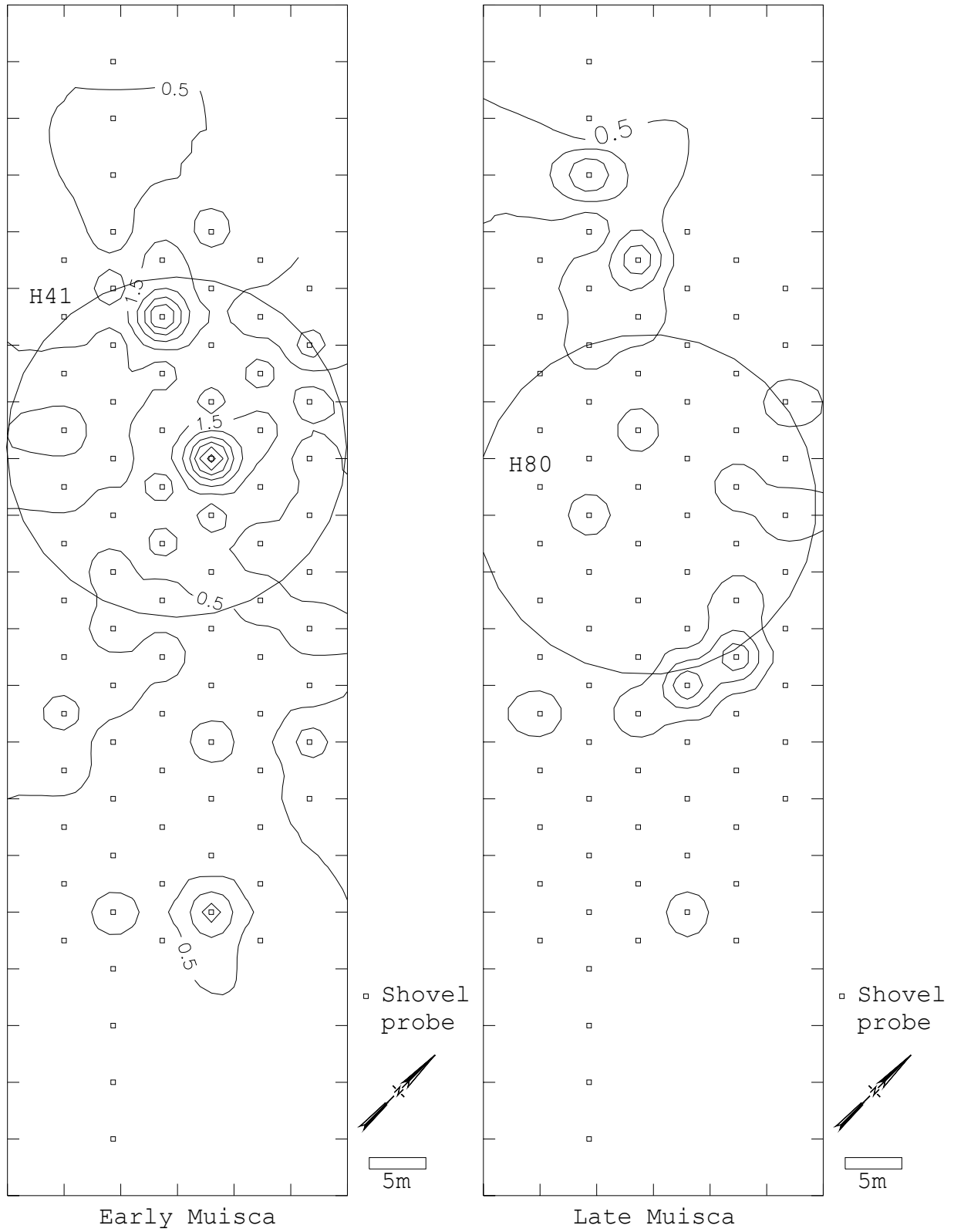


Figure 4.29. Contour map of Early Muisca and Late Muisca period ceramics at Site 14.

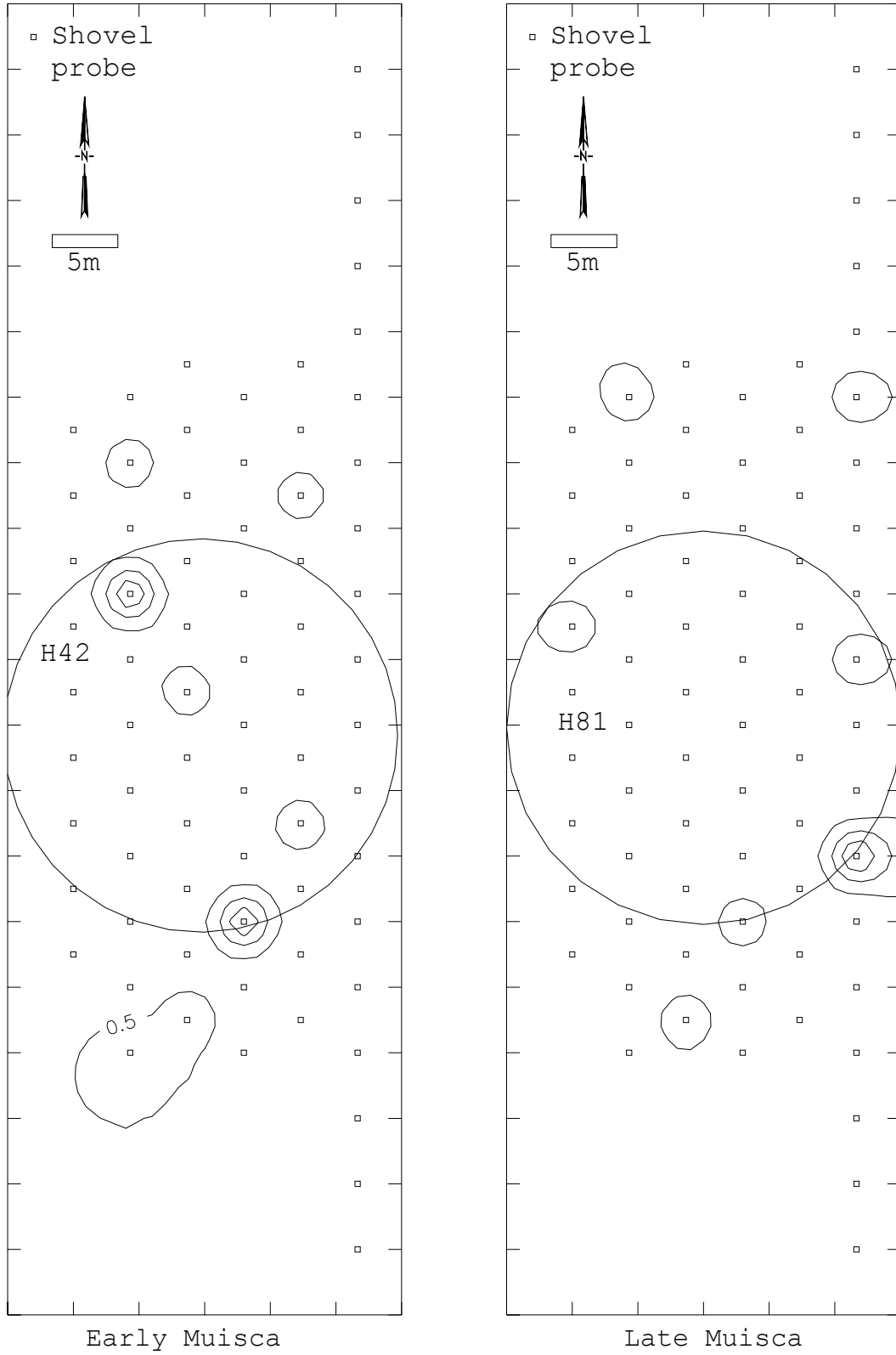


Figure 4.30. Contour map of Early Muisca and Late Muisca period ceramics at Site 15.

indicating the presence of at least one Early Muisca houselot, H42. Likewise, Figure 4.30 indicates the presence of at least one Late Muisca houselot, H81.

As at Site 15, no Herrera period sherds were recovered from the shovel probes excavated at Site 16. Therefore, no Herrera period houselots were designated. The distribution of Early Muisca sherds at Site 16 (Figure 4.31) indicates the presence of at least two Early Muisca houselots, H43 and H44. Figure 4.31 shows the distribution of Late Muisca sherds at Site 16 and indicates the presence of at least one Late Muisca houselot, H82.

No Herrera period sherds were recovered from the shovel probes excavated at Site 17. Therefore, no Herrera period houselots were designated. The distribution of Late Muisca ceramics at Site 17 is shown in Figure 4.32. The pattern of Early Muisca sherds indicates the presence of at least one Early Muisca houselot, H45. Due to the scarcity of Late Muisca sherds (Figure 4.32), no Late Muisca houselots were designated at Site 17.

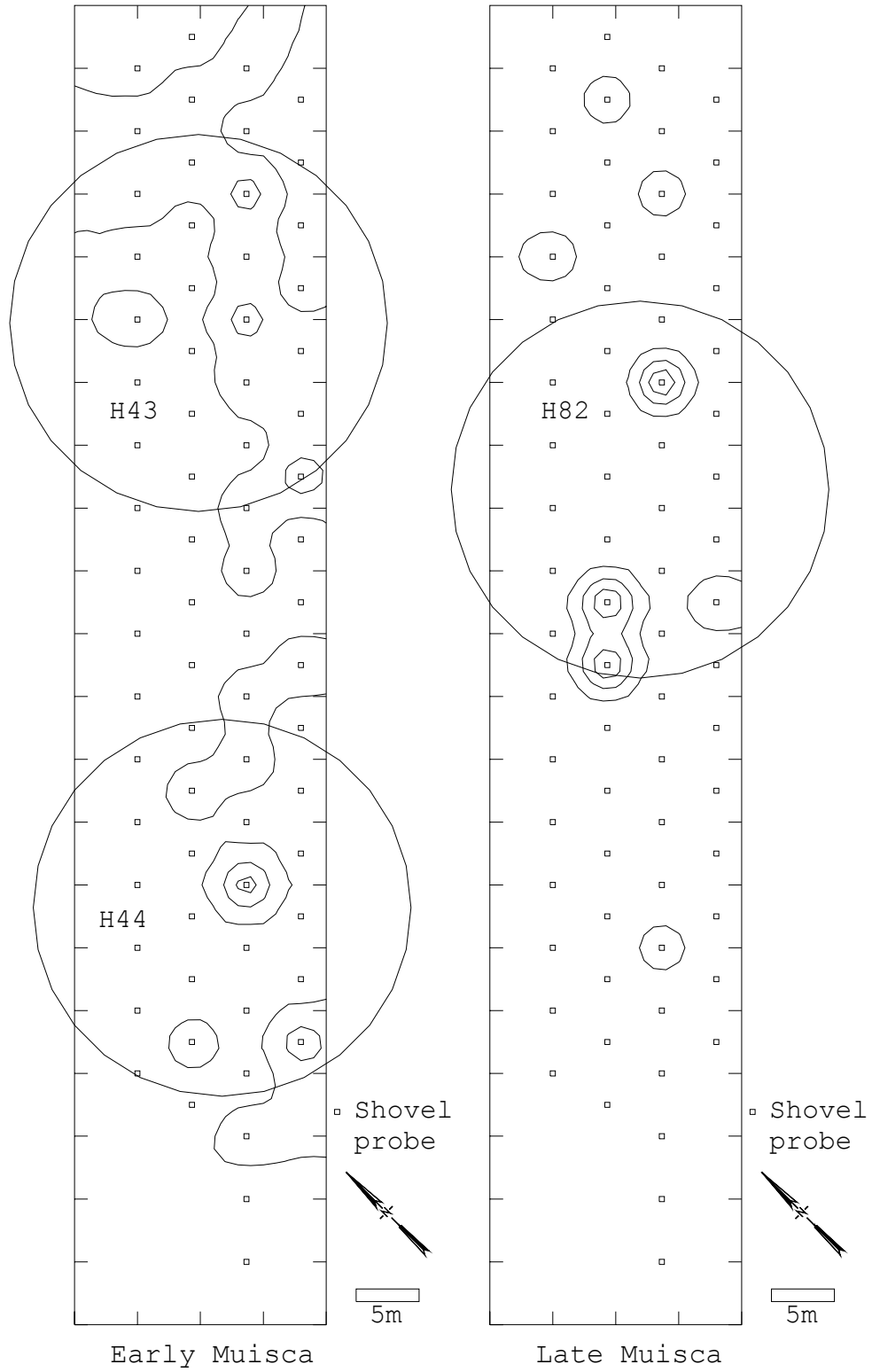


Figure 4.31. Contour map of Early Muisca and Late Muisca period ceramics at Site 16.

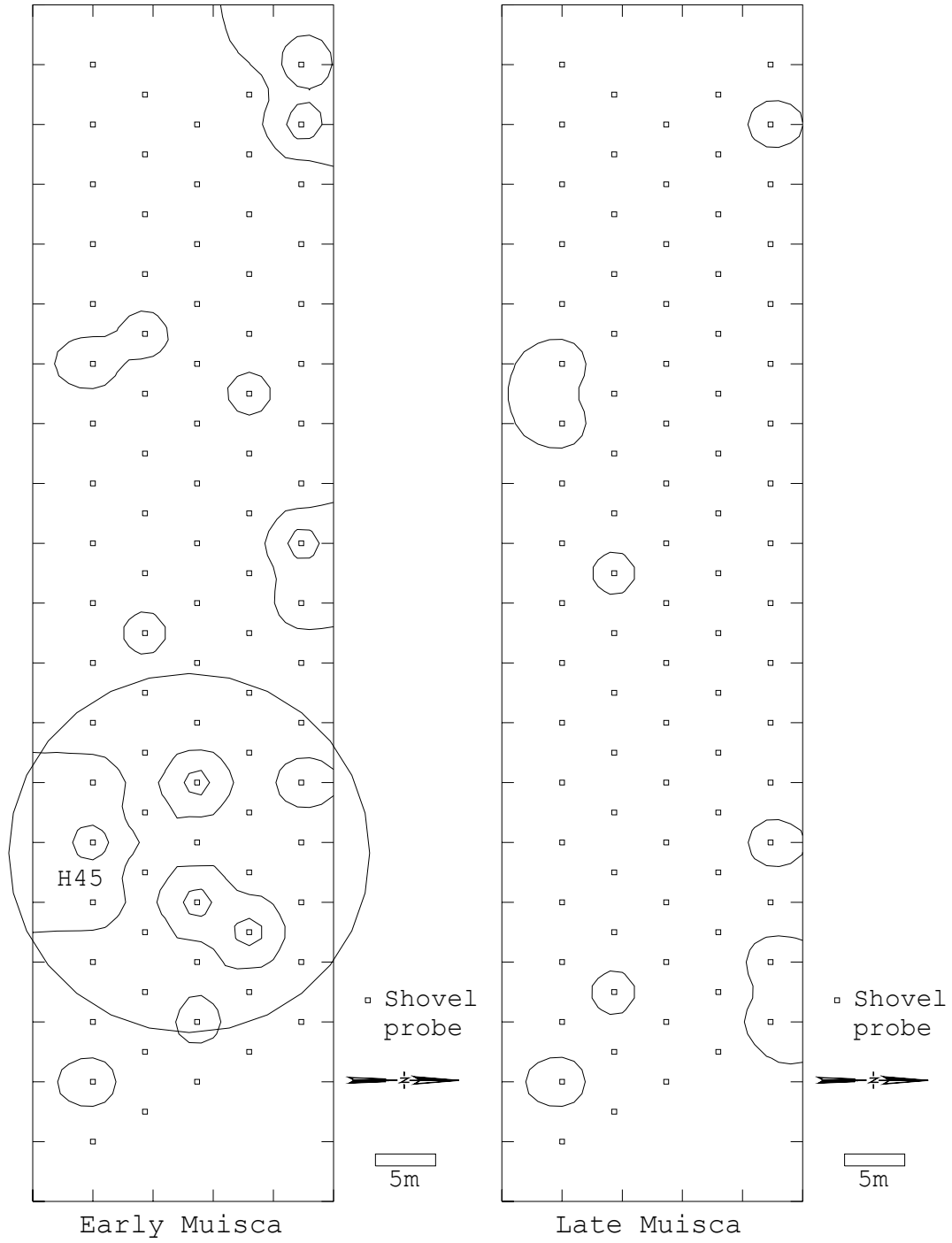


Figure 4.32. Contour map of Early Muisca and Late Muisca period ceramics at Site 17.

Site 18

Site 18 is located at the finca San Ramón, adjacent to Site 7. We were able to return to this site several weeks after we worked at Site 7, when the pasture at Site 18 was unoccupied. Site 18 is unusual because only Herrera period ceramic material was recovered. It is the only site in our sample with only a Herrera period occupation. Figure 4.33 shows the distribution of Herrera period ceramics at the site. One Herrera period houselot, H9 was designated.

Sites 19 - 21

Sites 19, 19A, 20, and 21 are all located in pasture areas of a finca known as El Almagro. These sites are also nearby the area of raised fields located along the Bogotá River. A total of 23 shovel probes were excavated at Site 19A. Of these shovel probes only one had sherds. Therefore, no houselots could be identified at Site 19A.

The distribution of Herrera period sherds at Site 19 is shown in Figure 4.34. The pattern of sherds clearly indicates the presence of at least one Herrera period houselot, H10.

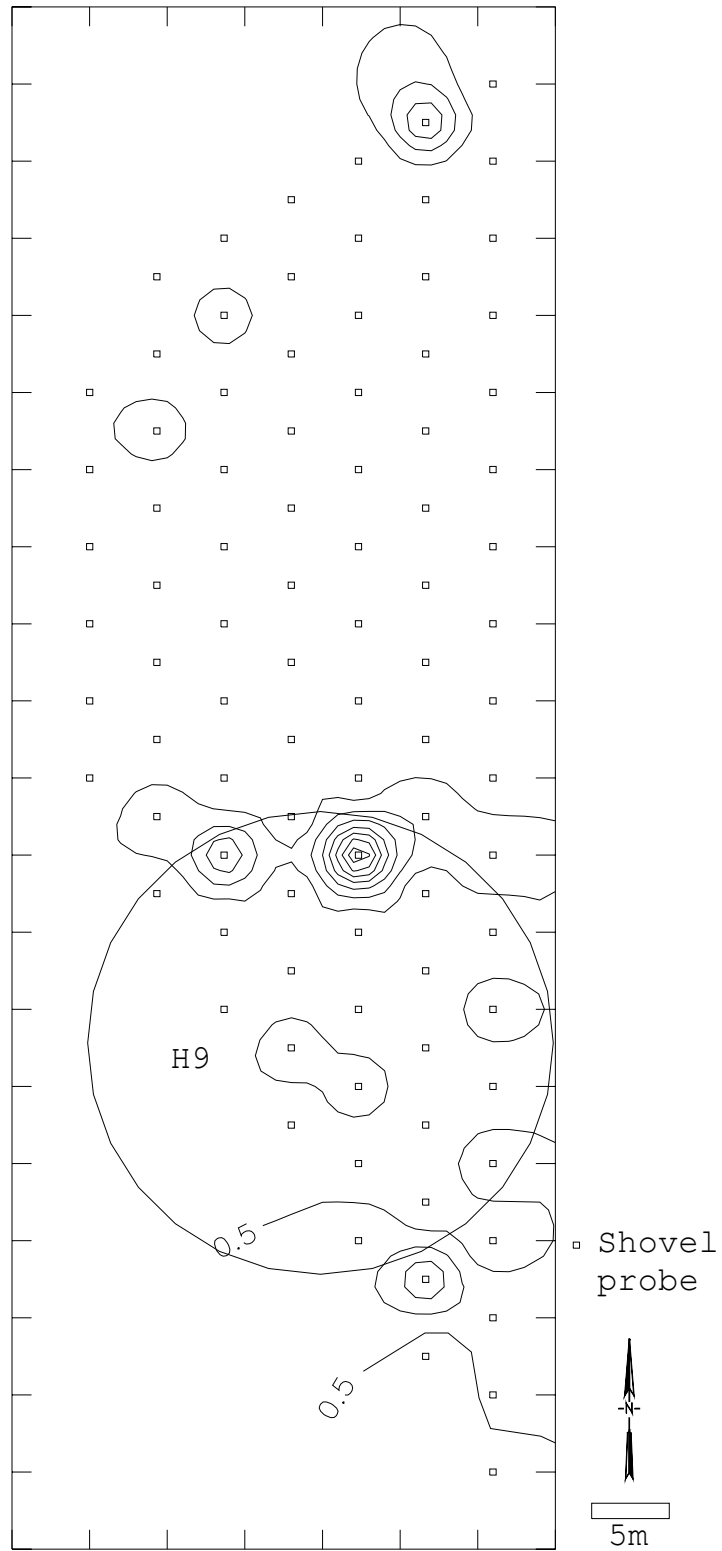


Figure 4.33. Contour map of Herrera period ceramics at Site 18.

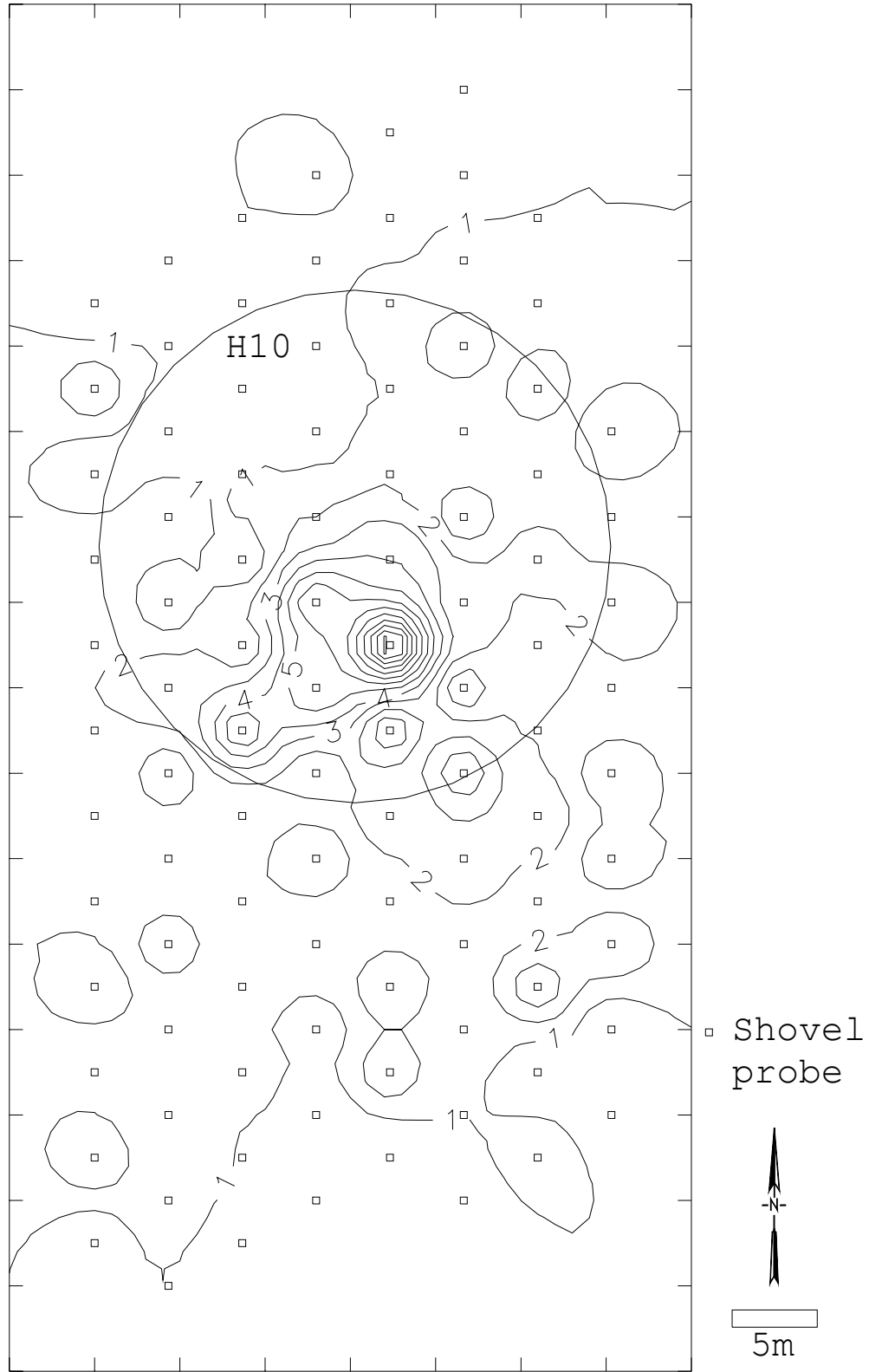


Figure 4.34. Contour map of Herrera period ceramics at Site 19.

Similarly, the pattern of Early Muisca sherds (Figure 4.35) indicates the presence of at least one Early Muisca houselot, H46. Figure 4.36 illustrates the distribution of Late Muisca sherds at Site 19. The pattern of sherds indicates the presence of at least one Late Muisca houselot, H83.

Figure 4.37 shows the distribution of Herrera period sherds at Site 20. The pattern of sherds indicates the presence of at least one Herrera houselot, H11. Figure 4.38 illustrates the distribution of Early Muisca sherds at Site 20. The pattern of sherds indicates the presence of at least one Early Muisca houselot, H47. The pattern of Late Muisca sherds at Site 20 (Figure 4.39) indicates the presence of at least one Late Muisca houselot, H84.

Figure 4.40 illustrates the distribution of Herrera period sherds at Site 21. The pattern of Herrera sherds indicates the presence of at least two Herrera houselots, H12 and H13. The large quantity of Early Muisca sherds at Site 21 (Figure 4.40) makes it difficult to clearly distinguish individual houselots. Nevertheless, there seem to be two distinct areas with extremely high sherd densities indicating the presence of at least two Early Muisca houselots, H48 and 49. A similar situation occurs in the Late Muisca period at Site 21 (Figure 4.40). Again, the two clusters of higher density suggest the presence of at least two Late Muisca houselots, H85 and H86.

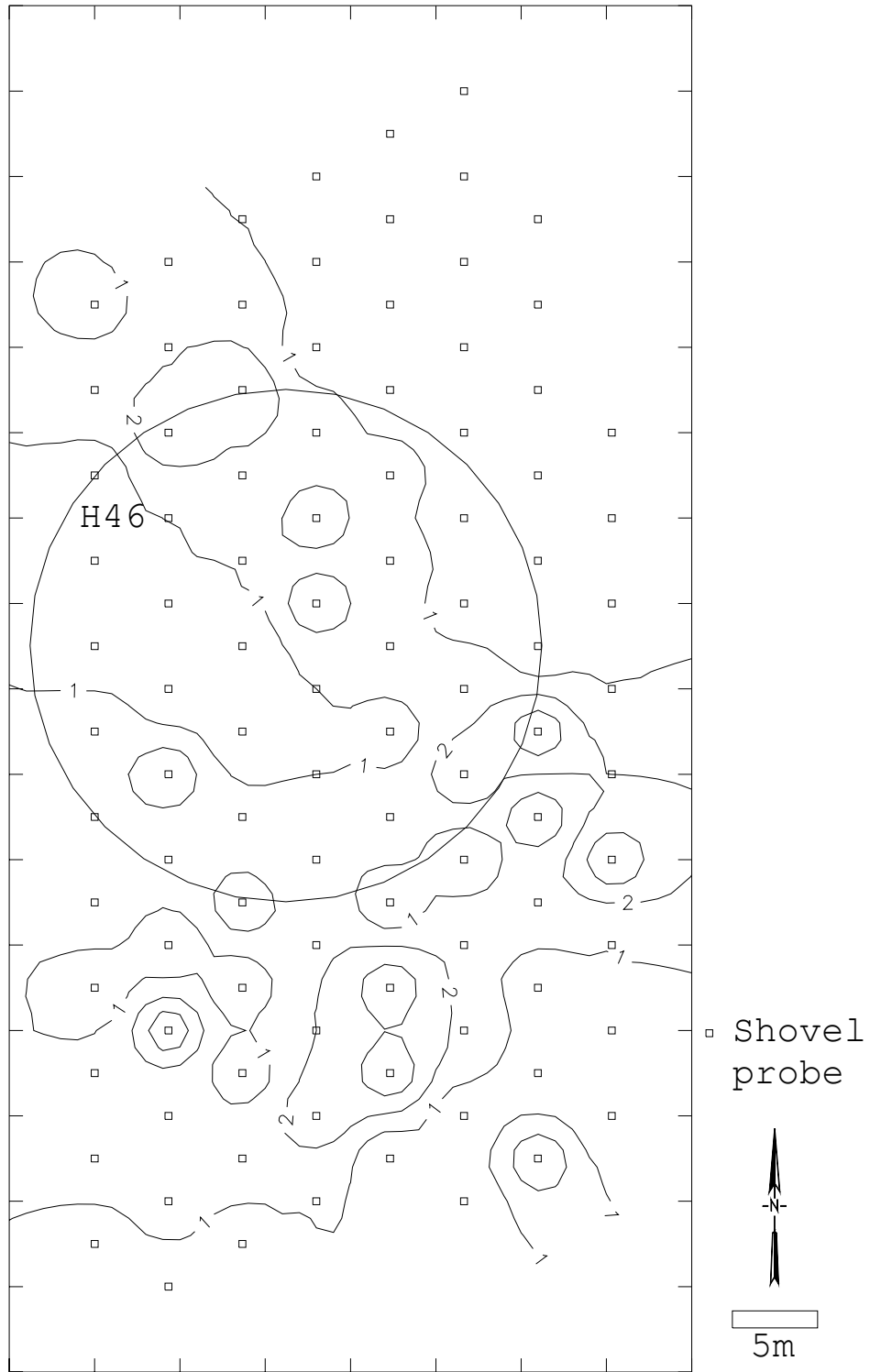


Figure 4.35. Contour map of Early Muisca period ceramics at Site 19.

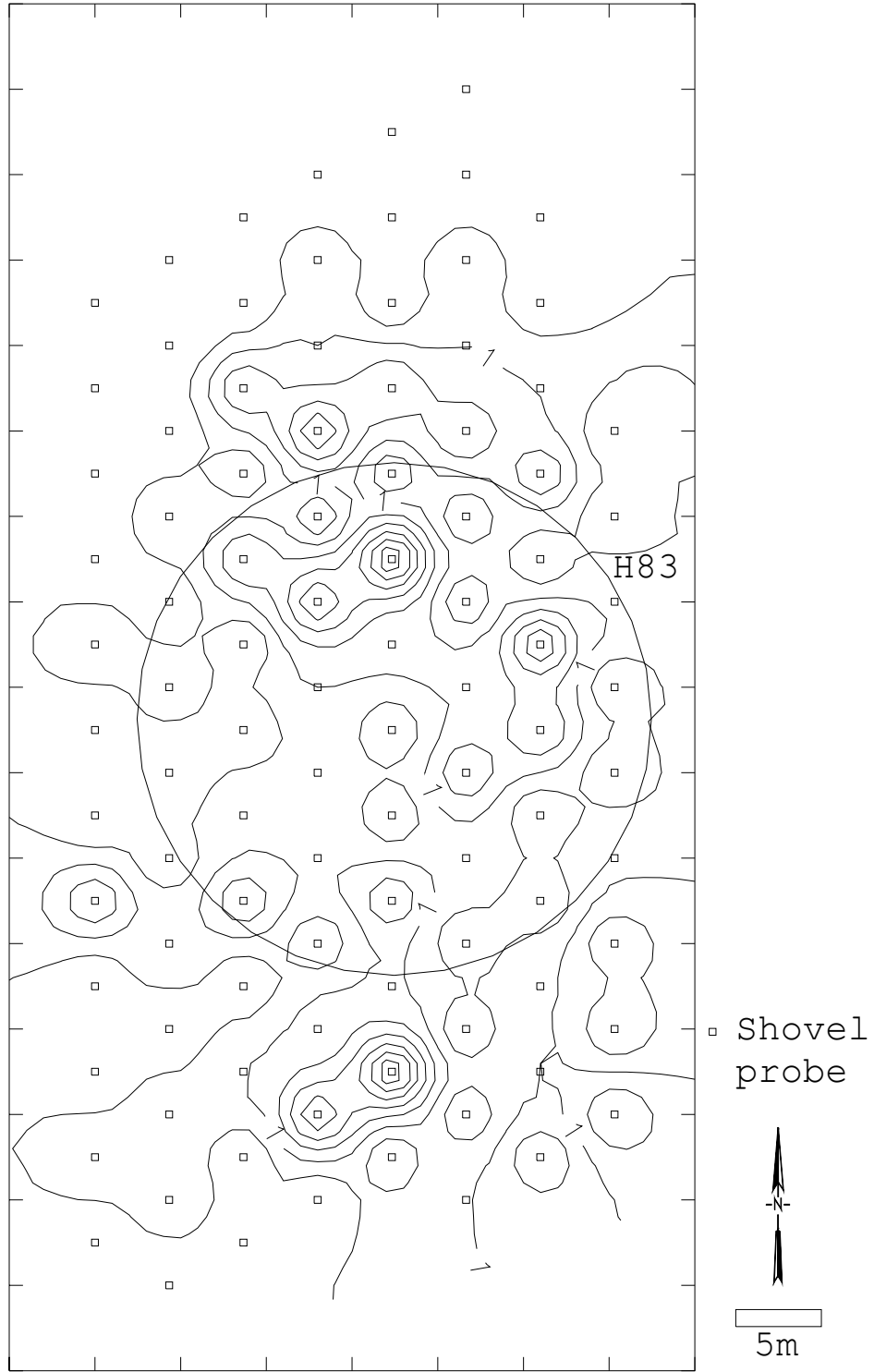


Figure 4.36. Contour map of Late Muisca period ceramics at Site 19.

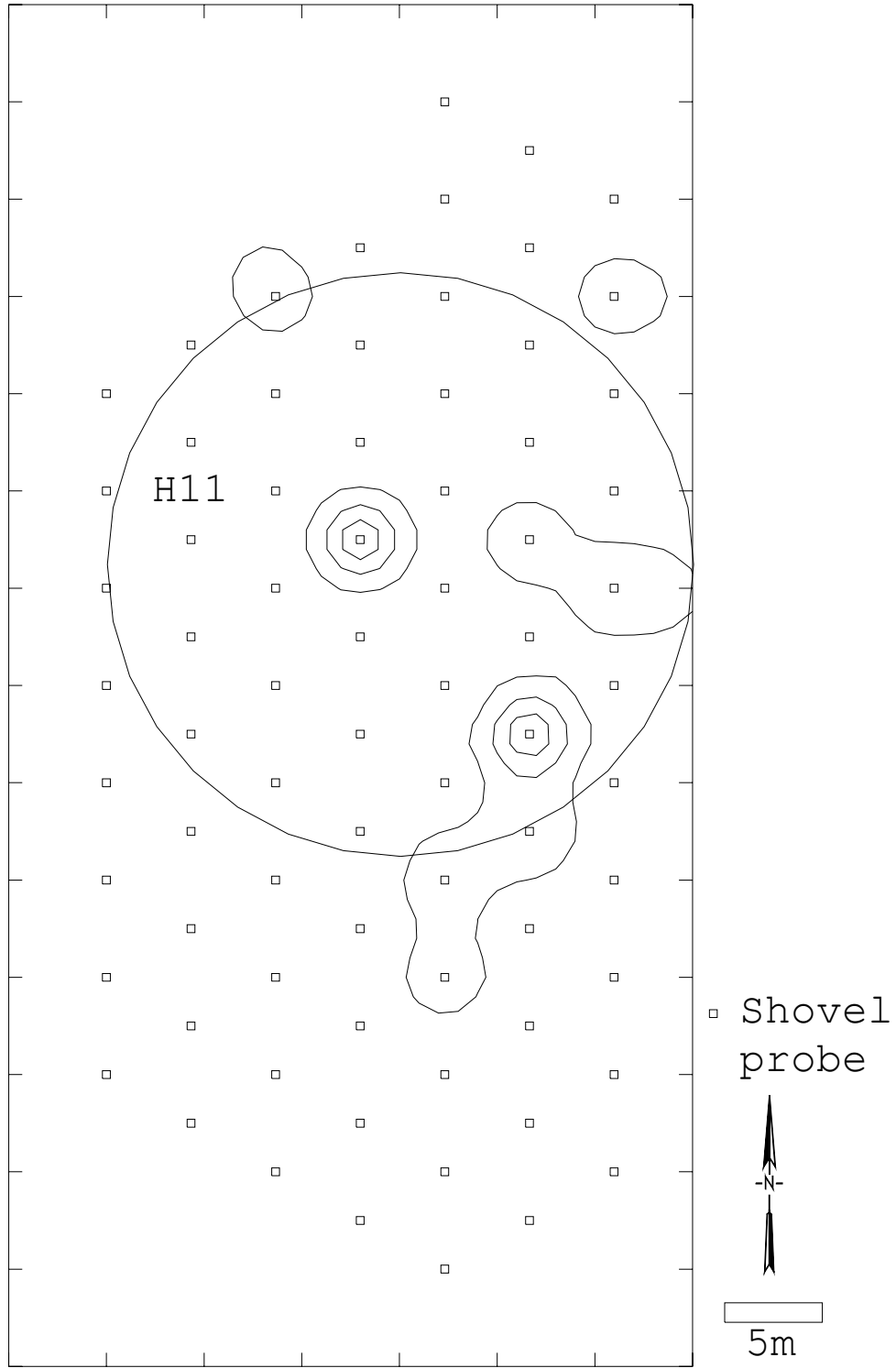


Figure 4.37. Contour map of Herrera period ceramics at Site 20.

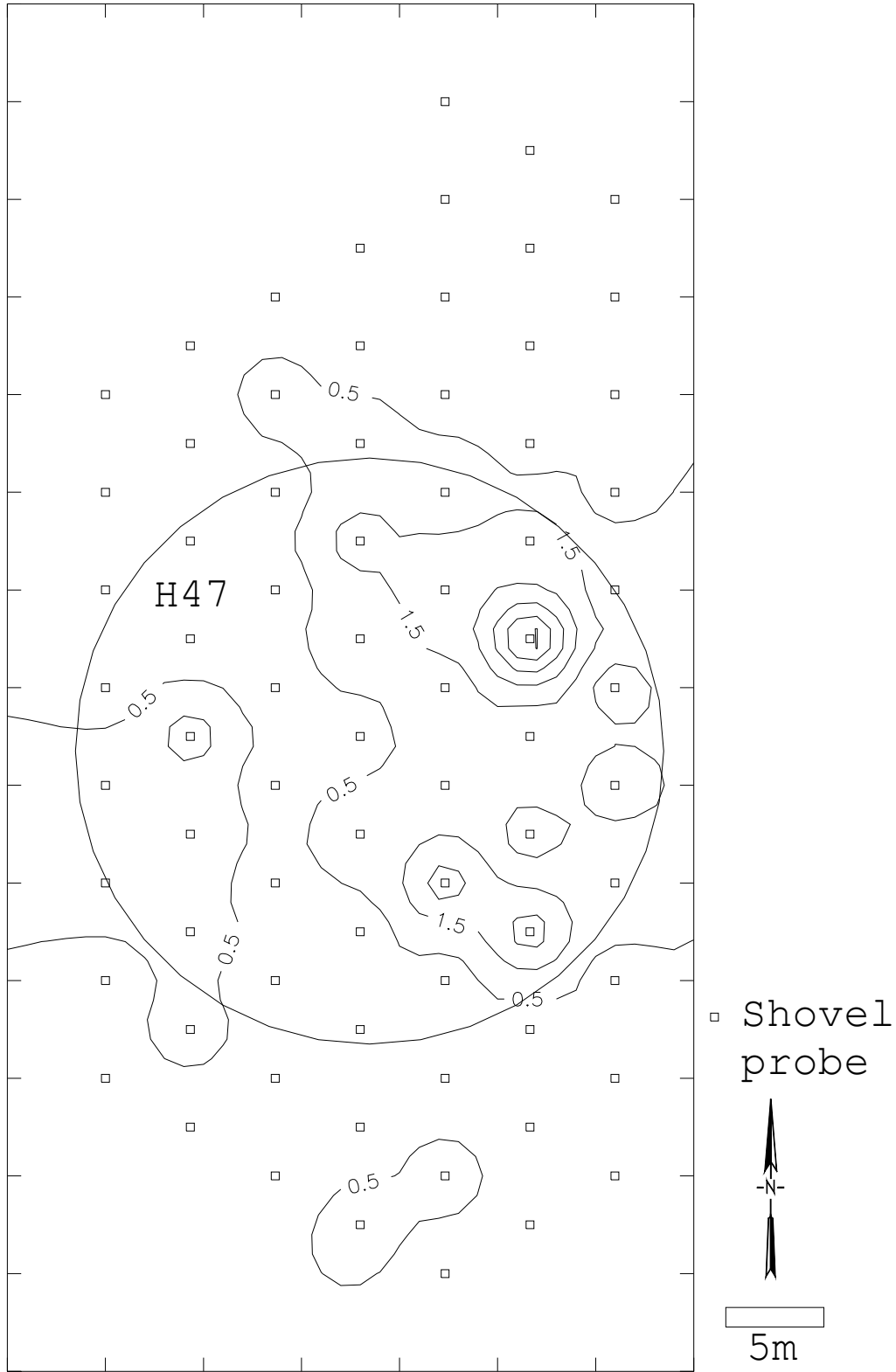


Figure 4.38. Contour map of Early Muisca period ceramics at Site 20.

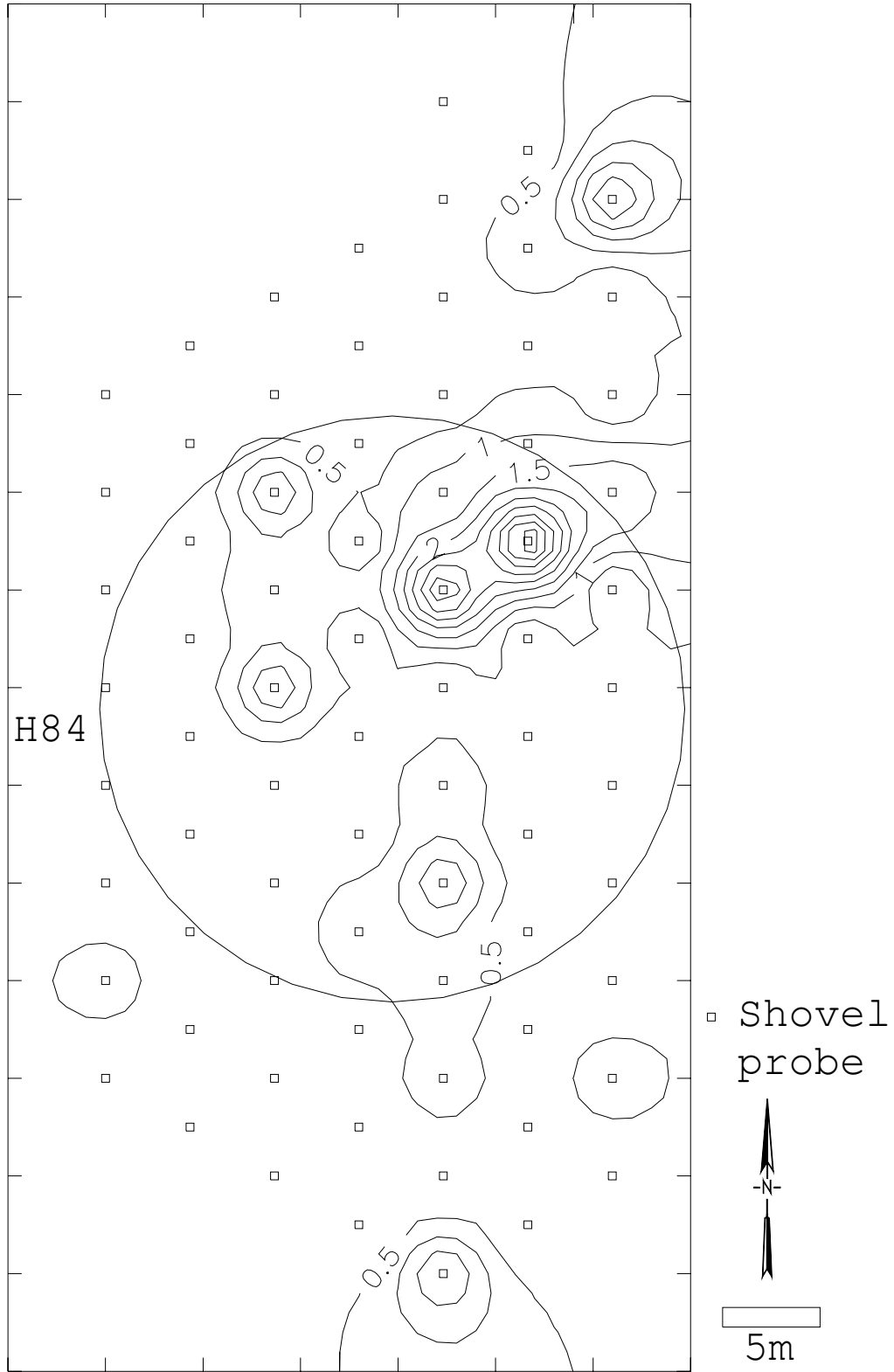


Figure 4.39. Contour map of Late Muisca period ceramics at Site 20.

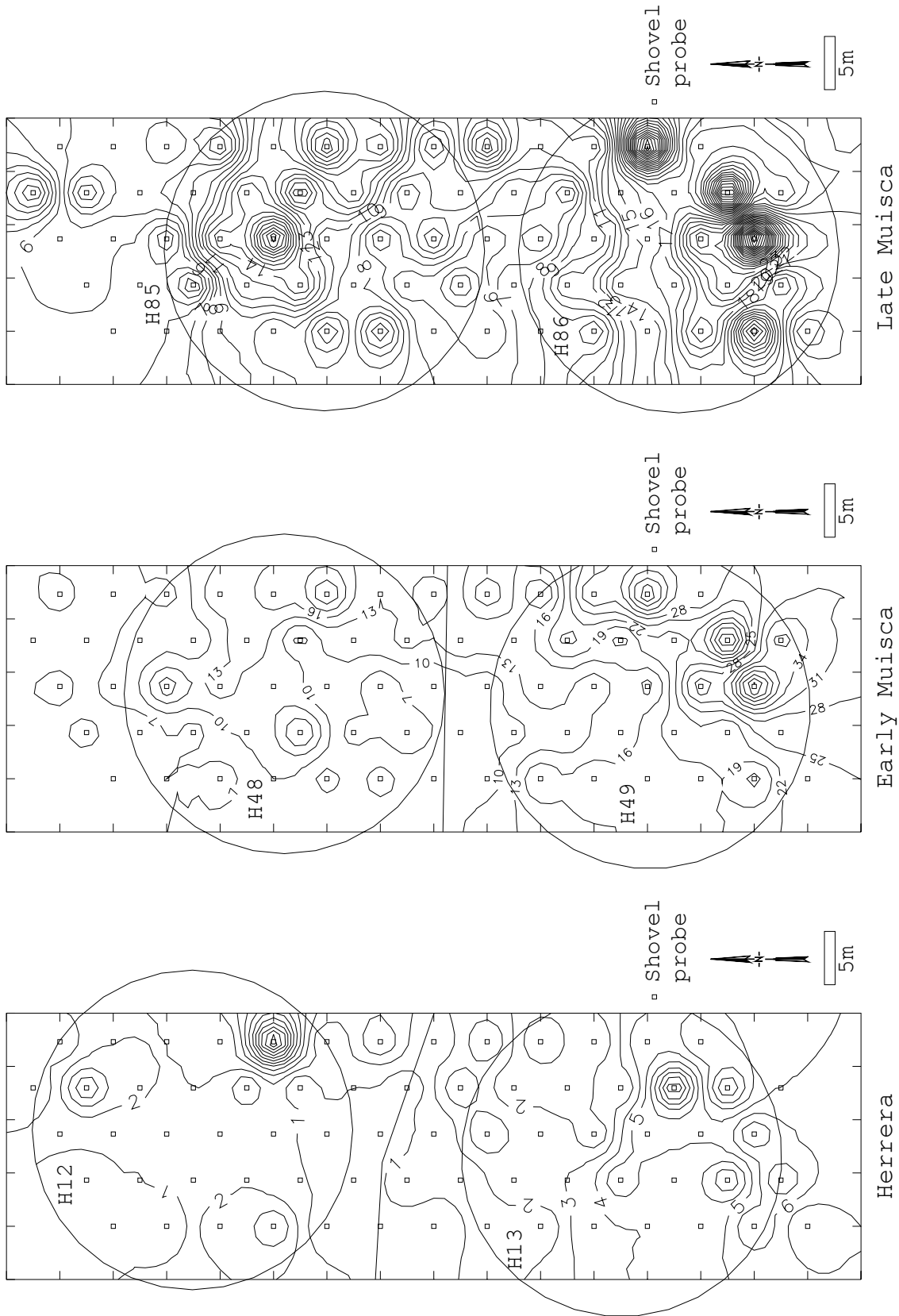


Figure 4.40. Contour map of ceramics at Site 21.

Sites 22 - 24

Sites 22, 23, and 24 are all located on a finca known as El Escondite. Sites 22 and 23 are located in adjacent pastures, while Site 24 is located in a cultivated field.

Figure 4.41 shows the distribution of Herrera period sherds at Site 22. The pattern of sherds clearly indicates the presence of at least two Herrera houselots, H14 and H15. Figure 4.42 shows the distribution of Early Muisca sherds at Site 22. The pattern of Early Muisca sherds indicates the presence of at least one Early Muisca houselot, which was designated H50. Figure 4.43 illustrates the distribution of Late Muisca sherds at Site 22. The pattern of Late Muisca sherds at Site 22 indicates the presence of at least one Late Muisca houselot, H87.

Figure 4.44 shows the distribution of Herrera period sherds at Site 23. The pattern of sherds indicates the presence of at least one Herrera houselot, H16. Figure 4.44 shows the distribution of Early Muisca sherds at Site 23. While the presence of Early Muisca sherds indicates the existence of Early Muisca occupation at the site, there are not enough sherds to confidently characterize the assemblages of the houselots. Therefore, no Early Muisca houselots were designated at Site 23. Figure 4.44 illustrates the distribution of Late Muisca sherds at Site 23. The pattern of Late Muisca sherds at Site 23

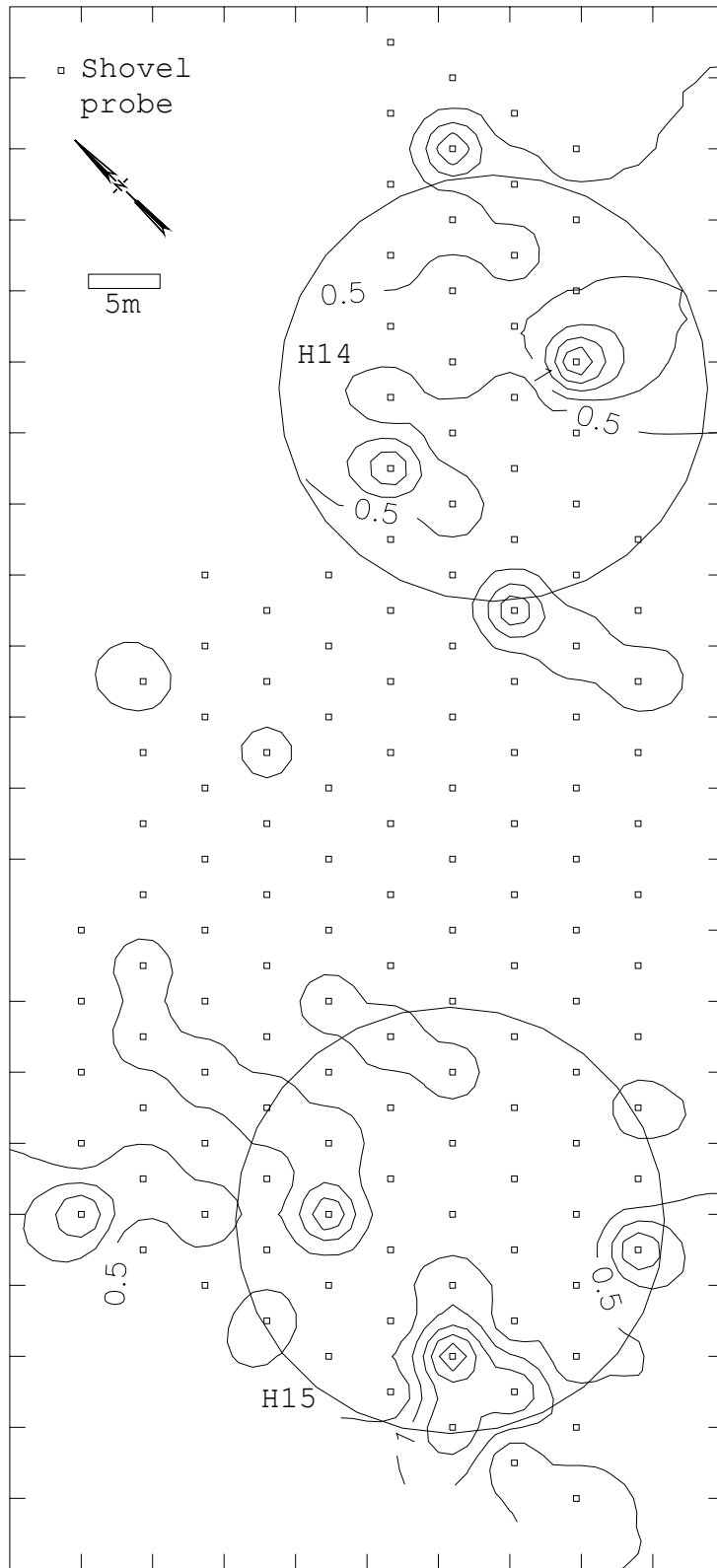


Figure 4.41. Contour map of Herrera period ceramics at Site 22.

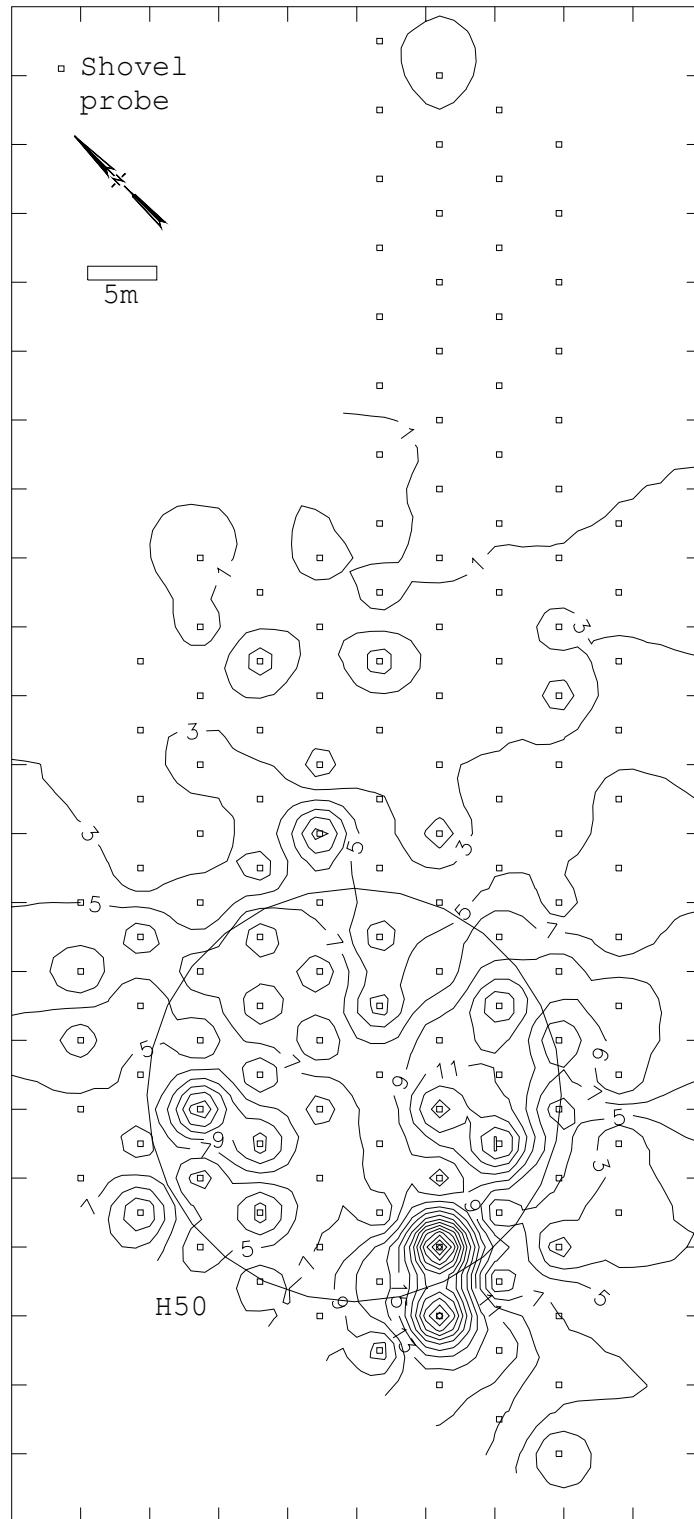


Figure 4.42. Contour map of Early Muisca period ceramics at Site 22.

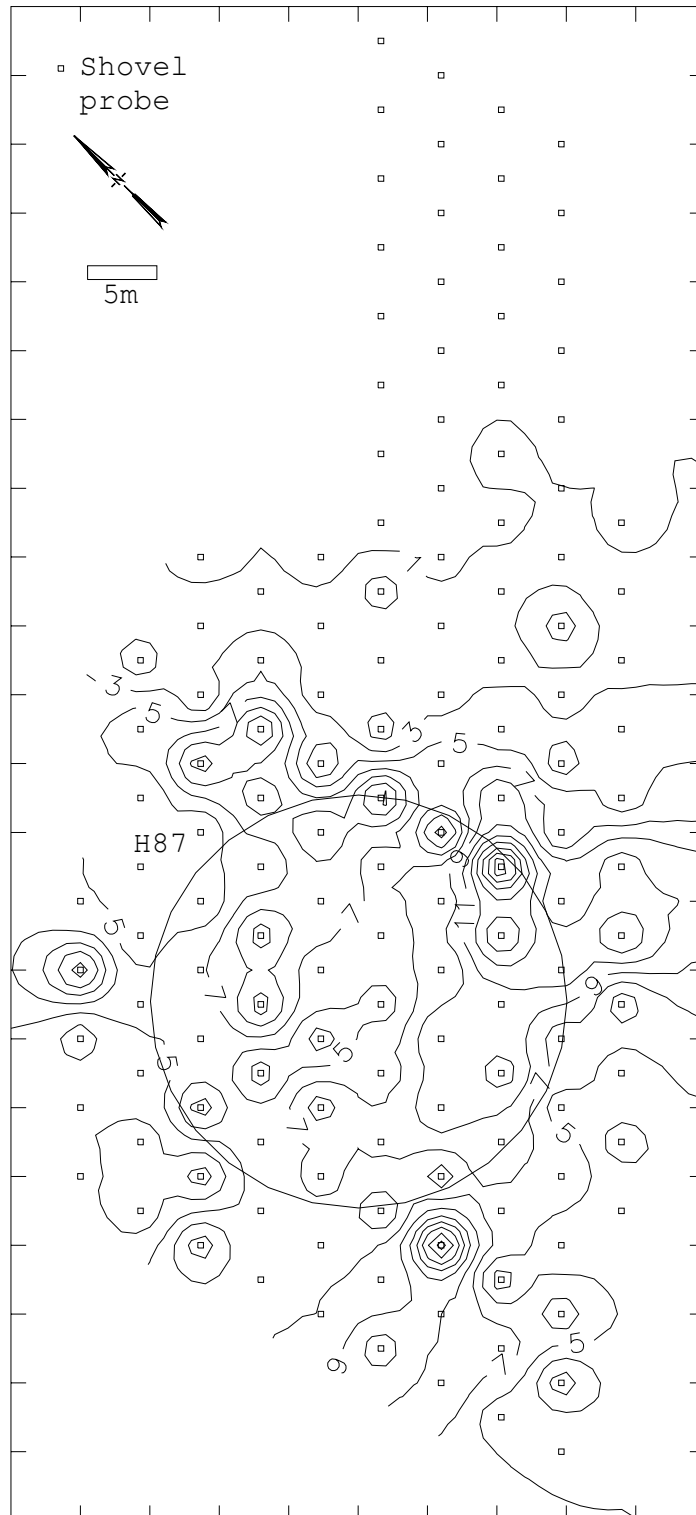


Figure 4.43. Contour map of Late Muisca period ceramics at Site 22.

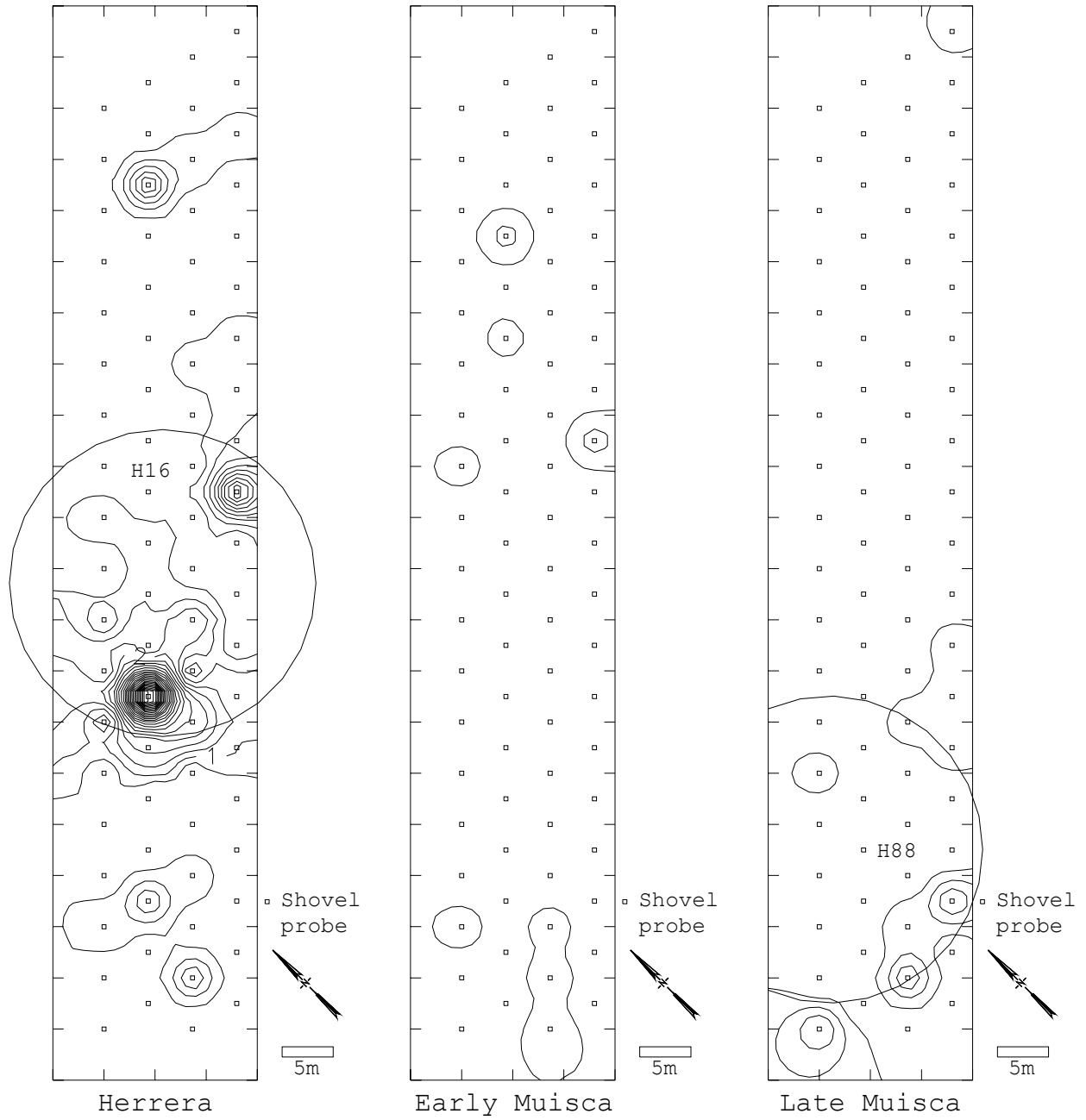


Figure 4.44. Contour map of ceramics at Site 23.

indicates the presence of at least one Late Muisca houselot, H88.

Site 24 is located in a cornfield. We were allowed to work in the field soon after the corn was harvested. However, no archaeological remains were recovered in the 14 shovel probes excavated at the site. In addition to the shovel probes, I also walked over most of the field looking for artifacts on the surface but found nothing.

Sites 25 and 26

Sites 25 and 26 are both located in pasture areas and located about 100 m from each other. While some archaeological material was recovered in the shovel probes at these two sites, there is not enough material to confidently identify any houselots.

Site 27

Site 27 is located in a recently plowed field adjacent to a *pantano* or marsh area. Only seven Herrera period sherds were recovered in the shovel probes excavated at Site 27. Therefore, no Herrera period houselots were designated for Site 27. Figure 4.45 shows the distribution of Early Muisca sherds at Site 27. The pattern of Early Muisca sherds indicates the presence of at

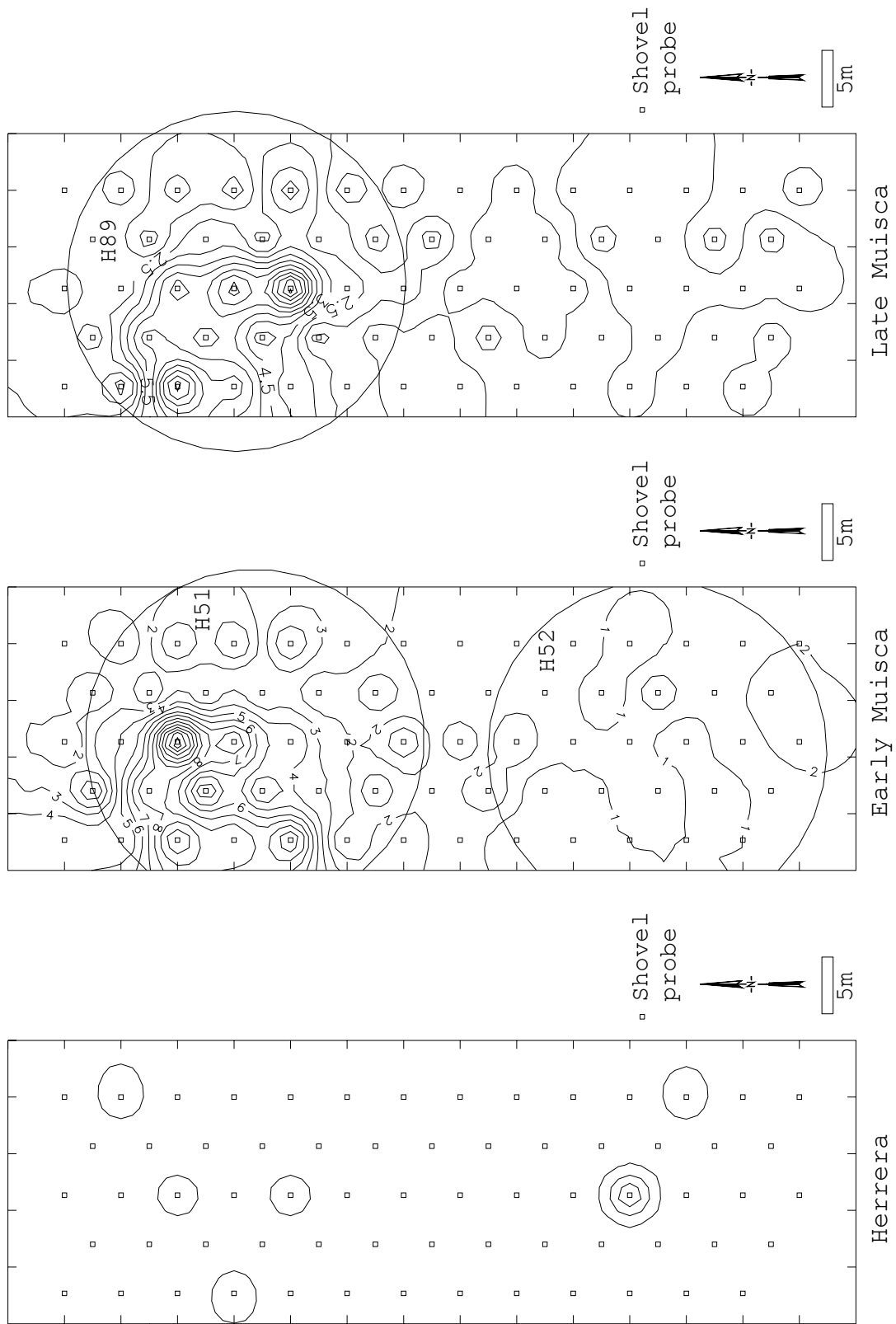


Figure 4.45. Contour map of ceramics at Site 27.

least two Early Muisca houselots, which were designated H51 and H52. Figure 4.45 illustrates the distribution of Late Muisca sherds at Site 27. The pattern of Late Muisca sherds at Site 27 indicates the presence of at least one Late Muisca houselot, H89

Site 28

Site 28 is located in a pasture. Unfortunately, our excavations were stopped by the landowner, who changed his mind about allowing us to work there. The six shovel probes that were excavated were not sufficient to identify any houselots at Site 28.

Site 29

Site 29 is located in a small pasture on the outskirts of the modern town of Funza. The site had been disturbed some years before by the excavation of a 2 m wide trench for a sewer pipeline bisecting the pasture. Only two Herrera period sherds were recovered from the site making it impractical to designate any Herrera houselots. Figure 4.46 shows the distribution of Early Muisca sherds at Site 29. The pattern of Early Muisca sherds indicates the presence of at least one Early Muisca houselot, which was designated H53. Figure 4.47 illustrates the distribution of Late Muisca sherds at Site 29. The pattern of

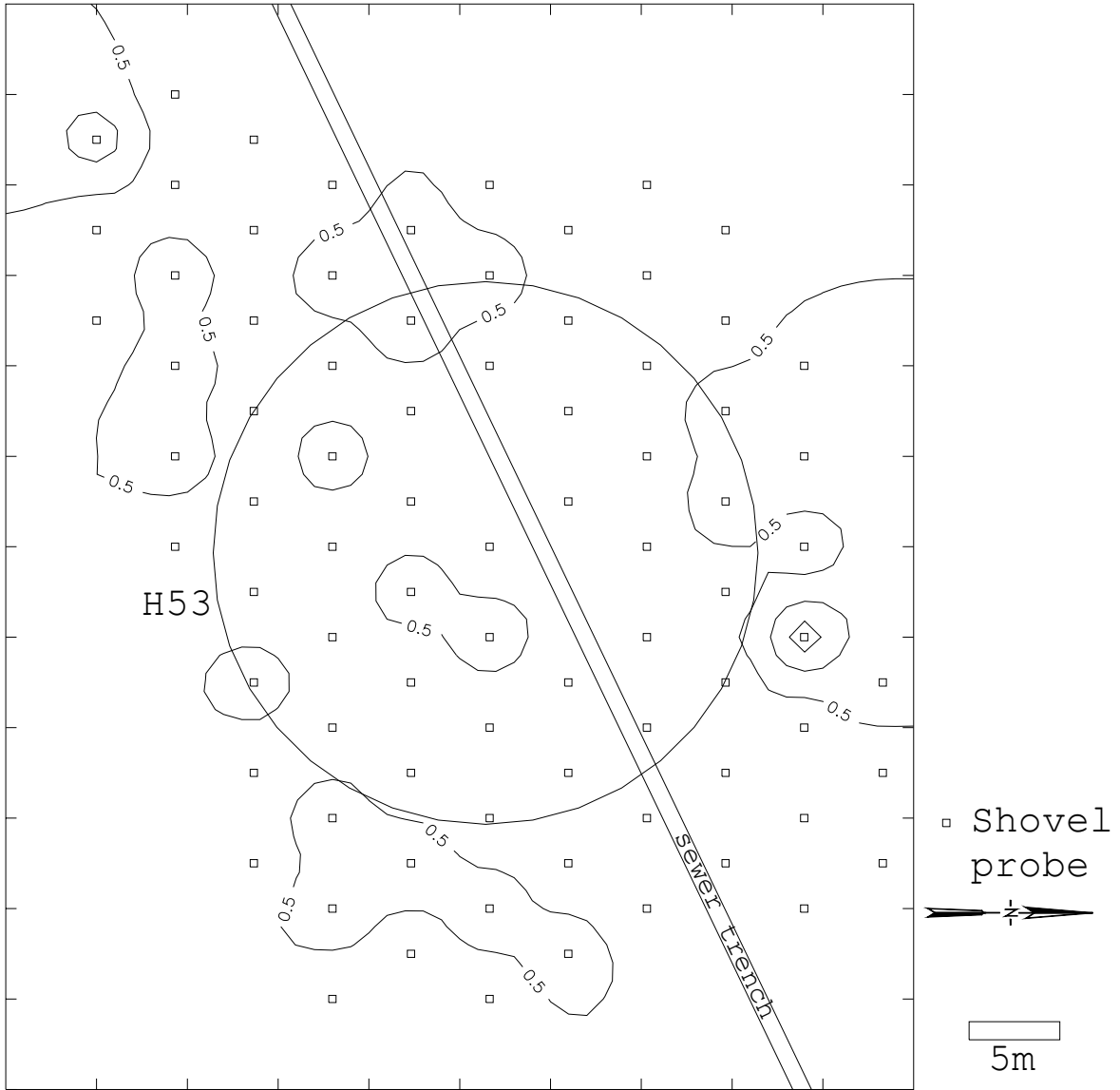


Figure 4.46. Contour map of Early Muisca period ceramics at Site 29.

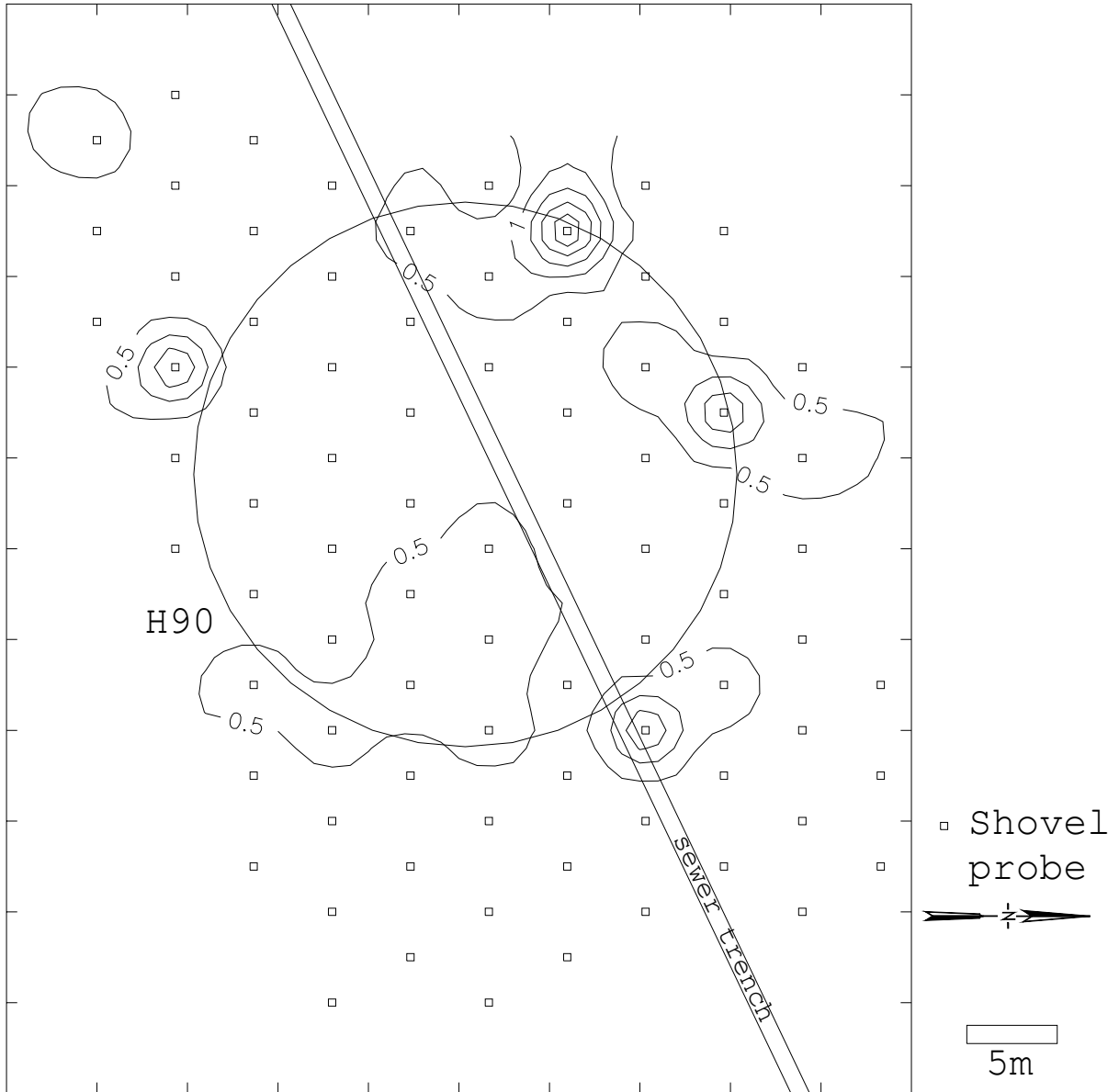


Figure 4.47 Contour map of Late Muisca period ceramics at Site 29.

Late Muisca sherds at Site 29 indicates the presence of at least one Late Muisca houselot, H90.

Site 30

Site 30 is located in a pasture area near the *pantano*. Figure 4.48 shows the distribution of Herrera period sherds at Site 30. The pattern of sherds indicates the presence of at least one Herrera houselot, H17. Figure 4.49 illustrates the distribution of Early Muisca sherds at Site 30. The pattern of sherds indicates the presence of at least one Early Muisca houselot, H54. The pattern of Late Muisca sherds at Site 30 (Figure 4.50) indicates the presence of at least one Late Muisca houselot, H91.

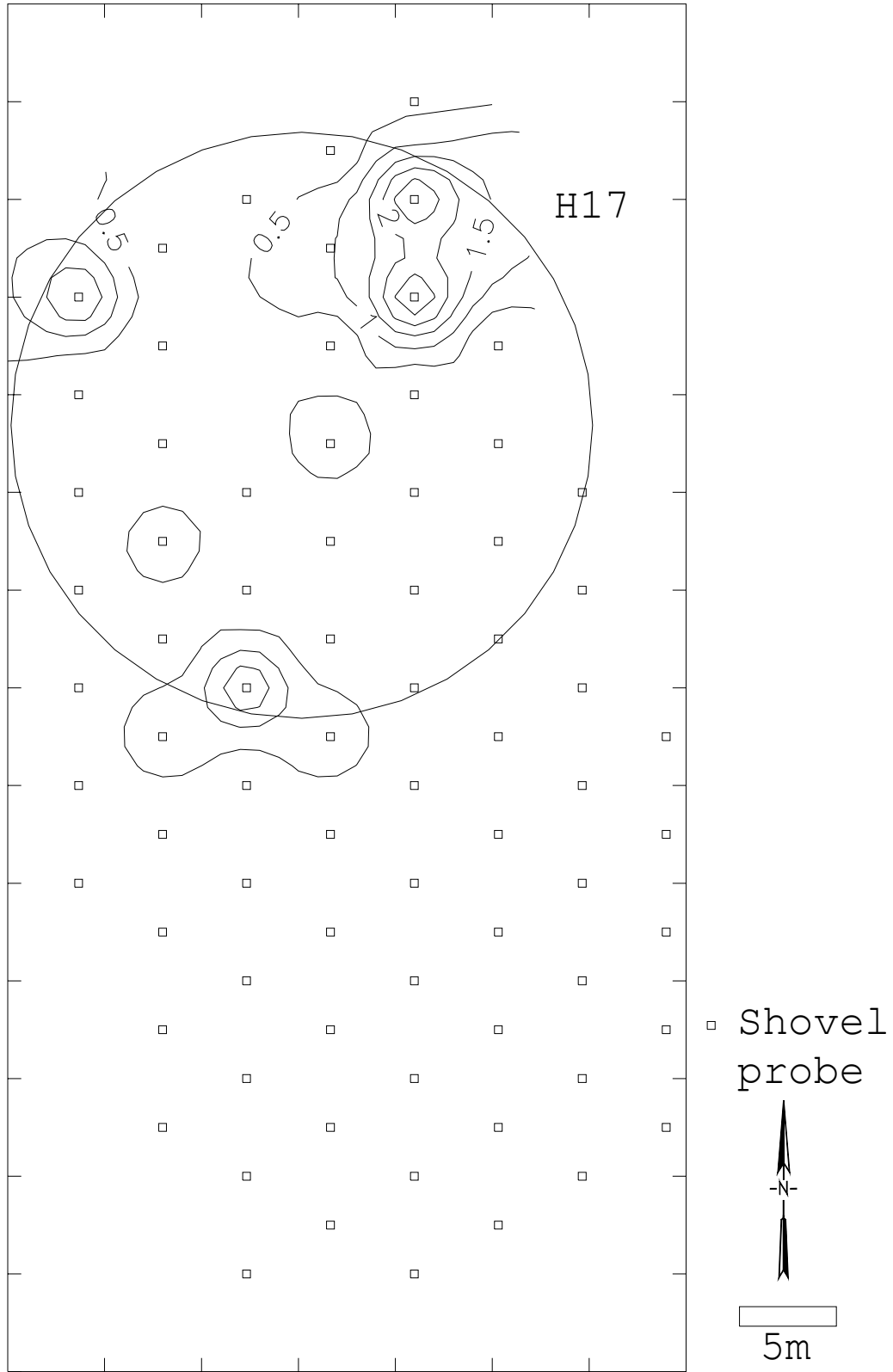


Figure 4.48. Contour map of Herrera period ceramics at Site 30.

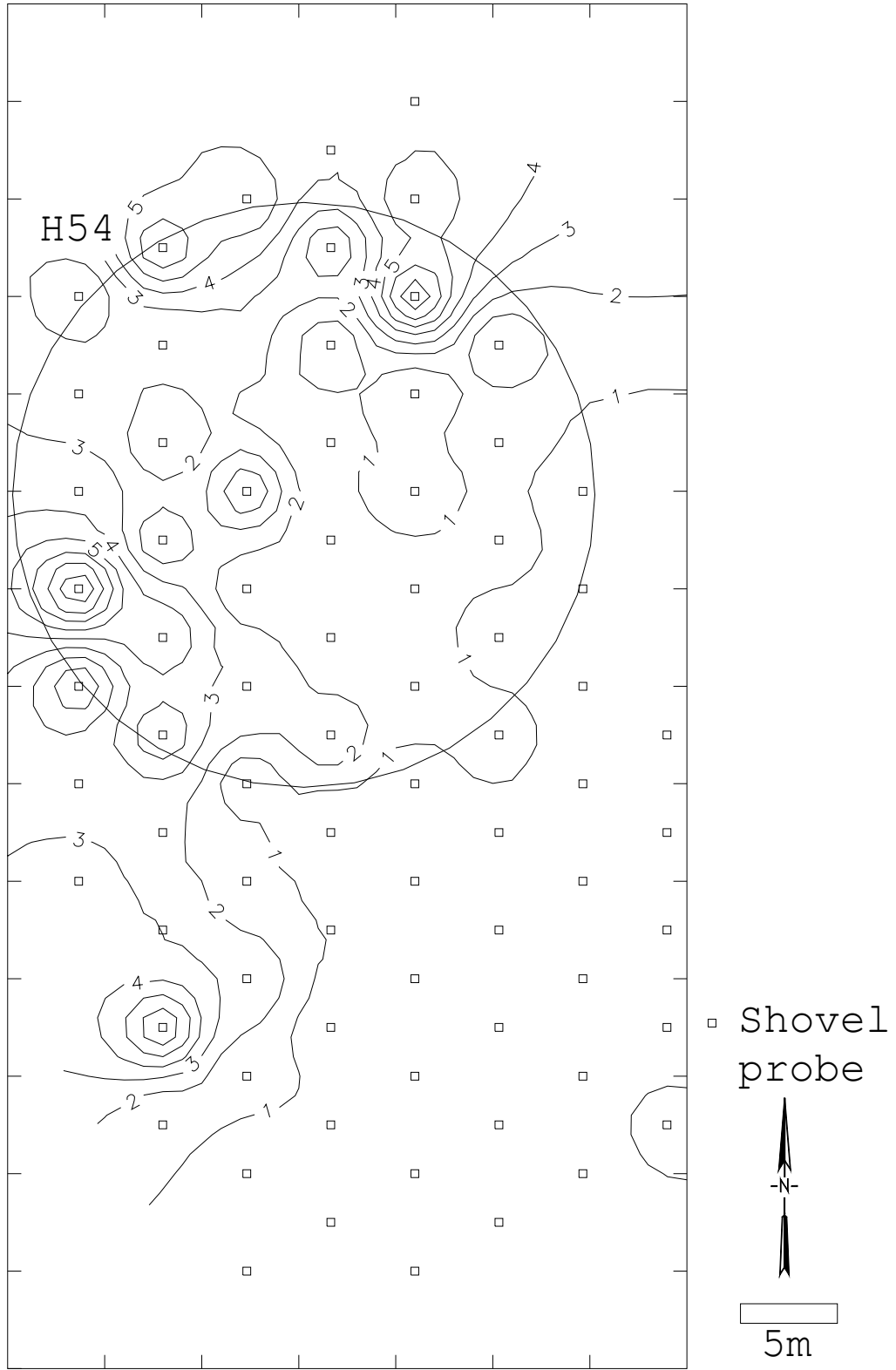


Figure 4.49. Contour map of Early Muisca period ceramics at Site 30.

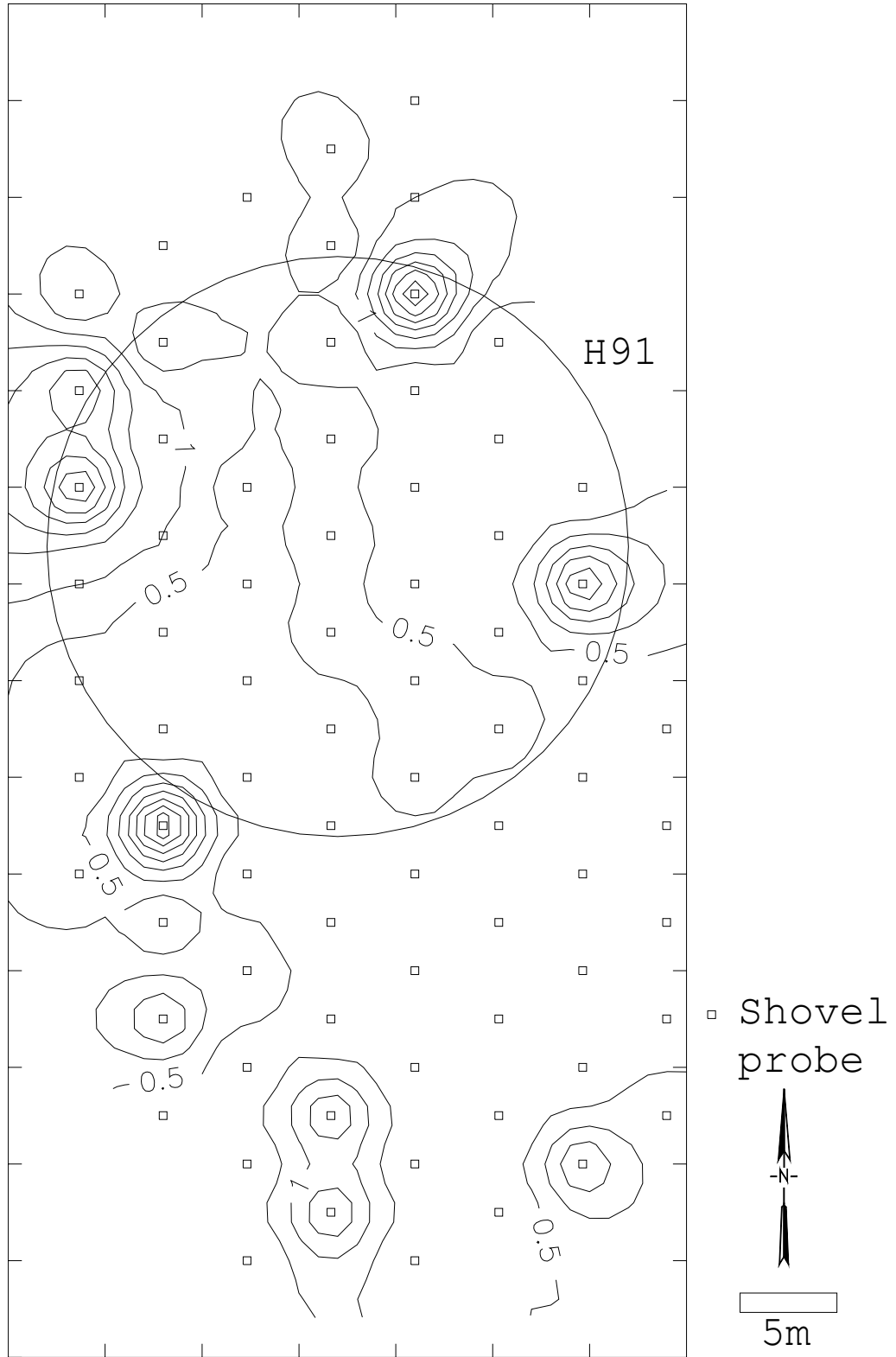


Figure 4.50. Contour map of Late Muisca period ceramics at Site 30.

Sites 31-33

Sites 31, 32, and 33 are all cultivated fields located on the farm La Primavera. The three fields were separated by small walking paths but were otherwise contiguous and represent parts of the same community. All three fields presented excellent surface visibility. Site 31 was planted with onions, which did not obscure much of the ground surface. The lettuce in Sites 32 and 33 was being harvested as we began working, clearing most of the vegetation from the ground surface.

Only three Herrera period sherds were recovered at Site 31, so no Herrera houselots were designated. Figure 4.51 shows the distribution of Early Muisca sherds from surface collections at Site 31. Given the pattern of Early Muisca sherds and the size of the site, there was at least one Early Muisca houselot at Site 31, which was designated H55. Figure 4.52 shows the distribution of Late Muisca sherds from surface collections at Site 31. One Late Muisca houselot, H92, was designated.

Only nine Herrera period sherds were recovered at Site 32, which made the designation of Herrera houselots impractical. Figure 4.53 shows the distribution of Early Muisca sherds at Site 32. The pattern of Early Muisca sherds indicates the presence of at least one Early Muisca houselot at Site 32, which was designated H56. Figure 4.54 shows the distribution of Late

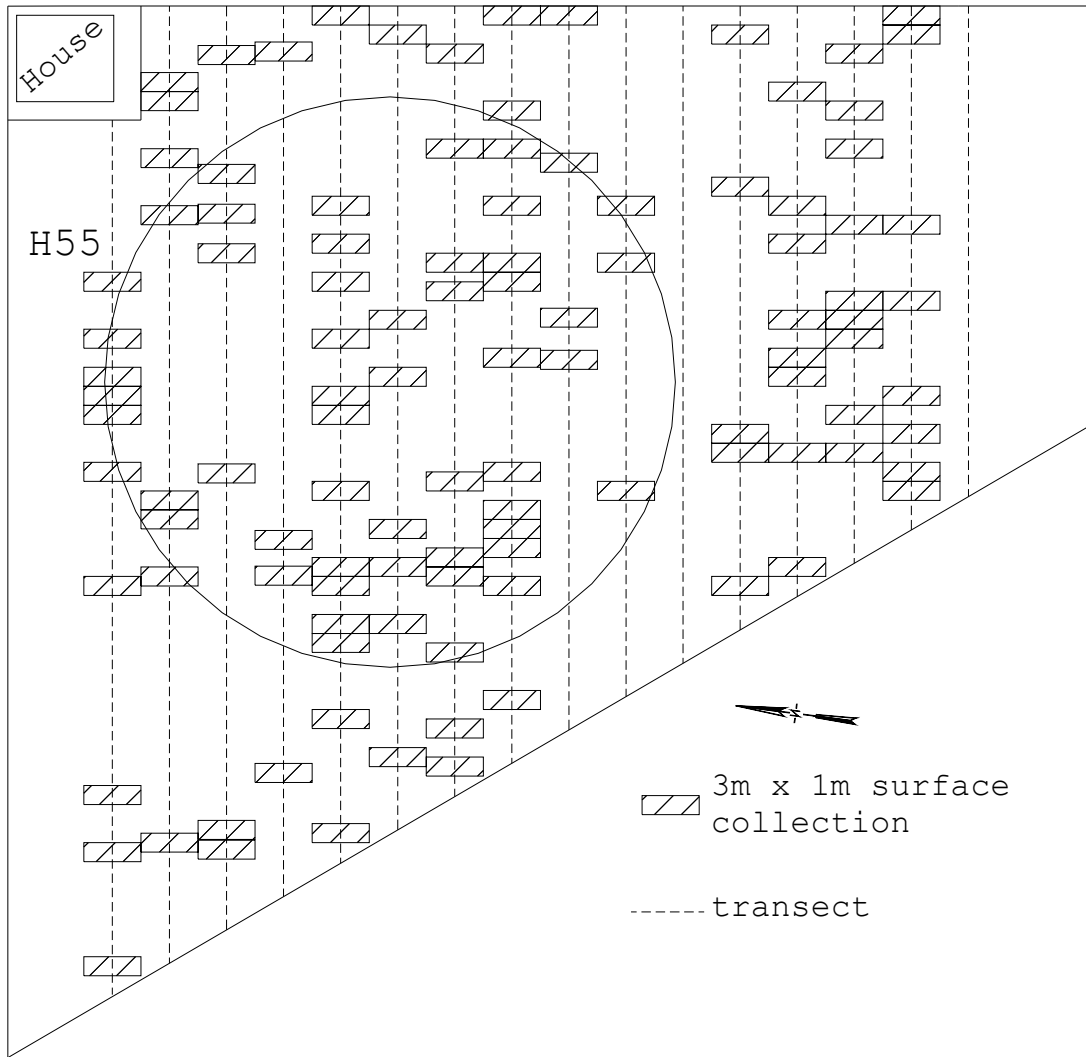


Figure 4.51. Map of Early Muisca period ceramics at Site 31.

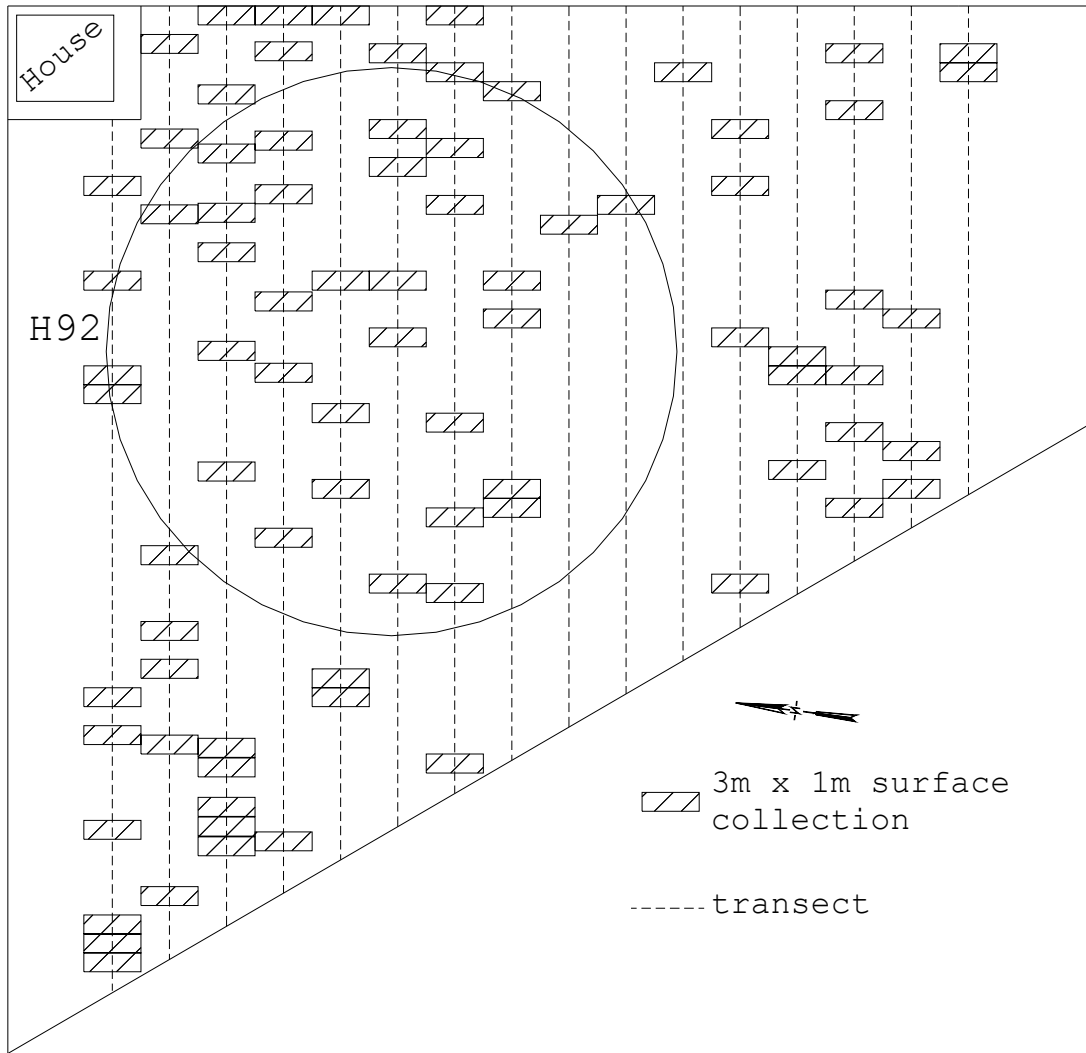


Figure 4.52. Map of Late Muisca period ceramics at Site 31.

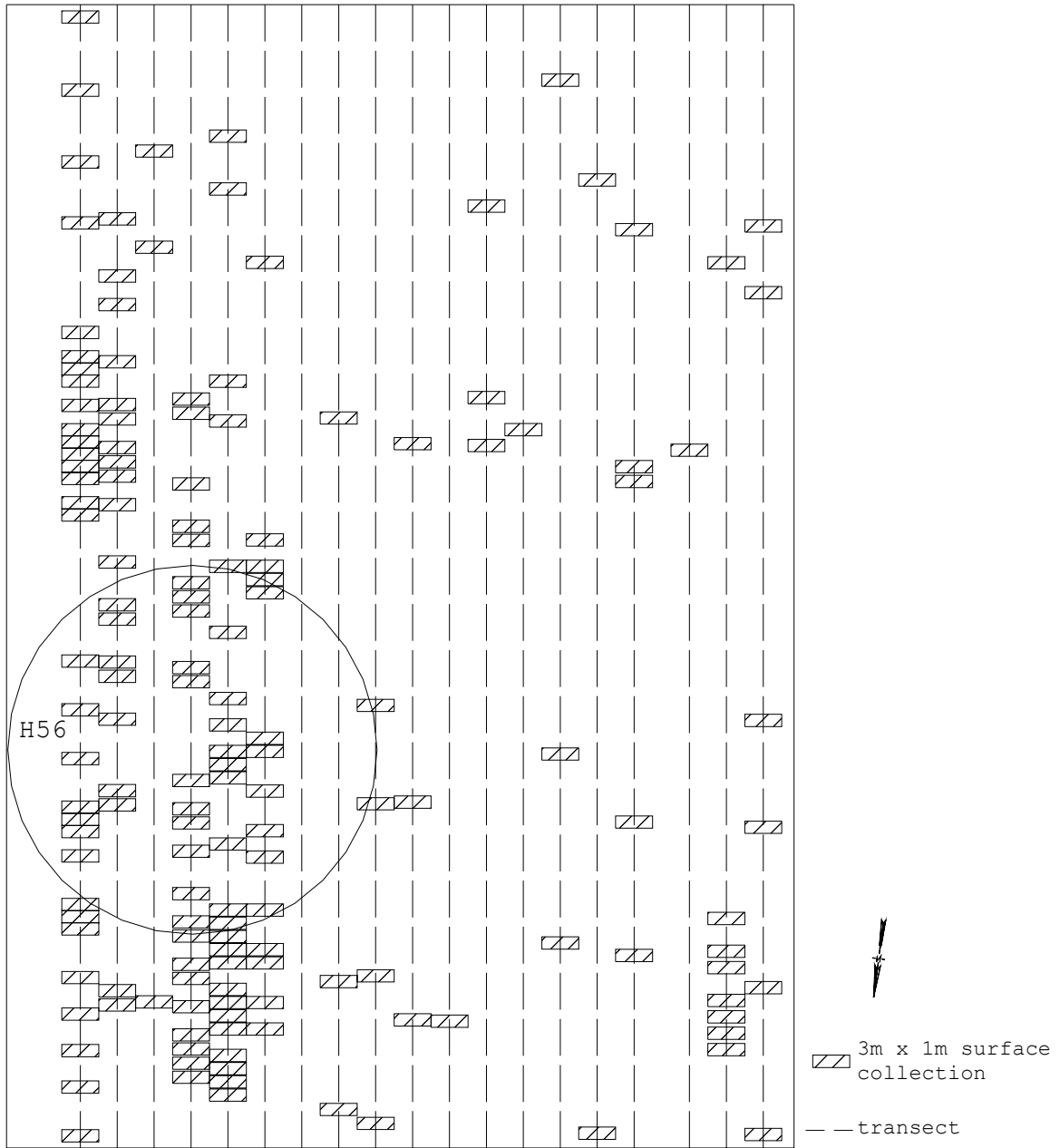


Figure 4.53. Map of Early Muisca period ceramics at Site 32.

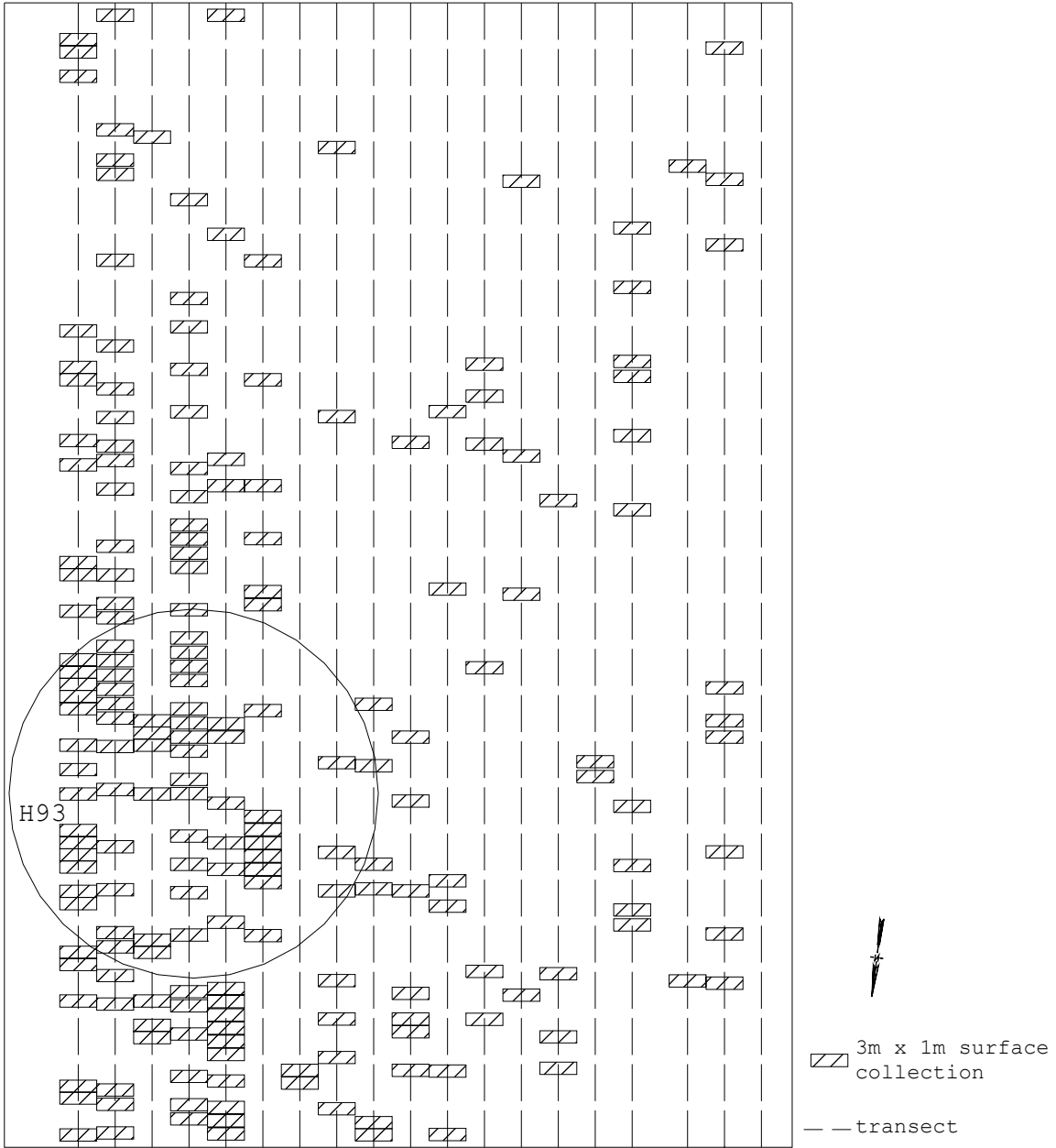


Figure 4.54. Map of Late Muisca period ceramics at Site 32.

Muisca sherds from surface collections at Site 32. One Late Muisca houselot, H93, was designated. Since only three Herrera period sherds were recovered from the surface collections at Site 33, no Herrera houselots were designated. Figure 4.55 shows the distribution of Early Muisca sherds at Site 33. The pattern of Early Muisca sherds indicates the presence of at least one Early Muisca houselot at Site 33, which was designated H57. Figure 4.56 shows the distribution of Late Muisca sherds from surface collections at Site 33. One Late Muisca houselot, H94, was designated.

Sites 34 and 35

Sites 34 and 35 are located in two cultivated fields within the finca known as Lancheros. This large finca grows a variety of fruits and vegetables. Site 34 was planted with lettuce and Site 35 was planted with celery. In both cases visibility of the ground surface was good and not overly obstructed by the vegetation.

Since only nine Herrera period sherds were recovered in the surface collections at Site 34, no Herrera houselots were designated. Figure 4.57 shows the distribution of Early Muisca sherds at Site 34. The pattern of Early Muisca sherds indicates the presence of at least one Early Muisca houselot at Site 34, which was designated H58. Figure 4.58 shows the distribution of

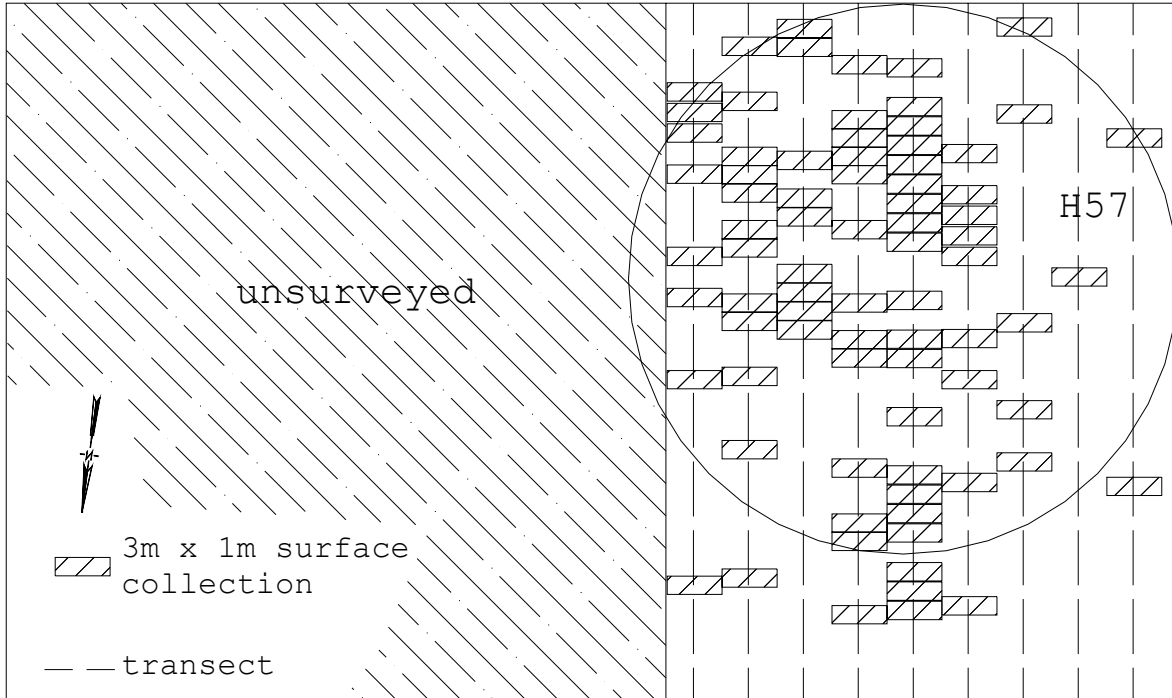


Figure 4.55. Map of Early Muisca period ceramics at Site 33.

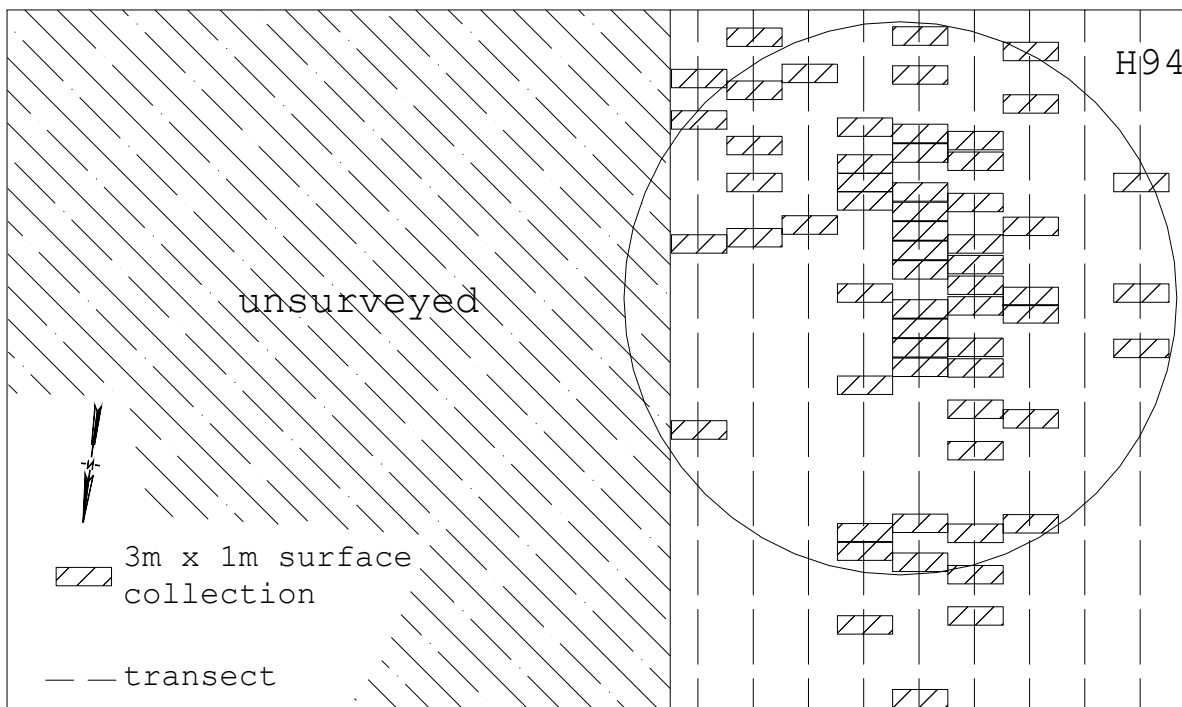


Figure 4.56. Map of Late Muisca period ceramics at Site 33.

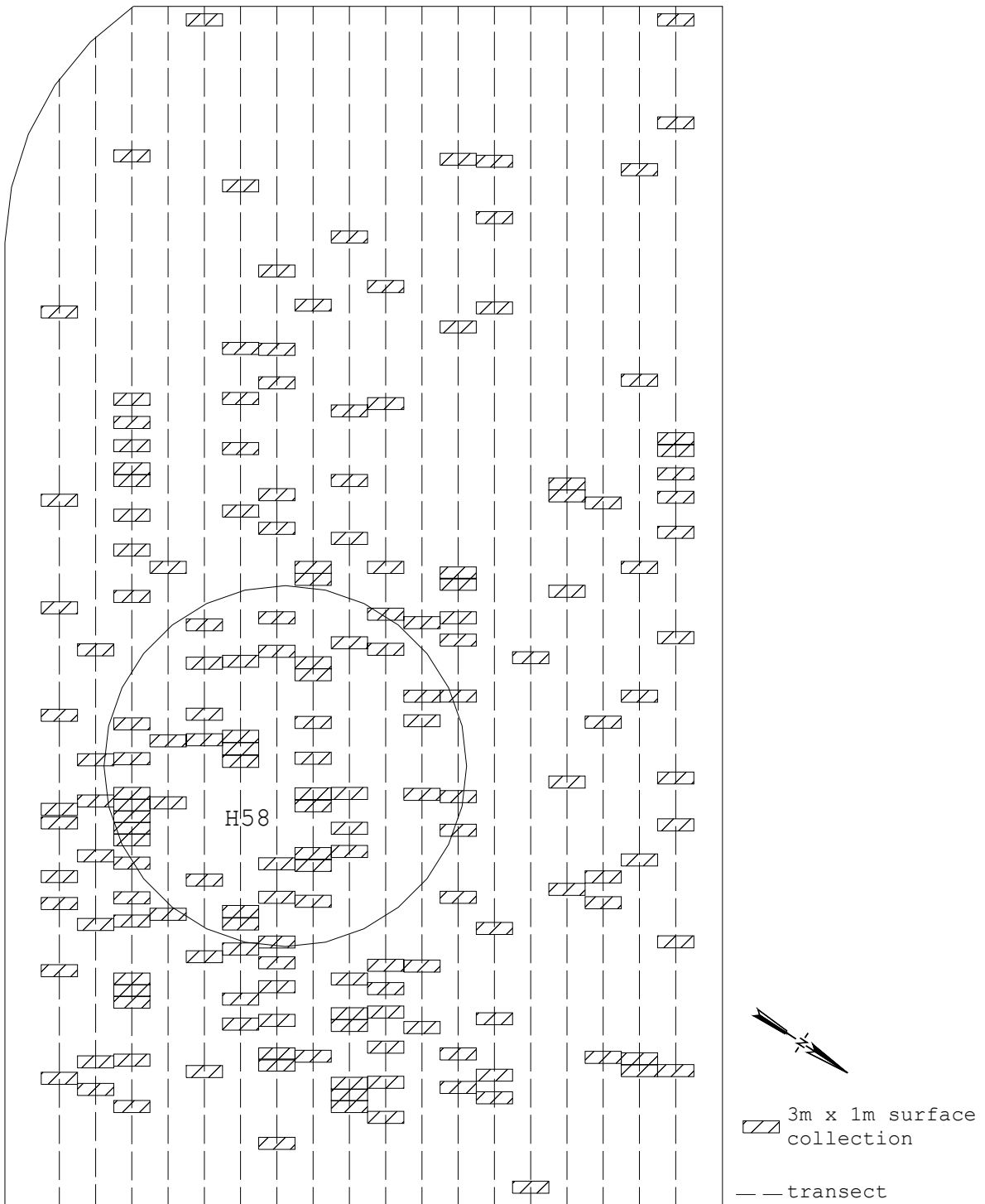


Figure 4.57. Map of Early Muisca period ceramics at Site 34.

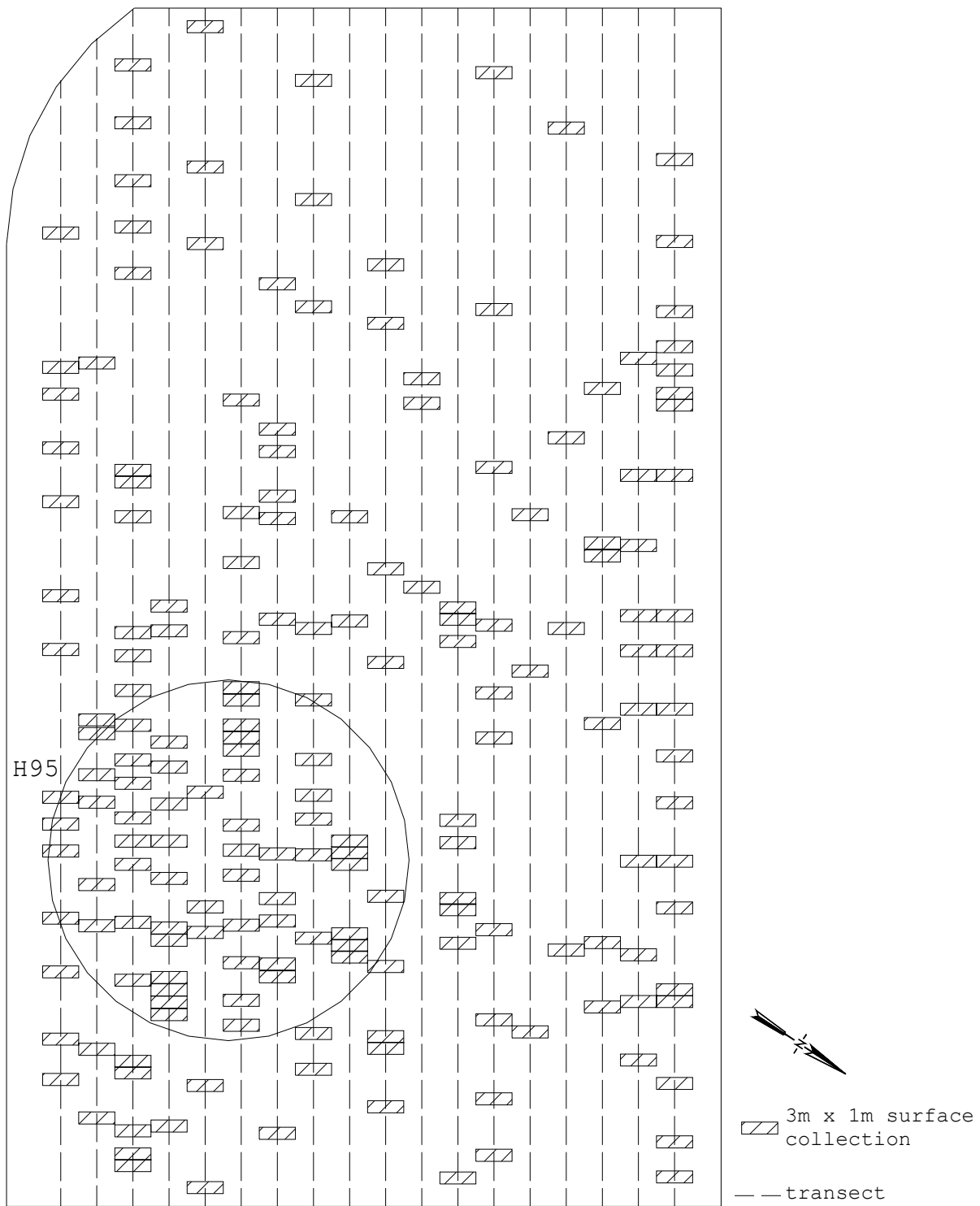


Figure 4.58. Map of Late Muisca period ceramics at Site 34.

Late Muisca sherds from surface collections at Site 34. One Late Muisca houselot, H95, was designated.

Figure 4.59 shows the distribution of Herrera period sherds at Site 35. The pattern of sherds from Site 35 indicates the presence of at least one Herrera period houselot, H18. Figure 4.60 illustrates the distribution of Early Muisca period sherds at Site 35. Given the size of the site and the pattern of sherds in the surface collections, Site 35 can be divided into three Early Muisca houselots, H59, H60, and H61. Figure 4.61 shows the distribution of Late Muisca sherds at Site 35. The pattern of sherds indicates the presence of at least two Late Muisca houselots at Site 35, H96 and h97.

Site 36

Site 36 was located in a field that had been recently planted. Thus, the vegetation was very light and surface visibility was excellent. Figure 4.62 shows the distribution of Herrera period sherds at Site 36. The pattern of sherds and the size of the site indicate the presence of at least two Herrera houselots, H19 and H20. The pattern of Early Muisca sherds at Site 36 (Figure 4.63) indicates the presence of at least one Early Muisca houselot, H62. Figure 4.64 shows the distribution of Late Muisca sherds at Site 36. The pattern of Late Muisca

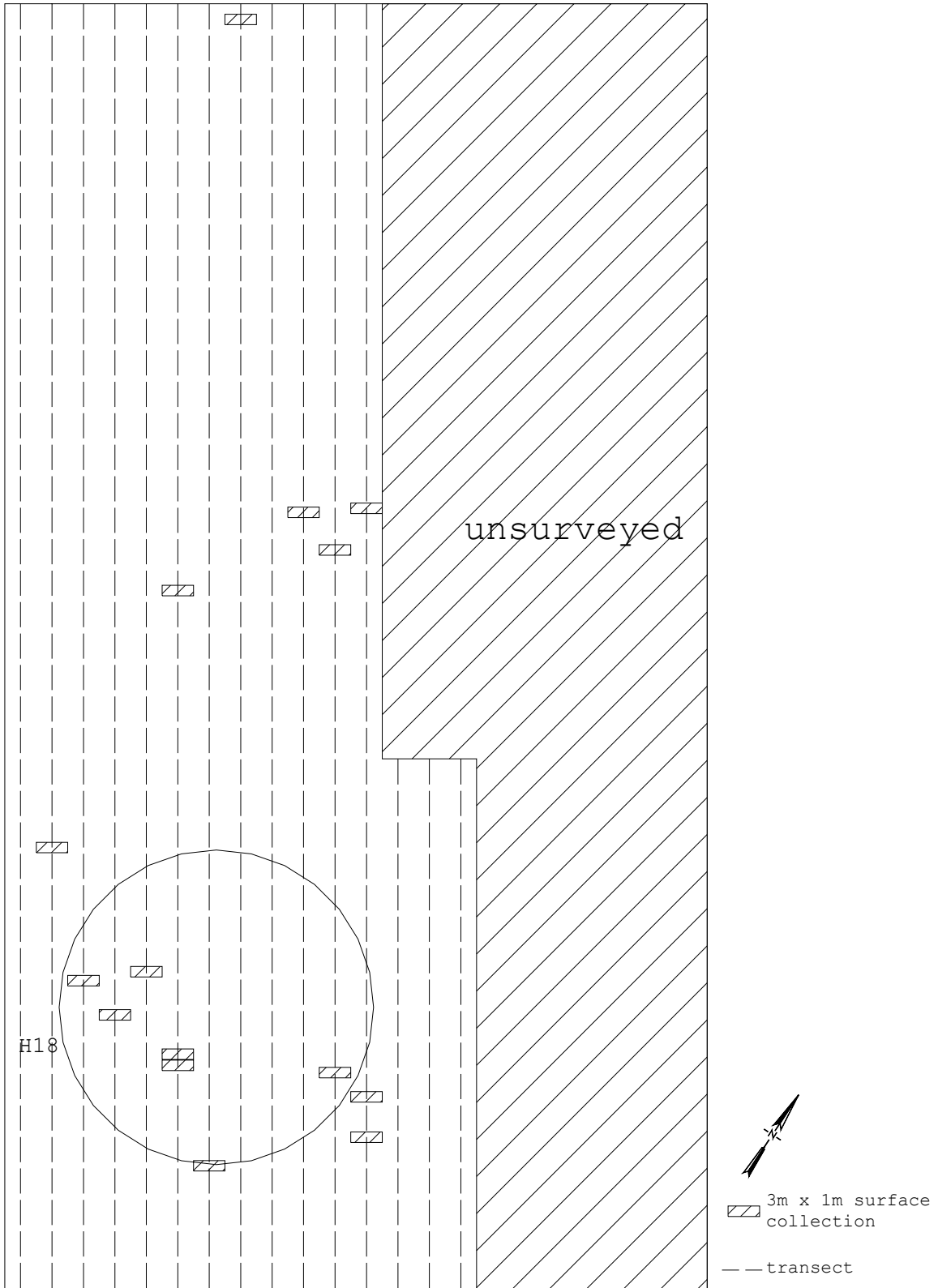


Figure 4.59. Map of Herrera period ceramics at Site 35.

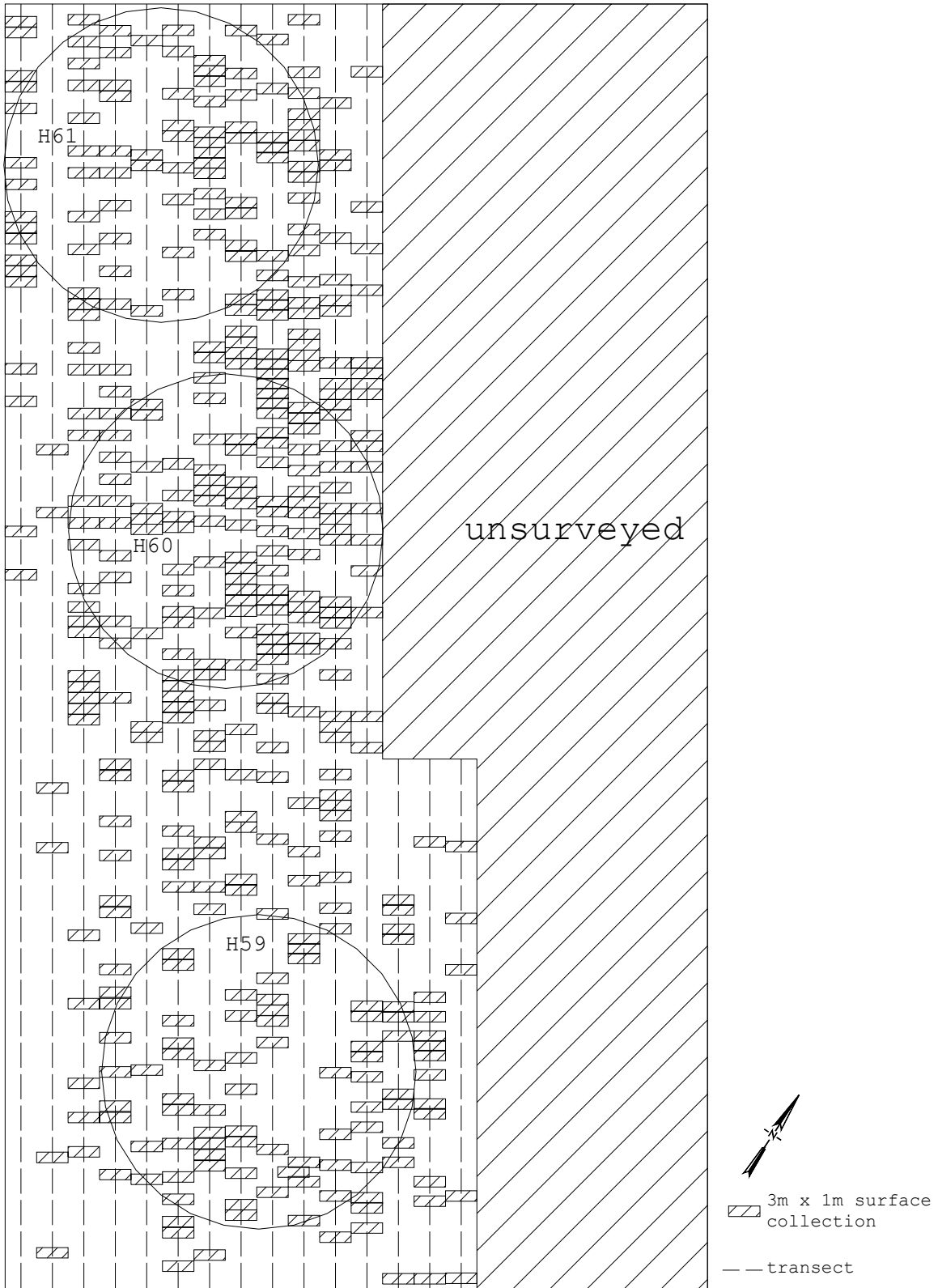


Figure 4.60. Map of Early Muisca period ceramics at Site 35.

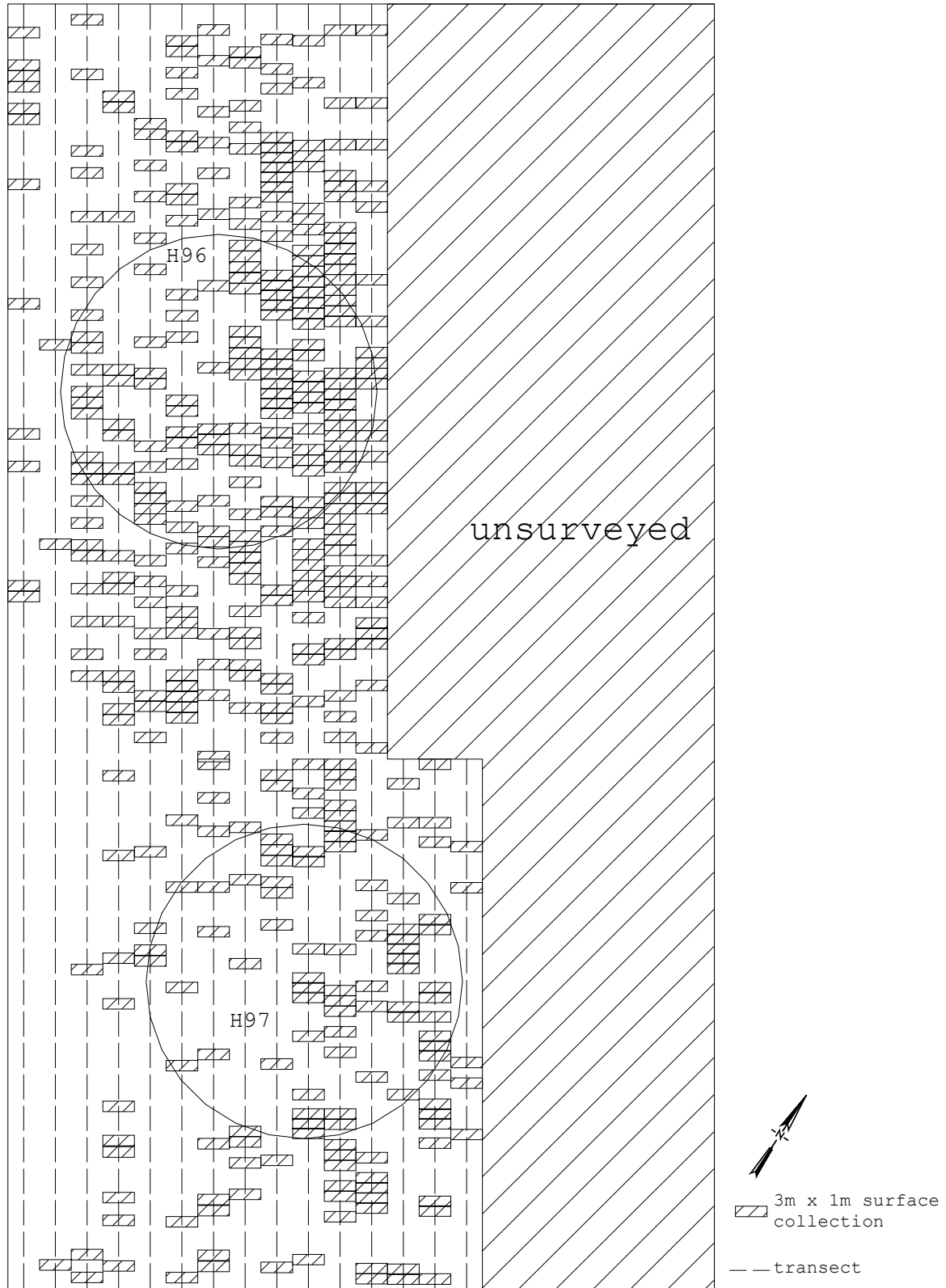


Figure 4.61. Map of Late Muisca period ceramics at Site 35.

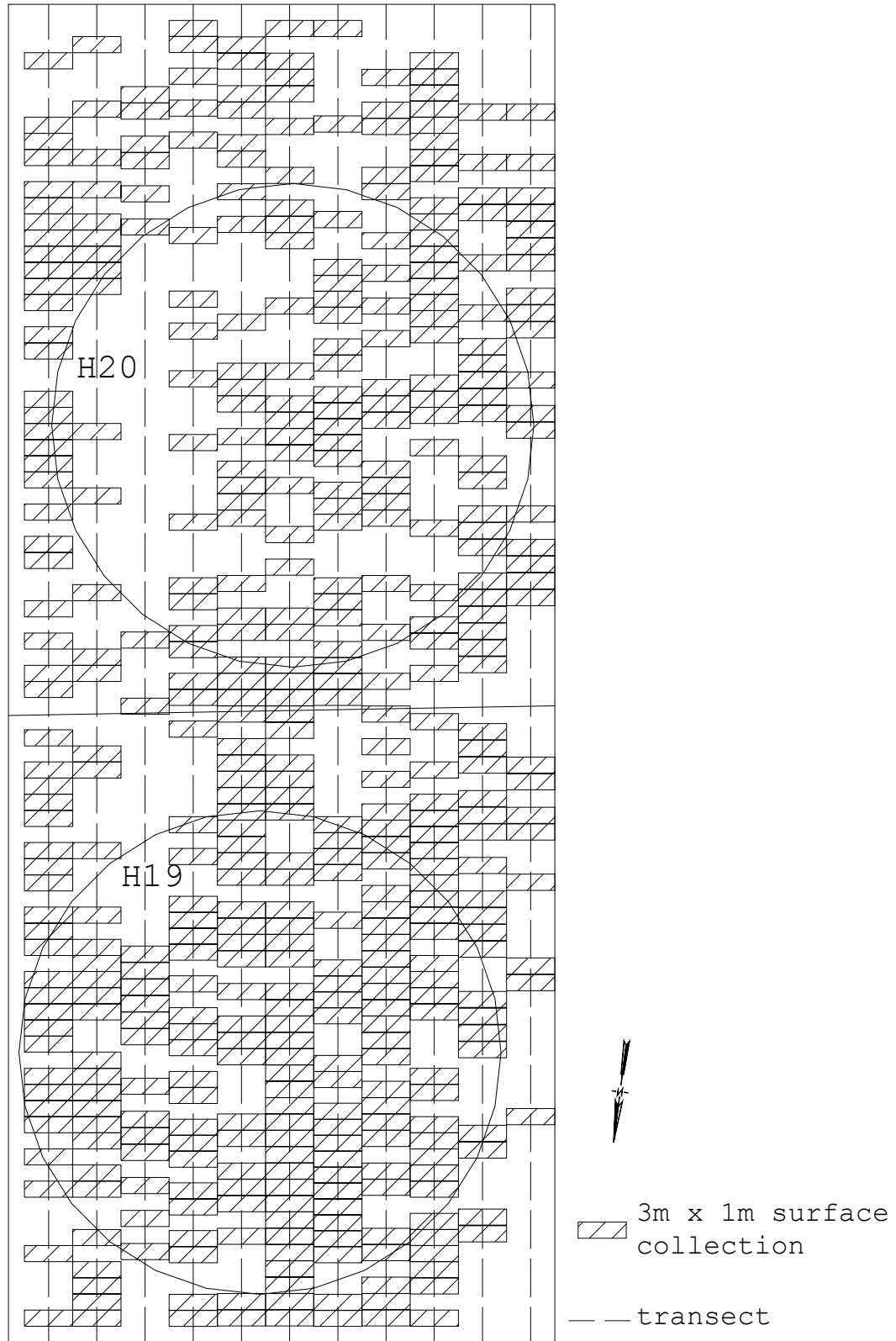


Figure 4.62. Map of Herrera period ceramics at Site 36.

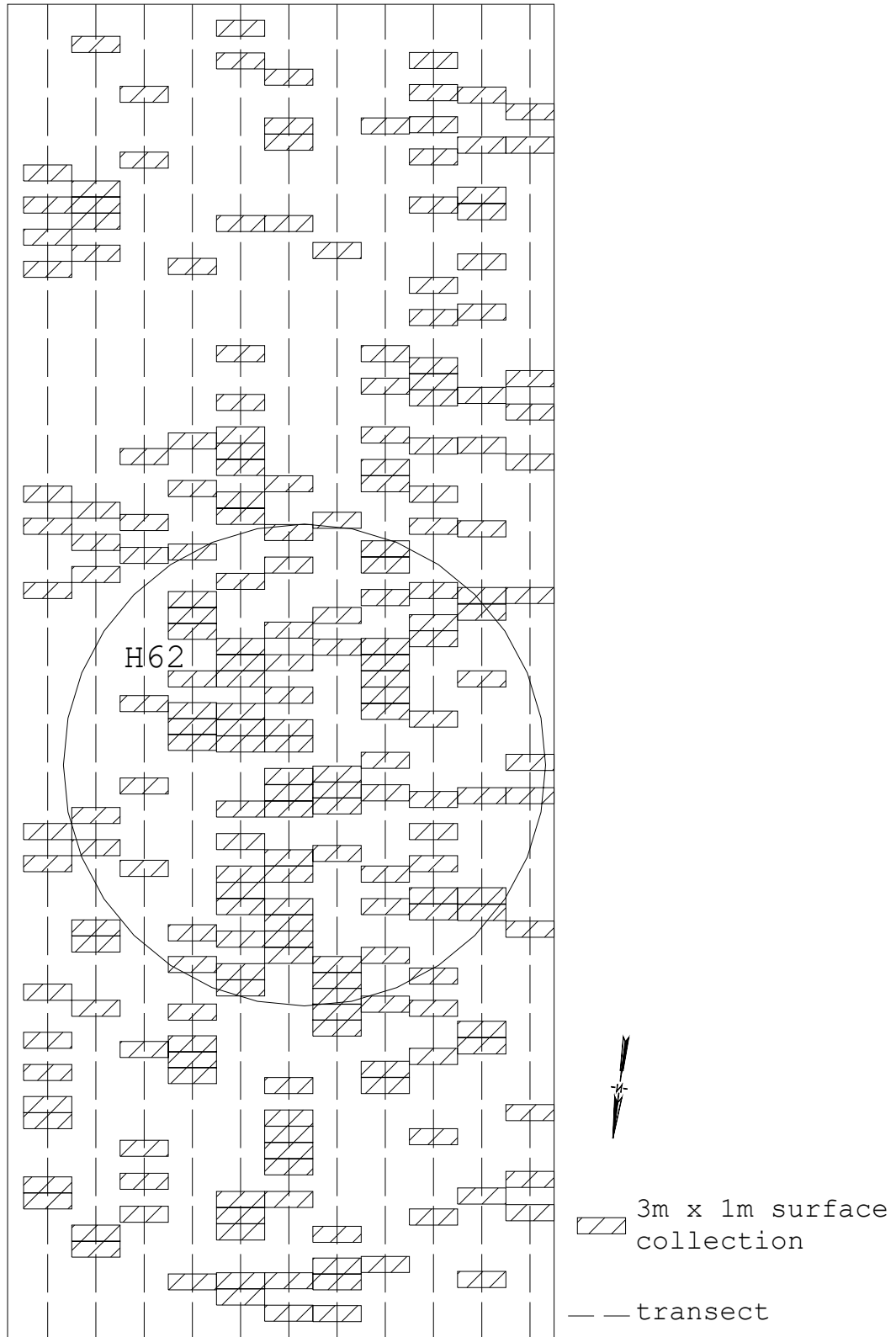


Figure 4.63. Map of Early Muisca period ceramics at Site 36.

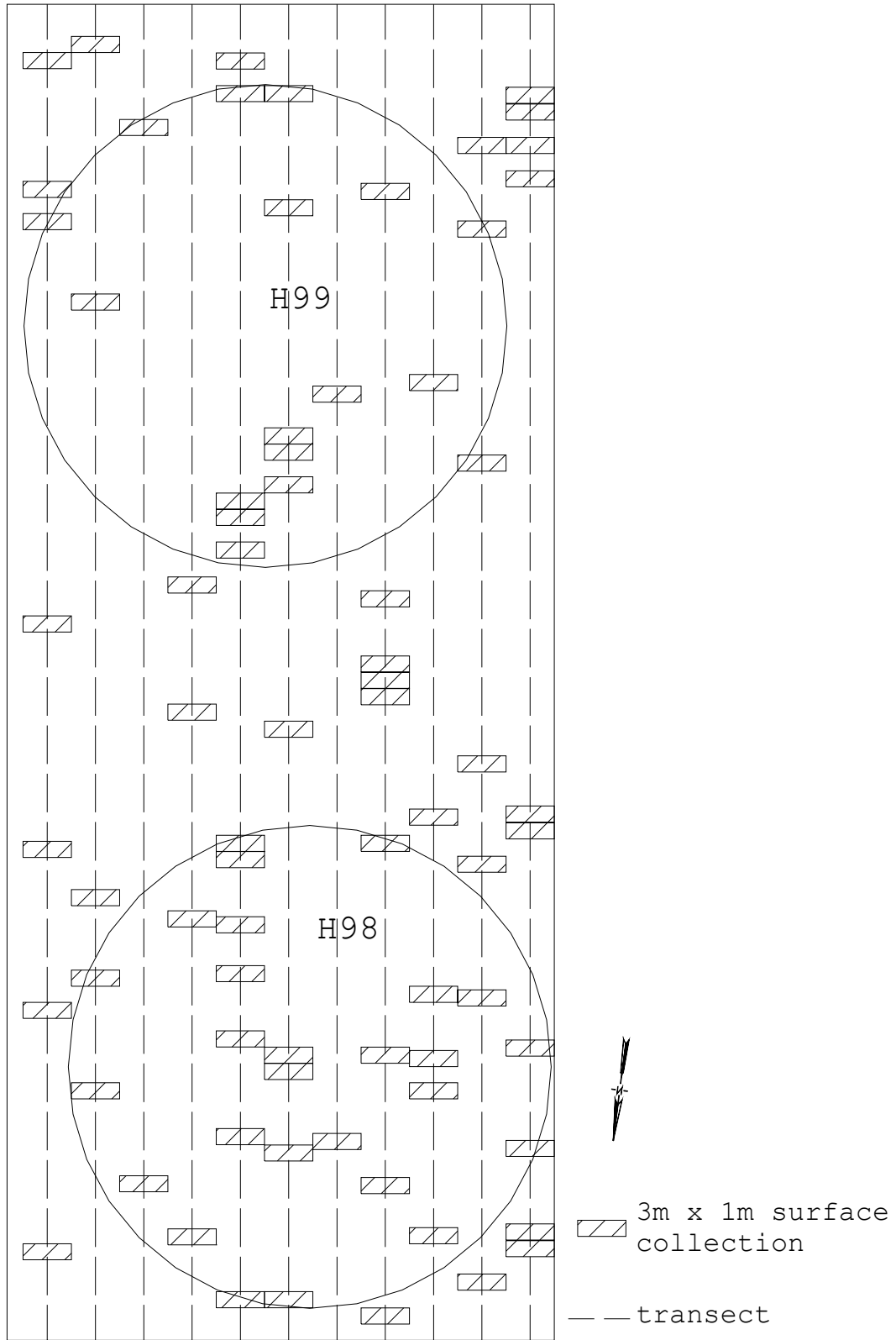


Figure 4.64. Map of Late Muisca period ceramics at Site 36.

sherds indicates the presence of at least two Late Muisca houselots, H98 and H99.

Sites 37 -39

Sites 37, 38, and 39 are all cultivated fields within the finca La Ramada. Broadbent (1966) investigated at La Ramada and identified it as the location of one of the *capitanías* of the Bogotá chiefdom. All three of the fields investigated were of uniform construction with two planting areas separated by a 2m path and the entire field covered by plastic and canvas tents. Based on our experience making surface collections in the previous cultivated fields, the size of collection units at these sites was increased to 2 m to help reduce the overall number of collections. Surface visibility at Site 37 and Site 39 was excellent due to very recent planting at Site 37 and preparation for planting at Site 39. The surface visibility at Site 38 was good but hindered to some degree by the vegetation.

Figure 4.65 shows the distribution of Herrera period sherds at Site 37. The pattern of sherds indicates the presence of at least one Herrera houselot, H21. Figure 4.66 illustrates the distribution of Early Muisca sherds at Site 37. The pattern of sherds indicates the presence of at least one Early Muisca houselot, H63. Figure 4.67 shows the distribution of Late Muisca period sherds at Site 37. The pattern of sherds

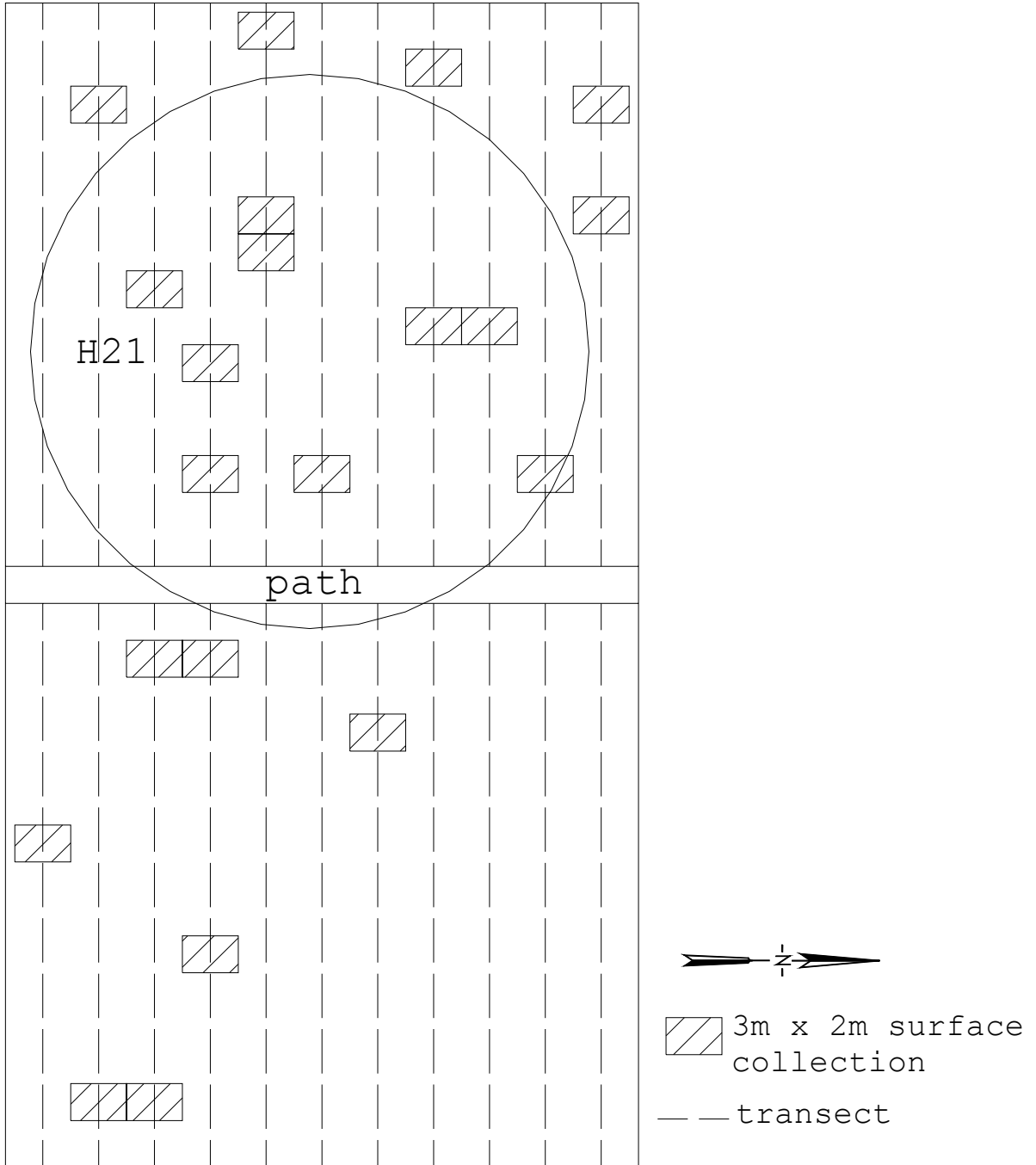


Figure 4.65. Map of Herrera period ceramics at Site 37.

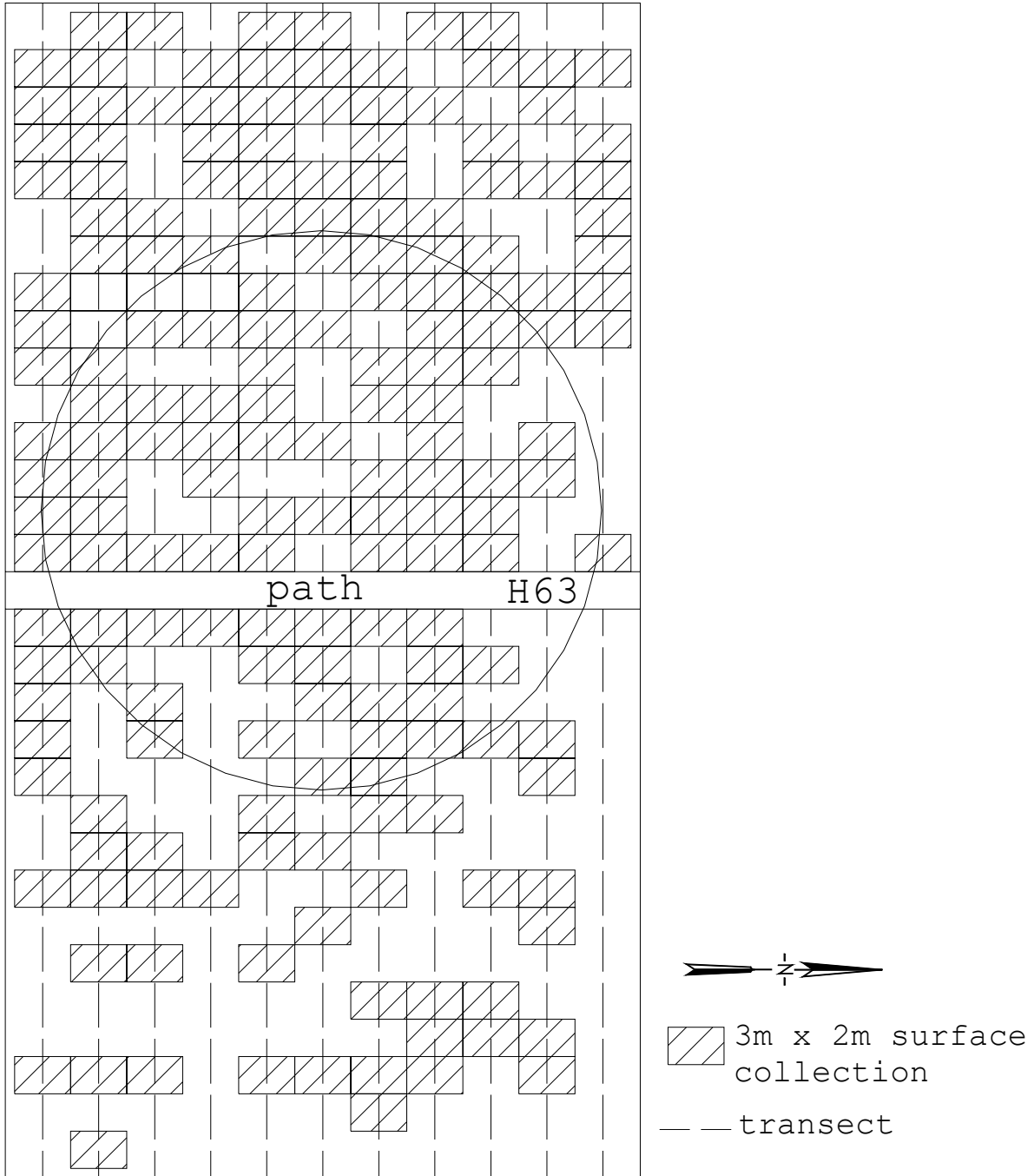


Figure 4.66. Map of Early Muisca period ceramics at Site 37.

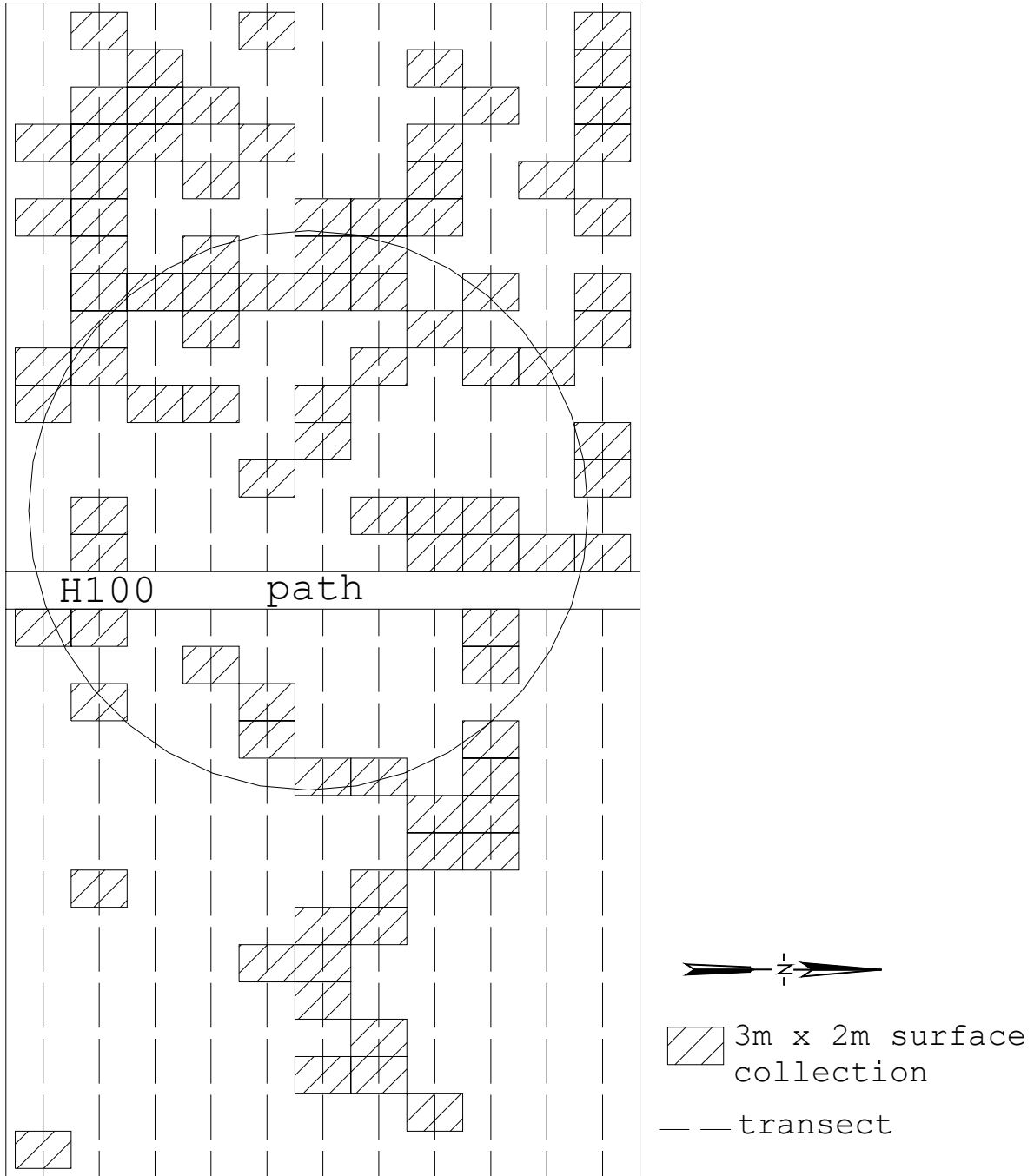


Figure 4.67. Map of Late Muisca period ceramics at Site 37.

indicates the presence of at least one Late Muisca houselot, H100.

Only seven Herrera period sherds were recovered in the surface collections at Site 38. The small number of sherds made it impractical to designate any Herrera houselots at Site 38. Figure 4.68 illustrates the distribution of Early Muisca sherds at Site 38. The pattern of sherds indicates the presence of at least one Early Muisca houselot, H64. Figure 4.69 shows the distribution of Late Muisca period sherds at Site 38. The pattern of sherds indicates the presence of at least one Late Muisca houselot, H101.

Only four Herrera period sherds were recovered in the surface collections at Site 39. The small number of sherds made it impractical to designate any Herrera houselots at Site 39. Figure 4.70 illustrates the distribution of Early Muisca sherds at Site 39. The pattern of sherds indicates the presence of at least one Early Muisca houselot, H65. Figure 4.71 shows the distribution of Late Muisca period sherds at Site 39. The pattern of sherds indicates the presence of at least one Late Muisca houselot, H102.

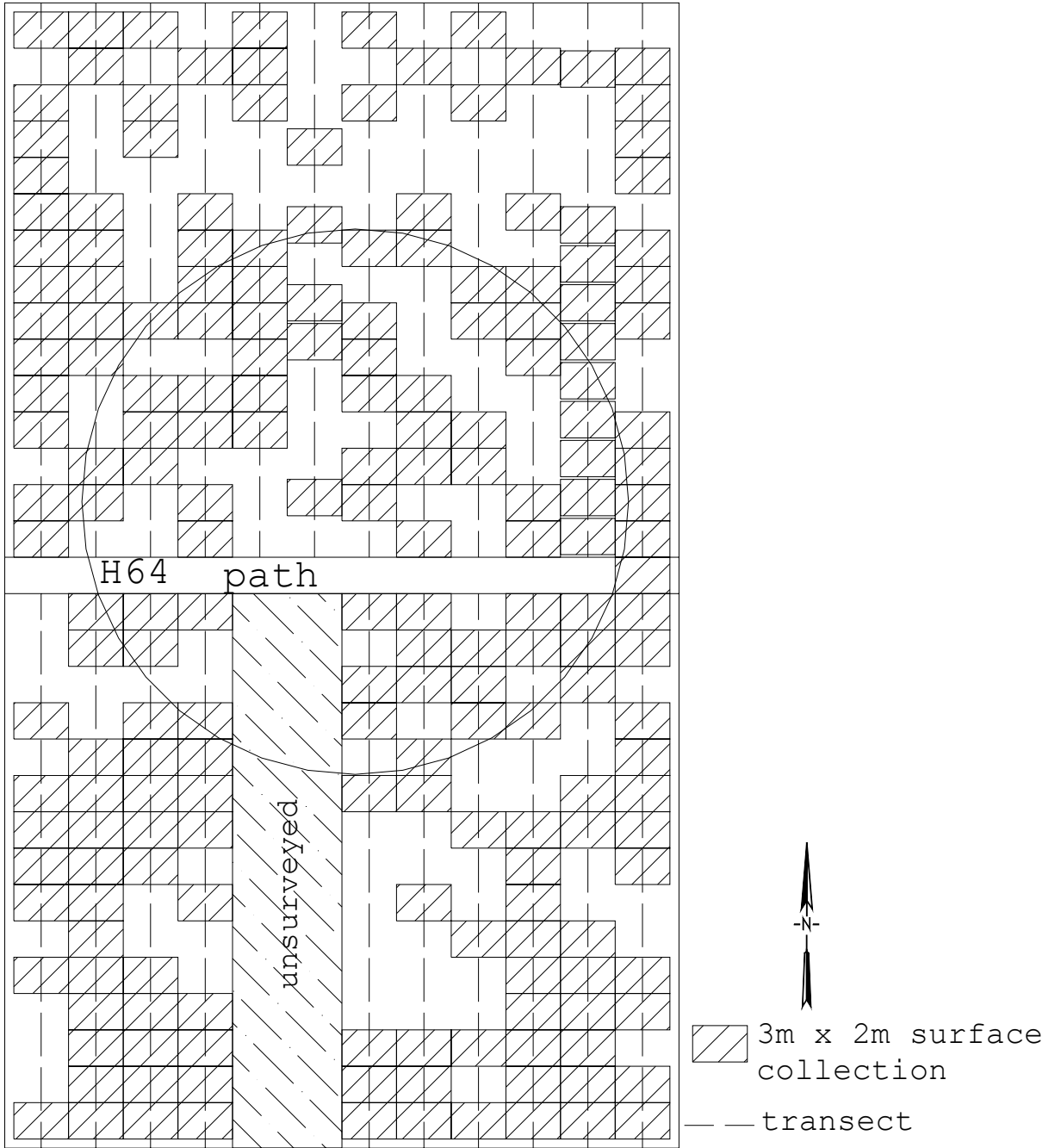


Figure 4.68. Map of Early Muisca period ceramics at Site 38.

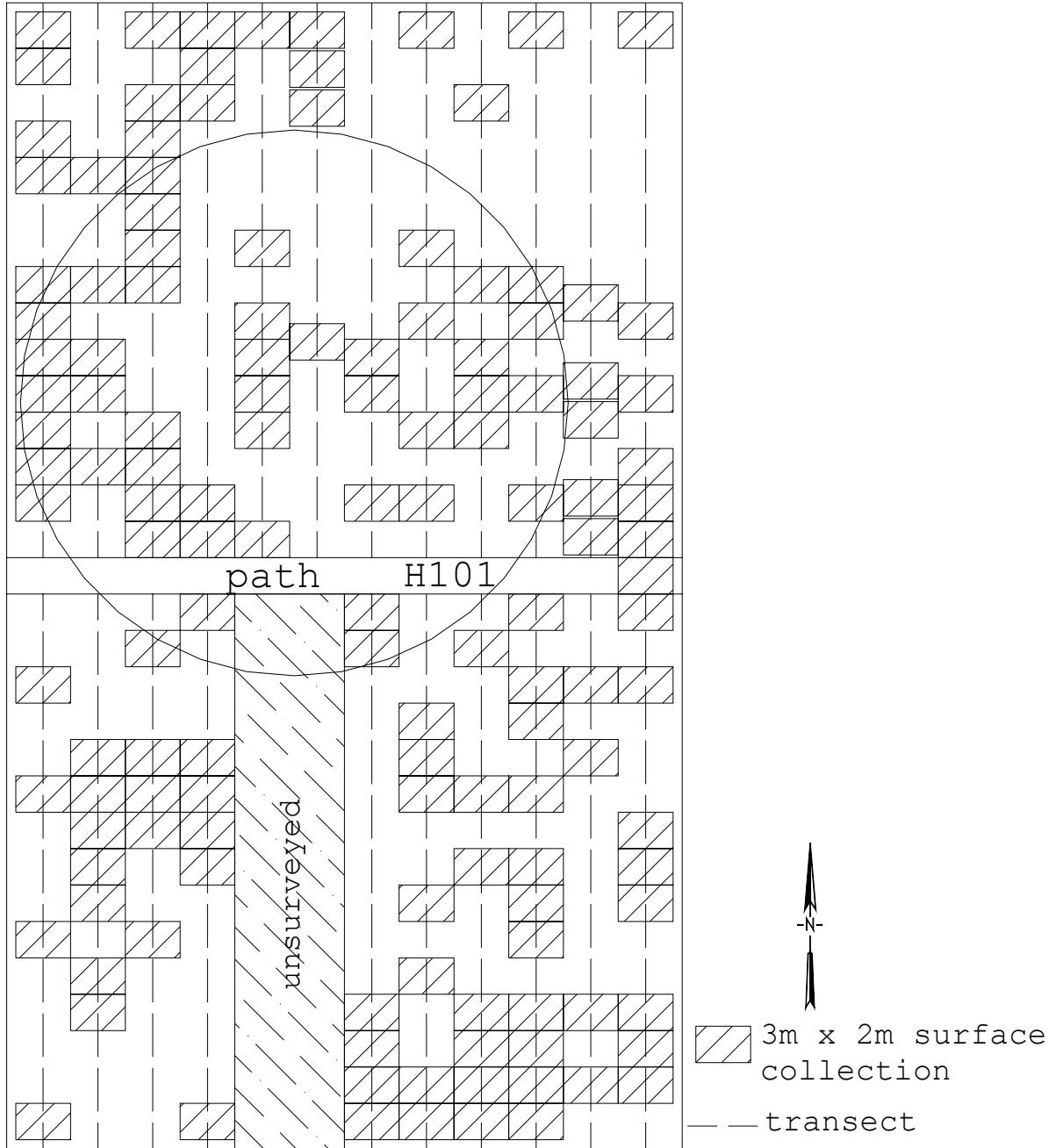


Figure 4.69. Map of Late Muisca period ceramics at Site 38.

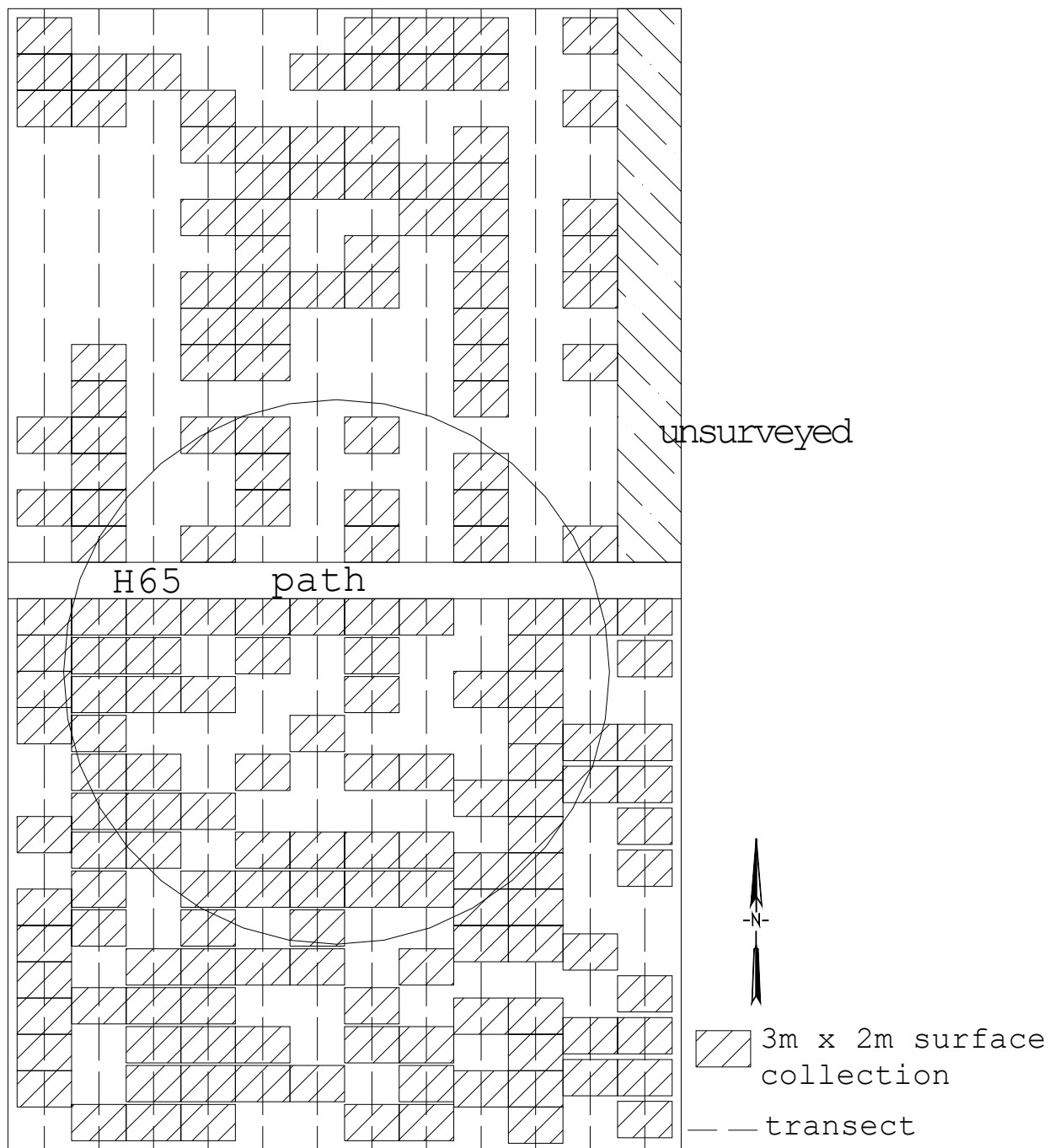


Figure 4.70. Map of Early Muisca period ceramics at Site 39.

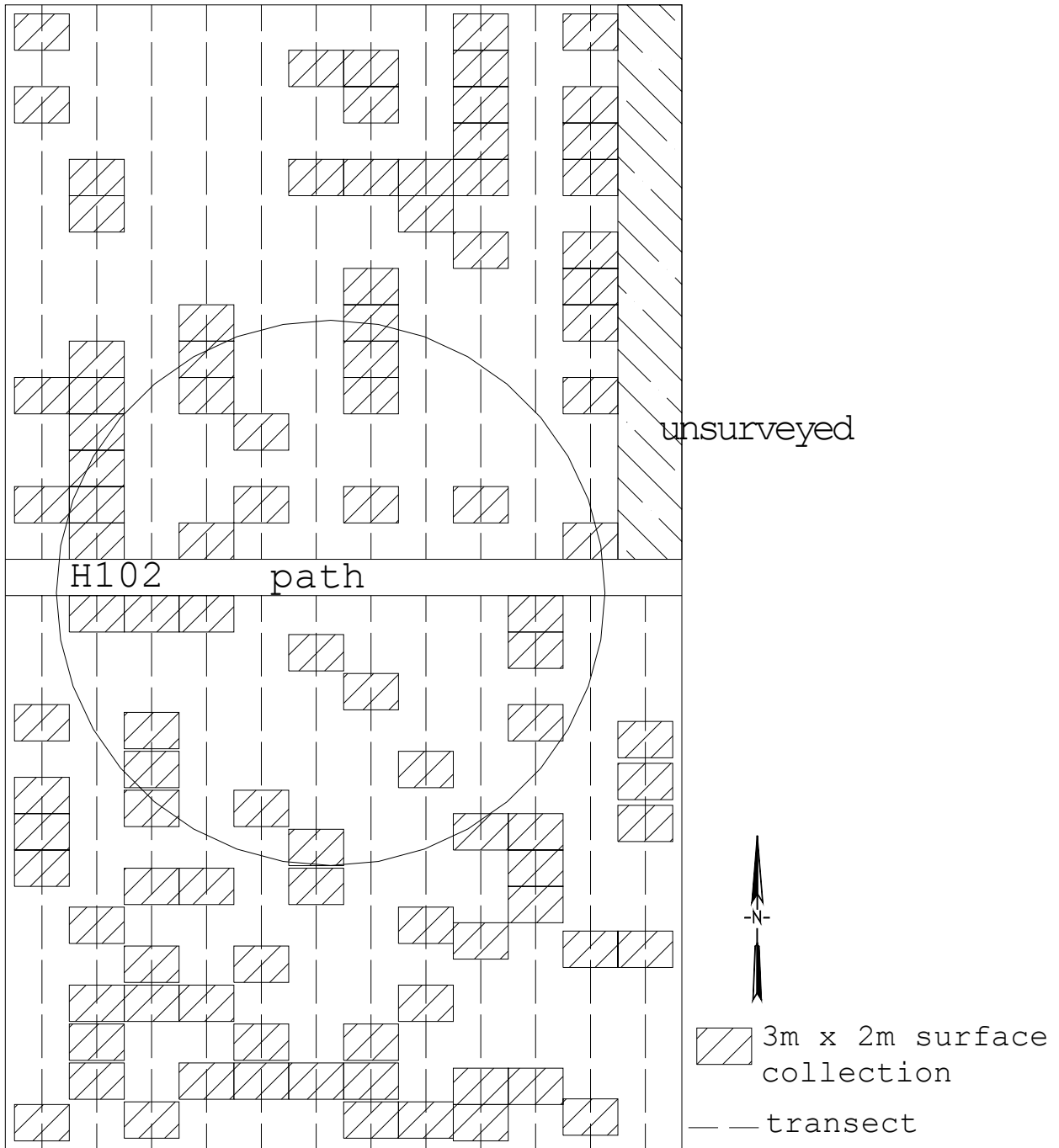


Figure 4.71. Map of Late Muisca period ceramics at Site 39.

Summary

This chapter has reviewed the knowledge of Muisca houses and settlement patterns and the methods of data collection used in the present investigation. The intensive survey portion of the project has allowed me to distinguish discrete areas of occupation in the form of individual houselots at most of the sites investigated. The patterns in the sherd distributions at many of the sites investigated in the intensive survey program appear to be about the right size and shape to be prehispanic houselots. A total of 101 such houselots can be identified at the sites investigated. The intensive survey also recovered a sample of artifacts from each houselot that allows for the comparison of activities between the different houselots. The comparison and analysis of the houselots identified here will be taken up in the following chapter.

CHAPTER 5

HOUSELOT COMPARISONS

The purpose of this chapter is to make comparisons between the houselots identified in the previous chapter. Such comparisons can be made both synchronically, by examining the variability within each period, and diachronically, by comparing between periods. Houselots can be compared according to a number of different aspects. Archaeological remains recovered from houselots in the project include ceramics, ceramic production waste, lithic flakes, lithic cores, polishing stones, and spindle whorls. The amounts of these artifacts at different houselots provide the basis for estimates of wealth and/or status differences between houselots as well as estimates of participation in feasting activities, craft production, and regional economic exchange. Additional factors relating to access to key resources, such as quality agricultural soils and proximity to remnant raised field complexes, will also be examined.

Wealth and Status

The development of differences in wealth and status is a topic of great interest in the study of the evolution of complex societies in general (Earle 1987, 1991; Hirth 1993; Price and

Feinman 1995) and of interest in the evolution of the chiefdoms in the Muisca area. The Herrera period in the Muisca area is generally considered to have been relatively egalitarian with only incipient differences in wealth and status (Boada 1998a; Langebaek 1995). On the other hand, the Late Muisca period, as documented in the ethnohistoric sources, seems to have been marked by considerable wealth and status differences, particularly between the chiefs and the commoners (Fowler 1992; Langebaek 1987; Kurella 1998). However, some recent archaeological investigations have not found evidence for social differences as dramatic as might be expected for the Late Muisca period (Boada 1998a,b, 2000). The Early Muisca period has received less scholarly attention, but presumably falls somewhere in between the Herrera and Late Musica periods on the scale of social complexity. Some evidence indicates that there were some dramatic changes between the Herrera and Early Muisca periods where changes in settlement patterns suggest increased centralization and elite competition (Langebaek 1995, 2000).

Although they are often closely linked, wealth and status are not necessarily the same things. This is the important distinction made by Fried (1967) between ranked and stratified societies. Wealth entails an economic difference, where an individual has greater access to productive resources than other members of a community. Status, on the other hand, involves

social prestige, where an individual may be highly regarded in the community for their personal knowledge and skills or by their lineage or other innate characteristics. It is possible to have high status without great wealth, as is seen in big-man societies or modern Latin American cargo systems, for example (Wason 1994: 52). To further complicate matters, both wealth and status differences often co-exist within the same society, where some individuals have greater wealth than others and some individuals have relatively little wealth but are nevertheless highly esteemed.

The indications of wealth and status are often subtle to detect archaeologically. While wealth differences are often easier to operationalize archaeologically, in the form of relatively large quantities of luxury items, for example, status differences can be more difficult to detect in archaeological remains. The kinds of archaeological markers typically used to identify wealth and status include: house size and elaboration, imported and locally produced luxury goods (ceramics, obsidian, precious stones, metal, shell, textiles, bird feathers, and animal skins), decorated ceramics, serving vessels, and elaborate burials (Chase and Chase 1992:4; Earle 1987; Smith 1987). Rather than a simple presence-absence pattern, these markers generally appear in greater or lesser quantities throughout a population. While elites may have had particularly

large quantities or concentrations of these wealth and status markers, even commoners occasionally have small amounts (Smith 1987). Therefore, in order to assess the presence or degree of wealth and status differences archaeologically, it is necessary consider the relative quantities of potential wealth and status markers within a population.

What wealth and status markers are available to assess the degree of wealth and status differences in the Bogotá polity? Ethnohistoric reports from the Muisca area describe both the great wealth of Muisca chiefs and the presence of extensive exchange networks for fine textiles, precious metals and stones, animal skins and bird feathers, and figurines (Langebaek 1987, 1991; Kurella 1998). However, no obsidian, imported stone, metal, shell, textiles, feathers, animal skins or figurines were recovered from the houselots investigated within the Bogotá polity. Also, no information on architecture or house size and elaboration was recovered. Thus, the evidence available for wealth and status differences comes from ceramics. Based on the ceramic data recovered from houselots, differences in wealth and status can be assessed through the relative abundances of decorated ceramics and serving vessels.

The relative proportions of decorated ceramics and vessel forms are useful in assessing both wealth and status differences and the presence of feasting activities. On the one hand, elite

households tend to have greater quantities of fine serving vessels than commoner households (Smith 1987). On the other hand, large quantities of serving vessels can also indicate feasting activities. It is commonly theorized that elites in chiefdoms were often involved in providing feasts to recruit and maintain the support of commoners (Clark and Blake 1994; Earle 1987, 1991). These same arguments have been made for the Muisca chiefdoms in the northern portion of the Muisca region (Boada 1998a; Langebaek 1991, 1995).

Decorated Ceramics

For the purposes of this analysis, decorated ceramics were defined as sherds with any features indicating additional production steps in the fabrication of the vessel beyond basic forming and firing. For example, a sherd with any indications of the presence of a slip, painting, incisions, punctations, handles, or applications was counted as decorated. This was done in a presence-absence fashion and no effort was made to quantify the degree of decoration or quantity of production steps.

Figure 5.1 shows the stem and leaf diagrams indicating the distribution of decorated ceramics at houselots in each period. The Herrera period houselots have a much wider range of values than the other two periods and a bimodal distribution as well.

Herrera		Early Muisca		Late Muisca	
n cases	21	n cases	42	n cases	38
Median	26.670	Median	18.265	Median	16.000
Mean	31.779	Mean	18.849	Mean	16.198
0	0	0		0	0234
0		0	5577888888	0 H	5557799
1	34	1 H	001222234	1	0012333
1 H	688	1 M	557899	1 M	566677889
2	223	2	011233	2 H	12223
2 M	56	2 H	57777	2	578
3	3	3	0233	3	12
3	9	3	667	Outside Values	
4	12			5	4
4 H	559				
5	44				
5	8				

Figure 5.1. Stem and leaf diagrams of the percentage of decorated ceramics at houselots from the intensive survey.

This bimodal distribution suggests that there were two kinds of houselots in the Herrera Period, 1) houselots with around 22 percent of their ceramics decorated and 2) houselots with around 45 percent of their ceramics decorated. Ten of the twelve houselots in the first group do have sample sizes of less than 30 sherds, nevertheless, all of these houselots have percentages on the low end of the distribution, which is not what one would expect to see if the results were only due to the effects of small sample sizes. Small samples, in and of themselves, should not systematically favor undecorated sherds. In fact, if the results were merely the product of the vagaries of small samples, one would expect a random pattern of high, medium, and low values. The percentages for the first group (the one with lower percentages) are also fairly close to the median percentages for houselots in the Early Muisca and Late Muisca periods. The houselots from the second Herrera period group have percentages much higher than the median percentages for the other two periods. Thus, according to the evidence from decorated ceramics, the houselots in this second group appear to have been relatively wealthier or higher in status.

Figure 5.2 shows bullet graphs depicting the mean percentage of decorated ceramics and the associated statistical confidence intervals for the two groups of Herrera houselots along with the Early Muisca and Late Muisca houselots.

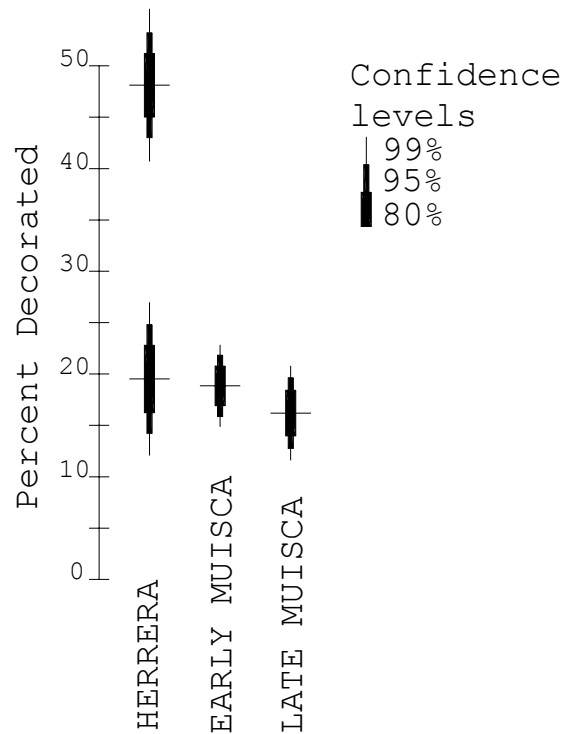


Figure 5.2. Bullet graphs for decorated ceramics.

Figure 5.2 clearly illustrates the extremely significant difference between the two groups of Herrera houselots. In addition, Figure 5.2 shows that there is, statistically, very little difference in the percentage of decorated ceramics between the 'lower' group of Herrera houselots and the Early Muisca houselots. On the other hand, Figure 5.2 indicates that there is a fairly high (better than 80%) likelihood that the percentage of decorated ceramics at Late Muisca houselots is lower than either the Herrera or Early Muisca houselots.

Overall then, Figure 5.2 implies that some of the Herrera period houselots were wealthier or of higher status than the others. In addition, the Early Muisca houselots in the sample appear to be about as wealthy or of similar status as the as the lower status Herrera period group of houselots. The Late Muisca houselots, in comparison, appear to have even less wealth or status. Such a pattern would be consistent with the development of an increasingly restricted elite group at the top of Muisca society and a limiting of the rest of the population's access to decorated ceramics.

Figure 5.3 shows the spatial distribution of the percentage of decorated ceramics from each houselot for each period. The figure indicates the location of each houselot within the study area represented as small circles. The size of the circle corresponding to each houselot represents the relative percentage of decorated ceramics for each houselot with larger circles indicating larger percentages. For the Herrera period, there are two clusters of houselots that have particularly high percentages of decorated ceramics, one in the northwest quadrant and one in the south near the center. These two clusters account for seven of the nine houselots in the group with high percentages. The cluster of houselots in the northwest quadrant is located within the area proposed to be the location of the

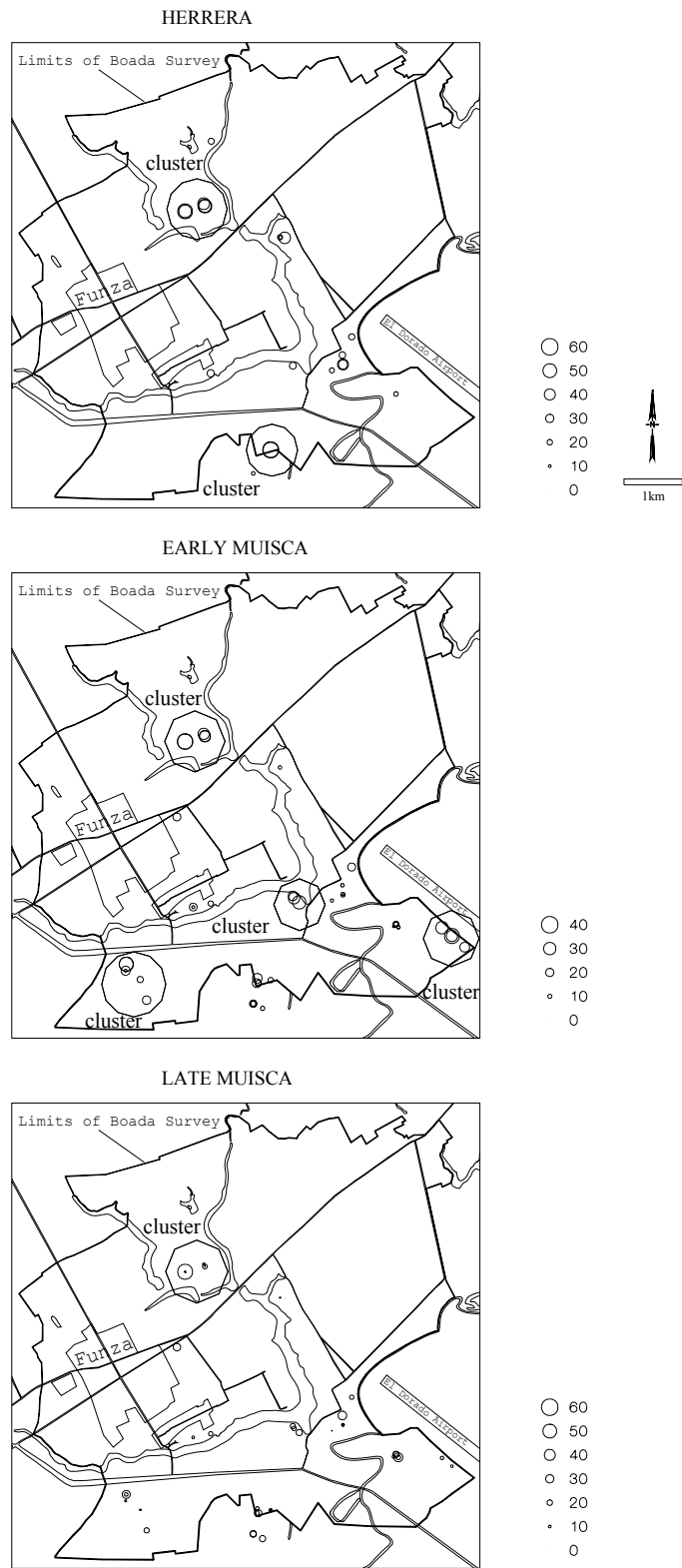


Figure 5.3. Spatial distribution of decorated ceramics.

chief's *capitanía* at the time of the Spanish conquest. Thus, the greater wealth and status of that particular *capitanía* seem to have already been present in the Herrera period. As Figure 5.3 shows, that same location continues to have houselots with high percentages of decorated ceramics in the Early Muisca and Late Muisca periods as well. In fact, the two houselots with the highest percentages of decorated ceramics in the Early Muisca period and the houselot with the highest percentage of decorated ceramics in the Late Muisca period are all in this same location. This is not to suggest that any of these houselots actually belonged to the chief, but they may have been the residences of members of the chief's family or entourage.

In the Early Muisca period, although the mean percentage of decorated ceramics declined and the range of percentages narrowed from the Herrera period (see Figure 5.1), Figure 5.3 suggests that there were four clusters of houselots with higher percentages of decorated ceramics, the one mentioned above in the location of the chief's *capitanía*, one in the southwest, a new one in the south central area, and one in the southeast. In the Late Muisca period, only the one houselot previously mentioned seems to stand out in both Figure 5.1 and Figure 5.3. The mean percentage of decorated ceramics at houselots in the Late Muisca period is the lowest of the three periods. In contrast to this general trend, the one Late Muisca houselot

that is located within the chief's *capitanía* has one of the highest percentages (54.55%) of decorated ceramics for the whole sample and all periods.

Overall, the data in Figures 5.1, 5.2, and 5.3 seem to suggest that the use of decorated ceramics as markers of wealth and status became more restricted over time as the one *capitanía* came to dominate the region. In general, it seems that more households in our sample had access to decorated pottery in the Herrera period. At the same time, about half of the sample of Herrera houselots had significantly more decorated ceramics than the other half. Furthermore, most of the houselots with the highest percentages of decorated ceramics were concentrated in only two locations. This suggests that there were at least two communities with elite households in the Herrera period. There is a notable change in the Early Muisca period where the bimodal distribution in decorated ceramics disappears, suggesting that the Early Muisca houselots in the sample are not very different from each other and very similar to the Herrera group with lower percentages of decorated ceramics. It seems unlikely that the rising elites from the Herrera period simply went away. Although it is not possible to rule out the possibility that Muisca society became more egalitarian in the Early Muisca period, it seems more likely that the sample did not include any truly elite houselots because there were fewer such elite

houseslots in the population. The trend continues in the Late Muisca period where the mean percentage of decorated ceramics drops even lower. The notable exception is the one Late Muisca houseslot with the unusually high percentage of decorated ceramics, located within the area of the *capitanía* of the chief. This again suggests that fewer households in the Bogotá polity had easy access to decorated ceramics in the Late Muisca period. Perhaps only some of the households directly associated with the chief had good access to large quantities of decorated ceramics, while the rest of the population became more impoverished.

Vessel Forms

The relative quantities of different vessel forms can also be an indication of wealth and status, as well as an indication of the presence and intensity of feasting activities. When rim sherds were encountered and where vessel forms could be inferred, they were classified as either bowls (probable serving vessels) or jars (probable storage or cooking vessels). This classification was based on whether the vessel was relatively open and unrestricted versus relatively closed and restricted in form. The bowl category, therefore, includes vessels that might be labeled bowls, cups, or plates, all of which were likely to have been used as serving vessels. The jar category includes vessels that might be labeled storage jars or cooking pots.

Although some of these vessels categorized as jars could potentially have been used for serving purposes, it seems more likely that they were used for storage and cooking purposes.

Since relatively few rim sherds were recovered in the investigation (only 3.9% of the total sherds recovered and an average of only 6 rims per houselot), any conclusions based on vessel forms are highly tentative. Nevertheless, the relative quantities of bowls and jars at the houselots identified within the Bogotá polity were analyzed in terms of a Bowl to Jar Index. The Bowl to Jar Index was produced by taking the difference between the number of bowl sherds and the number of jar sherds from each houselot, and then dividing by the total number of identified rims for each houselot. The resulting index yields positive values for houselots with more bowls, negative values for houselots with more jars, and a value of zero when there are equal numbers of bowls and jars. Additionally, houselots with only bowls or only jars give values of 1 or -1, respectively.

Figure 5.4 shows the stem and leaf diagrams of the Bowl to Jar Index for houselots in the Herrera, Early Muisca, and Late Muisca periods. A number of houselots in each of the three periods had no identifiable rim sherds and were excluded from the diagrams. In the Herrera period, none of the values are negative, so none of the houselots had more jar sherds than bowl

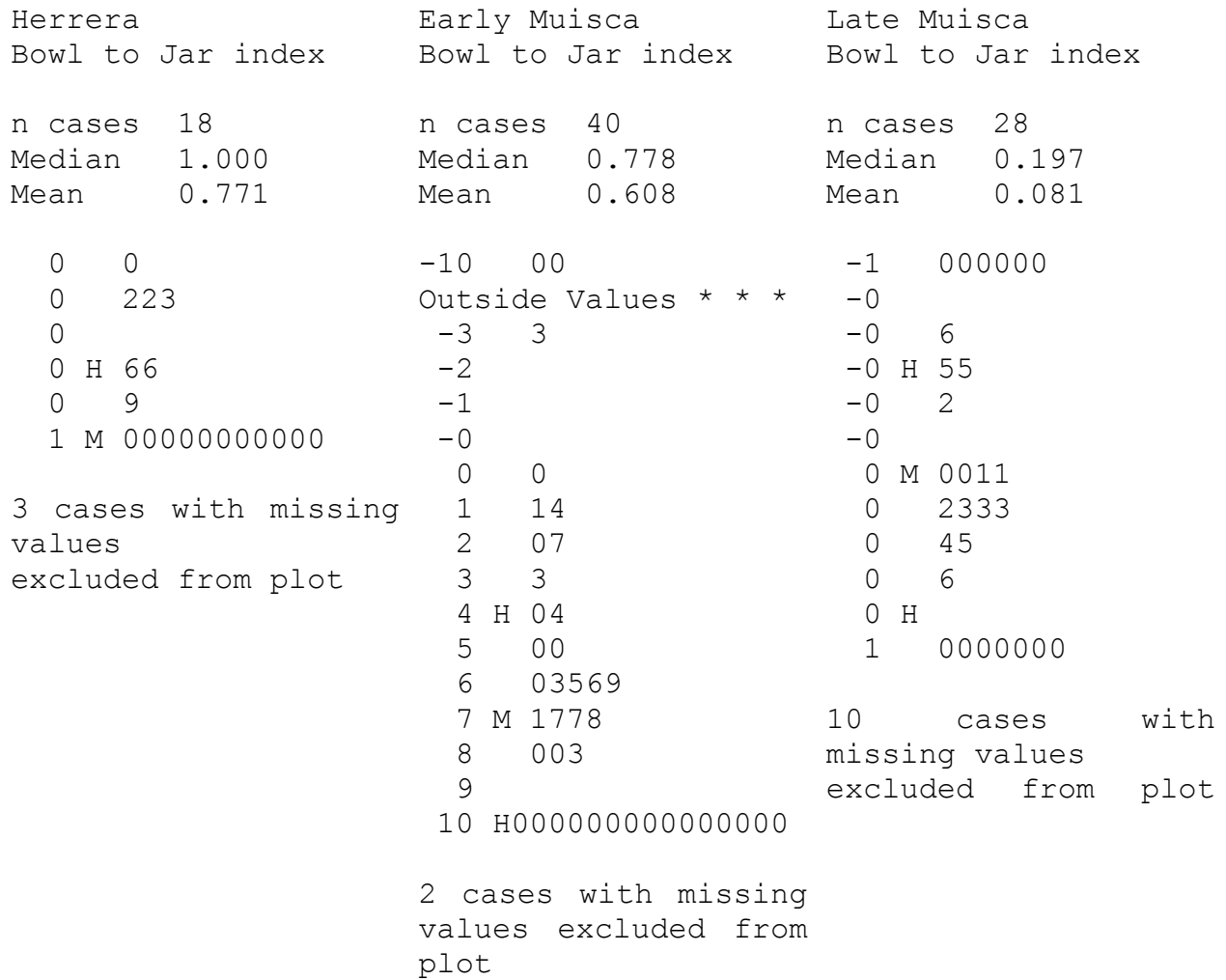


Figure 5.4. Stem and leaf diagrams of the Bowl to Jar Index at houselots identified in the intensive survey.

sherds. Similarly, the Early Muisca houselots have mostly bowls, with only three houselots indicating more jars and one houselot with even numbers of bowls and jars. On the other hand, in the Late Muisca period, 35.7% of the houselots with rim sherds have more jars than bowls. However, of the seven houselots with only bowls, six are represented by only one rim sherd and the seventh has only two rim sherds. Excluding these houselots with less than three rim sherds would bring the percentage of houselots with more jars to 43.8%.

Although the sample sizes are small, the relative quantity of jars seems to increase from the Herrera period, where jars are much less common, to the Late Muisca period, where the relative quantities of bowls and jars becomes more even. From the perspective of wealth and status differences, the overall decrease in the relative quantity of bowls seems to be similar to the conclusion from the examination of decorated ceramics above that indicators of wealth and status became more restricted over time.

Figure 5.5 shows the spatial distribution of the Bowl to Jar Index at houselots in each period. Figure 5.5 does not indicate a clear correspondence between high, positive Bowl to Jar Index values (i.e. houselots with more serving vessels) and the clusters of houselots with high percentages of decorated

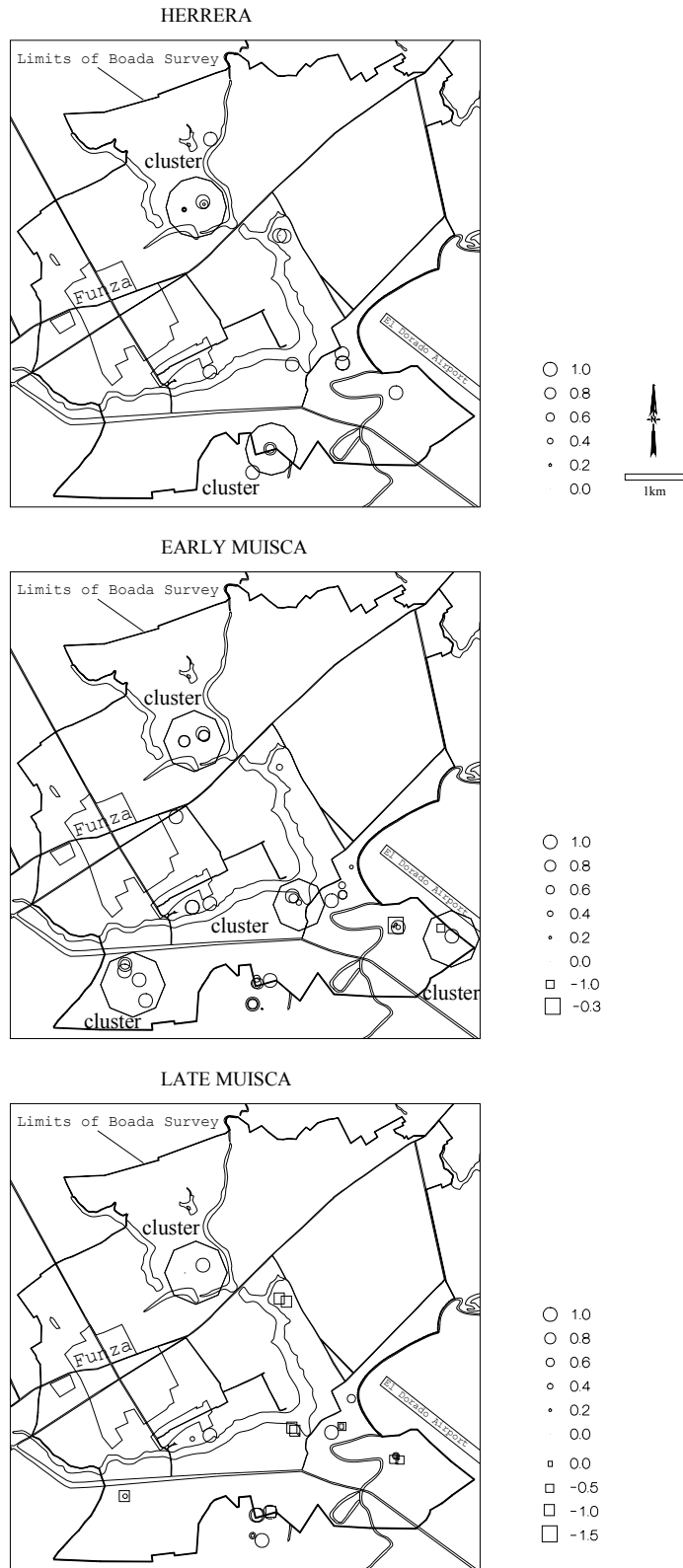


Figure 5.5. Spatial distribution of bowls and jars.

ceramics. However, Figure 5.5 does show that none of the houselots within the clusters with high percentages of decorated ceramics had negative Bowl to Jar Index values (i.e. none of the houselots had more jars than serving vessels).

Since so few rims were recovered, the evidence for feasting activities is somewhat ambiguous. However, the greater tendency towards positive Bowl to Jar Index values seen in Figure 5.4 does suggest that feasting activities may have been more important during the Herrera and Early Muisca periods than it was in the Late Muisca period. Still, the houselots with more serving vessels are not particularly concentrated near houselots with larger amounts of decorated ceramics nor the likely location of the chief's *capitanía*. Therefore, there are no clear indications of specific locations, such as the chief's compound, where these potential feasting activities may have occurred.

Craft Production

An increase in the intensity of craft production and the development of economic specializations is another theme generally associated with the evolution of complex societies (Earle 1987, Hirth 1993, Muse 1991). It is often theorized that rising elites can utilize craft production to establish an

economic advantage over the rest of the population; this may be accomplished within their own households by freeing themselves from food production, by subsidizing craft production by attached specialists, or by creating and managing markets for craft goods. In the Muisca area, Boada (1998a) found some evidence that elite households may have been involved in textile production to a greater degree than non-elite households. Other authors have emphasized the degree to which Muisca chiefs managed the well-developed market system described in ethnohistoric sources (Langebaek 1987, 1991; Kurella 1998).

Unfortunately, the quantity of artifacts associated with craft production recovered from houselots within the Bogotá polity is really too small to detect the presence of craft specialization. Nonetheless, sufficient quantities of lithic flakes, lithic cores, polishing stones, ceramic-waste products, and spindle whorls were recovered to make some inferences about the nature of craft production within the Bogotá polity. However, matters are further complicated by the fact that the data were collected in shovel probes and surface collections. Thus, it is generally impossible to assign these artifacts to a particular period due to the absence of clearly delineated and chronologically meaningful stratigraphic contexts and the lack of chronologically diagnostic characteristics in the artifacts themselves (in contrast to the ceramics). Despite these

problems, it is still possible to draw some conclusions about the nature of craft production within the sample of houseslots identified.

Since the artifacts relating to craft production cannot be dated, it is difficult to assign them to a particular houseslot in the same manner that the ceramics were. Where there are occupations from more than one period, the artifacts recovered from a particular site could have potentially come from any of the occupations at that site. Therefore, the following analysis examines the evidence for craft production within the intensive survey sites rather than within individual houseslots. This information is less precise than looking at the evidence from each individual houseslot, but will still allow us to see whether certain houseslots were located within sites with relatively greater quantities of artifacts related to craft production.

Lithic Flakes

Of the artifacts related to craft production, lithic flakes are the most common in the assemblages from the intensive survey. The lithic flake category discussed here consists of both 'proper' flakes with usable cutting edges and other debitage from the production of flakes and/or blades. As mentioned above, no obsidian or particularly fine-grained chert material was recovered. Since different numbers of collections

were made at each site, it is important to make the number of lithic flakes from each site comparable. Consequently, the number of lithic flakes recovered from each site was divided by the total number of Herrera, Early Muisca, and Late Muisca sherds recovered from each site to produce a ratio of the number of lithic flakes to the number of sherds. For example, Site 1 had a total of 18 lithic flakes and a total of 2006 Herrera, Early Muisca, and Late Muisca sherds producing a ratio of 0.008973 ($18/2006 = 0.008973$).

In comparing the ratio of lithic flakes to sherds at those intensive survey sites with identifiable houselots, some of the sites stand out by having unusually high ratios and others have unusually low ratios. Figure 5.6 shows the spatial distribution of the lithic flakes to sherds ratios at intensive survey sites with identifiable houselots in each of the three periods. Figure 5.6 does not indicate any clear association between sites with relatively large quantities of lithic flakes and the locations of the clusters of houselots with high percentages of decorated ceramics identified above. Therefore, viewed from the perspective of lithic flakes, craft production does not seem to be closely associated with elites at the sites investigated. Thus, elites in the Bogotá polity did not seem to be particularly involved in craft production activities that utilized large quantities of lithic flakes.

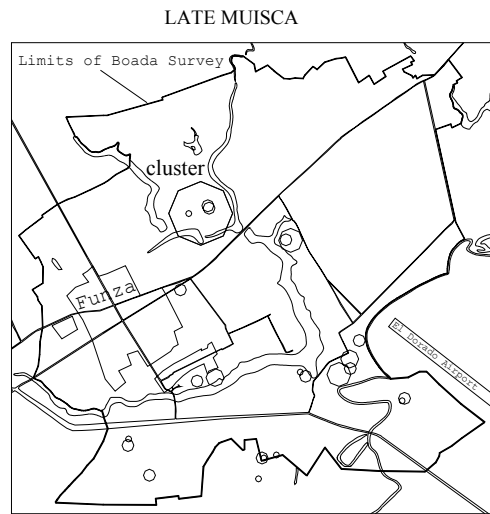
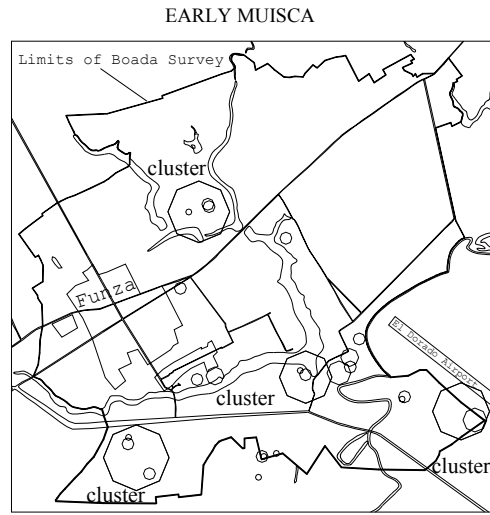
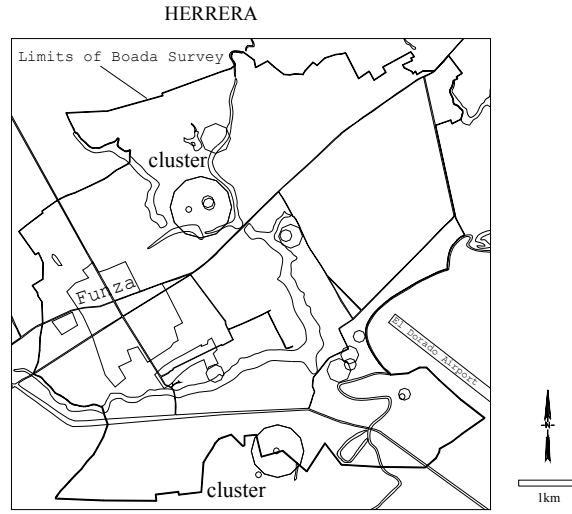


Figure 5.6. Spatial distribution of lithic flakes.

Lithic Cores

Only three lithic cores were recovered in the investigation. Figure 5.7 shows the locations of the sites where these three lithic cores were found. Only one of the lithic cores was found associated with one of the clusters of houselots with high percentages of decorated ceramics. However, lithic cores are so rare in the sample of artifacts recovered that it is difficult to draw any clear conclusions from their locations.

Polishing Stones

Twenty-eight small pebbles were recovered from houselots in the investigation. Many of these pebbles had indications of wear suggesting that they may have been used as polishing stones in ceramic production or other craft activities. O'Neill (1974) found similar pebbles in excavations at the San Jorge site near Suba. Since these pebbles at San Jorge were found in contexts associated with spindle whorls at various stages of production, O'Neill suggests that they may have been used in a polishing stage of spindle whorl production. Thus, the pebbles recovered in the present investigation were probably used in spindle whorl production, ceramic production, or other types of craft production requiring surface polishing.

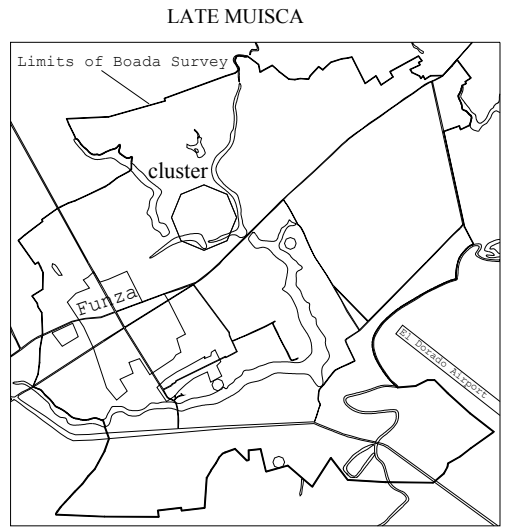
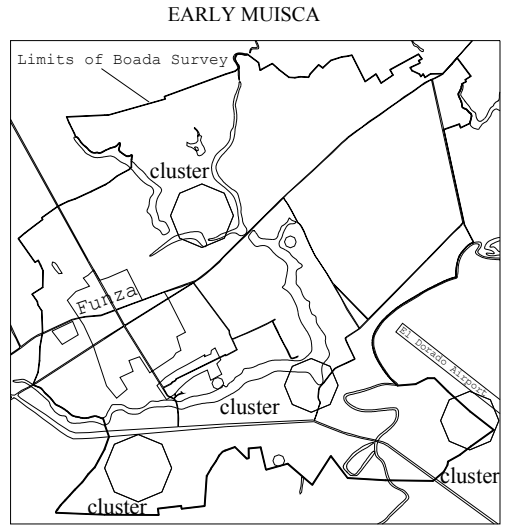
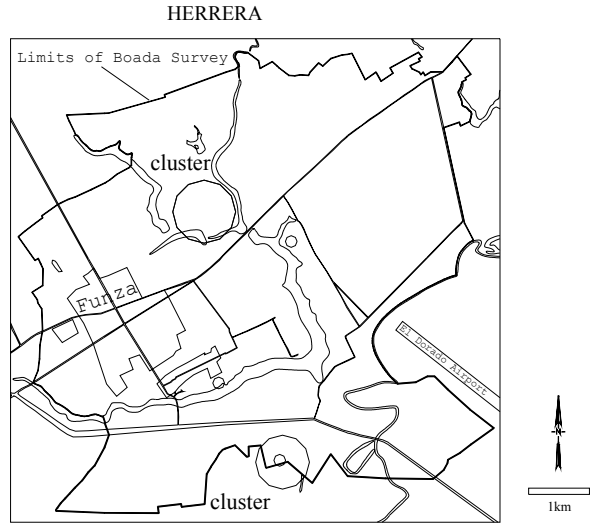


Figure 5.7. Spatial distribution of lithic cores.

Once again, in order to make the amounts of polishing stones from different sites comparable, the number of polishing stones each site was divided by the total number of Herrera, Early Muisca, and Late Muisca period sherds from each site. Figure 5.8 shows the spatial distribution of the ratio of polishing stones at those intensive survey sites with identifiable houselots for each period. A number of sites with relatively high quantities of polishing stones are found at the same locations with houselots with high percentages of decorated ceramics. However, there are also some sites with relatively high quantities of polishing stones associated with houselots without high percentages of decorated ceramics. Therefore, the evidence from the distribution of polishing stones suggests that some of the elite households in the sample were involved in craft activities that utilized polishing stones, possibly ceramic production or spindle whorl production, but these activities do not seem to have been restricted only to the elite households.

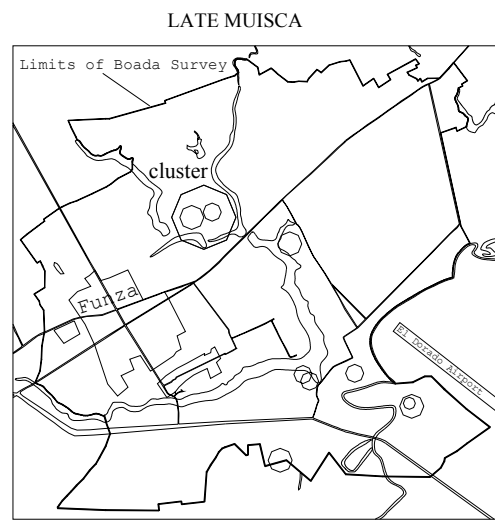
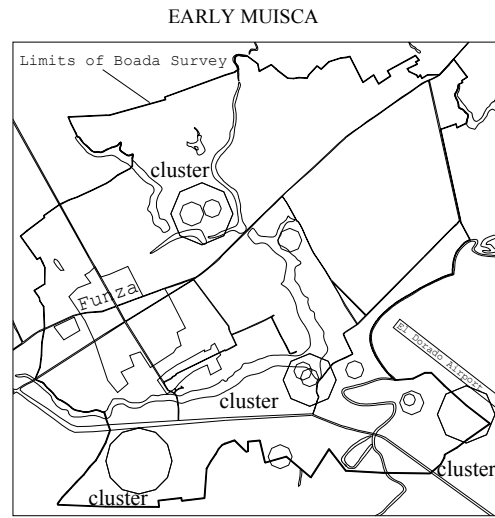
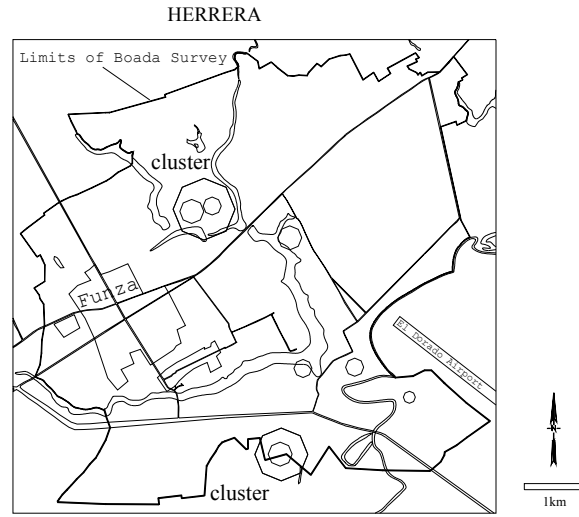


Figure 5.8. Spatial distribution of polishing stones.

Ceramic waste

A number of unusual ceramic objects were recovered in the investigation. The objects consist of globular pieces of fired clay of varying sizes. Most of the objects have unmistakable grass fiber and fingerprint impressions indicating that they are indeed human made artifacts. Cardale (1981: 133-135) describes identical artifacts recovered from excavations at the Herrera period site of Zipaquirá. Cardale interprets these artifacts as the remains of kiln structures or kiln furniture used to support pots while firing. I agree with this interpretation and, therefore, treat them as evidence for ceramic production at the sites where they were found.

Again, in order to make the amounts from different sites comparable, the number of pieces of ceramic waste at each site was divided by the total number of Herrera, Early Muisca, and Late Muisca period sherds from each site to produce a ratio of ceramic waste to sherds. Figure 5.9 shows the locations where such ceramic waste was recovered and the relative quantities. As with polishing stones, there are some sites with large amounts of ceramic waste associated with the clusters of houselots with high percentages of decorated ceramics, although there are a number of sites with relatively large amounts of ceramic waste associated with houselots with relatively low amounts of decorated ceramics as well. So, similar to the

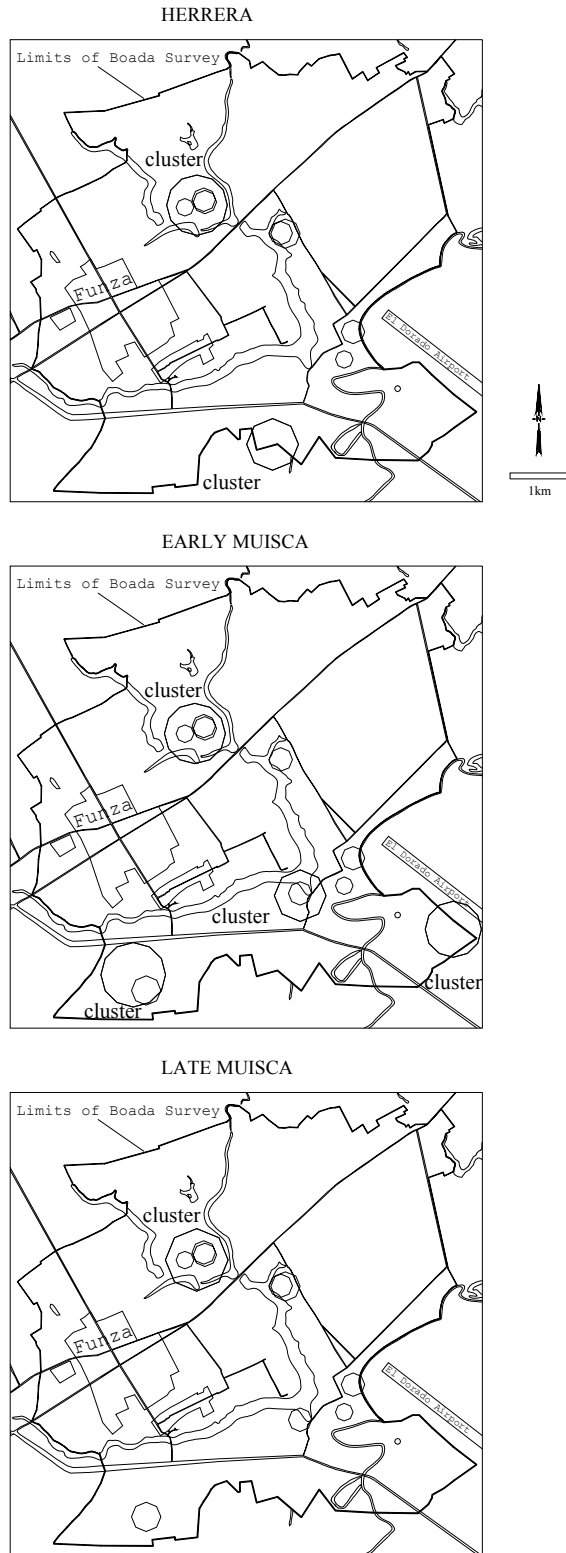


Figure 5.9. Spatial distribution of ceramic production waste.

evidence from polishing stones (and lending some support to the hypothesis that polishing stones were utilized in ceramic production) the evidence from ceramic waste also suggests that elite households in the sample were involved in ceramic production but not to the exclusion of non-elite households.

Spindle Whorls

A total of five spindle whorls were recovered in the investigation. They consist of stone disks with holes drilled through the center and often have incised lines for decoration. Such spindle whorls were likely used in spinning thread for textile production. Figure 5.10 shows the locations of houselots with spindle whorls. No spindle whorls were found associated with any of the sites with Herrera period houselots. The sites with Early Muisca houselots and spindle whorls are all associated with clusters of houselots with relatively high percentages of decorated ceramics, although no spindle whorls were found within the cluster associated with the chief's *capitanía*. Site 13, located in the southwest corner of the figure, actually produced three spindle whorls, suggesting that households there may have been especially involved in textile production. None of the sites with spindle whorls seem to be particularly associated with Late Muisca houselots with the highest percentages of decorated ceramics. Archaeologically,

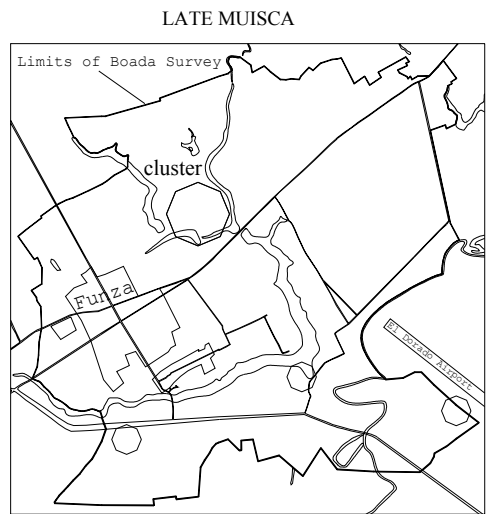
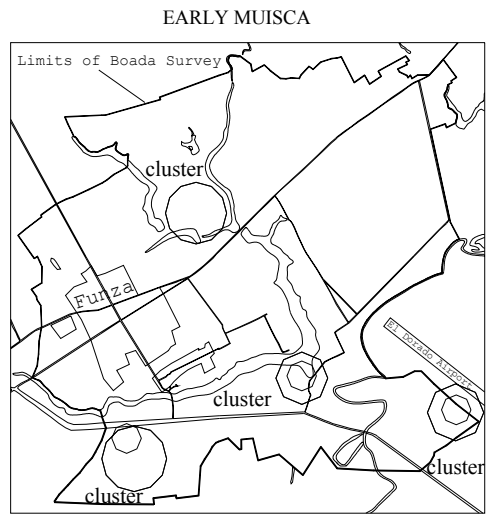
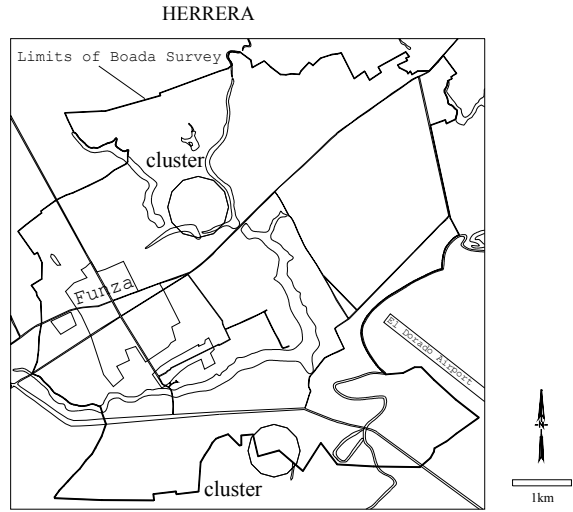


Figure 5.10. Spatial distribution of spindle whorls.

Muisca elites have been associated with textile production at the El Venado site in the Samacá Valley (Boada 1998a). Also, ethnohistoric accounts suggest that textile production in the Late Muisca period was extremely widespread (Kurella 1998: 200). Although, the distribution of spindle whorls recovered in the intensive survey suggests some relationship between spindle whorls and higher quantities of decorated ceramics, the sample of spindle whorls recovered here is too small to be very confident about a clear relationship between spindle whorls (i.e. textile production) and wealth and status within the Bogotá polity.

Regional Economic Exchange

Participation in long distance and regional exchange is another activity that has frequently been associated with chiefs and chiefdoms in general (Earle 1987; Flannery 1968; Helms 1994; Hirth 1992; Muse 1991; Spencer 1994). Based on ethnohistoric accounts, the role of long distance and regional exchange has been particularly emphasized in the Muisca case (Fowler 1992; Langebaek 1987, 1991; Kurella 1998). These accounts describe well-organized long distance exchanges with peoples beyond Muisca society as well as regional trade within the Muisca area. Items exchanged include ceramics, salt textiles, fish, coca,

gold, precious stones, ornaments, animal skins and bird feathers, and raw cotton.

No evidence of most of these products was recovered in the investigation. The only evidence recovered that clearly relates to economic exchange comes from ceramics. For the Herrera period, the *Zipaquirá Desgrasante Tiestos para Sal* (ZDTS) sherds are evidence of participation in exchanges for salt. This type of ceramic was produced in large quantities in association with the production of salt at the site of Zipaquirá, approximately 40 km north of Funza (Cardale 1981). Sherds of this type have been found at many sites throughout the Muisca area (Cardale 1981; Boada 1998a) confirming the widespread exchange of salt from the Zipaquirá salt springs. Figure 5.11 shows the spatial distribution of the percentage of ZDTS sherds in the ceramics from the sample of Herrera period houselots from the intensive survey. Herrera period houselots with high percentages of ZDTS sherds do not seem to be closely associated with high percentages of decorated ceramics. This pattern is further demonstrated in Figure 5.12 where the plot of the percentage of ZDTS sherds versus the percentage of decorated ceramics at Herrera houselots indicates that houselots with higher percentages of decorated ceramics tend to have relatively low percentages of ZDTS sherds. Contrary to what might be expected,

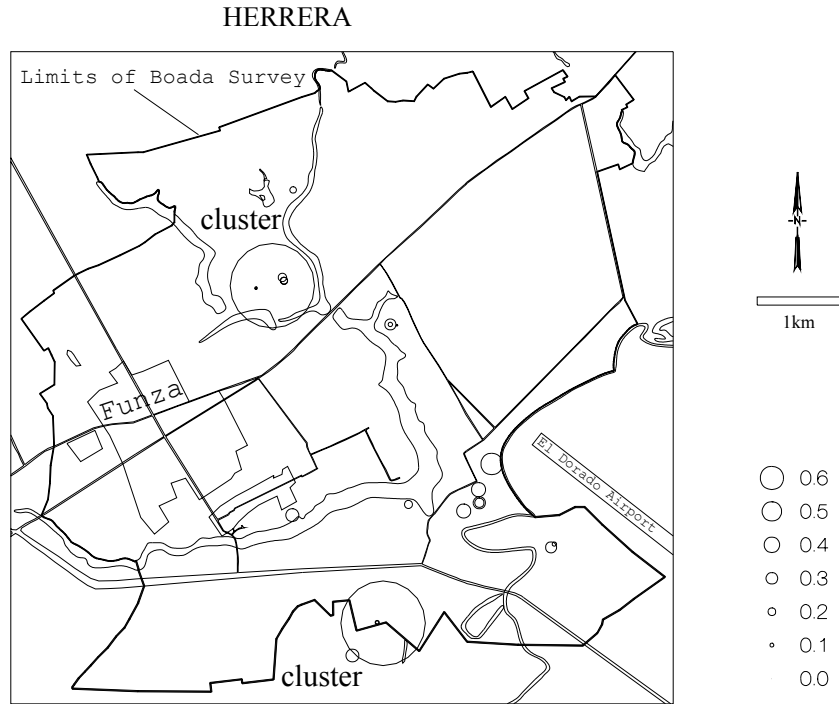


Figure 5.11 Spatial distribution of ZDTS sherds.

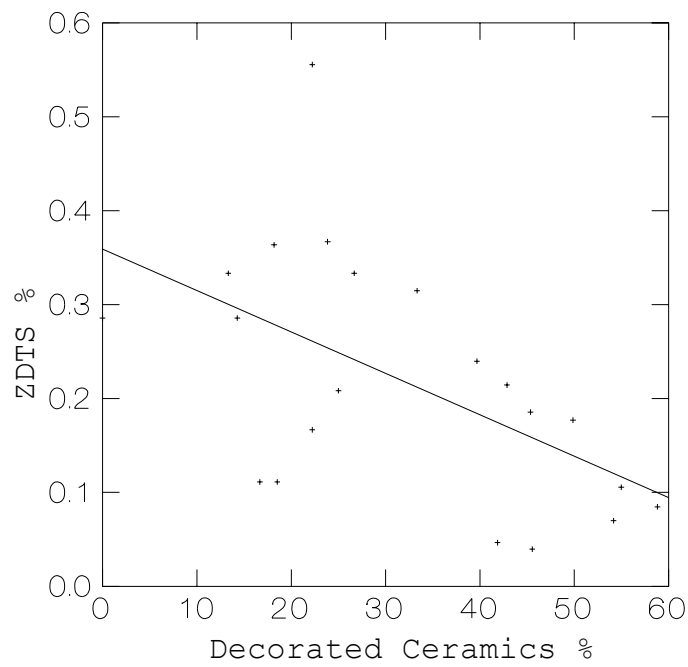


Figure 5.12 Scatter plot of ZDTS sherds versus percentage of decorated ceramics.

the wealthier Herrera houselots do not seem to have been especially involved in this salt exchange.

In the Late Muisca period, there is evidence for the importation of very fine ceramics from the Guatavita polity, located approximately 40 km to the northeast of Funza. The *Guatavita Desgrasante Tiestos* (GDT) vessels were apparently used for ritual purposes (Broadbent 1970, 1971). Figure 5.13 shows the stem and leaf plot for the distribution of the percentage of GDT sherds in the ceramics from the sample of Late Muisca houselots from the intensive survey. Two peaks can be seen in the distribution indicating sites with two different patterns of GDT circulation.

n cases	38
Median	0.094
Mean	0.118

0	H	0000122233
0	M	55577889999
1		00
1		67778
2	H	00012234
2		7
3		4

Figure 5.13. Stem and leaf diagram of the percentage of GDT ceramics at Late Muisca houselots.

Figure 5.14 shows a plot of the percentage of GDT sherds versus the percentage of decorated ceramics at Late Muisca houselots. Unlike the ZDTS, the plot indicates a positive relationship between decorated ceramics and the percentage of GDT sherds with the notable exception of the one outlier that is located within the chief's *capitanía*. Of course, the relationship between decorated ceramics and GDT sherds is confounded by the fact that almost all GDT sherds have decoration and are in fact the most likely Late Muisca sherds to exhibit decoration. Nonetheless, as GDT sherds are not evenly distributed among the Late Muisca houselots, it seems that some households participated to a greater extent in the exchange of these ceramics.

Figure 5.15 shows the spatial distribution of GDT ceramics at Late Muisca houselots. Unexpectedly, the houselots from the area of the chief's *capitanía* have very modest amounts of GDT ceramics. In fact, houselots located further away from the area of the chief's *capitanía* tend to have greater amounts of GDT ceramics. Similar to the evidence for ZDTS exchange in the Herrera period, the evidence suggests that the Late Muisca elites were not controlling the exchange of GDT ceramics.

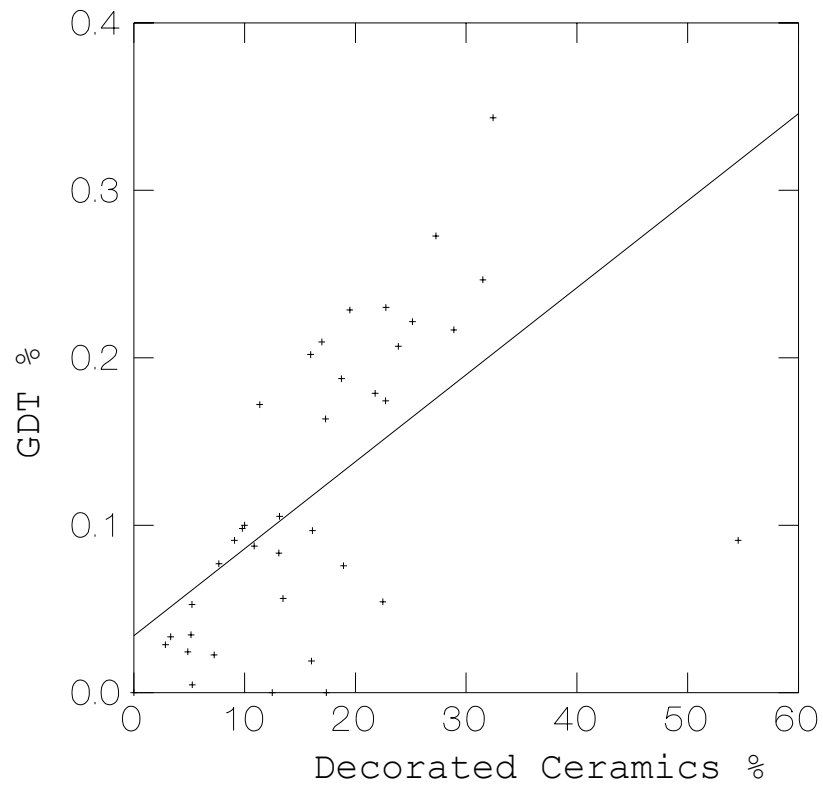


Figure 5.14. Scatter plot of GDT sherds versus percentage of decorated ceramics.

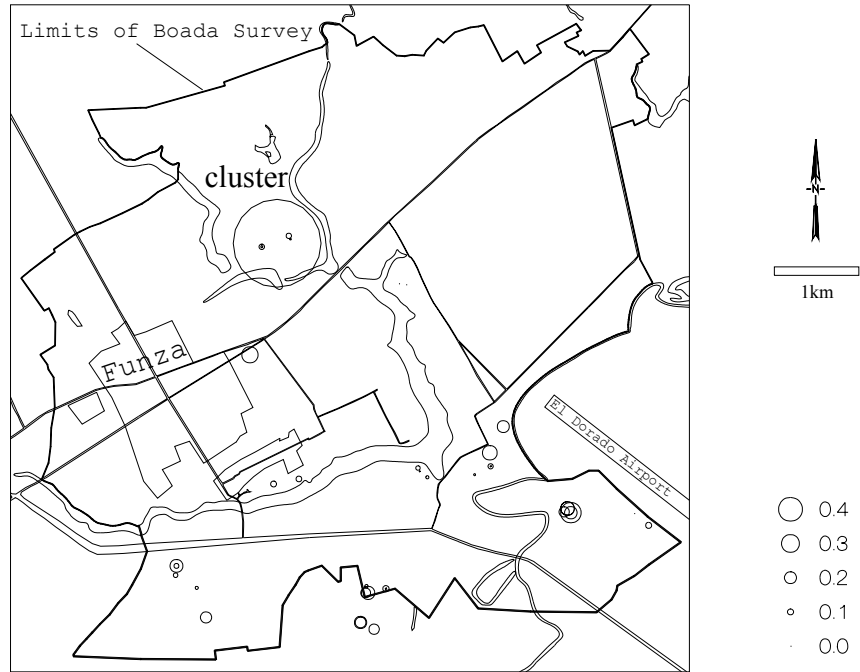


Figure 5.15. Spatial distribution of GDT sherds.

Resource Control

The control of key productive resources is another factor commonly cited in the development of chiefdoms (Earle 1987, 1991; Gilman 1991). According to these views, the greater wealth and status of elites in complex societies may be based on their ability to control and restrict access to valuable productive resources such as farmland, irrigation facilities and water sources, or mineral sources. The Funza area does not appear to have much in the way of valuable mineral resources, such as salt springs or stone quarries, that could be controlled by elites of the Bogotá polity. However, the two key agricultural resources of the area, cultivatable soils and raised fields, may have been controlled by elites.

Soils

The Sabana de Bogotá of today is the remnant of a Pleistocene lakebed. In general, soils in the Funza area are derived from volcanic ash deposited on the lacustrine clays of this former lakebed (Ruiz *et al.* 1977). The soils of the sites investigated in the intensive survey can be grouped into three soil categories with relatively little difference between them (Table 5.1). Information on the soils at Sites 1, 2, 3, 15, 16, and 17 was not available although their soils are not likely to be dramatically different from those at other nearby sites.

Table 5.1. Soil categories associated with intensive survey sites with identifiable houselots.

Intensive survey Sites	Soil series
Site 1	?
Site 2	?
Site 3	?
Site 4	CT
Site 5	CT
Site 6	CT
Site 8	BC
Site 11	MQ
Site 12	MQ
Site 13	MQ
Site 14	MQ
Site 15	?
Site 16	?
Site 17	?
Site 18	BC
Site 19	BC
Site 20	BC
Site 21	BC
Site 22	BC
Site 23	BC
Site 27	BC
Site 29	BC
Site 30	BC
Site 31	MQ
Site 32	MQ
Site 33	MQ
Site 34	MQ
Site 35	MQ
Site 36	MQ
Site 37	MQ
Site 38	MQ
Site 39	MQ

Soils of the Bacatá (BC) series are described as deep and well drained (Ruiz *et al.* 1977). Soils of the Cota (CT) series are described as very deep and well drained (Ruiz *et al.* 1977). Soils of the Mosquera (MQ) series are moderately deep and moderately well drained (Ruiz *et al.* 1977). Although there are only slight productive differences between these three soil categories, based on soil depth and drainage properties, the Cota (CT) soils could be considered to be the best, followed by the Bacatá (BC) soils, and the Mosquera (MQ) would be the least desirable of the three. Nevertheless, all three of these soil categories are among the best quality and most frequently occurring soils in the Funza area and none of the three offer any serious limitations to farming (Ruiz *et al.* 1977). The three intensive survey sites that are associated with the Cota (CT) series soils are located within the area of the chief's *capitanía* and, therefore, associated with the cluster ofouselots with high percentages of decorated ceramics mentioned above. Therefore, those households within that *capitanía* may have had access to slightly better soils than households in other parts of the Bogotá polity. While this difference in soil quality is not great, neither are most of the differences in wealth that were discussed above.

Raised fields

The remains of raised fields in a number of areas across the Sabana de Bogotá along the Bogotá River and in and around *pantanos* (Broadbent 1968, 1987; Bernal 1990). Such fields represent a substantial labor investment in agricultural production that could possibly have been controlled by elites. Dating these raised fields is difficult, but they almost certainly were in use in the Late Muisca period. Whether or not raised fields were in use prior to the Late Muisca period is still unknown. There are relict raised fields within the area studied and located near some of the sites investigated in the intensive survey, although there could quite possibly have been others that have been destroyed by colonial and more recent construction and agricultural activities. The zone of raised fields is located in close proximity to a number of the sites that were investigated (Sites 1, 2, 3, 8, 9, 19, 20, 21, 36, 37, 38, and 39). The area of raised fields is not located near the area of the chief's *capitanía*. Figure 5.16 shows the location of raised fields in relation to the percentage of decorated ceramics at each houselot for each period. While some of the houselots located near the zone of raised fields have relatively large percentages of decorated ceramics, other houselots in the vicinity of the raised fields have low percentages of decorated ceramics.

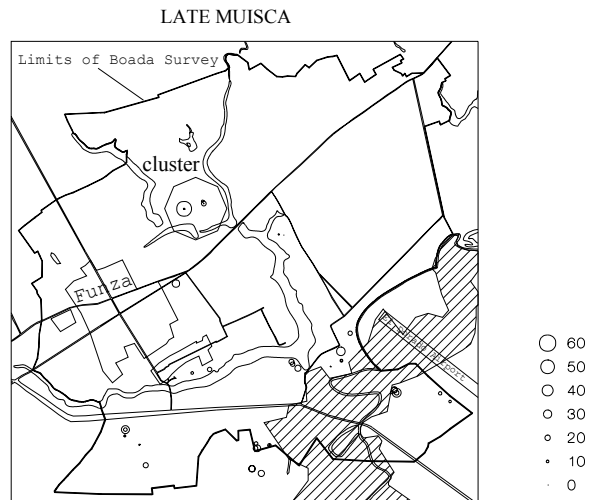
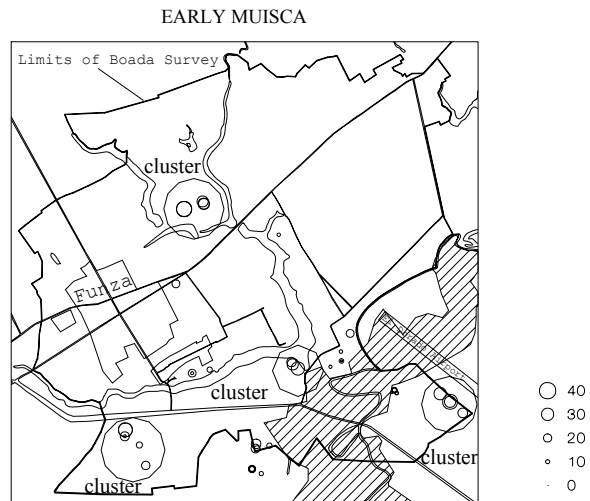
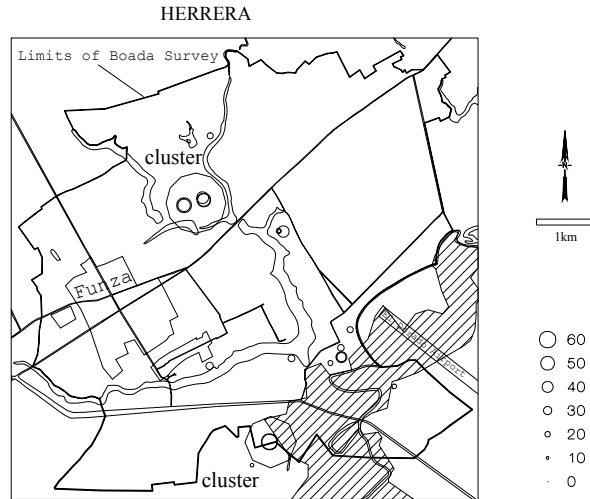


Figure 5.16 Locations of raised fields in relation to the percentage of decorated ceramics at each houselot.

A different way to examine the relationship of houselots and raised fields is to compare the distribution of decorated ceramics at houselots located near the raised fields with the distribution of decorated ceramics at houselots located farther away from the raised fields. Figure 5.17 shows the stem and leaf diagrams of the percentage of decorated ceramics at houselots by period and proximity to raised fields. During the Herrera and Early Muisca periods, the median percentage of decorated ceramics is higher for the houselots farther away from the raised fields, suggesting that the houselots located farther away from the raised fields, as a group, tended to be wealthier or higher in status than those located nearby the raised fields. In the Late Muisca period this pattern seems to reverse with the houselots located nearby the raised fields having the higher median percentage of decorated ceramics. Figure 5.18 shows bullet graphs depicting the mean percentage of decorated ceramics for houselots located nearby and away from raised fields for each period. The bullet graphs indicate that the differences between the houselots near and away from raised fields in each period are only moderately significant ($.05 < p < .20$). However, the most interesting thing to note in Figure 5.18 is that while the Late Muisca houselots near the raised fields seemed to be wealthier than the Late Muisca houselots located farther away from the raised fields, there is no

Herrera				Early Muisca				Late Muisca			
AWAY		NEAR		AWAY		NEAR		AWAY		NEAR	
0		0		0		0		20	0	34	
0		0		877	0	558888		997555	M 0	7	
4	1 H	3		2	H 1 M	00122234		3	1 H	001233	
8	1	68		985	1	579		876	H 1 M	566789	
2	H 2 M	23		10	M 2 H	1233			2 H	12223	
6	2	5		775	2	77		87	2	5	
3	H 3			33	H 3	02			3	12	
	3	9		76	3	6			3		
21	M 4								4		
955	H 4								4		
4	5	4						5	4		
	5	8									

Figure 5.17. Stem and leaf diagrams of the percentage of decorated ceramics at houselots located near and away from raised fields by period.

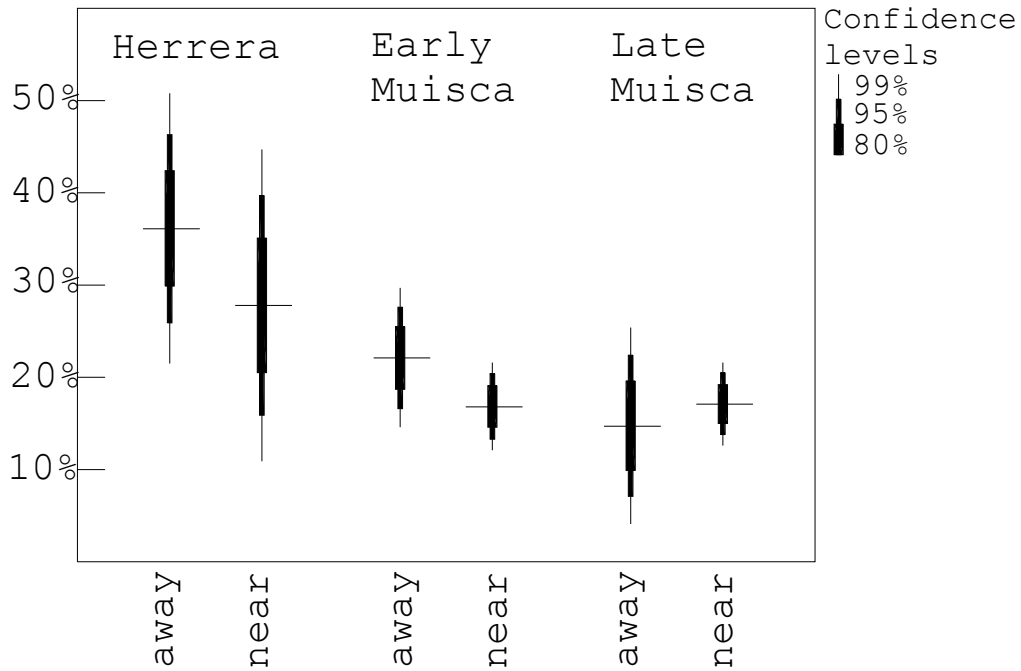


Figure 5.18. Bullet graphs of the percentage of decorated ceramics at houselots located near and away from raised fields by period.

significant difference between the mean percentage of decorated ceramics of the houselots near the raised fields during the Early Muisca and Late Muisca periods. Thus, the difference between the Late Muisca houselots does not seem to be due to an increase in the fortunes of the households living nearby the raised fields. Instead, the difference appears to be the result of the greater impoverishment of those households living farther away from the raised fields during the Late Muisca period. This is consistent with the increasingly restricted access to wealth discussed above. Furthermore, if the raised fields were the product of a bottom-up initiative on the part of the households in the vicinity of the raised fields, then we might expect to see an economic payoff for those households in the form of greater wealth. However, the evidence indicates that living near the raised fields did not provide greater access to wealth.

Overall, there is no clear pattern of either high or low status associated with the location of raised fields. Of course, a lack of immediate proximity to the raised fields does not necessarily demonstrate a lack of involvement in their construction and management. However, the present evidence does not show a clear association between elites and the control of raised fields in the Bogotá polity.

Summary

This chapter has examined houselots of the Bogotá polity from the perspectives of wealth and status, feasting, craft production, participation in regional economic exchange, and control of key resources. There do seem to be some detectable differences in wealth and status between houselots. Surprisingly, the clearest evidence for these differences comes from the Herrera period, when there is a clear bimodal pattern to the houselots. The evidence from the samples of houselots from the Early Muisca and Late Muisca periods further suggests that these differences in wealth and status probably became more pronounced over time, as fewer houselots seemed to have had access to markers of wealth and status in the Early Muisca and Late Muisca periods. This seems to suggest that the rising elite portion of society were able to monopolize wealth and status to a greater degree in the later periods. Thus, markers of wealth and status were concentrated within fewer households and less likely to be found in the sample of houselots from the Early Muisca and Late Muisca periods.

Evidence for feasting activities within the Bogotá polity over time is difficult to interpret given the small sample of rim sherds recovered. Nonetheless, even though particular sites of intensive feasting activities cannot be identified, the

overall changes seen in the Bowl to Jar Index over time seem to indicate that the intensity of feasting activities decreased over time. Thus, it is possible to suggest that as elites in the Late Muisca period were more able to monopolize wealth and status, sponsoring feasts may have become less important to recruiting and maintaining followers in the Bogotá polity.

Evidence for craft production was quite scarce and the evidence available was difficult to date as well. Locations with relatively large quantities of lithic flakes do not appear to be closely associated with houselots with high percentages of decorated ceramics. This suggests that elites within the Bogotá polity were not particularly involved in craft production involving large amounts of lithic flakes. Only three lithic cores were found in the course of the investigation. While there are too few lithic cores to draw any firm conclusions, like the lithic flakes, they are not particularly concentrated at the sites with potential elite houselots. Evidence for ceramic production, in the form of polishing stones and ceramic production waste, does suggest that elite households were involved in ceramic production. However, relatively large quantities of polishing stones and ceramic production waste were also found at sites without elite households, indicating that ceramic production was not dominated by elite households. Spindle whorls were very rare in the assemblages of the

intensive survey sites. However, they did seem to be somewhat associated with houselots with higher percentages of decorated ceramics. Thus, while the number of spindle whorls recovered is quite small, elite households in the Bogotá polity may have been more involved in textile production than their non-elite neighbors. Overall, the scarce evidence available for craft production suggests that elites in the Bogotá polity were somewhat involved in, but not monopolizing, craft production.

Participation in regional exchange was examined through the presence of imported ceramics in the Herrera and Late Muisca periods. The Herrera period ZDTS ceramics were related to the distribution of salt from the site of Zipaquirá located on the Sabana de Bogotá to the north of Funza. Evidence of ZDTS sherds was not associated with houselots with high percentages of decorated ceramics, indicating that Herrera period elites were not controlling or closely involved in the exchange of salt. In the Late Muisca period on the other hand, GDT ceramics did seem to be closely related to wealth and status, although it was not especially common at the houselots from the chief's *capitanía*.

Evidence for the control of key agricultural resources in the form of soil quality and raised fields was also examined. Soils at the sites investigated did not vary dramatically. However, the houselots within the chief's *capitanía* did have access to slightly better soils. The zone of remnant raised

fields, however, was not located within or near the chief's *capitanía* and theouselots located nearby the zone of raised fields seemed to include both higher status and lower status households. Therefore, some elites within the Bogotá polity may have had a slight advantage in terms of soil quality but there is little evidence that elites were closely associated with the construction and maintenance of the raised fields.

In conclusion, the clearest differences in wealth and status within the sample ofouselots investigated occurred in the Herrera period. Fewer elite households appear in the Early Muisca and Late Muisca period samples. This seems to be consistent with an increasing gap between elites and non-elites, whereby there were fewer elite households in the population to make it into the sample. While some evidence for elite participation in regional exchange networks, craft production, and the control of good soils was found, the evidence for elite control was not conclusive. The question of why this investigation recovered so little evidence for wealth and status differences and craft production within the sample ofouselots from the Bogotá polity, given the ethnohistoric accounts of powerful Muisca chiefs and large-scale craft production in textiles and other goods at the time of the Spanish conquest, will be taken up in next chapter.

CHAPTER 6

CONCLUSIONS

The purpose of this investigation was to examine the factors that were important in the evolution of complex societies in the Eastern Highlands of Colombia. Previous interpretations based on ethnohistoric accounts paint a picture of wealthy and powerful chiefs, intensive craft production, and intensive regional exchange. But the ethnohistoric accounts give little information on the origins and evolution of Muisca chiefdoms prior to the Spanish conquest. The results of the archaeological study presented here allow us to evaluate the ethnohistoric interpretations of Muisca society.

Intensive survey, in the form of shovel probes and surface collections, identified discrete houselots from Herrera, Early Muisca, and Late Muisca period occupations within the Bogotá polity. Analysis of the locations and artifact assemblages of these houselots allowed the assessment of wealth and status differences between households and the degree of participation in feasting, craft production, regional exchange, and resource control within the Bogotá polity over time.

The intensive survey data provide evidence for wealth and status differences between households. These wealth and status differences are particularly noticeable at the houselots

associated with the location of the chief's *capitanía*, where wealthier or higher status houselots were present in all three periods examined. The wealth and status differences within the Bogotá polity began as early as the Herrera period where there was a clear bimodal distribution in the proportions of decorated ceramics at the Herrera houselots. This bimodal distribution disappears in the Early Muisca and Late Muisca periods when the houselots in our sample seemed to be more similar to each other and similar to the poorer and lower status Herrera houselots. This could be taken as evidence that Muisca society became more egalitarian over time. However, ethnohistoric accounts clearly demonstrate the presence of elites at the time of Spanish contact. Thus, it seems more likely that wealth and status became more restricted in the Early Muisca and Late Muisca periods than it had been in the Herrera period. Because of this, there were fewer elite households in the population and, therefore, fewer Early Muisca and Late Muisca households in our sample.

The evidence available from the relative frequencies of serving vessels versus storage vessels at houselots from each of the three periods suggests that feasting was more important early in the sequence, when serving vessels are far more common in the houselot assemblages, and that feasting activities declined in the Late Muisca period, when the numbers of serving

vessels are much lower relative to the numbers of storage vessels in the houselot assemblages. However, serving vessels do not seem to be concentrated in any particular location where this feasting may have occurred, such as the chief's *capitanía*, or particularly associated with houselots having greater proportions of decorated ceramics.

The examination of the relationship between houselot locations and soil quality indicated that the houselots within the chief's *capitanía* had greater access to the best quality soils, however soils throughout the Bogotá polity are generally quite good and the best soils were only slightly better than those associated with the other houselots in the sample. The area of remnant raised fields within the area of the intensive survey sites is not closely associated with the area of the chief's *capitanía*, and the houselots in the vicinity of these raised fields do not appear to be particularly wealthy or high in status. Thus, there is currently no evidence that the raised fields were directly controlled or managed by the elites, although the evidence does not exclude that possibility.

Considering the great emphasis on Muisca craft specialization and intensive exchange networks in the reconstructions based on ethnohistory (Langebaek 1987, 1991; Kurella 1998), this project has discovered surprisingly little evidence for either intensive craft production or regional

exchange at the houselots studied. What little evidence that was recovered indicates that, while elites in the Bogotá polity participated to some degree in these economic activities, the elites were not monopolizing them.

Thus, in spite of the conventional view of the Muisca chiefdoms based largely on ethnohistory, this project has shown little evidence for large-scale craft production or intensive regional exchange in the Bogotá polity. How can we explain this discrepancy between the findings of this investigation and the traditional view of Muisca society based on ethnohistory? A number of possible explanations come to mind: 1) sampling issues, 2) methodological issues, and 3) ethnohistory issues.

Sampling issues

One potential cause of the discrepancy between the ethnohistoric accounts and the results of this project is that the investigation did not sample a chief's house or that the sample otherwise underrepresented the elite portion of households in the Bogotá polity. After all, the sample was not recovered in a systematic manner. We only tested those sites where a) we were able to obtain permission and b) where the regional survey data suggested there were good possibilities of finding remains from the three periods of interest. Therefore,

the sample may not be representative of the population of houselots from each period. All of this is true; however, the resulting samples of Early Muisca (n = 42) and Late Muisca (n = 38) houselots are not especially small samples, and therefore, would be likely to exhibit the range of variability in their respective populations. Furthermore, even the smaller sample of Herrera period houselots (n = 21) was sufficient to show the strongest and most statistically significant differences in wealth and status of all three periods.

One might also argue that, in a pre-state society like the Muisca, we would expect to see relatively little difference between the assemblages of commoner households and only a few households associated with the chief and the chief's family and retainers that would be economically distinguishable from the rest of the population (Hirth 1993). Thus, the lack of great differences between households in the samples is not surprising given the lack of a chief's house in the sample. Yet once again, the supposedly more egalitarian Herrera period showed the greatest differences in wealth and status of any of the three periods examined. Therefore, sampling issues do not seem to be the source of the disagreement between the ethnohistory and the results of this investigation.

Methodological issues

Another potential cause for the discrepancy between the findings here and the ethnohistoric accounts is that the methods of data collection were insufficient. Some might contend that shovel probes and surface collections are simply not capable of finding good evidence of intensive craft production or intensive regional exchange. It might be argued that only extensive horizontal excavations, the complete excavation of entire houses for example, could produce sufficient samples of artifacts to indicate intensive craft production and regional exchange. However, consideration of the amount of artifacts recovered in the current investigation makes this argument unconvincing. Table 6.1 summarizes the extent of excavations and amounts of artifacts recovered at the intensive survey sites where shovel probes were employed. A mean of 88.4 shovel probes were excavated per site with a mean excavated area of 14.14 m² at each site and 381.92 m² in total. Furthermore, the shovel probes were able to recover fairly large quantities of sherds with a mean of 457.04 sherds per site. It is difficult to understand why the shovel probes should be able to consistently recover so many sherds and miss other kinds of artifacts if they were present, unless they occur only in very small quantities. Therefore, the methods used seem to have been sufficient to detect craft

Table 6.1. Excavation amounts and artifacts recovered at intensive survey sites with shovel probes.

Site	Shovel probes	Area (m ²) excavated	Total Artifacts	Total sherds	Sherd percentage
1	309	49.44	1916	1867	97.44%
2	128	20.48	1055	1043	98.86%
3	111	17.76	671	666	99.25%
4	89	14.24	1384	1371	99.06%
5	65	10.4	218	214	98.17%
6	94	15.04	1256	1236	98.41%
8	81	12.96	501	493	98.40%
9	11	1.76	25	25	100.00%
11	82	13.12	67	65	97.01%
12	73	11.68	108	107	99.07%
13	158	25.28	675	670	99.26%
14	82	13.12	78	78	100.00%
15	72	11.52	18	18	100.00%
16	71	11.36	41	40	97.56%
17	88	14.08	35	33	94.29%
18	88	14.08	32	22	68.75%
19	99	15.84	346	338	97.69%
20	74	11.84	96	89	92.71%
21	70	11.2	2014	1967	97.67%
22	139	22.24	1392	1347	96.77%
23	78	12.48	75	71	94.67%
25	40	6.4	3	3	100.00%
26	57	9.12	14	14	100.00%
27	67	10.72	322	317	98.45%
28	5	0.8	7	7	100.00%
29	81	12.96	62	59	95.16%
30	75	12	186	180	96.77%
TOTAL	2387	381.92	12597	12340	97.96%
Average	88.41	14.15	466.56	457.04	96.87%

production activities at the sites studied if those activities were common.

Ethnohistory issues

A third possibility for the discrepancy between the results of the current investigation and the ethnohistoric accounts is that the ethnohistoric accounts are either inaccurate or greatly exaggerated. In the historical climate of the 'quest for El Dorado' following the discovery and conquest of both Mexico and Peru with all of their treasures and descriptions of grand civilizations, there was some reason to exaggerate the wealth and power of the newly discovered Muisca society. Most ethnohistorians would agree that the ethnohistoric accounts were written by Europeans with their own interests and cultural biases (Fowler 1992; Kurella 1998: 205). Given their inherent cultural biases and lack of knowledge of indigenous American languages and social customs there was also great potential for misunderstanding and misinterpretation of what the Spaniards witnessed and heard from native informants. Also, with the exception of official colonial censuses, tribute lists, and similar documents, the ethnohistoric accounts are, to a great extent, anecdotal in nature. They deal with solitary

observations and events that are too often treated as typical or normative of Muisca society in general.

Furthermore, Kurella (1998: 205) argues that the Bogotá polity, with its proximity to the colonial *Audiencia*, was better documented than other parts of the Muisca area. Therefore, accounts of the Bogotá chiefdom should be the most abundant and most detailed of all the Muisca area. If that were true, then we should expect that the archaeological evidence from the Bogotá polity to be the most likely to fit the ethnohistory. Yet, the results of the current investigation seem to suggest otherwise. Thus, even the most promising archaeological case does not agree with the commonly held ethnohistoric interpretation of Muisca society.

In addition, the ethnohistory does little to help us understand the evolution of Muisca society. The ethnohistoric accounts can only encompass the very end of the Late Muisca period, at best. Therefore, they are largely static and do not allow us to study the changes that occurred in the Herrera and Early Muisca periods that preceded the emergence of the Late Muisca chiefdoms that the Spanish encountered. It is certainly unrealistic to assume that the Muisca chiefdoms at the time of the conquest, and shortly thereafter under colonial rule, had remained unchanged for over 2000 years. In fact, this project

clearly demonstrates that the Muisca did not remain the same over this time period.

The conclusions of this investigation are consistent with the picture of Muisca evolution arising from other recent archaeological work in the Muisca region. Clear evidence of dramatic wealth differences, intensive craft production, and intensive regional exchange seems to be more difficult to find than the ethnohistoric accounts would suggest. For example, the large sample of burials excavated in the Muisca region to date indicates that wealth and status differences were present, in the form of tomb elaboration and varying quantities of offerings, but rather modest. In fact, the wealthiest burials generally contain only a handful of pots or personal ornaments in a relatively simple slab lined tomb (Boada 1987, 1998a, 1998b, 2000; Broadbent 1965; Haury and Cubillos 1953; Pradilla 2001; Salamanca 2001). Likewise, household scale excavations in the Valle de Samacá (Boada 1998a, 1998b) and Valle de Leiva (Salamanca 2001) indicate detectable wealth and status differences between households, but these differences appear rather modest in comparison to the ethnohistoric accounts of wealthy chiefs.

Comparisons between the present investigation and household scale excavations at the site of El Venado in the Valle de

Samacá (Boada 1998a) are particularly informative. Boada detected modest wealth and status differences between the various *barrios* at El Venado. Similar to the patterns in the Bogotá polity, the wealth and status differences at El Venado were already present in the Herrera period, where elite households were concentrated in the La Esmeralda *barrio*. The households of the La Esmeralda *barrio* were found to have greater proportions of serving vessels and the evidence indicates that feasting activities were most important during the Herrera period. Spindle whorls and bone needles were also concentrated in the La Esmeralda *barrio*, but since they were also found in other *barrios* at the site, it does not appear that El Venado elites were controlling the production of textiles. In addition, Boada found little evidence for intensive regional exchange at El Venado, but the few imported items recovered tended to be clustered in the elite La Esmeralda *barrio*. These results closely parallel the findings of the present investigation.

Clearly, the time has come to re-evaluate the conventional view of the Muisca based on ethnohistory. However, I do not wish to sound overly pessimistic with regard to the shortcomings of the ethnohistoric evidence or overly optimistic with regard to the superiority of the archaeological evidence. Archaeology

and ethnohistory both have their limitations and neither should be privileged as the primary source of information about the past. Ethnohistory is a valuable source of information and we are indeed very fortunate to have such detailed accounts illuminating many aspects of Muisca society. However, the ethnohistory needs to be complemented by archaeology if we are to reach a more comprehensive understanding of the past. Both disciplines will reach a more detailed and accurate understanding of Muisca society by working together. There remain a vast number of colonial period documents that can potentially yield valuable information about Muisca society. Likewise, the archaeological potential of the Muisca area remains largely untapped. More regional scale and household scale investigations are needed to complement the present state of our knowledge of the evolution of the Muisca chiefdoms.

The Character of Muisca Chiefdoms

Earle (1997) discusses three dimensions of elite power in the context of chiefdoms: economy, warfare, and ideology. How would we characterize Muisca chiefdoms along these dimensions? This investigation was not intended to address Muisca warfare and ideology. The available information on Muisca warfare and ideology comes primarily from the ethnohistoric sources. The

potential problems of accepting the ethnohistoric accounts at face value have already been discussed above in the context of the lack evidence for intensive craft production and regional exchange. Thus, it seems wise to remain cautious regarding the ethnohistoric accounts of warfare and ideology as well.

The ethnohistoric accounts suggest that warfare was an important factor in chiefly authority among the Muisca. Both the Bogotá and Tunja polities reportedly engaged in considerable territorial conquests prior to the arrival of the Spanish (Broadbent 1964: 15-16; Langebaek 1987:33-39). Special ranks for distinguished warriors called *uzaques* and *quechas* were recognized and accorded great prestige and authority (Langebaek 1987:31; Kurella 1998). Also, Muisca chiefs reportedly resided in defensible palisaded compounds (Broadbent 1964; Perez de Barradas 1950). Archaeological evidence for warfare in the Muisca region is scarce. However, clay figurines have been found that may depict Muisca chiefs wearing bandoliers of presumably human finger bones (Perez de Barradas 1950; Kurella 1998:197). Evidence for Muisca weapons has been found in the form of gold representations of spear throwers and stone spear thrower hooks (Broadbent 1965). Thus, there is evidence for warfare in Muisca society. However, as in other parts of the world, it is difficult to clearly assess the intensity of Muisca warfare archaeologically.

Evidence for Muisca ideology also comes primarily from ethnohistory. Muisca chiefs seemed to have been closely associated with religious practices often serving as priests themselves or as sponsors of major religious shrines (Langebaek 1990; Kurella 1998: 196). Ideology is, by nature, difficult to investigate archaeologically. In the Muisca region, this is further compounded by systematic Colonial period Spanish efforts to root-out and destroy Muisca religious shrines and religious practices (Langebaek 1990). Furthermore, most Muisca religious shrines appear to have been constructed of wood, like other Muisca buildings. The stone monuments found in the northern Muisca area are an exception to this. These sites feature rows or circles of monolithic columns of unknown purpose. While the chronology of these stone monuments is uncertain, they seem to be associated with Early Muisca period ceramics (Langebaek 2001:26-29). This might indicate the importance of some type of public ritual during the Early Muisca period, but the purpose of the monuments or what type of rituals may have occurred at them are completely unknown. Furthermore, nothing similar to these stone monuments has been discovered on the Sabana de Bogotá, suggesting that the social dynamics in the southern part of the Muisca region were different. Thus, while there is some evidence to suggest that ideology was involved in Muisca chiefly

authority, ideology does not seem to have been a focus of great investment within Muisca society.

In terms of economy, the results of this investigation seem to indicate another case of chiefdom development without strong evidence for direct economic control. A similar case has been made for the chiefdoms of the Alto Magdalena region of Colombia, for example (Drennan 2000). This contrasts with the expectations of models based on strong economic control (Earle 1991, 1997; Gilman 1991) whereby the wealth and status of emerging elites is founded on the direct control of agricultural production, craft production, or exchange. The elites of the Bogotá polity may have participated in craft production, especially textile production, but the evidence does not suggest that craft production was controlled or dominated by elites. Likewise, regional exchange was also not under the direct control of the elites. The evidence for agricultural production appears to be similar. While intensive agriculture was present in the form of raised fields, the evidence available is not sufficient to conclude that the creation and control of raised fields was critical to the emergence or maintenance of chiefly power among the Muisca. Likewise, while there is evidence that elites may have had greater access to the best soils, other households had access to good soils as well. Thus, the Muisca

elites did not seem to have a substantial advantage in terms of agricultural production.

The evidence for the presence of feasting activities to recruit and maintain followers suggests that such faction building strategies were more important early in the development of chiefdoms in the Muisca area than later in the sequence when chiefly power had likely been firmly established. This would seem to indicate that elites were capable of mobilizing the economic resources necessary to sponsor such feasts as early as the Herrera period. Nonetheless, the evidence for strong economic control by Muisca chiefs in terms of agricultural production, craft production, and regional exchange is surprisingly weak given the ethnohistoric accounts.

While the evidence presented here is intriguing, it is not sufficient to completely reject the idea that Muisca chiefs wielded some economic power. The lack of a chief's house in the sample investigated, for example, leaves open the possibility that Muisca chiefs really were closely involved in economic activities. It would certainly be desirable to locate and excavate the houselots associated with the chiefs and their families to be confident that we have not simply overlooked the best evidence for wealth, craft production, and regional exchange. However, modern construction and land use in the Funza area along with the considerable difficulty of actually

pinpointing a chief's house in the absence of either monumental constructions like palaces or more specific clues from ethnohistory make it unlikely that it will be possible to excavate a chief's house from the Bogotá polity. Of course, this may be possible within other chiefly polities of the Eastern Highlands, such as in the Valle de Samacá (Boada 1998a and 1998b). Thus, locating and excavating elite houses within other Muisca polities, both on the Sabana de Bogotá and in the northern Muisca region, would be a valuable objective of future research that could potentially confirm the results of the present investigation.

Likewise, the role of intensive agriculture in the Muisca political economy remains unresolved. The evidence presented here shows no clear link between elites and the raised fields. Nevertheless, it is not possible to rule out such elite links to the raised fields either. This will continue to be the case until more comprehensive settlement surveys are completed on the Sabana de Bogotá. Such settlement surveys should focus particular attention on the relationship between remnant raised fields and Muisca settlement in order to determine who constructed and farmed the raised fields. For instance, to what extent was the construction top-down with elite control or bottom-up under the initiative of commoners (Delgado 2002)? Another crucial question that needs to be addressed is when

exactly were the raised fields utilized? Establishing in which period or periods the raised fields were constructed has important implications to understanding the nature and evolution of the Muisca political economy.

The character of Muisca chiefdoms remains ambiguous. There is certainly evidence for economy, warfare, and ideology within Muisca chiefdoms. Nevertheless, none of the three dimensions seems to have played a critical role in the development of the Muisca chiefdoms. The archaeologically elusive nature of warfare and ideology will likely continue to hinder efforts to substantiate their role in the evolution of Muisca chiefdoms. However, in the case of economy, if one wanted to find evidence of wealth, agricultural production, craft production, and regional exchange, one would think that the Bogotá polity would be the place to look, as it was one of the most powerful chiefdoms in the Muisca area. Thus, the lack of such evidence in the Bogotá polity is a significant contribution of the investigation presented here and should stimulate closer scrutiny of the ethnohistoric sources as well as further archaeological research in the Muisca region.

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