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Distribution of Knife Lake Siltstone and Associated Manufacturing Technologies Local to the Wendt Site Quarry, Daughter District, Lake County, Minnesota

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Distribution of Knife Lake Siltstone and Associated Manufacturing Technologies Local to the Wendt Site Quarry, Daughter District, Lake County, Minnesota

by

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Abstract

The thesis herein seeks to test the effects of distance on the use of Knife Lake Siltstone (KLS) within local proximity to its primary outcrops in Northeastern Minnesota. Distance is used as a raw measure across which characteristics of KLS assemblages at distinct distances from the identified outcrops are discussed. It is theorized that the general presence of KLS material will decline over increased distance from the primary outcrops and that likewise technological organization at sites will reflect the increased distance from the primary outcrops. Through examination of site KLS assemblages which included cores, bifaces, unifaces, flake tools, debitage, end-scrapers, and a drill, it was found that distance does play a prominent role in terms of declining of KLS material present over increased distance amongst many assemblage aspects such as weight and dimensions of certain tool classes, what has been referred to as distance decay. It was also found that distance could be associated with technological organization in terms of a gearing-up technological organizational strategy evidenced or an expedient technological organizational strategy identified at distinct distances amongst some but not all artifact classes. It appears that distance while significant in many aspects of technological organization is clearly not the only factor in play affecting the variety and condition of KLS materials left on sites throughout a 40-kilometer radius of Wendt Site.

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Chapter 1: Research Goals

The research herein describes and defines the relationship between lithic sources, distance traveled by ancient hunter-gatherers with acquired lithic material, and the tool manufacture processes employed by various groups across a small geographic scale; a 40-km radius around the known Knife Lake Siltstone (KLS) quarries limited to the portion of the area located within Minnesota. Analysis of KLS cores, tools, and debitage at sites across this area has allowed technological characterization of hunter-gatherer tool manufacturing, from the Paleoindian period over 10,000 radiocarbon years before present (RCYBP) through post-contact history (approximately 200 years before present) when use of KLS was likely terminated, at finite distances from the raw material source. Patterns between the manufacturing techniques employed and the distance from the primary quarries are used to characterize the mobility strategies involved in the precontact use of KLS throughout the Holocene period relating technological organization to acquisition strategies involving travel. These strategies have likely left their signature in the archaeological material record in the form of cores, bifaces, and debitage that vary with distance. Technological organization as related to mobility and distance between resource procurement and areas where resources are used likely plays a significant role in Holocene hunter-gatherer adaptive strategies. It is expected that when technologies and associated technological organization strategies are identified at various sites, a gradient between expected patterns of local use and long distance use of the resource will positively correlate with a gradient between the quarry and distances up to 40 km. Alternative patterns may indicate that there are factors at play that cannot be explained by distance alone; not conforming to the distance model described below. Given the many cultures represented by the long period of human occupation for the area, multiple patterns emerging is not altogether unexpected.

The primary bedrock sources of Knife Lake Siltstone (KLS) are located in the Boundary Waters Canoe Area Wilderness (BWCAW) and the Superior National Forest (SNF) in Minnesota, as well as Quetico Provincial Forest (QPF) in Ontario. Specifically, primary KLS sources are outcrops of bedrock located near the shores of Knife Lake along the Minnesota-Ontario border in an area referred to as the "Daughter District". The region surrounding Knife Lake and its vicinity is comprised of lakes and rivers that have prevented extensive modern development of industry and habitation, with the exception of timbering activities, but have served instead as an area of wildlife conservation and recreation. An aerial view Google Earth image of the study area is available in Figure 3.1. Due to its remoteness, sites in this region are less likely to be disturbed by modern anthropogenic alterations to the soil and distribution of artifacts with the exception of primitive Forest Service camp sites, locations modified by timbering activity, and well used portages. Over time the Boundary Waters region has been naturally transformed from a glacial landscape to a high point between massive glacial lakes to its current existence as a lake pocked region that saddles both Hudson Bay and Lake Superior watersheds (Fox 1977; Nelson 1992; Lindenberg 1996). The sites around Knife Lake represent usage from Paleoindian traditions through modern times, a span of over 10,000 years (Muñiz 2013, 2015). It is only since the 1970s that archaeologists from both Canada and the United States have been recording and studying KLS quarries and distributed KLS cultural material. Particularly with the work of Jon Nelson whose thesis research was completed in 1992, the recordation and discussion of Knife Lake Siltstone quarries and primary sourced materials has slowly fluoresced in the last decades, hastening between 2009 and the present. Research has continued with involvement from institutions such as QPF, SNF, Trent University (Ontario), Lakehead University (Ontario), University of Minnesota, and Saint Cloud State University (Minnesota). Today, SNF boasts over 300 sites bearing KLS cultural material within 40 km of the Knife Lake sources. Outside the forest at least 160 sites with KLS exist across Minnesota as recorded in State Historic Preservation Office (SHPO) site files and Office of the State Archaeologist (OSA) records.

As previously mentioned, glaciers have modified this landscape both exposing and partially removing bedded KLS. Over time glaciers have removed this material and suspended it in ice during transgression across the landscape; deposits exist in till features formed during the regression of these glaciers (Bakken 2011; Lindenberg 1996). Multiple events of transgression and regression have obscured evidence of a number of these episodes; however surficial geology is capable of identifying till deposits that have not been obscured. Within these till features may exist secondary deposits of KLS and, where accessible, may have also been utilized by people in the past as a source of tool material. The most recent glacial episode affecting KLS outcrops, over 10,000 years ago, was the advance of what is referred to as the Rainy Lobe which is depicted by geologists on quaternary surficial geology maps to have transgressed from north/northeast to southwest such as depicted by Ojakangas (2009), depositing significant amounts of till, which likely included KLS, well beyond the borders of SNF and more than 60 km from known KLS quarries. The study area, lacking moraines and other glacial till surficial features, may indicate that sites within the 40km radius of the Knife Lake quarries are likely using the primary source, rather than secondary deposits in glacial till. The results of the research presented here shed light on this potentiality.

Researchers such as Nelson (1992), Clayton and Hoffman (2009), and Fox (1977) have identified in this region a variety of sites including quarries, habitations, and isolated finds that contain KLS cultural material including formal tools, and more often, lithic waste debitage resulting from tool manufacture processes. These processes are often identifiable given analysis of these artifact forms; processes specifically being quarrying, biface manufacturing, and sequences of core-reducing flake production and unifacial tool manufacturing. Researchers such as Bakken (2011) have also identified relationships between primary sources of stone tool material and the aforementioned manufacture processes on a large geographic scale. It is believed for the purpose of this research that these relationships should be tested on a small geographic scale, 40 km vicinity from known KLS outcrops. A distance of 40 km has been previously established as “local” for hunter-gatherer mobility and resource extraction, while resources located beyond 40 km are often considered “exotic” (Kelly 1992; Meltzer 1989). Much archaeological research on lithic technological organization has focused on changes that occur in relation to the local versus exotic boundary or in more general terms the relationship between technological organization and distance to toolstone sources (Bamforth 1986; Bamforth and Becker 2000; Beck et al. 2002; Binford 1979; Kelly 1988; Nelson 1991; Surovell 2009). A number of theoretical expectations can be tested by limiting research to a 40-km radius from the primary KLS outcrops that also controls for the effects of secondary till deposits on hunter-gatherer technological organization. KLS and the vicinity of its primary sources are primed for research that focuses on the relationship between technological organization and mobility as a function of distance which is the primary goal of this thesis. In other terms, if ancient hunter-gatherers were relying solely on the primary, bedded, KLS quarries and not accessing secondary till sources at other unknown locations, then a simple distance-decay model would predict that the size of cores, flakes, and bifaces should decrease with distance from the quarry. One might also expect increased maintenance and resharpening of tools as distance from the quarry increases as a simple function of conserving material that becomes costlier to replace. This thesis establishes patterns and statistical trends that provide evidence for either adherence or divergence from these expectations and the results are interpreted to better understand hunter-gatherer adaptive strategies to the BWCAW landscape throughout time.

The following chapters, chapters 2 through 6, are presented below. Chapter 2 details the literature reviewed specific to the geology, environmental history, culture history, details pertaining to the Daughter District, and the theoretical framework upon which this thesis has been designed. Chapter 3 introduces the methods employed in this study regarding initial site research, lithic analysis of cores, bifaces, unifaces, and debitage, as well as a treatment of distance and how the results of analysis will be interpreted. Chapter 4 is a description of the analytical methods and results of analysis specific to cores, bifacial tools, unifacial tools and flake tools, debitage, and miscellaneous KLS tools. A presence/absence cluster analysis of all KLS artifact classes across the study area is presented in this chapter as well. Chapter 5 is a discussion interpreting the results of the aforementioned analysis presented in Chapter 4. Chapter 6 is an attempt at concluding upon the nature of technological organization with regard to finite distances from the theoretical source of the toolstone as well as the relationship between distance and the material presence of KLS. Lastly, within Chapter 6, is a brief discussion regarding suggestions for the direction of further research.

Chapter 2: Literature Review

2.1 Geology

Geology plays a significant role in the study of KLS and its use as tool material (Odell 2003). KLS is a member of the Early Precambrian Knife Lake Group and is a volcanogenic meta-siltstone; meaning that it was initially deposited by volcanic event(s) that produced clay to silt sized particles, was deposited as a sediment, lithified, and later lightly altered by processes of metamorphism (Lindenburg 1996). These processes have been discussed at various geographic and geologic scales in publications including Lindenburg (1996), LaBerge (1994), Ojakangas (1972a, 1972b), and Ojakangas and Matsch (1982). Due to its fine-grained composition and that when struck it has the potential to fracture in a conchoidal manner allowing relatively thin flakes with sharp edges to be removed with precision (Nelson 1992), it is a desirable toolstone material for lithic technology. Much later in geological history the transgression and regression of multiple glacial masses removed KLS and deposited some of the material away from the source. The processes of this glaciation are described by Patterson and Johnson (2004) as well as Wright and Ruhe (1966). Glaciation is complicated and the processes of glacial advance often obscure surficial evidence of previous glacial events; glacial deposits have been known to extend as deep as 200 feet below modern ground surface (Soller 2004). For this reason, an absolute statement on where KLS is secondarily deposited is not possible. It is possible though to make reasonable suggestions based on the visible surficial glacial till features regarding potential locations of accessible secondary sources of KLS. Scholars such as Bakken (2011) have identified potential secondary sources of KLS in Minnesota. Based on quaternary surficial geology and glaciation maps found in Ojakangas (2009), it is possible that the Rainy Lobe advanced across the KLS bearing region from north/northeast to southwest forming significant till features 20 km to 40 km beyond the bounds of the study area concerned in this research (approximately 60 – 80km beyond the primary Minnesota outcrops). While this does not rule out completely the possible existence of secondary deposits of KLS proximal to the area of study, it lends confidence that the nearest accessible KLS deposit for the archaeological sites analyzed in this research is the primary bedrock source.

2.2 Environment

Understanding the environmental conditions which existed throughout the past is essential to constructing a conversation regarding the use of KLS. Environmental conditions such as effective temperature (ET), biotic province, and relation to bodies of water all experienced significant fluctuation between the last retreat of glacial ice in the region and early European contact. Effective Temperature (ET) is defined by Gibbon (2012) as "the amount of solar radiation available at any given location, the magnitude of which is directly related to the length of the growing season" (2012:31). Gibbon relates changing ET values to Binford's assertion that "predictions about social content and change depend on the availability of regional paleoclimatic data" (2012:12). Binford (1980) links ET to different mobility strategies required by hunter-gathers to solve the problem of varying resource availability across a utilized landscape. In areas with high ET (e.g., >20), hunter-gatherers tend to practice a "foraging" subsistence strategy (Binford 1979) whereby they move their entire residence from resource patch to resource patch. In regions with low ET (e.g., < 13), hunter-gatherers spend more time stationed near a single critical resource (e.g., wood or water) and send out logistic parties to obtain additional required resources. Binford (1979, 1980) refers to this latter strategy as "collecting." Binford (1979) also proposes that collectors use a curated technology and foragers use an expedient technology as a result of the different mobility strategies used to adapt to local environmental conditions. Thus, if the ET of a region is known at a specific time in the past, one can formulate hypotheses regarding mobility strategies and technological organization. ET values for the BWCAW region varied over time. According to Gibbon (2012) an ET value from 9.4-9.9 is representative of the time when the BWCAW region was covered by glacial ice (ca. 13,500 BP) and had warmed to 10.2-10.5 after the initial retreat of the ice and the establishment of a tundra biome that likely covered the region (post ca. 13,000 BP). By 10,000 BP Gibbon (2012) notes ET values of 11.6-11.9 and a pine forest biome in the region. The ET and biome associated with the region remain largely unchanged between ca. 10,000 BP and 6,000 BP. After this point the region stabilized in terms of ET and biome and remained, except for brief fluctuations, similar to the sub-boreal pine forest encountered in the region today. These are all significant factors in how people may have patterned their lives and by extension the archaeological record. These factors should be considered in reconstructions of Minnesota's past. The following discussion is focused on environmental conditions in the vicinity of the BWCAW.

The quarries and the entire 40 km radius area considered in this study are all located within the Border Lakes Region of Northeastern Minnesota. The terrain is characterized by the effects of glacial scouring and the presence of relatively thin and sparse deposits of glacial till. Chains of interconnected lakes with bottoms comprised mostly of scoured bedrock are also a distinguishing characteristic of the region (Gibbon 2012). Figures 2.2 and 3.1 are aerial images of the study area and depict the aforementioned pattern of lakes throughout the region.

The climate and biotic conditions in this region varied over time from the retreat of the glaciers to the stabilization of the conditions that were encountered by early Euro-American settlers and explorers. Subsequently there were various biomes situated at this location over time and included tundra, spruce, pine, and mixed hardwood forest (Gibbon 2012). Following the final retreat of glaciers in this region around 12,000 RCYBP, "although later fluctuations reintroduced ice south of the border" (Mulholland 2000:1), tundra predominated along the ice front where cold and windy conditions likely persisted (Gibbon 2012). Following deglaciation an eastern arm of glacial Lake Agassiz extended very close to Knife Lake and glacial Lake Duluth was forming much farther to the south and east of Knife Lake. "The immediate postglacial landscape underwent rapid changes as vegetation (and animals) moved north subsequent to the ice retreat" (Mulholland 2000:1). Gibbon (2012) relates this environment to activity of what he refers to as Pioneer Foragers of the Early Paleoindian period who were the first colonizers of the state and likely were relatively small populations exploiting a large geographic area in pursuit of large game and other widely dispersed resources.

When the region was dominated by spruce forest it was likely home to species such as mastodon and giant beaver in addition to elk and moose (Gibbon 2012). “More open areas near the ice may have contained herds of mammoth, barren-ground caribou, and musk ox” (Gibbon 2012:42). As the region transitioned to a pine forest biome it was likely followed by species of animal more akin to those encountered by European settlers of the region and may have included white tailed deer, moose, porcupine, weasels, fisher, otter, coyote, bobcat, red fox, timber wolf, black bear, muskrat, and beaver in addition to a wide variety of birds and aquatic life (Gibbon 2012). Gibbon (2012) relates this biotic community with a Coniferous Forest Game Hunter lifeway which he describes as a hunter/gatherer community now with home ranges “large enough for them to concentrate on their preferred quarry” (Gibbon 2012:13). Gibbon states that this lifeway persisted through the Late Paleoindian through Middle Archaic periods in the region.

Muñiz discusses the relationship between Lake Agassiz and the Daughter District location in finer detail. He states that during the Early and Middle Paleoindian Periods (ca 11,200- 10,000 RCYBP) the local environment was influenced by the advancing and retreating Lake Agassiz shoreline that flirted with the region. Further, concurrent with dates associated with the Agate Basin projectile form (ca 10,500-9,900 RCYBP), “the shoreline [of Lake Agassiz] moved northward approximately 10 km farther away from Knife Lake, ending up only 20 to 25 km to the north of the Wendt Site and related quarries” before its final retreat ca.9,900 RCYBP (Muñiz 2013:115). In terms of environment this “was a dynamic period during which the prairie-forest border migrated far to the northeast of its present position and then receded to its approximate modern position” (Gibbon 2012:66). A social lifeway Gibbon (2012) refers to as Early Pedestrian Bison Hunter may have followed the advancing, then retreating, prairie-forest border. These individuals were possibly exploiting bison herds which in turn were following the temporarily expanded prairie biome.

After ca 9,900 RCYBP and the final retreat of Lake Agassiz, Muñiz (2013:115) states that the area was likely shifting into a “forest-dominated biome” due to the retreating shoreline and retreating environmental influence of the aforementioned glacial lake. The region had moistened and cooled and the biotic environment responded by replacing the aforementioned prairie with a mixed hardwood forest environment (Gibbon 2012). As mentioned above, by 10,000 RCYBP Gibbon (2012) notes ET values of 11.6-11.9 and a pine forest biome in the region. The ET and biome associated with the region remain largely unchanged between ca. 10,000 and 6,000 RCYBP. After this point the region stabilized in terms of ET and biome and remained, except for brief fluctuations, similar to the sub-boreal pine forest encountered in the region today. It is important to remember throughout this discussion that it is believed that these changes in climate and subsequent biotic provinces influenced the way in which humans in the past would have used this changing landscape.

2.3 Culture History

A brief description of the various pre-contact cultural periods recognized in Minnesota is presented below. These include the Paleoindian, Archaic, and Woodland periods. As the discussion of cultural periods progresses, it is necessary to consider that the above environmental conditions were influencing where and when particular lifeways were being lived and how this may influence where and when cultural periods are delineated; behavior as a reaction to environment can be seen as a factor influencing land-use adaptation and what have been defined as cultural periods. It should also be noted that while this study has treated the collection of sites synchronically in analysis, they may have been influenced by human presence associated with the Paleoindian, Archaic, and Woodland periods. The variations in lifeways followed in the region over time should have influenced the archaeological record. It may be possible in future research to add a temporal/cultural component to the research presented here.

Table 2.1: Cultural-Temporal Periods in Northeastern Minnesota with Approximated Date Ranges following Mulholland (2002); Mulholland (2000); and Steinbring (1974).

Paleoindian	Early	ca. 12,500 – ca. 10,000 RCYBP
	Late	ca. 10,000 – ca. 7,000 RCYBP
Archaic	Early	ca. 7,000 RCYBP -
	Middle	ca. 5,000 – ca. 3,000 RCYBP
	Late	- ca. 2,500 RCYBP
Woodland	Initial	ca. 2,100 – ca. 900 RCYBP (Laurel) ca. 1,400 – ca. 800 RCYBP (Blackduck)
	Terminal	ca. 900 – ca. 600 RCYBP (Sandy Lake) ca. 900 – ca. 600 RCYBP (Selkirk)

2.3.1 Paleoindian Period. The Paleoindian period is divided into two temporal periods which are largely correlated to projectile point forms. The Early Paleoindian period marks the entry of the first human presence in the region. In Northeastern Minnesota, this is believed to have occurred following the retreat of glacial ice post-12,500 RCYBP and is often identified by the presence of fluted Clovis and or Folsom points. Very little direct dating has occurred that can identify a specific age for these forms in Northeastern Minnesota though the presence of Holcombe-like points which may be eastern derivatives of Clovis, has been proposed for northern Minnesota and may "indicate a greater time depth for the Paleoindian… than previously thought" (Mulholland 2000:1) although Holcombe-like points are considered by many researchers as Late Paleoindian in age (Muñiz 2017, personal communication). A Clovis point was recovered from Island Lake Reservoir north of Duluth, Minnesota and a Folsom point was recovered from Round Lake in Itasca County, Minnesota (Mulholland 2000).

The Late Paleoindian period is the second subdivision of the Paleoindian period and is largely defined by projectile point forms as well. Styles resembling Agate Basin, Scottsbluff, Eden, and Alberta among others are non-fluted and generally shouldered forms found in Northeastern Minnesota (Mulholland 2000). Mulholland notes that "in particular, Knife Lake Siltstone and Gunflint Formation materials seem to have been preferred materials" (Mulholland 2000:1). Multiple Agate Basin/Agate Basin-like points have been recovered from the Daughter District and the vicinity of Knife Lake (Muñiz 2013; 2015). A more detailed description of the Daughter District is provided in section 2.4, below.

2.3.2 Archaic Period. The Archaic period as defined in Minnesota is divided into multiple contexts and Mulholland (2000) notes that Dobbs (1988) defines four regional contextual models that include Shield Archaic, Lake Forest Archaic, Prairie Archaic, and Eastern Archaic. These contexts are based in part on geographic location(s) and associated biome and material culture that appears to differ between type sites. Mulholland (2000:2) reports that the Shield Archaic is associated with the Canadian Shield in northern Minnesota and Ontario and has been described as a "hunting-based culture characterized by several point types (both lanceolate and notched), scrapers, and ovoid bifaces". She also notes that two sites in northern Minnesota are firmly associated with the Shield Archaic and include South Fowl Lake located on the border between Minnesota and Ontario and William Narrows which is located along Lake Winnibigoshish in the headwaters of the Mississippi (Mulholland 2000).

The Lake Forest Archaic "is an adaptation to the mixed deciduous-coniferous forests of the lake-forest biome… [,] is located south of the Canadian Shield", and unlike the Shield Archaic, is associated with the presence of ground stone tools (Mulholland 2000:2). Sites that may be Lake Forest Archaic include "Itasca Bison Kill site, the Petaga Point site, and some of the sites in the Knife Lake Prehistoric District (Kanabec County) …although both Late Paleoindian and Prairie Archaic are also reasonable assignments" (Mulholland 2000:2).

The Prairie Archaic is believed to have exploited the prairie-plains environment and associated fauna such as bison that may have encroached farther east during the "mid-Archaic temperature maximum" (Mulholland 2000:2) that occurred between ca. 8,000- 6,000 RCYBP. Sites fitting this context include Itasca Bison Kill Site as well as the Canning and Mooney sites in the Red River Valley.

The Eastern Archaic is a context based on definitions of the Archaic in deciduous forests which are situated primarily to the east and southeast of the study area (Mulholland 2000). This context is defined largely by its environmental location in addition to a "variety of stemmed, notched and bifurcated points…coupled with an extensive ground stone industry" (Mulholland 2000:2). East-central Minnesota and Wisconsin are regions with which this context is associated (Mulholland 2000).

During the Middle to Late Archaic period in northeastern Minnesota, a tradition referred to as the Old Copper Complex is marked by the presence of socketed projectile points of Wittry's IA copper type and dates between 5,000 and 3,000 RCYBP (Steinbring 1974). The Pickerel Lake site in the BWCAW includes numerous copper artifacts including "large beveled adzes, socketed projectile points, tanged knives, conicals, wedges, a reworked spud, and a fascinating series of socketed harpoons" (Steinbring 1974: 68). South Foul Lake site located on the Minnesota-Ontario border is identified by Steinbring (1974) as both showing continuity in the Old Copper Complex as well as yielding Late Paleoindian blades.

In general, the Archaic period in northeastern Minnesota is poorly understood due to a paucity of data. A lack of Archaic sites has been acknowledged as possibly the result of either lower populations exploiting the region during that cultural period or the result of Archaic sites situated in locations where and when water levels were in general lower in Minnesota and now being inundated at this time, unrecorded (Mulholland 2000). It is possible that both situations are true.

> "Northeastern Minnesota is at the junction of several traditions. The Shield Archaic in the north and Lake Forest Archaic in the south are probably the most likely influences, although Prairie Archaic could be a strong influence in the west and Eastern Archaic in the east"(Mulholland 2000:2).

2.3.3 Woodland Period. The Woodland Period in northeastern Minnesota is divided into two traditions, Initial Woodland followed by Terminal Woodland. The Initial Woodland is marked by the appearance of ceramics and interment of dead in burial mounds. The ceramics typical of the Initial Woodland are Laurel (Mulholland 2000). Laurel sites are identified by their unique ceramics and are associated with a hunting-gathering lifeway based on seasonal exploitation of a wide range of mammals, birds, aquatic life, and possibly wild rice (Mulholland 2000). Mulholland (2000) states that radiocarbon dates indicate dates as early as 2,100 RCYBP to as late as 900 RCYBP for the Laurel culture.

Around 1,400 to 1,200 RCYBP Laurel ceramics begin to disappear and Blackduck pottery appears, marking what is the first culture considered part of the Terminal Woodland in the study region (Mulholland 2000). According to Mulholland (2000) Blackduck is not well defined in terms of subsistence though seasonal use of both plant and animal resources is assumed. Sandy Lake wares replace Blackduck ca. 900 RCYBP in the Mississippi River headwaters region. Selkirk ceramics may be associated with the northern extents of Blackduck in what has been referred to as Late Blackduck, situated south of the Canadian Shield (Mulholland 2000). “Identification of Selkirk pottery with the Cree and Sandy Lake Ware with the Assiniboine has been proposed and fits known population movements immediately pre- and postcontact with Europeans” (Mulholland 2000:5) ca. 300 RCYBP.

It is important to note the research on use of Knife Lake siltstone presented here is based on a wide range of sites which have been analyzed in terms of an assumption that they represent samples of long-term trends for hunting/gathering lifeways throughout time and are not examined on an individual level in terms of associated culture period. It was the intent in this study to examine adaptive strategies in relation to landscape through the patterns that emerge across distances from Wendt.

2.4 The Daughter District

Throughout this discussion there are references to the KLS quarry at the center of the research area, named the Wendt Site. All distances reported for each site from the KLS quarry are based off of proximity to Wendt Site. This quarry is a member of a district of sites, referred to as the Daughter District. The following description of the Daughter District and its component sites is taken from publications by Muñiz in 2013 and 2015. Wendt site is one of about 20 members of the Daughter District in Lake County, Minnesota. The district is a collection of dense lithic scatters proximal to bedded outcrops of KLS and near the shores of Knife Lake in the Boundary Waters Canoe Area Wilderness (BWCAW) within the Superior National Forest in Minnesota (Figures 2.1, 2.2, and 2.3). The initial discovery of Agate Basin points both on the American and Canadian sides of Knife Lake (Lillian Joyce Site, Daughter District in Minnesota and DaJt-14 in Ontario) in the early 2000s was the first Paleoindian association connected to the district and in 2010 an additional Agate Basin point preform was identified at Wendt Site in the Daughter District. Agate Basin points have been associated with radiocarbon dates in the northern plains ranging between approximately 9,900 to 10,500 RCYBP (Late Paleoindian period). It should be noted here that while DaJt-14 is not a member of the Daughter District it is located only 3.4 km southwest of Lillian Joyce Site, within direct line of site, across open water. Further field investigation in Minnesota of the area that would be later distinguished as a district between 2009 and 2014 identified 12 sites, including Wendt Site which was identified as a KLS quarry. These additional sites also include AJM Site, Arabesque Site, Erin Site, Saddle #1, Saddle #2, ZeaM4, Isabel Hill, Dave^2, Maggie's Site, Stella Blue Site, and JJ Site. According to Muñiz (personal communication, 2017), additional field research conducted subsequent to the data collected for this thesis has identified even more sites in the Daughter District. It should be noted here that both AJM Site and Arabesque Site were randomly selected sites included in my analysis in following chapters. The primary method used to date several of the sites with stratified cultural deposits in Muñiz's 2013 and 2015 publications was optically stimulated luminescence (OSL) dating of the deposits of soil associated with cultural materials. In simple terms, OSL dating measures the time since grains of quartz and feldspar have been last exposed to sunlight thus giving anything lying beneath, a no-younger-than estimate of the time of deposition for the overlying soil. Muñiz (2015) describes the temporal components to several of the prominent Daughter District Sites using this technique.

AJM Site is reported as having two distinct stratigraphically separated cultural components which, the lower of the two dates to the Early Archaic period and the upper to between the Early and Middle Archaic periods. It is reported that there may be further undocumented cultural components below current excavation maximums. The Lillian Joyce Site is reported to have four distinct cultural components that include at the site's deepest excavated levels, a Paleoindian component. They also include an Early Archaic, Middle to Late Archaic, and a Late Archaic or Early Woodland component. Both sites are recommended as eligible for nomination to the NRHP. Concerning Wendt Site, OSL dating did not result in as high resolution of chronological results, as reported by Muñiz (2015) and that the site "most likely contains a Paleoindian and/or Early Archaic component in Stratum 3, a clearly identified Middle Archaic component in Stratum 2, and a Late Archaic and/or Early Woodland component in the uppermost Stratum 1" (Muñiz 2015:55). According to Muñiz (2015) Wendt Site has also been recommended as eligible to the NRHP. The Daughter District is especially significant to our understanding of how ancient BWCAW and its resources were utilized from the Late Paleoindian period through the Early Woodland period. It should be noted that recommendations have been made by Muñiz (2015) for further stringent vertical control of excavations, when possible, in the Daughter District accompanied by OSL dates when applicable, especially concerning further work at Wendt Site in particular.

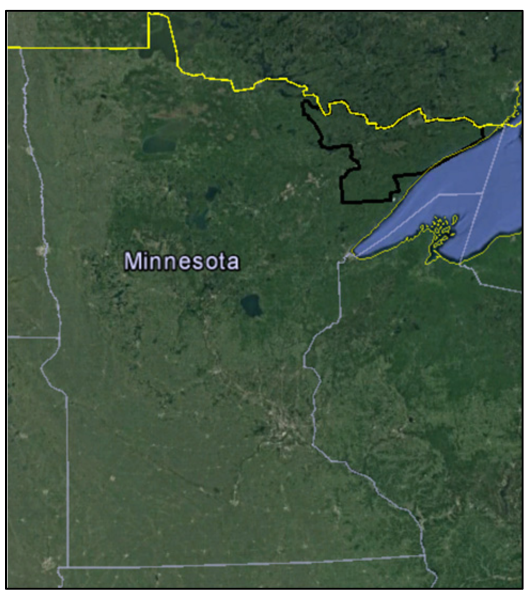

Figure 2.1: Superior National Forest (SNF) Boundaries in Northeastern Minnesota (Google Earth image *accessed* 2016, SNF Boundaries Entered by Author).

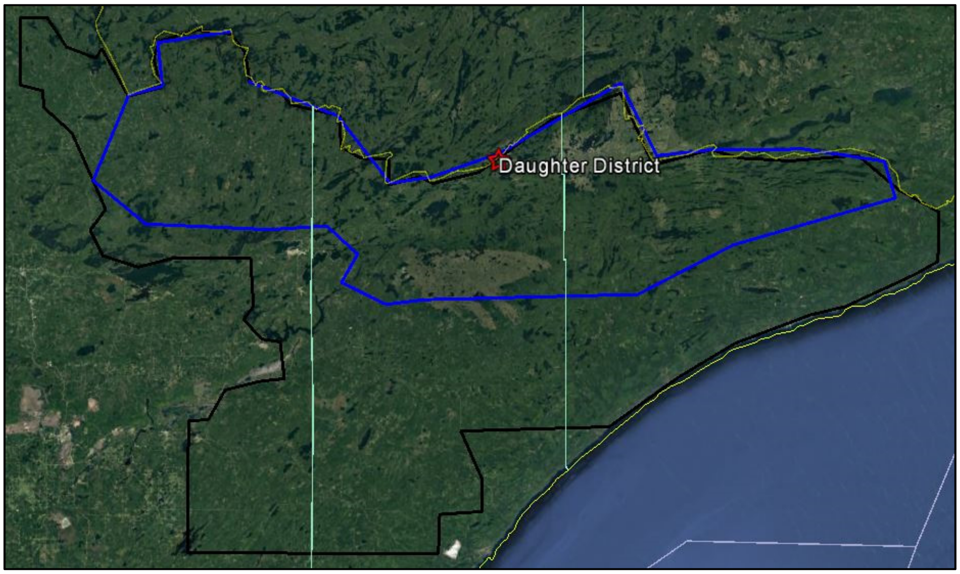

Figure 2.2: Boundary Waters Canoe Area Wilderness (BWCAW) Vicinity within Superior National Forest, Minnesota (Google Earth image *accessed* 2016, SNF Boundaries, Approximated BWCAW Boundaries, and Daughter District Location Entered by Author).

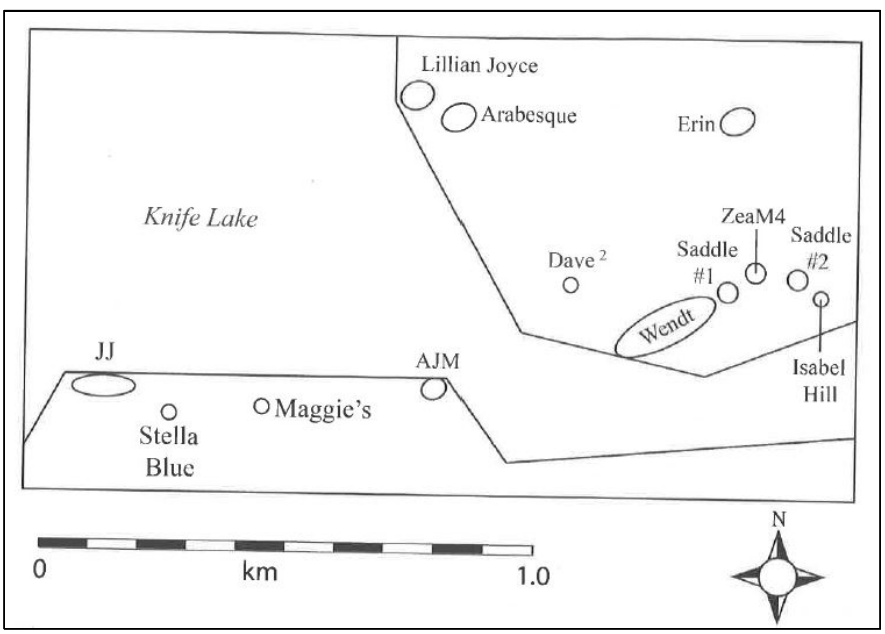

Figure 2.3: Original Sites of the Daughter District (Muñiz 2013: Figure 3)

2.5 Theory

Various researchers have examined the relationships between tool manufacture strategies and mobility (Bamforth 1986; Bamforth and Becker 2000; Beck et al. 2002; Binford 1979; Kelly 1988;

Nelson 1991). Authors such as Earle and Ericson (1977), Ericson and Earle (1982), and Torrence (1986) have also suggested that relationships between acquisition and exchange or end use of tool materials are related to the distance traveled to acquire such. Distance in this study is limited to the local scale; defined in this research as the area within a 40-km radius from the Wendt Site at Knife Lake. This distance, in terms of what makes it local, is a maximum of common estimations of 'local'. Meltzer (1989) determined, through examination of multiple sources including ethnographic studies, 40 km is a reasonable estimate of how far people may have carried stone from quarries before trading for toolstone with other groups became a viable cost effective option. Other estimates of local distance are more modest; from 4.5 km to 30 km in various examples (Beck et al. 2002). Meltzer's (1989) estimate of 40 km is also consistent with Kelly's (1992) research on modern hunter-gatherer mobility that indicated average local-scale movements to acquire subsistence resources approximate this range. Lithic raw material that originated farther than 40 km from a site is referred to as "exotic." One drawback to this comparison are the inherent differences between the landscapes used to calculate the above estimates and the landscape of the BWCAW. It should be considered that distance and effort are not necessarily the same and that what may be a low-effort journey across one particular landscape may be a high-effort journey across a variant landscape even when the measured distances are equal.

Organizational strategies for procuring toolstone can be described as having a greater curatorial or expedient nature; where curation is defined as "preparation of raw materials in anticipation of inadequate conditions" (Nelson 1991:63) and expediency is defined as "minimized technological effort under conditions where time and place of use are highly predictable" (Nelson 1991:64). Examination of an artifact assemblage to identify curated or expedient technological organization can contribute to understanding the raw material procurement strategy. According to Nelson, "artifact forms and assemblage composition are the *consequences* of different ways of implementing curation and expediency" (1991:62, *emphasis in original*). The distinction between using a curated or expedient strategy is a matter of problem solving; a situational strategic response is influenced by the environment, social organization, and local resource availability. In the case of stone tools, if local lithic sources are adequate to meet functional needs, a group can make tools that respond to unanticipated needs using an expedient strategy. On the other hand, if local lithic sources are inadequate to meet minimal needs, the group must make tools well in advance of need using a curated approach. In Binford's (1979, 1980) model, expedient stone tools are technologically simpler (e.g., simple flakes) while curated tools show greater evidence of repeated manufacture and maintenance after use (e.g., re-sharpened bifaces). Binford also associated expedient tools with groups (e.g., 'foragers') who utilized the local area around the toolstone quarry site, while a curated strategy was connected to groups (e.g., 'collectors') that practiced high mobility over a large area away from the quarry site. As such, Binford (1979, 1980) developed a direct connection between tool technology and mobility strategies where 'foragers' employ expedient organization strategies and 'collectors' practice a curation strategy. Other researchers such as Bamforth (1986) and Andrefsky (1994) modified Binford's model by noting that the minimal functional requirements of a tool's shape and the quality of raw material also play important roles in whether a group uses a curated or expedient technology. These results change the expectations of Binford's original model but do not present a major obstacle for the thesis research presented here because of the focus on use of KLS only.

In this study material use behaviors are being identified with regard to the use of KLS. Holding the environment and resource availability as independent variables, raw material acquisition and tool use behavior are dependent variables and appear as an observable collection of events in the archaeological record. Bifacial tools are often thought of as highly efficient tools and are commonly associated with long distance organizational strategies because they maximize efficiency by allowing hunter-gatherers to transport usable raw material with very little waste attached (Kelly 1988; Kelly and Todd 1988). The maximization of efficiency in this way results from the removal of as much lithic material at the quarry as is prudent for the respective travel distance planned and tool desired. In this way "preformed" tools are manufactured for long distance transport without having to carry unnecessary weight in the form of large rock masses that will not be used for tool making. In 1986 Bamforth described the relationship between the presence of finished whole bifaces and broken bifaces as an indication of the organizational strategies employed; a potential reflection of the mobility of the toolmakers. A predominance of broken rather than whole bifacial tools may indicate that the material was part of a long-distance mobility strategy based on the assumption that under circumstances that warrant higher efficiency (in this example greater distance from the quarry) whole tools would be unlikely to have been discarded (Bamforth 1986). Bamforth and Becker (2000) indicate that away from the quarry a higher proportion of late stage bifacial tools, as opposed to biface cores, is likely to correlate with greater mobility. Experimental studies have indicated that when people plan to travel a long distance away from the quarry after collecting toolstone, biface manufacture at the quarry likely proceeded through middle and late reduction stages (Beck et al 2002); this should be reflected in remnant debitage. The presence of re-sharpened biface edges may be another method of determining whether a tool has been part of a predominantly local or long distance strategy (Kelly 1988). When re-sharpened edges are in higher proportion to original edges, this is believed to be the result of tool maintenance (Bamforth and Becker 2000) which is expected in a curated strategy (Binford 1979). Because re-sharpened edges often have wider angles and greater evidence of intentional retouch than the original it is believed that this activity is more likely to occur when raw material is costly to obtain. It is therefore expected that as distance from the quarry increases the incidences of re-sharpening will increase proportionally although this remains untested in this study.

Identifying technological organization strategies within an artifact assemblage involves examination of cores, bifacial tools, and debitage; keeping in mind that “the trick is not in ascertaining what each individual object means…but in deriving meaningful relationships among artifacts and the assemblage as a whole” (Odell 2003:87). Core varieties may take the form of blade cores and flake cores which are identifiable based on the variously patterned evidence of previous flake removal from the remaining core. Blade cores are struck from one direction, on a prepared surface, to remove long, thin, prismatic blades. Flake cores are struck from multiple directions and do not necessarily produce prismatic blades. Lithic tools take many forms but are often able to be characterized as either unifacial or bifacial. This study defines a bifacial tool as one that has been thinned from opposing faces and may or may not be sharpened on two lateral sides. Unifacial tools are defined in this study as lithic material with reduction scars occurring on only one face and thinning of either one or both parallel sides evidenced by relatively uniform flaking of the uniface edge or portion of the edge. Both bifacial and unifacial tools can reflect curated and expedient strategies depending on their specific forms and functions. Lithic debitage consists of the waste material flakes produced during tool manufacture.

Analysis of lithic debitage is based on observation of combinations of certain characteristics on individual pieces and then observing the site's overall debitage assemblage as a composition of these multiple pieces. Debitage can sometimes be classified as having been produced from either biface manufacture or flake core reduction and thus debitage can reflect different strategies of technological organization. Biface reduction flakes are characterized by the presence of a "diffuse bulb of percussion, multi-directional dorsal scar negatives, and platform faceting or grinding" (Odell 2003:121). When distinguishing between bifacial and core reduction, "the number of striking platform facets tends to discriminate effectively" (Odell 2003:126). In this study the count of facets on platforms was relied upon to identify flakes as simple (single facetted) or complex (multifaceted). Identification of reduction sequence has been done in varying ways by various scholars such as Carr and Bradbury (2001), Andrefsky (2005), Shott (1994), and Odell (2003). However, their methods vary, there are several aspects of a flake that are more commonly relied upon; presence of cortex may indicate earlier stages of reduction and dorsal scar counts per flake may increase as the tool production sequence progresses (Andrefsky 2005). Additionally, Shott (1994) and Myster (1996) propose that weight is a significant factor in evaluating the meaning of dorsal scar counts. Not all dorsal scar counts are equal as a massive piece with one scar does not necessarily represent the same point of the reduction sequence as a less massive piece with the same number of scars. In general, over the reduction sequence spectrum, bifacial debitage will tend to become smaller and possess more dorsal scars over the progression of the sequence (Andrefsky 2005). For this study, platform facets were relied upon rather than dorsal scars which were not recorded.

It is the intention of this author that this study contributes to the understanding of how the KLS quarries were utilized and how KLS played a role in technological survival strategies in ancient BWCAW. Understanding how tool stone sources were utilized in the past can contribute to our understanding of larger scale regional landscape-use patterns and thus aid in predictive modeling, individual site interpretations, and in general aid in elucidating the relationships between resources and acquisition of resources.

Chapter 3: Methods

3.1 Initial Site Research

A 40km radius around the Daughter District quarrying area was established using GIS data housed by SNF, as depicted in Figure 3.1, and a search for all precontact and multiple component sites within that radius (on the Minnesota side of this radius) was performed. The site documents for each site in the study area have been pulled from SNF records. According to information included in these records, sites have been sorted into three categories that include (1) KLS bearing sites, (2) sites not containing lithic material, and (3) sites with unidentified/unspecified lithic materials. The KLS bearing sites number over 300 and there is nearly the same number of sites with unspecified lithic material present. This study is concerned with the use of KLS specifically therefore only sites bearing KLS were selected for further study. Selected sites are depicted on an aerial image of the study area in Figure 3.1 and on a metric (UTM) grid in Figure 3.2.

The total of known KLS bearing sites within the research area was stratified (i.e., grouped) by shared distance from the quarries at intervals of 10 km so that distance may be seen as a continuum arbitrarily divided for manageable sampling only, also depicted in Figure 3.1. This resulted in four stratified sampling zones. After selecting the sample, site distance was used as a continuous variable that was correlated to artifact assemblage attributes. A total of up to 15 sites per distance group was selected in order to accomplish the analysis in a timely manner and to convert the distance into a continuous variable. Each site already possessed a numeric SNF site designation which was used to generate a population of qualified sample sites using a random number generator to eliminate sampling bias.

Distance was determined between KLS bearing sites and the Wendt Site, a known KLS quarry, and the following site attributes recorded: total number of KLS artifacts and artifact assemblage contents (e.g., numbers and types of cores, bifaces, unifaces, and debitage). Debitage counts were used to qualify KLS bearing sites for debitage analysis. Qualifying sites should ideally have debitage counts equal to or greater than 30 individuals so that significant statistical statements can be made about the debitage assemblage. For sites with greater than 30 pieces of debitage, sampled debitage from each site was selected randomly through a nonsystematic process as grab samples to avoid bias. Randomly selected sites with fewer than 30 pieces of debitage were not excluded from analysis. For sites with large debitage samples numbering over 30, a random sample of 30 was selected for analysis in order to establish statistically valid characteristics. A minimum number of cores and bifaces, unifaces, or flake-tools were not required at sites. The lithic content of qualified sample sites was analyzed looking toward core and tool assemblages as well as manufacture technologies identified through debitage analysis.

It should be noted here that throughout the discussion of sites within this study, two sites located at exactly 20.00 km from Wendt Site were part of the randomly selected sites. To differentiate between these two sites, as necessary, their accession and Forest Service field site numbers have been used to differentiate the two throughout the text.

It should also be mentioned that the collection strategies employed at these sites were all conducted by the Superior National Forest and are assumed to have followed the same or similar procedures in terms of artifact collection methods appropriate to each site.

In the figure depicting radii up to 40-km from Wendt Site, Figure 3.1, the radii measured and drawn in Google Earth vary from the distances from Wendt Site provided by SNF from their GIS site database. For example, Two Toe Site and Bulldozer Site are depicted in this figure as falling outside the 40-km radius but are reported by SNF at 33.58-km and 33.60-km from Wendt Site respectively. The cause for the discrepancy is not known but may possibly be due to mixing of datums such as NAD83 and NAD27 between the radii and reported site locations.

Figure 3.1: Approximated Locations of Sites Selected for Analysis with Expanding Radii Indicated in White in 10-km Increments from Wendt Site (Muñiz, *unpublished* 2016)

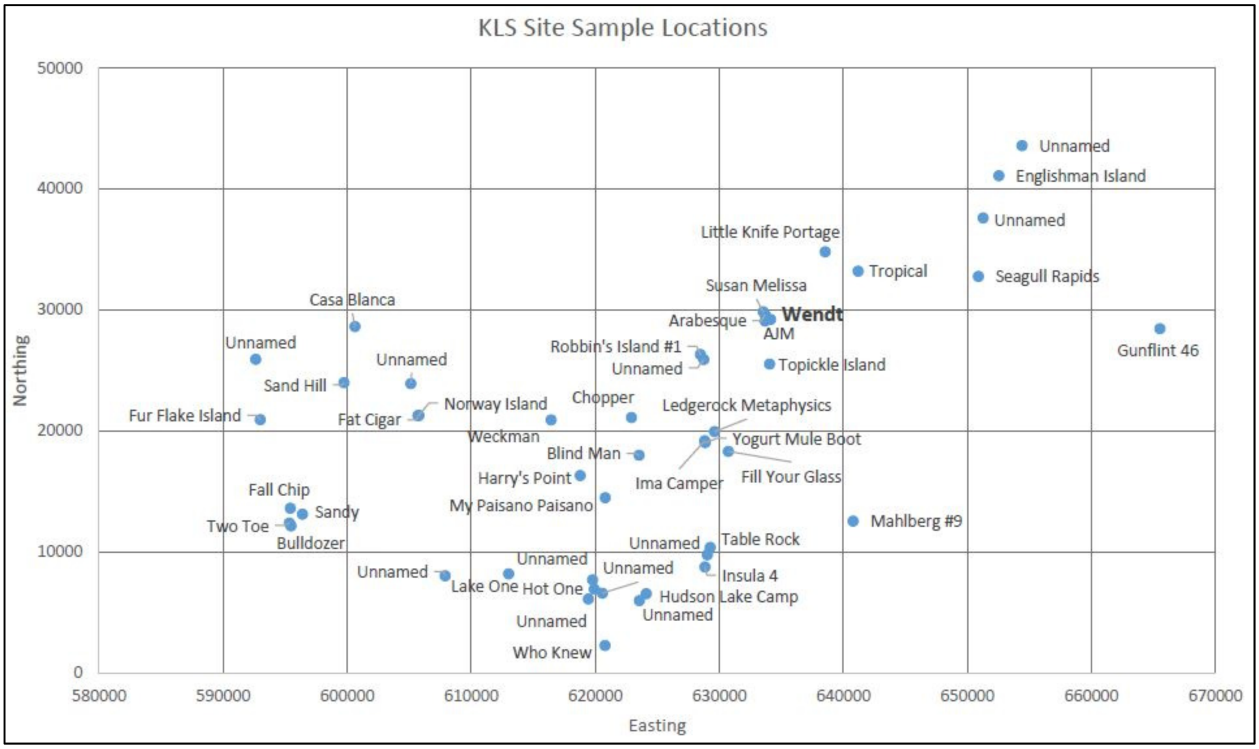

Figure 3.2: UTM Grid Locations of Analyzed Sites (Muñiz, *unpublished* 2016)

3.2 Lithic Analysis

3.2.1 Cores. As indicated in the literature reviewed, a relationship between distance and technological organization strategies involving KLS may be evidenced in cores, bifaces, unifaces, and debitage. Cores may be used to identify tool production strategies employed with the material. Reduction strategies may help identify the mobility strategies or distances involved in procurement for lithic toolmakers (Bamforth 1986; Beck et al 2002; Binford 1979, 1980; Nelson 1991). Cores were identified as blade cores and flake cores based on fracture scar directionality and shape across the core surface. Blade cores were defined as cores with a prepared platform from which long, thin, prismatic blades have been removed in a uniform direction across the core. A prismatic blade is a relatively flat flake that is at least twice as long as wide, with parallel sides (Odell 2003), generally one or two dorsal ridges (creating a prismatic cross-section), and a prepared flat platform (Muñiz 2012, personal communication). Flake cores were defined here as cores that may or may not have prepared platforms and exhibit flake removal from multiple directions across the core and may have multiple platforms (Andrefsky 2005). It was expected that with closer proximity to the quarries there would be a higher proportion of blade cores as opposed to flake cores. This relationship was expected because the objective pieces removed from blade cores are considered to have a high utility and are preferable in situations of gearing up in anticipation of future needs (Rasic and Andrefsky 2001), as opposed to the objective pieces removed from flake cores which are more commonly associated with production as a result of more immediate needs. It was believed that cores would indicate what type(s) of objective pieces were leaving the site. Discarding blade cores at or near a quarry is beneficial to the manufacturer because she or he has extracted highly versatile tool blanks that cost less in terms of weight to transport than they would had they not been removed as blanks prior to leaving the site. Flake cores are beneficially discarded at greater distances from quarries because they serve as a reserve of useable flakes and may either be left at greater distances as a stockpiled potential resource or as a discarded expended resource.

3.2.2 Bifaces and Unifaces. Bifacial tools were defined in this study as lithic material with reduction scars occurring on both faces exhibiting a thinning of parallel sides and profile shape. Note that this definition allows inclusion of bifacial cores as unfinished bifacial tools. Unifacial tools were defined in this study as lithic material with reduction scars occurring on only one face and thinning of either one or both parallel sides evidenced by relatively uniform flaking of the uniface edge or portion of the edge. Reworking or re-sharpening of biface edges was identified by the presence of regularly spaced flakes superimposed on the original flake scars for either or both faces of an edge (Figures 3.3 and 3.4).

A predominance of broken rather than whole bifacial tools may indicate that the material was part of a long-distance mobility strategy based on the assumption that under circumstances that warrant higher curation rates (in this example greater distance from the quarry) whole tools would be unlikely to have been discarded (Bamforth 1986). It was therefore expected that complete bifaces would be in higher proportion to broken bifaces with closer proximity to the quarries. The presence of re-sharpened biface edges may be another method of determining whether a tool has been part of a predominantly local or

Figure 3.3: Biface, Note Thinning of Two Faces (Illustrated by Author, 2016)

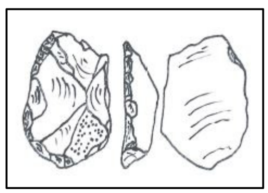

Figure 3.4: Uniface, Note Thinning of One Face (Illustrated by Author, 2017)

long distance mobility strategy (Kelly 1988). Analysis of the sharpened edges of bifacial tools can be beneficial considering that the presence of a greater proportion of reworked edges has been associated with long distance, long use-life, curated technological strategies (Bamforth and Becker 2000). It would be expected that as distance from the quarry increases the incidences of re-sharpening would increase proportionally. However, macroscopic and microscopic use-wear analyses have not been conducted in this study as use-wear was not quantified or evaluated. Such analysis in the future may be an opportunity to make additional distinctions between curation and expedient strategies.

3.2.3 Debitage. Debitage is significant to this study due to its direct role in helping to determine, as remaining waste material, the technological organization strategy used by the hunter-gatherer tool manufacturer that created it. Debitage was identified as being associated with a biface reduction event or another reductive strategy. These identifications were conducted according to methods suggested by Odell (2003) and Andrefsky (2005) mentioned previously. Additionally, statistical characterization and evaluation of the data was expressed using frequencies of characteristics (platform facet counts, flake dimensions, weight, and presence of cortex) analysis of variance (ANOVA) between debitage classes, and confidence tests to determine the reliability of the statistical observations. These methods were used to characterize the overall strategy employed by the manufacturer of each assemblage through the technological organization models described above. Characterization of the debitage was used to infer what types of tools were being made and how cores were being reduced by different groups or individuals at various distances from the primary sources of KLS. It was believed, as mentioned above, that biface reduction proceeds to a refined tool form ready for use, that when manufactured at the quarry would indicate a long-distance organization strategy.

3.3 Distance

This study seeks to elucidate an answer to the question of whether distance as a continuum correlates to any patterns of technological organization; identifying the relationship between distance and hunter-gatherer strategies involving use of KLS specifically. The distribution of sites with KLS material was identified by mapping the sites known to contain this material. The selected sites within the study are depicted in Figures 3.1 and 3.2. Regarding distance as a continuum, lithic technology attributed to these sites was characterized in terms of their distance from the quarry area. The combination of distance and technological organization per assemblage was used to characterize patterns between distance and the technological strategies employed. Unlike during the site selection process, distance was not used as an arbitrary division. Rather, individual distances were used to evaluate a distance relationship unique to each site. Later, it was possible to examine the distribution of sites and associated strategies to identify distribution patterns on the full 40 km scale. The significance of distance in this way was not predetermined by the extent of behavior as zones; instead allowing identification of the significance of distance for structuring technological organization to be recognized at finer scales of variation.

Relationships between distance and lithic technology was evaluated using correlation statistics which were used to see how core, biface, and debitage characteristics vary as a function of distance. Standard deviations and ANOVA statistical testing characterized the probability that this relationship is not due to chance. Mapping revealed geographic distribution of behaviors of KLS use. Landscape patterns of these varied sites were discussed in terms of distance and its relationship with technological organization strategies involving local and long distance travel. Throughout the text, the aforementioned Figures 3.1 and 3.2 will be referenced to facilitate such discussion.

3.4 Interpretation

Such characterization of how KLS has been utilized in precontact history on a local geographic scale is the goal of this research. The aforementioned analyses characterized the use of KLS across the study area in terms of hunter-gatherer technological organization strategies. Time and subsequently cultural style were held as a constant throughout the study of these sites so that a broader view of long-term human adaptation to the landscape may be elucidated. These results were useful in understanding how KLS use varies across a 40-km region extending from the Wendt site KLS quarries.

Chapter 4: Analysis

The following chapter is intended to examine the results of analysis and discuss the results in terms of what applies to both the distance decay expectations that have been discussed as well as addressing expectations regarding expedient and curator strategies evidenced across the study area. The chapter is organized according to the cultural material forms used in this analysis and therefore the reader will find that the two expectations are discussed simultaneously below.

4.1 Cores

Eight sites from those selected across the study area include at least one core in their artifact assemblage. A catalogue of all specimens from each of these sites is provided in Appendix A: Table 4.1, and a brief account of these sites' names, accession numbers, distances from Wendt Site, and number of cores is provided in text within this chapter. The number of cores at each site across all sites within the study is provided in Figure 4.1. Core bearing sites include Arabesque Site (ACC 415; 0.59 km; n=2), Susan Melissa Site (ACC 1404; 0.86 km; n=1), Little Knife Portage (ACC 97; 2.34 km; n=1), Ima Camper Site (ACC 277; 7.14 km; n=2), Fill Your Glass Site (ACC 1317; 8.79 km; n=1), Seagull Rapids (ACC 134; 14.36 km; n=1), an unnamed site (ACC 462; 21.10 km; n=1), and Two Toe Site (ACC 1400; 33.60 km; n=1).

Categorical and metric data were collected from each specimen including the directionality of flake removal from the core and the presence or absence of cortex, as well as metric data including weight, length, width, and thickness. It should be noted that the single core from Little Knife Portage at 2.34 km from Wendt Site weighed in excess of 400 grams, the limits of the scale used in this study. Therefore, the core from Little Knife Portage is excluded where weight is considered; all other measurements of this core were collected and therefore consideration of Little Knife Portage in these other metrics is in play throughout this study.

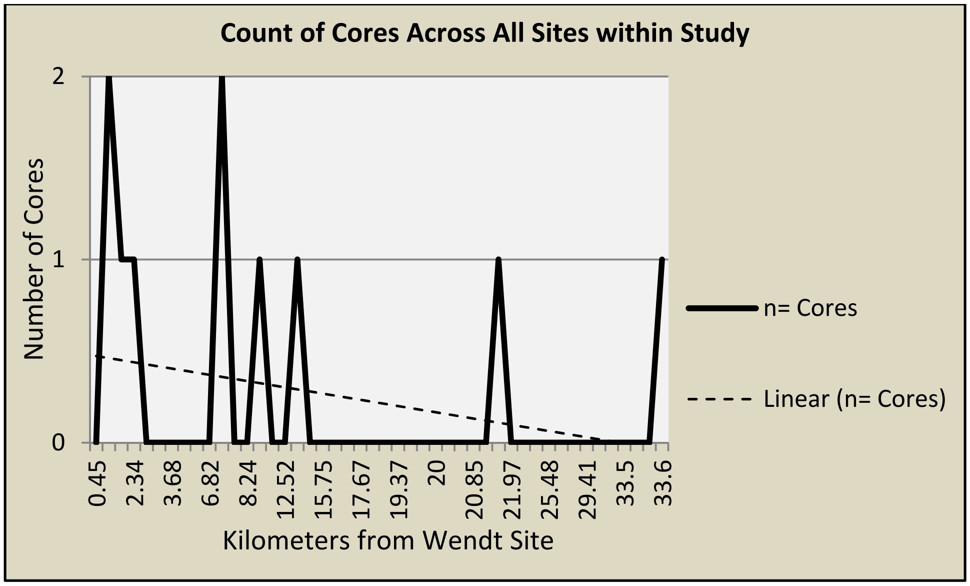

Figure 4.1: Number of Cores at Each Examined Site across the Study Area

4.1.1 Proportion of Unidirectional Cores and Flake Cores. A comparison was made of the proportion of unidirectional cores and flake cores (multidirectional cores) found at the aforementioned sites (8 Sites; n=10). It is assumed that unidirectionality of flake removal is indicative of the controlled uniform removal of flake blanks rather than the reduction of a core to make flakes intended to be expedient tools. Only Seagull Rapids (ACC 134; 14.36 km; n=1) and unnamed site (ACC 462; 21.10 km; n=1) contain cores where flakes have been removed from a single direction only, depicted in Figure 4.2. It can be seen that they occur approximately halfway across the study area radius. Sites from 0.59 km to 8.79 km and at 33.60 km include only flake-cores, theoretically used for the removal of flakes for relatively immediate use. Although the sample sizes are extremely low, in most cases only one specimen per site, it seems that both the center and periphery of the study area radius contain sites with cores that were likely used for the relatively immediate production of expedient flake tools rather than the uniformed production of tool blanks.

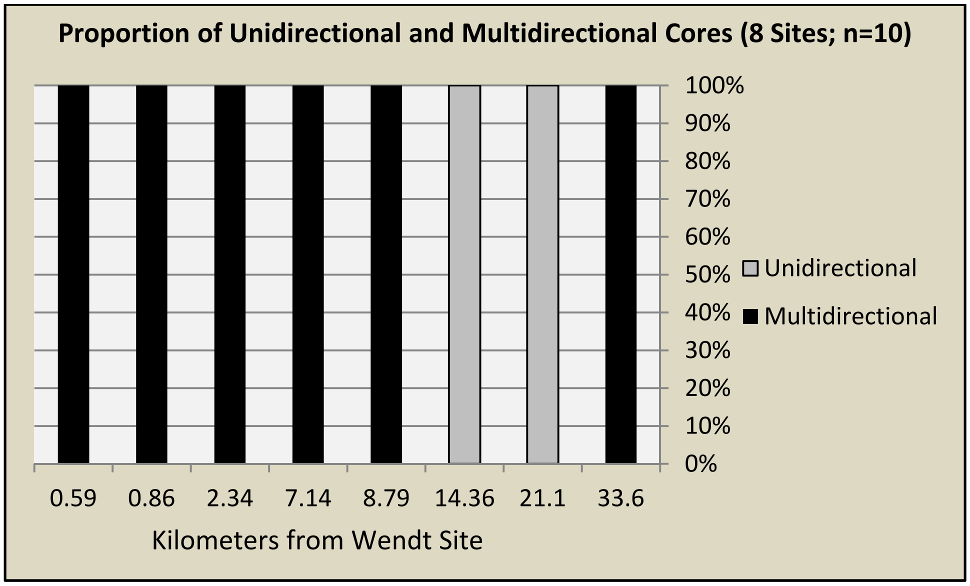

Figure 4.2: Proportions of Unidirectional and Multidirectional Cores at Examined Sites across the Study Area

4.1.2 Proportion of Cores with Cortex. A comparison was made of the proportion of cores with cortex present on its surface as opposed to the proportion of cores that lack cortex (8 Sites; n=10). Of the ten cores, only one core, from Ima Camper Site (ACC 277; 7.14 km; n=2), lacked cortex on its surface. All other cores in the study exhibited cortex as depicted in Figure 4.3. As was the case with blade and flake core comparisons, the total number of cores per site is extremely low and therefore the frequencies provided are to be considered imprecise but not lacking meaning. It appears that in general, sites throughout the study area include cores with cortex.

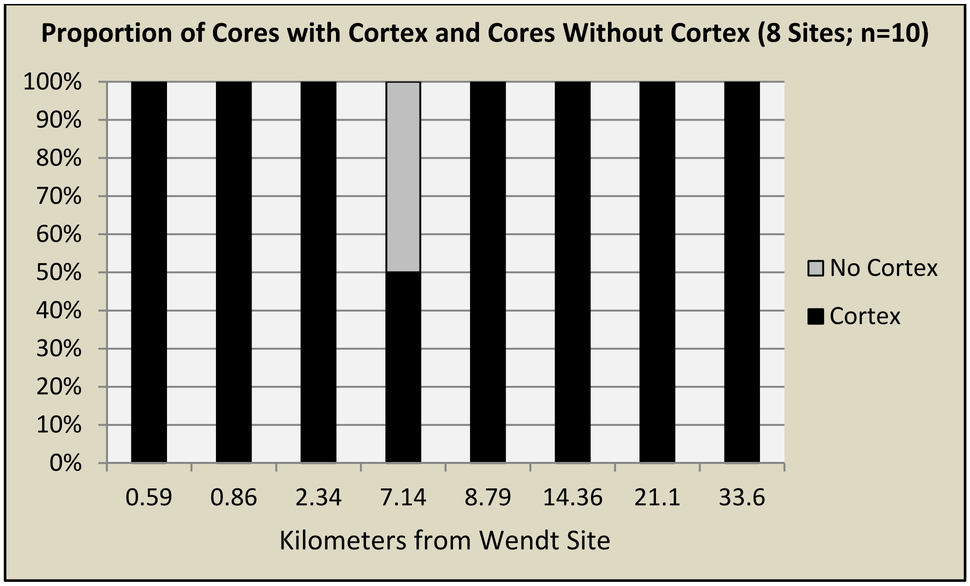

Figure 4.3: Proportions of Cores with and without Cortex at Examined Sites within the Study Area

4.1.3 Metric Attributes of Cores. The number of cores present across all of the studied sites is provided in Figure 4.1. The length, width, and thickness of each core at each site within the study were recorded and their mean value per site charted over increasing distance from Wendt Site. As seen in Figure 4.4, weight generally decreases as distance from Wendt Site increases (7 Sites; n=9; p=0.04). As previously mentioned, Little Knife Portage (ACC 97; 2.34km; n=1) was excluded from this figure, however, given its high weight (>400 g) it conforms well to the observed pattern.

In Figure 4.5 it can be seen that the mean length, width, and thickness of cores decrease over increasing distance with varying reliability. Mean length of cores seems to be the least reliable correlation with changing distance (8 Sites; n=10; p=0.50). There appears to be relatively no change in core length as distance from the Wendt Site increases. Mean width appears to be the most strongly correlated metric attribute of core dimensions with changing distance (8 Sites; n=10; p=0.02). It appears therefore that as distance from Wendt Site increases, there is a highly reliable correlation to a decrease in core width. Core thickness does not exhibit the extreme confidences in correlation exhibited by core length and width, however, a relatively reliable correlation can be seen between increasing distance from Wendt Site and the decrease in thickness of cores (8 Sites; n=10; p=0.14). It appears that as distance from Wendt Site increases, the thickness of cores is somewhat likely to decrease.

Considering the correlation between increasing distance from Wendt Site and the aforementioned attributes, one can see that the strong correlation between this and decreasing weight is due mostly to the shedding of core width and to a lesser degree thickness, as opposed to length; exhibited by the trends and confidences described above.

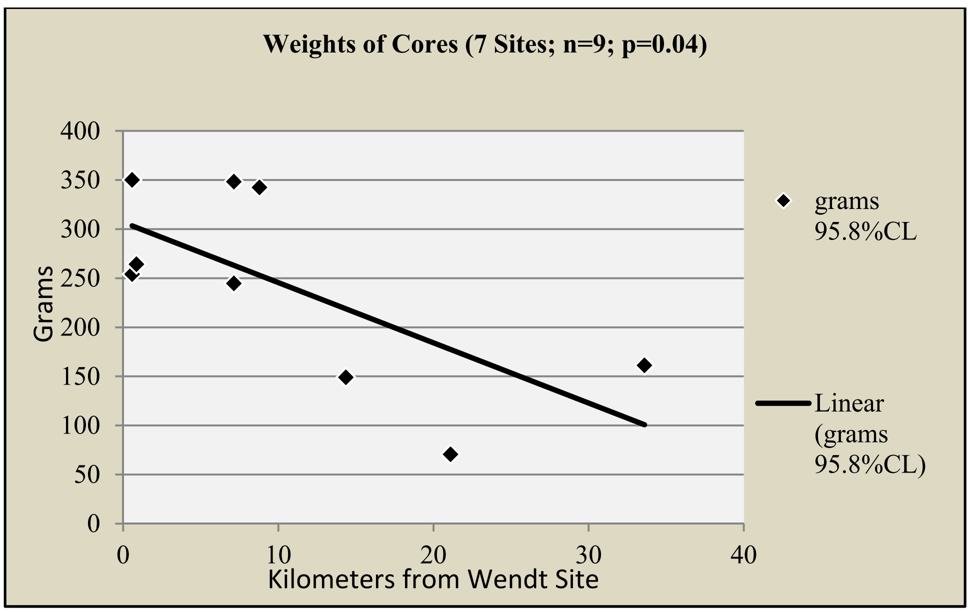

Figure 4.4: Weight in grams of Cores at Sites Examined within the Study Area

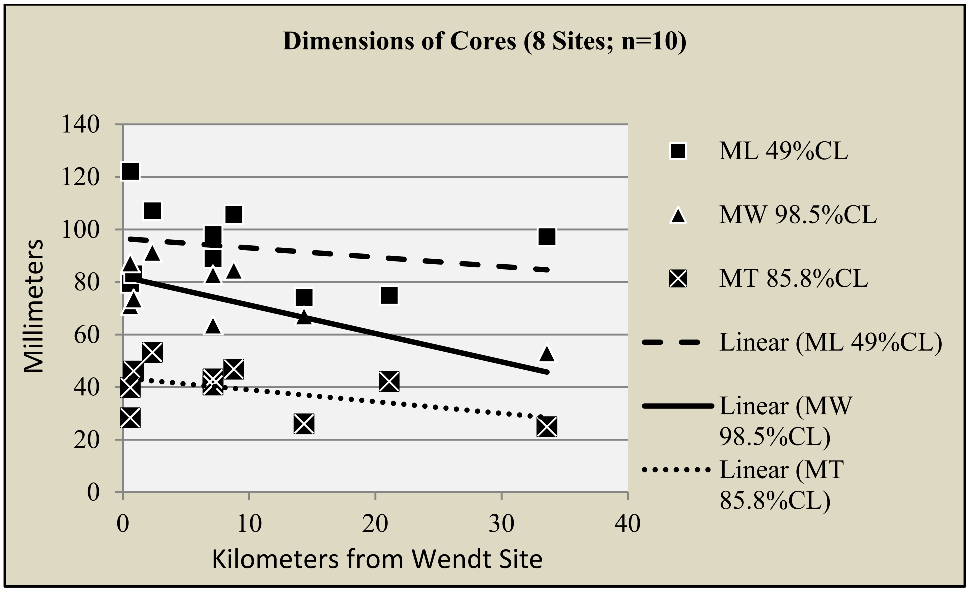

Figure 4.5: Maximum Length (ML), Maximum Width (MW), and Maximum Thickness (MT) of Cores at Examined Sites across the Study Area

4.1.4 Cluster Analysis of Cores. All metric attributes of cores, with the exception of the weight category from Little Knife Portage, were used as factors in the cluster analysis of cores within the study. By considering metric attributes independent of distance during the paired group clustering one can later look to the cluster results shown as a Euclidean distance and discover any patterns involving distance in kilometers from Wendt Site and the factors that clustered sites in particular groupings, shown in Figure 4.6. At the broadest Euclidean distance depicted in the aforementioned figure, 150 units, there is a clear division between two groups of sites; those located between 0.59 km and 8.79 km from those located between 14.36 km and 33.60 km. When the contents of these clusters are aggregated into two populations, provided in Table 4.1, it clearly shows cluster 1, comprised of the closest sites to Wendt Site, mean weight, length, width, and thickness are each greater than those of cluster 2, comprised of the sites farthest from Wendt Site. It appears therefore, that clustering has identified a difference between groups of sites based on metric attributes, most significantly width, that happens to coincide with increasing distance, where the division between the two primary clusters is located between 8.79 km and 14.36 km from Wendt Site. It should be noted that although a core at 2.34 km was excluded from the category of weight due to it exceeding the limits of the scale used in the study, that had it been included the addition of a very heavy core at this location would only further increase the generally greater weight of cores nearest to Wendt Site further accentuating the pattern already depicted in the aforementioned figures.

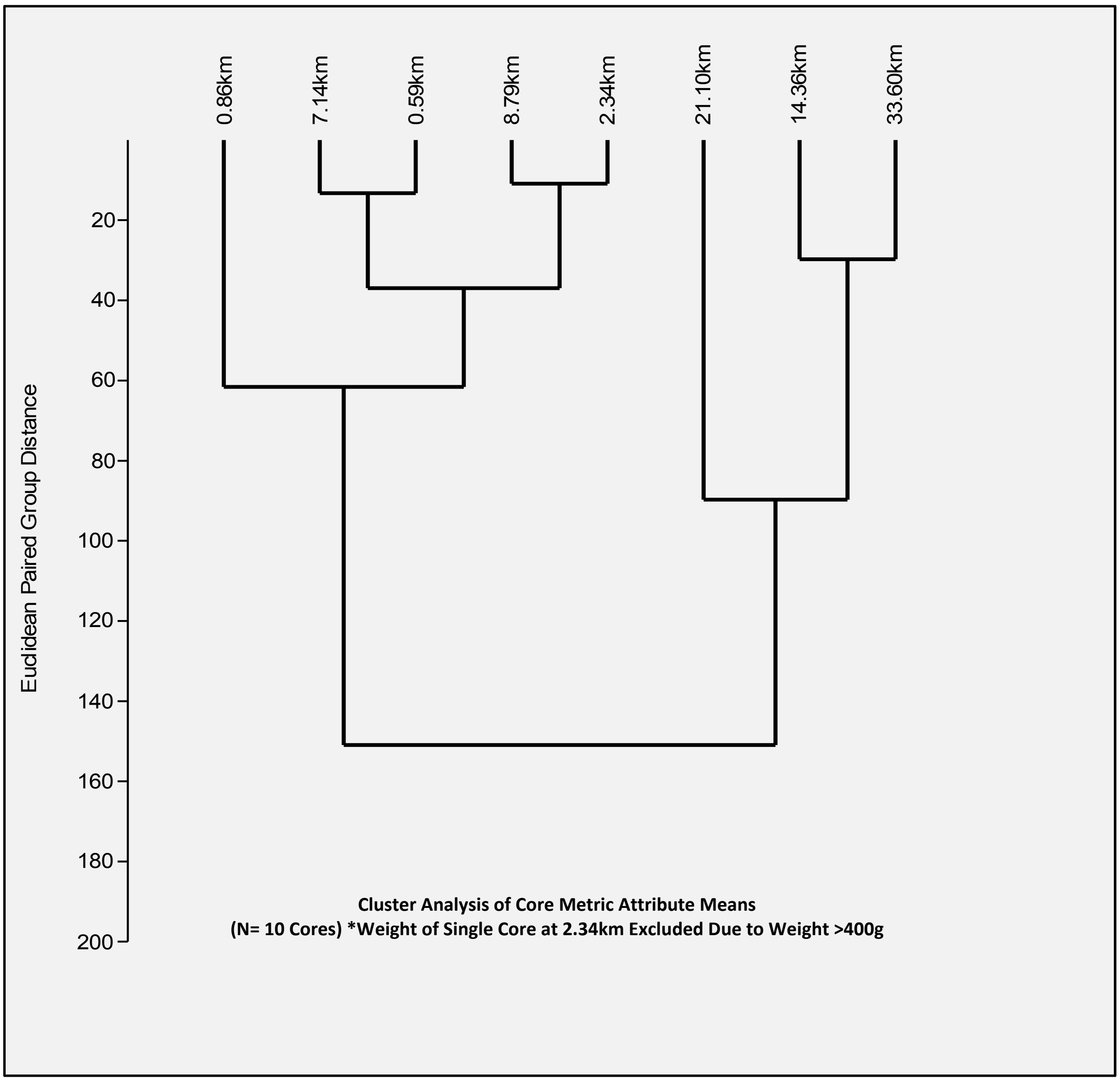

Figure 4.6: Euclidean Paired-Group Cluster Analysis Based on Mean Metric Attributes, including Weight, Maximum Length, Maximum Width, and Maximum Thickness of Cores across the Study Area

Table 4.1: Results of Cluster Analysis of Cores at Sites across the Study Area using Mean Metric Attributes of Cores including Weight, Maximum Length (ML), Maximum Width (MW), and Maximum Thickness (MT)

Mean Metric Attributes of Cores as Clustered							
Cluster	**Distance**	**grams**	**ML**	**MW**	**MT**	**n= (weight)**	**n= (MLWT)**
1	0.59-8.79	300.7	97.8	79.1	42.6	6	7
2	14.36-33.60	127.0	82.1	54.1	31.0	3	3

4.2 Bifacial Tools

Eleven of the sampled sites across the study area contained at least one KLS biface. A catalogue of all specimens from each of these sites is provided in Appendix A: Table 3 and a brief account of these sites' names, accession numbers, distances from Wendt Site, and number of bifaces is provided in this section. These sites include AJM Site (ACC 1634; 0.45 km; n=7), Arabesque Site (ACC 415; 0.59 km; n=11), unnamed site (FS 05-287) (ACC 401; 2.61 km; n=1), Tropical Site (ACC 727; 4.65 km; n=1), Yogurt Mule Boot Site (ACC 1269; 7.29 km; n=1), unnamed site (FS 02-217) (ACC 515; 15.26 km; n=1), Insula 4 Site (ACC 209; 17.25 km; n=1), Hot One Site (ACC 464; 19.88 km; n=2), unnamed site (FS 05-803) (ACC 1306; 20.00 km; n=1), Sand Hill (ACC 140; 26.46 km; n=1), and Fall Chip Site (ACC 275; 33.06 km; n=1). Categorical and metric data was collected from each specimen including an account of broken and whole bifaces; as well as metric data including weight, length, width, and thickness. It should be noted that one biface from AJM Site could not be included as it exceeded the limits of the scale used in the study; the same applies to four bifaces from Arabesque Site, and the single biface from Yogurt Mule Boot Site. As was the case with cores, these objects are excluded from all analysis of weight; reducing the sample population at respective sites under this category. All other measurements of bifaces across the study area are present in all analysis of metric attributes.

4.2.1 Proportion of Broken and Whole Bifacial Tools. A comparison was made between the number of whole and broken bifaces from sites across the study area (11 Sites; n=28). Varying proportions of whole bifaces are associated with each site as depicted in Figure 4.7. Sites across the area vary in the proportion of whole and broken specimens. Two sites have populations of bifaces larger than two individuals, one site has two individuals, and the remaining nine sites each have one specimen. At AJM Site (0.45 km; n=7) 13 percent of bifaces recovered were whole, 87 percent were fragmentary. Arabesque Site (0.59 km; n=11) includes 55 percent whole bifaces and 45 percent fragmentary. Fifty percent of bifaces at Hot One Site (ACC 464; 19.88 km; n=2), a single biface, is a whole specimen. The unnamed site (FS 05-287) (ACC 401; 2.61 km; n=1), Yogurt Mule Boot Site (7.29 km; n=1), and Fall Chip Site (33.06 km; n=1) all have a single specimen each of which is complete. The remaining sites have one specimen each which is a fragment of a biface. It should be noted that the number of bifaces at the majority of these sites is extremely low, one or two individuals. This makes for less confidence in the proportions described. However, there are patterns that emerge from the data. Between 0.45 km and 0.59 km there appears to be a clear increase in the proportion of whole bifaces recovered from sites as distance from Wendt Site increases.

It should be noted that the total number of bifaces per site drops off severely over increased distance, as seen in Figure 4.8; from 2.61 km through 33.06 km the number of specimens per site is generally one biface, in one instance, a complete biface and a biface fragment at Hot One Site (19.88 km; n=2). The only other whole bifaces are scattered amongst sites with only a fragment of a biface. Any frequency and distance patterning beyond 0.59 km from Wendt Site is highly speculative and does not readily appear to have a predominant pattern as there are whole bifaces found in extremely low frequencies as far as 33.06 km from Wendt Site.

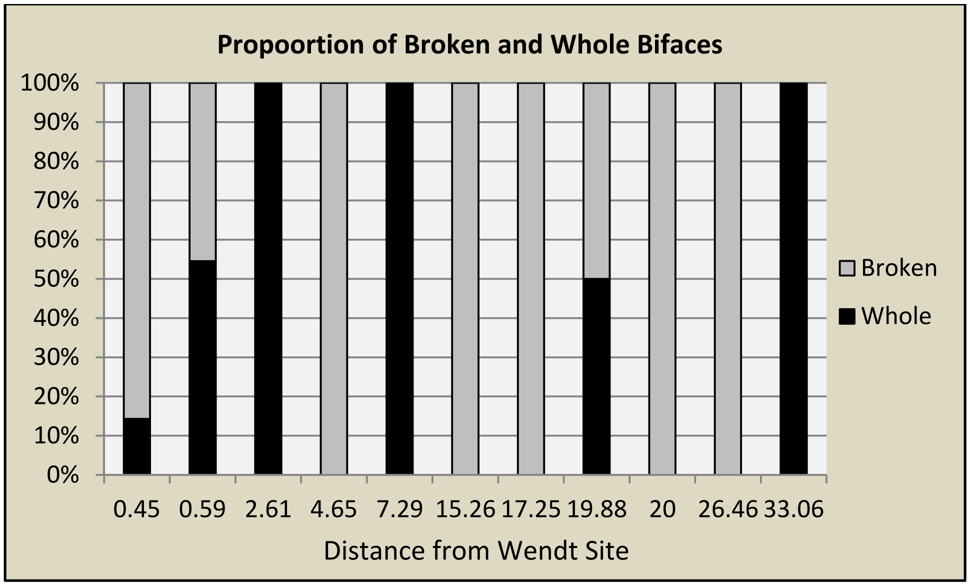

Figure 4.7: Proportions of Whole and Broken Bifaces at Examined Sites across the Study Area

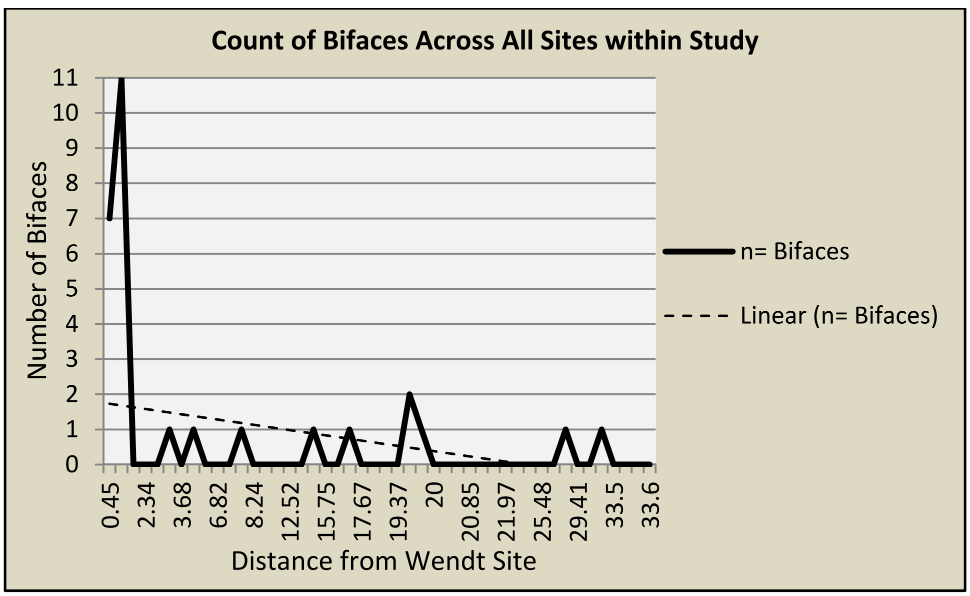

Figure 4.8: Number of Bifaces at Sites Examined within the Study Area

4.2.2 Metric Attributes of Bifacial Tools. Metric attributes of bifaces were recorded including weight (10 Sites; n=22); length, width, and thickness (11 Sites; n=28). A graphic depiction of the mean weights of bifaces is shown in Figure 4.9. A similar depiction of the mean lengths, widths, and thickness of bifaces is shown in Figure 4.10. As can be seen in the first figure the mean weight of cores decreases across increasing distance from Wendt Site. A *p*-value was calculated using PAST2.17 statistical software for the confidence in the correlation between decreasing weight and increasing distance (n=22; p=0.08), demonstrating a relatively high confidence, 92 percent, in the relationship. Length, width and thickness were treated to the same process and produced varying results. While all dimensional attributes of bifaces generally decrease over increasing distance from Wendt Site, thickness of bifaces is the most reliable of these attributes in terms of correlation with distance (n=28; p=0.01), showing a 99 percent confidence in correlation, followed by length (n=28; p=0.02), a 98% confidence in correlation, and to a lesser degree width (n=28; p=0.04), a 96% confidence in correlation with distance. These are all highly confident correlations and therefore it can be said that all metric attributes of bifaces decrease reliably as distance from Wendt Site increases. When this is considered, especially in conjunction with the results shown in Figure 4.8 regarding number of bifaces across the entire study, it can be seen that distance decay is occurring regarding bifaces.

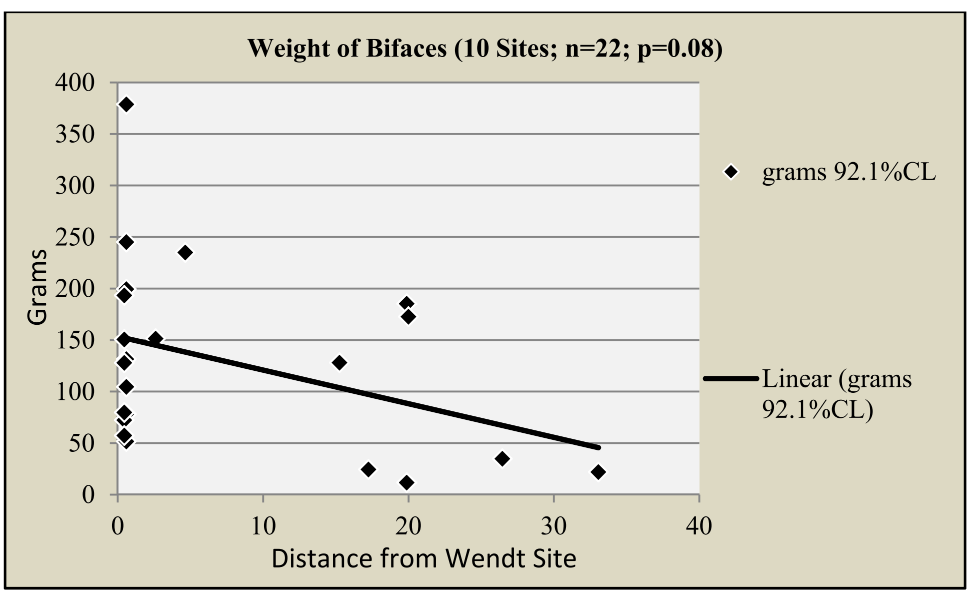

Figure 4.9: Mean Weight of Bifaces at Sites Examined across the Study Area

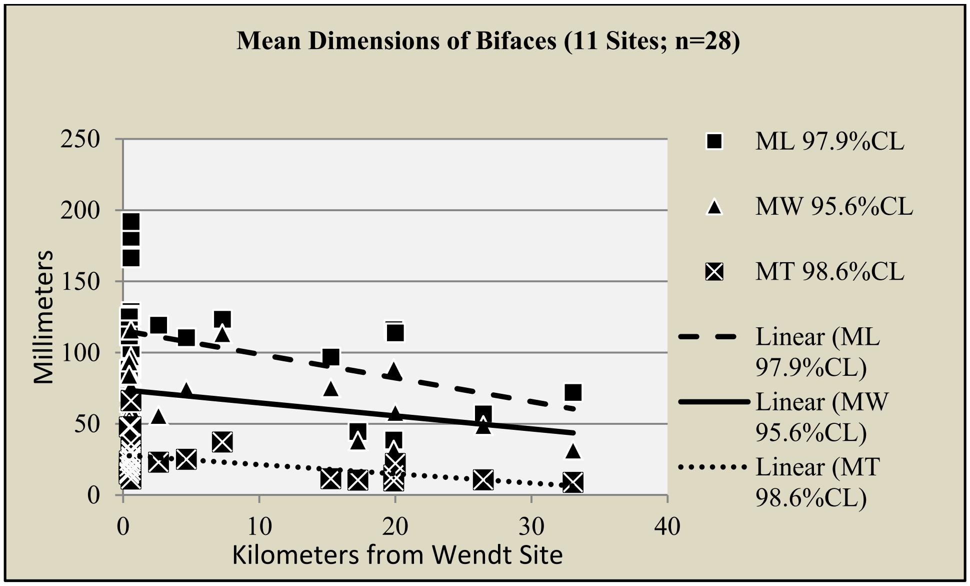

Figure 4.10: Mean Attributes of Bifaces including Maximum Length (ML), Maximum Width (MW), and Maximum Thickness (MT) of Bifaces at Sites Examined across the Study Area

4.2.3 Cluster Analysis of Bifacial Tools. All metric attributes of bifaces, with the exception of the weights of the objects described above that were unable to be weighed, were considered simultaneously and independent of distance in a paired group cluster analysis of bifaces conducted using the aforementioned PAST2.17 software. A Euclidean distance was given to each branching of the cluster diagram produced and some spatial patterning may be evidenced. It appears, based on the results of cluster analysis shown in Figure 4.11, that at the greatest Euclidean distance charted, approximately 130 units, there is a majority of sites clustered in primary groups adhering to variations in proximity to Wendt Site. The respective distance of cluster members as well as their count and mean attribute values are provided in Table 4.2. Cluster 1 includes sites between 0.45 km and 20.00 km; Cluster 2, includes sites between 17.25 km and 33.06km. There is area of overlap between 17.25 and 20.00 kilometers where distance does not coincide with clustering results. When these clusters are further subdivided, there is no apparent pattern between distance from Wendt Site and where a site lands in terms of its secondary cluster membership. All clustering, however, appears to be controlled by length, width, and thickness fairly evenly as seen in Figure 4.11 and Table 4.2. Weight was treated to calculation of mean attribute values separately, as the bifaces weighing in excess of 400 grams were excluded, as explained above.

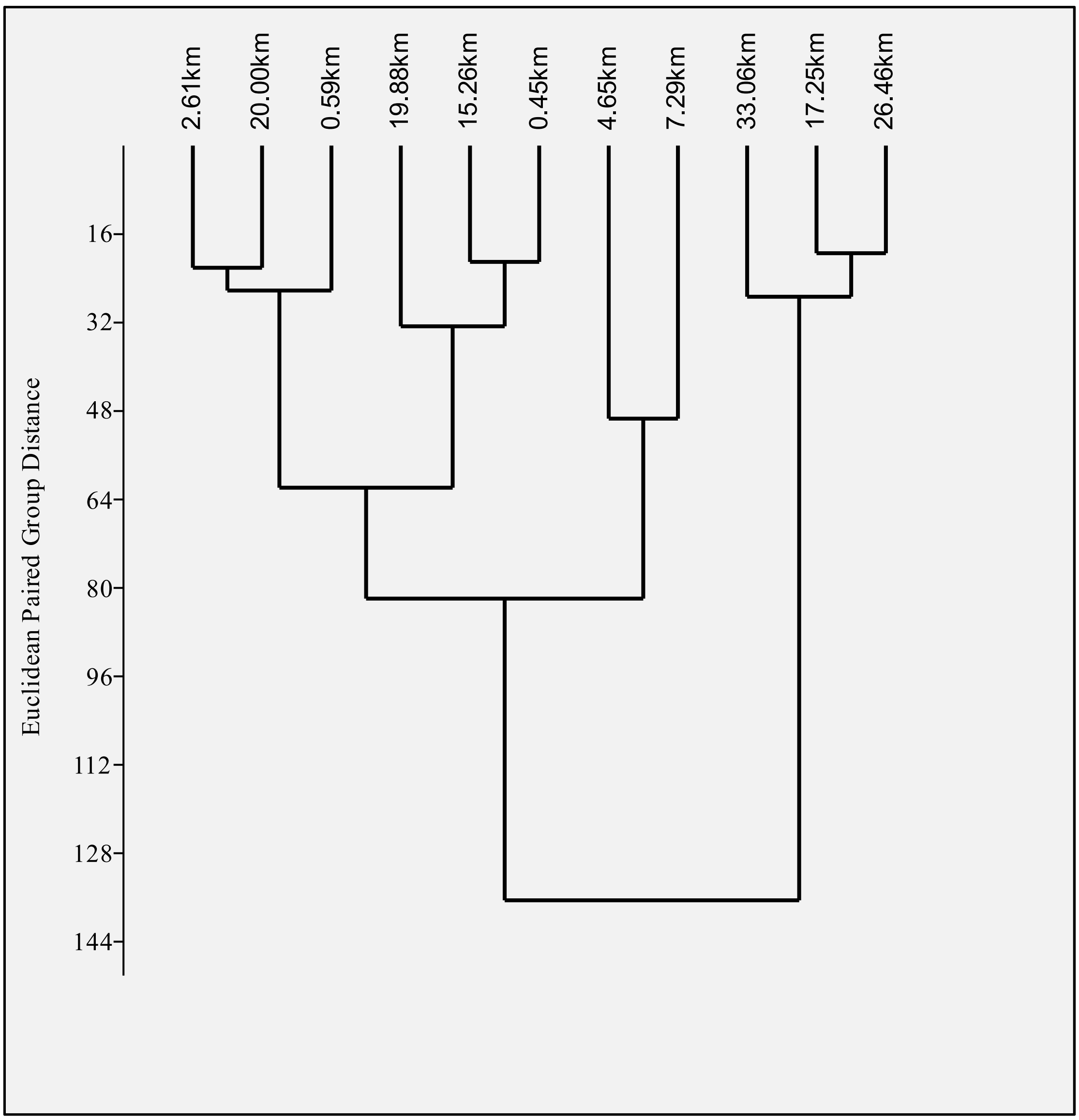

Figure 4.11: Euclidean Paired-Group Cluster Analysis Based on Mean Metric Attributes, including Weight, Maximum Length, Maximum Width, and Maximum Thickness of Bifaces across the Study Area

Table 4.2: Primary (1 and 2), Secondary (1A and 1B), and Tertiary (1A1 and 1A2) Results of Cluster Analysis of Bifaces at Sites across the Study Area using Mean Metric Attributes of including Weight, Maximum Length (ML), Maximum Width (MW), and Maximum Thickness (MT)

Mean Metric Attributes of Bifaces as Clustered (*contains objects omitted from weight)							
Cluster	**Distance**	**grams***	**ML**	**MW**	**MT**	**n= (weight)**	**n= (MLWT)**
1 (n=25)	0.45*; 0.59*; 2.61; 4.65; 7.29*; 15.26; 19.88; 20.00	145.0	110.6	71.5	25.5	19	25
2 (n=3)	17.25; 26.46; 33.06	27.1	57.9	39.4	10.0	3	3
1A (n=23)	0.45*; 0.59*; 2.61; 15.26; 19.88; 20.00	140.0	110.1	69.6	25.0	18	23
1B (n=2)	4.65; 7.29*	235.0	117.0	93.9	31.2	1	2
2A (n=1)	33.06	172.7	72.1	31.6	8.9	1	1
2B (n=2)	17.25; 26.46	29.7	50.9	43.4	10.6	2	2
1A1 (n=15)	0.59*; 2.61; 20.00	168.2	123.2	73.5	29.7	9	15
1A2 (n=10)	0.45*; 15.26; 19.88	111.8	93.1	64.5	18.9	9	10

4.3 Unifacial Tools and Flake Tools

Fourteen sites from those sampled across the study area include at least one unifacial tool, excluding end-scrapers. A catalogue of all specimens from each site is located in Appendix A: Table 4, and a brief account of these sites' names, accession numbers, distances from Wendt Site, and number of unifaces is provided in this section. These sites include Arabesque Site (ACC 415; 0.59 km; n=4), Susan Melissa Site (ACC 1404; 0.86 km; n=5), Tropical Site (ACC 727; 4.65km; n=1), Ledgerock Metaphysics Site (ACC 1393; 6.82 km; n=1), My Paisano Paisano Site (ACC 1280; 12.52km; n=2), Table Rock Site (ACC 219; 15.75 km; n=1), Mahlberg #9 (ACC 646; 17.97 km; n=1), unnamed site (FS 05-366) (ACC 560; 19.20 km; n=1), Norway Island (ACC 114; 20.85 km; n=1), Fat Cigar Site (ACC 666; 20.94 km; n=1), Gunflint 46 Site (ACC 1645; 29.41 km; n=1), Sandy Site (ACC 101; 32.33 km; n=1), Fall Chip Site (ACC 275; 33.06 km; n=1), and unnamed site (FS 05-183) (ACC 143; 33.51 km; n=1).

Metric data were collected from each uniface including an account of weight, length, width, and thickness. It should be noted that one uniface from Arabesque Site could not be included as it exceeded the limits of the scale used in the study; all other specimens conform to the weight limits of the scale. As was the case with cores and bifaces, this object is excluded from all analysis of weight; reducing the sample population at the respective site under this category. All other measurements of unifaces across the study area are present in all analysis of metric attributes.

Ten of the selected sites across the study area include at least one flake tool. A catalog of all specimens from each site is located in Appendix A: Table 5, and a brief account of these sites' names, accession numbers, distances from Wendt Site, and number of utilized flake tools is provided in this section. These sites include AJM Site (ACC 1634; 0.45 km; n=45), Arabesque Site (ACC 415; 0.59 km; n=82); Susan Melissa Site (ACC 1404; 0.86 km; n=3), Robbin's Island #1 (ACC 89; 2.40 km; n=3), unnamed site (FS 05-287) (ACC 401; 2.61 km; n=1), Ima Camper Site (ACC 277; 7.14 km; n=6), unnamed site (FS 05-366) (ACC 560; 19.20 km; n=1), Hot One Site (ACC 464; 19.88 km; n=1), unnamed site (FS 05-360) (ACC 555; 20.80 km; n=1), and unnamed site (FS 05-307) (ACC 462; 21.10 km; n=3). Metric data was collected from each of these flake tools including weight, length, width, and thickness.

4.3.1 Count of Unifacial Tools and Flake Tools. A count of all unifacial and flake tools was charted and is shown in Figure 4.12. The number of flake tools increases between 0.45 km and 0.59 km, then decreases sharply as distance from Wendt Site increases. At 0.86 km, only three flake tools have been recovered. The number of flake tools continues to fluctuate between one and three up to a maximum distance of 21.10 km from Wendt Site.

Unifacial tools appear to remain relatively constant in number across the study area, varying in number from one up to as many as five. No unifaces are present at the nearest site within our study to Wendt Site but the number increases to five across the first 0.86 km from Wendt Site. Beyond 0.86 km, uniface numbers are between one and two per site across a distance as far as 33.51 km from Wendt Site.

It should be noted that while flake tools are greater in number, especially with proximity to Wendt site, they are limited to the first 21.10 km from Wendt Site. Unifaces do number greater nearer Wendt Site in general, their counts are far less than that of flake tools, and are found across nearly the entirety of the study area, as far as 33.51 km from Wendt Site. Though in lower numbers, it appears that KLS unifaces tend to distribute more widely than KLS flake tools. These trends are expressed by *r*-values for the decrease in flake tools (r= -0.129), and the relatively steady count of unifaces (r= 0.054).

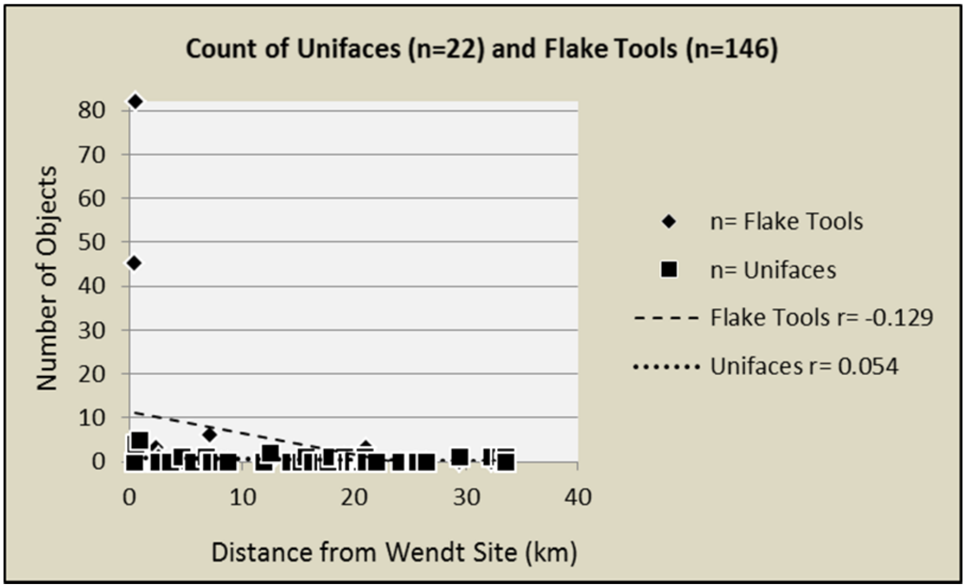

Figure 4.12: Number of Unifaces and Flake Tools at Sites Examined across the Study Area

4.3.2 Proportion of Unifacial Tools and Flake Tools. A comparison was made between the frequency of unifacial tools as opposed to flake tools present at each site that includes at least one uniface or one flake tool as depicted in Figure 4.13. As seen in the figure, the percentage of unifaces across the study area does not provide any easily interpretable correlation with distance from Wendt Site. It should be noted that the total number of specimens per site is in most cases, low, generally one or two individuals. This makes for less confidence in the frequencies provided, however a trend in these frequencies is shown in Figure 4.14, regardless. It appears that sites closer to Wendt Site tend to have a lower frequency of unifaces and higher frequency of flake tools and that as distance from Wendt Site increases the frequency of unifaces increases while the frequency of flake tools decreases.

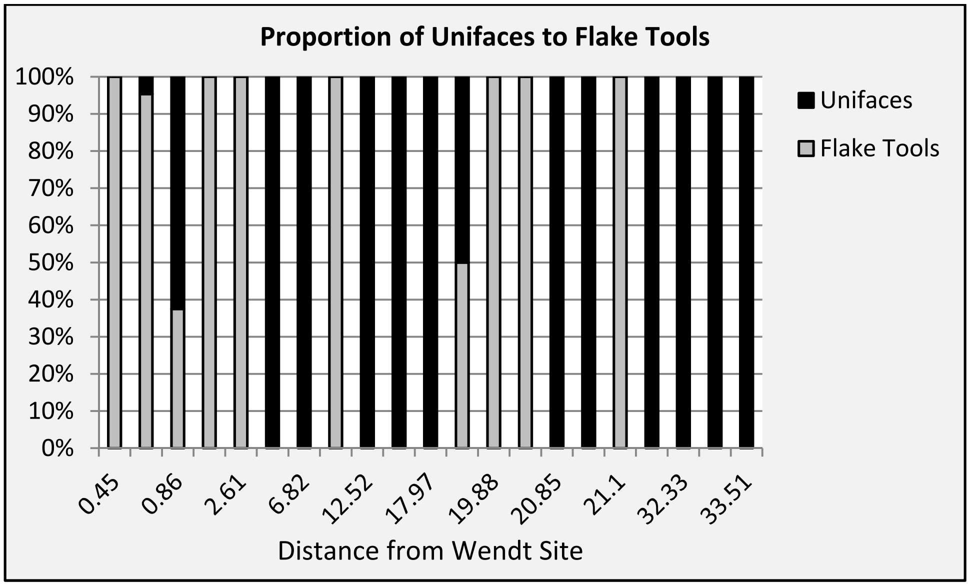

Figure 4.13: Proportion of Unifaces and Flake Tools at Sites Examined across the Study Area

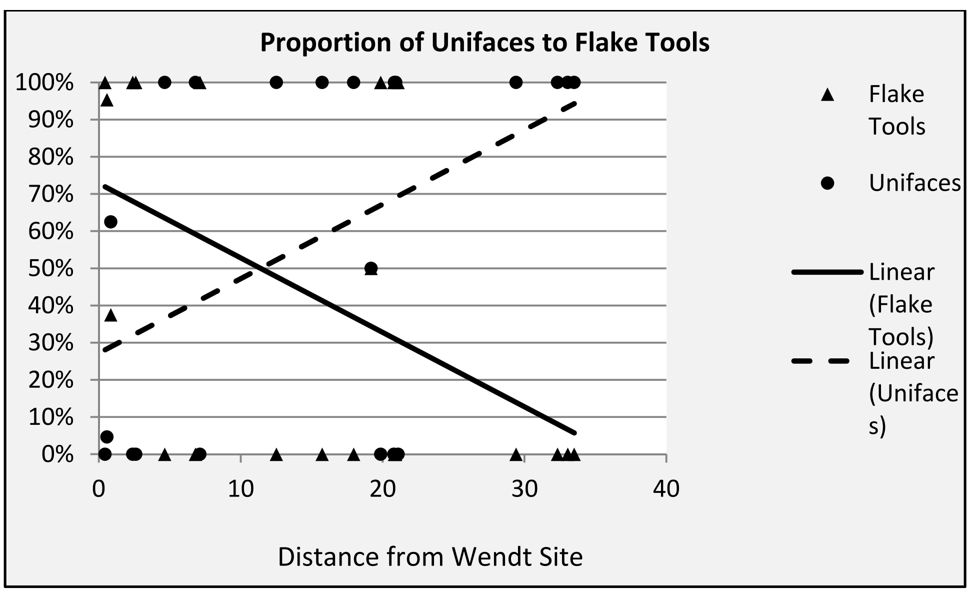

Figure 4.14: Proportion of Unifaces and Flake Tools at Sites Examined across the Study Area

4.3.3 Metric Attributes of Unifacial Tools and Flake Tools.

4.3.3.1 Metric Attributes of Unifacial Tools. The weight (14 Sites; n=21) of each uniface was recorded. There was one instance of a uniface weighing in excess of the limits of the scale used in the study, at Arabesque Site at 0.59 km from Wendt Site. Because this object could not be reliably weighed, it is omitted from all analysis of the weight attribute at this site. The length, width, and thickness of unifaces were not limited in this way and therefore all specimens are included for every site regarding those three measurements. A depiction of mean weight of unifaces across increasing distance from Wendt Site is provided in Figure 4.15, where mean weight of unifaces appears to increase slightly over increasing distance. However, note that the *p*-value assigned to the relationship between changing weight and changing distance is 0.45, a confidence of only 55 percent in the relationship. This means that the increase over distance that appears in the figure does not have enough confidence attached to it to consider a reliable representation. Instead an unconfident increasing weight over increasing distance is seen.

The length, width, and thickness (14 Sites; n=22) of each uniface was recorded. A graphic depiction of the mean lengths, widths, and thicknesses of sites across the study area are provided in Figure 4.16. As can be seen in the figure, it appears that in general, mean lengths and widths increase as distance from Wendt Site increases and that mean thickness decreases as this distance increases. However, it should be noted that these metric to distance relationships are attached to *p*-values that indicate low confidence in the trend shown. Length (p=0.39) increases with a confidence of only 61 percent, width (p=0.49) increases with a confidence as low as 51 percent, and finally thickness (p=0.59) decreases with a confidence of as low as 41 percent. These are very low confidences in correlation between the attributes and their relationship to distance from Wendt Site. For this reason, length, width, and thickness to distance from Wendt Site relationships are not considered to be statistically reliable representations, however the results are still suggestive of larger flakes being used for unifacial tools.

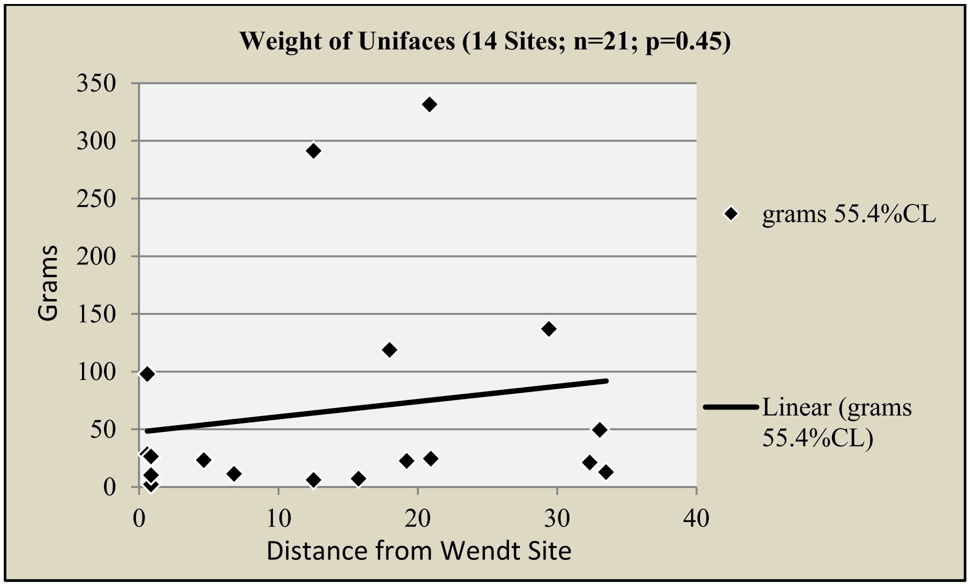

Figure 4.15: Mean Weight of Unifaces at Sites Examined across the Study Area

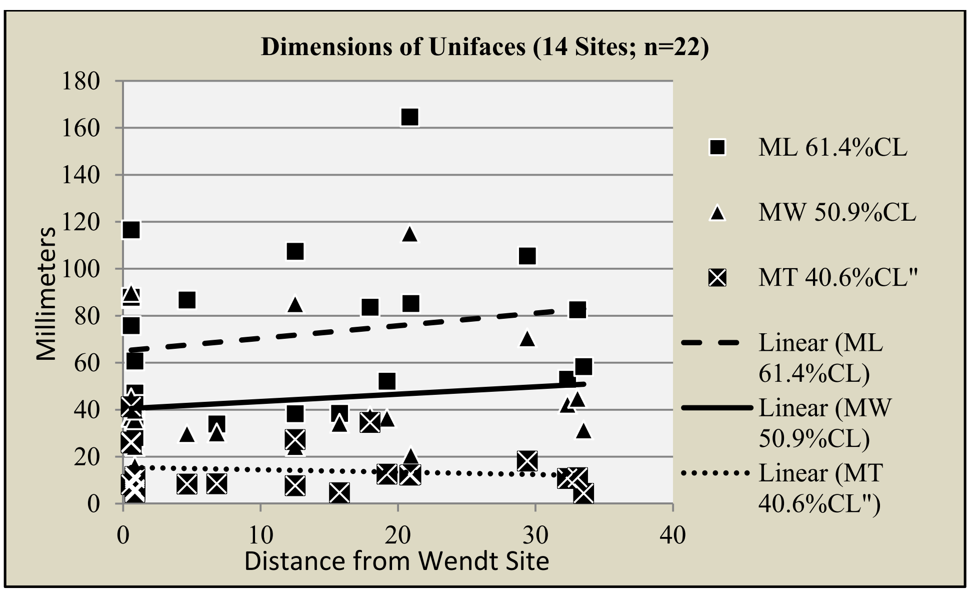

Figure 4.16: Mean Metric Attributes of Unifaces including Maximum Length (ML), Maximum Width (MW), and Maximum Thickness (MT) at Sites Examined across the Study Area

4.3.3.2 Metric Attributes of Flake Tools. The weight, length, and width (10 Sites; n=146) of each flake tool was recorded. A graphic depiction of the mean weight across distances from Wendt Site is provided in Figure 4.17 and it can be seen that as distance from Wendt Site increases, it appears that weight (p=0.01) increases slightly, the lightest mean value being 6.1 grams and the highest mean value being 29.4 grams. Both of these extreme values are located at the farthest two sites, at 20.8 km and 21.10 km, respectively. Taking these two values out of consideration a range from 6.4 grams to 28.4 grams is observed which is slightly more conservative. Alternatively, if one looks at the nearest site's mean weight of flake tools; 16.3 grams at 0.45 km, versus the mean weight of the flake tools at the furthest site; 29.4 grams at 21.10 km, an even more conservative range of variation is observed, a difference of 13.1 grams. The *p*-value generated for this relationship indicates that the depiction seen, where weight increases slightly over distance has an attached confidence of 99 percent. The thickness (10 Sites; n=143) of each flake tool was also recorded but it should be noted that three individuals, two from Robbin's Island #1 (ACC 89; 2.4 km; n=3), and one individual from AJM Site (ACC 1634; 0.45 km; n=45) were not recorded in terms of thickness due to human error in omission. A graphic depiction of the mean length, width, and thickness across distances from Wendt Site is provided in Figure 4.18 were it shows a general increase in length (p=0.11) with an 89 percent confidence, width (p=0.27) with a 73 percent confidence, and a steady value of thickness (p=0.94) with a confidence of approximately six percent, as distance from Wendt Site increases. These however, are poor numbers in terms of providing confidence in the relationships depicted between increasing distance and each dimensional attribute. It is therefore that no single flake tool dimension exhibits a reliable relationship with increasing distance from Wendt Site in terms of their relative sizes however the relationship between increasing weight and increasing distance from Wendt Site is a confident, though less than dramatic relationship.

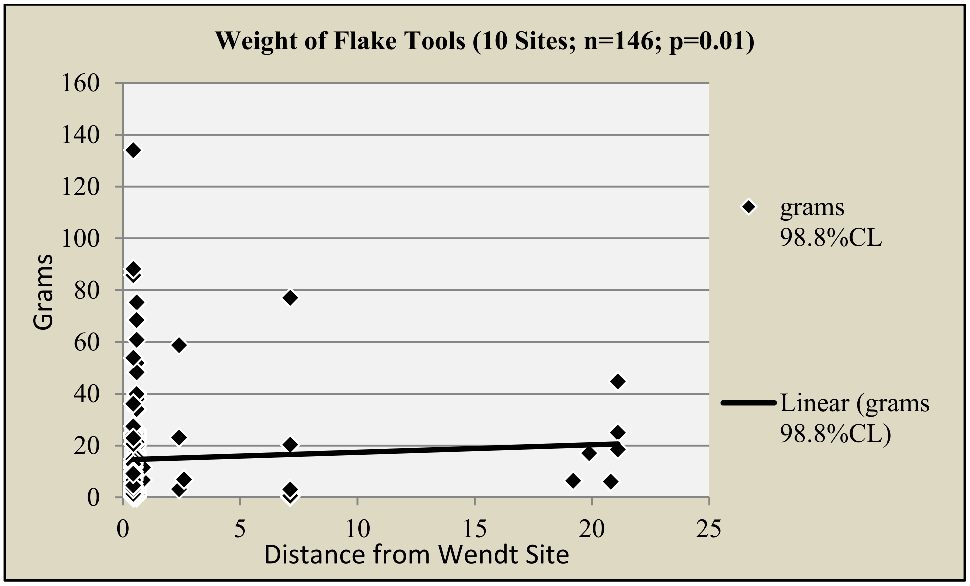

Figure 4.17: Mean Weight of Flake Tools at Sites Examined across the Study Area

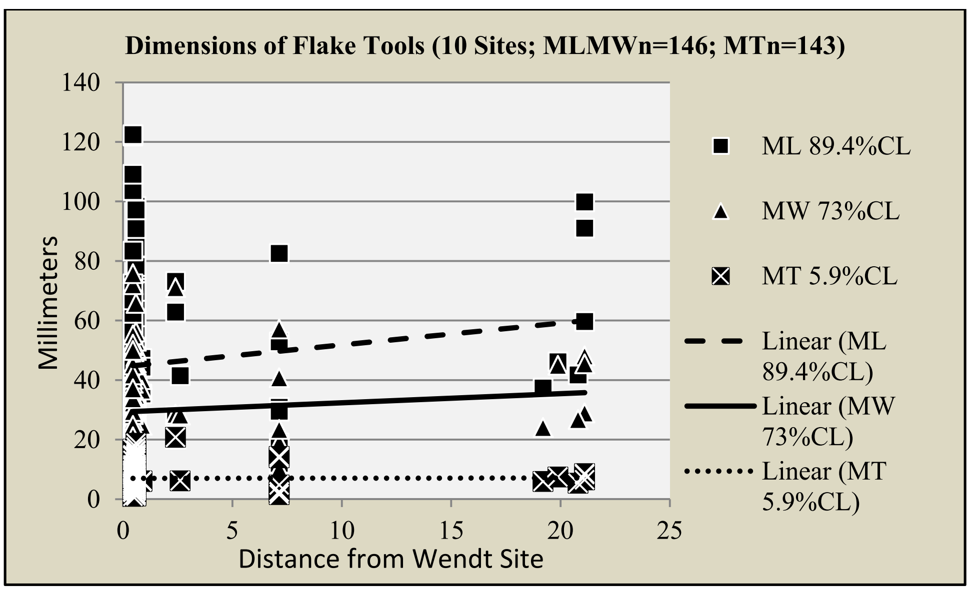

Figure 4.18: Mean Metric Attributes of Flake Tools including Maximum Length (ML), Maximum Width (MW), and Maximum Thickness (MT) at Sites Examined across the Study Area

4.3.4 Cluster Analysis of Unifacial Tools and Flake Tools.

4.3.4.1 Cluster Analysis of Unifacial Tools. All metric attributes of unifaces, with the exception of the weights of the object described above that was unable to be weighed, were considered simultaneously and independent of distance in a paired group cluster analysis of unifaces conducted using the aforementioned PAST2.17 software. A Euclidean distance was determined for each branching of the cluster diagram, provided in Figure 4.19, and the results are more complicated than some of the clustering examined above. It appears that at the greatest distance, approximately 300 units, Norway Island (ACC 114; 20.85 km; n=1) was excluded from all other sites. Further examination, as tabulated in Table 4.3, shows us that this single uniface was excluded from all others because of it having a much greater weight, length, width, and thickness. This clear outlier exists approximately mid-radius within the study area.

A second tier of clustering was then examined, again listed in the aforementioned table. Branch 1A is composed of Arabesque Site (ACC 415; 0.59 km; n=4), Susan Melissa Site (ACC 1404; 0.86 km; n=5), Tropical Site (ACC 727; 4.65 km; n=1), Ledgerock Metaphysics Site (ACC 1393; 6.82 km; n=1), Table Rock Site (ACC 219; 15.75 km; n=1); Fat Cigar Site (ACC 666; 20.94 km; n=1), Sandy Site (ACC 101; 32.33 km; n=1), Fall Chip Site (ACC 275; 33.06 km; n=1), and unnamed site (FS 05-183) (ACC 143; 33.51 km; n=1). Branch 1B includes My Paisano Paisano Site (ACC 1280; 12.52 km; n=2), Mahlberg #9 (ACC 646; 17.97 km; n=1), and Gunflint 46 Site (ACC 1645; 29.41 km; n=1). As can be seen in the aforementioned figures, Cluster 1A unifaces are much lighter than Cluster 1B unifaces. Cluster 1A also exhibits specimens with a lower mean length, width, and thickness as well. When one examines the location of the clustered sites, in search of a pattern related to distance, it can be seen that Cluster 1B sites are located near the middle of the radius that comprises the study area. Sites included in Cluster 1A, with lighter, shorter, narrower, and thinner unifaces are located generally nearer Wendt Site and also beyond the members of Cluster 1B, nearly to the limits of the study area. It should be remembered that this same proximity is where the outlier large uniface from Norway Island (20.85 km; n=1) was recovered.

A third and final tier of clustering was examined, again listed in the aforementioned table as well as depicted in Figure 4.19. Cluster 1A2 includes Arabesque Site (ACC 415; 0.59 km; n=4) and Fall Chip Site (ACC 275; 33.06 km; n=1) and all other remaining sites were grouped as Cluster 1A1. As can be seen in the two figures mentioned above, unifaces from Cluster 1A2, Arabesque Site at 0.59 km and Fall Chip Site at 33.06 km are much heavier, longer, wider, and thicker than Cluster 1A1. The two are outlying sites due to their size and are located at the opposite sides of the study radius, one less than one kilometer and the other greater than 33 km from Wendt Site.

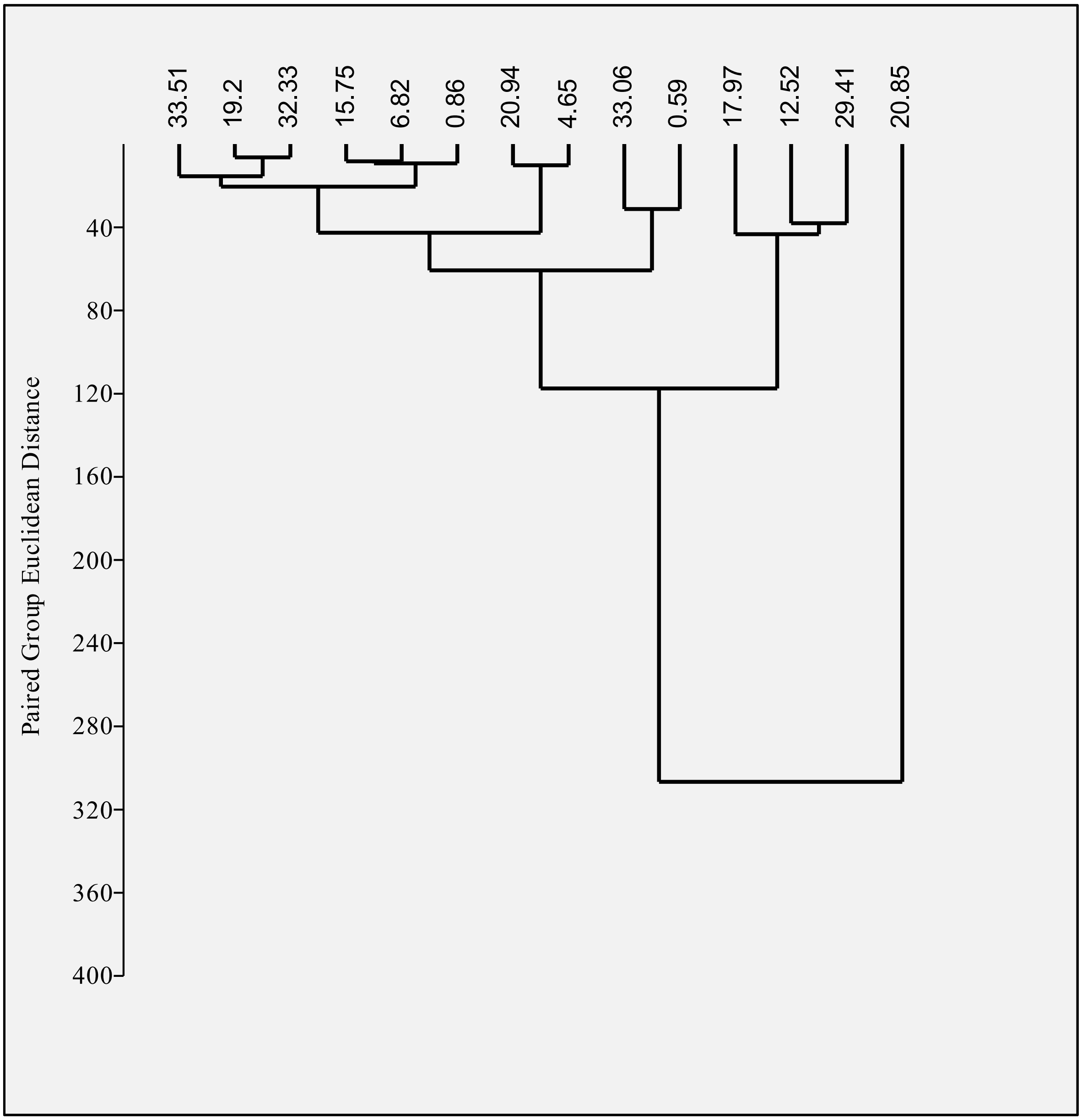

Figure 4.19: Euclidean Paired-Group Cluster Analysis Based on Mean Metric Attributes, including Weight, Maximum Length, Maximum Width, and Maximum Thickness of Unifaces across the Study Area

Table 4.3: Primary (1 and 2), Secondary (1A and 1B), and Tertiary (1A1 and 1A2) Results of Cluster Analysis of Unifaces at Sites across the Study Area using Mean Metric Attributes including Weight, Maximum Length (ML), Maximum Width (MW), and Maximum Thickness (MT)

Mean Metric Attributes of Unifaces as Clustered (*contains objects omitted from weight)							
Cluster	Distance	grams*	ML	MW	MT	n= (weight)	n= (MLWT)
1 (n=21)	0.59*, 0.86, 4.65, 4.65, 6.82, 12.52, 15.75, 17.97, 20.94, 29.41, 32.33, 33.06, 33.51	51.0	67.1	40.7	14.4	20	21
2 (n=1)	20.85	331.6	164.7	115.3	12.2	1	1
1A (n=17)	0.59*, 0.86, 4.65, 6.82, 15.75, 20.94, 32.33, 33.06, 33.51	29.6	63.85	37.5875	12.6	16	17
1B (n=4)	12.52, 17.97, 29.41	138.4	83.8	54.45	22.0	4	4
1A1 (n=12)	.86, 4.65, 6.82, 15.75, 20.94, 32.33, 33.51	15.4	51.936	31.581818	8.0273	12	12
1A2 (n=5)	0.59*, 33.06	68.5	90.06	50.8	22.56	4	5

4.3.4.2 Cluster Analysis of Flake Tools. All metric attributes of flake tools, with the exception of the thicknesses of three of these objects described above that were not measured, were considered simultaneously and independent of distance in a paired group cluster analysis of flake tools conducted using the aforementioned PAST2.17 software. A Euclidean distance was determined for each branching of the cluster diagram produced, shown in Figure 4.20 and listed in Table 4.4. It appears, based on the results of cluster analysis depicted in Figure 4.20, that Cluster 1 mean attributes are higher in value; greater weight, length, width, and thickness, than their Cluster 2 counterparts. Cluster 1 is comprised of both sites which have excluded thickness values. These sites in Cluster 1 include AJM Site (ACC 1634; 0.45 km; n=45g, MLMW; n=44MT), Robbin’s Island #1 (ACC 89; 2.40 km; n=3g, MLMW;n=1MT), and a third site with all four measurements collected, unnamed site (FS 05-307) (ACC 462; 21.10 km; n=3).

The remainder of the sites was divided into two clusters, 2A and 2B, which are both provided in the previously mentioned table. Cluster 2A includes Arabesque Site (ACC 415; 0.59 km; n=82), Ima Camper Site (ACC 277; 7.14 km; n=6), and Hot One Site (ACC 464; 19.88 km; n=1). Cluster 2B includes Susan Melissa Site (ACC 1404; 0.86 km; n=3), unnamed site (FS 05-287) (ACC 401; 2.61 km; n=1), unnamed site (FS-05-366) (ACC 560; 19.20 km; n=1), and unnamed site (FS 05-360) (ACC 555; 20.80 km; n=1). Both Clusters 2A and 2B do not seem to be organized by distance in any way. Cluster 2A covers a distance of less than one kilometer from Wendt Site to approximately midway across the study area radius, near 20 kilometers from Wendt Site. The same can be said of Cluster 2B sites. As can be seen in Figure 4.20 and Table 4.4, Cluster 2A sites tend to have greater weight, length and thickness, but are narrower. Cluster 2B is slightly lighter, shorter, and thinner, though slightly broader than Cluster 2A counterparts. These trends do not seem to be controlled or correlated with distance from Wendt Site in flake tools.

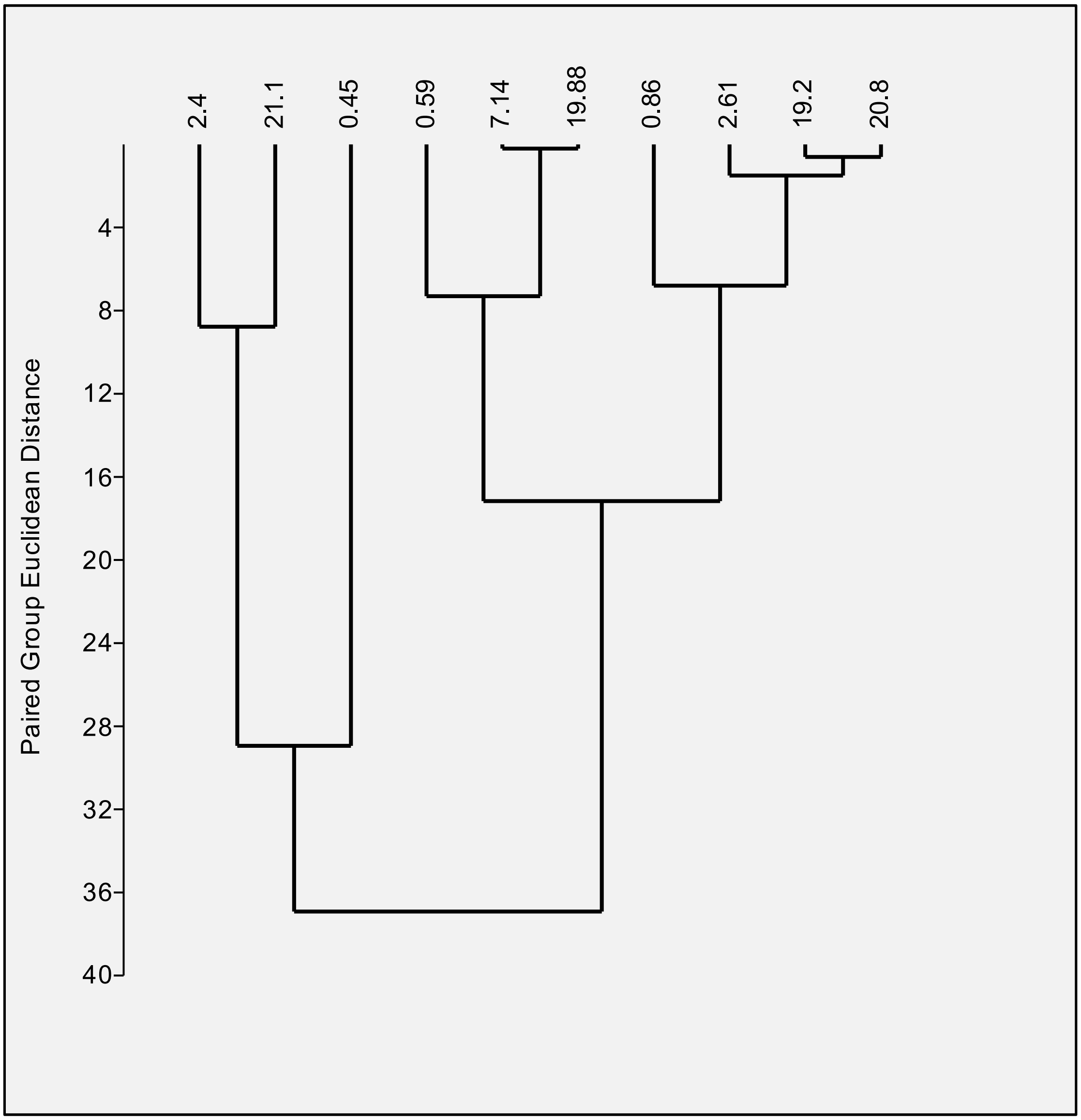

Figure 4.20: Euclidean Paired-Group Cluster Analysis Based on Mean Metric Attributes, including Weight, Maximum Length, Maximum Width, and Maximum Thickness of Flake Tools across the Study Area

Table 4.4: Primary (1 and 2), and Secondary (1A and 1B) Results of Cluster Analysis of Flake Tools at Sites across the Study Area using Mean Metric Attributes including Weight, Maximum Length (ML), Maximum Width (MW), and Maximum Thickness (MT)

Mean Metric Attributes of Flake-Tools as Clustered (*contains individuals removed from category due to omitted thickness recordation)							
Cluster	Distance	grams*	ML	MW	MT	n= (weight)	n= (MLWT)
1 (n=3)	0.45*, 2.4*, 21.1	17.8	49.8	31.9	7.3	48	45
2 (n=7)	0.59, 0.86, 2.61, 7.14, 19.2, 19.88, 20.80	13.5	43.5	28.7	6.9	95	95
2A (n=3)	0.59, 7.14, 19.88	13.8	43.6	28.6	6.9	89	89
2B (n=4)	0.86, 2.61, 19.20, 20.80	8.2	41.3	30.2	6.0	6	6

4.4 Debitage

Forty sites from those sampled across the study area include at least one debitage flake. A catalogue of all specimens from each site is located in Appendix A: Table 6. This section will describe the attributes of complete flake weight and oriented length, complete and proximal flake platform facets and platform widths, and the presence of cortex on all flakes. An account of these sites' names, accession numbers, distances from Wendt Site, and total number of complete, proximal and other flakes is provided in Table 4.5.

Metric data was collected from each flake including an account of weight (complete flakes), oriented length (complete flakes), platform width (complete and proximal flakes), and platform facet counts (complete and proximal flakes). All metric attributes were treated to graphic representation of their respective level and spread (box plots and histograms which are available in Appendices B-G). When applicable, transforms and/or trimming was employed to assure as normal a distribution as could be rendered before continuing with analysis of variance. A p-value within and between groups was calculated using PAST2.17 and a post-hoc Tukey's Pairwise table was generated in the same manner for the aforementioned metric attributes. Additionally, the presence of cortex was recorded for all flakes. A graphic depiction of the mean value of the aforementioned attributes is plotted over increasing distance from Wendt site and is included in figures mentioned throughout the following sections.

Table 4.5: An Account of Complete, Proximal, "Other" (which includes medial, distal, and split flakes), and a Total of All Flakes for Each Site Examined across the Study Area

Site Name	Accession	FS-ID	km from Wendt	Complete Flakes	Proximal Flakes	Other Flakes	*Total Sample*
AJM Site	1634	05-930	0.45	14	16	0	*30*
Arabesque Site	415	05-270	0.59	17	13	0	*30*
Susan Melissa Site	1404	05-827	0.86	16	14	0	*30*
Little Knife Portage	97	05-094	2.34	21	5	3	*29*
Robbin's Island #1	89	05-115	2.40	14	5	6	*25*
Unnamed	401	05-287	2.61	21	4	0	*25*
Topickle Island Site	293	05-195	3.68	3	4	0	*7*
Tropical Site	727	05-460	4.65	17	13	0	*30*
Chopper Site	535	05-357	5.70	11	3	0	*14*
Ima Camper Site	277	05-199	7.14	23	7	0	*30*
Blind Man	142	05-176	8.24	15	0	8	*23*
Fill Your Glass Site	1317	05-773	8.79	2	0	0	*2*
Harry's Point Site	691	05-442	12.01	2	1	0	*3*
My Paisano Paisano Site	1280	05-750	12.52	4	0	0	*4*
Seagull Rapids	134	02-139	14.36	19	3	7	*29*
Table Rock Site	219	05-150	15.75	4	1	0	*5*
Unnamed	228	05-155	16.31	1	0	0	*1*
Insula 4 Site	209	05-152	17.25	22	8	0	*30*
Englishman Island Site	131	02-134	17.67	16	3	9	*28*
Mahlberg #9	646	07-176	17.97	4	3	0	*7*
Unnamed	560	05-366	19.20	0	1	0	*1*
Hudson Lake Camp Site	214	05-148	19.37	4	0	0	*4*
Hot One Site	464	05-313	19.88	18	8	0	*26*

Unnamed	1306	05-803	20.00	1	2	0	*3*
Unnamed	230	05-137	20.00	16	7	0	*23*
Unnamed	629	02-241	20.48	1	0	0	*1*
Unnamed	555	05-360	20.80	16	9	0	*25*
Norway Island	114	05-055	20.85	11	2	12	*25*
Fat Cigar Site	666	05-416	20.94	7	2	0	*9*
Unnamed	462	05-307	21.10	15	3	0	*18*
Lake One	150	05-178	21.97	3	0	1	*4*
Weckman Site	873	05-561	21.98	2	3	0	*5*
Who Knew Site	1163	05-703	24.15	8	8	0	*16*
Unnamed	811	05-514	25.48	0	1	0	*1*
Casa Blanca Site	285	05-243	25.68	1	1	0	*2*
Sand Hill	140	05-180	26.46	14	5	8	*27*
Sandy Site	101	05-127	32.33	19	2	5	*26*
Fall Chip Site	275	05-239	33.06	14	12	0	*26*
Fur Flake Island	1006	05-640	33.50	10	1	0	*11*
Bulldozer Site	271	05-189	33.58	12	6	0	*18*
			Total Flakes	***418***	***176***	***59***	***653***

4.4.1 Metric Attributes of Complete Flakes.

4.4.1.1 Weight of Complete Flakes Summary. Weight of complete flakes after log transformation and four percent trimming (transformations and trimming are described below) was charted across increasing distance from Wendt Site and the resultant graph depicts a generally decreasing mean flake weight as distance from Wendt Site increases. Figure 4.21shows the decreasing mean logarithmic expression of flake weight in grams over increasing distance from Wendt Site.

4.4.1.1.1 Level and Spread. Prior to comparing site assemblages through analysis of variance (ANOVA), the level and spread of each assemblage was assessed to assure that all assemblages subjected to such analysis adhere to the assumptions required of the statistics; that the mean of each batch is representative of the batch. This reliability of the mean was explored in two manners; each site was subjected to a box-plot diagram which identifies any outliers and or extreme outliers within an assemblage. Secondly, a histogram of each batch demonstrates the number of potential subpopulations; given a multimodal histogram is indicative of multiple populations within our batch of numbers and a single peaked histogram does not suggest the presence of multiple populations within the batch, though it does not exclude the possibility. A table is provided in Appendix C providing the mean, median, and standard deviation of the finalized assemblage, ready for analysis. Additionally, Table 4.6 shows the number of specimens, mean, median, and standard deviation of the raw assemblage values, of the natural log transformed population, and lastly those values for a log-transformed and 4% trimmed assemblage. It is recognized that a mean that is far away from the median is a red flag for a mean that does not well represent the batch of numbers from which it was calculated. Using these three methods, each site assemblage was subjected to analysis of the mean weight of complete flakes in preparation for analysis of variance within and between each batch.

When exploring the distribution of sample weights within each site assemblage it was observed that multiple sites contained outliers and some few extreme outliers based on box-plot diagrams of each assemblage. Based on histograms drawn it was observed that the majority of sites exhibit an upward skew. Closer examination of the populations points to heavy outliers which are drawing the mean artificially high in comparison to the median of the batch. A check of the mean, median, and standard deviation of each of these assemblages confirms that the means are generally drawn too high in comparison to the median weight. Therefore, in an attempt to correct the upward skew and potentially eliminate outliers, the weight of complete flakes was transformed to their logarithmic (natural) expression and reexamined. After the transformation, there was a considerable decrease in the discrepancy between the mean and median within nearly all batches. Histograms of these assemblages show single-peaked distributions and box-plots identify far fewer outliers. A check of the mean, median, and standard deviation of each batch confirms that the transformation has drawn the mean back toward the median and has eliminated some outliers. It is suggested by Drennan (2009) that outliers eliminated in this fashion were not in fact outliers to the batch. The few outliers that remain following the log transformation were then eliminated through trimming. A four percent trim was taken from the greatest values and least values within the batch. In this way, the few remaining outliers were eliminated; in one case they were not eliminated but are distributed in a balanced manner and therefore forgiven in terms of their normality of distribution. Having corrected the value of the mean in relationship to the rest of the batch in each batch of values, one is able to continue with ANOVA which relies on the mean and variance of each batch. The resulting distribution of mean flake weights is depicted in Figure 4.21.

Table 4.6: An Account of the Total Number of Flakes; the Mean, Median, and Standard Deviation of Flake Weight; and the weight log (natural) and weight log (natural) 4% Trimmed Means, Medians, and Standard Deviations at Sites Examined across the Study Area

Complete Flake Weight (g)													
Accession	Distance	N	μ	Med	σ	N_{log}	μ_{log}	Med_{log}	σ_{log}	$N_{log(T)}$	$\mu_{log(T)}$	$Med_{log(T)}$	$\sigma_{log(T)}$
1634	0.45	14	22.6	10.7	29.0	14	0.87	0.97	0.79	12	0.90	0.97	0.67
415	0.59	17	39.4	16.1	69.7	17	1.21	1.21	0.57	15	1.18	1.21	0.46
1404	0.86	16	1.3	0.6	1.6	16	-0.20	-0.22	0.62	14	-0.19	-0.22	.51
97	2.34	21	8.2	7.4	7.0	21	0.70	0.87	0.51	19	0.72	0.87	0.45
89	2.40	14	5.9	1.9	10.5	14	0.32	0.26	0.61	12	0.29	0.26	0.48
401	2.61	21	7.6	3.8	7.8	21	0.59	0.58	0.56	19	0.59	0.58	0.52
293	3.68	3	0.4	0.5	0.1	3	-0.37	-0.30	0.13	N/A	N/A	N/A	N/A
727	4.65	17	7.5	2.2	13.6	17	0.43	0.34	0.62	15	0.42	0.34	0.48
535	5.70	11	11.7	5.9	11.8	11	0.64	0.77	0.88	9	0.77	0.77	0.57
277	7.14	23	26.2	3.2	61.1	23	0.68	0.51	0.84	21	0.70	0.51	0.63
142	8.24	15	3.7	0.6	9.1	15	-0.03	-0.22	0.68	13	-0.05	-0.22	0.41
1317	8.79	2	14.3	14.3	12.8	2	1.04	1.04	0.46	N/A	N/A	N/A	N/A
691	12.01	2	3.0	3.0	1.8	2	0.43	0.43	0.28	N/A	N/A	N/A	N/A
1280	12.52	4	37.7	25.3	34.6	4	1.45	1.40	0.37	2	1.40	1.40	0.10
134	14.36	19	4.2	1.8	6.5	19	0.11	0.26	0.77	17	0.13	0.26	0.65
219	15.75	4	7.1	7.0	5.8	4	0.69	0.75	0.47	2	0.75	0.75	0.43
209	17.25	22	8.9	4.5	12.5	22	0.61	0.65	0.58	20	0.60	0.65	0.51
131	17.67	16	7.3	3.7	12.6	16	0.55	0.56	0.50	14	0.52	0.56	0.38
646	17.97	4	7.7	5.2	8.7	4	0.56	0.55	0.68	2	0.55	0.55	0.57
214	19.37	4	5.8	5.1	5.1	4	0.58	0.66	0.52	2	0.66	0.66	0.30
464	19.88	18	14.7	3.0	47.6	18	0.43	0.48	0.65	16	0.39	0.48	0.39

230	20.00	16	3.3	1.8	3.4	16	0.22	0.24	0.58	14	0.23	0.24	0.52
555	20.80	16	18.0	2.6	44.9	16	0.52	0.41	0.74	14	0.45	0.41	0.59
114	20.85	11	2.8	2.0	2.5	11	0.21	0.30	0.62	9	0.32	0.30	0.30
666	20.94	7	4.0	2.6	3.4	7	0.47	0.41	0.37	5	0.44	0.41	0.32
462	21.10	15	0.9	0.6	1.3	15	-0.37	-0.22	0.61	13	-0.37	-0.22	0.50
150	21.97	3	7.7	0.5	12.6	3	0.17	-0.30	1.02	N/A	N/A	N/A	N/A
873	21.98	2	1.6	1.6	0.4	2	0.18	0.18	0.10	N/A	N/A	N/A	N/A
1163	24.15	8	1.1	0.9	0.9	8	-0.16	-0.05	0.59	6	-0.04	-0.05	0.34
140	26.46	14	10.3	1.8	20.7	14	0.30	0.26	0.80	12	0.28	0.26	0.63
101	32.33	19	8.3	1.6	13.4	19	0.22	0.20	0.89	17	0.24	0.20	0.78
275	33.06	14	3.0	2.1	4.2	14	0.13	0.31	0.69	12	0.17	0.31	0.49
1006	33.50	10	3.5	1.1	6.3	10	-0.02	0.03	0.79	8	-0.02	0.03	0.53
271	33.58	12	2.3	1.4	2.4	12	0.11	0.13	0.52	10	0.11	0.13	0.44

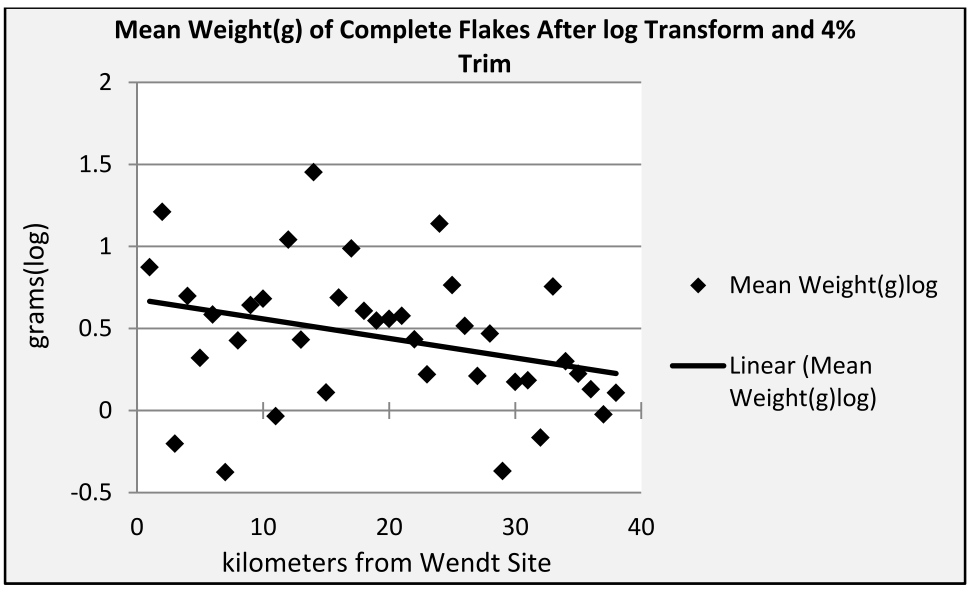

Figure 4.21: Mean Weight of Complete Flakes after Log (natural) Transformation and 4% Trim

4.4.1.1.2 Analysis of Variance. Analysis of variance was conducted on the assemblages, generating a *p*-value between groups and a post-hoc Tukey's Pairwise table indicating *p*-values shared between each potential pairing of sites. Both the analysis of variance and Tukey's table are provided in Appendix H. It should be noted that values in the Tukey's table have been rounded to the nearest 100th place decimal. In general, the probability that these 34 assemblages have means that can be considered as from the same parent population and their differences are due to the vagaries of sampling alone is indicated as extremely low, having a between-groups *p*-value of 0.00000000000000349. The Tukey's Pairwise table compares each assemblage to each other and finds that the majority of site pairings have *p* values far exceeding any cut off for statistically significant differences between the assemblages. Probabilities approaching significance were rarer. Three sites in particular appear to have the least likelihood of being drawn from the same parent population when paired with nearly all of the other sites. The site located at 12.52 kilometers from Wendt Site, My Paisano Paisano Site (n=4), has the greatest number of significant differences when compared with the other 33 sites. This site pairs have shared *p*-values approaching 1.0 between itself and the site located 0.45 kilometers from Wendt Site, AJM Site (n=14), and between itself and the site located 0.59 kilometers from Wendt Site, Arabesque Site (n=17). The site with the second greatest number of significant differences is the site located 21.10 kilometers from Wendt Site, an unnamed site (FS 05-307; n=15). Arabesque site in turn also has many significant *p*-values when paired with sites other than My Paisano Paisano.

The most significantly different results (*p*-values at or below 0.05) of the Tukey's Pairwise analysis are provided in Table 4.7 where they are most easily interpreted in terms of spatial patterning. It can be seen clearly that sites at 12.52 km and 21.10 km have the greatest number of site pairings with *p*-values approaching zero and include sites at distances from .45 km to 33.58 km. Aside from the two aforementioned sites, several other sites had some few pairings with *p*-values approaching zero including sites at 0.45 km, 0.59 km, and 2.34 km. In addition to the strong *p*-values approaching zero, there were an overwhelming number of sites that have paired *p*-values approaching 1.0, indicating a much greater chance that their differences are due only to the vagaries of sampling. However, because it is known that these sites are separate populations, one can take this indication of similarity as just that; not a chance that they actually came from the same archaeological population but rather a finite statement on similarities of mean measurements between paired site assemblages. There is in addition to the strong sameness indications and difference indications, *p*-values between some pairs that are not considered significant results, *p*-values greater than 0.05 and less than 0.95. These insignificant pairings are far fewer in number than the significant pairings. Again, the individual pairings and their resultant *p*-values are listed in the Tukey's table mentioned above and are not enumerated upon fully in text.

Table 4.7: Significant Mean Weight *p*-values Generated between Sites during Post-hoc Tukey's Pairwise Testing of Examined Sites across the Study Area

km	0.86	8.24	12.52	14.36	20.00 (ACC 230)	20.85	21.10	24.15	26.46	33.06	33.50	33.58
0.45	p=0.03						p=0.00					
0.59	p=0.00	p=0.00		p=0.05			p=0.00	p=0.00			p=0.01	p=0.04
0.86			p=0.00									
2.34							p=0.03					
2.40			p=0.02									
5.70							p=0.02					
7.14							p=0.04					
8.24			p=0.00									
12.52				p=0.00	p=0.01	p=0.03	p=0.00	p=0.00	p=0.02	p=0.00	p=0.00	p=0.00
15.75							p=0.02					

4.4.1.2 Oriented Length of Complete Flakes Summary. Oriented length of complete flakes after four percent trimming, trimming as described below, was charted across increasing distance from Wendt Site and the resultant graph depicts a generally decreasing mean flake oriented length as distance from Wendt Site increases. Figure 4.22 shows the decreasing mean flake oriented length in millimeters over increasing distance from Wendt Site.

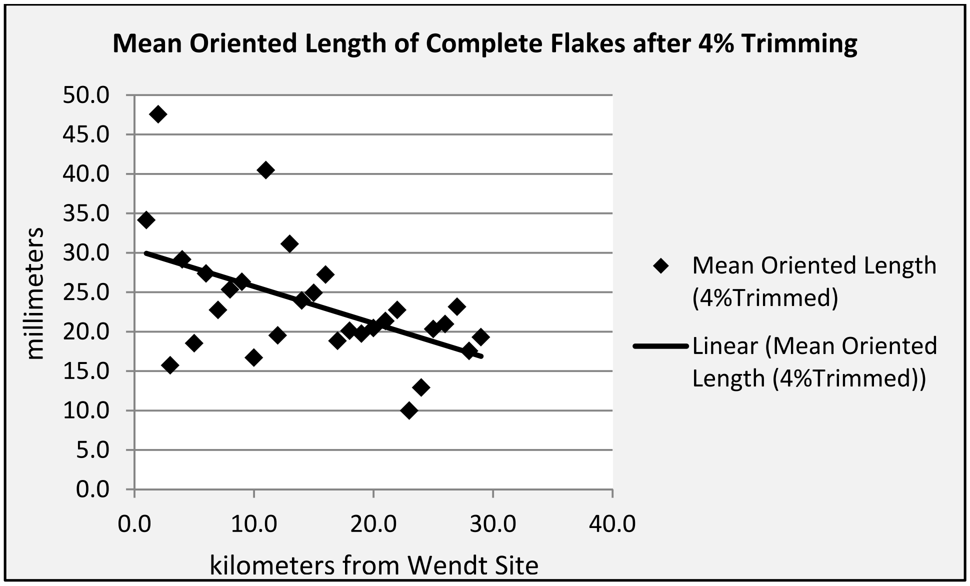

Figure 4.22: Mean Oriented Length of Complete Flakes after 4% Trimming at Examined Sites across the Study Area

4.4.1.2.1 Level and Spread. The same statistical requirements applied to the attribute of weight were applied to oriented length as well. A table is provided in Appendix E providing the mean, median, and standard deviation of the assemblage used in further analysis. Additionally, Table 4.8 shows the number of specimens, mean, median, and standard deviation for the assemblage's raw values as well as for a 4% trimmed assemblage. Using these three methods, each site assemblage was subjected to analysis of the mean oriented length of complete flakes in preparation for analysis of variance within and between each batch. Each batch was subjected to 4% trimming to correct for an upward skew present in a number of batches.

Table 4.8: An Account of the Total Number of Flakes; the Mean, Median, and Standard Deviation of Flake Oriented Length; and the 4% Trimmed Means, Medians, and Standard Deviations at Sites Examined across the Study Area

Complete Flake Oriented Length (mm)									
Accession	Distance	N	μ	Med	σ	N_T	μ_T	Med_T	σ_T
1634	0.45	14	36.5	26.75	27.6	12	34.2	26.8	23.2
415	0.59	17	47.3	49.8	20.1	15	47.6	49.8	18.5

1404	0.86	16	16.2	14.45	7.7	14	15.7	14.5	5.6
97	2.34	21	29.3	29.3	12.1	19	29.2	29.3	10.4
89	2.40	14	22.0	18.05	17.3	12	18.6	18.1	6.2
401	2.61	21	27.8	26	14.3	19	27.4	26	13
293	3.68	3	13.1	14.6	3.7	N/A	N/A	N/A	N/A
727	4.65	17	23.8	19.9	11.5	15	22.8	19.9	8.5
535	5.70	11	25.6	23.3	14.6	9	25.4	23.3	12.4
277	7.14	23	28.0	23	19.4	21	26.3	23.0	15.8
142	8.24	15	19.9	15	15.2	13	16.7	15	5.7
1317	8.79	2	39.6	39.6	1.3	N/A	N/A	N/A	N/A
691	12.01	2	27.0	27	16.3	N/A	N/A	N/A	N/A
1280	12.52	4	42.8	40.5	11.0	2	40.5	40.5	4.7
134	14.36	19	21.0	17.1	13.1	17	19.5	17.1	9.6
219	15.75	4	33.0	31.15	17.6	2	31.2	31.2	13.2
209	17.25	22	24.6	23.55	8.8	20	24.0	23.6	7.1
131	17.67	16	26.2	23.4	12.0	14	24.9	23.4	8.1
646	17.97	4	26.5	27.25	12.7	2	27.3	27.3	6.9
214	19.37	4	20.3	18.85	9.4	2	18.9	18.9	6.6
464	19.88	18	25.7	18.8	27.3	16	20.1	18.8	7.9
230	20(230)	16	21.2	14.95	12.3	14	19.8	15.0	9.0
555	20.80	15	24.2	15.7	19.8	13	20.5	15.7	10.1
114	20.85	11	21.5	22	7.7	9	21.4	22.0	4.1
666	20.94	7	24.7	17.7	13.5	5	22.8	17.7	10.3
462	21.10	14	11.4	10.05	7.1	12	10.0	10.1	3.1
150	21.97	3	24.1	14.3	24.1	N/A	N/A	N/A	N/A
873	21.98	2	14.5	14.5	10.6	N/A	N/A	N/A	N/A
1163	24.15	8	13.9	11.8	6.2	6	12.9	11.8	3.7
140	26.46	14	22.1	16.55	14.1	12	20.4	16.6	10.0
101	32.33	19	22.2	19.8	13.8	17	21.0	19.8	11.6
275	33.06	13	22.8	22.7	10.5	11	23.2	22.7	9.2
1006	33.50	10	18.3	15.95	9.2	8	17.6	16.0	6.4
271	33.58	12	20.6	17.8	10.8	10	19.3	17.8	8.2

4.4.1.2.2 Analysis of Variance. Analysis of variance was conducted on the collection of assemblages, generating a *p*-value between groups and a post hoc Tukey's Pairwise table indicating *p*-values shared between each potential pairing of sites. Both the analysis of variance and Tukey's table are provided in Appendix H. It should be noted that values in the Tukey's table have been rounded to the nearest 100th place decimal. In general, the probability that these assemblages all have means that could have been drawn from the same parent population and their differences are due to the vagaries of sampling alone is indicated as extremely low, having a between-groups *p*-value of 0.00000000000000466. The Tukey's Pairwise table finds that the majority of site pairings indicate strong similarities, indicated by *p*-values approaching 1.0. Strong differences, indicated by *p*-values approaching 0.00 were present and include for the most part, pairings between Arabesque Site at 0.59 kilometers and nearly every other site other than My Paisano Paisano Site with which it has a significant similarity indicated by a paired *p*-value of 1.0. This is the only site with which Arabesque is shown to have a strong similarity. In fact, only five sites pair insignificantly, one pairs with strong similarity, and all the remaining sites pair with Arabesque showing strong dissimilarity indicated by *p*-values approaching 0.00. All significant pairings are listed below in Table 4.9.

Table 4.9: Significant Mean Oriented Length *p*-values Generated between Sites during Post-Hoc Tukey's Pairwise Testing of Examined Sites across the Study Area

km	0.59	12.52
0.45		p=1.00
0.59		p=1.00
0.86	p=0.00	p=0.01
2.34		p=0.98
2.40	p=0.00	p=0.04
4.65	p=0.01	
5.70	p=0.03	
8.24	p=0.00	p=0.01
12.52	p=1.00	
14.36	p=0.00	
15.75		p=1.00
17.25	p=0.01	
17.67	p=0.03	
19.37	p=0.00	p=0.05
19.88	p=0.00	
20.00 (ACC230)	p=0.00	
20.80	p=0.00	
20.85	p=0.00	
20.94	p=0.01	
21.10	p=0.00	p=0.00
24.15	p=0.00	p=0.00
26.46	p=0.00	
32.33	p=0.00	
33.06	p=0.01	

33.50	p=0.00	p=0.02
33.58	p=0.00	

4.4.2 Cortex Presence on All Flakes. The presence or absence of cortex was recorded for every flake at each of the 40 flake-bearing sites within the study, also found in Table 4.10. Cortex was present on flakes at only 20 out of the 40 flake bearing sites. A percentage of cortex-bearing flakes and a percentage of non-cortex flakes were calculated for each site and the proportion of flakes bearing cortex was graphed. Figure 4.23 depicts a line graph representation of these values. As seen in the aforementioned figure, the presence of cortex does not seem to correlate directly with increasing distance from Wendt Site. The presence of cortex appears to spike at 8.79 kilometers from Wendt Site with 50% (n=2), the greatest percentage of cortex bearing flakes within all of the 40 sites. In general, there are five sites that meet or exceed a cortex-bearing flake presence frequency of 20% or greater and include, in addition to the aforementioned site with 50% cortex-bearing flakes, sites located at 15.75 km (20%), 19.37 km (25%), 21.98 km (20%), and 32.33 (23%). Because the low sample size involved makes the 50% value artificially high compared to more robust assemblages it can be seen that there is a spike in frequency of cortex bearing flakes at 32.33 kilometers from Wendt Site with six (23%) flakes bearing cortex. Again, cortex was present on flakes at only 20 of the 40 flake bearing sites. In each of these cases the number of cortex bearing flakes is very low and any instance where a higher percentage of cortex bearing flakes is shown, this is likely a function of a small sample size. There does not appear to be any clear increase or decrease in the presence of cortex on debitage flakes as distance from Wendt Site increases. It can be said, however, that at several locations, those mentioned above, there is some presence of cortex, though minimal at its greatest.

Table 4.10: Count of Cortex-Bearing and Non-Cortex-Bearing Flakes and Their Frequency within each Examined Assemblage

Cortex Presence on All Flakes						
Accession	**Distance**	**N**	**n_{Cortex}**	**$\%_{Cortex}$**	**$n_{NoCortex}$**	**$\%_{NoCortex}$**
1634	0.45	*30*	0	0%	30	100%
415	0.59	*30*	1	3%	29	97%
1404	0.86	*30*	0	0%	30	100%
97	2.34	*29*	0	0%	29	100%
89	2.4	*25*	2	8%	23	92%
401	2.61	*25*	1	4%	24	96%
293	3.68	*7*	0	0%	7	100%
727	4.65	*30*	4	13%	26	87%
535	5.7	*14*	1	7%	13	93%
277	7.14	*30*	2	7%	28	93%
142	8.24	*23*	1	4%	22	96%
1317	8.79	*2*	1	50%	1	50%
691	12.01	*3*	0	0%	3	100%
1280	12.52	*4*	0	0%	4	100%
134	14.36	*29*	1	3%	28	97%
219	15.75	*5*	1	20%	4	80%
228	16.31	*1*	0	0%	1	100%
209	17.25	*30*	3	10%	27	90%
131	17.67	*28*	1	4%	27	96%
646	17.97	*7*	0	0%	7	100%
560	19.2	*1*	0	0%	1	100%
214	19.37	*4*	1	25%	3	75%
464	19.88	*26*	1	4%	25	96%
230	20.00	*23*	0	0%	23	100%
1306	20.00	*3*	0	0%	3	100%
629	20.48	*1*	0	0%	1	100%
555	20.8	*25*	1	4%	24	96%
114	20.85	*25*	1	4%	24	96%
666	20.94	*9*	0	0%	9	100%
462	21.1	*18*	0	0%	18	100%
150	21.97	*4*	0	0%	4	100%
873	21.98	*5*	1	20%	4	80%
1163	24.15	*16*	0	0%	16	100%
811	25.48	*1*	0	0%	1	100%
285	25.68	*2*	0	0%	2	100%
140	26.46	*27*	1	4%	26	96%
101	32.33	*26*	6	23%	20	77%
275	33.06	*26*	0	0%	26	100%
1006	33.5	*11*	1	9%	10	91%
271	33.58	*18*	0	0%	18	100%

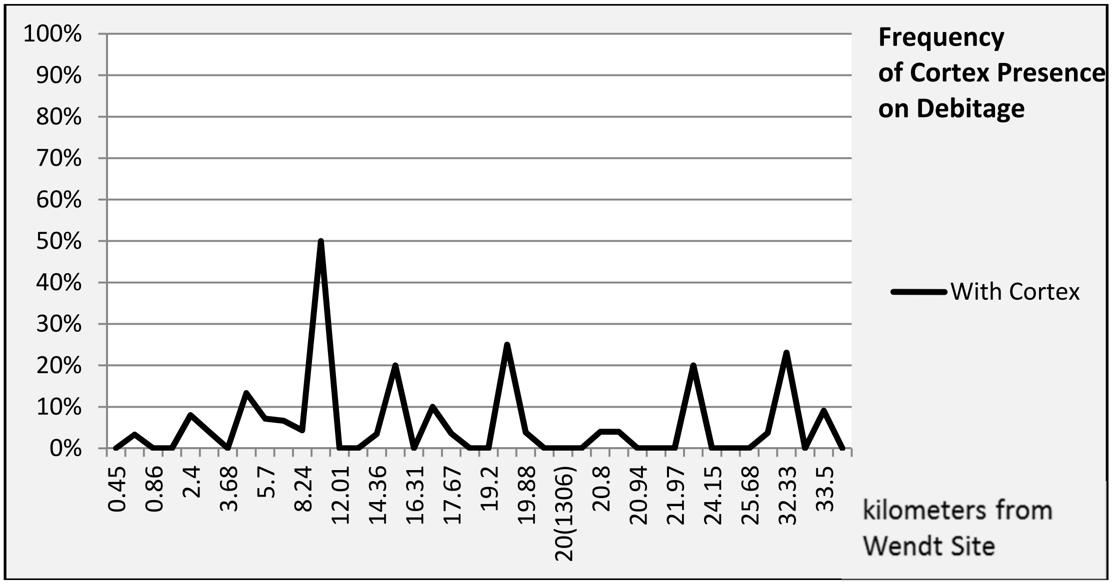

Figure 4.23: Frequency of Cortex Presence on Debitage for each Assemblage Examined

4.4.3 Platform Attributes.

4.4.3.1 Facet Counts on Platform-Bearing Flakes. Facets were recorded for each flake that bears a platform; a mean of the count of platform facets for each site was calculated then graphed, in Figure 4.24, and compared to increasing distance from Wendt Site. The median facet count was also calculated and graphed in this fashion and can be found in Figure 4.25. As can be seen in both of the aforementioned figures, both the mean and median number of facets on flakes at each site is in general decreasing as distance from Wendt Site increases. Facets were also treated categorically, specifically, the frequency of complex and simple flakes were calculated for each site and is provided in Table 4.11. Complex flakes are defined herein as flakes having two or more platform facets. Any platform with only one facet is considered a simple flake. A line graph depicting the percentage of complex flakes at each flake bearing site is provided in Figure 4.26. This figure shows that complex flakes are generally less present than simple flakes across the study area. It appears, based on the aforementioned figure, that complex flake presence remains relatively steady as distance from Wend Site increases. The majority of sites appear to have a near even mix of complex and simple flakes with the exception of several sites which contain either all complex or all simple debitage. It should also be noted, especially in instances where one sees a complete absence of one or the other category, that small sample sizes are suspect as the source of this variation. Considering this, it can be seen that sites located at distances from Wendt Site including 19.20km (n=1), 21.97km (n=2), and 25.48km (n=1) are the only sites that do not contain any complex flakes. Sites located at distances from Wendt Site including 12.01km (n=3), 20.00km (ACC 1306; n=3), and 20.48km (n=1) each contain only complex flakes. All other sites in the study varied between, however a majority lie somewhere between 40% simple and 70% simple flakes, or between 30% and 60% complex flakes. Further studies that take into consideration the temporal/cultural affiliation of these specific sites may shed light on if there is likelihood that this indicates differing adaptational strategies. There does not appear to be a clear patterning between the variation in percentage of complex flakes per site and increasing distance from Wendt Site.

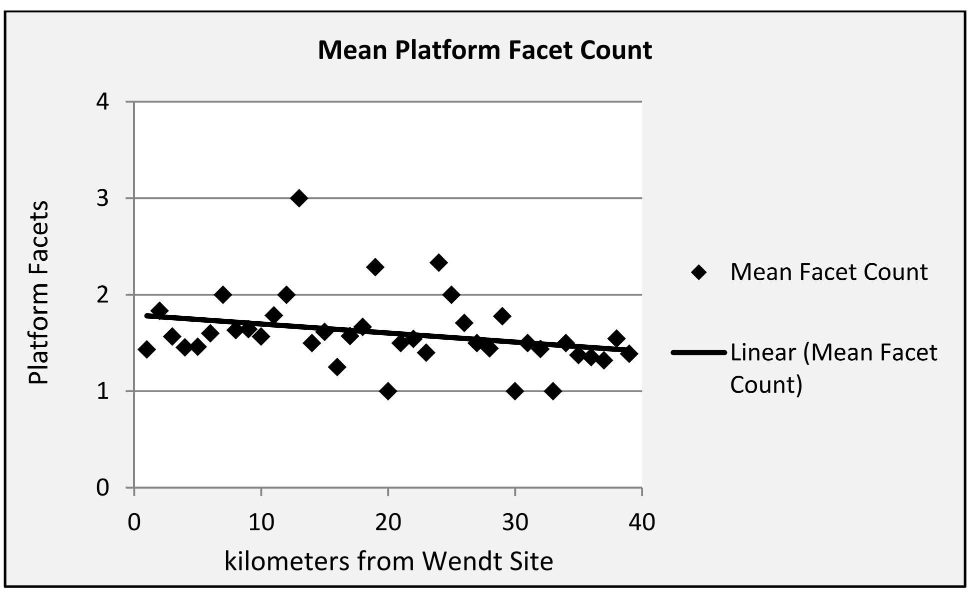

Figure 4.24: Mean Platform Facet Count for each Assemblage Examined

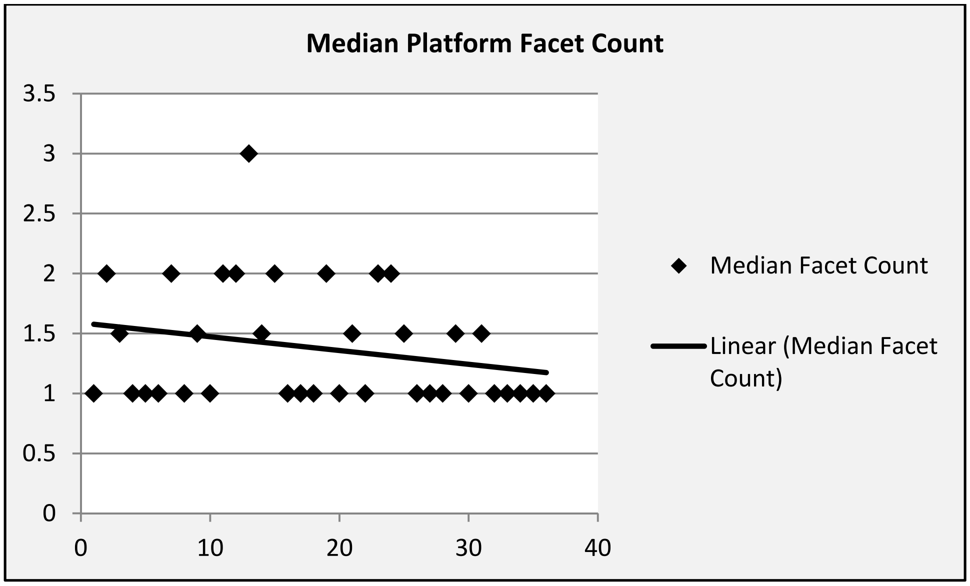

Figure 4.25: Median Platform Facet Count for each Assemblage Examined

Table 4.11: The Number and Frequency of Simple and Complex Flakes from each Assemblage Examined

Complete and Proximal Complex vs Simple Flakes						
Accession	Distance	N	n_{simple}	$\%_{simple}$	$n_{complex}$	$\%_{complex}$
1634	0.45	30	19	63%	11	37%
415	0.59	30	9	30%	21	70%
1404	0.86	30	15	50%	15	50%
97	2.34	22	15	68%	7	32%
89	2.40	13	7	54%	6	46%
401	2.61	25	13	52%	12	48%
293	3.68	5	2	40%	3	60%
727	4.65	30	17	57%	13	43%
535	5.70	14	7	50%	7	50%
277	7.14	30	18	60%	12	40%
142	8.24	14	6	43%	8	57%
1317	8.79	2	1	50%	1	50%
691	12.01	3	0	0%	3	100%
1280	12.52	4	2	50%	2	50%
134	14.36	13	6	46%	7	54%
219	15.75	4	3	75%	1	25%
209	17.25	28	15	54%	13	46%
131	17.67	15	8	53%	7	47%
646	17.97	7	1	14%	6	86%
560	19.20	1	1	100%	0	0%
214	19.37	4	3	75%	1	25%

464	19.88	24	12	50%	12	50%
230	20.00	20	14	70%	6	30%
1306	20.00	3	0	0%	3	100%
629	20.48	1	0	0%	1	100%
555	20.80	24	11	46%	13	54%
114	20.85	10	5	50%	5	50%
666	20.94	9	6	67%	3	33%
462	21.10	18	10	56%	8	44%
150	21.97	2	2	100%	0	0%
873	21.98	4	2	50%	2	50%
1163	24.15	16	9	56%	7	44%
811	25.48	1	1	100%	0	0%
285	25.68	2	1	50%	1	50%
140	26.46	16	10	63%	6	38%
101	32.33	17	12	71%	5	29%
275	33.06	25	18	72%	7	28%
1006	33.50	11	8	73%	3	27%
271	33.58	18	13	72%	5	28%

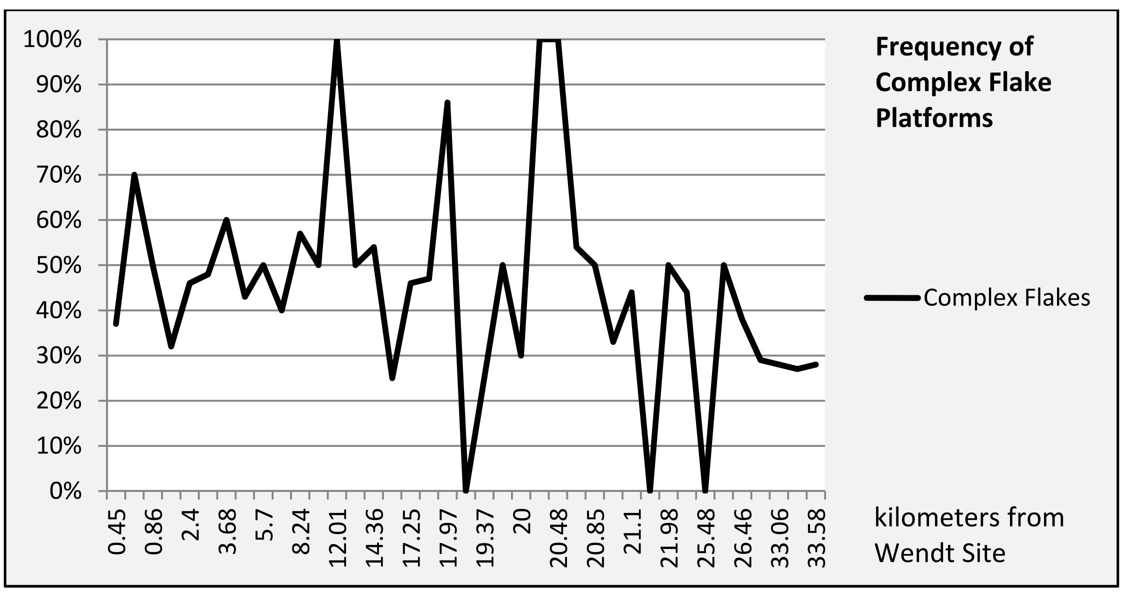

Figure 4.26: The Frequency of Complex Flakes for each Assemblage Examined across the Study Area

4.4.3.2 Platform Thickness.

4.4.3.2.1 Level and Spread. The same procedures for assuring a normally distributed batch applied to each of the previously discussed metric attributes such as weight and oriented length were applied to platform thickness of flakes as well. A table is provided in Appendix G providing the mean, median, and standard deviation of the assemblage used in further analysis. Additionally, Table 4.12 shows the number of specimens, mean, median, and standard deviation for the assemblage's raw values as well as for a 4% trimmed assemblage. The 4% trimming was utilized to correct for a slight upward skew of multiple assemblages.

Table 4.12: An Account of the Total Number of Flakes; the Mean, Median, and Standard Deviation of Flake Platform Thickness; and the 4% Trimmed Means, Medians, and Standard Deviations at Sites Examined across the Study Area

Complete and Proximal Flake Platform Thickness (mm)									
Accession	Distance	N	μ	Med	σ	N_T	μ_T	Med_T	σ_T
1634	0.45	30	17.5	12.7	16.9	26	14.7	12.7	9.9
415	0.59	30	24.2	19.8	19.2	26	21.0	19.8	10.4
1404	0.86	30	10.4	10.3	4.3	26	10.3	10.3	3.5
97	2.34	22	11.5	9.5	7.2	20	11.1	9.5	6.4
89	2.40	16	9.2	8.1	5.4	14	9.0	8.1	4.8
401	2.61	25	13.9	13.9	7.2	23	13.5	13.9	6.3
293	3.68	5	11.6	12.2	4.1	3	12.1	12.2	3.1
727	4.65	30	16.9	15.5	11.7	26	15.3	15.5	7.4
535	5.70	14	19.1	16.0	12.1	12	18.1	16	10.2
277	7.14	30	17.6	13.5	12.2	26	16.0	13.5	7.1
142	8.24	14	6.9	5.6	4.6	12	6.3	5.6	3.2
1317	8.79	2	12.8	12.8	2.1	2	12.8	12.8	2.1
691	12.01	3	13.7	11.9	6.7	N/A	N/A	N/A	N/A
1280	12.52	4	35.6	37.1	21.7	2	37.1	37.1	10.7
134	14.36	13	8.8	6.7	5.8	11	8.4	6.7	5.1
219	15.75	4	13.3	13.2	2.1	2	13.2	13.2	1.9
209	17.25	28	11.9	9.8	8.1	24	10.9	9.8	5.8
131	17.67	15	11.7	7.7	9.0	13	10.7	7.7	7.1
646	17.97	7	15.7	7.9	16.8	5	10.5	7.9	4.9
214	19.37	4	10.4	8.6	6.1	2	8.6	8.6	3.9
464	19.88	24	14.1	10.6	10.0	22	12.8	10.6	5.6
230	20.00	20	9.8	7.0	7.3	18	8.8	7.0	4.7
1306	20.00	3	12.4	11.7	3.0	N/A	N/A	N/A	N/A
555	20.80	24	17.6	13.7	14.4	22	15.9	13.7	9.6
114	20.85	10	6.7	5.8	4.0	8	5.9	5.8	2.0
666	20.94	9	11.1	10.9	5.3	7	10.3	10.9	2.9
462	21.10	18	8.7	8.9	3.0	16	8.6	8.9	2.3
150	21.97	2	14.2	14.2	10.8	N/A	N/A	N/A	N/A
873	21.98	3	24.1	21.2	7.2	N/A	N/A	N/A	N/A
1163	24.15	16	9.0	7.6	5.3	14	8.5	7.6	4.0

285	25.68	2	9.8	9.8	7.1	N/A	N/A	N/A	N/A
140	26.46	16	10.2	5.4	11.9	14	7.8	5.4	5.1
101	32.33	17	7.1	6.1	4.5	15	6.9	6.1	3.9
275	33.06	25	6.8	6.1	2.7	23	6.7	6.1	2.3
1006	33.50	11	12.6	9.5	11.5	9	9.8	9.5	3.3
271	33.58	18	9.3	7.0	6.4	16	8.4	7.0	3.6

4.4.3.2.2 Analysis of Variance. Analysis of variance was conducted on the collection of assemblages, generating a *p*-value between groups and a post hoc Tukey's Pairwise table indicating *p*-values shared between each potential pairing of sites. Both the analysis of variance and Tukey's table are provided in Appendix I. It should be noted that values in the Tukey's table have been rounded to the nearest 100th place decimal. In general, the probability that these assemblages all have means that could have been drawn from the same parent population and their differences are due to the vagaries of sampling alone is indicated as extremely low, having a between-groups *p*-value of 0.0000000000000000000286. The Tukey's Pairwise table and its comparison of each assemblage determined that the majority of site pairings lack statistically significant difference, indicated by *p*-values approaching 1.0. Strong differences, indicated by highly significant *p*-values approaching 0.00 were present and include pairings between Arabesque Site, at 0.59km, and most other sites, between My Paisano Paisano Site (12.52km) and all other sites, and between Chopper Site (5.70km from Wendt Site) and three sites. Table 4.13 shows the significant *p*-values mentioned above.

Table 4.13: Significant Mean Platform Thickness *p*-values Generated between Sites during Post-hoc Tukey's Pairwise Testing of Examined Sites across the Study Area

km	**0.59**	**5.70**	**12.52**
0.45			p=0.00
0.59			p=0.00
0.86			p=0.00
2.34			p=0.00
2.40	p=0.04		p=0.00
2.61			p=0.00
3.68			p=0.00
4.65			p=0.00

5.70			p=0.00
7.14			p=0.00
8.24	p=0.00	p=0.05	p=0.00
12.52	p=0.00	p=0.00	
14.36	p=0.02		p=0.00
15.75			p=0.00
17.25			p=0.00
17.67			p=0.00
17.97			p=0.00
19.37	p=0.03		p=0.00
19.88			p=0.00
20.00 (ACC230)	p=0.04		p=0.00
20.80			p=0.00
20.85	p=0.00	p=0.03	p=0.00
20.94			p=0.00
21.10	p=0.03		p=0.00
24.15	p=0.02		p=0.00
26.46	p=0.01		p=0.00
32.33	p=0.00		p=0.00
33.06	p=0.00		p=0.00
33.50			p=0.00
33.58	p=0.02		p=0.00

4.5 Miscellaneous KLS Tools

4.5.1 Drill. A single drill is included amongst all the KLS materials at the sampled sites. This single drill is from Robbin's Island #1 located 2.40 kilometers from Wendt Site and was not included in analysis of bifaces. Though it fits a functional description of a biface, it is considered a functional-specific tool as compared to bifaces as a more general artifact category. This drill was made in anticipation of a particular task rather than a range of possible tasks as applies to most of the bifaces in the sample.

4.5.2 End-Scrapers. A total of eight end-scrapers were found within the site assemblages selected for this study and were located across eight different sites. These sites and their respective distances from Wendt Site include Arabesque at 0.59km, Englishman Island at 17.67km, Mahlberg #9 at 17.97km, Hot One Site at 19.88km, an unnamed site (FS 05-803) at 20.00km, Lake One at 21.97km, Casa Blanca Site at 25.68km, and Fur Flake Island at 33.50km. These end-scrapers fit a morphological description of unifaces, however for the same reason that the aforementioned drill was excluded from analysis of bifaces, all end-scrapers were excluded from analysis of unifaces as their form implies a limited functionality.

4.6 Presence/Absence Cluster Analysis of KLS Artifact Types

Across the 46 sites included in the study, the presence or absence of certain artifact classes was recorded per the following categories: cores, bifaces, unifaces, flake tools, simple flakes, complex flakes, other flakes, drills, and end-scrapers, as seen in Table 4.14. The presence or absence of the artifact types were translated into 1s (indicating presence) and zeros (indicating absence). The data were then subjected to Dice/Sorenson's Cluster Analysis. The Dice/Sorenson method was chosen as the Past 3.0 manual (2013 112:113) suggests that this is the most appropriate method for evaluating similarities between sites based on the presence or absence of data. The resultant clustering pattern is depicted in Figure 4.27. The results are also, for ease of discussion, available in Table 4.15. In the first cluster branch (Cluster 1), the site at 33.60 kilometers, Two Toe Site, is removed from the remaining 45 sites (Cluster 2). In the next branching (Cluster 2A), Ledgerock Metaphysics Site at 6.82 km, *Unnamed Site* (FS 05-366) at 19.20 km, Gunflint 46 Site at 29.41 km, and *Unnamed Site* (FS 05-183) at 33.51 km are removed from the remaining 41 sites (Cluster 2B). At the next branching Cluster 2B2 with sites located at 7.29 km, 15.26 km, and 20.00 km (Accession 1306) is differentiated from the remaining 38 sites (Cluster 2B1). The last branch (Cluster 2B1B) identified in this manner is where the site at 16.31 km, *Unnamed Site* (FS 05-155) is distinguished from the remaining 37 sites (Cluster 2B1A). The initial results of the cluster analysis do not show a pattern coinciding with changing distance from Wendt Site. Instead, several sites from across the study area have been identified through this process as differing from the majority of sites.

The presence/absence table shows that the site identified as most different, Two Toe Site at 33.60 kilometers from Wendt Site, includes one core. The sites identified as the second greatest in difference (Cluster 2A) are, Ledgerock Metaphysics Site at 6.82 km which included a single uniface, *Unnamed Site* (FS 05-366) at 19.20 km which included one uniface, one flake tool and one simple flake, Gunflint 46

Site at 29.41 km which included a single uniface, and *Unnamed Site* (FS 05-183) at 33.51 km which also included a single uniface. Several sites (Cluster 2B2) were identified as differing from the majority of sites and included Yogurt Mule Boot Site at 7.29 kilometers which included one biface. This branch also included *Unnamed Site* (FS 02-217) at 15.26 kilometers which included one biface, and *Unnamed Site* (FS 05-803) at 20.00 kilometers from Wendt Site (Accession 1306) which included one biface, three complex flakes, and an end-scraper. The last identified branch in the cluster analysis (Cluster 2B1B) showed that the site at 16.31 km, *Unnamed Site* (FS 05-155), which included a single flake classified as "other" as it lacks characteristics necessary to determine whether it is a simple or complex flake, is distinguished from the remaining 37 sites (Cluster 2B1A). The remaining branches of the cluster diagram become more intricate with decreased dissimilarity indicated and are not further explored in the manner above.

The use of cluster analysis on this data produced disappointing results as there was no clear distance-based pattern observed in the resultant site clusters. While the analysis did group sites based on the presence of artifact forms represented at each site, the grouped assemblages did not coincide with similar distances.

Table 4.14: The Total Count of Cores, Bifaces, Unifaces, Flake-Tools, Simple Flakes, Complex Flakes, Other Flakes, Drills, and End-Scrapers at each Site Examined across the Study Area

Presence/Absence of KLS Cultural Materials											
Site Name	Accession/FS-ID	km	Cores	Bifaces	Unifaces	Flake Tools	Simple Flakes	Complex Flakes	Other Flakes	Drills	End-Scrapers
AJM Site	1634/05-930	0.45	0	7	0	45	19	11	0	0	0
Arabesque Site	415/05-270	0.59	2	11	4	82	9	21	0	0	1
Susan Melissa Site	1404/05-827	0.86	1	0	5	3	15	15	0	0	0
Little Knife Portage	97/05-094	2.34	1	0	0	0	15	7	7	0	0
Robbin's Island #1	89/05-115	2.40	0	0	0	3	7	6	12	1	0
Unnamed Site	401/05-287	2.61	0	1	0	1	13	12	0	0	0
Topickle Island Site	293/05-195	3.68	0	0	0	0	2	3	2	0	0
Tropical Site	727/05-460	4.65	0	1	1	0	17	13	0	0	0

Chopper Site	535/05-357	5.70	0	0	0	0	7	7	0	0	0
Ledgerock Metaphysics Site	139/05-727	6.82	0	0	1	0	0	0	0	0	0
Ima Camper Site	277/05-199	7.14	2	0	0	6	18	12	0	0	0
Yogurt Mule Boot Site	1269/05-742	7.29	0	1	0	0	0	0	0	0	0
Blind Man	142/05-176	8.24	0	0	0	0	6	8	9	0	0
Fill Your Glass Site	1317/05-773	8.79	1	0	0	0	1	1	0	0	0
Harry's Point Site	691/05-442	12.01	0	0	0	0	0	3	0	0	0
My Paisano Paisano Site	1280/05-750	12.52	0	0	2	0	2	2	0	0	0
Seagull Rapids	134/02-139	14.36	1	0	0	0	6	7	16	0	0
Unnamed Site	515/02-217	15.26	0	1	0	0	0	0	0	0	0
Table Rock Site	219/05-150	15.75	0	0	1	0	3	1	1	0	0
Unnamed Site	228/05-155	16.31	0	0	0	0	0	0	1	0	0
Insula 4 Site	209/05-152	17.25	0	1	0	0	15	13	2	0	0
Englishman Island Site	131/02-134	17.67	0	0	0	0	8	7	13	0	1
Mahlberg #9	646/07-176	17.97	0	0	1	0	1	6	0	0	1
Unnamed Site	560/05-366	19.20	0	0	1	1	1	0	0	0	0
Hudson Lake Camp Site	214/05-148	19.37	0	0	0	0	3	1	0	0	0
Hot One Site	464/05-313	19.88	0	2	0	1	12	12	2	0	1
Unnamed Site	1306/05-803	20.00	0	1	0	0	0	3	0	0	1
Unnamed Site	230/05-137	20.00	0	0	0	0	14	6	3	0	0
Unnamed Site	629/02-241	20.48	0	0	0	0	0	1	0	0	0
Unnamed Site	555/05-360	20.80	0	0	0	1	11	13	1	0	0
Norway Island	114/05-055	20.85	0	0	1	0	5	5	15	0	0
Fat Cigar Site	666/05-416	20.94	0	0	1	0	6	3	0	0	0
Unnamed Site	462/05-307	21.10	1	0	0	3	10	8	0	0	0
Lake One	150/05-178	21.97	0	0	0	0	2	0	2	0	1
Weckman Site	873/05-561	21.98	0	0	0	0	2	2	1	0	0
Who Knew Site	1163/05-703	24.15	0	0	0	0	9	7	0	0	0

Unnamed Site	811/05-514	25.48	0	0	0	0	1	0	0	0	0
Casa Blanca Site	285/05-243	25.68	0	0	0	0	1	1	0	0	1
Sand Hill	140/05-180	26.46	0	1	0	0	10	6	11	0	0
Gunflint 46 Site	1645/02-791	29.41	0	0	1	0	0	0	0	0	0
Sandy Site	101/05-127	32.33	0	0	1	0	12	5	9	0	0
Fall Chip Site	275/05-239	33.06	0	1	1	0	18	7	1	0	0
Fur Flake Island	1006/05-640	33.50	0	0	0	0	8	3	0	0	1
Unnamed Site	143/05-183	33.51	0	0	1	0	0	0	0	0	0
Bulldozer Site	271/05-189	33.58	0	0	0	0	13	5	0	0	0
Two Toe Site	1400/05-823	33.60	1	0	0	0	0	0	0	0	0

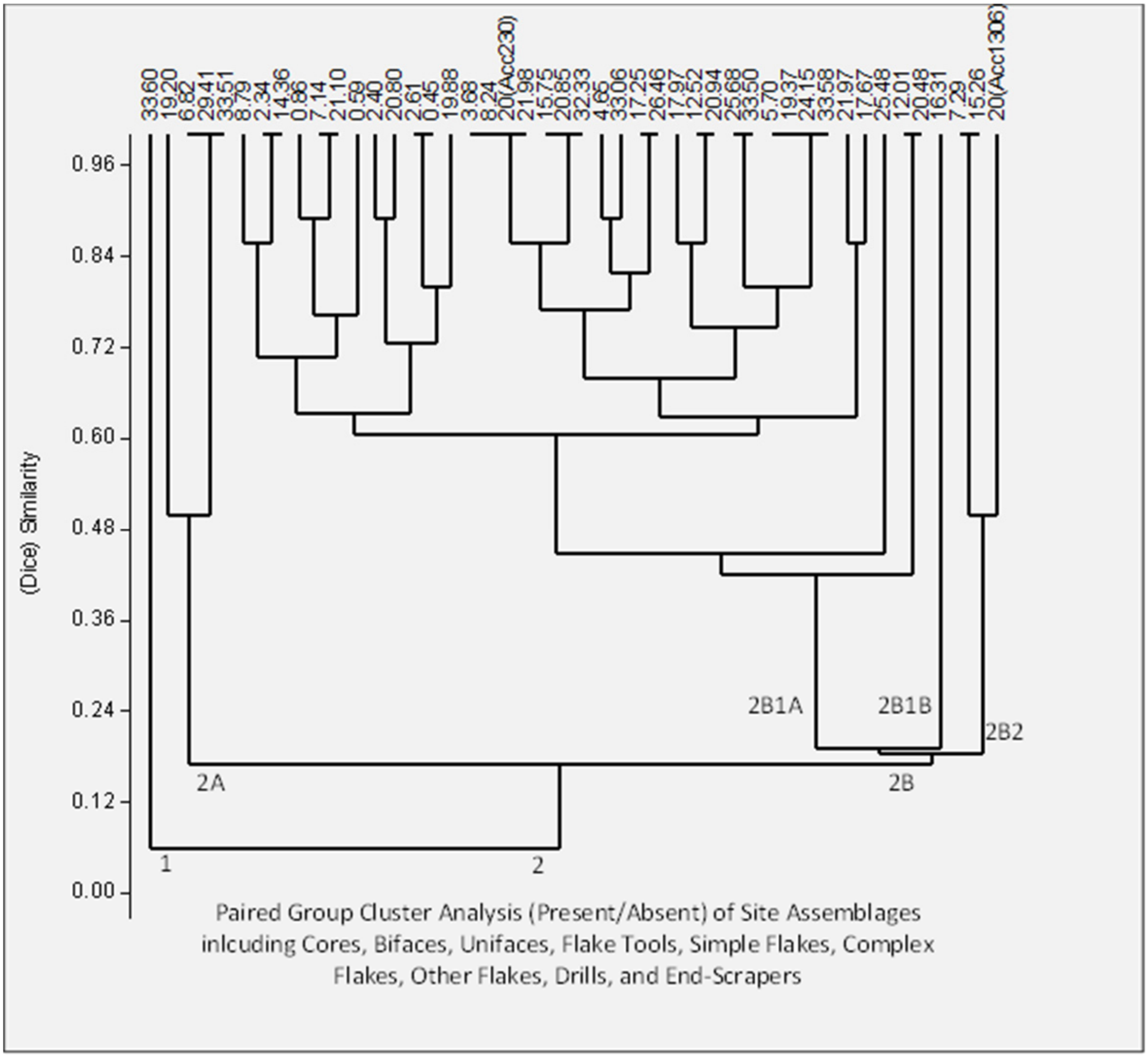

Figure 4.27: Dice/Sorenson Paired-Group Cluster Analysis Based on Presence-Absence of Cores, Bifaces, Unifaces, Flake Tools, Simple Flakes, Complex Flakes, Other Flakes, Drills, and End-Scrapers from each Site Assemblage across the Study Area

Table 4.15: Primary (1 and 2), Secondary (2A and 2B), Tertiary (2B1 and 2B2), and Quaternary (2B1A and 2B1B) Results of Dice/Sorenson Paired-Group Cluster Analysis of Presence-Absence of Cores, Bifaces, Unifaces, Flake Tools, Simple Flakes, Complex Flakes, Other Flakes, Drills, and End-Scrapers

Paired Group Cluster Analysis (Dice) of Site Assemblage Present/Absent	
Cluster 1	33.6
Cluster 2	0.45, 0.59, 0.86, 2.34, 2.40, 2.61, 3.68, 4.65, 5.70, 6.82, 7.14, 7.29, 8.24, 8.79, 12.01, 12.52, 14.36, 15.26, 15.75, 16.31, 17.25, 17.67, 17.97, 19.20, 19.37, 19.88, 20(Acc1306), 20(Acc230), 20.48, 20.80, 20.85, 20.94, 21.10, 21.97, 21.98, 24.15, 25.48, 25.68, 26.46, 29.41, 32.33, 33.06, 33.50, 33.51, 33.58
Cluster 2A	6.82, 19.20, 29.41, 33.51
Cluster 2B	0.45, 0.59, 0.86, 2.34, 2.40, 2.61, 3.68, 4.65, 5.70, 7.14, 7.29, 8.24, 8.79, 12.01, 12.52, 14.36, 15.26, 15.75, 16.31, 17.25, 17.67, 17.97, 19.37, 19.88, 20(Acc1306), 20(Acc230), 20.48, 20.80, 20.85, 20.94, 21.10, 21.97, 21.98, 24.15, 25.48, 25.68, 26.46, 32.33, 33.06, 33.50, 33.58
Cluster 2B1	0.45, 0.59, 0.86, 2.34, 2.40, 2.61, 3.68, 4.65, 5.70, 7.14, 8.24, 8.79, 12.01, 12.52, 14.36, 15.75, 16.31, 17.25, 17.67, 17.97, 19.37, 19.88, 20(Acc230), 20.48, 20.80, 20.85, 20.94, 21.10, 21.97, 21.98, 24.15, 25.48, 25.68, 26.46, 32.33, 33.06, 33.50, 33.58
Cluster 2B2	7.29, 15.26, 20(Acc1306)
Cluster 2B1A	0.45, 0.59, 0.86, 2.34, 2.40, 2.61, 3.68, 4.65, 5.70, 7.14, 8.24, 8.79, 12.01, 12.52, 14.36, 15.75, 17.25, 17.67, 17.97, 19.37, 19.88, 20(Acc230), 20.48, 20.80, 20.85, 20.94, 21.10, 21.97, 21.98, 24.15, 25.48, 25.68, 26.46, 32.33, 33.06, 33.50, 33.58
Cluster 2B1B	16.31

Chapter 5: Interpretations

5.1 Cores

5.1.1 Proportion of Unidirectional Cores and Flake Cores. Although the sample sizes are extremely low, in most cases only one specimen per site, it seems that both the center and periphery of the study area radius contain sites with cores that were likely used for the relatively immediate production of expedient flake tools rather than the uniformed production of tool blanks in the form of standardized blades. This is with the exception of two sites near the middle of the study area which had only blade cores, at Seagull Rapids and *Unnamed Site,*14.36 (n=1) and 21.10 km (n=1), respectively and are mapped in figures 3.1 and 3.2. There are many reasons why these two sites between 14 km and 22 km from Wendt Site would differ with regard to technological organization, however no other distance pattern was detected with regard to the presence and abundance of unidirectional cores and flake cores. One explanation could be that nearer Wendt Site the expedient use of an expendable resource resulted in using KLS material as flake cores that could be easily replaced. At the greatest distance from Wendt Site the abundance of expedient flake cores could be due to their use-life over increased distance from the quarry; as demonstrated KLS cores found at sites become lighter and generally more gracile with increased distance from Wendt Site, in other terms, the expected effects of distance decay, ‘fresh’ raw material that was consistently reduced from a recently quarried state into various kinds of cores and usable tools. Regarding the two sites near the middle of the study area that differ, it is possible that they are simply part of a different pattern of KLS use by different cultures through time. It seems that a closer look at the two aforementioned sites may provide insight into why they differ in this manner from other sites within the 40-km radius from Wendt Site, temporal and cultural affiliation (if known) being a possible component. Another possibility is that the number of cores collected from these sites is too few to assure that results are not skewed.

5.1.2 Proportion of Cores with Cortex. It appears that, in general, sites throughout the study area include cores with cortex. Of the 10 cores within the study, only one core, from Ima Camper site at 7.14 km (n=2), lacked cortex on its surface and is mapped both in figures 3.1 and 3.2. No distance based pattern was detected amongst the eight core bearing sites in the study. Discarded or lost cores that still have cortex suggest that the material (even near the full distance of the study area) is not being conserved, suggesting an expedient-use of KLS cores in general. There appears to be little exception. It is also possible that the single core free of cortex is a result of as yet unworked raw material that was consistently reduced from a recently quarried state into various kinds of cores and usable tools (distance decay), at 7.14 km from its theoretical source.

5.1.3 Metric Attributes of Cores. Weight of the nine cores within the study generally decreases significantly as distance from Wendt Site increases across the seven core bearing sites within the study area. As previously mentioned, a site Little Knife Portage at 2.34km (n=1) was excluded from this figure but given the heavy weight (>400 g) it would serve to enhance the overall pattern. Weight of cores decreases over increasing distance from Wendt which suggests that material is shed as distance from the source increases. Discard of a core is a decision possibly reflected by weight. If one is farther from the source they will tolerate a smaller core and the discard weight is thus lower than locations nearer the source where the same discard decision is made and the weight is higher. This may also be a reflection of distance-decay where one would expect cores to become less massive as they are used over increasing amounts of time as represented by greater distance from the source.

5.1.4 Cluster Analysis of Cores. It appears that clustering has identified a difference between groups of sites based on metric attributes, most significantly width, that coincides with increasing distance, where the division between the two primary clusters is located between 8.79 km and 14.36 km from Wendt Site. When referring to the map in Figure 3.1, this division is proximal to the first (10-km) and second (20-km) radii depicted as white lines expanding from Wendt. It should be noted that although a core at 2.34 km was excluded from the category of weight due to it exceeding the limits of the scale used in the study, that had it been included the addition of a very heavy core at this location would only further increase the generally greater weight of cores nearest to Wendt Site, further accentuating the pattern already depicted.

Length of cores decreases over increased distance from Wendt site with significant probability. The conservative reduction in core length in comparison with the reduction of width may be the result of conservation of length occurring so that length of removed flakes remains as great as possible; planned preparation of longer flakes is possibly the reason for the preserved length of cores.

Core thickness does not exhibit the extreme confidences in correlation exhibited by core length and width; however, a relatively reliable correlation can be seen between increasing distance from Wendt Site and the decrease in thickness of cores. It appears that as distance from Wendt Site increases, the thickness of cores is somewhat likely to decrease.

The general decrease in the mass of cores over increasing distance from Wendt site supports the idea of distance-decay; that as distance from Wendt Site increases, KLS cores experience shedding of weight or in other terms, use life. Results of analysis also suggest that the length of cores is being conserved in comparison to other core dimensions. A desire for longer flakes appears to be affecting the manner in which acquisition of as yet unworked raw material that was consistently reduced from a recently quarried state into various kinds of cores (distance decay) affects the shape a core.

5.2 Bifacial Tools

5.2.1 Proportion of Broken to Whole Bifaces. Between 0.45 km and 0.59 km (AJM and Arabesque sites, both within the Daughter District, depicted in Figure 2.3) there appears to be a clear increase in the proportion of whole bifaces recovered from sites as distance from Wendt Site increases. At these two sites, it appears that biface discard/loss is a different scenario; where very near the quarry there is a greater percentage of broken to whole bifaces, as opposed to the next site in terms of distance from Wendt, where there is a greater percentage of whole bifaces discarded or lost. This is opposite of the expectation that the percentage of whole bifaces will decrease as distance from Wendt increases. In general, this pattern does not prove representative of sites beyond 0.59km, where there isn't a general decrease in whole specimens recovered, however, there is no increase represented either. Rather, proportion of whole to broken specimen seems to be variable across the study area beyond 0.59km. This is largely due to the low number (n=1) of most biface assemblages across the study area beyond 0.59km. One explanation for the greater abundance of broken versus whole bifaces recovered nearer the quarry at 0.45 km, than the site at 0.59 km which had a greater percentage of whole specimens, is that a curation strategy was being implemented nearer Wendt Site and that at a slightly further distance a more expedient strategy is reflected by the discard or loss of whole tools. However, this interpretation is tentative because beyond these two sites it should be noted that the total number of bifaces per site drops off severely over increased distance. Any frequency and distance patterning beyond 0.59 km from Wendt Site is highly speculative and does not readily appear to have a predominant pattern. In summation, there is no distance correlated change in biface completeness past 0.59km. However, it is also possible, though speculative, that the increase in whole specimen between 0.45km and 0.59km may indicate that the site at 0.59km, Arabesque Site, is possibly an extension of the quarry in the sense that due to the relative lack of flat ground suitable for habitation surrounding the immediate vicinity of Wendt Site this distance was potentially an acceptable location for habitation and processing of KLS while accessing Wendt Site. In future studies, further direct comparison between contemporaneous components of the two sites may shed light on their relationship.

5.2.2 Metric Attributes of Bifaces. The mean weight of bifaces decreases across increasing distance from Wendt Site with a relatively high statistical confidence in the relationship. This supports expectations of a distance-decay model. While all dimensional attributes of bifaces generally decrease over increasing distance from Wendt Site, thickness of bifaces is the most reliable of these attributes in terms of correlation with distance followed by length, and to a lesser degree width. These are all highly confident correlations and therefore it can be said that all metric attributes of bifaces decrease reliably as distance from Wendt Site increases. Thickness plays a greater role than length and width in terms of being a source of the weight shedding that is occurring. What appears to be affecting the shape of bifaces as this decay occurs is the shedding of cross-section thickness rather than attrition of the edges, suggesting these bifaces may have been used simultaneously as a flake cores. It is possible that this indicates bifaces were simultaneously used as cores to produce flakes, maximizing their utility and resulting in a relative decline in thickness. This is counter to the idea that direct use of the tool as a biface (e.g., as a knife or scraper) would cause a decrease in length and width as re-sharpening and wear of edges would occur. When this is considered in light of the number of bifaces at sites across the study area, the overall pattern supports distance decay model predictions; that as yet unused raw material was consistently reduced from a recently quarried state into various kinds of cores and usable tools. The effects of distance decay are represented by fewer, smaller, and lighter bifaces as distance from Wendt increases. This would suggest that in general the bifaces recovered within the study area left Wendt site to be used in a manner that maximized their utility in terms of serving both as an objective tool and as a source of useable flakes.

5.2.3 Cluster Analysis of Bifaces. The respective distance of cluster members as well as their count and mean attribute values for maximal measurements are provided in Table 4.2. Cluster 1 includes sites between 0.45 km and 20.00 km; Cluster 2 includes sites between 17.25 km and 33.06 km. There is area of overlap between 17.25 and 20.00 km where distance does not coincide with clustering results, proximal to the second concentric radii depicted in Figure 3.1. When these clusters are further subdivided, there is no apparent pattern between distance from Wendt Site and where a site lands in terms of its secondary cluster membership. All clustering, however, appears to be controlled by length, width, and thickness fairly evenly. There is a confirmed pattern where heavier, thicker, longer, and wider bifaces are grouped together and happen to all exist closer to Wendt in comparison with the second pairing of lighter, thinner, narrower, and shorter bifaces that exist farther from Wendt Site. This corroborates the results of the previous analysis and is further evidence of distance decay affecting all of the maximal biface measurements together.

5.3 Unifacial Tools and Flake Tools

5.3.1 Frequency of Unifaces and Flake Tools. Unifacial tools appear to remain relatively constant in number across the study area, varying in from one up to as many as five per site. No unifaces are present at the nearest study site to Wendt Site but the number increases to five across the first 0.86 km from Wendt Site. Flake tools decline sharply after a short uptick. Uniface counts decrease initially then remain relatively steady in number. This does not disprove the hypothesis that flake tools would be most abundant near the quarry. The relationship between unifaces and flake tools suggests that proximal to the site there is a somewhat constant need/use of flake tools but at greater distances there is a steady use of unifaces and decrease in flake tool use. This is similar to our expectation that there would be greater flake tool reliance closer to the quarry and a more uniface reliance with increased distances from Wendt. It should also be considered that over increasing distance and in theory, increased use-life, a utilized flake tool may fit the definition of uniface from repeated use and re-sharpening. Therefore, it is possible that at greater distances from Wendt Site, an objective piece that has been identified as a uniface may have been curated and modified from a flake tool. The significance of this is that rather than representing a curated objective unifacial tool manufactured for the purpose of future use it is possible that what has also been identified as a uniface may have been removed from a core for expedient use then subjected to reuse and modification. Unifaces therefore may not always indicate an initial curated strategy but instead could under some circumstances be a reflection of a more initially expedient strategy that was then subjected to an extended use-life over the course of one or many tasks, a material-conservative behavior indicative of a curation strategy.

It should also be noted that while flake tools are greater in number, especially with proximity to Wendt site, they are limited to the first 21.10 km from the quarry, proximal to the second concentric radii from Wendt depicted in Figure 3.1. This is roughly half the distance referred to as local by Meltzer (1989) and Kelly (1992). It should be taken into consideration that the unique terrain within the BWCAW may, depending if one is traveling by land or water, change how much equivalent effort is spent in achieving a traveled distance. It appears that within the BWCAW a lack of flake tools beyond 21.10 km may indicate that the definition of “local” to this resource could be constricted by the terrain. This terrain can be seen in Figures 2.3 and 3.1 to be dominated by chains of lakes separated by forested ridges and islands which would clearly influence the intensity of effort required to travel a given distance. Likely the mode of transportation is significant, ie. 20 km by canoe across a series of interconnected bodies of water requires a different level and variety of effort than the same distance traveled on foot across the terrain. Unifaces are greater in number nearer Wendt Site in general though their counts are far less than that of flake tools at these same sites. Unifaces, unlike flake tools, are found across nearly the entirety of the study area, as far as 33.51 km from Wendt Site. Though in lower numbers, it appears that KLS unifaces tend to distribute more widely than KLS flake tools although this may be due to the aforementioned potential curation effect on flake tools that transforms them into unifaces.

The percentage of unifaces across the study area does not provide any easily interpretable correlation with distance from Wendt Site. It should be noted that the total number of specimens per site is in most cases low, generally one or two individuals. It appears that sites closer to Wendt Site tend to have a lower frequency of unifaces and higher frequency of flake tools and that as distance from Wendt Site increases the frequency of unifaces increases while the frequency of flake tools decreases. This may be a reflection of the expediency that proximity to the material source provides. This may be reflective of a greater reliance on a tool with relatively high reusability when at greater distances from the material source and therefore part of a curation strategy. This may be the result of flake tool curation as previously described. The confidence in correlation between distance change and decreasing proportion of flake tools is limited due to the small sample sizes.

5.3.2 Metric Attributes of Unifaces and Flake Tools. Weight of unifaces does not reliably correlate to distance, although there is a very weak but significant increase. There is a high confidence that weight of unifaces increases very slightly over increased distance from Wendt. This runs counter to the expectation of distance decay where weight and at least one dimension of the unifaces are in general decreasing as distance from Wendt increases. This could reflect a longer uniface with a theoretically more utility loaded edge at sites that are at a greater distance because they were transported to the location with less prior use than anticipated. This is contrary to the anticipation that use would occur over distance thus progressively depleting the uniface of mass as distance increases from its acquisition. The expected model would not hold true if one manufactured a uniface then traveled a distance before extensive use.

There are very low confidences in correlation between other metric attributes of unifaces and their relationship to distance from Wendt Site. For this reason, relationships of length, width, and thickness to distance from Wendt Site are not considered to be statistically significant, however the results are still suggestive of larger flakes being used for unifacial tools.

5.3.3 Cluster Analysis of Unifaces and Flake Tools. The first tier of uniface clustering identifies an outlier site at 20.85 due to the greater weight, length, width, and thickness than the mean of the remaining assemblages. Cluster 1A unifaces are much lighter than Cluster 1B unifaces. Cluster 1A also exhibits specimens with a lower mean length, width, and thickness as well. When examining the location of the clustered sites in search of a pattern related to distance, it can be seen that Cluster 1B sites are located near the middle of the radius that comprises the study area. Sites included in Cluster 1A, with lighter, shorter, narrower, and thinner unifaces are located generally nearer Wendt Site and also beyond the members of Cluster 1B, nearly to the limits of the study area. It should be remembered that this same proximity is where the outlier large uniface from Norway Island (20.85 km; n=1) was recovered. A second tier of clustering shows lighter and more gracile assemblages of unifaces both near the quarry and also at the greatest extents of the study area. It is found that the more robust unifaces are located at sites near the middle of the study area. This spatial patterning was not predicted as it was expected that there would be larger specimens nearer Wendt Site and smaller unifaces with increasing distance. It is possible that more than one pattern of use is occurring over different cultures and or periods of time. Further analysis specific to the appropriate cultures affiliated with these clusters may shed light on this pattern and offers a direction for future research.

Flake tool morphology does not have an obvious relationship with increasing distance from Wendt Site. Clustering is based on metric attributes but distance does not coincide with the resultant cluster groupings.

5.4 Debitage

5.4.1 Metric Attributes of Debitage.

5.4.1.1 Weight of Complete Flakes. In general, mean flake weight decreases as distance from Wendt Site increases. This supports the expectation of distance decay where raw material was consistently reduced from a recently quarried state into various kinds of cores and usable tools. The presence of generally lighter flakes at increasing distances from Wendt Site implies a finite resource is being expended as distance from Wendt increases. Statistical analysis shows that the likelihood that the means for these assemblages were all drawn from the same parent population and their differences are due to the vagaries of sampling alone is very low. Most sites were so similar to each other that the chance of their similarities being due to the vagaries of sampling alone was low. Within between-groups Tukey's post-hoc comparison results, a number of between group *p*-values are very high, indicating that with considerable significance, there is a similarity between many of the sites with each other. Significant *p*-values approaching zero were rarer. Three sites in particular appear to have the least likelihood of being drawn from the same parent population when paired with nearly all of the other sites. The site located at 12.52 kilometers from Wendt Site, My Paisano Paisano Site (n=4), appears to have the greatest number of significant differences among its pairings. The only sites with which this site pairs with a *p*-value approaching 1.0 is the site located 0.45 kilometers from Wendt Site, AJM Site (n=14), and the site located 0.59 kilometers from Wendt Site, Arabesque Site (n=17). My Paisano Paisano at 12.52km is set apart from nearly all other sites by significant *p*-values of less than 0.05, as are Unnamed FS05-307 at 21.10km and Arabesque at 0.59km. The site with the second greatest number of near zero *p*-value pairings is the site located 21.10 kilometers from Wendt Site, an unnamed site (FS 05-307; n=15). Arabesque site in turn also has many statistically significant *p*-values when paired with sites other than My Paisano Paisano. The results of this analysis show that Arabesque (0.45km), My Paisano Paisano (12.52km), and *Unnamed Site* (FS 05-307) (21.10km) differ significantly from the majority of sites and are so strongly dissimilar that there is one pattern occurring with them and a different pattern occurring outside those sites. Specifically, after trimming of each assemblage (as described in Chapter 4), Arabesque and My Paisano Paisano have a greater mean weight after log-natural transformation than any other assemblage. Arabesque has a value of 1.18 and My Paisano Paisano has a value of 1.40. *Unnamed Site* (FS 05-307) has an exceptionally low value of -0.37. The nearest values within trimmed log-natural transformed assemblages are 0.90 at AJM Site (0.45km) and -0.19 at Susan Melissa Site (0.86km). Prior to the logarithmic (natural) transformation and 4% trimming of each assemblage, the mean weight values at Arabesque and My Paisano Paisano are still the heaviest means and *Unnamed Site* (FS 05-307) is the lightest when compared to all assemblages. These values can be found in Table 4.6 and a depiction of the generally decreasing complete flake weight log (natural) trimmed means in Figure 4.21. Counter to expectation, it is shown in this figure that highest weight value is at 12.52km and the second highest at 0.59km (if transformed and trimmed as described above) or the reverse (if no transformation or trimming is imposed). In either case, the heaviest complete flakes are not at the absolute nearest to Wendt as expected and one of these relatively high values falls over 10km from Wendt. The lowest value (whether transformed and trimmed or untreated) is located at 21.10 km rather than the furthest extent of the study area.

5.4.1.2 Oriented Length of Complete Flakes. In general, mean flake length decreases as distance from Wendt Site increases. This trend supports a distance decay model where raw material that was consistently reduced from a recently quarried state into various kinds of cores and usable tools. The probability that the means for all these sites were drawn from the same parent population is approaching zero, therefore there is a strong indication that there is a significant difference within the group of assemblages. Like weight, most sites are strongly similar to each other in terms of oriented length. Oriented length is shown as significantly different from almost every other site and Arabesque at .59km and My Paisano Paisano at 12.52km, the locations of which are both depicted in Figures 3.1 and 3.2. My Paisano Paisano is the only site with which Arabesque is shown to have a strong similarity. Like weight, there seems to be a different pattern presented at the two aforementioned sites and all other sites within the study. These two sites are outliers with regard to mean oriented length of complete flakes from trimmed assemblages with increasing distance from Wendt. When the trimmed mean oriented lengths of complete flakes are charted for each site, Arabesque has a mean oriented length of 47.6mm at 0.59-km from Wendt and My Paisano Paisano has a mean oriented length of 40.5mm. These two values stand well above any other mean oriented lengths amongst all sites in the study. The nearest values to Arabesque and My Paisano Paisano in this regard are AJM at 0.45-km with a trimmed mean oriented length of 34.2mm and Table Rock at 15.75-km with a trimmed mean oriented length of 31.2mm. Arabesque and My Paisano Paisano do conform to their own relative decrease in oriented length across distance in the sense that Arabesque has a greater mean oriented complete flake length than My Paisano Paisano which is further from Wendt.

5.4.2 Cortex Presence on Debitage. It should be noted that cortex was present on flakes at only 20 of the 40 flake bearing sites. The presence of cortex does not seem to correlate directly with increasing distance from Wendt Site. The presence of cortex appears to spike at 8.79 kilometers from Wendt Site with 50% (n=2) representing the greatest percentage of cortex bearing flakes within all of the 20 flake bearing sites. However, the very low sample size for this proportion should caution any interpretations derived from this value. A distance-decay pattern was not identified. There is no confirmation of the expectation that cortex presence would be greatest near the quarry and decrease with increased distance from the quarry as would have been expected to be a reflection of ‘fresh’ raw material that was consistently reduced from a recently quarried state into various kinds of cores and usable tools. In each of these cases the number of cortex bearing flakes is very low and any instance where a higher percentage of cortex bearing flakes is shown is likely a function of a small sample size. Cortex has a minimal presence across the entire study area. Even at the closest sites there is little cortex present on flakes. There does not appear to be any clear increase or decrease in the presence of cortex on debitage flakes as distance from Wendt Site increases. It can be said, however, that at several locations there is some presence of cortex, though minimal at its greatest. It is possible that revisits to the quarry do not require breaking off cortex laden pieces of material, or in other terms, pre-exposed interior of the KLS bed would not necessarily be laden with cortex. Given revisits that are faster than cortex formation the expectation of cortex on flakes near the quarry may be affected negatively. The general lack of cortex seems reasonable given this consideration.

5.4.3 Platform Attributes.

5.4.3.1 Platform Facets. The mean number of facets on flakes at each site and the median number of facets on flakes at each site is in general decreasing as distance from Wendt Site increases. This is counter to the expectation that complexity of flakes would increase as distance from Wendt increases. It was hypothesized that with greater distance from Wendt the flakes would reflect the latter end of the reduction/production process with the exception of the immediate vicinity of the quarry where the entire spectrum would be present as some tools were produced from extraction to completion.

Complex flakes are generally less present than simple flakes across the study area. This suggests that the majority of activity is not the beginning-to-finish spectrum described above. Complex flake presence on sites remains a relatively steady trend as distance from Wend Site increases. There does not appear to be an obvious distance related pattern to this.

While there does not appear to be a clear pattern between distance and frequency of complex or simple flakes at sites, it can be seen that sites located at distances from Wendt Site including 19.20km (n=1), 21.97km (n=2), and 25.48km (n=1) are the only sites that do not contain any complex flakes. Sites located at distances from Wendt Site including 12.01km (n=3), 20.00km (ACC 1306; n=3), and 20.48km (n=1) each contain only complex flakes. It should be noted that the sample sizes for both situations are less than adequate for making interpretive statements based on probability. All other sites in the study varied between these extremes, however a majority lie somewhere between 40% and 70% simple flakes, or between 30% and 60% complex flakes. This may indicate that the sites that completely lack simple flakes are part of a different technological organization strategy than sites with other combinations of simple and complex flakes. The suggestion provided by the presence of only complex flakes is that the initial reduction stages which would have left at least some simple flakes did not occur at these locations; rather removal of flakes later in the tool making or core reducing process occurred. This type of incidence where only later spectrum flake removals is identified may indicate events such as re-sharpening or the reduction of a biface that also serves as a flake core, both events that would be part of a curation strategy. Alternatively, larger samples collected from these same sites in the future may show slightly different patterns.

In general, though, there does not appear to be a clear patterning between the percentages of complex flakes per site and increasing distance from Wendt Site. There does not appear to be an obvious pattern of 'fresh' raw material consistently reduced from a recently quarried state into various kinds of cores and usable tools related to this.

5.4.3.2 Platform Thickness. In general, the probability that these assemblages were all drawn from the same parent population and their mean differences are due to the vagaries of sampling alone is indicated as extremely low, having a between-groups *p*-value of 0.0000000000000000000000286. Analysis of platform thickness indicates that the entire group of assemblages could not have been drawn from the same population and this supports the overall idea that the assemblages must represent multiple cultural occupations of the BWCAW through time. However, the majority of site pairings analyzed by post hoc Tukey's Pairwise indicate strong similarities, with *p*-values approaching 1.0. Most sites when compared to each other individually are indicated as being strongly similar. This suggests that site pairings identified in this manner as differing significantly, *p*-values approaching zero, are strong enough of an influence on the entire group of assemblages that they produced the overall statistically significant difference described above. These sites that differ include Arabesque Site (0.59km) when paired most other sites, between My Paisano Paisano Site (12.52km) when paired with all other sites, and between Chopper Site (5.70km) and three other sites. These analytical results show that at 0.59 km, 12.52 km, and to a lesser extent at 5.70 km, there is a stark difference between these sites and all others in the study and that these three sites are strongly similar to each other. Specifically, when these assemblages are trimmed (as described in Chapter 4), Arabesque's assemblage at 0.59 km has a mean platform thickness of 21.0mm, My Paisano Paisano has a mean platform thickness of 37.1mm and Chopper Site at 5.70 km has a mean platform thickness of 18.1mm. These values can be found in Table 4.12. These are thick outliers when compared to the remaining assemblages as the nearest mean platform thickness is 16.0mm at Ima Camper Site (7.14 km). This suggests that flake removal at these three sites is possibly of one technological strategy or cultural adaptation while the removal of flakes at the majority of sites in the study area is another type or types. This important outcome of the study may direct future research into investigating if there are any other cultural attributes shared between these sites. When one looks to Figure 3.1, the locations of both My Paisano Paisano site (12.52 km) and Chopper site (5.70 km) are both west-southwest of Wendt.

5.5 Miscellaneous KLS Tools

Neither drills nor end-scraper presence seems to have a correlation with the identified significantly differing sites above. There was no expectation of such.

5.6 Presence/Absence Cluster Analysis of KLS Artifact Types

The initial results of the cluster analysis for artifact types do not show a pattern coinciding with changing distance from Wendt Site. Instead, several sites from across the study area have been identified through this process as differing from the majority of other sites in the study. These sites include Two Toe Site at 33.60 km which is removed from all other sites in the first branch of the cluster results likely because it is the only site with a core and no other KLS artifacts. The second distinctive site was identified in the second tier of clustering results, *Unnamed Site* (FS 05-155) located at 16.31 km. This second site was removed from other sites in clustering likely due to it being the only site with the category of “other” flake represented and no other KLS artifacts. The third tier of cluster results removes three sites from the overall sample. Yogurt Mule Boot Site at 7.29 km, *Unnamed Site* (FS 02-217) at 15.26 km, as well as *Unnamed Site* (FS 05-803) at 20.00 km all have bifaces and no other KLS artifacts with the exception of *Unnamed Site* (FS 05-803) including a biface, complex flakes, an end-scraper and no other KLS artifacts. A fourth tier of clustering removes four sites from the remaining sample and includes Ledgerock Metaphysics Site at 6.82 km, *Unnamed Site* (FS 05-366) at 19.20 km, Gunflint 46 Site at 29.41 km, and *Unnamed Site* (FS 05-183) at 33.51 km. These sites were removed from the remaining sites likely because they each contain only the category of uniface and no other KLS artifacts with the exception of *Unnamed Site* (FS 05-366) which has a uniface, a flake tool, and a simple flake. No distance pattern could be detected.

Chapter 6: Conclusions

6.1 Technological Organization

It was expected that when technologies and associated technological organization strategies are identified at various sites, a gradient between expected patterns of local use and long distance use of the resource would correlate with a gradient between the quarry and distances up to 40 km. It is believed that there are two general relationships that can be demonstrated between a material source and its users, one where the resource is utilized in anticipation of future needs, a gearing-up or curation strategy that is associated with long distances traveled to acquire the resource versus a more immediate, expedient use of the material which is characteristically less material-conservative than gearing-up behavior and associated with a closer proximity to this resource (Binford 1979, 1980). Alternative patterns may indicate that there are factors at play that cannot be explained by distance alone; not conforming to the general distance decay model expectations described in previous sections.

What is somewhat surprising is that regardless of cultural adaptation, the “local” procurement range of 40 km was held as a constant and could theoretically apply to any past cultural group, thus allowing for similar behavioral patterns present in diachronic adaptive strategies. Based on the results of analysis, it is apparent that both curated and expedient strategies were employed across the study area. Given the many cultures represented by the long period of human occupation for the area, this is not altogether unexpected.

Considering the distribution of unidirectional cores and flake cores it would appear that unidirectional cores are located at only two sites, situated near the middle of the study radius. It was assumed that unidirectional cores indicated a curated technological strategy as opposed to flake cores because the objective pieces removed from a unidirectional core are considered to be specially prepared for future use as tool blanks. Evidence within this study indicates that this is occurring near the middle range of the study area rather than correlating directly to an increase in distance from Wendt Site.

The proportion of broken to whole bifaces at distances from Wendt Site was also expected to indicate patterned technological organization at sites across the study area. There was found to be greater abundance of broken versus whole bifaces recovered near the quarry at 0.45 km. The site at 0.59 km on the other hand, while still relatively near Wendt, had a greater percentage of whole specimens as opposed to broken. It is possible that nearer Wendt Site where a greater proportion of broken tools were discarded a curation strategy was being implemented with regard to KLS tool manufacture and that at a short distance but further from Wendt Site a more expedient strategy is reflected by the discard or loss of whole tools. It should be noted that at the quarry (and possibly some short distances from the quarry) the discard of broken tools could be instead a reflection of greater risk taken in reduction/production methods due to the low cost of replacement.

Beyond these two sites it should be noted that the total number of bifaces per site drops off severely over increased distance. Any frequency and distance patterning beyond 0.59 km from Wendt Site is highly speculative and does not readily appear to have a predominant pattern as there are whole bifaces found in low frequency as far as 33.06 km from Wendt Site.

Bamforth and Becker (2000) indicate that away from the quarry a higher proportion of late stage bifacial tools, as opposed to biface cores, is likely to correlate with greater mobility. The results of analysis of biface metric attributes suggests that a general decrease in biface thickness (as opposed to length) over increased distance from Wendt Site is indicating that bifaces found at these locations were used as biface cores. Given the above assumptions, this would indicate that an expedient strategy is being employed throughout the study area outside of Wendt Site.

The relationship between unifaces and flake tools in terms of proportion was expected to indicate either a curated or expedient strategy. The results of analysis do not falsify the hypothesis that following an expedient strategy flake tools should be most abundant near the quarry. Flake tools were more abundant near the quarry in comparison to unifaces however unifaces remained relatively steady in frequency across the study area and flake tools were not identified at any sites beyond 21.10 km. This relationship between unifaces and flake tools tells us that proximal to the site there is a need/use of flake tools but at greater distances there is a steady use of unifaces and decrease in flake tool use. This is similar to our expectation that there would be greater flake tool reliance closer to the quarry and more uniface reliance with distances from Wendt. This expectation is based on Binford's (1979, 1980) concept of gearing up versus expedient use where the expectation assumes that tool use occurring near the material source should be more expedient and that at greater distances tool use would be more curated in anticipation of future need. It should also be considered that over increasing distance and in theory, increased use-life, a utilized flake tool may with repeated use and re-sharpening become a uniface. Therefore, it is possible that at increasing distances from Wendt Site, an objective piece that has been identified as a uniface may in actuality have started out as a flake tool. If this is the case, it supports a trend of greater curation occurring with distance from Wendt as the flake tools are transported, used, and maintained over time and space.

The mean and median number of facets on flake platforms at each site are, in general decreasing as distance from Wendt Site increases. This is counter to the expectation that complexity of flake platforms would increase as distance from Wendt increases. It was hypothesized that the flakes would reflect the latter end of the reduction/production process with greater distance from Wendt with the exception of the immediate vicinity of the quarry where the entire spectrum of production would be present as some tools were produced near the quarry. This does not seem to be the case as platform complexity decreases with increased distance. Complex flakes (platform bearing flakes exhibiting two or more platform facets) reflect a more advanced position in this spectrum and simple flakes (platform bearing flakes exhibiting one platform facet [Flat]) reflect earlier position in the spectrum. Complex flakes are generally less present than simple flakes across the study area. This suggests that the majority of activity is not the beginning-to-finish spectrum of tool production described above. The presence of complex flake platforms remains relatively steady as a trend as distance from Wendt Site increases. There does not appear to be an obvious distance related pattern to this.

Given the above conclusions, it appears that distance, while significant in many aspects of technological organization is clearly not the only factor in play affecting the variety and condition of KLS assemblages left on sites throughout a 40-kilometer radius of Wendt Site.

6.2 Distance-Decay

It was expected that as distance from Wendt Site increases evidence of a distance-decay effect will be present and in general the amount of KLS material found at distances up to 40 km from Wendt Site would be decreasing and that use would reduce the mass of each specimen as a result of time and distance removed from the theoretical source. This application of the distance-decay model follows distance-decay as applied by researchers such as Newman (1994), Clarkson and Bellas (2014), and Muñiz (personal communications, 2012). Distance decay does appear to be a prominent component shaping the number, metric attributes, and other characteristics of KLS cores, bifaces, unifaces, flake tools, and debitage as distance from Wendt Site increases.

As demonstrated, KLS cores found at sites become lighter and generally more gracile with increased distance from Wendt Site. This is due to their progressing use-life over increased distance from the quarry; the effects of distance-decay. Cores in general become lighter, shorter, narrower, and thinner as distance from Wendt Site increases. The general decrease in the mass of cores over increasing distance from Wendt site supports the idea of distance-decay; that as distance from Wendt Site increases, KLS cores experience shedding of weight or in other terms, use life. Results of analysis also suggest that the length of cores is being conserved in comparison to other core dimensions. A desire for longer flakes appears to be affecting the manner in which distance decay affects the shape of a core. This is a significant result of the research as it applies across all of the cultural phases of occupation through time.

The metric attributes of bifaces found across the study area are as a whole indicative of a distance decay model. The mean weight of bifaces decreases across increasing distance from Wendt Site with a relatively high statistical confidence in the relationship. While all dimensional attributes of bifaces generally decrease over increasing distance from Wendt Site, thickness of bifaces is the most reliable of these attributes in terms of correlation with distance followed by length, and to a lesser degree width. These are all highly confident correlations. Thickness plays a greater role than length and width in terms of being a source of the weight shedding that is occurring across distances from Wendt. It is possible that this indicates bifaces were simultaneously used as bifacial cores maximizing their utility and resulting in a relative decline in thickness. This is counter to the idea that use-wear over distance would cause a decrease in length and width rather than thickness as re-sharpening and wear of marginal edges would occur. When this is considered, especially regarding the number of bifaces at sites across the study area that decreases over distance, it can be seen that distance decay is occurring regarding bifaces. Again, distance decay is represented by fewer, smaller, and lighter bifaces as distance from Wendt increases. This would also suggest that in general the bifaces recovered within the study area left Wendt site incomplete and that they were used across the study area in a manner that maximized their utility in terms of serving both as a functional tool and as a core to produce useable flakes. Cluster analysis of biface metric attributes shows that there is a confirmed pattern where heavier, thicker, longer, and wider bifaces are grouped together and happen to all exist closer to Wendt in comparison with the second pairing of lighter, thinner, narrower, and shorter bifaces recovered farther from Wendt Site. This is further evidence of distance decay affecting bifaces throughout the precontact period of human occupation.

There is a high confidence that weight of unifaces increases very slightly over increased distance from Wendt. This runs counter to the expectation of distance decay where weight and at least one dimension of the unifaces are in general decreasing as distance from Wendt increases. This could reflect a curated longer uniface with a more utility loaded edge at sites that are at a greater distance. Larger tools may have a greater length of edge utility as part of a long-distance anticipation of future needs. Nearer the source there are discarded more gracile unifaces possibly because the manufacturers never planned on using them much longer than it took to arrive at that discard location. If this is true then one would expect a greater anticipation of distance traveled to location of use to be reflected by a larger piece discarded at greater distances and tools at closer locations to have greater variability in size. It is found that the more robust unifaces are located at sites near the middle of the study area. This spatial patterning was not predicted as it was expected that there would be larger specimens nearer Wendt Site and smaller unifaces with increasing distance. It is possible that more than one pattern of use is occurring over different cultures and or periods of time. Further analysis specific to the appropriate cultures affiliated with these clusters may shed light on this pattern and offers a direction for future research.

Flake tools do not seem to have a clear relationship with increasing distance from Wendt Site. Clustering based on metric attributes does not relate change in distance from Wendt Site with the resultant cluster groupings.

Debitage metric attributes are also seen as possible indicators of distance decay. In this analysis mean flake weight decreases as distance from Wendt Site increases. This supports the expectation of distance decay. The presence of generally lighter flakes at increasing distances from Wendt Site implies a finite resource is being expended. Flakes also tend to become shorter in oriented length as distance from Wendt Site increases, further supporting a distance decay expectation as this indicates the cores from which these flakes were produced must have also been shorter. Cortex presence on debitage was expected to reflect something about distance decay in that with further distance from Wendt Site one would expect to find less cortex present. There was in fact very few debitage flakes with cortex within the study altogether and a pattern coinciding with distance could not be discerned. This may be the result of repeated use of one or more quarries in a manner that outpaces the development of cortex on the surface of the quarried material. In other words, it is possible that pre-exposed beds of KLS were being exploited and thus cortex was not present for the majority of extractions. This would fit with an expectation that Wendt Site was used repeatedly throughout time for resource extraction as a primary KLS source.

Considering the results of analysis as described above, there are multiple lines of evidence, with the exception of some uniface and flake tool metric attributes, which indicate that distance decay is occurring with regard to KLS presence within a 40-km radius of Wendt Site. This finding is significant in that 40 km has traditionally been considered to represent a "local" radius for procuring tool stone and thus models of hunter-gatherer technological strategies should look relatively similar for all sites within this zone. Clearly this is not the case since the effects of distance-decay on KLS usage are so prominent within a local radius of the source. The difficulty of physically moving through the BWCAW terrain could likely be influencing the scale at which ancient peoples determined strategies for maximizing KLS resources. But nonetheless, archaeologists may also need to rethink how we define boundaries between "local" and "exotic" tool stone and the effect this has on developing models and expectations of hunter-gatherer adaptive strategies. These results also provide evidence to support the idea that the Wendt site quarry was the primary quarry within the study area. Secondary cobble sources of KLS are unlikely to be present along the peripheries of the study area in concentrations that could make a significant impact on the patterns observed here.

6.3 Future Research

Further research regarding the technological organization and effects of distance decay on KLS material at finite distances from Wendt should proceed under the assumption that distance is not a sole factor in the distribution of material and organizational strategies employed at such locations. At the most basic level, landscape should be considered as an element contributing to the effort level required to travel a requisite distance and consideration of that effort as a factor. This approach may be repeated for batches of sites within multiple periods of time reflecting the changing relationship to ET values that would have also effected travel conditions. For this reason, further research in this realm should not treat sites synchronically as in this thesis. In other terms, if one were to add a temporal level to the sampling of sites then the BWCAW can be viewed as snapshots in time with possibly unique relationships to Wendt site. These snapshots could be associated with ET values and organizational strategy and material presence patterning at differing ET value periods could be compared and possibly contribute to our understanding of how climate may be a factor that influences the organizational strategies and material presence of KLS at finite distances from the primary source. It is expected that both landscape and ET will be factors that influence the relationships discussed above. When the contribution of landscape and environment have been evaluated, a confident approach to the study of KLS use in the precontact BWCAW based on cultural periods may be more confidently approached.

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Appendix A: Artifact Catalogs

Appendix A: Table 1

Catalogue of Site Assemblages of Knife Lake Siltstone Artifacts										
ACC	Name	SNF FS	Distance from Wendt (km)	Cores	Bifaces	Unifaces	Flake Tools	Debitage Sample	Drills	End Scrapers
1634	AJM Site	05-930	0.45	0	7	0	45	30	0	0
415	Arabesque Site	05-270	0.59	2	11	4	82	30	0	1
1404	Susan Melissa Site	05-827	0.86	1	0	5	3	30	0	0
97	Little Knife Portage	05-094	2.34	1	0	0	0	29	0	0
89	Robbin's Island #1	05-115	2.40	0	0	0	3	25	1	0
401	Unnamed Site	05-287	2.61	0	1	0	1	25	0	0
293	Topickle Island Site	05-195	3.68	0	0	0	0	7	0	0
727	Tropical Site	05-460	4.65	0	1	1	0	30	0	0
535	Chopper Site	05-357	5.70	0	0	0	0	14	0	0
1393	Ledgerock Metaphysics Site	05-727	6.82	0	0	1	0	0	0	0
277	Ima Camper Site	05-199	7.14	2	0	0	6	30	0	0
1269	Yogurt Mule Boot Site	05-742	7.29	0	1	0	0	0	0	0
142	Blind Man	05-176	8.24	0	0	0	0	23	0	0
1317	Fill Your Glass Site	05-773	8.79	1	0	0	0	2	0	0
691	Harry's Point Site	05-442	12.01	0	0	0	0	3	0	0
1280	My Paisano Paisano Site	05-750	12.52	0	0	2	0	4	0	0
134	Seagull Rapids	02-139	14.36	1	0	0	0	29	0	0
515	Unnamed Site	02-217	15.26	0	1	0	0	0	0	0
219	Table Rock Site	05-150	15.75	0	0	1	0	5	0	0
228	Unnamed Site	05-155	16.31	0	0	0	0	1	0	0
209	Insula 4 Site	05-152	17.25	0	1	0	0	30	0	0
131	Englishman Island Site	02-134	17.67	0	0	0	0	28	0	1
646	Mahlberg #9	07-176	17.97	0	0	1	0	7	0	1
560	Unnamed Site	05-366	19.20	0	0	1	1	1	0	0
214	Hudson Lake Camp Site	05-148	19.37	0	0	0	0	4	0	
464	Hot One Site	05-313	19.88	0	2	0	1	26	0	1
1306	Unnamed Site	05-803	20.00	0	1	0	0	3	0	1
230	Unnamed Site	05-137	20.00	0	0	0	0	23	0	0
629	Unnamed Site	02-241	20.48	0	0	0	0	1	0	0
555	Unnamed Site	05-360	20.80	0	0	0	1	25	0	0
114	Norway Island	05-055	20.85	0	0	1	0	25	0	0
666	Fat Cigar Site	05-416	20.94	0	0	1	0	9	0	0

462	Unnamed Site	05-307	21.10	1	0	0	3	18	0	0
150	Lake One	05-178	21.97	0	0	0	0	4	0	1
873	Weckman Site	05-561	21.98	0	0	0	0	5	0	0
1163	Who Knew Site	05-703	24.15	0	0	0	0	16	0	0
811	Unnamed Site	05-514	25.48	0	0	0	0	1	0	0
285	Casa Blanca Site	05-243	25.68	0	0	0	0	2	0	1
140	Sand Hill	05-180	26.46	0	1	0	0	27	0	0
1645	Gunflint 46 Site	02-791	29.41	0	0	1	0	0	0	0
101	Sandy Site	05-127	32.33	0	0	1	0	26	0	0
275	Fall Chip Site	05-239	33.06	0	1	1	0	26	0	0
1006	Fur Flake Island	05-640	33.50	0	0	0	0	11	0	1
143	Unnamed Site	05-183	33.51	0	0	1	0	0	0	0
271	Bulldozer Site	05-189	33.58	0	0	0	0	18	0	0
1400	Two Toe Site	05-823	33.60	1	0	0	0	0	0	0
			Totals	***10***	***28***	***22***	***146***	***653***	***1***	***8***

Appendix A: Table 2

Catalogue of Knife Lake Siltstone Cores

ACC	Name	SNFS FS	km	Direction	grams	ML	MW	MT	Cortex
97	Little Knife Portage	05-094	2.34	Multi	>400	107.1	91.3	53.2	Present
134	Seagull Rapids	02-139	14.36	Uni	149	74.1	67.1	26	Present
277	Ima Camper Site	05-199	7.14	Multi	244.6	98	63.6	43.1	Absent
277	Ima Camper Site	05-199	7.14	Multi	348.4	89	82.7	40.8	Present
415	Arabesque Site	05-270	0.59	Multi	254.2	79.5	70.9	39.8	Present
415	Arabesque Site	05-270	0.59	Multi	350.1	122.1	87.2	28.3	Present
462	Unnamed Site	05-307	21.1	Uni	70.6	74.9	42.2	42.1	Present
1317	Fill Your Glass Site	05-773	8.79	Multi	342.4	105.7	84.5	46.8	Present
1400	Two Toe Site	05-823	33.6	Multi	161.3	97.2	53	24.9	Present
1404	Susan Melissa Site	05-827	0.86	Multi	264.3	83.1	73.5	46.1	Present

Appendix A: Table 3

Catalogue of Knife Lake Siltstone Bifaces

ACC	Name	SNF FS	km	Portion	(grams)	ML (mm)	MW (mm)	MT (mm)	Cortex
140	Sand Hill	05-180	26.46	Proximal	34.9	57	48.8	10.7	Absent
209	Insula 4 Site	05-152	17.25	Distal	24.5	44.7	37.9	10.5	Absent
275	Fall Chip Site	05-239	33.06	Complete	21.9	72.1	31.6	8.9	Absent
401	Unnamed Site	05-287	2.61	Complete	151.4	119.3	55.9	23.1	Present
415	Arabesque Site	05-270	0.59	Complete	378.8	128.9	84.2	30.3	Absent
415	Arabesque Site	05-270	0.59	Complete	>400	166.5	83	48	Absent
415	Arabesque Site	05-270	0.59	Distal	131.5	110.3	67.2	20.8	Absent

415	Arabesque Site	05-270	0.59	Complete	>400	181	115.8	26.5	Absent
415	Arabesque Site	05-270	0.59	Complete	>400	192	74.2	66.3	Present
415	Arabesque Site	05-270	0.59	Complete	78.2	110.2	59.7	11.3	Absent
415	Arabesque Site	05-270	0.59	Proximal	199.4	104.9	82.8	27.4	Absent
415	Arabesque Site	05-270	0.59	Distal	245.1	102.8	76.5	31.7	Absent
415	Arabesque Site	05-270	0.59	Complete	>400	126.3	97.2	36.4	Absent
415	Arabesque Site	05-270	0.59	Proximal	51.6	56.9	40.1	17.2	Present
415	Arabesque Site	05-270	0.59	Proximal	104.7	88.6	60.6	25.1	Absent
464	Hot One Site	05-313	19.88	Complete	185.3	116.2	88.8	14.1	Absent
464	Hot One Site	05-313	19.88	Distal	11.7	38.7	31.6	9.9	Absent
515	Unnamed Site	02-217	15.26	Medial	128.1	96.9	75.3	11.5	Absent
727	Tropical Site	05-460	4.65	Medial	235	110.5	74.4	25.1	Present
1269	Yogurt Mule Boot Site	05-742	7.29	Complete	>400	123.5	113.3	37.2	Absent
1306	Unnamed Site	05-803	20	Distal	172.7	113.9	58	22.2	Present
1634	AJM Site	05-930	0.45	Distal	150.7	72.9	93.4	19.9	Absent
1634	AJM Site	05-930	0.45	Distal	72.3	88.4	54	14.9	Absent
1634	AJM Site	05-930	0.45	Distal	193.3	125.2	65	24	Absent
1634	AJM Site	05-930	0.45	Proximal	>400	116.1	84.1	47.8	Absent
1634	AJM Site	05-930	0.45	Distal	57.4	83.1	36.3	16.2	Absent
1634	AJM Site	05-930	0.45	Distal	127.9	111.8	67.3	14.8	Absent
1634	AJM Site	05-930	0.45	Complete	79.7	81.2	49.2	15.4	Present

Appendix A: Table 4

Catalogue of Knife Lake Siltstone Unifaces (Excludes End-Scrapers)

ACC	Name	SNF FS	Km	Portion	grams	ML	MW	MT	Cortex
101	Sandy Site	05-127	32.33	N/A	21.2	53	42.4	10.8	Present
114	Norway Island	05-055	20.85	N/A	331.6	164.7	115.3	12.2	Present
143	Unnamed Site	05-183	33.51	N/A	13	58.4	31.5	4.4	Absent
219	Table Rock Site	05-150	15.75	Distal	7.3	38.5	34.3	4.7	Absent
275	Fall Chip Site	05-239	33.06	Distal	49.6	82.6	44.9	11.1	Absent
415	Arabesque Site	05-270	0.59	N/A	>400	116.6	90	41.3	Absent
415	Arabesque Site	05-270	0.59	N/A	97.9	87.3	37.2	26.3	Absent
415	Arabesque Site	05-270	0.59	N/A	97.9	87.9	36.8	25.9	Absent
415	Arabesque Site	05-270	0.59	N/A	28.5	75.9	45.1	8.2	Absent
560	Unnamed Site	05-366	19.2	Distal	22.6	52.2	36.5	12.6	Absent
646	Mahlberg #9	07-176	17.97	N/A	118.9	83.7	37.5	34.6	Present
666	Fat Cigar Site	05-416	20.94	Proximal	24.6	85.3	20.7	12.4	Absent
727	Tropical Site	05-460	4.65	N/A	23.4	86.8	29.9	8.4	Absent
1280	My Paisano Paisano Site	05-750	12.52	Proximal	291.4	107.5	85.2	27.3	Absent
1280	My Paisano Paisano Site	05-750	12.52	Distal	6.1	38.4	24.4	7.7	Absent
1393	Ledgerock Metaphysics Site	05-727	6.82	Proximal	11.4	34	30.2	8.5	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	25.5	47.2	41.9	10.8	Absent
1404	Susan Melissa Site	05-827	0.86	N/A	26.5	60.8	35.8	11.6	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	4.3	28.2	24.5	5.6	Absent
1404	Susan Melissa Site	05-827	0.86	Lateral	2.3	36.8	16.3	4.9	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	10.3	42.3	39.9	6.2	Absent
1645	Gunflint 46 Site	02-791	29.41	N/A	137.1	105.5	70.7	18.2	Absent

Appendix A: Table 5

Catalogue of Knife Lake Siltstone Flake-Tools									
ACC	Name	SNF FS	km	Portion	grams	ML	MW	MT	Cortex
89	Robbin's Island #1	05-115	2.4	Proximal	3.2	28	20.2	(?)	Absent
89	Robbin's Island #1	05-115	2.4	N/A	23.1	62.9	28.6	(?)	Present
89	Robbin's Island #1	05-115	2.4	Distal	58.8	73.2	71.1	20.8	Present
277	Ima Camper Site	05-199	7.14	N/A	20.4	52.9	40.8	14.4	Absent
277	Ima Camper Site	05-199	7.14	Medial	0.3	12.1	10.2	1.6	Absent
277	Ima Camper Site	05-199	7.14	N/A	77.1	82.6	57.2	13.9	Present
277	Ima Camper Site	05-199	7.14	N/A	1.6	30.9	19	2.4	Absent
277	Ima Camper Site	05-199	7.14	N/A	0.7	18.9	14.3	2.5	Absent
277	Ima Camper Site	05-199	7.14	Distal	3.1	29.6	23.5	4.8	Absent
401	Unnamed Site	05-287	2.61	Distal	7	41.5	28.3	6.2	Absent
415	Arabesque Site	05-270	0.59	N/A	9.6	42.6	31.4	5.7	Absent
415	Arabesque Site	05-270	0.59	Medial	3.7	25.9	24.9	4.8	Absent
415	Arabesque Site	05-270	0.59	Lateral	75.3	84.7	41.7	14.4	Present
415	Arabesque Site	05-270	0.59	N/A	2.1	29.6	15.9	4.1	Absent
415	Arabesque Site	05-270	0.59	Lateral	1.7	23.8	16.1	3.6	Absent
415	Arabesque Site	05-270	0.59	Lateral	1.1	20.4	12.4	3.4	Absent
415	Arabesque Site	05-270	0.59	Distal	2.7	30.1	15.9	4.5	Absent
415	Arabesque Site	05-270	0.59	Medial	1.3	18.4	19	3.3	Absent
415	Arabesque Site	05-270	0.59	N/A	1.4	22.4	16.5	2.9	Absent
415	Arabesque Site	05-270	0.59	N/A	33.9	52	48.1	11.7	Absent
415	Arabesque Site	05-270	0.59	Lateral	17.4	59.9	24.3	15.2	Absent
415	Arabesque Site	05-270	0.59	Proximal	34.1	98.4	28.6	10.5	Absent
415	Arabesque Site	05-270	0.59	Proximal	8.5	39.2	26.9	6.3	Absent
415	Arabesque Site	05-270	0.59	N/A	13.5	53.8	40.4	5.4	Absent
415	Arabesque Site	05-270	0.59	N/A	14.7	52.9	47.6	5.7	Absent
415	Arabesque Site	05-270	0.59	N/A	7.9	47.4	37.6	6	Absent
415	Arabesque Site	05-270	0.59	N/A	5.1	41.1	24.1	4.1	Absent
415	Arabesque Site	05-270	0.59	N/A	7.6	41.2	33	4.8	Absent
415	Arabesque Site	05-270	0.59	Lateral	60.9	75.4	50	16.2	Absent
415	Arabesque Site	05-270	0.59	N/A	12.8	49	31.1	12.9	Absent
415	Arabesque Site	05-270	0.59	Lateral	15.8	45.8	45.8	6.6	Absent
415	Arabesque Site	05-270	0.59	N/A	14.4	56.7	27.7	7.2	Absent
415	Arabesque Site	05-270	0.59	N/A	15	47.4	29	9.7	Present
415	Arabesque Site	05-270	0.59	N/A	9.9	48.3	23.1	11.2	Absent
415	Arabesque Site	05-270	0.59	N/A	12.9	67.5	35	4.8	Absent
415	Arabesque Site	05-270	0.59	Distal	20.1	60.3	34.7	8.4	Present
415	Arabesque Site	05-270	0.59	N/A	40.1	49.3	42.5	13.7	Absent
415	Arabesque Site	05-270	0.59	N/A	9.2	53	22.9	9.6	Absent
415	Arabesque Site	05-270	0.59	N/A	11.4	59.1	29.6	5.2	Present
415	Arabesque Site	05-270	0.59	Lateral	3.4	31.7	18.7	3.2	Absent
415	Arabesque Site	05-270	0.59	Proximal	51.9	64.3	53.1	10.4	Present
415	Arabesque Site	05-270	0.59	N/A	0.7	17.8	9.3	3.2	Absent
415	Arabesque Site	05-270	0.59	N/A	5	40.8	22.6	5.9	Absent
415	Arabesque Site	05-270	0.59	N/A	4.2	27	33.8	5.6	Absent
415	Arabesque Site	05-270	0.59	N/A	4.1	36.9	24.6	3.6	Absent
415	Arabesque Site	05-270	0.59	N/A	0.3	19.1	9.8	1.1	Absent
415	Arabesque Site	05-270	0.59	N/A	0.04	9.3	9.1	1.8	Absent
415	Arabesque Site	05-270	0.59	Proximal	4.4	19.4	39.1	5.9	Absent
415	Arabesque Site	05-270	0.59	Medial	0.1	14.3	6.5	1.6	Absent
415	Arabesque Site	05-270	0.59	N/A	22.5	70.9	28.5	9.9	Absent
415	Arabesque Site	05-270	0.59	N/A	2.5	28.6	20.2	3.7	Absent
415	Arabesque Site	05-270	0.59	Medial	0.3	14.9	10.4	1.6	Absent
415	Arabesque Site	05-270	0.59	Medial	22.4	63.8	43.9	9.4	Absent

415	Arabesque Site	05-270	0.59	Lateral	0.9	20.4	10.2	2.7	Absent
415	Arabesque Site	05-270	0.59	N/A	7.6	52.8	21.4	5.2	Absent
415	Arabesque Site	05-270	0.59	N/A	8.2	63.3	26.9	3.6	Absent
415	Arabesque Site	05-270	0.59	N/A	16.3	52.1	31	11.3	Absent
415	Arabesque Site	05-270	0.59	N/A	25.9	60.5	45	10.8	Absent
415	Arabesque Site	05-270	0.59	Proximal	7	37	28.8	5.2	Absent
415	Arabesque Site	05-270	0.59	Distal	8.2	54.8	35.9	4	Absent
415	Arabesque Site	05-270	0.59	N/A	5.8	45.5	24	4.4	Present
415	Arabesque Site	05-270	0.59	Lateral	22.9	46.4	24	14.8	Present
415	Arabesque Site	05-270	0.59	Lateral	14.9	52.5	32.5	7.6	Absent
415	Arabesque Site	05-270	0.59	N/A	24.8	62.4	42.2	7.2	Present
415	Arabesque Site	05-270	0.59	Distal	25.6	65.3	39.5	9.6	Present
415	Arabesque Site	05-270	0.59	N/A	23.9	78.2	23.3	16.5	Absent
415	Arabesque Site	05-270	0.59	N/A	48.3	58.5	65.8	9.7	Present
415	Arabesque Site	05-270	0.59	Medial	9.4	37	32.3	6.5	Absent
415	Arabesque Site	05-270	0.59	Distal	5.1	45.6	23.1	3.8	Absent
415	Arabesque Site	05-270	0.59	Distal	6.5	32.7	30.1	8.1	Absent
415	Arabesque Site	05-270	0.59	N/A	1.1	23.7	13.8	3.8	Absent
415	Arabesque Site	05-270	0.59	Proximal	0.8	19.6	11.1	2.8	Absent
415	Arabesque Site	05-270	0.59	N/A	24.5	69.8	34.1	6.8	Absent
415	Arabesque Site	05-270	0.59	N/A	5.5	38.6	36.6	5.4	Absent
415	Arabesque Site	05-270	0.59	Medial	7.5	35.9	23.1	7.9	Absent
415	Arabesque Site	05-270	0.59	N/A	68.5	90.9	50.7	17.5	Absent
415	Arabesque Site	05-270	0.59	N/A	37.9	59.7	56.2	18.8	Absent
415	Arabesque Site	05-270	0.59	Medial	4.2	29.5	26	5.9	Absent
415	Arabesque Site	05-270	0.59	Proximal	8.1	40.3	26.8	7.7	Absent
415	Arabesque Site	05-270	0.59	Proximal	1.7	21	18.9	4.2	Absent
415	Arabesque Site	05-270	0.59	Proximal	1.7	29.2	15.5	3.3	Absent
415	Arabesque Site	05-270	0.59	N/A	3.2	29.3	21.9	4.9	Absent
415	Arabesque Site	05-270	0.59	Proximal	1.6	24.7	16.1	3.6	Absent
415	Arabesque Site	05-270	0.59	N/A	3.9	35.7	19.5	3.6	Absent
415	Arabesque Site	05-270	0.59	N/A	2.9	30	18.5	6.2	Absent
415	Arabesque Site	05-270	0.59	Proximal	4.9	30.7	29.7	6.1	Absent
415	Arabesque Site	05-270	0.59	N/A	1	17.6	14.3	4.2	Absent
415	Arabesque Site	05-270	0.59	N/A	1.2	19	17	3.5	Absent
415	Arabesque Site	05-270	0.59	Proximal	21.3	55	44.5	9.4	Absent
415	Arabesque Site	05-270	0.59	N/A	7	50	29.5	5.2	Absent
415	Arabesque Site	05-270	0.59	N/A	15.3	43.3	36.8	6.4	Absent
415	Arabesque Site	05-270	0.59	N/A	39.9	97.2	34.9	11.1	Absent
462	Unnamed Site	05-307	21.1	N/A	44.8	91.1	48.2	8.3	Absent
462	Unnamed Site	05-307	21.1	N/A	25	99.9	29	8.6	Absent
462	Unnamed Site	05-307	21.1	N/A	18.5	59.7	45.5	6.5	Absent
464	Hot One Site	05-313	19.88	N/A	17.1	46.2	45	7.5	Absent
555	Unnamed Site	05-360	20.8	N/A	6.1	41.8	26.8	5.4	Absent
560	Unnamed Site	05-366	19.2	N/A	6.4	37.4	24.1	6	Absent
1404	Susan Melissa Site	05-827	0.86	N/A	11.4	47.3	40.2	6	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	6.7	35.4	24.9	6.1	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	11.6	44.4	36.7	6.2	Absent
1634	AJM Site	05-930	0.45	N/A	11.4	47.8	36.6	7.1	Absent
1634	AJM Site	05-930	0.45	N/A	8.8	48.4	30	7.4	Absent
1634	AJM Site	05-930	0.45	N/A	23.3	59	39	14.7	Present
1634	AJM Site	05-930	0.45	N/A	4.1	39.6	22	5.6	Absent
1634	AJM Site	05-930	0.45	Proximal	4.1	40.5	26.5	4.6	Absent
1634	AJM Site	05-930	0.45	Proximal	3	33.1	24.3	3.7	Absent
1634	AJM Site	05-930	0.45	N/A	24.8	72.4	33.9	9.1	Absent
1634	AJM Site	05-930	0.45	N/A	13.5	56.3	40.4	8.3	Absent
1634	AJM Site	05-930	0.45	N/A	1.4	20.9	18.1	4.6	Absent
1634	AJM Site	05-930	0.45	N/A	4	33.8	24.8	5.5	Absent
1634	AJM Site	05-930	0.45	N/A	24.2	66.6	51.6	9.4	Absent

1634	AJM Site	05-930	0.45	N/A	5.4	33.1	32.8	5.4	Absent
1634	AJM Site	05-930	0.45	N/A	12	33.5	33.2	8.8	Absent
1634	AJM Site	05-930	0.45	N/A	4.3	32.5	24.4	6.2	Absent
1634	AJM Site	05-930	0.45	N/A	14.7	51.5	32.5	8	Absent
1634	AJM Site	05-930	0.45	N/A	12.9	55.3	29	8.7	Absent
1634	AJM Site	05-930	0.45	N/A	53.9	103.7	45.1	16.9	Absent
1634	AJM Site	05-930	0.45	N/A	0.04	12.4	8.6	2.6	Absent
1634	AJM Site	05-930	0.45	N/A	0.3	13.5	11.8	2.3	Absent
1634	AJM Site	05-930	0.45	N/A	0.1	12.8	10.4	1	Absent
1634	AJM Site	05-930	0.45	N/A	0.9	20.4	7.6	2.3	Absent
1634	AJM Site	05-930	0.45	N/A	8.9	37.5	28.5	9.7	Absent
1634	AJM Site	05-930	0.45	N/A	36.2	83.4	52.5	11.5	Absent
1634	AJM Site	05-930	0.45	Distal	2	25.5	19	3.6	Absent
1634	AJM Site	05-930	0.45	Distal	3.5	38.2	22.7	4	Absent
1634	AJM Site	05-930	0.45	Distal	1.4	22	15.7	3.3	Absent
1634	AJM Site	05-930	0.45	N/A	0.6	17.3	9.7	2.5	Absent
1634	AJM Site	05-930	0.45	Distal	1	19.3	13.9	3.2	Absent
1634	AJM Site	05-930	0.45	N/A	3.3	40.8	20.9	4.5	Absent
1634	AJM Site	05-930	0.45	N/A	8.4	48.3	31.9	5	Absent
1634	AJM Site	05-930	0.45	N/A	20.6	53.2	41.8	9.8	Absent
1634	AJM Site	05-930	0.45	N/A	27.4	62.2	55.2	10.7	Absent
1634	AJM Site	05-930	0.45	N/A	85.8	109.2	72.1	13	Absent
1634	AJM Site	05-930	0.45	N/A	8.9	32.3	34.7	7.7	Absent
1634	AJM Site	05-930	0.45	Proximal	9.4	46.7	32.4	3.6	Absent
1634	AJM Site	05-930	0.45	N/A	134	122	75.8	14.4	Absent
1634	AJM Site	05-930	0.45	N/A	10	67	29.5	5.5	Absent
1634	AJM Site	05-930	0.45	N/A	22.9	56.2	52.1	9.8	Present
1634	AJM Site	05-930	0.45	N/A	7.5	49.5	33.8	4.7	Absent
1634	AJM Site	05-930	0.45	N/A	6.7	43.2	24.8	6.1	Absent
1634	AJM Site	05-930	0.45	N/A	1.4	29.9	10.2	(?)	Absent
1634	AJM Site	05-930	0.45	N/A	3.4	31.3	16.8	5.3	Absent
1634	AJM Site	05-930	0.45	N/A	4.6	44.1	21	3.9	Absent
1634	AJM Site	05-930	0.45	N/A	88.2	122.5	50	14.9	Absent
1634	AJM Site	05-930	0.45	N/A	9.2	37.3	37.1	7	Absent

Appendix A: Table 6

Catalogue of Knife Lake Siltstone Debitage (Assemblages limited to 30 randomly selected individuals where n>30)														
ACC	**Site Name**	**SNF FS**	**km**	**Portion**	**gram**	**OL**	**ML**	**MW**	**MT**	**PT**	**PW**	**BT**	**F#**	**Cortex**
89	Robbin's Island #1	05-115	2.4	Distal	133.8	N/A	127	83.2	16.1	N/A	N/A	N/A	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Distal	106.7	N/A	97.5	54.2	23.8	N/A	N/A	N/A	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Distal	1.5	N/A	27.2	20.5	2.8	N/A	N/A	N/A	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Distal	0.7	N/A	16.8	14.9	3.8	N/A	N/A	N/A	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Distal	2.2	N/A	27.7	21.7	4.3	N/A	N/A	N/A	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Medial	1.2	N/A	21.1	17.5	2.7	N/A	N/A	N/A	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Complete	1.6	21.4	23.2	18.3	4.7	6.6	2.5	3	1	Absent
89	Robbin's Island #1	05-115	2.4	Complete	5.3	19	38	19.2	6.2	N/A	N/A	5.9	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Complete	4	26.7	35.8	25.9	5.5	9.2	2.7	Diffuse	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Complete	2.1	17.1	25.8	20.1	4.1	19.1	2	3.2	2	Absent
89	Robbin's Island #1	05-115	2.4	Complete	36.4	77.7	81.9	48.7	10.5	13.5	4.1	6	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Complete	2.2	24.8	29.6	20.4	3.8	6.9	2.9	3.1	2	Absent
89	Robbin's Island #1	05-115	2.4	Complete	1	13.8	20.1	16.9	3.2	4.7	1.5	2.3	2	Absent
89	Robbin's Island #1	05-115	2.4	Complete	1.1	16.2	21	14.3	4.9	2.9	1.4	3.7	1	Absent
89	Robbin's Island #1	05-115	2.4	Complete	0.6	7.4	15.8	13.1	3.4	9.5	4	Diffuse	1	Absent
89	Robbin's Island #1	05-115	2.4	Complete	0.6	17	20.4	15.9	3.1	5.3	0.7	2.4	N/A	Absent

89	Robbin's Island #1	05-115	2.4	Complete	0.5	9.4	15.3	10.6	2.3	10.1	1.7	Diffuse	2	Absent
89	Robbin's Island #1	05-115	2.4	Complete	23.1	26.1	62.9	28.6	14.5	19.1	11.3	Diffuse	1	Present
89	Robbin's Island #1	05-115	2.4	Complete	4	23.3	38.9	24.8	4.6	6.5	1.9	4.2	2	Absent
89	Robbin's Island #1	05-115	2.4	Complete	0.3	7.8	14.5	10.3	2.2	10.8	3	1.3	2	Absent
89	Robbin's Island #1	05-115	2.4	Proximal	2.2	N/A	27.4	26.4	3.9	N/A	N/A	2.8	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Proximal	4.8	N/A	33.3	33.2	5.9	16.7	3.6	4.4	1	Absent
89	Robbin's Island #1	05-115	2.4	Proximal	0.8	N/A	20.9	13.7	2	2.3	0.5	1.6	1	Absent
89	Robbin's Island #1	05-115	2.4	Proximal	1.5	N/A	24.5	19	3.1	N/A	N/A	3	N/A	Absent
89	Robbin's Island #1	05-115	2.4	Proximal	3.2	N/A	30.9	21.2	4.1	4.2	2.1	3.7	1	Present
97	Little Knife Portage	05-094	2.34	Distal	2.8	N/A	32.4	15.9	5.3	N/A	N/A	N/A	N/A	Absent
97	Little Knife Portage	05-094	2.34	Distal	2.6	N/A	35	18.2	3.8	N/A	N/A	N/A	N/A	Absent
97	Little Knife Portage	05-094	2.34	Medial	0.5	N/A	16.7	9	2.2	N/A	N/A	N/A	N/A	Absent
97	Little Knife Portage	05-094	2.34	Complete	9	41.6	42.3	29.4	5.9	3.5	1.9	Diffuse	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	6.4	31.9	31.9	31.4	5.8	9.4	2.1	4	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	9.6	46.2	51.3	30	5.9	14.8	2.1	4.8	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	11.7	39.4	45.2	42	6.3	5.2	2	Diffuse	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	2.8	25.6	30.3	20.3	4.2	7	3.6	3.9	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	3	20.9	35.2	16.5	5.8	5.7	1.7	3.7	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	23.4	53.5	70.8	54	7.9	18.6	3.8	6.9	3	Absent
97	Little Knife Portage	05-094	2.34	Complete	17.2	43.1	51.2	47.1	8.4	23.8	5.4	5.9	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	2.4	11.7	30.2	15.5	4.6	22.3	3.8	3.3	4	Absent
97	Little Knife Portage	05-094	2.34	Complete	10.1	29.3	48	29.5	7	N/A	N/A	5.9	N/A	Absent
97	Little Knife Portage	05-094	2.34	Complete	7.4	34.3	41.8	34.9	4.9	5.5	1.6	4.1	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	9	29.6	37.5	33.5	7.9	N/A	N/A	7.8	N/A	Absent
97	Little Knife Portage	05-094	2.34	Complete	0.4	12.1	18.1	11.8	1.6	N/A	N/A	1.5	N/A	Absent
97	Little Knife Portage	05-094	2.34	Complete	23.7	41.1	48.8	34.6	12.3	10.2	1.6	9.6	2	Absent
97	Little Knife Portage	05-094	2.34	Complete	7.9	29.3	36.4	30.3	8.3	9.8	1.8	6.1	2	Absent
97	Little Knife Portage	05-094	2.34	Complete	1.6	16.2	21.4	19.3	4.6	5	1.9	3.9	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	1.2	23.7	23.7	14.9	3.5	4.7	0.6	1.7	2	Absent
97	Little Knife Portage	05-094	2.34	Complete	3.4	20.1	31.4	23.3	4	8	2.5	3.2	2	Absent
97	Little Knife Portage	05-094	2.34	Complete	4.1	23.1	31.5	21.4	6.1	18.7	4.8	6	1	Absent
97	Little Knife Portage	05-094	2.34	Complete	0.4	9	15.4	9.2	2.1	5.7	1.9	2.1	2	Absent
97	Little Knife Portage	05-094	2.34	Complete	16.6	35.1	55.3	37.3	10.4	27.3	10.5	10.3	1	Absent
97	Little Knife Portage	05-094	2.34	Proximal	3.5	N/A	32.7	26.9	5	N/A	N/A	3.6	N/A	Absent
97	Little Knife Portage	05-094	2.34	Proximal	4.3	N/A	34.1	32.3	4.5	9.6	1.7	4.4	1	Absent
97	Little Knife Portage	05-094	2.34	Proximal	23.2	N/A	66.8	35.9	11.8	21.2	3.4	6.7	1	Absent
97	Little Knife Portage	05-094	2.34	Proximal	1.4	N/A	25.1	17.2	3.5	5.8	2	2.2	1	Absent
97	Little Knife Portage	05-094	2.34	Proximal	2.5	N/A	25.8	17	5	11.8	2.9	3	1	Absent
101	Sandy Site	05-127	32.33	Distal	1.2	N/A	25.1	13.7	5.4	N/A	N/A	N/A	N/A	Absent
101	Sandy Site	05-127	32.33	Distal	0.8	N/A	22.1	21.9	1.6	N/A	N/A	N/A	N/A	Absent
101	Sandy Site	05-127	32.33	Distal	0.8	N/A	24.6	12.6	3.6	N/A	N/A	N/A	N/A	Absent
101	Sandy Site	05-127	32.33	Distal	0.2	N/A	13.8	N/A	1.5	N/A	N/A	N/A	N/A	Absent
101	Sandy Site	05-127	32.33	Medial	0.2	N/A	16.4	13.4	1.1	N/A	N/A	N/A	N/A	Absent
101	Sandy Site	05-127	32.33	Complete	35.8	53.1	57.8	50.3	12.3	12.5	2.7	10.8	1	Present
101	Sandy Site	05-127	32.33	Complete	33.4	27.7	52.9	54.3	12.4	15.7	6.6	11.5	1	Present
101	Sandy Site	05-127	32.33	Complete	36.3	39.7	65	39.8	14.6	N/A	N/A	12.3	N/A	Absent
101	Sandy Site	05-127	32.33	Complete	2.2	15.2	30.8	17.9	3.3	1.6	1.5	3	1	Absent
101	Sandy Site	05-127	32.33	Complete	2.2	14.6	33.1	17.7	3.6	13.1	4.2	3.6	1	Absent
101	Sandy Site	05-127	32.33	Complete	0.5	12.7	13.9	13	3.1	3.7	1	1.4	1	Present
101	Sandy Site	05-127	32.33	Complete	0.2	9.5	11.2	9.3	1.8	2.4	0.5	0.8	1	Present
101	Sandy Site	05-127	32.33	Complete	0.7	10.9	19.3	15.7	3.1	5.1	0.3	1.2	1	Absent
101	Sandy Site	05-127	32.33	Complete	0.2	12.7	15.3	13.1	1.4	7.6	0.8	1.1	3	Absent
101	Sandy Site	05-127	32.33	Complete	0.4	13.6	17	14.1	1.8	N/A	N/A	1.7	N/A	Absent
101	Sandy Site	05-127	32.33	Complete	0.1	9.6	11.8	9.7	1.9	4	1	1.3	1	Absent
101	Sandy Site	05-127	32.33	Complete	0.9	19.8	19.8	13.8	2.9	N/A	N/A	2.6	N/A	Absent
101	Sandy Site	05-127	32.33	Complete	5.8	30.3	37	30.5	6.6	N/A	N/A	2.9	N/A	Absent
101	Sandy Site	05-127	32.33	Complete	1.6	20.2	25.6	21.2	2.9	11	2.6	2.8	2	Absent
101	Sandy Site	05-127	32.33	Complete	5.7	23.6	34.4	24.5	5.9	8.1	2.5	4.2	2	Absent
101	Sandy Site	05-127	32.33	Complete	3.8	22.2	33.8	30.5	4.7	12.8	3.1	Diffuse	2	Present

101	Sandy Site	05-127	32.33	Complete	27.1	55.7	55.9	39.8	16.8	4.1	1.7	6.5	1	Present
101	Sandy Site	05-127	32.33	Complete	0.8	20.8	24.6	12.5	3.5	7.3	3.4	3.3	1	Absent
101	Sandy Site	05-127	32.33	Complete	0.04	10	10.2	8.4	1	1.7	0.4	0.7	2	Absent
101	Sandy Site	05-127	32.33	Proximal	1.6	N/A	24.7	20	2.9	6.1	2	2.9	1	Absent
101	Sandy Site	05-127	32.33	Proximal	0.4	N/A	18	16.2	1.5	3.5	0.6	0.7	1	Absent
114	Norway Island	05-055	20.85	Distal	0.6	N/A	16.5	14.3	2.5	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Distal	0.3	N/A	15.3	8.9	2.4	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Distal	0.04	N/A	13.1	6.4	1.3	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Distal	0.5	N/A	17.7	12.8	2.4	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Distal	0.3	N/A	16.4	12.5	2.2	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Distal	2.7	N/A	29.1	16.4	4.5	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Distal	0.6	N/A	16.7	13.7	2.4	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Distal	1	N/A	21.2	14.2	2.9	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Lateral	0.1	9.9	10.2	6.8	1.8	2.5	1.1	1.5	1	Absent
114	Norway Island	05-055	20.85	Medial	0.3	N/A	13.3	8.8	1.5	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Medial	0.04	N/A	8.7	6.2	1.7	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Medial	3.3	N/A	30.1	22.4	4.4	N/A	N/A	N/A	N/A	Absent
114	Norway Island	05-055	20.85	Complete	1.3	25.2	25.9	16.6	2.6	4	1.4	2.1	2	Absent
114	Norway Island	05-055	20.85	Complete	1	15.1	19.8	12.1	5	5.8	1.3	3.9	1	Absent
114	Norway Island	05-055	20.85	Complete	0.04	6.7	10.3	6.3	1.2	N/A	N/A	1.2	N/A	Absent
114	Norway Island	05-055	20.85	Complete	7.3	37.2	37	36.7	7.4	4	1.1	4.8	1	Absent
114	Norway Island	05-055	20.85	Complete	2.7	22.3	34.3	19.6	3.9	9.9	1.2	2.4	2	Absent
114	Norway Island	05-055	20.85	Complete	2	16.8	24.9	16.3	4.7	N/A	N/A	4.4	N/A	Absent
114	Norway Island	05-055	20.85	Complete	6.9	22	37	24.3	6.2	16.4	3.5	3.4	1	Absent
114	Norway Island	05-055	20.85	Complete	2	19.2	20.5	18.7	4.4	2.6	1.1	4.1	1	Absent
114	Norway Island	05-055	20.85	Complete	0.9	24.4	24.7	14.6	2.3	4.2	1.4	2.2	2	Absent
114	Norway Island	05-055	20.85	Complete	4.9	27.6	32.5	26	4.2	N/A	N/A	3.5	N/A	Present
114	Norway Island	05-055	20.85	Complete	1.7	19.6	22.2	19.6	3.8	6.4	1.3	3.7	1	Absent
114	Norway Island	05-055	20.85	Proximal	0.3	N/A	16.1	7.5	2.4	5.7	1.8	2.4	2	Absent
114	Norway Island	05-055	20.85	Proximal	1.7	N/A	28.4	22.4	2.7	7.5	1.6	2.6	2	Absent
131	Englishman Island Site	02-134	17.67	Distal	2.5	N/A	29.6	24.7	3.4	N/A	N/A	N/A	N/A	Absent
131	Englishman Island Site	02-134	17.67	Distal	2	N/A	25.6	17.3	6.3	N/A	N/A	N/A	N/A	Absent
131	Englishman Island Site	02-134	17.67	Distal	1.1	N/A	19.6	13.4	4.1	N/A	N/A	N/A	N/A	Absent
131	Englishman Island Site	02-134	17.67	Distal	0.5	N/A	17.2	15.4	1.8	N/A	N/A	N/A	N/A	Absent
131	Englishman Island Site	02-134	17.67	Distal	0.9	N/A	25.5	15.6	2.1	N/A	N/A	N/A	N/A	Absent
131	Englishman Island Site	02-134	17.67	Distal	2.1	N/A	26.1	18.5	3.3	N/A	N/A	N/A	N/A	Absent
131	Englishman Island Site	02-134	17.67	Distal	0.5	N/A	21.5	12.3	2.1	N/A	N/A	N/A	N/A	Absent
131	Englishman Island Site	02-134	17.67	Medial	4.9	N/A	43.5	21.3	3.9	N/A	N/A	N/A	N/A	Absent
131	Englishman Island Site	02-134	17.67	Medial	0.5	N/A	17	13.3	1.7	N/A	N/A	N/A	N/A	Absent
131	Englishman Island Site	02-134	17.67	Complete	1.6	23.9	25.9	18.9	3.4	4.7	1.3	2.2	1	Absent
131	Englishman Island Site	02-134	17.67	Complete	6.4	33.7	37.4	27.8	5.8	9.6	2.2	5.2	2	Absent
131	Englishman Island Site	02-134	17.67	Complete	6	37.7	38.6	31.2	5.5	7.9	1.7	2.8	2	Absent
131	Englishman Island Site	02-134	17.67	Complete	3.6	24.9	35	25	4.1	10.2	2	3.9	2	Absent
131	Englishman Island Site	02-134	17.67	Complete	0.9	11.6	19.6	12.9	2.7	7.6	2.4	2.9	3	Absent
131	Englishman Island Site	02-134	17.67	Complete	1.3	18	24.5	16.3	2.3	3.5	1.6	2	1	Absent
131	Englishman Island Site	02-134	17.67	Complete	2.1	17.9	30.5	18.9	3.8	N/A	N/A	3.1	N/A	Absent
131	Englishman Island Site	02-134	17.67	Complete	0.8	19.7	20.6	18.6	2.8	4.5	1.2	1.7	2	Absent
131	Englishman Island Site	02-134	17.67	Complete	5.5	19.3	37.2	23.8	8.1	7.7	2.8	5.7	3	Absent
131	Englishman Island Site	02-134	17.67	Complete	10.9	31.3	45.5	28.9	11.4	21	8.4	Diffuse	1	Absent
131	Englishman Island Site	02-134	17.67	Complete	3.7	28.9	38.5	21.8	4.5	7	1.5	3	1	Absent
131	Englishman Island Site	02-134	17.67	Complete	13.2	39.8	55.5	46.2	6.7	15.4	3.5	5.1	1	Absent
131	Englishman Island Site	02-134	17.67	Complete	5.1	16.2	42.7	17.9	6.1	N/A	N/A	5	N/A	Absent
131	Englishman Island Site	02-134	17.67	Complete	2.5	22.9	35.2	22.2	3.2	N/A	N/A	3.2	N/A	Absent
131	Englishman Island Site	02-134	17.67	Complete	52.4	58.7	77.4	63.3	13.1	N/A	N/A	Diffuse	N/A	Absent
131	Englishman Island Site	02-134	17.67	Complete	0.7	15	20.8	15.3	2.6	6.6	2.7	2.8	1	Absent
131	Englishman Island Site	02-134	17.67	Proximal	93.9	N/A	88	63	18.4	32.8	17.1	18.3	3	Present
131	Englishman Island Site	02-134	17.67	Proximal	49.3	N/A	69.1	56.4	17.6	29.2	17.2	18.1	1	Absent
131	Englishman Island Site	02-134	17.67	Proximal	5.4	N/A	36.5	30.8	7.4	7.6	1.3	5.6	1	Absent
134	Seagull Rapids	02-139	14.36	Distal	0.5	N/A	18.9	9.1	1.8	N/A	N/A	N/A	N/A	Absent

134	Seagull Rapids	02-139	14.36	Distal	8.4	N/A	56.8	33.9	4.7	N/A	N/A	N/A	N/A	Absent
134	Seagull Rapids	02-139	14.36	Distal	2	N/A	27.6	13.7	5.5	N/A	N/A	N/A	N/A	Absent
134	Seagull Rapids	02-139	14.36	Distal	0.6	N/A	16.8	11.1	3.3	N/A	N/A	N/A	N/A	Absent
134	Seagull Rapids	02-139	14.36	Medial	1.2	N/A	20	18.5	2.7	N/A	N/A	N/A	N/A	Absent
134	Seagull Rapids	02-139	14.36	Medial	1.5	N/A	26.7	24.3	2.7	N/A	N/A	N/A	N/A	Absent
134	Seagull Rapids	02-139	14.36	Medial	0.04	N/A	7.6	6.5	0.6	N/A	N/A	N/A	N/A	Absent
134	Seagull Rapids	02-139	14.36	Complete	2.8	29.3	30.5	21.1	5.1	10.7	3.3	3.5	1	Absent
134	Seagull Rapids	02-139	14.36	Complete	20.1	40.1	47.5	37.4	13.2	16.6	9.4	14	2	Absent
134	Seagull Rapids	02-139	14.36	Complete	10.4	35.6	57.2	36.9	4.7	N/A	N/A	4.6	N/A	Absent
134	Seagull Rapids	02-139	14.36	Complete	22.2	58.8	67.1	29.1	12.4	19.4	6.9	12.6	2	Present
134	Seagull Rapids	02-139	14.36	Complete	3	27.2	29.7	28.4	3.5	N/A	N/A	3.1	N/A	Absent
134	Seagull Rapids	02-139	14.36	Complete	3.4	24.6	36.3	23.5	4.5	14.7	4.5	4.3	1	Absent
134	Seagull Rapids	02-139	14.36	Complete	2.4	17.1	26.6	18.4	4.3	4.1	0.8	3.4	1	Absent
134	Seagull Rapids	02-139	14.36	Complete	2.8	21.1	34.2	22.5	3	N/A	N/A	3	N/A	Absent
134	Seagull Rapids	02-139	14.36	Complete	1.8	13.3	22.7	21.1	4.1	N/A	N/A	3.9	N/A	Absent
134	Seagull Rapids	02-139	14.36	Complete	0.4	15.1	17.9	9.6	2.9	2.7	1	1.4	1	Absent
134	Seagull Rapids	02-139	14.36	Complete	0.5	8.9	16.1	15.4	2	N/A	N/A	0.8	N/A	Absent
134	Seagull Rapids	02-139	14.36	Complete	0.8	15.1	20.1	14	2.7	2.6	1	2.5	1	Absent
134	Seagull Rapids	02-139	14.36	Complete	0.3	9.8	14.4	11.1	1.6	4.5	2.1	1.2	2	Absent
134	Seagull Rapids	02-139	14.36	Complete	0.9	18.1	19.2	17	2.1	N/A	N/A	1.6	N/A	Absent
134	Seagull Rapids	02-139	14.36	Complete	0.04	7.8	11.1	8.9	1.9	5.2	1.4	1.5	1	Absent
134	Seagull Rapids	02-139	14.36	Complete	0.1	7.9	14	7.8	1.4	N/A	N/A	0.6	N/A	Absent
134	Seagull Rapids	02-139	14.36	Complete	0.7	12.2	20.1	12.9	2.5	6.7	1.6	2.2	2	Absent
134	Seagull Rapids	02-139	14.36	Complete	0.1	10.5	11.8	10.8	1.1	N/A	N/A	0.7	N/A	Absent
134	Seagull Rapids	02-139	14.36	Complete	6.5	26.1	36.1	30.3	7.2	15.3	4.9	4.6	2	Absent
134	Seagull Rapids	02-139	14.36	Proximal	2.5	N/A	30.8	25	3.1	7.4	2.2	2.8	3	Absent
134	Seagull Rapids	02-139	14.36	Proximal	1.2	N/A	20	19.3	3.4	N/A	N/A	2.2	N/A	Absent
134	Seagull Rapids	02-139	14.36	Proximal	1.8	N/A	24.5	24.2	3.3	4.3	1.8	2.6	2	Absent
140	Sand Hill	05-180	26.46	Distal	1.2	N/A	20.7	16.5	3.3	N/A	N/A	N/A	N/A	Absent
140	Sand Hill	05-180	26.46	Distal	0.5	N/A	17.1	9.4	3.7	N/A	N/A	N/A	N/A	Absent
140	Sand Hill	05-180	26.46	Distal	0.4	N/A	17	7.2	3.4	N/A	N/A	N/A	N/A	Absent
140	Sand Hill	05-180	26.46	Distal	0.5	N/A	14.8	11.3	2.2	N/A	N/A	N/A	N/A	Absent
140	Sand Hill	05-180	26.46	Medial	2.2	N/A	31	14.5	3.6	N/A	N/A	N/A	N/A	Absent
140	Sand Hill	05-180	26.46	Medial	0.8	N/A	17	14.1	2.7	N/A	N/A	N/A	N/A	Absent
140	Sand Hill	05-180	26.46	Medial	0.5	N/A	16.8	11.4	1.8	N/A	N/A	N/A	N/A	Absent
140	Sand Hill	05-180	26.46	Medial	0.2	N/A	12.9	7.9	1.8	N/A	N/A	N/A	N/A	Absent
140	Sand Hill	05-180	26.46	Complete	1.8	18.2	26.8	20.1	3.1	N/A	N/A	3.1	N/A	Absent
140	Sand Hill	05-180	26.46	Complete	12.7	32.5	44.1	39.4	8.5	N/A	N/A	6.5	N/A	Present
140	Sand Hill	05-180	26.46	Complete	53.7	38.1	88.7	53.2	15.6	50.9	6.2	9.6	1	Absent
140	Sand Hill	05-180	26.46	Complete	1.9	13.7	23.3	14.7	4	17.9	5.8	3.2	2	Absent
140	Sand Hill	05-180	26.46	Complete	1.8	15.6	23.6	16.3	4.7	13.9	3.8	4.6	1	Absent
140	Sand Hill	05-180	26.46	Complete	0.5	12.4	17.3	10.5	2.4	2.9	0.6	1.8	1	Absent
140	Sand Hill	05-180	26.46	Complete	1.2	12.6	19.4	12.9	4	4.3	1	3	1	Absent
140	Sand Hill	05-180	26.46	Complete	1.1	17.5	22.8	17.4	2.2	3.5	0.8	1.6	1	Absent
140	Sand Hill	05-180	26.46	Complete	0.4	11.6	13.6	12.5	3	5.4	1.1	2.5	2	Absent
140	Sand Hill	05-180	26.46	Complete	0.1	8.2	11.9	8.1	1.4	4.2	1.4	1.4	2	Absent
140	Sand Hill	05-180	26.46	Complete	3.1	35.6	41.8	22.4	3.1	4.9	0.9	2.3	2	Absent
140	Sand Hill	05-180	26.46	Complete	2.5	25.9	32.2	27.6	4.8	7.7	2.4	4.1	2	Absent
140	Sand Hill	05-180	26.46	Complete	0.3	10.5	13.8	9.6	1.8	2.9	1.2	1.8	1	Absent
140	Sand Hill	05-180	26.46	Complete	62.9	57.6	89.9	56	12	15.3	6.8	7.8	1	Absent
140	Sand Hill	05-180	26.46	Proximal	0.6	N/A	16.3	12.4	2.3	3	0.7	2.3	1	Absent
140	Sand Hill	05-180	26.46	Proximal	1.2	N/A	23.2	16.9	2.6	7.9	2.5	2.4	2	Absent
140	Sand Hill	05-180	26.46	Proximal	0.7	N/A	18.3	10.6	3.3	5.3	1.8	2.4	1	Absent
140	Sand Hill	05-180	26.46	Proximal	9.2	N/A	29.7	29.2	7.5	12.8	4	4.7	1	Absent
140	Sand Hill	05-180	26.46	Proximal	0.5	N/A	21.7	6.5	3.2	N/A	N/A	2.5	N/A	Absent
142	Blind Man	05-176	8.24	Distal	1	N/A	25	11.4	3.2	N/A	N/A	N/A	N/A	Absent
142	Blind Man	05-176	8.24	Distal	6.6	N/A	30.3	29.7	7.1	N/A	N/A	N/A	N/A	Absent
142	Blind Man	05-176	8.24	Distal	1.6	N/A	20.1	16.4	5.7	N/A	N/A	N/A	N/A	Absent
142	Blind Man	05-176	8.24	Distal	1.2	N/A	19.8	17.6	2.9	N/A	N/A	N/A	N/A	Absent

142	Blind Man	05-176	8.24	Distal	0.3	N/A	14.4	8.7	2.9	N/A	N/A	N/A	N/A	Absent
142	Blind Man	05-176	8.24	Distal	0.3	N/A	14.8	7.5	1.9	N/A	N/A	N/A	N/A	Absent
142	Blind Man	05-176	8.24	Distal	0.4	N/A	14.9	12.3	1.6	N/A	N/A	N/A	N/A	Absent
142	Blind Man	05-176	8.24	Medial	1.7	N/A	29.8	10.5	3.8	N/A	N/A	N/A	N/A	Absent
142	Blind Man	05-176	8.24	Complete	9.1	30.8	47.8	31.3	5.8	N/A	N/A	4.8	N/A	Absent
142	Blind Man	05-176	8.24	Complete	2.6	15.2	24.2	16.2	4.8	18.7	3.7	4.8	3	Absent
142	Blind Man	05-176	8.24	Complete	2.2	17.8	24.4	20.1	3.9	14	3.1	3.1	3	Absent
142	Blind Man	05-176	8.24	Complete	1	12.9	21.1	14.2	2.9	5.5	1.2	1.5	3	Absent
142	Blind Man	05-176	8.24	Complete	0.6	15	20.2	15.7	1.3	3.2	0.6	1.2	1	Absent
142	Blind Man	05-176	8.24	Complete	0.6	18.7	19.5	11.6	2.4	2.8	0.5	1.9	2	Absent
142	Blind Man	05-176	8.24	Complete	0.04	10.2	10.3	7.9	1.2	2.5	0.1	1.5	1	Absent
142	Blind Man	05-176	8.24	Complete	0.5	11.2	15.1	10.7	2.5	7.5	2.1	2.5	2	Absent
142	Blind Man	05-176	8.24	Complete	0.6	15.6	16.5	15.8	1.9	3.2	0.6	1.3	1	Absent
142	Blind Man	05-176	8.24	Complete	0.4	14.3	14.4	12.1	2.5	4.8	0.8	1.4	2	Absent
142	Blind Man	05-176	8.24	Complete	0.5	14.1	16.4	10.6	2.3	5.8	1	2.2	1	Absent
142	Blind Man	05-176	8.24	Complete	35.6	70.9	71.9	44.6	16.5	10.1	4.7	11.4	1	Present
142	Blind Man	05-176	8.24	Complete	1.3	26.3	28.4	12.8	3	4.7	1.8	2.7	1	Absent
142	Blind Man	05-176	8.24	Complete	0.5	12.2	16.9	12.9	1.4	7.9	1.3	2.2	2	Absent
142	Blind Man	05-176	8.24	Complete	0.3	13.1	13.6	9.7	2.5	5.7	2.1	2.4	2	Absent
150	Lake One	05-178	21.97	Medial	1.2	N/A	19.4	19.2	2.2	N/A	N/A	N/A	N/A	Absent
150	Lake One	05-178	21.97	Complete	22.3	51.5	69.2	44.1	7.7	21.8	4.8	6.4	1	Absent
150	Lake One	05-178	21.97	Complete	0.3	6.4	15	8.4	2.1	6.5	1.1	1.7	1	Absent
150	Lake One	05-178	21.97	Complete	0.5	14.3	15.5	14.8	2.1	N/A	N/A	2.2	N/A	Absent
209	Insula 4 Site	05-152	17.25	Complete	1.6	16	22.5	16.4	4.7	9.6	2.3	3.6	2	Absent
209	Insula 4 Site	05-152	17.25	Complete	2.3	21.9	25.9	21.9	5.5	5.8	1.5	3.7	2	Absent
209	Insula 4 Site	05-152	17.25	Complete	0.6	13.8	15.9	15.7	2.5	11.7	2.1	2.2	1	Present
209	Insula 4 Site	05-152	17.25	Complete	41.1	32.6	71.8	70.4	14.3	18.9	8.1	13.2	2	Present
209	Insula 4 Site	05-152	17.25	Complete	4.1	29	37.5	27	7.2	19.1	6.4	7.2	2	Absent
209	Insula 4 Site	05-152	17.25	Complete	15.2	31.7	46.3	38.9	12.9	9.6	3.3	9.1	2	Absent
209	Insula 4 Site	05-152	17.25	Complete	11.1	47.9	53.9	40	8.3	18.9	8.8	8.3	1	Absent
209	Insula 4 Site	05-152	17.25	Complete	0.6	17	19	16.3	2.2	11.1	1.8	1.9	3	Absent
209	Insula 4 Site	05-152	17.25	Complete	4.3	20.9	35.1	26.1	4.2	9.9	4.1	4.2	2	Absent
209	Insula 4 Site	05-152	17.25	Complete	4.6	20.1	32.9	23.8	5.4	N/A	N/A	5.3	N/A	Absent
209	Insula 4 Site	05-152	17.25	Complete	8.7	25.2	53.7	26.4	6.6	11.4	3.1	4.6	1	Absent
209	Insula 4 Site	05-152	17.25	Complete	12.8	28.9	48.6	30.9	9.1	36.2	8.9	8.8	4	Present
209	Insula 4 Site	05-152	17.25	Complete	1.5	16.4	22	16.6	3.7	7.2	2.2	3.5	1	Absent
209	Insula 4 Site	05-152	17.25	Complete	0.4	13.8	14.2	13.2	2.4	5.7	1.5	2.4	1	Absent
209	Insula 4 Site	05-152	17.25	Complete	5.6	26.3	34.2	32.3	5.4	13.4	6.5	5.4	1	Absent
209	Insula 4 Site	05-152	17.25	Complete	6	25.7	31.9	31	6.4	5.6	2.1	2.3	2	Absent
209	Insula 4 Site	05-152	17.25	Complete	0.7	15.1	18	11.4	3.3	3.4	0.9	1.4	1	Absent
209	Insula 4 Site	05-152	17.25	Complete	48.1	42.3	73	46.9	14.6	24.8	6.9	9.5	1	Absent
209	Insula 4 Site	05-152	17.25	Complete	2.3	19.9	27.2	22.4	3	5	1.6	2.7	1	Absent
209	Insula 4 Site	05-152	17.25	Complete	14.8	28.7	53.8	29.3	8.7	10.9	2.4	3.1	2	Absent
209	Insula 4 Site	05-152	17.25	Complete	1.8	20.5	29.3	18.1	2.5	4.3	0.7	1.9	1	Absent
209	Insula 4 Site	05-152	17.25	Complete	7	27	37	26.3	6.9	N/A	N/A	6.9	N/A	Absent
209	Insula 4 Site	05-152	17.25	Proximal	0.6	N/A	21.8	12.9	2.7	4.1	2.7	2.7	2	Absent
209	Insula 4 Site	05-152	17.25	Proximal	61.2	N/A	75.3	58.9	15.6	27.6	6.3	10.4	1	Absent
209	Insula 4 Site	05-152	17.25	Proximal	0.5	N/A	17.9	12.9	1.7	4.7	1.2	1.7	1	Absent
209	Insula 4 Site	05-152	17.25	Proximal	1.8	N/A	23.4	21.3	3.7	5.5	1.5	3.3	1	Absent
209	Insula 4 Site	05-152	17.25	Proximal	5.8	N/A	36.3	24.5	4.5	17.3	3.3	3.8	1	Absent
209	Insula 4 Site	05-152	17.25	Proximal	1.6	N/A	24.5	19.6	3.4	4.7	0.5	2.3	2	Absent
209	Insula 4 Site	05-152	17.25	Proximal	3.7	N/A	33.4	19.4	6.1	9.3	1.7	3.3	1	Absent
209	Insula 4 Site	05-152	17.25	Proximal	1.4	N/A	22.7	13	6.1	17.5	2	2.5	2	Absent
214	Hudson Lake Camp Site	05-148	19.37	Complete	12.3	32	42	34.2	8.4	18.7	3.9	5.2	1	Present
214	Hudson Lake Camp Site	05-148	19.37	Complete	7.4	23.5	55.2	24	6.3	11.3	3.5	3.7	3	Absent
214	Hudson Lake Camp Site	05-148	19.37	Complete	2.8	11.3	38.1	19	6.5	5.8	0.9	5.6	1	Absent
214	Hudson Lake Camp Site	05-148	19.37	Complete	0.8	14.2	24.2	15.1	1.8	5.8	2.1	1.7	1	Absent
219	Table Rock Site	05-150	15.75	Complete	13	40.5	54.5	39.6	6.6	14.5	5.9	6	1	Present
219	Table Rock Site	05-150	15.75	Complete	2.8	21.8	25.1	22.6	3.8	15.6	4.1	3.8	1	Absent

219	Table Rock Site	05-150	15.75	Complete	1.4	15.5	22.7	16.5	5.7	N/A	N/A	3.4	N/A	Absent
219	Table Rock Site	05-150	15.75	Complete	11.2	54.1	54.5	36.5	4.4	11.8	2.6	3.5	2	Absent
219	Table Rock Site	05-150	15.75	Proximal	3.8	N/A	23.9	20.9	7	11.1	3.1	4.4	1	Absent
228	Unnamed Site	05-155	16.31	Complete	6.2	25.1	36.9	25	6.6	N/A	N/A	4.2	N/A	Absent
230	Unnamed Site	05-137	20	Complete	0.9	13.2	16.4	16	3.9	10.1	3.5	3.4	3	Absent
230	Unnamed Site	05-137	20	Complete	0.3	11.9	17.8	10.5	1.4	4.6	0.7	0.9	1	Absent
230	Unnamed Site	05-137	20	Complete	0.2	9.1	10.6	9.6	2.2	5.1	1.6	1.7	1	Absent
230	Unnamed Site	05-137	20	Complete	8.9	33	50.9	34.3	7.4	33.8	8.4	7.3	1	Absent
230	Unnamed Site	05-137	20	Complete	10	31.4	57.4	32.6	5.8	10.7	2.9	5.8	1	Absent
230	Unnamed Site	05-137	20	Complete	6.3	53.5	60.4	26.6	2.8	10.3	0.7	2.6	1	Absent
230	Unnamed Site	05-137	20	Complete	8.2	37.3	44	37.6	5.1	6.8	1.2	3.8	1	Absent
230	Unnamed Site	05-137	20	Complete	1.5	13.8	25.1	16.2	3.9	12.3	3	3.9	1	Absent
230	Unnamed Site	05-137	20	Complete	2.7	16.4	24.5	24.5	5.1	14.8	3.6	4.9	1	Absent
230	Unnamed Site	05-137	20	Complete	0.6	13.4	16	13.9	2.5	6.7	1.1	2.5	1	Absent
230	Unnamed Site	05-137	20	Complete	5.7	28.5	44.9	29.1	4.2	22.5	1.3	2.1	2	Absent
230	Unnamed Site	05-137	20	Complete	0.7	15.6	17	15.6	2.6	4.2	1.4	1.9	2	Absent
230	Unnamed Site	05-137	20	Complete	1.7	14.3	21.6	19.2	3.6	5.9	1.7	3.5	1	Absent
230	Unnamed Site	05-137	20	Complete	2.3	22.8	32.3	21.7	3.5	N/A	N/A	2.7	N/A	Absent
230	Unnamed Site	05-137	20	Complete	1.8	12.1	25.3	15.5	4.9	7.2	2	2.5	1	Absent
230	Unnamed Site	05-137	20	Complete	0.2	13	14.2	10.3	1.8	5	1.6	1.7	3	Absent
230	Unnamed Site	05-137	20	Proximal	0.6	N/A	17.2	14.3	2.5	5.1	0.5	2.5	2	Absent
230	Unnamed Site	05-137	20	Proximal	6.3	N/A	41.4	37.2	4.2	N/A	N/A	2.7	N/A	Absent
230	Unnamed Site	05-137	20	Proximal	7.9	N/A	43	28.9	4.8	N/A	N/A	4.7	N/A	Absent
230	Unnamed Site	05-137	20	Proximal	1.8	N/A	29.3	20.4	2.4	4.3	0.9	2.4	1	Absent
230	Unnamed Site	05-137	20	Proximal	0.7	N/A	19.3	12.7	2.4	10.2	2.2	2.6	2	Absent
230	Unnamed Site	05-137	20	Proximal	1.8	N/A	26.6	26.1	2.7	12.8	2.7	2.7	1	Absent
230	Unnamed Site	05-137	20	Proximal	0.9	N/A	23.9	17.1	2.5	2.9	1.3	2.3	1	Absent
271	Bulldozer Site	05-189	33.58	Complete	7.7	44	46.3	33.1	5.4	6.9	4.4	4.9	1	Absent
271	Bulldozer Site	05-189	33.58	Complete	2.5	17.8	37.7	19.8	2.5	10.8	1.3	2.3	1	Absent
271	Bulldozer Site	05-189	33.58	Complete	2.3	26.8	32.8	16.9	5.2	12.3	4	5.2	2	Absent
271	Bulldozer Site	05-189	33.58	Complete	0.8	17.8	23.3	11.5	2.8	3.6	0.7	1.8	1	Absent
271	Bulldozer Site	05-189	33.58	Complete	0.2	10.1	14.4	10.2	1.4	6.6	0.2	0.9	2	Absent
271	Bulldozer Site	05-189	33.58	Complete	1.3	22.9	27.4	18.1	3.3	14.1	2.5	3.3	1	Absent
271	Bulldozer Site	05-189	33.58	Complete	5.9	12.9	38.6	22.1	9	30.3	9.7	8.8	3	Absent
271	Bulldozer Site	05-189	33.58	Complete	3.7	37.1	44.5	20.9	4.7	12.2	3.7	4.6	3	Absent
271	Bulldozer Site	05-189	33.58	Complete	0.6	15.5	17.6	16.1	2.3	7.1	1.5	2.1	1	Absent
271	Bulldozer Site	05-189	33.58	Complete	0.2	10.7	11.7	11.1	1.4	4.6	1	1.3	1	Absent
271	Bulldozer Site	05-189	33.58	Complete	0.6	9.7	22.3	9.8	3.5	6.8	0.6	3.4	1	Absent
271	Bulldozer Site	05-189	33.58	Complete	1.4	21.5	22.7	19.3	2.5	4.6	1.2	1.9	1	Absent
271	Bulldozer Site	05-189	33.58	Proximal	2.9	N/A	34.9	20.3	4.2	6.7	0.9	4.1	1	Absent
271	Bulldozer Site	05-189	33.58	Proximal	0.8	N/A	18.9	13	3.1	9.2	2.2	2.1	2	Absent
271	Bulldozer Site	05-189	33.58	Proximal	0.5	N/A	15.2	8.6	3.1	10.4	2.9	3	1	Absent
271	Bulldozer Site	05-189	33.58	Proximal	1.3	N/A	23.1	17	4.1	14.4	4.2	4.1	1	Absent
271	Bulldozer Site	05-189	33.58	Proximal	0.5	N/A	17.1	10.8	1.4	3.9	0.9	1.4	1	Absent
271	Bulldozer Site	05-189	33.58	Proximal	0.2	N/A	10.7	8.8	1.3	2.9	0.8	1.1	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	1.2	16.6	19.1	15.1	4.4	7.6	2.2	4.2	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	2.4	28.9	31.5	22	3.4	7.4	1.1	2.3	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	2.7	34.6	31.8	25.2	2.8	5.6	1.4	2.4	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	0.3	12.5	15	12.7	1.4	5.3	0.9	1.4	2	Absent
275	Fall Chip Site	05-239	33.06	Complete	2.6	35.8	36.2	18	3.2	4.3	1.2	2.2	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	16.9	N/A	51.6	32.1	10.8	N/A	N/A	9.7	N/A	Absent
275	Fall Chip Site	05-239	33.06	Complete	0.04	5.1	8.3	7.3	1.1	3.3	0.4	1.1	3	Absent
275	Fall Chip Site	05-239	33.06	Complete	3.3	28.1	33.1	28.7	3.1	4.8	1.7	2.6	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	5.4	36.1	38.5	27.2	5.1	10.4	2.1	3.5	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	1.7	18.7	26.4	16.9	3.2	7	1.1	2.1	2	Absent
275	Fall Chip Site	05-239	33.06	Complete	1.7	15.6	35.9	16.1	3.3	13.2	1.6	2.8	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	0.1	9.6	11.2	10.5	1.2	5.2	0.7	1.2	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	1	22.7	22.8	15.3	2.2	4.1	2	2.2	1	Absent
275	Fall Chip Site	05-239	33.06	Complete	3.1	31.7	35.4	22.9	4.1	8.3	3.6	3.8	1	Absent

275	Fall Chip Site	05-239	33.06	Proximal	0.3	N/A	15.6	11.2	1.2	3.7	0.5	1	2	Absent
275	Fall Chip Site	05-239	33.06	Proximal	0.3	N/A	13.4	10.9	1.5	4.5	1.1	1.4	1	Absent
275	Fall Chip Site	05-239	33.06	Proximal	0.3	N/A	13.4	10.5	1.9	5.2	1.4	1.9	1	Absent
275	Fall Chip Site	05-239	33.06	Proximal	1.7	N/A	24.4	21	2.1	9.9	1.1	2	2	Absent
275	Fall Chip Site	05-239	33.06	Proximal	1.7	N/A	26	18.5	3.3	6.1	1.2	2.9	1	Absent
275	Fall Chip Site	05-239	33.06	Proximal	2.4	N/A	29.7	19.6	3.5	7.8	0.8	3.4	1	Absent
275	Fall Chip Site	05-239	33.06	Proximal	3.9	N/A	31.7	29.2	4.4	9	1.1	4.4	1	Absent
275	Fall Chip Site	05-239	33.06	Proximal	0.3	N/A	17.1	9	1.7	4.9	0.7	1.3	2	Absent
275	Fall Chip Site	05-239	33.06	Proximal	0.2	N/A	10.8	10.3	2.1	2.6	0.4	1.9	1	Absent
275	Fall Chip Site	05-239	33.06	Proximal	2.7	N/A	28.7	19.1	5	10.2	2.8	3.5	2	Absent
275	Fall Chip Site	05-239	33.06	Proximal	1.2	N/A	19.6	18.2	4.1	11.2	3.4	4.1	1	Absent
275	Fall Chip Site	05-239	33.06	Proximal	2.6	N/A	24.3	18.1	7.2	7.4	3.7	6.7	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	169.3	81.7	97.2	96.6	27.1	54.1	18.7	26.6	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	30.2	50.3	85.3	49.6	7.4	29.4	5.3	5.6	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	10.2	31.9	54.5	29.8	6.7	14.4	3.5	6.3	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	2.6	18.6	32.5	20.4	2.9	11.4	1	2.5	2	Absent
277	Ima Camper Site	05-199	7.14	Complete	1	12.3	19.3	17.6	3.3	11.5	3.5	3.3	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	16.7	38.8	54.3	38.2	5.8	21.3	6.8	5.8	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	2.1	15.6	23.7	24.3	3.8	12.3	2	2.2	3	Absent
277	Ima Camper Site	05-199	7.14	Complete	8.4	26	39.5	30.3	7.6	30.1	7.1	7.6	2	Absent
277	Ima Camper Site	05-199	7.14	Complete	4	24.1	28	26.1	5.7	5.1	1.5	5.4	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	254.8	69.8	139	92.1	21.2	53.1	20.2	20.6	1	Present
277	Ima Camper Site	05-199	7.14	Complete	22.9	41.5	66.6	38.6	8.2	28.9	6.2	7.8	3	Absent
277	Ima Camper Site	05-199	7.14	Complete	2.6	9	29.7	20.3	5.5	16.6	5	4.7	3	Absent
277	Ima Camper Site	05-199	7.14	Complete	1	10.8	18.8	11.5	4.7	12	2.4	4.7	2	Absent
277	Ima Camper Site	05-199	7.14	Complete	14.1	38.5	55.9	44.2	6.8	25.6	5.9	6.8	1	Present
277	Ima Camper Site	05-199	7.14	Complete	2.1	18.7	28.4	19	3.4	11.7	0.9	2.3	2	Absent
277	Ima Camper Site	05-199	7.14	Complete	47.6	44.6	58.1	57.3	16.5	25.2	9.9	12.3	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	3.1	13.8	41	19.7	6.9	16.2	2.6	5.3	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	3.2	23	30.6	23.7	3.7	10.6	2.4	3.7	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	1.2	13.9	19.4	16.3	4.4	10.5	2.1	4.4	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	0.9	14.7	23.1	20.9	2.2	19	2.5	2.2	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	0.04	9.6	10.9	7.2	0.5	1.4	0.2	0.5	1	Absent
277	Ima Camper Site	05-199	7.14	Complete	4.1	24.9	31.3	25.4	6.7	18.8	6.4	6.7	2	Absent
277	Ima Camper Site	05-199	7.14	Complete	0.8	11.7	18.4	18.1	3.1	11.9	2.9	2.9	2	Absent
277	Ima Camper Site	05-199	7.14	Proximal	4.6	N/A	29.2	24.3	7.1	11.6	2.8	3.8	1	Absent
277	Ima Camper Site	05-199	7.14	Proximal	1.9	N/A	23.7	19.4	4.8	12.6	4.6	4.8	1	Absent
277	Ima Camper Site	05-199	7.14	Proximal	1.4	N/A	21.8	20.8	2.7	6.3	1.8	2.4	3	Absent
277	Ima Camper Site	05-199	7.14	Proximal	1.3	N/A	22.7	18	2.7	8.4	1.5	2.7	1	Absent
277	Ima Camper Site	05-199	7.14	Proximal	5.9	N/A	35.2	25	6.5	19.4	2.2	4.8	3	Absent
277	Ima Camper Site	05-199	7.14	Proximal	3.1	N/A	31.7	16.3	4.6	14.5	2.9	4.6	2	Absent
277	Ima Camper Site	05-199	7.14	Proximal	0.04	N/A	10.2	5.6	1.1	4.3	0.8	1.1	1	Absent
285	Casa Blanca Site	05-243	25.68	Complete	1.1	19.4	22.9	20.5	2.1	4.8	1.3	2.1	1	Absent
285	Casa Blanca Site	05-243	25.68	Proximal	2.5	N/A	22.3	18.8	4.7	14.8	4.4	4.7	2	Absent
293	Topickle Island Site	05-195	3.68	Complete	0.5	8.9	16.4	12.2	2.3	6.1	1.7	2.3	1	Absent
293	Topickle Island Site	05-195	3.68	Complete	0.3	15.9	16.1	8.8	2	N/A	N/A	2	N/A	Absent
293	Topickle Island Site	05-195	3.68	Complete	0.5	14.6	17.1	13.6	2.8	N/A	N/A	2.8	N/A	Absent
293	Topickle Island Site	05-195	3.68	Proximal	1.4	N/A	26.4	12.5	3.6	15.6	3.6	3.6	2	Absent
293	Topickle Island Site	05-195	3.68	Proximal	4.7	N/A	40.4	28.7	3.6	12.2	1	3.6	4	Absent
293	Topickle Island Site	05-195	3.68	Proximal	0.4	N/A	17.1	10.4	2.4	9	2.4	2.4	2	Absent
293	Topickle Island Site	05-195	3.68	Proximal	4.4	N/A	41.7	37.4	4.3	15.1	5	4.3	1	Absent
401	Unnamed Site	05-287	2.61	Complete	1.2	15.2	21.1	16.4	3.3	14	3.4	3.3	1	Absent
401	Unnamed Site	05-287	2.61	Complete	5.9	45.2	46.9	23.8	6.6	12.9	3.3	5.8	1	Absent
401	Unnamed Site	05-287	2.61	Complete	1.4	13.4	20.4	14.8	4.6	10	2.7	4.2	1	Absent
401	Unnamed Site	05-287	2.61	Complete	1.1	18.6	21.6	19.2	2.4	6.5	2.1	1.6	1	Absent
401	Unnamed Site	05-287	2.61	Complete	21.9	54.5	58.2	35.3	9.1	14	3	9.1	1	Absent
401	Unnamed Site	05-287	2.61	Complete	17.8	45.8	58	48	6.8	16.1	3	6.8	1	Absent
401	Unnamed Site	05-287	2.61	Complete	15.8	51.3	56.5	47.9	6.3	15.5	2.5	3.9	1	Absent
401	Unnamed Site	05-287	2.61	Complete	23.2	41.1	72.5	42.5	7.9	13.9	3.2	6.4	1	Absent

401	Unnamed Site	05-287	2.61	Complete	18	30.2	44.7	36.7	11.6	26.4	3.2	10.8	3	Present
401	Unnamed Site	05-287	2.61	Complete	1.3	15.7	23.1	13.2	3.8	9.6	1.6	2.4	2	Absent
401	Unnamed Site	05-287	2.61	Complete	4.9	34.2	34.6	26.4	5.2	7.2	1.4	3.7	2	Absent
401	Unnamed Site	05-287	2.61	Complete	1.2	14.9	23.9	16.9	2.1	6.3	1.8	2.1	1	Absent
401	Unnamed Site	05-287	2.61	Complete	3.8	25.5	28	27.3	5.4	17.4	6.2	5.4	2	Absent
401	Unnamed Site	05-287	2.61	Complete	1	14.5	17.9	14.1	3.1	5.5	1.7	2.3	2	Absent
401	Unnamed Site	05-287	2.61	Complete	1.3	13.9	23.5	14.3	4.8	10.8	1.4	2.4	2	Absent
401	Unnamed Site	05-287	2.61	Complete	0.7	10	20.7	11.1	2.9	14.1	4.8	1.9	1	Absent
401	Unnamed Site	05-287	2.61	Complete	9.5	26.6	40.7	26.3	7.6	14.2	3.8	6.1	2	Absent
401	Unnamed Site	05-287	2.61	Complete	0.5	11.3	15.6	13.1	2.4	6.1	1.3	1.7	1	Absent
401	Unnamed Site	05-287	2.61	Complete	15.9	37.3	47.6	32.1	14.5	31.4	14.9	14.5	3	Absent
401	Unnamed Site	05-287	2.61	Complete	9.8	39.6	59.5	27.5	5.8	8.1	1.3	3.4	2	Absent
401	Unnamed Site	05-287	2.61	Complete	3.6	26	32.9	23.2	4.7	10.2	2.7	4.3	1	Absent
401	Unnamed Site	05-287	2.61	Proximal	0.8	N/A	19.9	11.8	3.8	8.5	1	2.6	2	Absent
401	Unnamed Site	05-287	2.61	Proximal	7.1	N/A	36.4	14.6	10.5	30.1	10.5	10.5	3	Absent
401	Unnamed Site	05-287	2.61	Proximal	1.7	N/A	20.9	16.7	3.2	15.5	2.4	3.2	2	Absent
401	Unnamed Site	05-287	2.61	Proximal	14.1	N/A	55.7	31.7	8.3	24.1	7.9	8.3	1	Absent
415	Arabesque Site	05-270	0.59	Complete	3.6	29.9	37.3	24.1	3.8	9.9	3	3.8	2	Absent
415	Arabesque Site	05-270	0.59	Complete	16.1	49.8	57.9	51.1	4.5	10.2	2.7	4.5	2	Absent
415	Arabesque Site	05-270	0.59	Complete	287.6	70.7	152	70.7	22.1	95.3	20.3	22.1	1	Absent
415	Arabesque Site	05-270	0.59	Complete	4.7	26.1	34	26.2	5.9	7.1	2.3	5.9	1	Absent
415	Arabesque Site	05-270	0.59	Complete	3.5	22.3	28.9	19.4	5.5	10.4	1.3	4.6	2	Absent
415	Arabesque Site	05-270	0.59	Complete	11.6	38.2	48	32.7	5.2	8.3	0.8	4.6	2	Absent
415	Arabesque Site	05-270	0.59	Complete	5	38.6	38.6	28.9	5.2	12.8	2.1	5.2	2	Absent
415	Arabesque Site	05-270	0.59	Complete	5	16.7	38.2	19.4	7.1	33	7	7.1	3	Absent
415	Arabesque Site	05-270	0.59	Complete	31.1	64	72.8	32.5	11.7	20.3	6.7	11.5	2	Absent
415	Arabesque Site	05-270	0.59	Complete	28.2	53.8	63.5	57.7	7.3	21.6	4.9	5.4	3	Absent
415	Arabesque Site	05-270	0.59	Complete	24.4	55.6	64.9	51.5	8.7	14.1	3.8	4.1	2	Absent
415	Arabesque Site	05-270	0.59	Complete	33.4	71.3	87.1	42.9	8.8	24	7.9	7.8	1	Absent
415	Arabesque Site	05-270	0.59	Complete	2.4	16.6	30.3	17.3	7.3	15.3	2	7.3	2	Present
415	Arabesque Site	05-270	0.59	Complete	117.8	74	91.7	82.8	18.7	70.4	15.4	17.8	1	Absent
415	Arabesque Site	05-270	0.59	Complete	35.1	59.9	76.8	52.4	11.1	29	5.8	8	1	Absent
415	Arabesque Site	05-270	0.59	Complete	44	72.5	89.7	73.6	7.9	10.3	3.4	7.9	2	Absent
415	Arabesque Site	05-270	0.59	Complete	16	44.2	49	48.7	6.4	11.9	4.8	6.4	1	Absent
415	Arabesque Site	05-270	0.59	Proximal	6	N/A	38.5	23.8	4.2	19.1	3.3	4.2	2	Absent
415	Arabesque Site	05-270	0.59	Proximal	31.1	N/A	58.4	55.8	11.2	47.2	10.5	11.2	2	Absent
415	Arabesque Site	05-270	0.59	Proximal	2	N/A	26.3	17.6	4.9	19.3	4.8	4.9	2	Absent
415	Arabesque Site	05-270	0.59	Proximal	1.9	N/A	27.3	16.3	4.4	21.6	2.1	4.4	3	Absent
415	Arabesque Site	05-270	0.59	Proximal	16	N/A	41.2	36.3	7.9	16.3	6.8	7.3	1	Absent
415	Arabesque Site	05-270	0.59	Proximal	25.3	N/A	54.8	43	12.5	33.8	12	12.5	2	Absent
415	Arabesque Site	05-270	0.59	Proximal	51.4	N/A	70.9	63.9	12.6	43.2	8.7	10.2	1	Absent
415	Arabesque Site	05-270	0.59	Proximal	4.1	N/A	27.9	21	4.4	12.2	2.4	3.7	2	Absent
415	Arabesque Site	05-270	0.59	Proximal	15.5	N/A	45.8	29.9	11	21.6	10.4	11	1	Absent
415	Arabesque Site	05-270	0.59	Proximal	34.3	N/A	64.1	45.9	11.8	33.2	7.8	7.8	2	Absent
415	Arabesque Site	05-270	0.59	Proximal	7.5	N/A	39.6	36	8.1	23.9	5.6	6.5	2	Absent
415	Arabesque Site	05-270	0.59	Proximal	4.9	N/A	40.7	30.7	4.5	6.7	1.1	2	3	Absent
415	Arabesque Site	05-270	0.59	Proximal	21.5	N/A	65.7	43.5	5.6	22.9	2.8	4.5	2	Absent
462	Unnamed Site	05-307	21.1	Complete	0.2	9.9	15.3	9.9	1	3.7	0.8	1	1	Absent
462	Unnamed Site	05-307	21.1	Complete	0.2	7.8	18.3	9.9	1.4	15.2	2.2	1.4	1	Absent
462	Unnamed Site	05-307	21.1	Complete	1.1	N/A	20.1	16.2	3.5	10	2.3	2.5	2	Absent
462	Unnamed Site	05-307	21.1	Complete	5.3	33.6	41.1	33.9	3.4	11.5	2.8	3.2	1	Absent
462	Unnamed Site	05-307	21.1	Complete	0.7	13	20.2	14.7	1.8	4.3	1.7	1.8	1	Absent
462	Unnamed Site	05-307	21.1	Complete	1.6	12.5	26.2	13.4	3.2	10.7	2.5	3.2	1	Absent
462	Unnamed Site	05-307	21.1	Complete	0.04	6.1	12.8	7.8	1.8	9.2	1.6	1.3	3	Absent
462	Unnamed Site	05-307	21.1	Complete	0.6	11.8	18.5	14.4	1.8	8.6	1.6	1.8	1	Absent
462	Unnamed Site	05-307	21.1	Complete	0.2	7.4	11.7	7.9	2	7.8	1.6	2	1	Absent
462	Unnamed Site	05-307	21.1	Complete	0.04	5.2	10.9	6.7	1.2	4.4	0.9	1.2	3	Absent
462	Unnamed Site	05-307	21.1	Complete	1.4	10.2	20	14.3	3.8	11.4	2.6	3.3	4	Absent
462	Unnamed Site	05-307	21.1	Complete	0.3	5.8	12.9	7.9	1.8	10.6	1.3	1.8	3	Absent

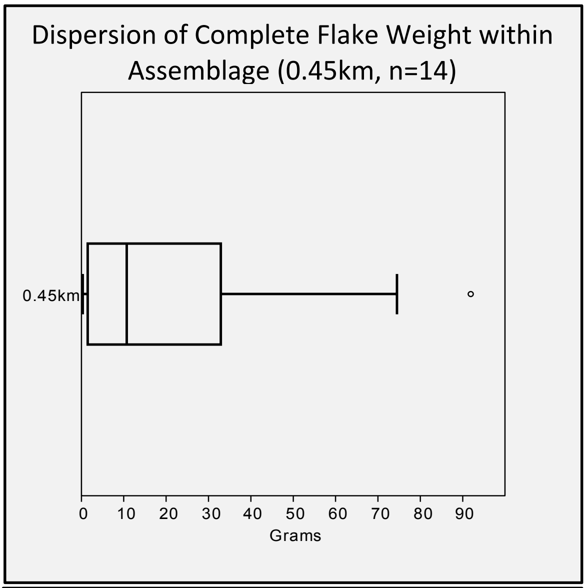
462	Unnamed Site	05-307	21.1	Complete	1.3	16	22.3	19.2	3.2	8.4	2.1	3.2	2	Absent
462	Unnamed Site	05-307	21.1	Complete	1.1	11.9	24.9	13.7	2.6	6.7	1.4	1.8	1	Absent
462	Unnamed Site	05-307	21.1	Complete	0.1	7.7	10.6	10	1.2	5.5	1.1	1.2	3	Absent
462	Unnamed Site	05-307	21.1	Proximal	0.8	N/A	19.5	19	2.2	8	2.3	2.2	1	Absent
462	Unnamed Site	05-307	21.1	Proximal	2.2	N/A	27.2	23.3	3.1	10.1	2	3.1	2	Absent
462	Unnamed Site	05-307	21.1	Proximal	1.5	N/A	24.8	22.4	3.3	9.8	2.8	3.3	1	Absent
464	Hot One Site	05-313	19.88	Complete	2.7	23.1	37.9	18.9	3.5	24.2	2.9	3.5	2	Absent
464	Hot One Site	05-313	19.88	Complete	22.6	35.8	76.2	48.7	5.9	10.5	2.6	4.6	1	Absent
464	Hot One Site	05-313	19.88	Complete	4.1	24.5	33.5	32	4.2	15.5	0.8	4.2	1	Absent
464	Hot One Site	05-313	19.88	Complete	2.8	11.7	28.7	16.1	5.8	20.9	5.5	5.8	2	Absent
464	Hot One Site	05-313	19.88	Complete	0.7	16.5	20.4	15.3	2.1	8.3	1	2.1	1	Absent
464	Hot One Site	05-313	19.88	Complete	2	10.5	30.1	14.2	4.3	15.5	4	4.3	1	Absent
464	Hot One Site	05-313	19.88	Complete	0.2	9.6	14.5	11.3	1.5	8.1	1.5	1.5	2	Absent
464	Hot One Site	05-313	19.88	Complete	3	11.9	30.2	14.1	5.4	18.4	6.6	5.4	1	Absent
464	Hot One Site	05-313	19.88	Complete	0.9	16.4	16.4	16	2.4	8.2	1.9	2.4	2	Absent
464	Hot One Site	05-313	19.88	Complete	0.5	15.8	15.8	12.7	3	8.5	1.4	3	2	Absent
464	Hot One Site	05-313	19.88	Complete	3.2	11.3	30.2	17.6	5.4	27.6	5	5.4	1	Absent
464	Hot One Site	05-313	19.88	Complete	3.7	22	32.4	25.1	4.3	13.7	4.1	4.3	2	Absent
464	Hot One Site	05-313	19.88	Complete	3.2	21.1	33.7	28.1	3.5	10.6	3	3.5	1	Absent
464	Hot One Site	05-313	19.88	Complete	4.3	25.2	31.8	28.2	4	8.6	1.2	3.9	1	Absent
464	Hot One Site	05-313	19.88	Complete	3.1	31.7	35	27.6	4.7	10.2	4	4.7	3	Absent
464	Hot One Site	05-313	19.88	Complete	0.8	14.4	18.6	15.4	2.5	9.4	2.2	2.5	2	Absent
464	Hot One Site	05-313	19.88	Complete	204.3	131	143	71	23	52.9	19.5	18.5	2	Absent
464	Hot One Site	05-313	19.88	Complete	3	30.1	31.3	19.2	8.1	13.5	7.1	8.1	2	Present
464	Hot One Site	05-313	19.88	Proximal	0.9	N/A	19.6	17.8	2.1	6.6	1.6	1.6	2	Absent
464	Hot One Site	05-313	19.88	Proximal	2.1	N/A	29.2	16.8	4.8	7.9	1.6	4.8	1	Absent
464	Hot One Site	05-313	19.88	Proximal	2.5	N/A	28.6	19	3.9	12.5	3.1	3.9	1	Absent
464	Hot One Site	05-313	19.88	Proximal	1	N/A	23.1	10.1	3.1	9.2	2.2	2.6	1	Absent
464	Hot One Site	05-313	19.88	Proximal	1.2	N/A	21.5	18.6	2.1	N/A	N/A	1.8	N/A	Absent
464	Hot One Site	05-313	19.88	Proximal	29.2	N/A	77.2	52.1	8.1	N/A	N/A	4.8	N/A	Absent
464	Hot One Site	05-313	19.88	Proximal	1	N/A	20.1	11.2	3.9	13.2	3.8	3.9	2	Absent
464	Hot One Site	05-313	19.88	Proximal	16.3	N/A	55.4	37.4	7.3	5.5	2	4	1	Absent
535	Chopper Site	05-357	5.7	Complete	5.9	14.2	37	24.9	5.1	11.4	4.4	4.5	2	Absent
535	Chopper Site	05-357	5.7	Complete	35.6	36.7	77.1	42.6	10.6	40.1	10.5	10.6	1	Present
535	Chopper Site	05-357	5.7	Complete	3.6	15.2	37.2	15.9	5.4	9.4	2.8	4.1	2	Absent
535	Chopper Site	05-357	5.7	Complete	23	48	63.5	38.1	10.4	31.1	10.8	10.4	1	Absent
535	Chopper Site	05-357	5.7	Complete	15.1	37.7	72.4	34.7	9.6	18.3	3.9	5.2	2	Absent
535	Chopper Site	05-357	5.7	Complete	19	45.6	52.6	45.8	9.4	24.4	8.5	9.2	3	Absent
535	Chopper Site	05-357	5.7	Complete	21.5	26.6	64.2	52.5	8.3	43.4	3.4	6.2	2	Absent
535	Chopper Site	05-357	5.7	Complete	0.6	8.6	20.9	10.1	2.2	8	2.3	2.2	1	Absent
535	Chopper Site	05-357	5.7	Complete	3.3	23.3	29.8	28	3.9	17.9	3.9	3.9	1	Absent
535	Chopper Site	05-357	5.7	Complete	1.4	20.4	20	16.7	4.3	7.6	3.6	4.3	1	Absent
535	Chopper Site	05-357	5.7	Complete	0.04	5.5	12.1	6	1.5	6.1	1.5	1.5	3	Absent
535	Chopper Site	05-357	5.7	Proximal	36.3	N/A	72.8	55.3	8.9	24.7	8.5	8.8	1	Absent
535	Chopper Site	05-357	5.7	Proximal	14.5	N/A	40.3	26.8	15.8	14.1	3.8	9.2	1	Absent
535	Chopper Site	05-357	5.7	Proximal	1.4	N/A	23.7	19.1	4.5	10.4	4.2	4.5	2	Absent
555	Unnamed Site	05-360	20.8	Complete	66.2	36	79.8	54.5	17.6	68.5	17.4	17.6	2	Absent
555	Unnamed Site	05-360	20.8	Complete	1.5	11.5	25.5	14.4	4.6	23.9	3.8	4	1	Present
555	Unnamed Site	05-360	20.8	Complete	0.6	12.8	19.1	12.5	1.3	4.7	1	1.3	2	Absent
555	Unnamed Site	05-360	20.8	Complete	0.6	14.3	16.7	10.9	2.7	8.3	2.9	2.7	3	Absent
555	Unnamed Site	05-360	20.8	Complete	0.7	10.4	21.2	11.4	2.9	12.8	2.3	2.9	3	Absent
555	Unnamed Site	05-360	20.8	Complete	2.4	12.3	32.2	16.9	4.4	26.3	4	4.4	3	Absent
555	Unnamed Site	05-360	20.8	Complete	0.7	10.2	17.5	9	3.6	8.8	1.5	3.3	2	Absent
555	Unnamed Site	05-360	20.8	Complete	5.9	36	40.6	20.8	6.1	21.1	5.9	6.1	2	Absent
555	Unnamed Site	05-360	20.8	Complete	7.3	36.5	39.5	26.4	6.1	11.4	3.8	6.1	1	Absent
555	Unnamed Site	05-360	20.8	Complete	4	22.5	38.6	21.3	5.3	14.5	1.2	5.3	2	Absent
555	Unnamed Site	05-360	20.8	Complete	6.5	N/A	33.8	23.3	8.1	18.7	7.9	8.1	2	Absent
555	Unnamed Site	05-360	20.8	Complete	0.7	15.7	18.6	15.7	2.3	6.8	1.8	2.3	1	Absent
555	Unnamed Site	05-360	20.8	Complete	11.7	27.6	60.4	31.4	5	25.1	3.5	5	2	Absent

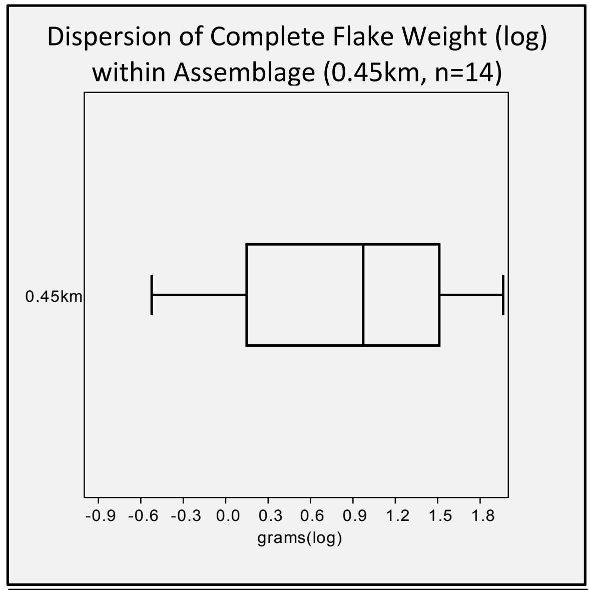
555	Unnamed Site	05-360	20.8	Complete	2.7	15.9	27.1	20.6	4.5	21	2.8	4.5	3	Absent
555	Unnamed Site	05-360	20.8	Complete	1	14.5	23	14.4	2.4	14.6	0.7	2.4	2	Absent
555	Unnamed Site	05-360	20.8	Complete	175.1	86.4	103	91	24.5	45.2	6.1	10.9	2	Absent
555	Unnamed Site	05-360	20.8	Proximal	6.5	N/A	36.9	23.6	8.1	4.8	1.4	4.6	1	Absent
555	Unnamed Site	05-360	20.8	Proximal	2.5	N/A	25	18.9	3.5	9.6	2	2.8	1	Absent
555	Unnamed Site	05-360	20.8	Proximal	0.04	N/A	10.4	5.9	1.3	5.1	1.1	1.2	1	Absent
555	Unnamed Site	05-360	20.8	Proximal	54.2	N/A	64.8	64.7	13.7	24	8.1	9	1	Absent
555	Unnamed Site	05-360	20.8	Proximal	0.9	N/A	20.3	12.5	2.5	6.9	1.4	2.5	1	Absent
555	Unnamed Site	05-360	20.8	Proximal	2.6	N/A	29.7	17.8	3.5	12.6	2.6	3.2	1	Absent
555	Unnamed Site	05-360	20.8	Proximal	25.9	N/A	66.2	24.5	13.8	20.6	8.3	13.8	1	Absent
555	Unnamed Site	05-360	20.8	Proximal	1.6	N/A	31.6	14.2	2.5	7.7	1.5	2.5	1	Absent
555	Unnamed Site	05-360	20.8	Proximal	2.9	N/A	35.6	19.2	4.6	N/A	N/A	3.3	N/A	Absent
560	Unnamed Site	05-366	19.2	Proximal	7.3	32.5	40.7	29.6	4.3	4.8	2.3	4.3	1	Absent
629	Unnamed Site	02-241	20.48	Complete	5	17.2	28.9	24.5	7.5	24.3	9.4	7.5	2	Absent
646	Mahlberg #9	07-176	17.97	Complete	0.7	11	20.7	11.3	2.7	7.8	1.7	2.1	2	Absent
646	Mahlberg #9	07-176	17.97	Complete	1.4	22.4	29.9	19	2	5	1.5	1.8	1	Absent
646	Mahlberg #9	07-176	17.97	Complete	9	40.6	47	32.1	6.1	18.2	2.1	5.7	2	Absent
646	Mahlberg #9	07-176	17.97	Complete	19.5	32.1	69.7	32.2	8.7	52.3	5.8	8.6	3	Absent
646	Mahlberg #9	07-176	17.97	Proximal	0.4	N/A	15.1	10.8	2	7.9	1.6	1.6	2	Absent
646	Mahlberg #9	07-176	17.97	Proximal	3.3	N/A	23.2	19.6	4.9	12.6	3.3	4.2	4	Absent
646	Mahlberg #9	07-176	17.97	Proximal	0.4	N/A	18.5	8.3	2.3	6.2	1.8	2.3	2	Absent
666	Fat Cigar Site	05-416	20.94	Complete	3.8	32.6	36.4	24.3	4.9	4.7	1.1	3.7	1	Absent
666	Fat Cigar Site	05-416	20.94	Complete	1.3	13	26.1	18.5	4	9	2.1	4	2	Absent
666	Fat Cigar Site	05-416	20.94	Complete	1.3	12.2	24.3	14	3.3	4.8	1.6	3.3	1	Absent
666	Fat Cigar Site	05-416	20.94	Complete	9.7	35.2	54.1	47.2	4.3	11.8	3.1	4.3	1	Absent
666	Fat Cigar Site	05-416	20.94	Complete	2.6	15.3	27	20.8	5.9	22.7	5.1	5.9	3	Absent
666	Fat Cigar Site	05-416	20.94	Complete	8	47	47	26.3	6	10	4.4	5.4	1	Absent
666	Fat Cigar Site	05-416	20.94	Complete	1.5	17.7	24.7	17.7	3.1	10.9	3	3.1	1	Absent
666	Fat Cigar Site	05-416	20.94	Proximal	2.3	N/A	27.5	16.3	4.1	12.2	1.7	4.1	2	Absent
666	Fat Cigar Site	05-416	20.94	Proximal	14.5	N/A	48.8	46.7	5.7	13.6	2.3	5.7	1	Absent
691	Harry's Point Site	05-442	12.01	Complete	1.7	15.5	21.5	17.8	3.1	21.2	3.2	2.8	3	Absent
691	Harry's Point Site	05-442	12.01	Complete	4.3	38.5	41.1	23.5	3.8	11.9	1.5	3.6	3	Absent
691	Harry's Point Site	05-442	12.01	Proximal	1.6	N/A	20.4	13.2	5.2	8.1	2.7	4.3	3	Absent
727	Tropical Site	05-460	4.65	Complete	3.3	22.6	33	29.2	3.1	19.3	7.4	3.1	2	Absent
727	Tropical Site	05-460	4.65	Complete	5.4	21.7	38.6	22.7	4.9	16.2	2.4	3.9	2	Absent
727	Tropical Site	05-460	4.65	Complete	0.2	19	19.2	10.8	1.5	4.3	1.4	1.5	1	Absent
727	Tropical Site	05-460	4.65	Complete	0.7	9.8	20.9	14	2.2	17	2.9	2.2	3	Absent
727	Tropical Site	05-460	4.65	Complete	0.8	10.4	24.4	13.1	2.8	4.6	2.2	1.7	1	Present
727	Tropical Site	05-460	4.65	Complete	12.5	40.3	50.8	27.6	6.9	19.1	4.6	6.5	1	Absent
727	Tropical Site	05-460	4.65	Complete	28.2	39	61.3	45.2	14.3	42	14.6	14.3	1	Absent
727	Tropical Site	05-460	4.65	Complete	7.4	27.1	39.3	34.1	8.1	23	7.2	8.1	1	Absent
727	Tropical Site	05-460	4.65	Complete	0.7	19.5	22.5	18.7	1.3	9.9	1	1.3	1	Present
727	Tropical Site	05-460	4.65	Complete	53.3	54	109	53.4	8.2	32.7	3.3	8.2	1	Absent
727	Tropical Site	05-460	4.65	Complete	4	31.7	42.2	28.1	3.8	16	2.3	3.8	1	Absent
727	Tropical Site	05-460	4.65	Complete	2.1	19.9	25.4	20	3.6	10.5	2.6	2.8	2	Absent
727	Tropical Site	05-460	4.65	Complete	2	16.2	22.7	16.3	4.4	9.2	2.1	4.4	1	Absent
727	Tropical Site	05-460	4.65	Complete	2.2	15.2	35.2	20.1	4.1	30.2	2.5	4.1	1	Absent
727	Tropical Site	05-460	4.65	Complete	0.9	18.9	22.8	22.6	1.6	5.9	1.2	1.6	1	Absent
727	Tropical Site	05-460	4.65	Complete	2.9	16.9	28.5	21.8	4.8	22.1	3	4	1	Absent
727	Tropical Site	05-460	4.65	Complete	1	23.1	27.1	15.7	2.3	14.9	3.1	2.3	2	Absent
727	Tropical Site	05-460	4.65	Proximal	3.2	N/A	26.3	23.4	6.7	6.5	2.5	3.6	3	Absent
727	Tropical Site	05-460	4.65	Proximal	0.5	N/A	14.4	14.1	2.8	6.5	1.8	2.6	1	Present
727	Tropical Site	05-460	4.65	Proximal	0.5	N/A	15.9	14.8	3.1	7.2	3.2	3.1	1	Absent
727	Tropical Site	05-460	4.65	Proximal	0.2	N/A	10.7	10.5	1.4	9	1.2	1.1	2	Absent
727	Tropical Site	05-460	4.65	Proximal	2.2	N/A	23.5	20.9	3.6	14.4	1.4	3.5	3	Absent
727	Tropical Site	05-460	4.65	Proximal	19.2	N/A	62.5	34.3	9.7	57.3	9.6	9.7	5	Absent
727	Tropical Site	05-460	4.65	Proximal	3.8	N/A	30.8	24.5	4.2	10.6	1.3	3.9	1	Absent
727	Tropical Site	05-460	4.65	Proximal	2.2	N/A	33.3	16.1	4.3	22.5	4	4.3	2	Absent
727	Tropical Site	05-460	4.65	Proximal	0.9	N/A	19.9	13.3	3.2	6.5	2	3.2	2	Absent

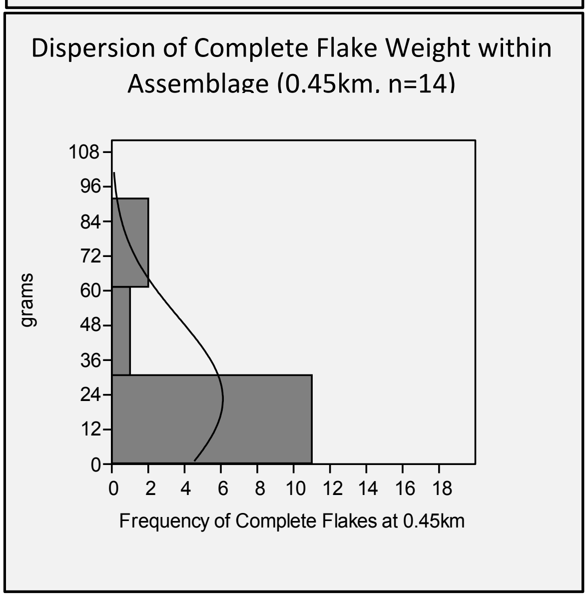
727	Tropical Site	05-460	4.65	Proximal	4.3	N/A	36.4	22.6	3.8	22.3	3.5	3.8	2	Absent
727	Tropical Site	05-460	4.65	Proximal	1.1	N/A	24.9	18.4	2	16.8	1.8	2	2	Absent
727	Tropical Site	05-460	4.65	Proximal	1.9	N/A	26.3	25.2	4.2	20.3	4.2	4.2	1	Absent
727	Tropical Site	05-460	4.65	Proximal	2.8	N/A	25.6	24.5	4	10.3	3.4	4	1	Present
811	Unnamed Site	05-514	25.48	Proximal	1.9	N/A	23.1	23	3.5	4.5	1.3	1.6	1	Absent
873	Weckman Site	05-561	21.98	Complete	1.3	7	24.9	22.1	3.2	16	4.2	3.2	1	Absent
873	Weckman Site	05-561	21.98	Complete	1.8	22	26.8	22.5	3.2	18.8	2.8	3.2	2	Absent
873	Weckman Site	05-561	21.98	Proximal	3	N/A	25.1	19.9	4.3	N/A	N/A	4.2	N/A	Absent
873	Weckman Site	05-561	21.98	Proximal	10.7	N/A	46.1	41.9	5.3	32.3	5.3	5.3	2	Absent
873	Weckman Site	05-561	21.98	Proximal	3	N/A	36.5	23.3	4.2	21.2	3.4	4.2	1	Present
1006	Fur Flake Island	05-640	33.5	Complete	0.04	12.8	12.9	6.8	1.1	4.2	1.2	1.1	1	Absent
1006	Fur Flake Island	05-640	33.5	Complete	0.2	6.2	11.6	7.7	2.1	9.8	1.8	1.8	2	Absent
1006	Fur Flake Island	05-640	33.5	Complete	0.3	9.7	14.1	12.1	2.8	7.3	2.1	2.8	1	Absent
1006	Fur Flake Island	05-640	33.5	Complete	19.7	36.5	67.2	44.2	10.4	45.6	8.3	7.7	4	Present
1006	Fur Flake Island	05-640	33.5	Complete	8.9	27.7	56.4	29	6	9.5	2	3.4	1	Absent
1006	Fur Flake Island	05-640	33.5	Complete	0.4	13.4	21.3	12.6	1.8	12.1	1.5	1.8	1	Absent
1006	Fur Flake Island	05-640	33.5	Complete	2.3	19	31.1	18.2	4	16.2	2.5	4	1	Absent
1006	Fur Flake Island	05-640	33.5	Complete	0.9	15.2	24.3	15.5	1.7	8.3	1.4	1.7	1	Absent
1006	Fur Flake Island	05-640	33.5	Complete	1.3	16.7	20.3	15.8	4.1	8.5	3.6	4.1	1	Absent
1006	Fur Flake Island	05-640	33.5	Complete	1.3	26	28.5	13.4	2.2	4.7	1.6	2.2	1	Absent
1006	Fur Flake Island	05-640	33.5	Proximal	0.2	N/A	16.9	7.8	1.4	12.2	1.8	1.4	3	Absent
1163	Who Knew Site	05-703	24.15	Complete	0.3	11.9	13.4	11.7	1.8	4.8	1.2	1.8	2	Absent
1163	Who Knew Site	05-703	24.15	Complete	2.1	26.2	29.9	25.4	2.1	3.3	0.9	2.1	1	Absent
1163	Who Knew Site	05-703	24.15	Complete	0.5	7.1	18.9	9.3	3.4	13.9	3.3	3.4	2	Absent
1163	Who Knew Site	05-703	24.15	Complete	2.2	16.3	28.4	24.7	5.1	22.1	2.5	5.1	2	Absent
1163	Who Knew Site	05-703	24.15	Complete	0.8	11.7	21.3	12.4	3.5	13.1	3	3.5	1	Absent
1163	Who Knew Site	05-703	24.15	Complete	0.04	8.5	11.7	8.8	1.1	2.9	0.3	1.1	1	Absent
1163	Who Knew Site	05-703	24.15	Complete	2.2	18.4	26.4	17.8	5.1	7	1.6	3.1	1	Absent
1163	Who Knew Site	05-703	24.15	Complete	1	10.7	20	13.7	2.5	8.7	2.6	2.6	1	Absent
1163	Who Knew Site	05-703	24.15	Proximal	3	N/A	26	23.6	4.4	8.1	1.9	1.7	1	Absent
1163	Who Knew Site	05-703	24.15	Proximal	0.7	N/A	16.4	14.8	2.4	6.7	1.1	1.2	2	Absent
1163	Who Knew Site	05-703	24.15	Proximal	0.7	N/A	23.5	9.8	3.1	15.8	2.6	3.1	2	Absent
1163	Who Knew Site	05-703	24.15	Proximal	0.2	N/A	11.2	9.8	1.4	4.9	0.8	1.4	1	Absent
1163	Who Knew Site	05-703	24.15	Proximal	0.1	N/A	10.5	8	1.4	8.6	1.4	1.4	2	Absent
1163	Who Knew Site	05-703	24.15	Proximal	1.1	N/A	24.1	20.5	3.5	12.7	2.3	3.5	2	Absent
1163	Who Knew Site	05-703	24.15	Proximal	0.3	N/A	15.5	9.4	2	7.1	1.9	2	1	Absent
1163	Who Knew Site	05-703	24.15	Proximal	0.2	N/A	12.8	11.6	1.4	3.7	0.2	1.4	1	Absent
1280	My Paisano Paisano Site	05-750	12.52	Complete	21.3	32.5	62.8	32.5	16	59.6	15.5	14.9	1	Absent
1280	My Paisano Paisano Site	05-750	12.52	Complete	29.3	43.8	61.8	48.1	9.8	29.5	7.8	8.3	2	Absent
1280	My Paisano Paisano Site	05-750	12.52	Complete	11.8	37.2	43.4	36	7.6	8.7	3.3	5.8	1	Absent
1280	My Paisano Paisano Site	05-750	12.52	Complete	88.5	57.7	85.4	57.9	16.8	44.6	14.2	16.8	2	Absent
1306	Unnamed Site	05-803	20	Complete	5.9	25.6	40.8	25.9	5.4	15.6	2.1	3.6	3	Absent
1306	Unnamed Site	05-803	20	Proximal	4.3	N/A	32.6	29.1	3.9	9.8	2.2	2.2	2	Absent
1306	Unnamed Site	05-803	20	Proximal	2.7	N/A	28.9	19.3	4.5	11.7	3.1	3.2	2	Absent
1317	Fill Your Glass Site	05-773	8.79	Complete	5.2	40.5	40.4	23.6	7.3	11.3	3	3.5	3	Absent
1317	Fill Your Glass Site	05-773	8.79	Complete	23.3	38.7	63	31	16.1	14.2	3.9	5.3	1	Present
1404	Susan Melissa Site	05-827	0.86	Complete	0.3	14.7	14.7	8.5	2.3	7.2	2.4	2.3	2	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	0.04	10.9	11	8.8	1.4	6.5	1.2	1.4	1	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	1.3	16.9	25.1	23.2	3.7	9.6	1.7	3.7	1	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	2.3	27.9	30.1	21.7	4.8	10.3	4.3	4.1	1	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	0.04	4.6	10.3	7.6	1.8	7.9	2.3	1.8	1	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	0.5	12.1	21.1	16.3	2	10.6	1.5	2	2	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	1.7	13.6	23	18.9	5	17	6	5	1	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	0.2	11.7	14.8	12.3	1.3	6.7	1.2	1.3	1	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	6	24.8	41.7	27.4	5.1	12	4.5	5.1	1	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	0.6	7.9	17.9	11.9	3	13.9	3.8	3	3	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	0.3	10.6	12.3	11.9	1.7	7.5	1.5	1.7	2	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	0.7	14.2	18.7	17.6	3.6	11.3	2.9	3.6	2	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	0.6	16.3	21.6	16.5	2.6	17.5	3	2.6	3	Absent

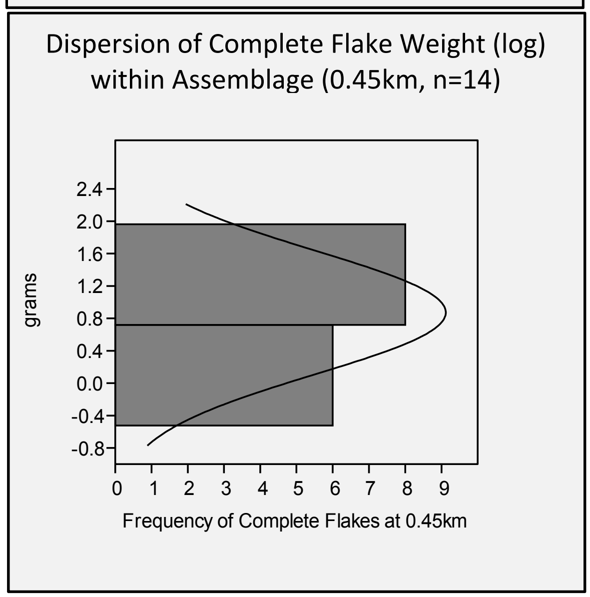
1404	Susan Melissa Site	05-827	0.86	Complete	2.7	19.6	32.4	24.4	4.5	17.1	3.4	4.5	2	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	3.3	34.6	35	24.1	3.9	6.9	2.1	2.5	1	Absent
1404	Susan Melissa Site	05-827	0.86	Complete	0.6	19.1	22.3	18.9	1.5	6.3	0.8	1.5	1	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	0.1	N/A	11.2	9.6	2.2	7.2	2.2	2.2	2	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	0.04	N/A	11.2	7.1	1.3	6.1	2.2	1.3	2	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	0.04	N/A	7.6	7.1	0.6	3	0.6	0.6	1	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	1.5	N/A	19.6	13	4.2	18.8	2.6	4.2	2	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	1.5	N/A	21.8	17.1	3.7	7.2	4.1	3.7	2	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	0.9	N/A	16.4	15.8	2.5	10.3	1.3	2.5	2	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	4	N/A	28.1	16.9	6.4	19	6.1	6.3	1	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	1.3	N/A	20.1	14.2	4.8	12	2.7	4.8	1	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	2.8	N/A	32.6	20.8	2.9	10.3	1.7	2.2	2	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	2.2	N/A	28.7	16.1	5.1	13.5	3.8	5.1	1	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	0.9	N/A	16.8	11.8	4.9	11.5	4	4.8	2	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	2.4	N/A	23.1	21.9	5.6	7.9	2.2	3.1	1	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	0.8	N/A	17.1	11.4	3.7	12.8	3.4	3.7	2	Absent
1404	Susan Melissa Site	05-827	0.86	Proximal	0.9	N/A	17.9	15.1	3	4.4	2	3	1	Absent
1634	AJM Site	05-930	0.45	Complete	0.3	8.5	15.8	8.8	2	3.4	0.9	1.4	1	Absent
1634	AJM Site	05-930	0.45	Complete	0.8	9.4	29.8	10.7	2.6	6.2	1.6	1.9	3	Absent
1634	AJM Site	05-930	0.45	Complete	5.6	28.8	51.2	19.7	4.4	5.8	1.9	3.8	1	Absent
1634	AJM Site	05-930	0.45	Complete	17.7	24.3	56.9	39.1	8.7	33.7	11.5	8.7	2	Absent
1634	AJM Site	05-930	0.45	Complete	1.7	10.8	11.3	10.7	1.9	8.2	2	0.2	2	Absent
1634	AJM Site	05-930	0.45	Complete	15.8	33	47.7	39.9	11.3	27.3	12	11.3	1	Absent
1634	AJM Site	05-930	0.45	Complete	29.6	32.5	69	40.8	11.7	54.5	11.9	11.7	1	Absent
1634	AJM Site	05-930	0.45	Complete	26.8	48.7	74.9	47.6	8.4	40.3	8.2	8.4	2	Absent
1634	AJM Site	05-930	0.45	Complete	0.8	19.2	19.2	16.8	1.8	3.6	1	1.8	2	Absent
1634	AJM Site	05-930	0.45	Complete	3.2	21.5	32.6	22.5	4.2	14.7	3.5	6.7	1	Absent
1634	AJM Site	05-930	0.45	Complete	91.9	80.9	96.1	90.1	18.2	80.1	20.4	18.2	2	Absent
1634	AJM Site	05-930	0.45	Complete	4.5	24.7	30.9	23.5	6.5	17.7	2.4	4.6	1	Absent
1634	AJM Site	05-930	0.45	Complete	42.8	76.2	87.7	52.7	10.3	3.6	9	9.6	1	Absent
1634	AJM Site	05-930	0.45	Complete	74.5	92.3	113	66.8	8.1	33.7	5.7	8	1	Absent
1634	AJM Site	05-930	0.45	Proximal	0.7	N/A	19.9	9.8	3.5	9.9	1.7	2.4	1	Absent
1634	AJM Site	05-930	0.45	Proximal	0.3	N/A	18.1	10.8	1.3	7.5	0.7	1.6	1	Absent
1634	AJM Site	05-930	0.45	Proximal	0.9	N/A	20.4	18.5	2.8	14	2.3	2.8	1	Absent
1634	AJM Site	05-930	0.45	Proximal	0.5	N/A	18.7	13.5	1.8	5.1	1	1.8	1	Absent
1634	AJM Site	05-930	0.45	Proximal	5	N/A	35.7	28.8	4.7	8.5	1.3	4.7	1	Absent
1634	AJM Site	05-930	0.45	Proximal	12.7	N/A	48.4	44.4	7	22.1	4.2	7	3	Absent
1634	AJM Site	05-930	0.45	Proximal	1.8	N/A	22.3	21.7	2.5	9.6	2.1	2.4	2	Absent
1634	AJM Site	05-930	0.45	Proximal	13.8	N/A	54.1	36.3	8.1	15.9	2.5	4.8	1	Absent
1634	AJM Site	05-930	0.45	Proximal	3.7	N/A	38.7	16.1	5	17.6	3.5	5	1	Absent
1634	AJM Site	05-930	0.45	Proximal	0.3	N/A	13.5	11.4	1.5	4.6	1.4	1.5	2	Absent
1634	AJM Site	05-930	0.45	Proximal	1.2	N/A	17.9	13	4.2	15.2	4.6	4.2	2	Absent
1634	AJM Site	05-930	0.45	Proximal	5	N/A	42.8	25.2	5.8	17.5	5.4	5.8	1	Absent
1634	AJM Site	05-930	0.45	Proximal	3	N/A	36.8	17	4.5	19	3	4.5	2	Absent
1634	AJM Site	05-930	0.45	Proximal	4.1	N/A	32.1	19.9	5.3	11.3	4.6	4.4	1	Absent
1634	AJM Site	05-930	0.45	Proximal	12	N/A	47.1	26.2	7.8	8.9	4.3	5.9	1	Absent
1634	AJM Site	05-930	0.45	Proximal	1	N/A	22.5	13.7	2.6	4.5	0.7	2	1	Absent

Appendix B: Dispersion of Complete Flake Weight and Weight (log natural)

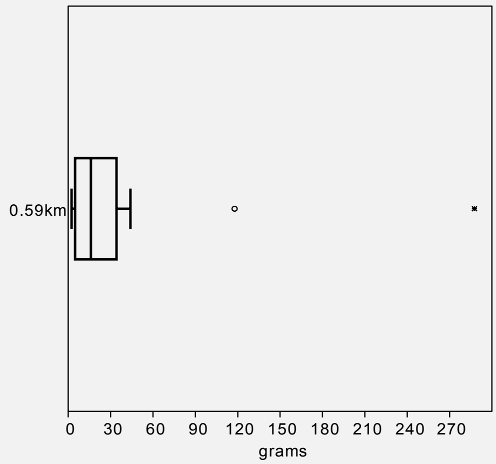




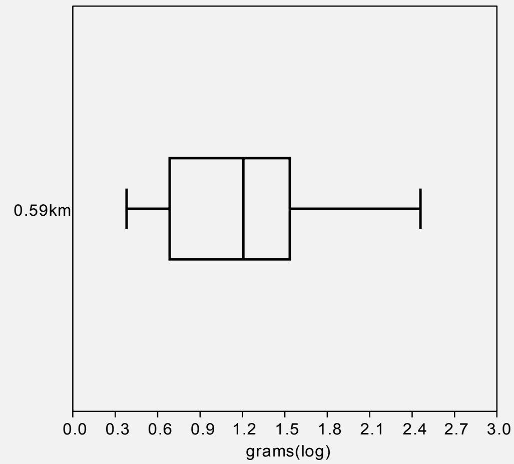




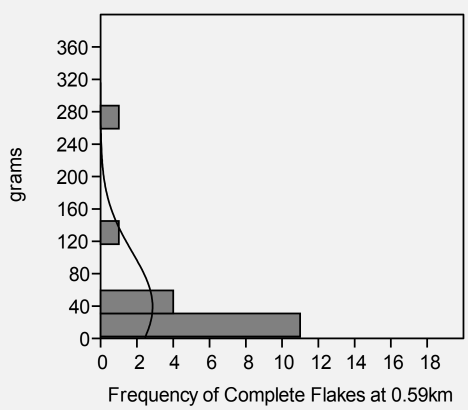
Dispersion of Complete Flake Weight within Assemblage (0.59km, n=17)



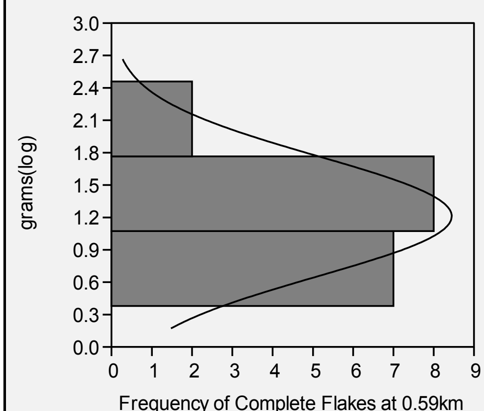
Dispersion of Complete Flake Weight (log) within Assemblage (0.59km, n=17)



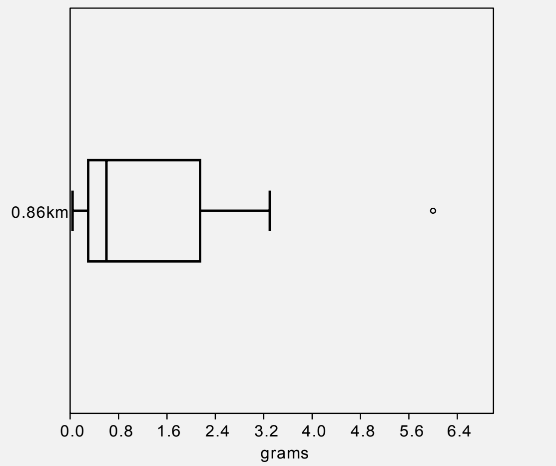
Dispersion of Complete Flake Weight within Assemblage (0.59km, n=17)



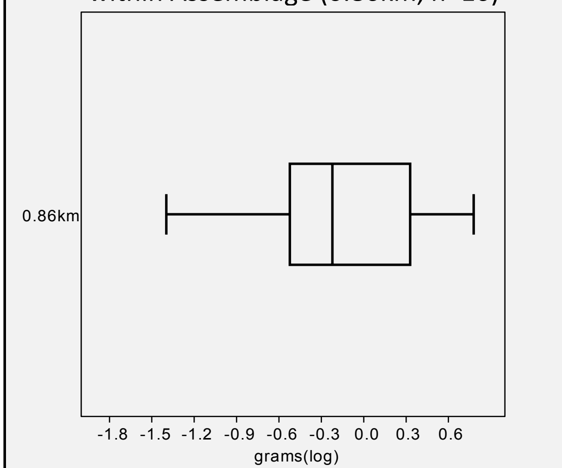
Dispersion of Complete Flake Weight (log) within Assemblage (0.59km, n=17)



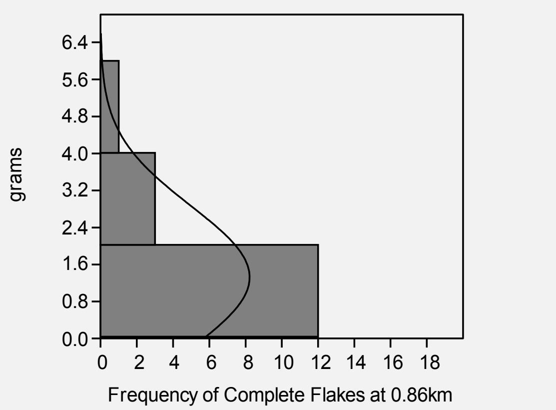
Dispersion of Complete Flake Weight within Assemblage (0.86km, n=16)



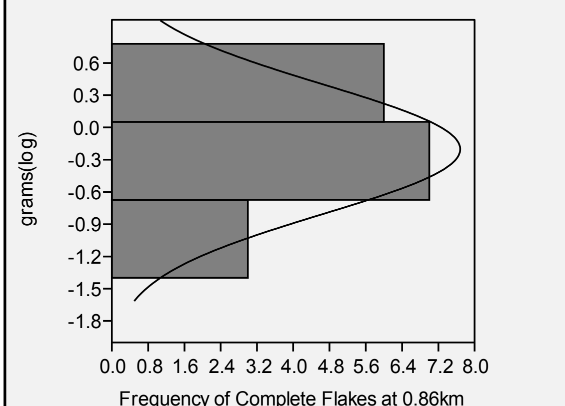
Dispersion of Complete Flake Weight (log) within Assemblage (0.86km, n=16)



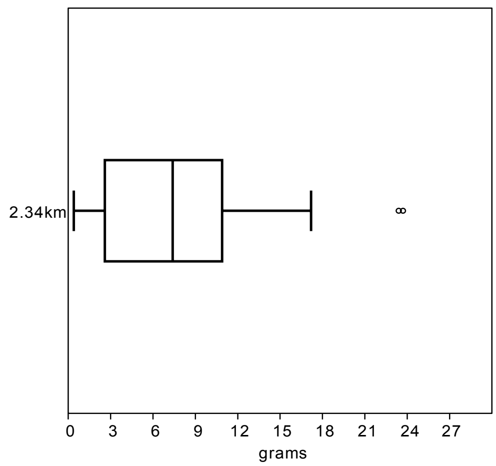
Dispersion of Complete Flake Weight within Assemblage (0.86km, n=16)



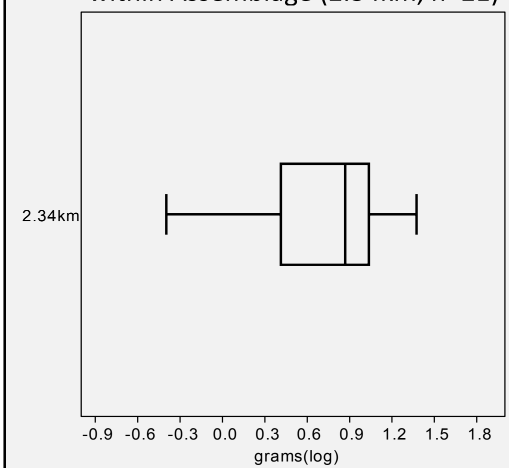
Dispersion of Complete Flake Weight (log) within Assemblage (0.86km, n=16)



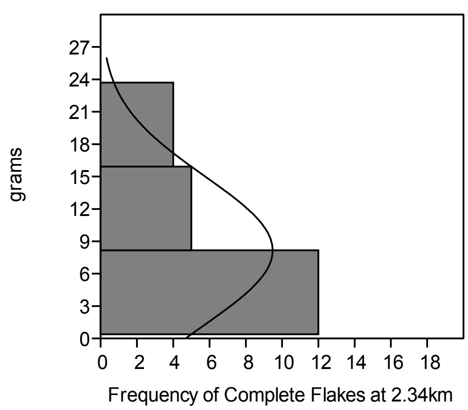
Dispersion of Complete Flake Weight within Assemblage (2.34km, n=21)



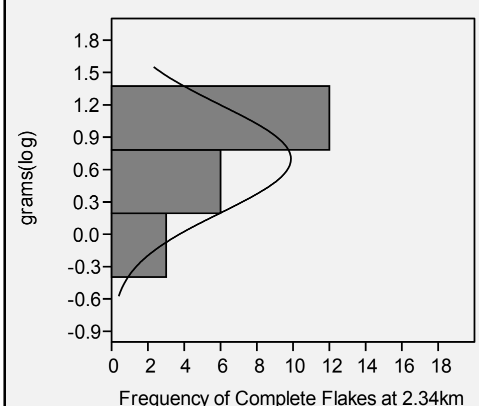
Dispersion of Complete Flake Weight (log) within Assemblage (2.34km, n=21)

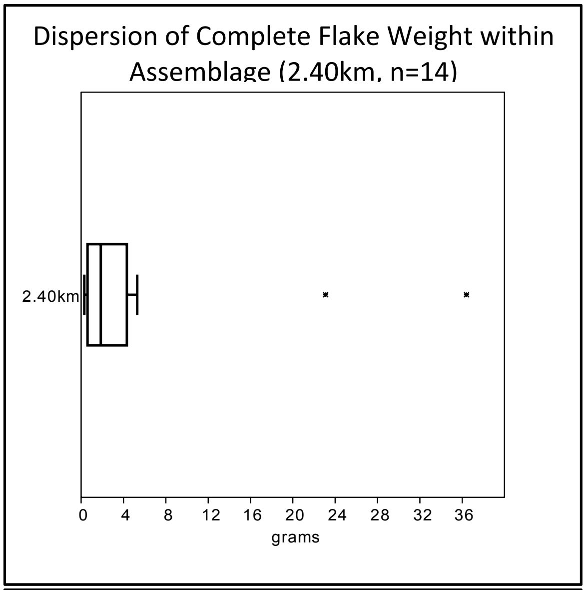


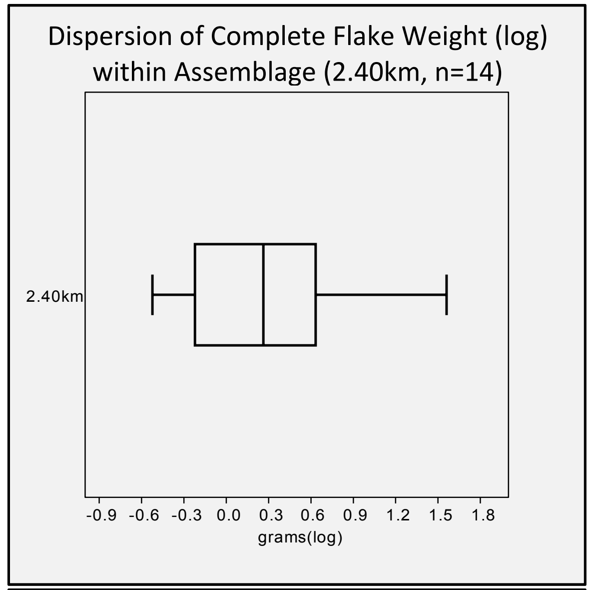
Dispersion of Complete Flake Weight within Assemblage (2.34km, n=21)

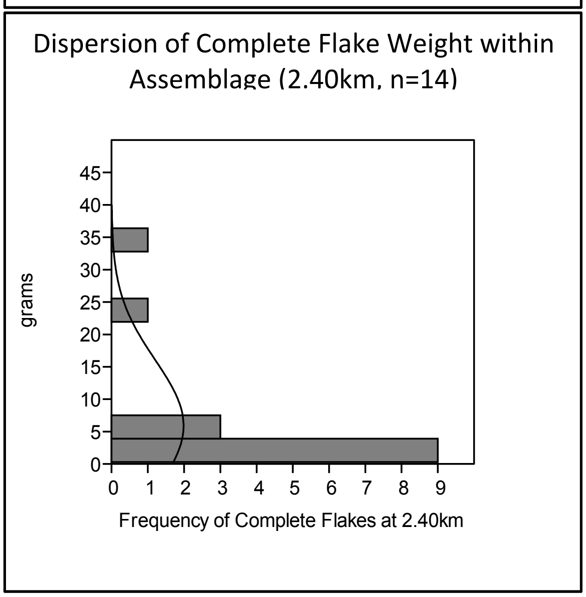


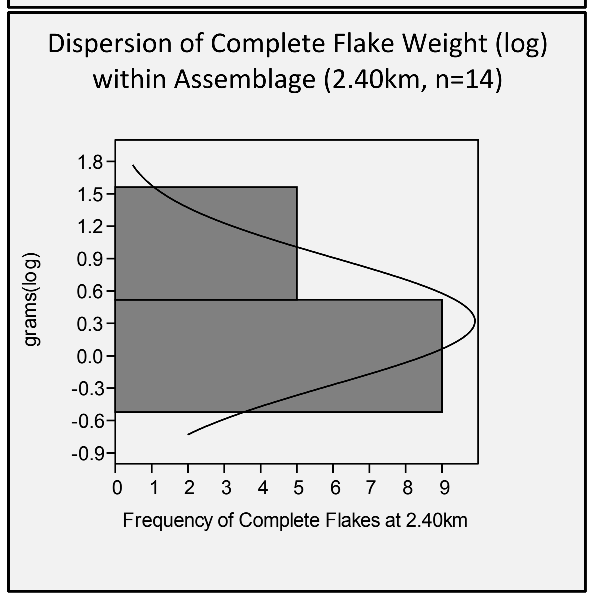
Dispersion of Complete Flake Weight (log) within Assemblage (2.34km, n=21)

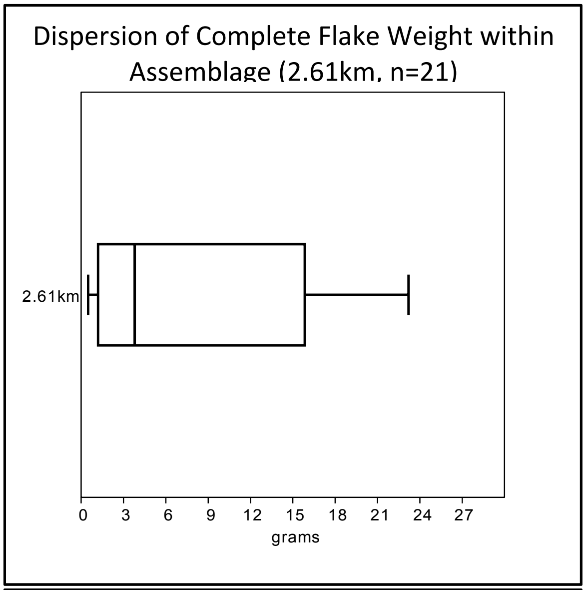


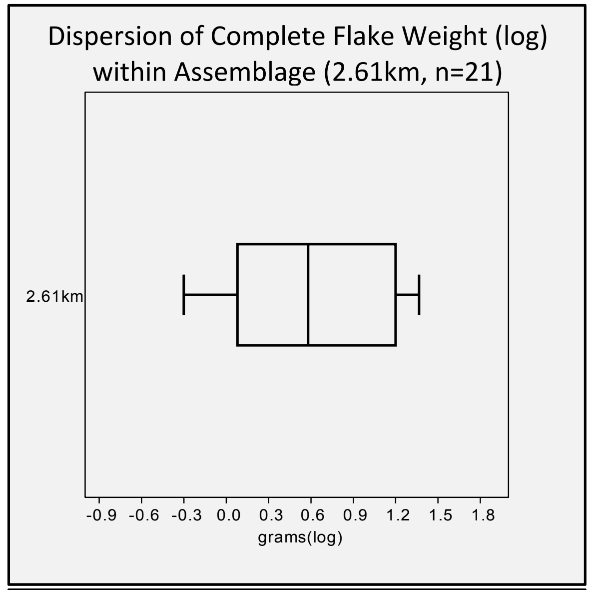

Dispersion of Complete Flake Weight within Assemblage (2.40km, n=14)
2.40km
0 4 8 12 16 20 24 28 32 36
grams

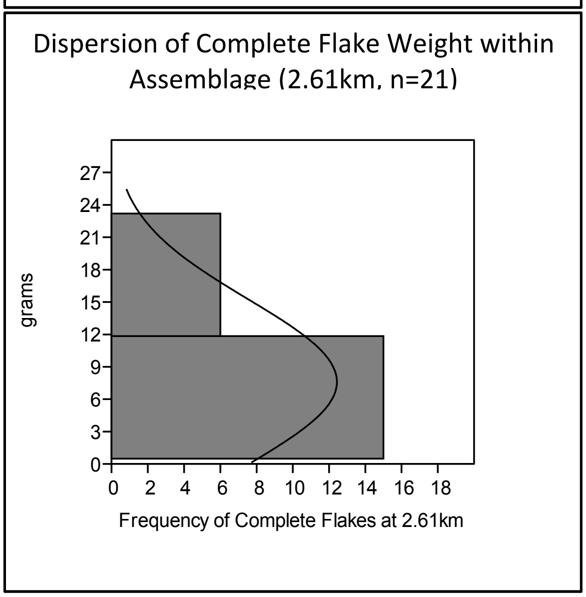

Dispersion of Complete Flake Weight (log) within Assemblage (2.40km, n=14)
2.40km
-0.9 -0.6 -0.3 0.0 0.3 0.6 0.9 1.2 1.5 1.8
grams(log)

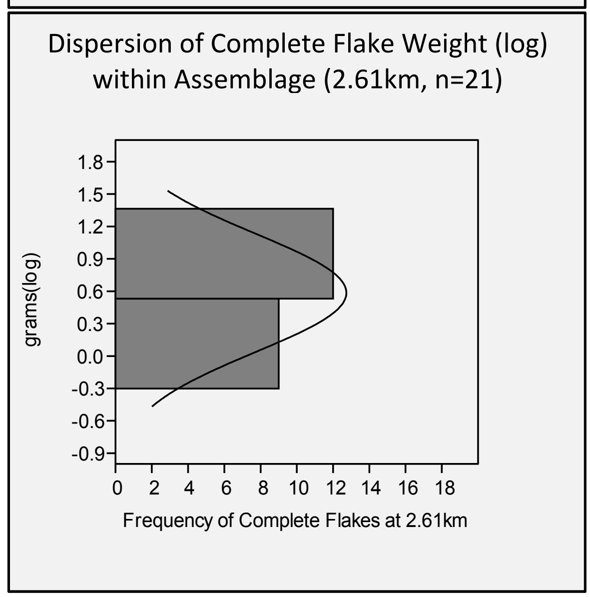

Dispersion of Complete Flake Weight within Assemblage (2.40km, n=14)
grams
45 40 35 30 25 20 15 10 5 0
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 2.40km


Dispersion of Complete Flake Weight (log) within Assemblage (2.40km, n=14)
grams(log)
1.8 1.5 1.2 0.9 0.6 0.3 0.0 -0.3 -0.6 -0.9
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 2.40km

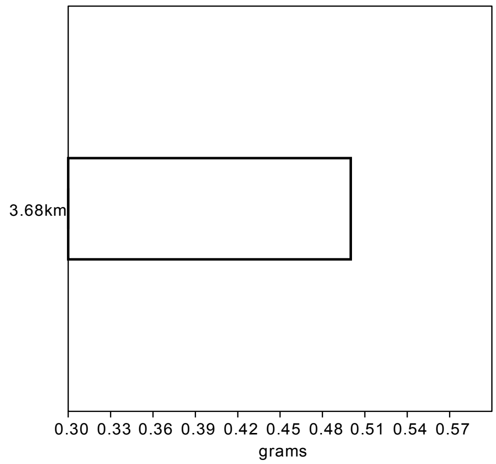

Dispersion of Complete Flake Weight within Assemblage (2.61km, n=21)
2.61km
0 3 6 9 12 15 18 21 24 27
grams


Dispersion of Complete Flake Weight (log) within Assemblage (2.61km, n=21)
2.61km
-0.9 -0.6 -0.3 0.0 0.3 0.6 0.9 1.2 1.5 1.8
grams(log)

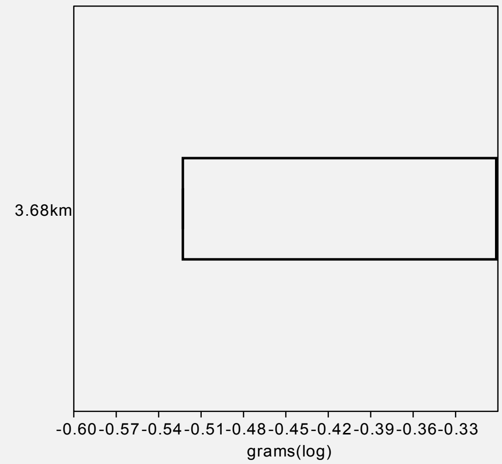

Dispersion of Complete Flake Weight within Assemblage (2.61km, n=21)
grams
27 24 21 18 15 12 9 6 3 0
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 2.61km


Dispersion of Complete Flake Weight (log) within Assemblage (2.61km, n=21)
grams(log)
1.8 1.5 1.2 0.9 0.6 0.3 0.0 -0.3 -0.6 -0.9
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 2.61km

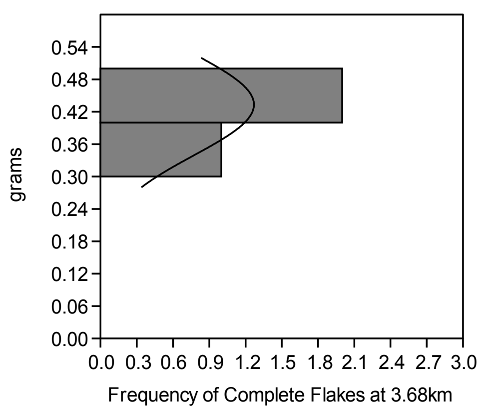
Dispersion of Complete Flake Weight within Assemblage (3.68km, n=3)



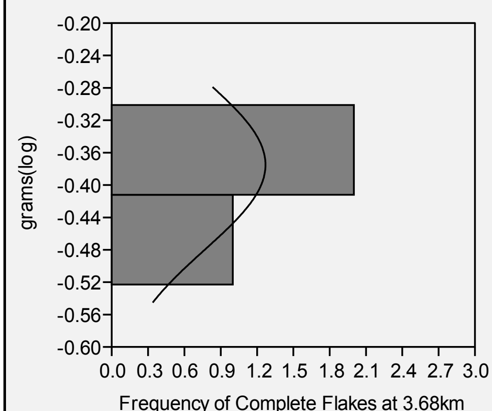
Dispersion of Complete Flake Weight (log) within Assemblage (3.68km, n=3)



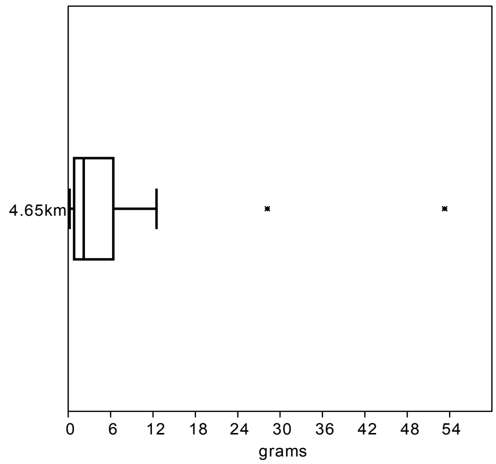
Dispersion of Complete Flake Weight within Assemblage (3.68km, n=3)



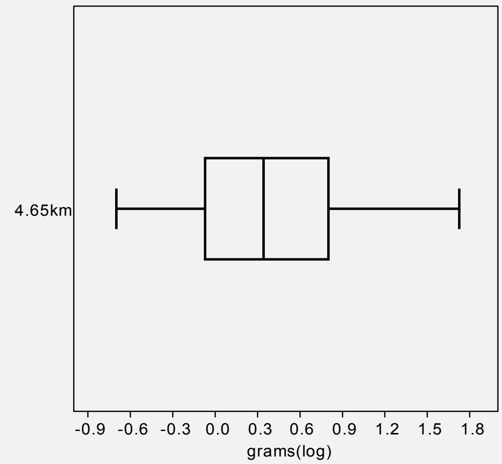
Dispersion of Complete Flake Weight (log) within Assemblage (3.68km, n=3)



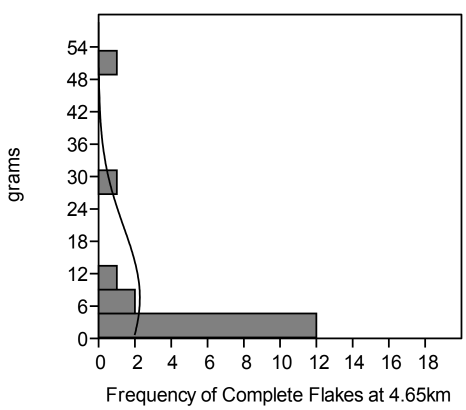
Dispersion of Complete Flake Weight within Assemblage (4.65km, n=17)



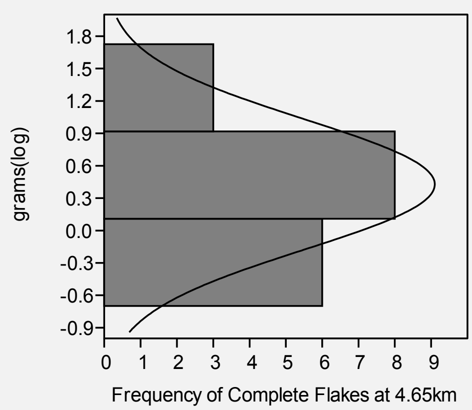
Dispersion of Complete Flake Weight (log) within Assemblage (4.65km, n=17)

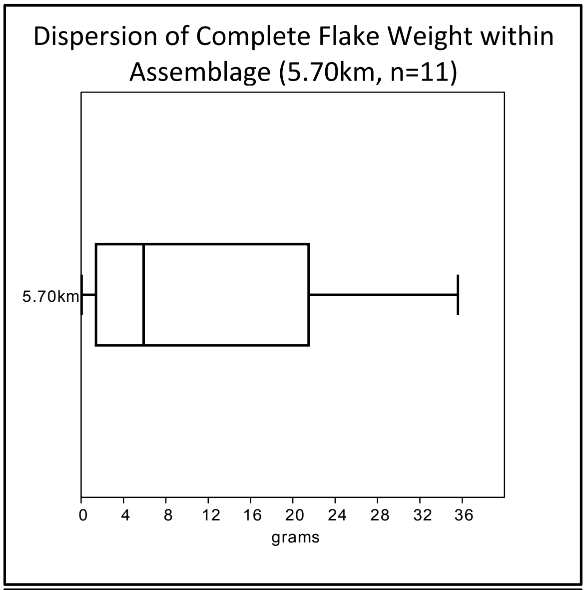


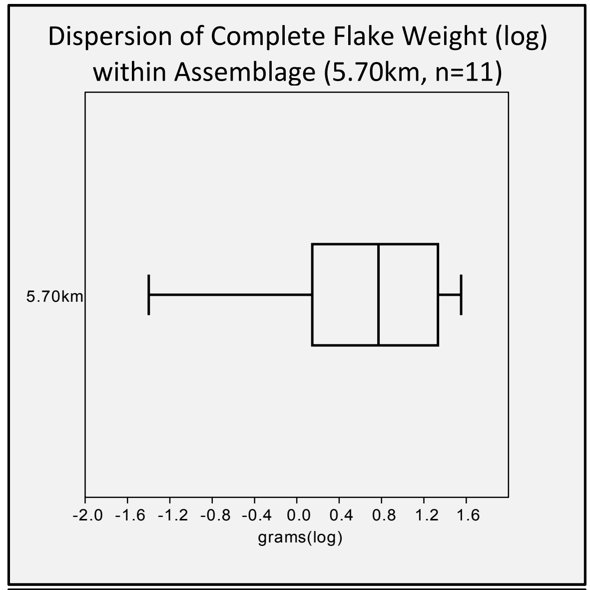
Dispersion of Complete Flake Weight within Assemblage (4.65km, n=17)

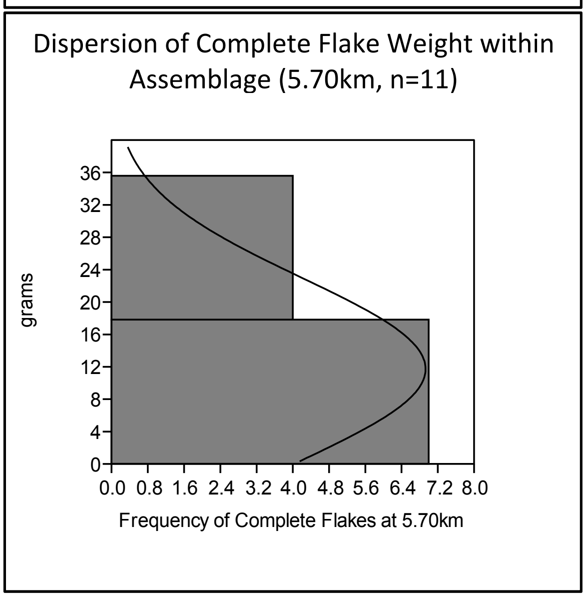


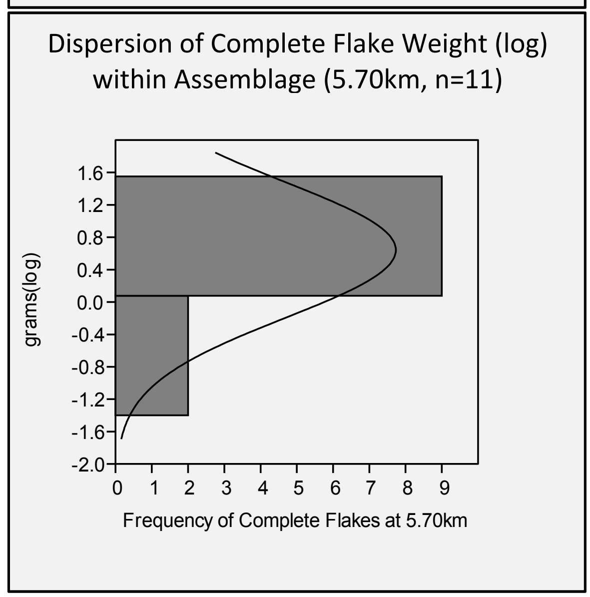
Dispersion of Complete Flake Weight (log) within Assemblage (4.65km, n=17)



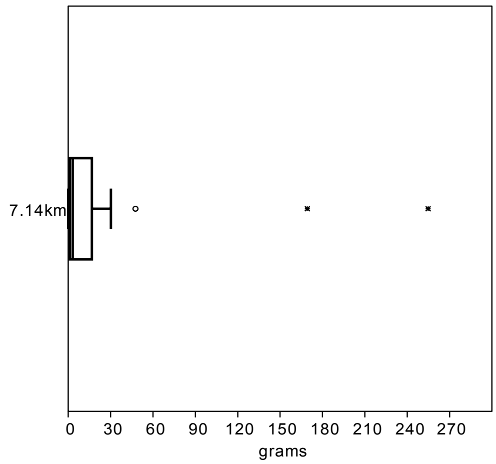

Dispersion of Complete Flake Weight within Assemblage (5.70km, n=11)
5.70km
0 4 8 12 16 20 24 28 32 36
grams


Dispersion of Complete Flake Weight (log) within Assemblage (5.70km, n=11)
5.70km
-2.0 -1.6 -1.2 -0.8 -0.4 0.0 0.4 0.8 1.2 1.6
grams(log)

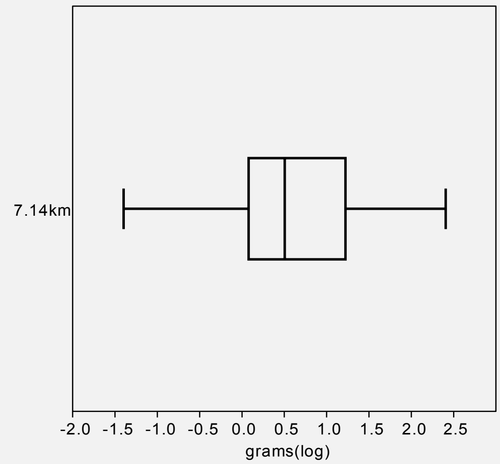

Dispersion of Complete Flake Weight within Assemblage (5.70km, n=11)
grams
36 32 28 24 20 16 12 8 4 0
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0
Frequency of Complete Flakes at 5.70km


Dispersion of Complete Flake Weight (log) within Assemblage (5.70km, n=11)
grams(log)
1.6 1.2 0.8 0.4 0.0 -0.4 -0.8 -1.2 -1.6 -2.0
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 5.70km

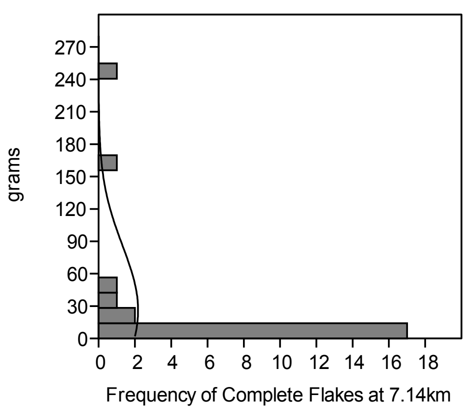
Dispersion of Complete Flake Weight within Assemblage (7.14km, n=23)



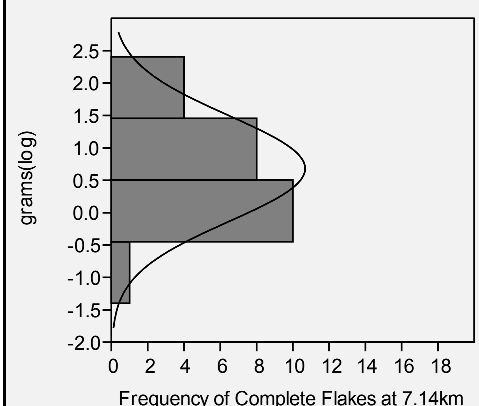
Dispersion of Complete Flake Weight (log) within Assemblage (7.14km, n=23)



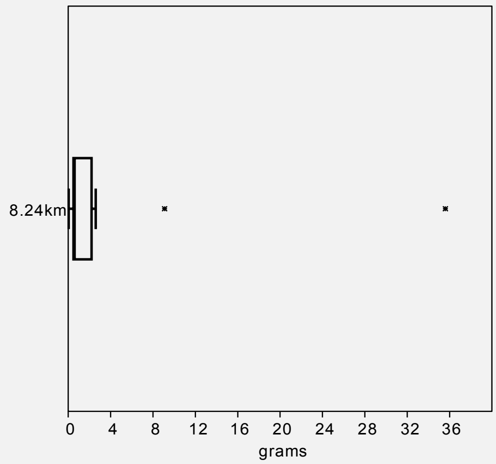
Dispersion of Complete Flake Weight within Assemblage (7.14km, n=23)



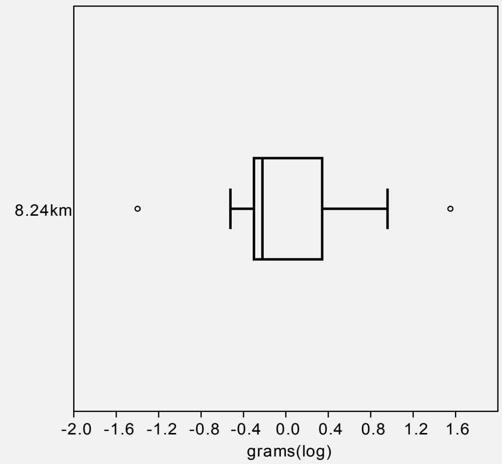
Dispersion of Complete Flake Weight (log) within Assemblage (7.14km, n=23)



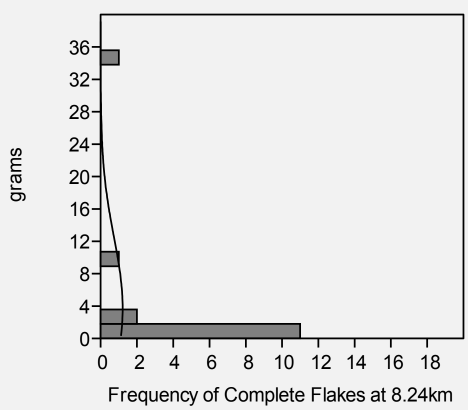
Dispersion of Complete Flake Weight within Assemblage (8.24km, n=15)



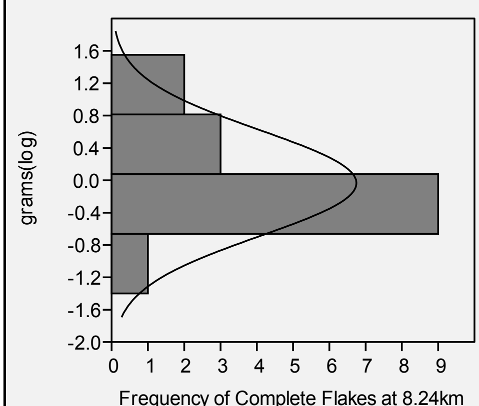
Dispersion of Complete Flake Weight (log) within Assemblage (8.24km, n=15)



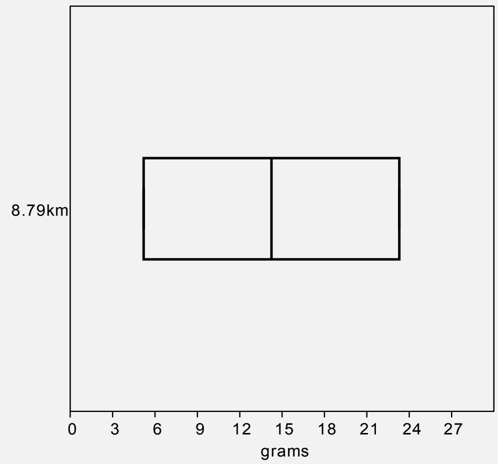
Dispersion of Complete Flake Weight within Assemblage (8.24km, n=15)



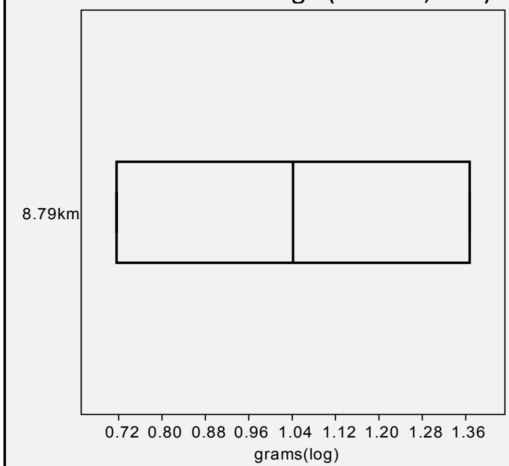
Dispersion of Complete Flake Weight (log) within Assemblage (8.24km, n=15)



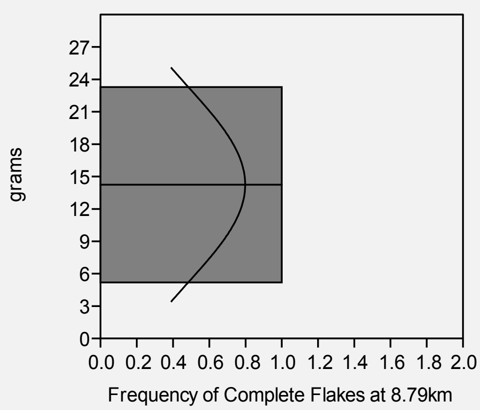
Dispersion of Complete Flake Weight within Assemblage (8.79km, n=2)



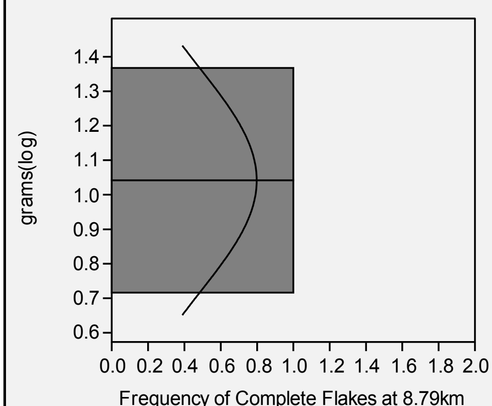
Dispersion of Complete Flake Weight (log) within Assemblage (8.79km, n=2)



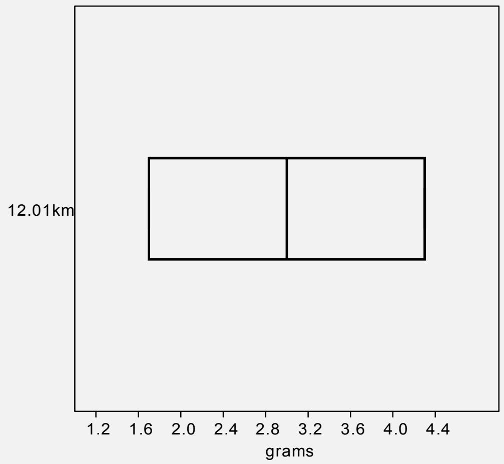
Dispersion of Complete Flake Weight within Assemblage (8.79km, n=2)



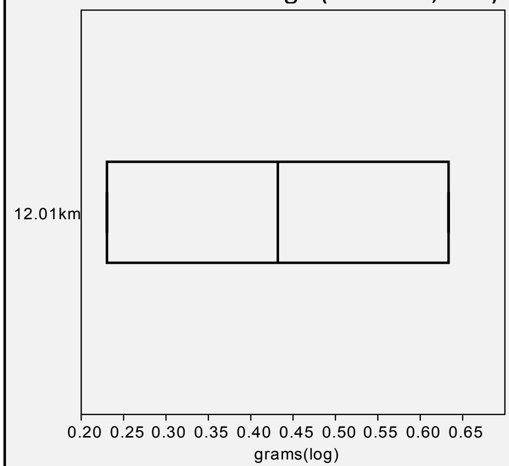
Dispersion of Complete Flake Weight (log) within Assemblage (8.79km, n=2)



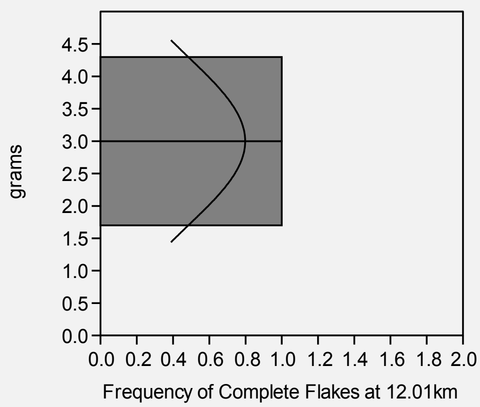
Dispersion of Complete Flake Weight within Assemblage (12.01km, n=2)



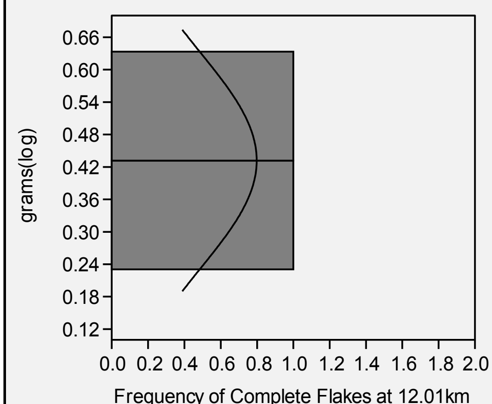
Dispersion of Complete Flake Weight (log) within Assemblage (12.01km, n=2)



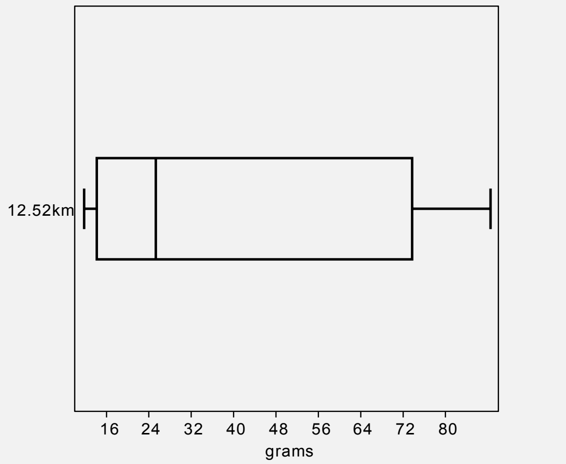
Dispersion of Complete Flake Weight within Assemblage (12.01km, n=2)



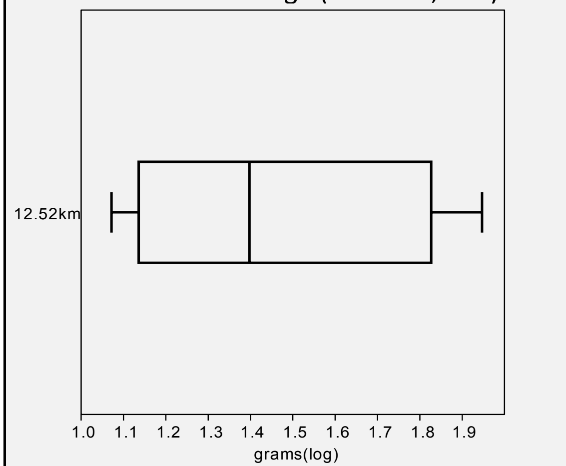
Dispersion of Complete Flake Weight (log) within Assemblage (12.01km, n=2)



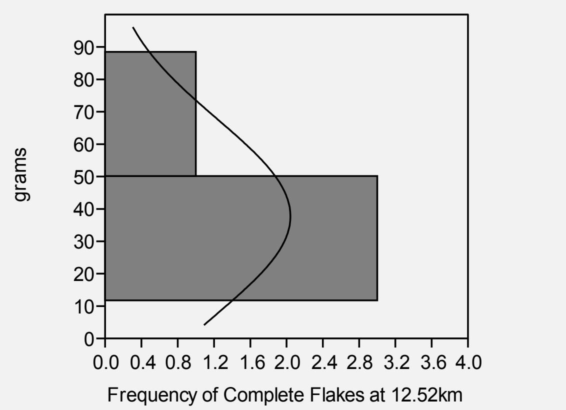
Dispersion of Complete Flake Weight within Assemblage (12.52km, n=4)



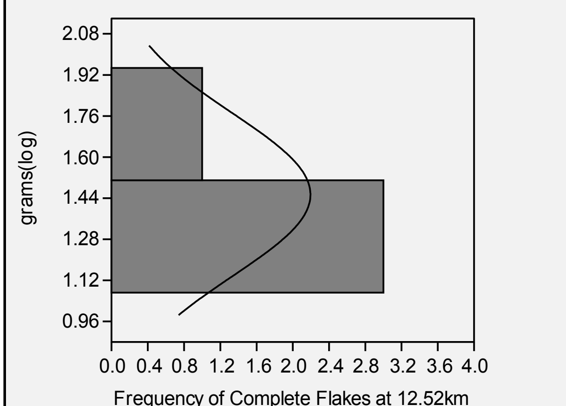
Dispersion of Complete Flake Weight (log) within Assemblage (12.52km, n=4)



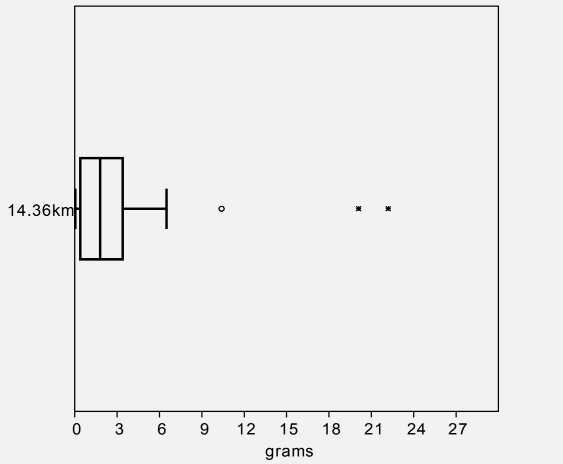
Dispersion of Complete Flake Weight within Assemblage (12.52km, n=4)



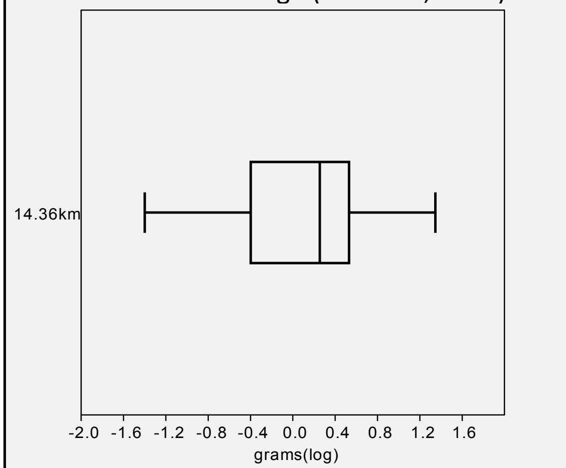
Dispersion of Complete Flake Weight (log) within Assemblage (12.52km, n=4)



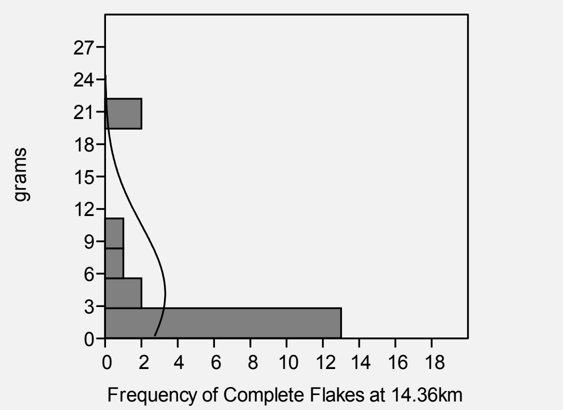
Dispersion of Complete Flake Weight within Assemblage (14.36km, n=19)



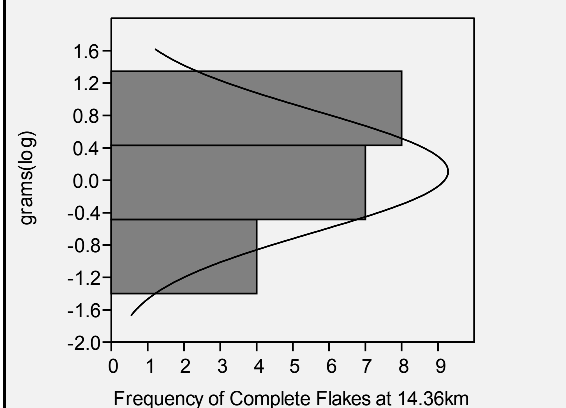
Dispersion of Complete Flake Weight (log) within Assemblage (14.36km, n=19)



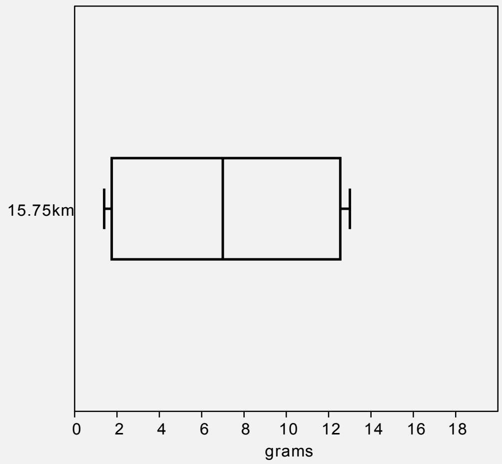
Dispersion of Complete Flake Weight within Assemblage (14.36km, n=19)



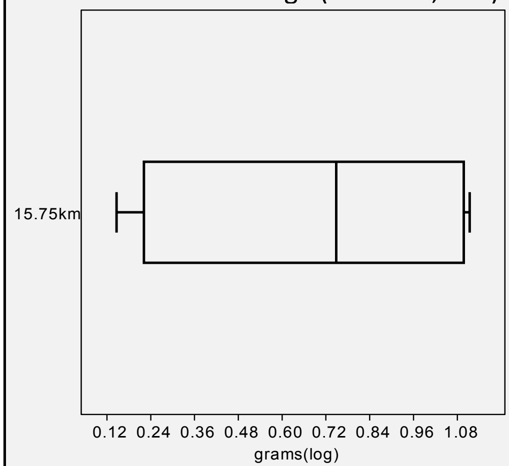
Dispersion of Complete Flake Weight (log) within Assemblage (14.36km, n=19)



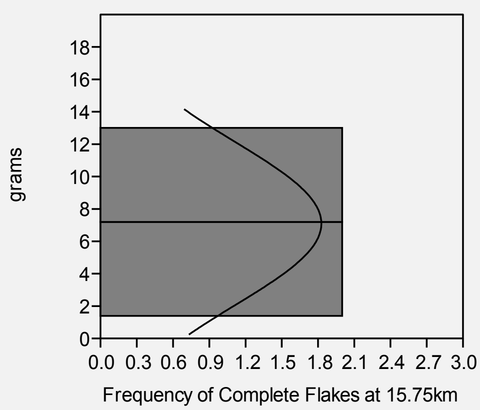
Dispersion of Complete Flake Weight within Assemblage (15.75km, n=4)



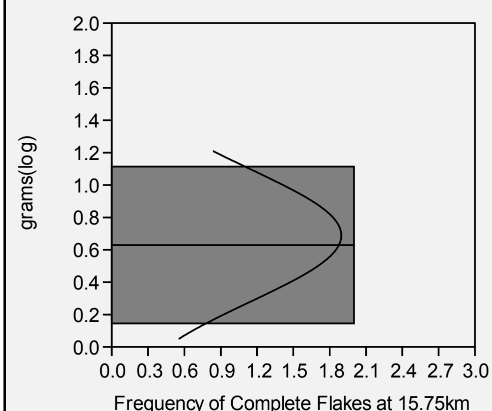
Dispersion of Complete Flake Weight (log) within Assemblage (15.75km, n=4)

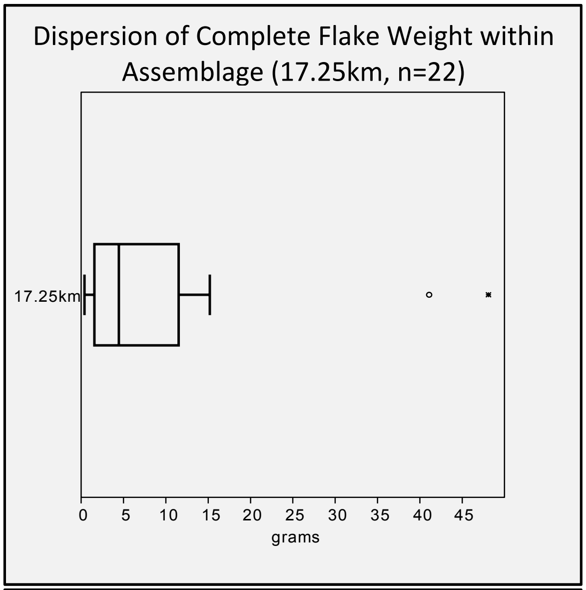


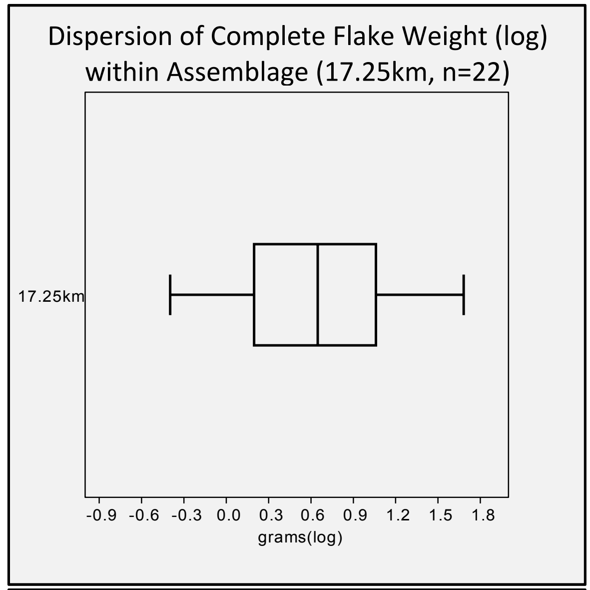
Dispersion of Complete Flake Weight within Assemblage (15.75km, n=4)

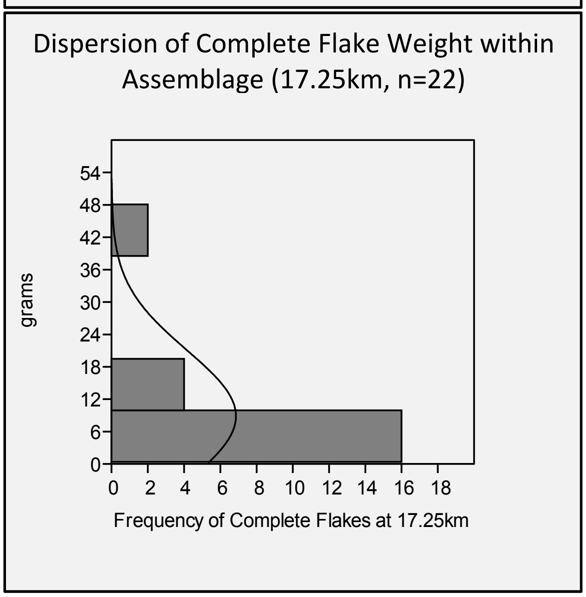


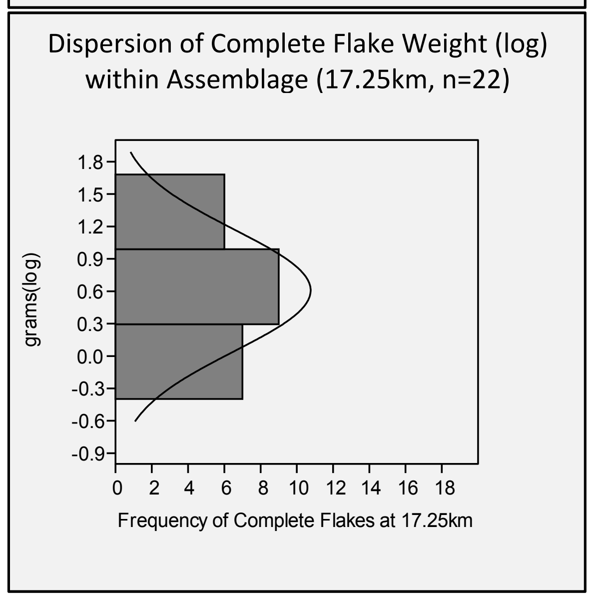
Dispersion of Complete Flake Weight (log) within Assemblage (15.75km, n=4)



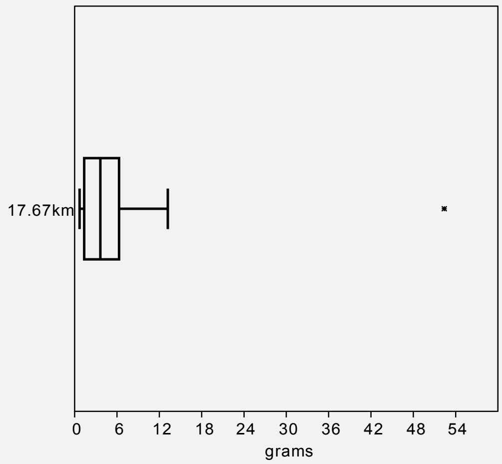

Dispersion of Complete Flake Weight within Assemblage (17.25km, n=22)
17.25km
0 5 10 15 20 25 30 35 40 45
grams


Dispersion of Complete Flake Weight (log) within Assemblage (17.25km, n=22)
17.25km
-0.9 -0.6 -0.3 0.0 0.3 0.6 0.9 1.2 1.5 1.8
grams(log)

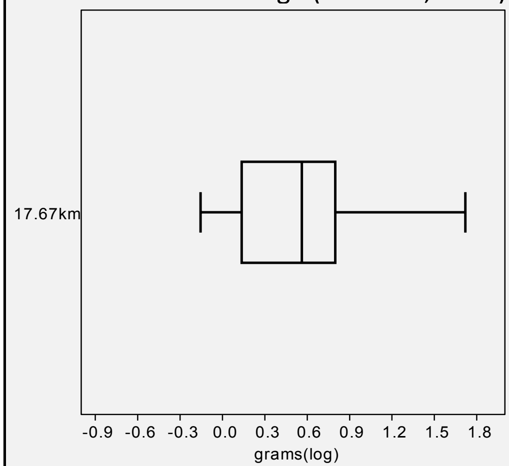

Dispersion of Complete Flake Weight within Assemblage (17.25km, n=22)
grams
54 48 42 36 30 24 18 12 6 0
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 17.25km


Dispersion of Complete Flake Weight (log) within Assemblage (17.25km, n=22)
grams(log)
1.8 1.5 1.2 0.9 0.6 0.3 0.0 -0.3 -0.6 -0.9
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 17.25km

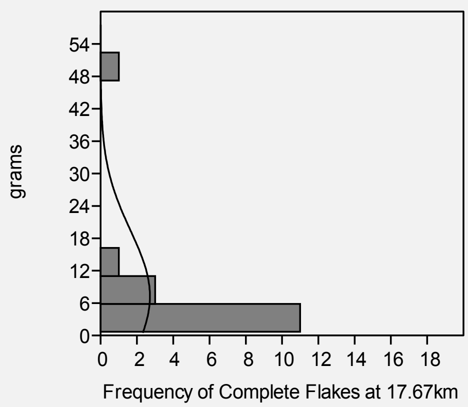
Dispersion of Complete Flake Weight within Assemblage (17.67km, n=16)



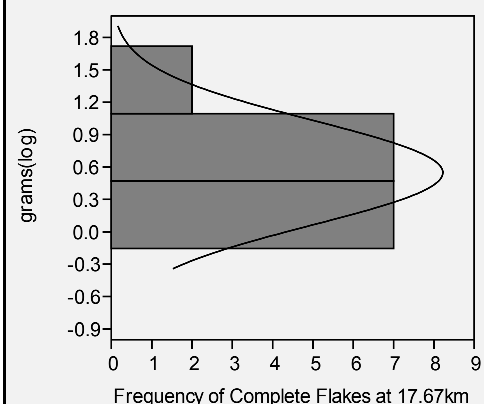
Dispersion of Complete Flake Weight (log) within Assemblage (17.67km, n=16)



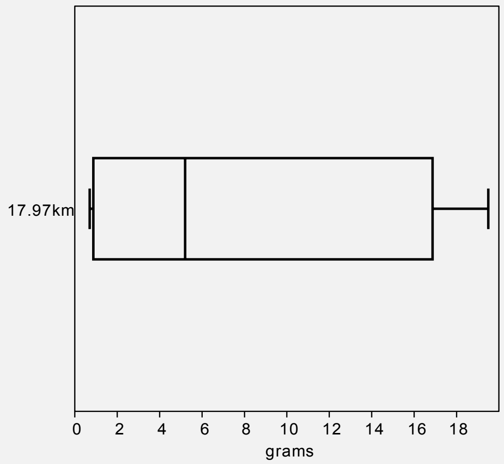
Dispersion of Complete Flake Weight within Assemblage (17.67km, n=16)



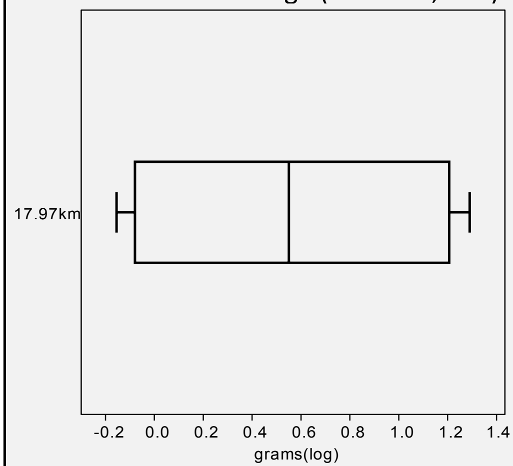
Dispersion of Complete Flake Weight (log) within Assemblage (17.67km, n=16)



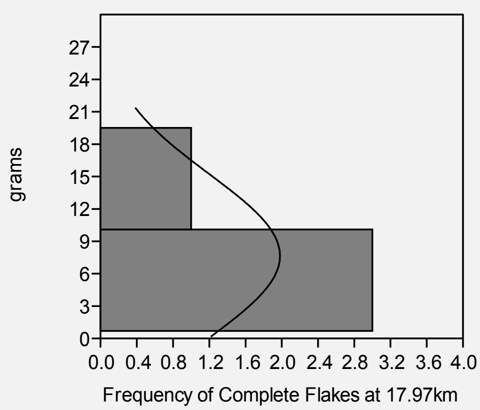
Dispersion of Complete Flake Weight within Assemblage (17.97km, n=4)



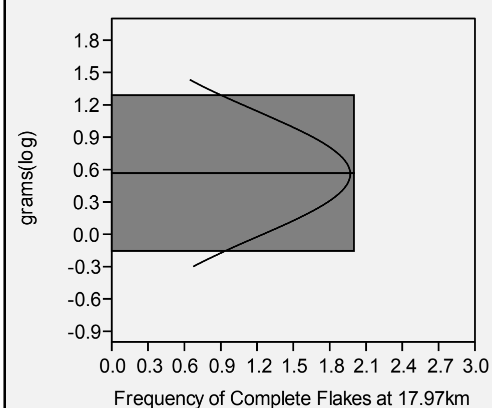
Dispersion of Complete Flake Weight (log) within Assemblage (17.97km, n=4)



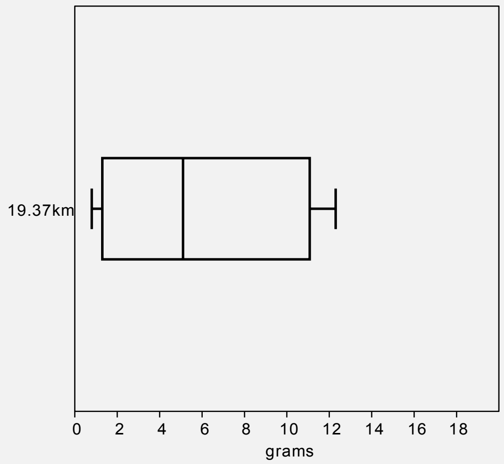
Dispersion of Complete Flake Weight within Assemblage (17.97km, n=4)



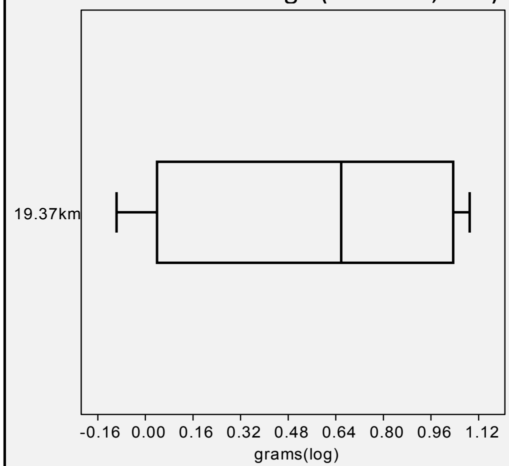
Dispersion of Complete Flake Weight (log) within Assemblage (17.97km, n=4)



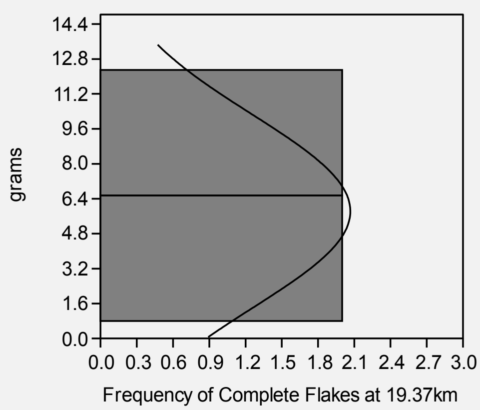
Dispersion of Complete Flake Weight within Assemblage (19.37km, n=4)



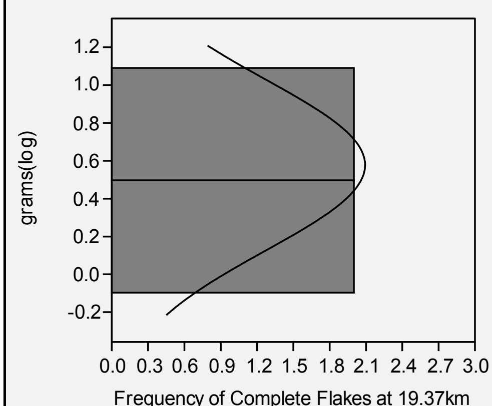
Dispersion of Complete Flake Weight (log) within Assemblage (19.37km, n=4)



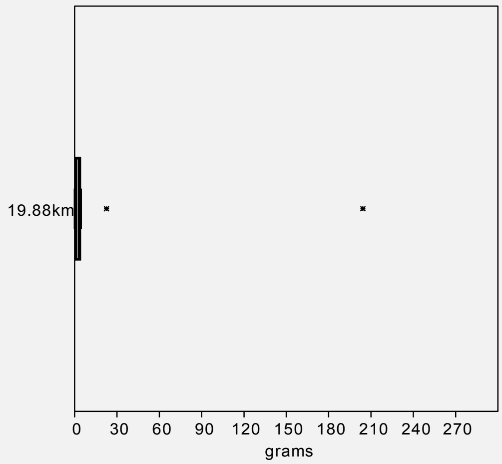
Dispersion of Complete Flake Weight within Assemblage (19.37km, n=4)



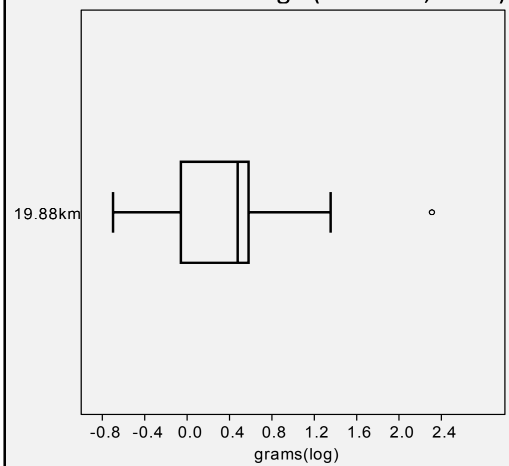
Dispersion of Complete Flake Weight (log) within Assemblage (19.37km, n=4)



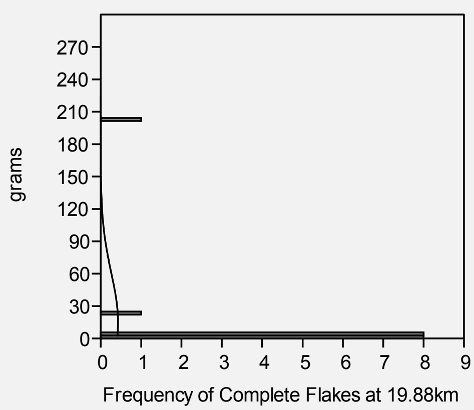
Dispersion of Complete Flake Weight within Assemblage (19.88km, n=18)



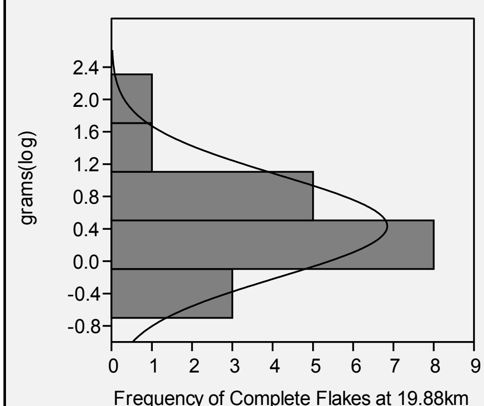
Dispersion of Complete Flake Weight (log) within Assemblage (19.88km, n=18)



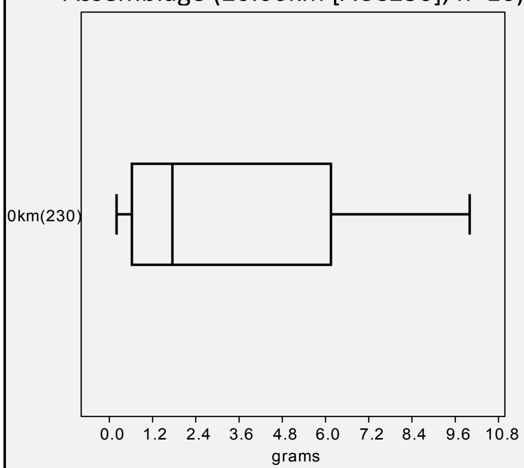
Dispersion of Complete Flake Weight within Assemblage (19.88km, n=18)



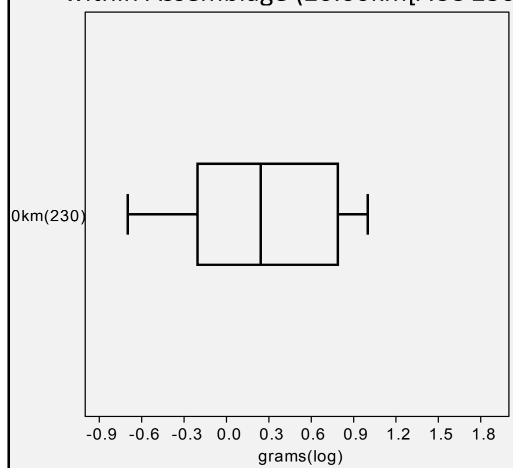
Dispersion of Complete Flake Weight (log) within Assemblage (19.88km, n=18)



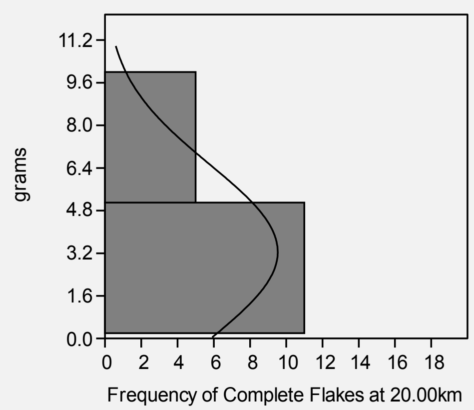
Dispersion of Complete Flake Weight within Assemblage (20.00km [ACC230], n=16)



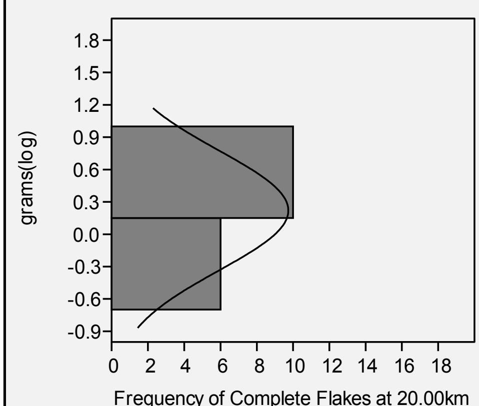
Dispersion of Complete Flake Weight (log) within Assemblage (20.00km[ACC 230],

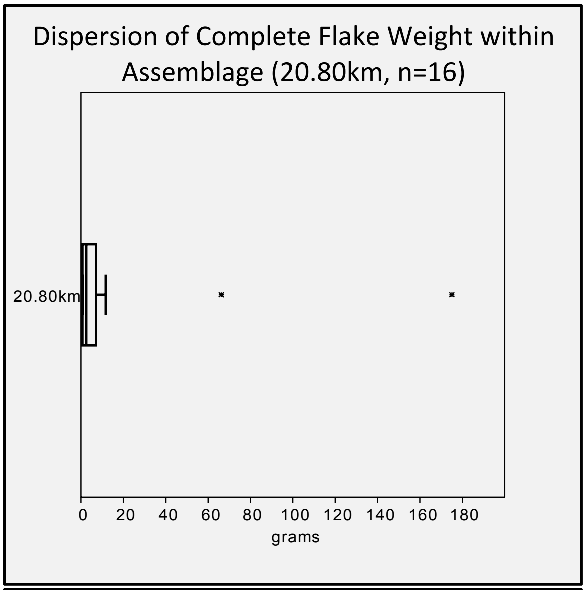


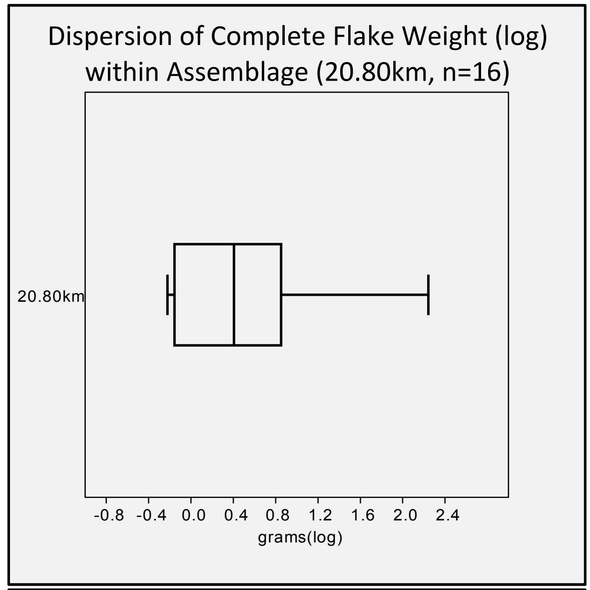
Dispersion of Complete Flake Weight within Assemblage (20.00km [ACC230], n=16)

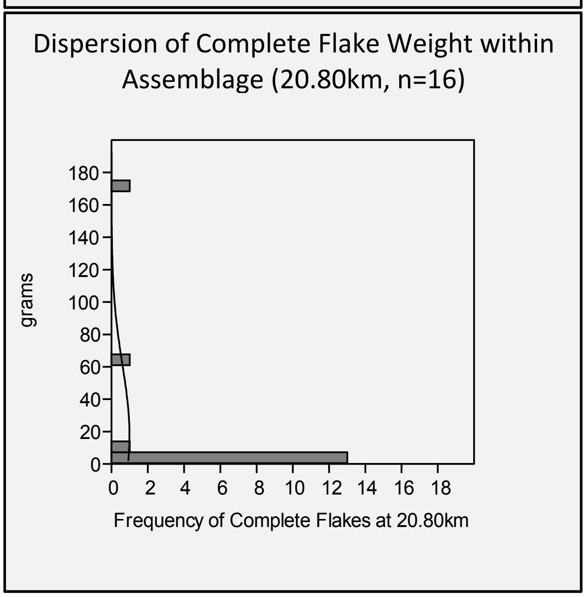


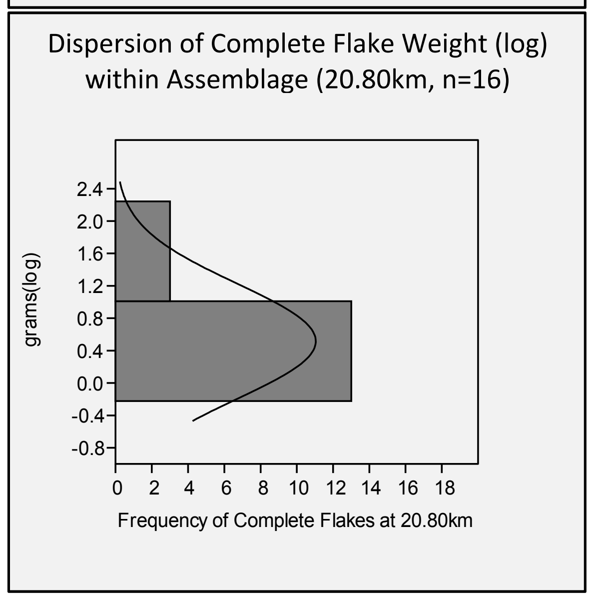
Dispersion of Complete Flake Weight (log) within Assemblage (20.00km[ACC 230],



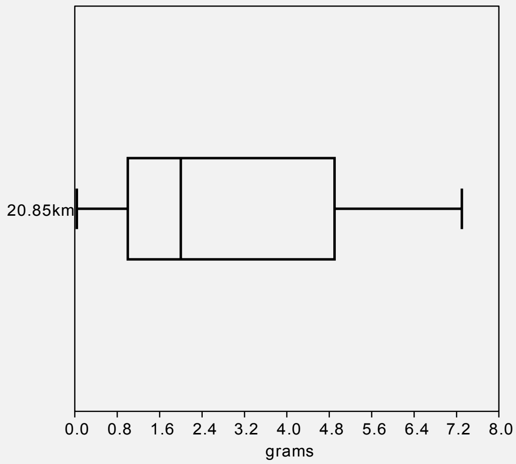

Dispersion of Complete Flake Weight within Assemblage (20.80km, n=16)
20.80km
0 20 40 60 80 100 120 140 160 180
grams


Dispersion of Complete Flake Weight (log) within Assemblage (20.80km, n=16)
20.80km
-0.8 -0.4 0.0 0.4 0.8 1.2 1.6 2.0 2.4
grams(log)

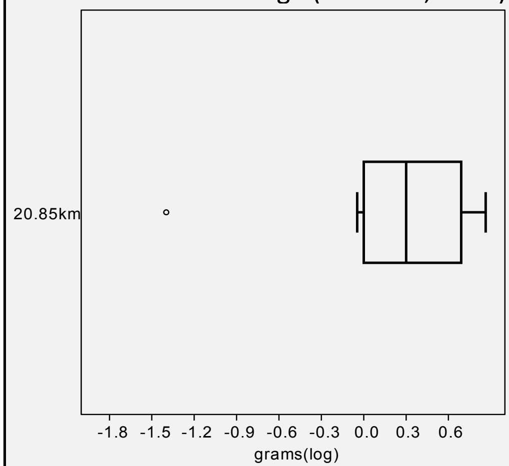

Dispersion of Complete Flake Weight within Assemblage (20.80km, n=16)
grams
180 160 140 120 100 80 60 40 20 0
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 20.80km


Dispersion of Complete Flake Weight (log) within Assemblage (20.80km, n=16)
grams(log)
2.4 2.0 1.6 1.2 0.8 0.4 0.0 -0.4 -0.8
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 20.80km

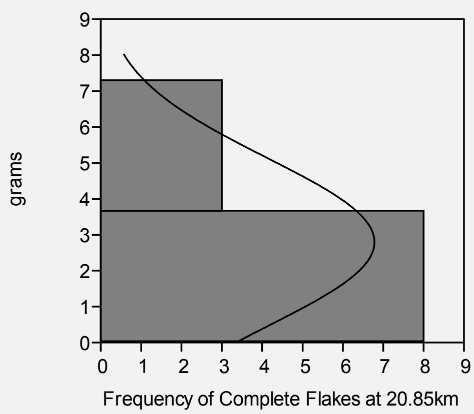
Dispersion of Complete Flake Weight within Assemblage (20.85km, n=11)



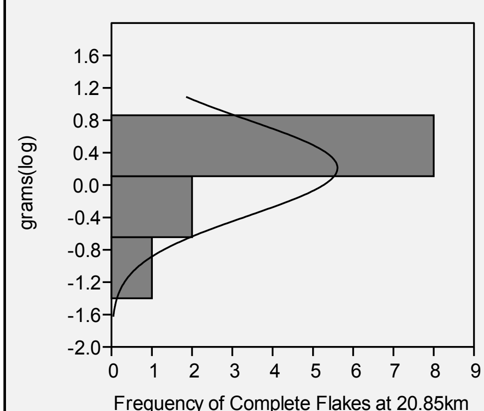
Dispersion of Complete Flake Weight (log) within Assemblage (20.85km, n=11)



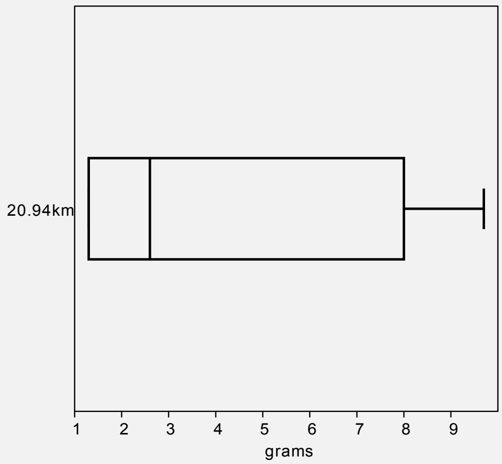
Dispersion of Complete Flake Weight within Assemblage (20.85km, n=11)



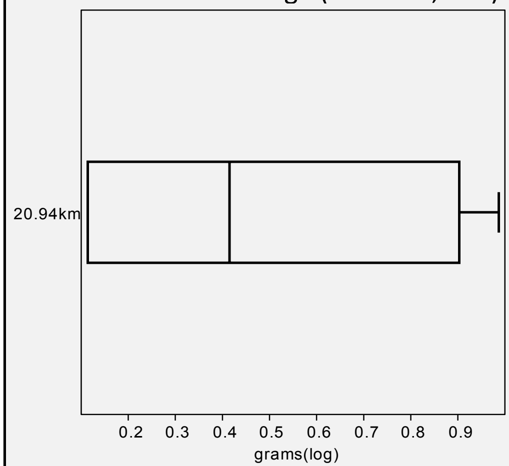
Dispersion of Complete Flake Weight (log) within Assemblage (20.85km, n=11)



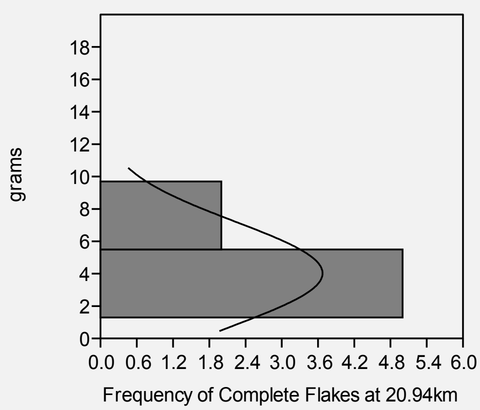
Dispersion of Complete Flake Weight within Assemblage (20.94km, n=7)



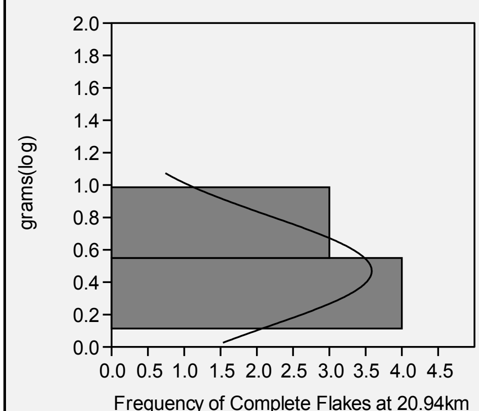
Dispersion of Complete Flake Weight (log) within Assemblage (20.94km, n=7)

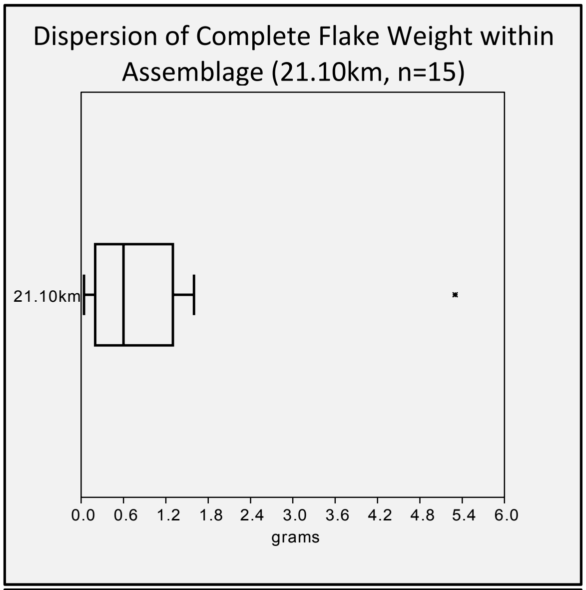


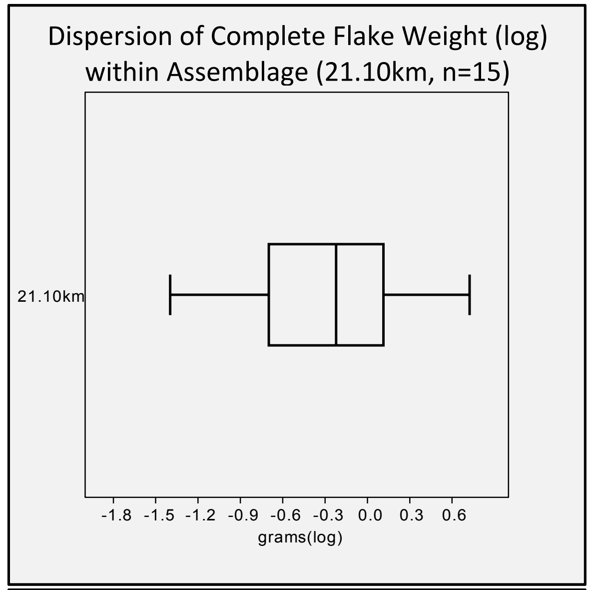
Dispersion of Complete Flake Weight within Assemblage (20.94km, n=7)

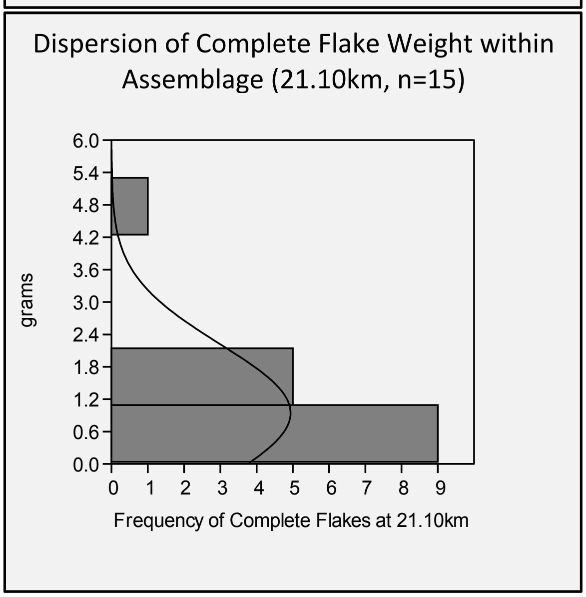


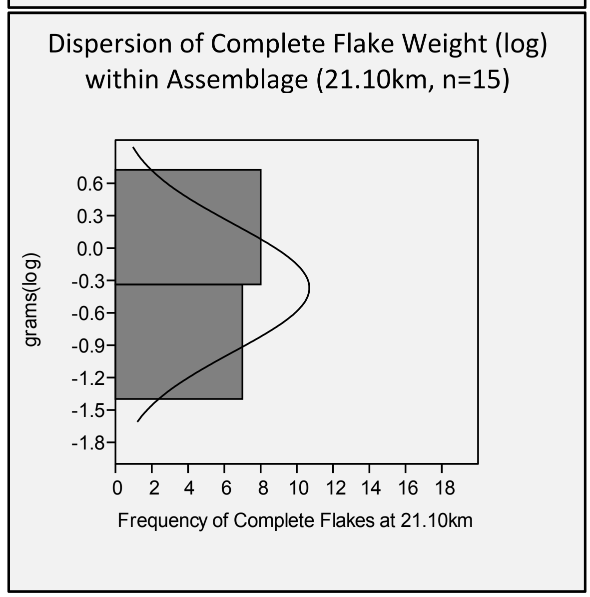
Dispersion of Complete Flake Weight (log) within Assemblage (20.94km, n=7)



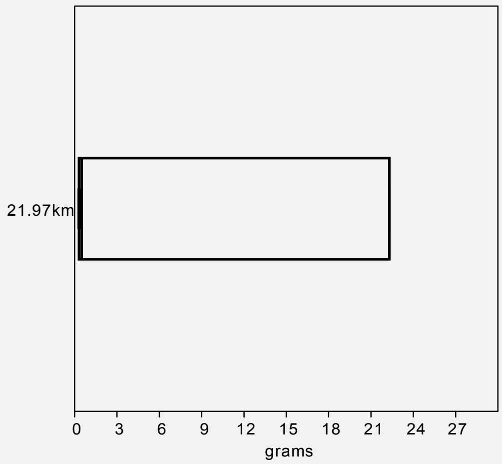

Dispersion of Complete Flake Weight within Assemblage (21.10km, n=15)
21.10km
0.0 0.6 1.2 1.8 2.4 3.0 3.6 4.2 4.8 5.4 6.0
grams


Dispersion of Complete Flake Weight (log) within Assemblage (21.10km, n=15)
21.10km
-1.8 -1.5 -1.2 -0.9 -0.6 -0.3 0.0 0.3 0.6
grams(log)

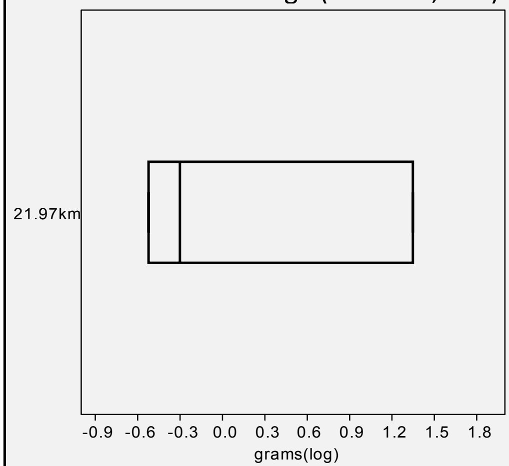

Dispersion of Complete Flake Weight within Assemblage (21.10km, n=15)
grams
6.0 5.4 4.8 4.2 3.6 3.0 2.4 1.8 1.2 0.6 0.0
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 21.10km


Dispersion of Complete Flake Weight (log) within Assemblage (21.10km, n=15)
grams(log)
0.6 0.3 0.0 -0.3 -0.6 -0.9 -1.2 -1.5 -1.8
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 21.10km

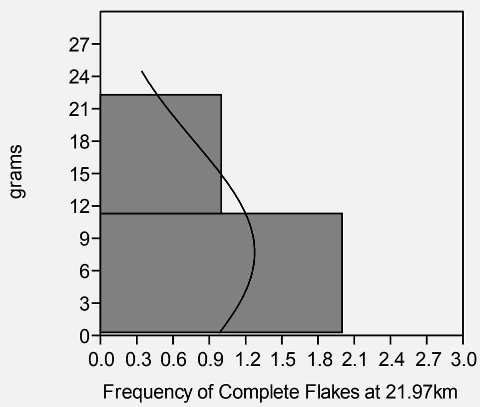
Dispersion of Complete Flake Weight within Assemblage (21.97km, n=3)



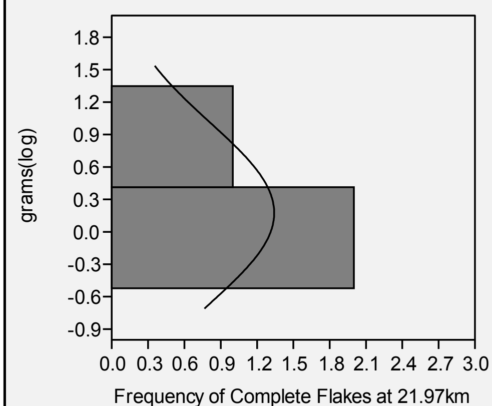
Dispersion of Complete Flake Weight (log) within Assemblage (21.97km, n=3)



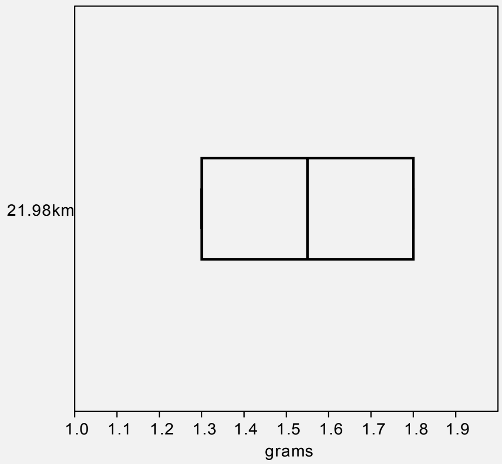
Dispersion of Complete Flake Weight within Assemblage (21.97km, n=3)



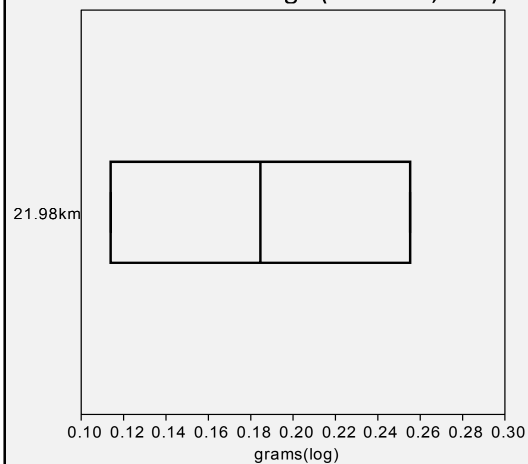
Dispersion of Complete Flake Weight (log) within Assemblage (21.97km, n=3)



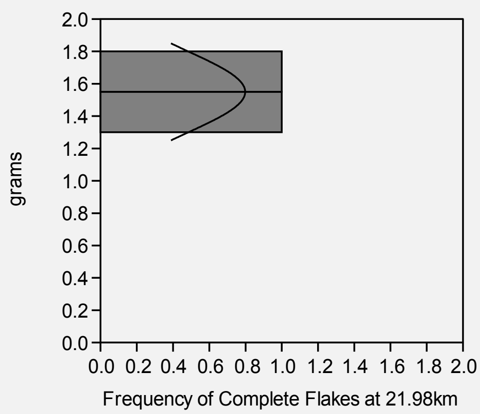
Dispersion of Complete Flake Weight within Assemblage (21.98km, n=2)



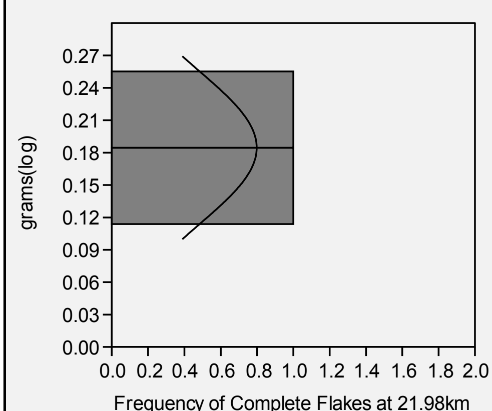
Dispersion of Complete Flake Weight (log) within Assemblage (21.98km, n=2)

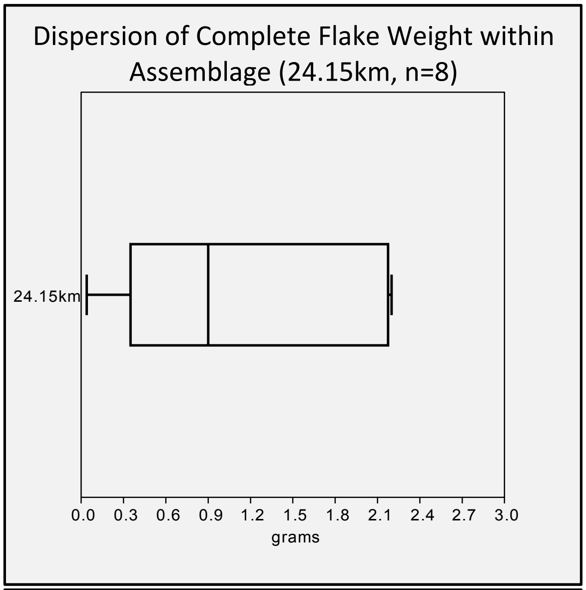


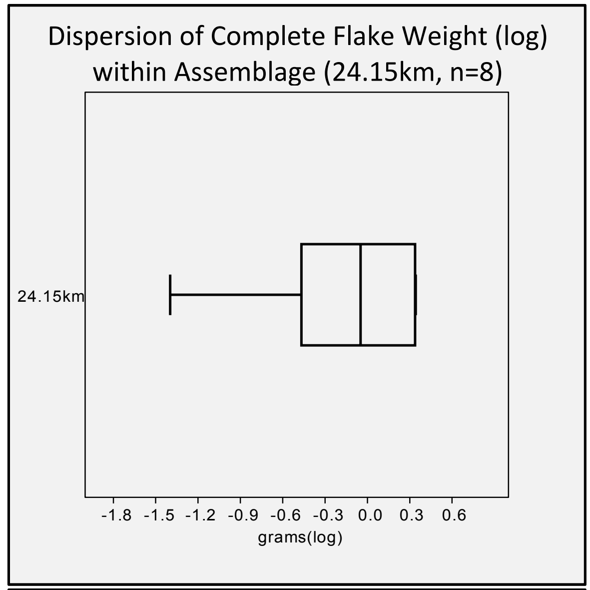
Dispersion of Complete Flake Weight within Assemblage (21.98km, n=2)

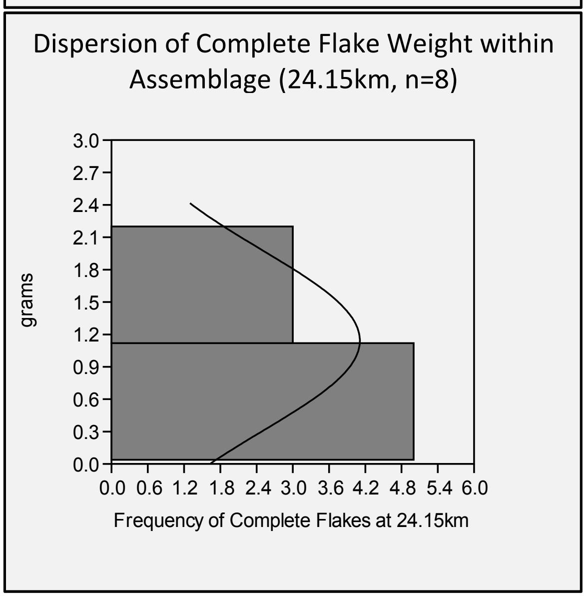


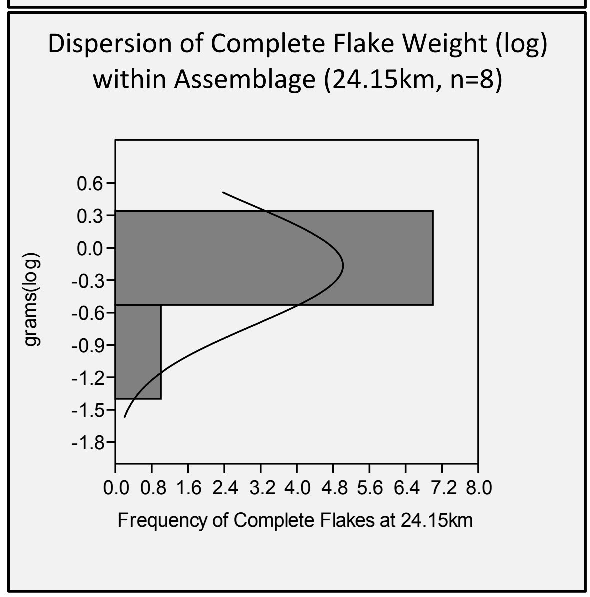
Dispersion of Complete Flake Weight (log) within Assemblage (21.98km, n=2)



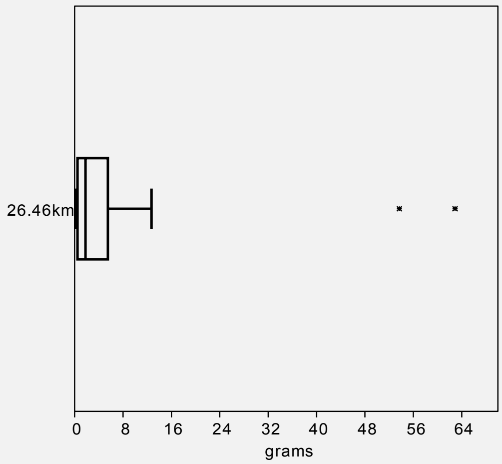

Dispersion of Complete Flake Weight within Assemblage (24.15km, n=8)
24.15km
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0
grams


Dispersion of Complete Flake Weight (log) within Assemblage (24.15km, n=8)
24.15km
-1.8 -1.5 -1.2 -0.9 -0.6 -0.3 0.0 0.3 0.6
grams(log)

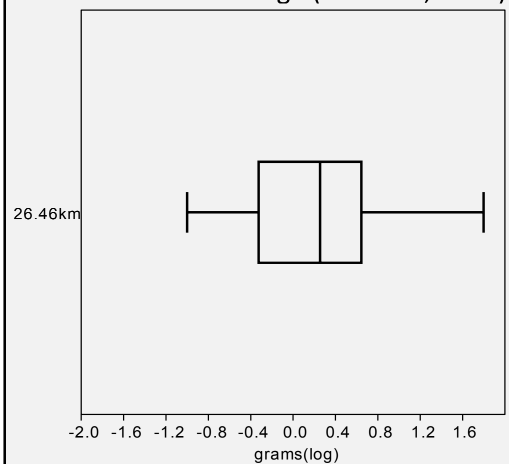

Dispersion of Complete Flake Weight within Assemblage (24.15km, n=8)
grams
3.0 2.7 2.4 2.1 1.8 1.5 1.2 0.9 0.6 0.3 0.0
0.0 0.6 1.2 1.8 2.4 3.0 3.6 4.2 4.8 5.4 6.0
Frequency of Complete Flakes at 24.15km


Dispersion of Complete Flake Weight (log) within Assemblage (24.15km, n=8)
grams(log)
0.6 0.3 0.0 -0.3 -0.6 -0.9 -1.2 -1.5 -1.8
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0
Frequency of Complete Flakes at 24.15km

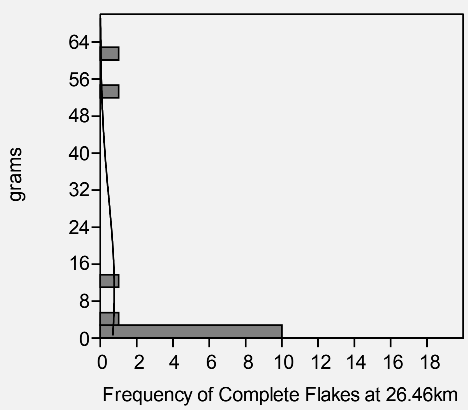
Dispersion of Complete Flake Weight within Assemblage (26.46km, n=14)



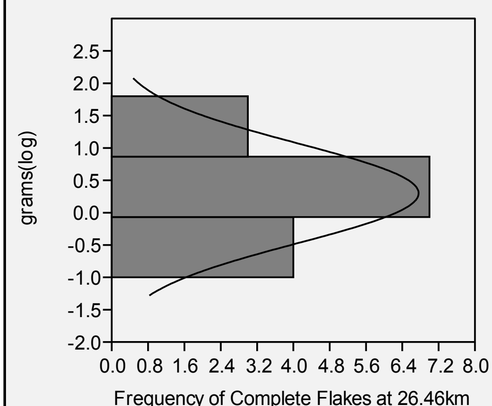
Dispersion of Complete Flake Weight (log) within Assemblage (26.46km, n=14)



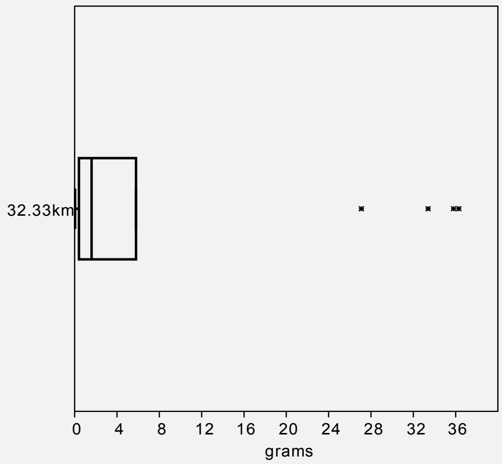
Dispersion of Complete Flake Weight within Assemblage (26.46km, n=14)



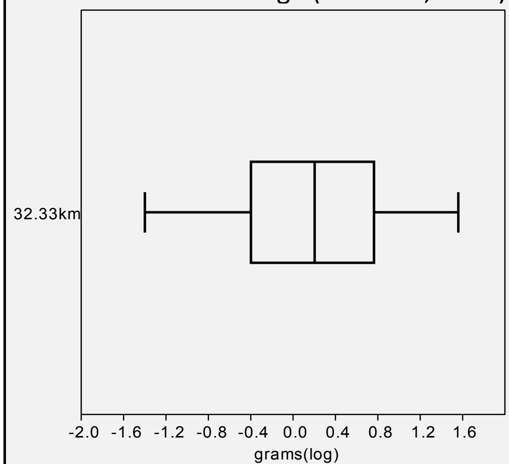
Dispersion of Complete Flake Weight (log) within Assemblage (26.46km, n=14)



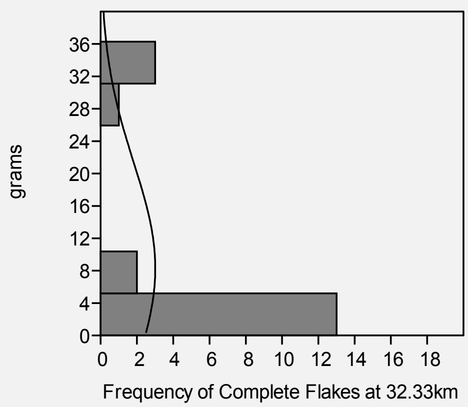
Dispersion of Complete Flake Weight within Assemblage (32.33km, n=19)



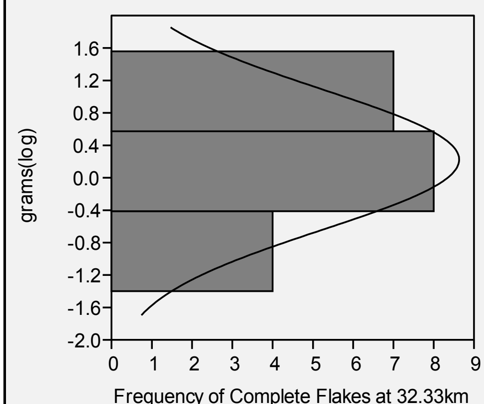
Dispersion of Complete Flake Weight (log) within Assemblage (32.33km, n=19)

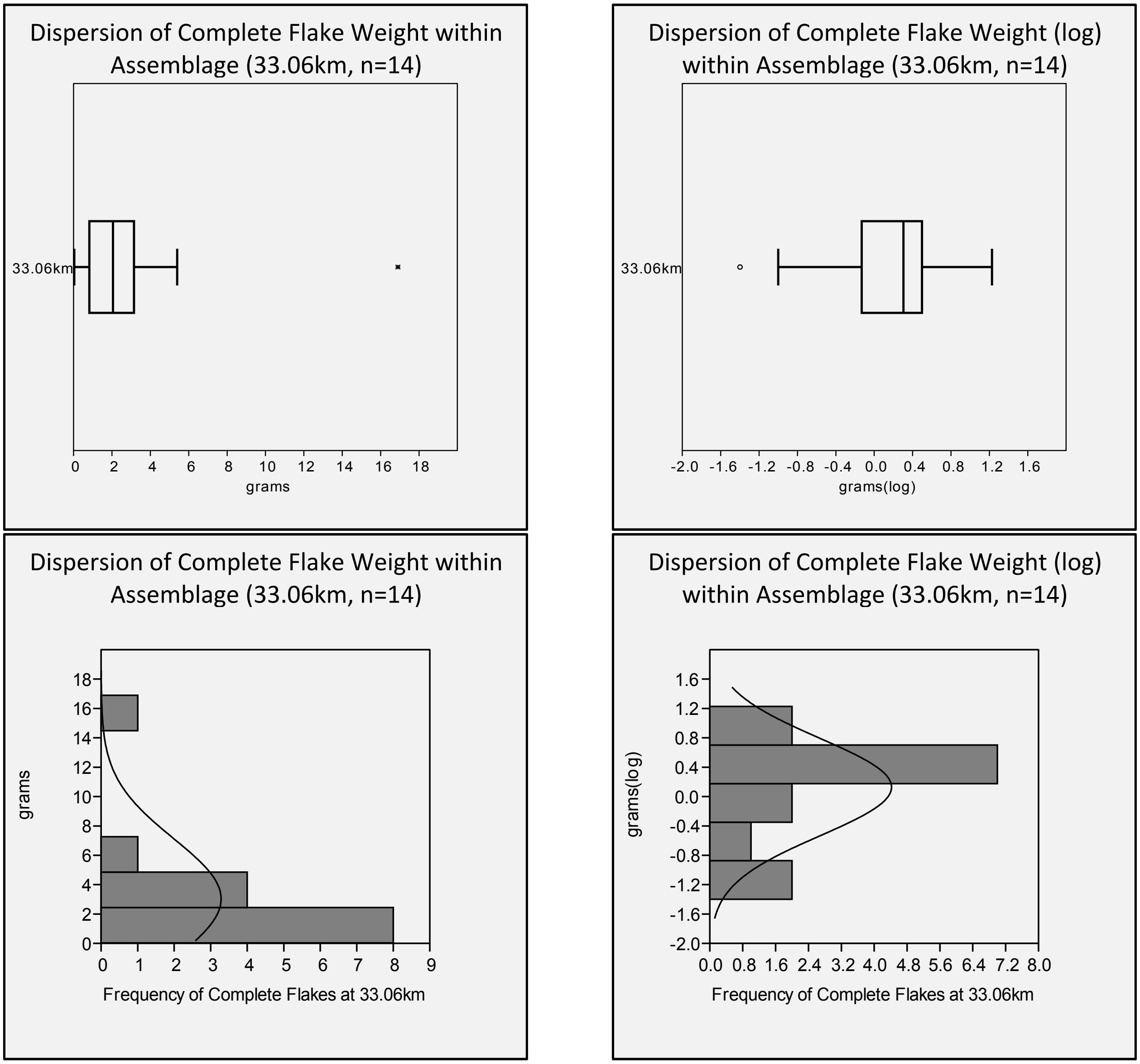


Dispersion of Complete Flake Weight within Assemblage (32.33km, n=19)

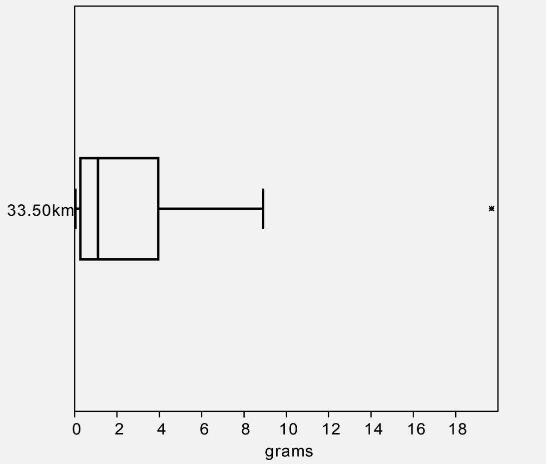


Dispersion of Complete Flake Weight (log) within Assemblage (32.33km, n=19)

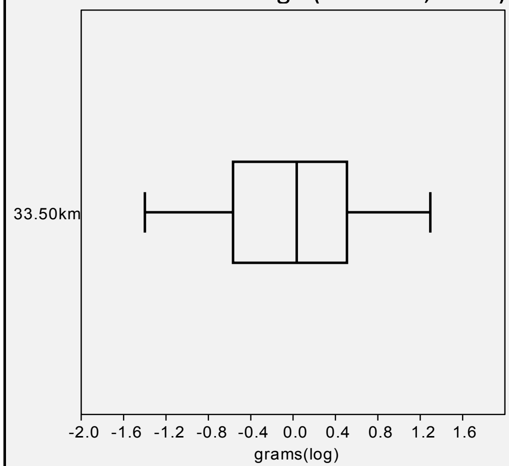



Dispersion of Complete Flake Weight within Assemblage (33.06km, n=14)
33.06km
0 2 4 6 8 10 12 14 16 18
grams
Dispersion of Complete Flake Weight (log) within Assemblage (33.06km, n=14)
33.06km
-2.0 -1.6 -1.2 -0.8 -0.4 0.0 0.4 0.8 1.2 1.6
grams(log)
Dispersion of Complete Flake Weight within Assemblage (33.06km, n=14)
grams
0 2 4 6 8 10 12 14 16 18
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 33.06km
Dispersion of Complete Flake Weight (log) within Assemblage (33.06km, n=14)
grams(log)
-2.0 -1.6 -1.2 -0.8 -0.4 0.0 0.4 0.8 1.2 1.6
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0
Frequency of Complete Flakes at 33.06km

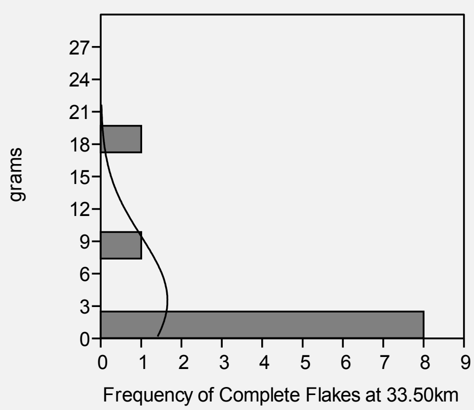
Dispersion of Complete Flake Weight within Assemblage (33.50km, n=10)



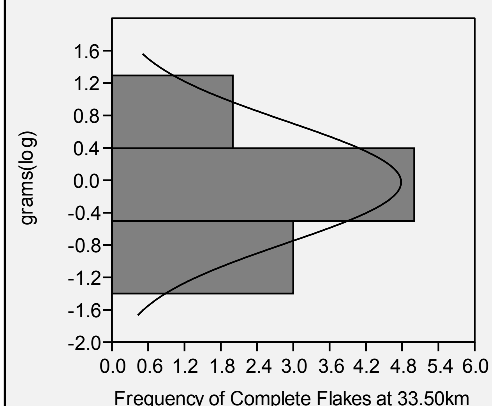
Dispersion of Complete Flake Weight (log) within Assemblage (33.50km, n=10)



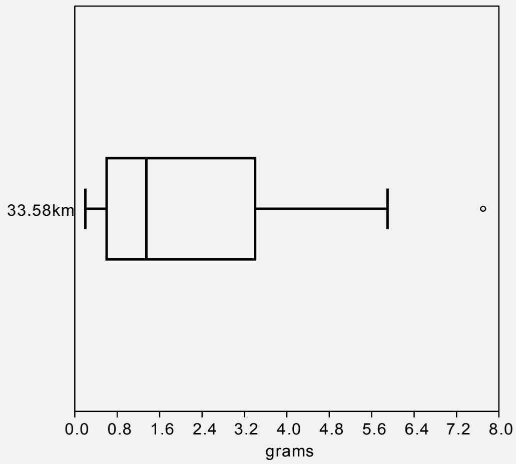
Dispersion of Complete Flake Weight within Assemblage (33.50km, n=10)



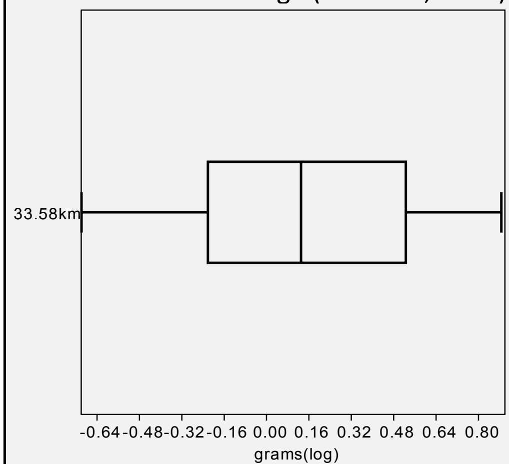
Dispersion of Complete Flake Weight (log) within Assemblage (33.50km, n=10)



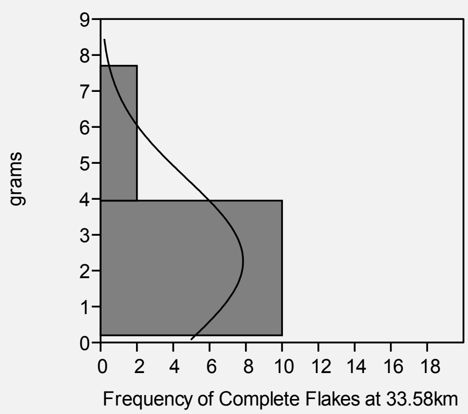
Dispersion of Complete Flake Weight within Assemblage (33.58km, n=12)



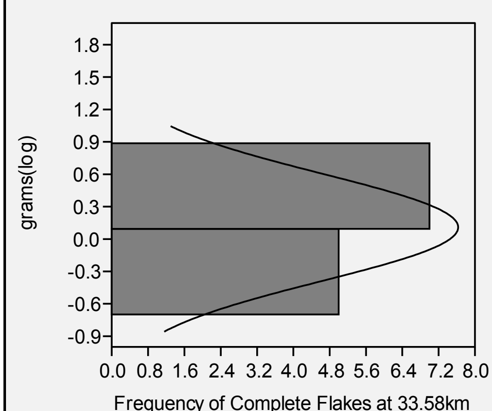
Dispersion of Complete Flake Weight (log) within Assemblage (33.58km, n=12)



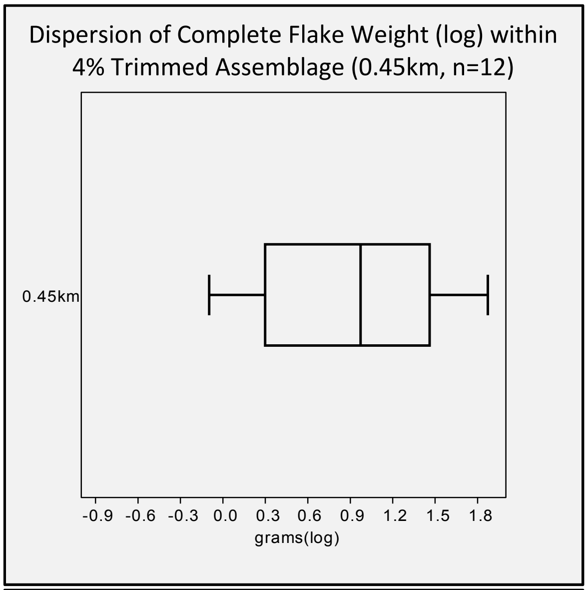
Dispersion of Complete Flake Weight within Assemblage (33.58km, n=12)

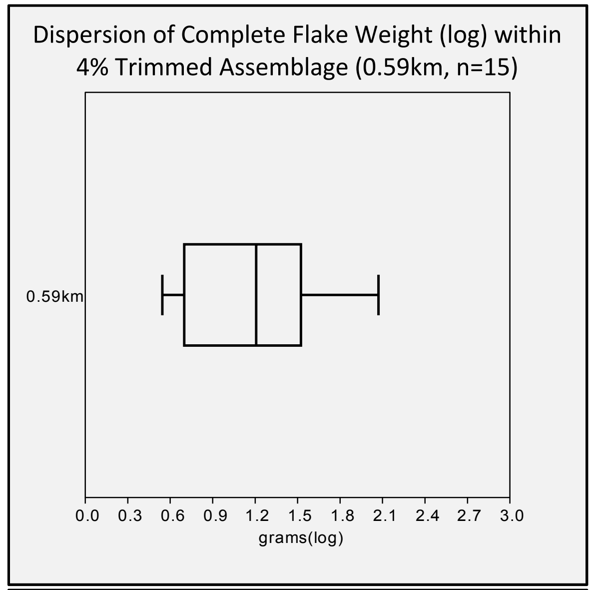


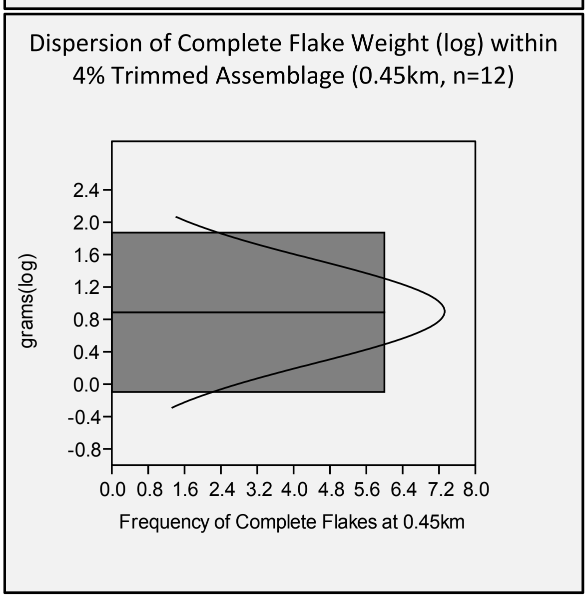
Dispersion of Complete Flake Weight (log) within Assemblage (33.58km, n=12)

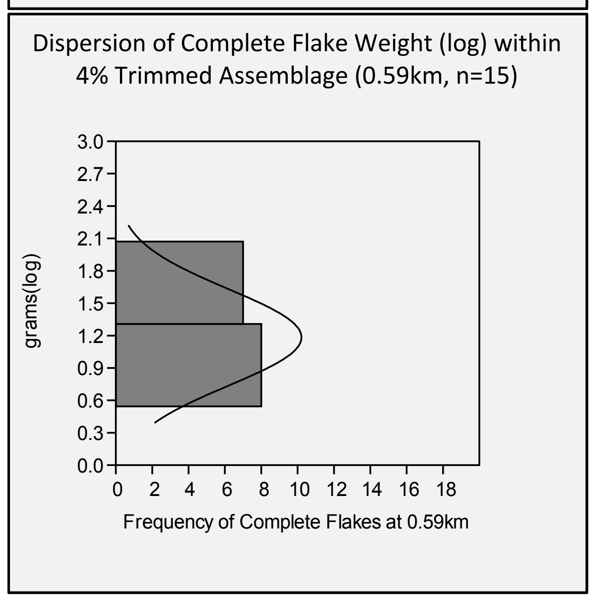


Appendix C: Dispersion of Complete Flake Weight (log natural) Trimmed

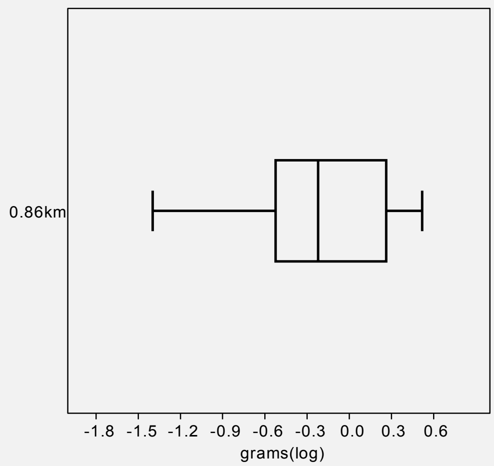




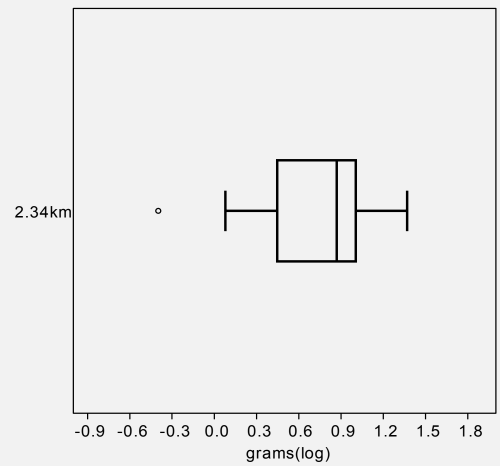




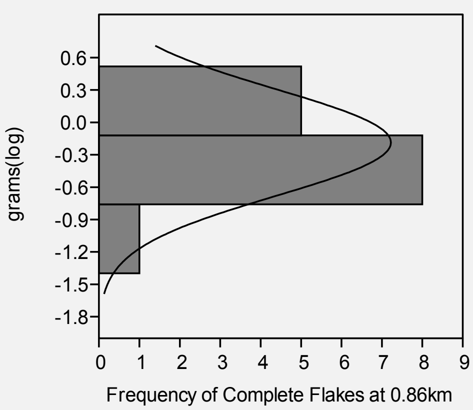
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (0.86km, n=14)



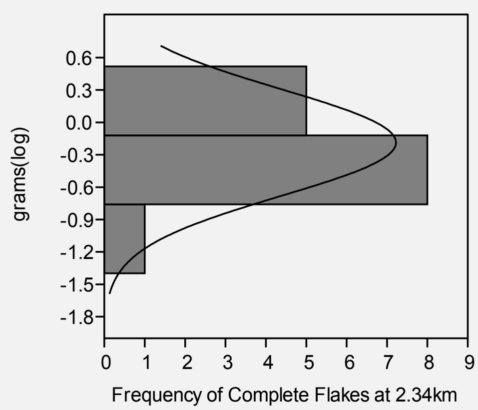
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (2.34km, n=19)



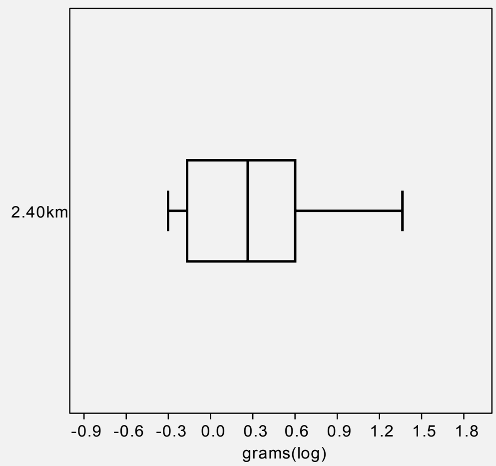
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (0.86km, n=14)



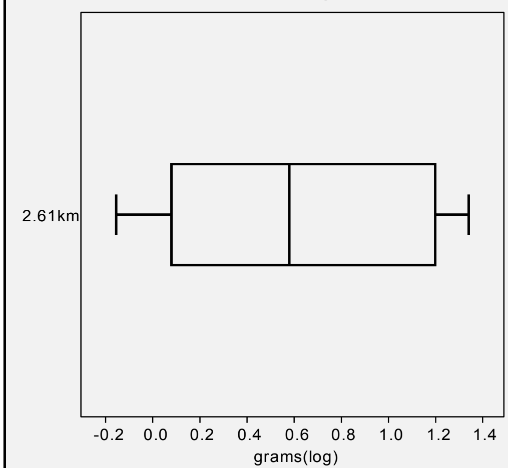
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (2.34km, n=19)



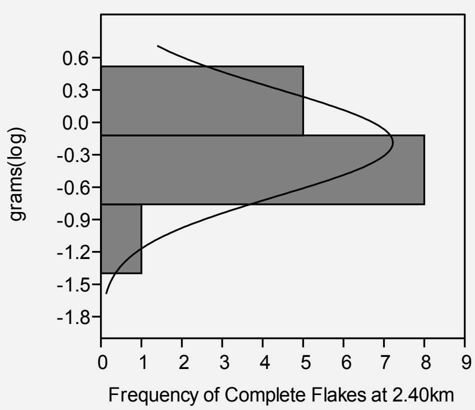
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (2.40km, n=12)



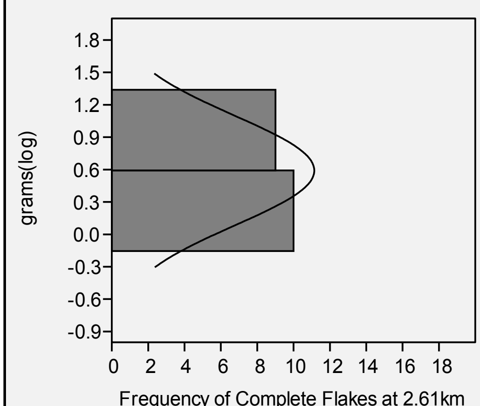
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (2.61km, n=19)



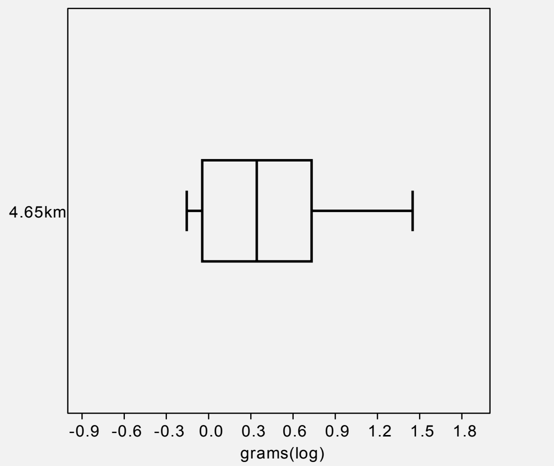
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (2.40km, n=12)



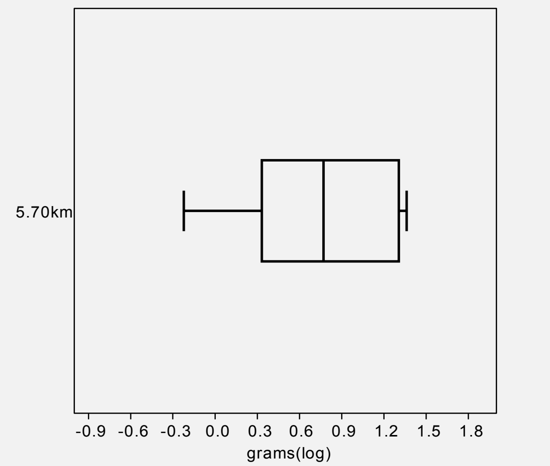
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (2.61km, n=19)



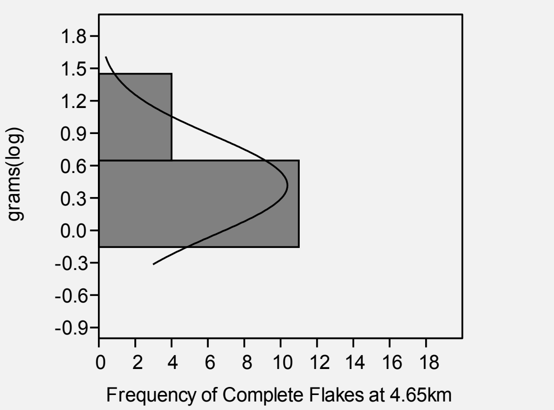
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (4.65km, n=15)



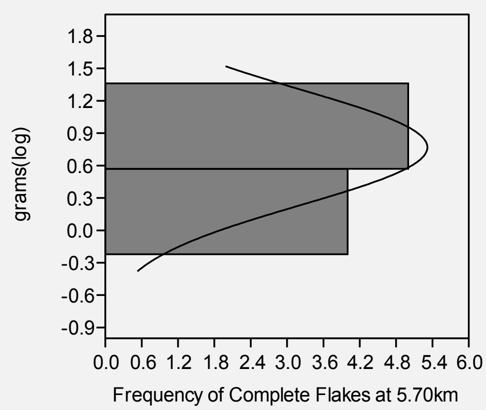
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (5.70km, n=9)



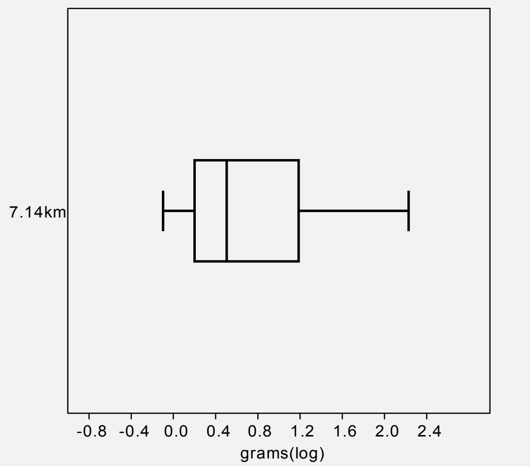
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (4.65km, n=15)



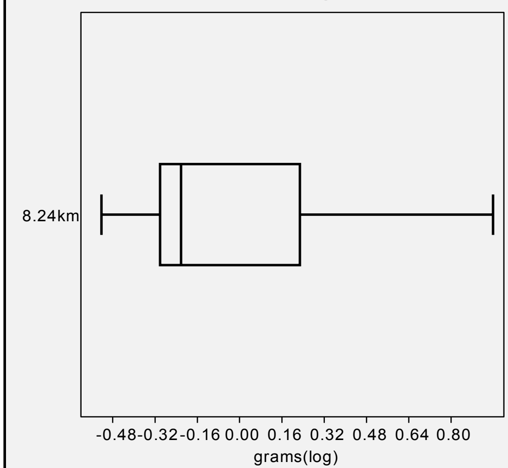
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (5.70km, n=9)



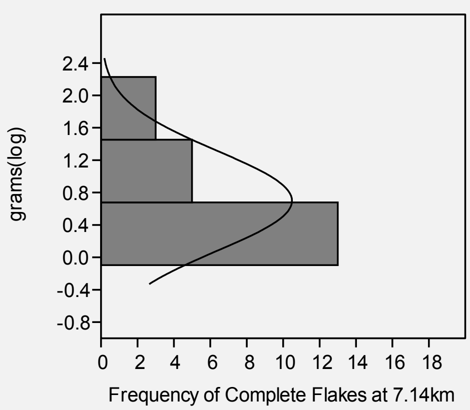
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (7.14km, n=21)



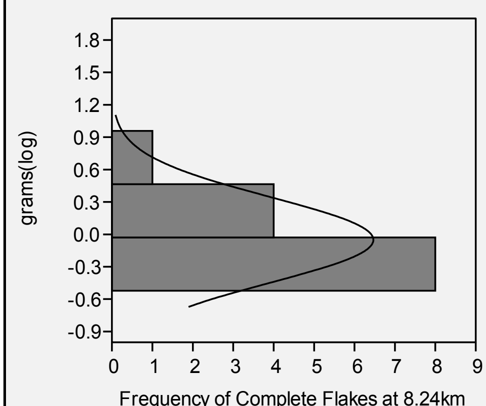
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (8.24km, n=13)

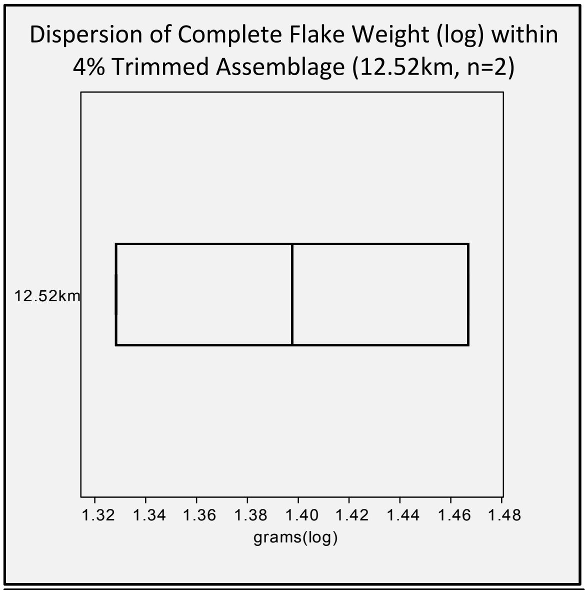


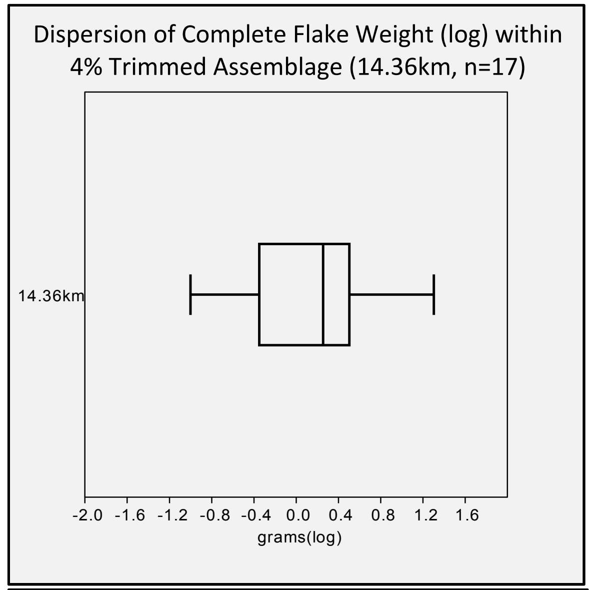
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (7.14km, n=21)

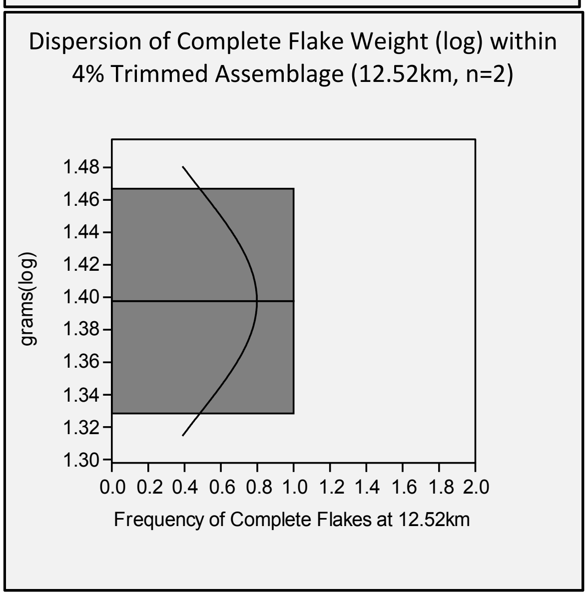


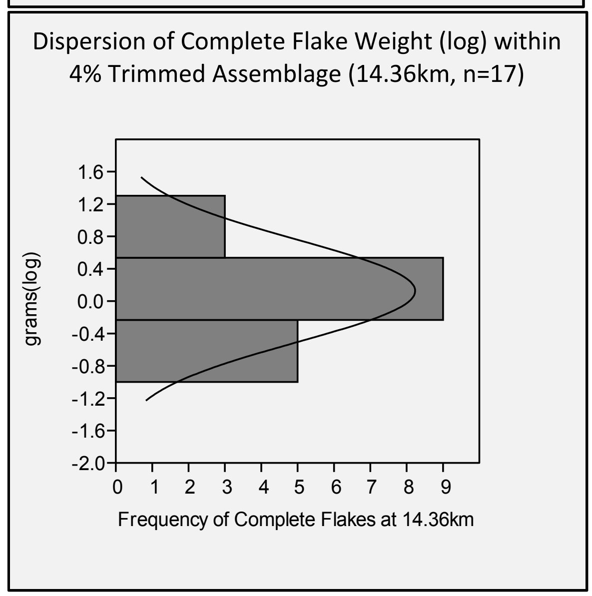
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (8.24km, n=13)



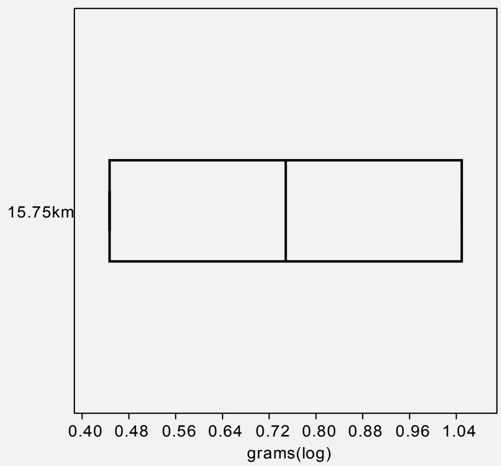

Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (12.52km, n=2)
12.52km
1.32 1.34 1.36 1.38 1.40 1.42 1.44 1.46 1.48
grams(log)


Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (14.36km, n=17)
14.36km
-2.0 -1.6 -1.2 -0.8 -0.4 0.0 0.4 0.8 1.2 1.6
grams(log)

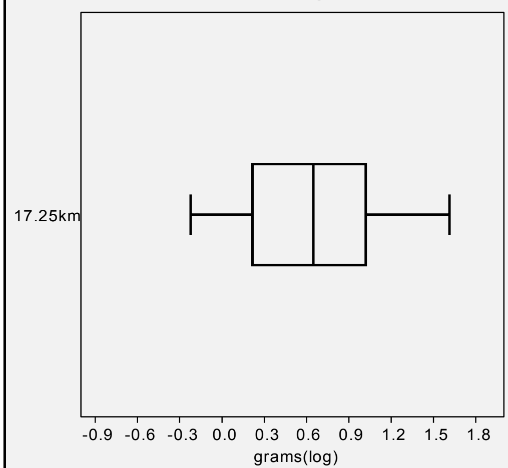

Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (12.52km, n=2)
grams(log)
1.48 1.46 1.44 1.42 1.40 1.38 1.36 1.34 1.32 1.30
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0
Frequency of Complete Flakes at 12.52km


Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (14.36km, n=17)
grams(log)
1.6 1.2 0.8 0.4 0.0 -0.4 -0.8 -1.2 -1.6 -2.0
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 14.36km

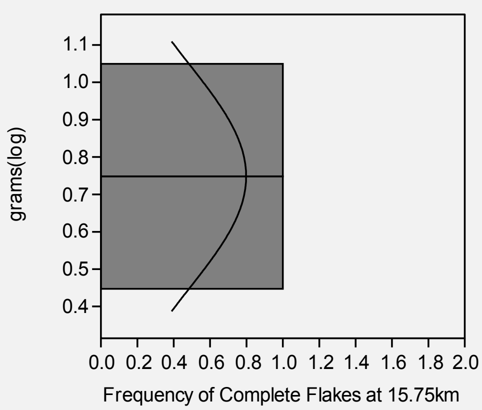
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (15.75km, n=2)



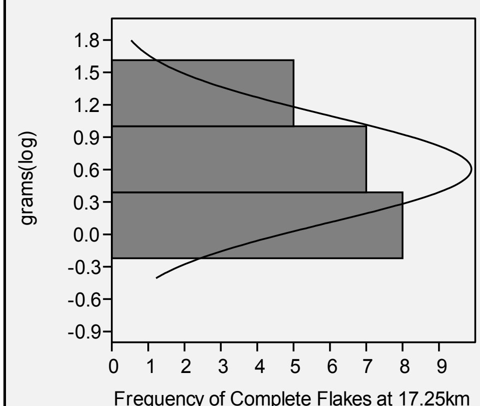
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (17.25km, n=20)



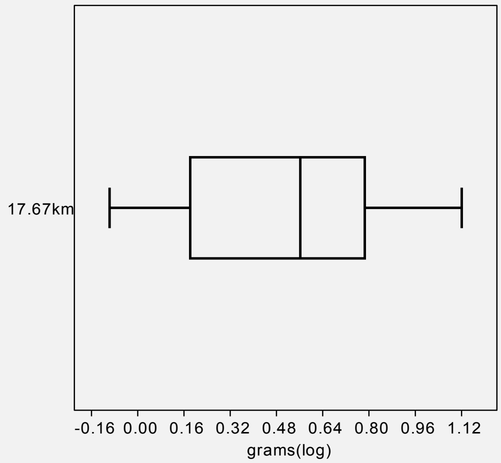
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (15.75km, n=2)



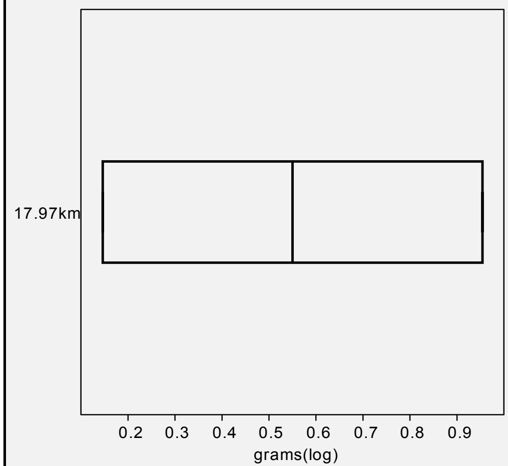
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (17.25km, n=20)



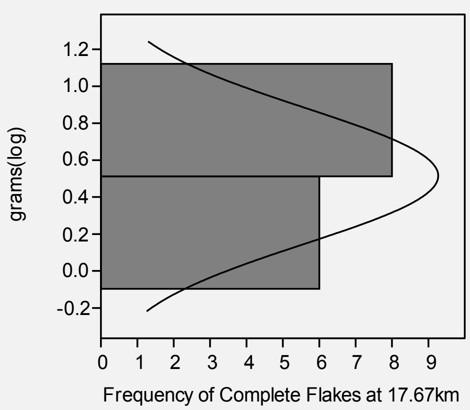
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (17.67km, n=14)



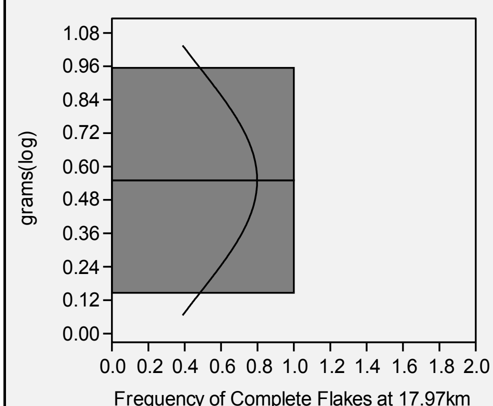
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (17.97km, n=2)



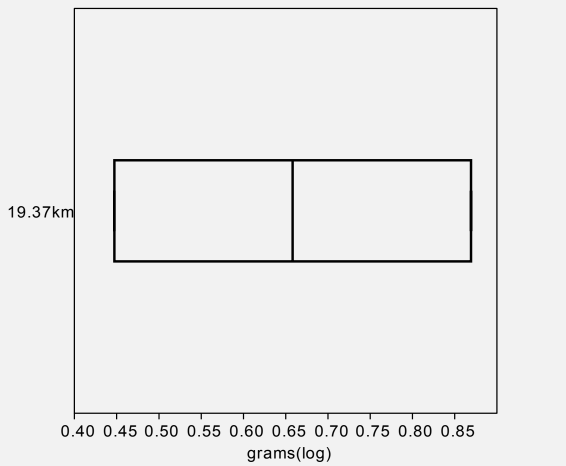
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (17.67km, n=14)



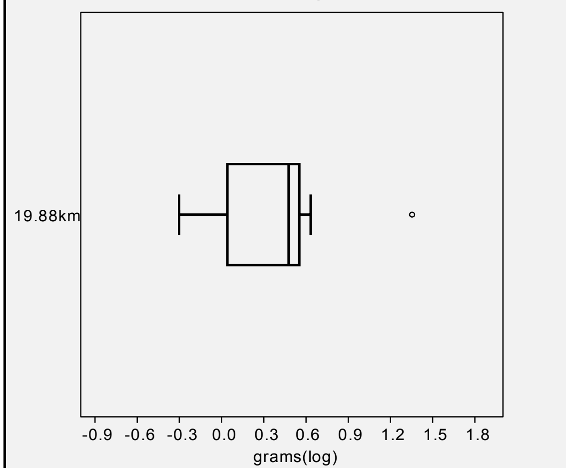
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (17.97km, n=2)



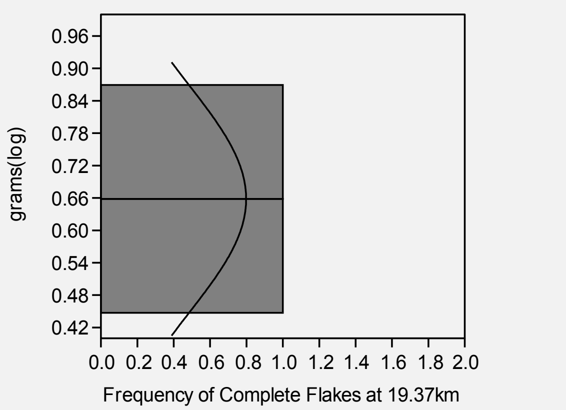
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (19.37km, n=2)



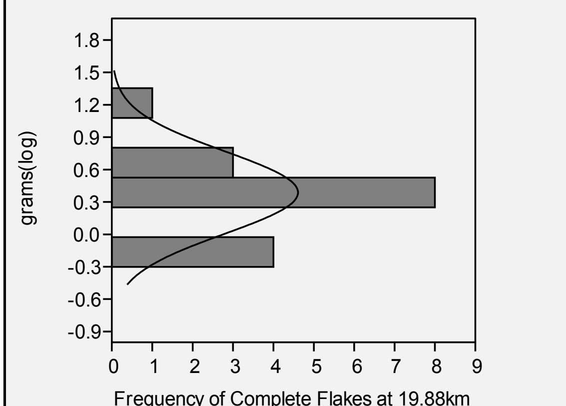
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (19.88km, n=16)



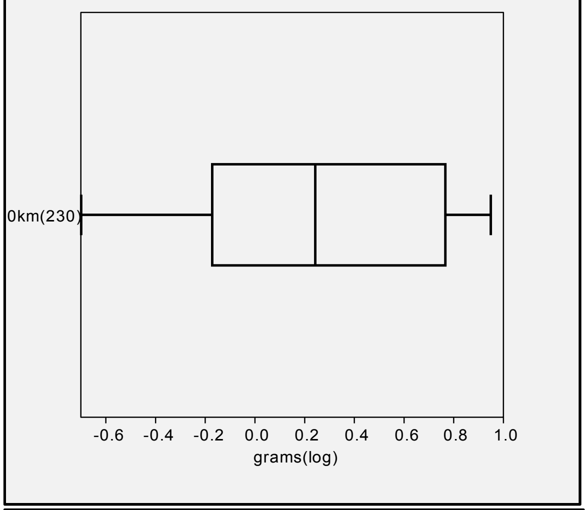
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (19.37km, n=2)



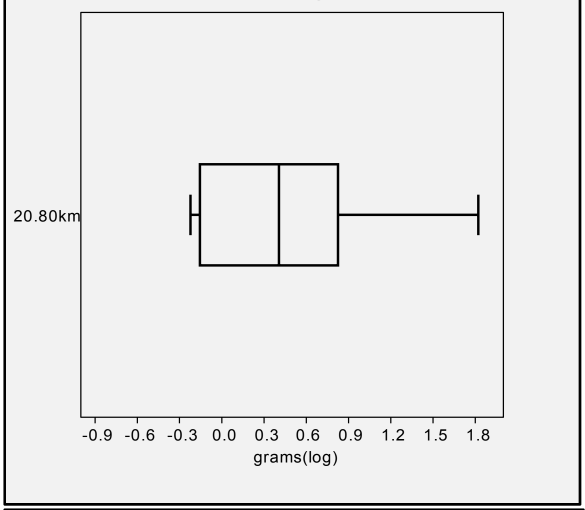
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (19.88km, n=16)



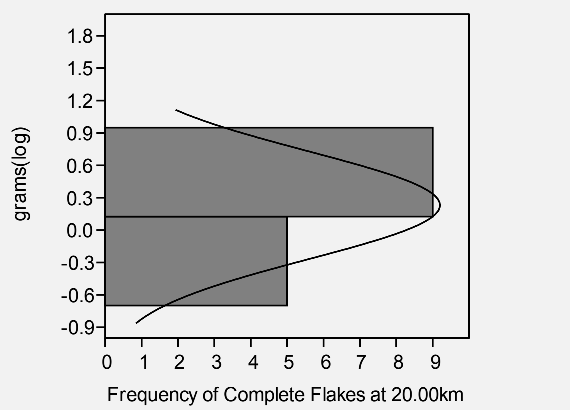
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (20.00km[Acc230], n=14)



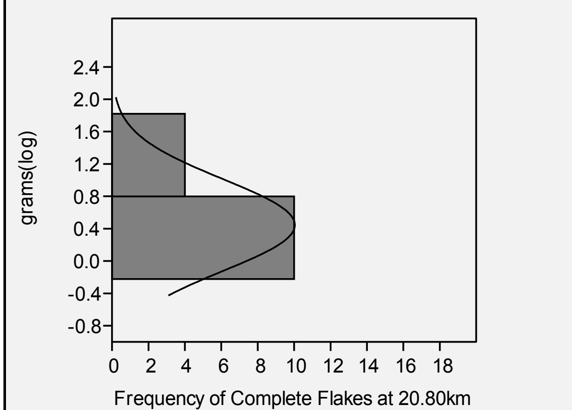
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (20.80km, n=14)



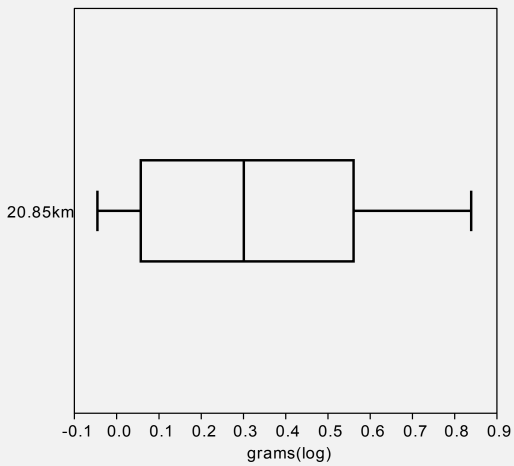
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (20.00km[Acc230], n=14)



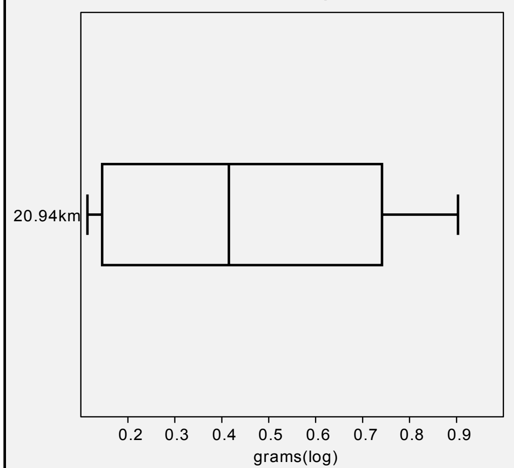
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (20.80km, n=14)



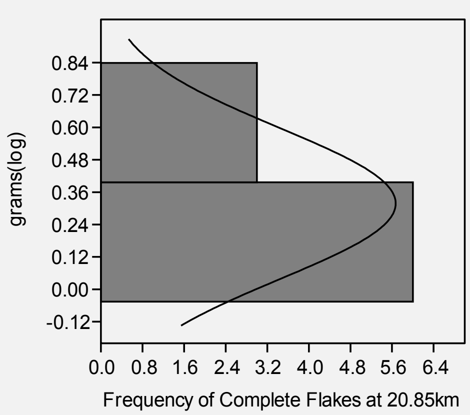
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (20.85km, n=9)



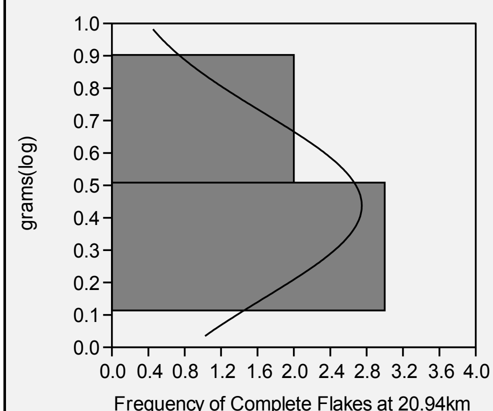
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (20.94km, n=5)



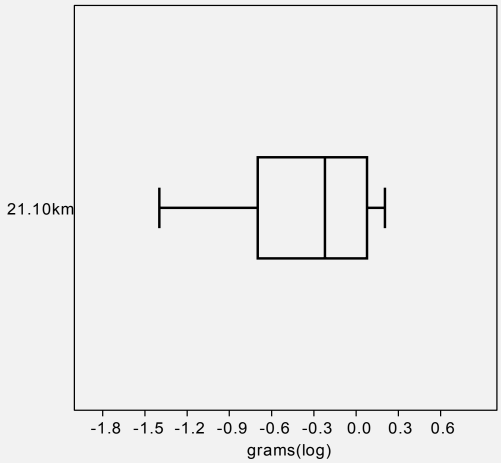
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (20.85km, n=9)



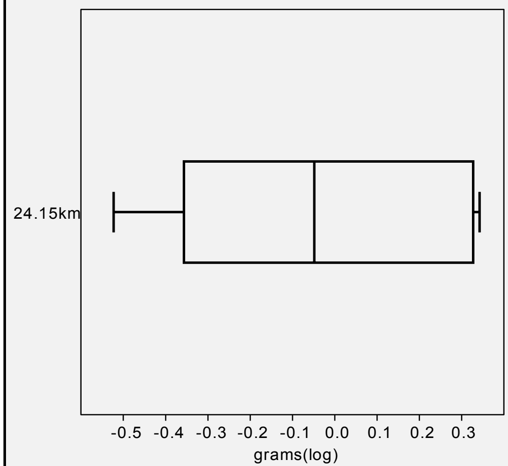
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (20.94km, n=5)



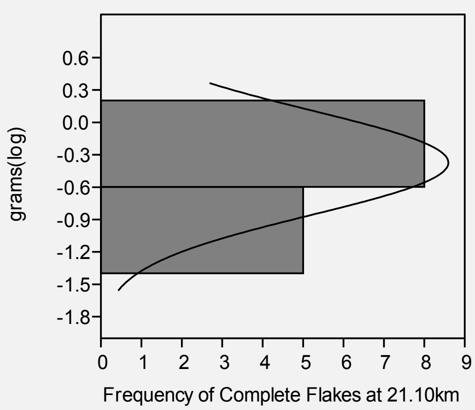
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (21.10km, n=13)



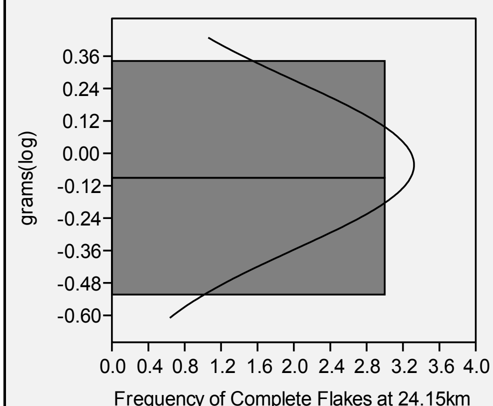
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (24.15km, n=6)

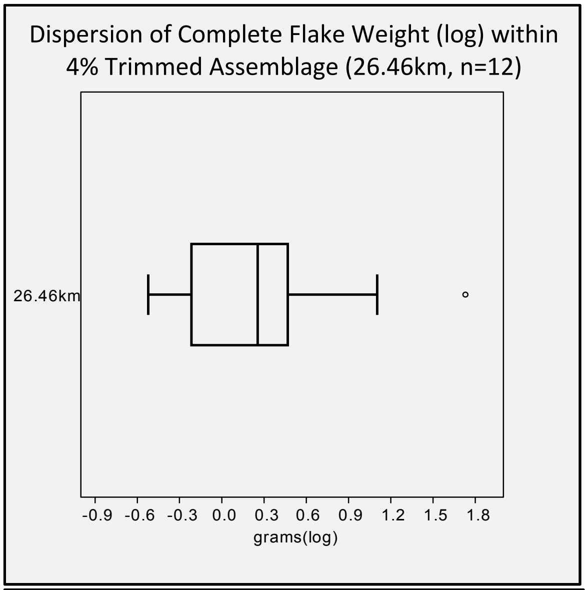


Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (21.10km, n=13)

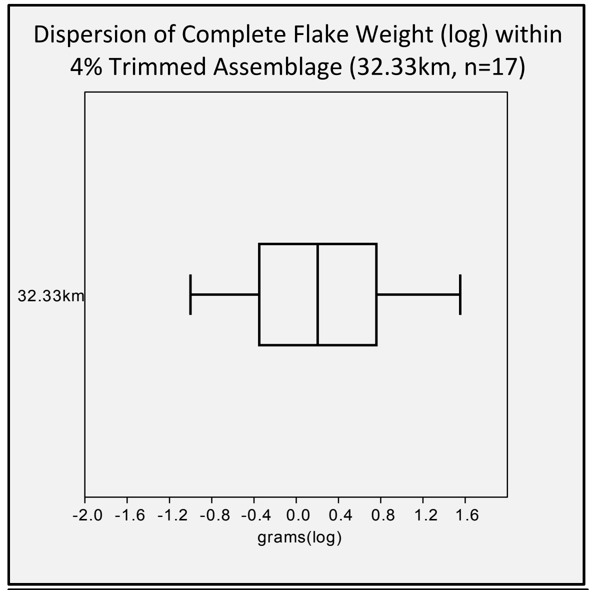


Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (24.15km, n=6)

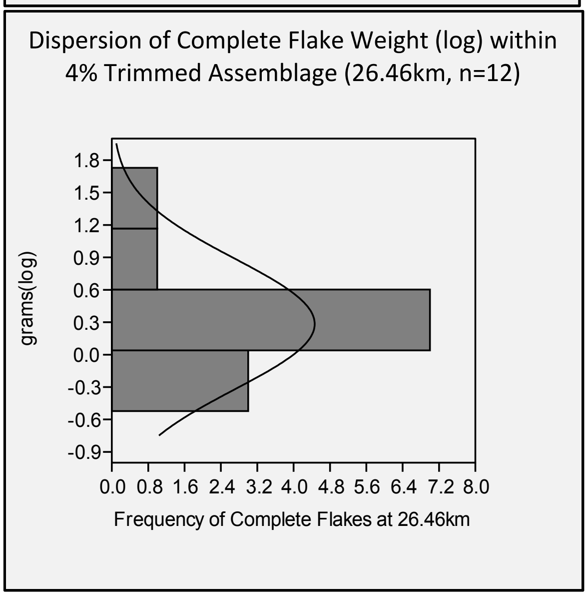




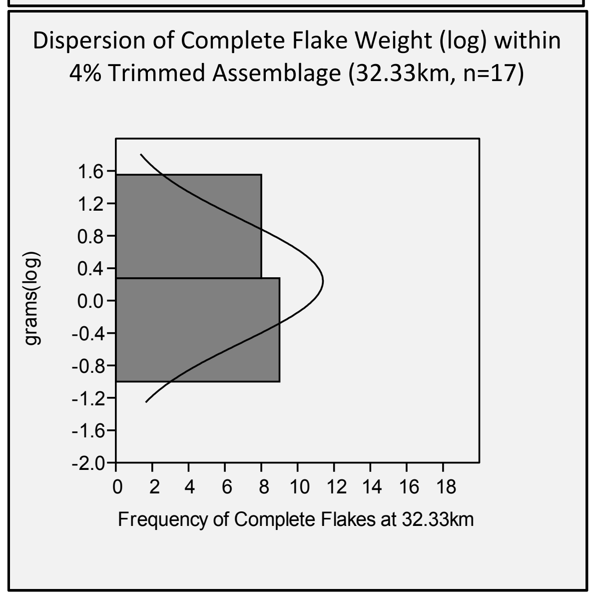
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (26.46km, n=12)



Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (32.33km, n=17)

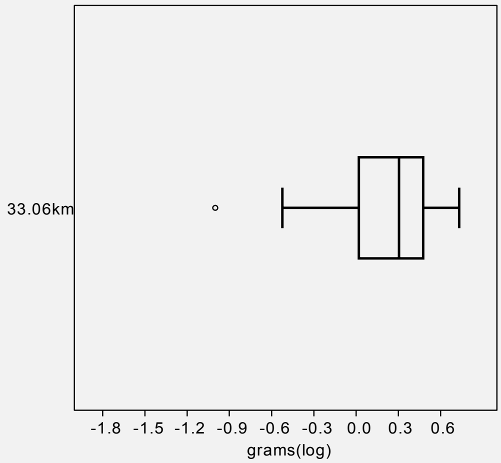


Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (26.46km, n=12)

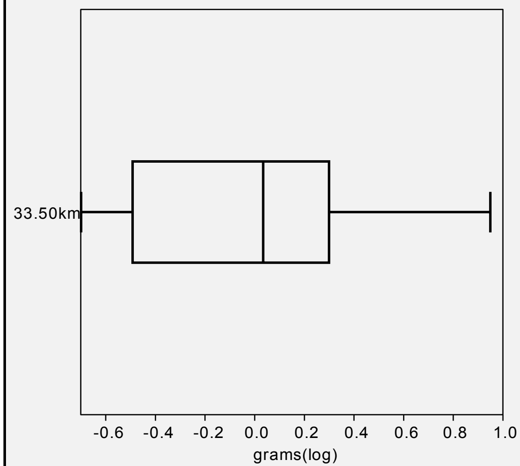


Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (32.33km, n=17)

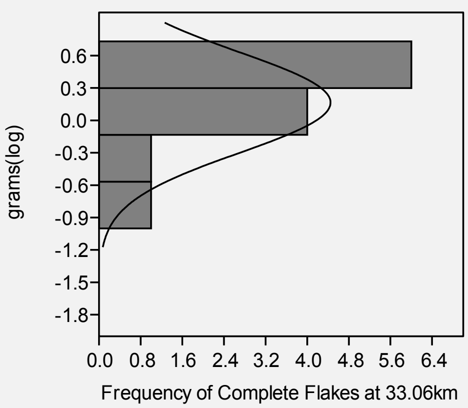
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (33.06km, n=12)



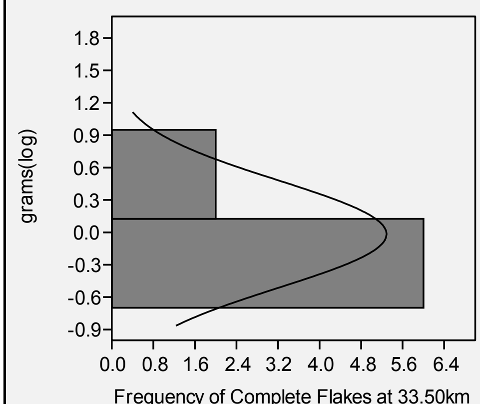
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (33.50km, n=8)

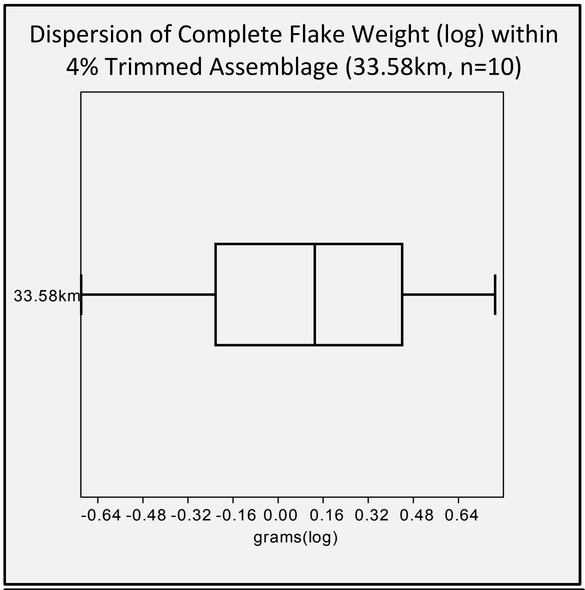


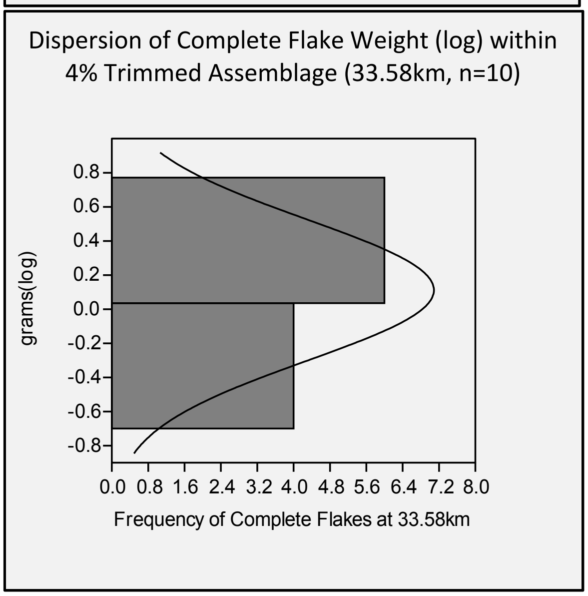
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (33.06km, n=12)



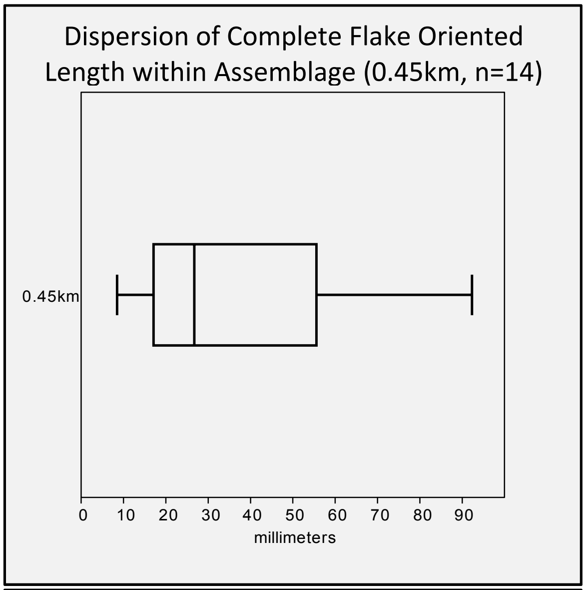
Dispersion of Complete Flake Weight (log) within 4% Trimmed Assemblage (33.50km, n=8)

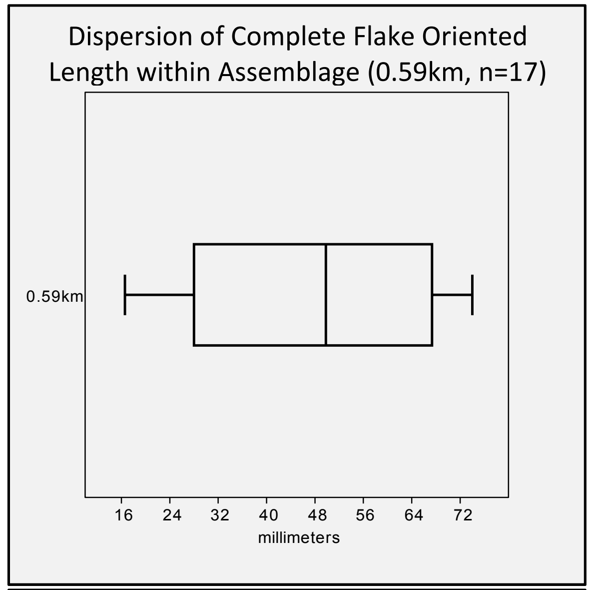


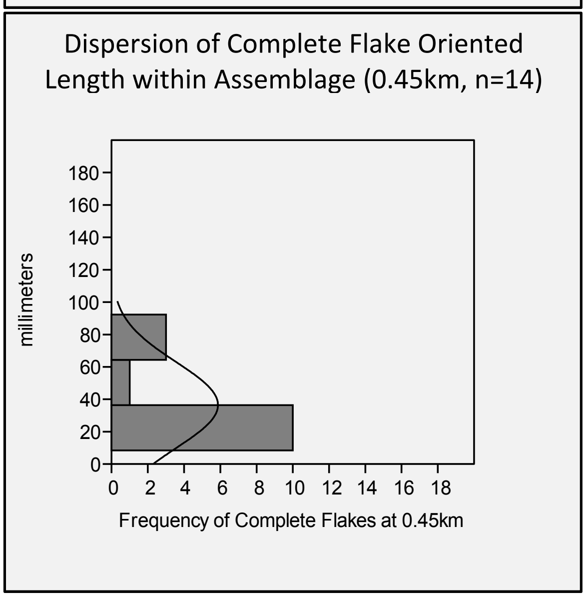

Dispersion of Complete Flake Weight (log) within
4% Trimmed Assemblage (33.58km, n=10)
33.58km
-0.64 -0.48 -0.32 -0.16 0.00 0.16 0.32 0.48 0.64
grams(log)

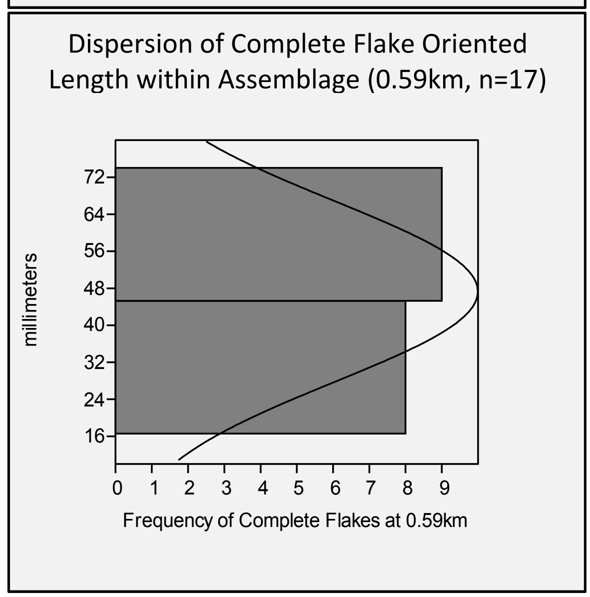

Dispersion of Complete Flake Weight (log) within
4% Trimmed Assemblage (33.58km, n=10)
grams(log)
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0
Frequency of Complete Flakes at 33.58km

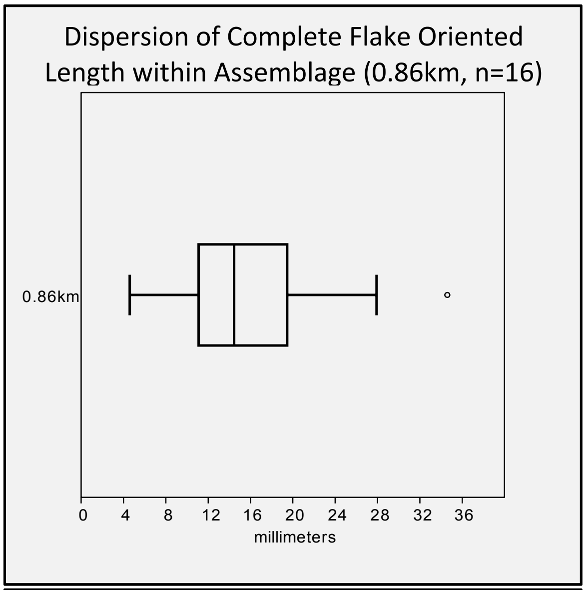
Appendix D: Dispersion of Complete Flake Oriented Length



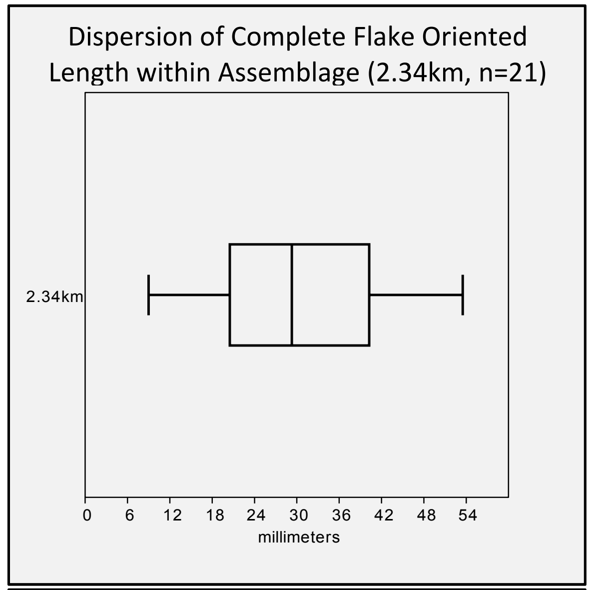




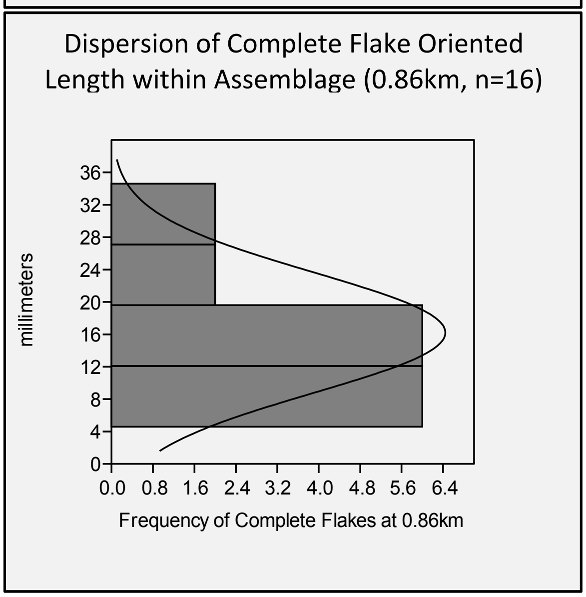




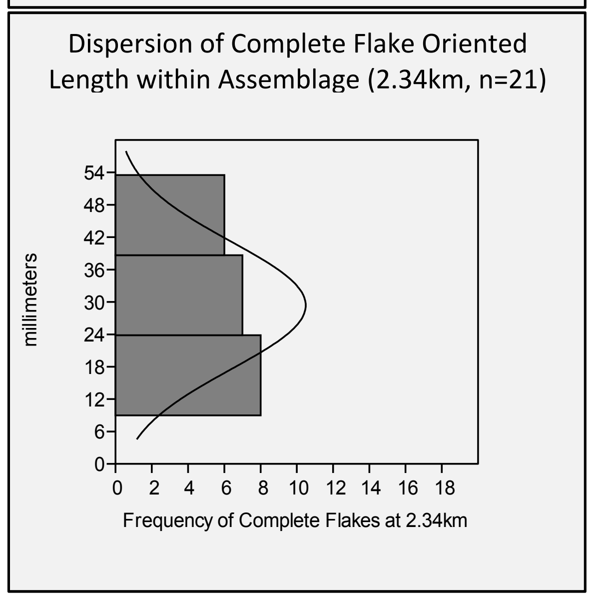
Dispersion of Complete Flake Oriented Length within Assemblage (0.86km, n=16)



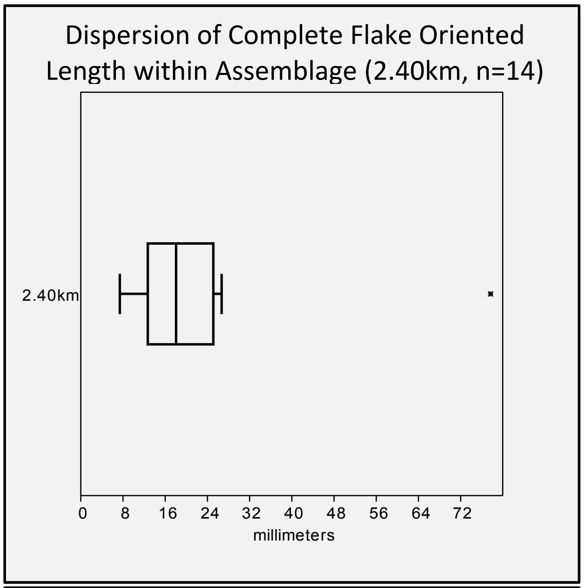
Dispersion of Complete Flake Oriented Length within Assemblage (2.34km, n=21)

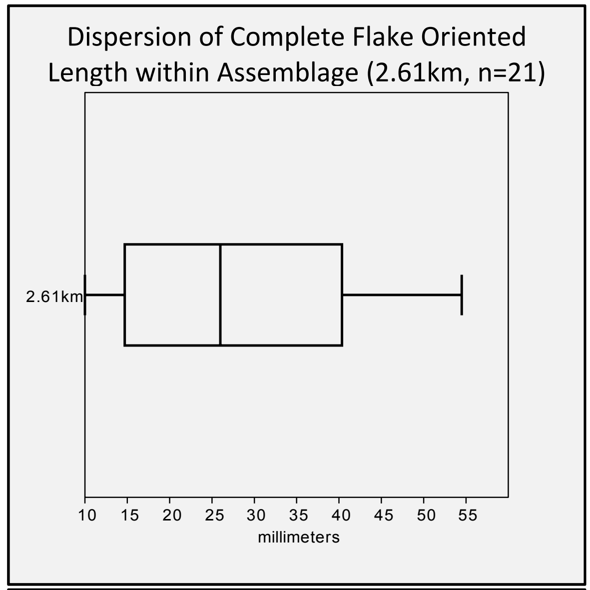


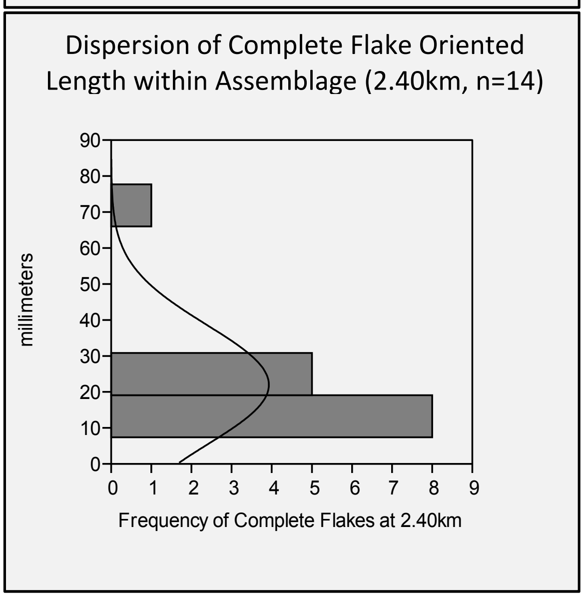
Dispersion of Complete Flake Oriented Length within Assemblage (0.86km, n=16)

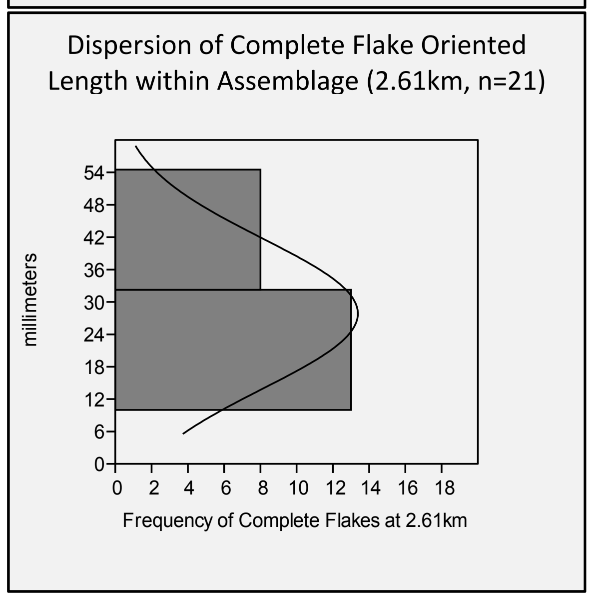


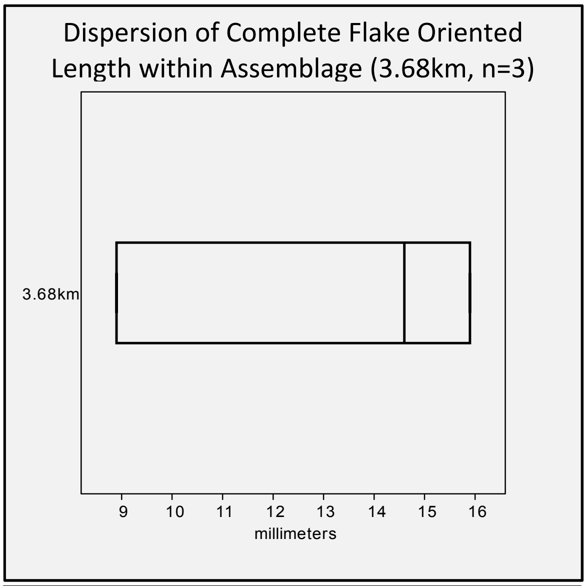
Dispersion of Complete Flake Oriented Length within Assemblage (2.34km, n=21)

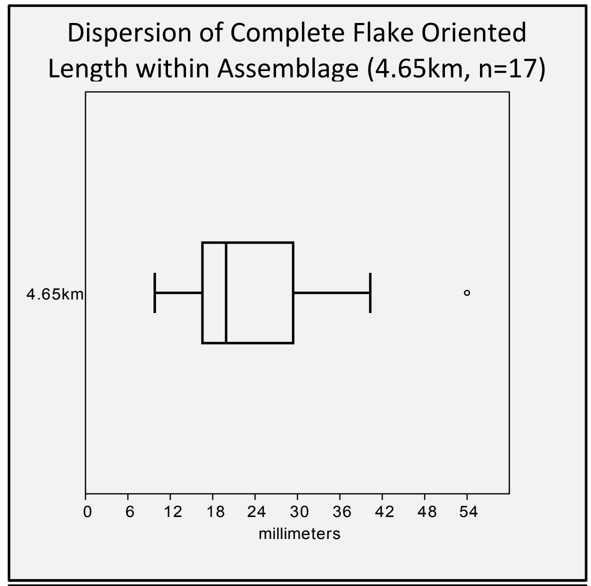

Dispersion of Complete Flake Oriented
Length within Assemblage (2.40km, n=14)
2.40km
0 8 16 24 32 40 48 56 64 72
millimeters

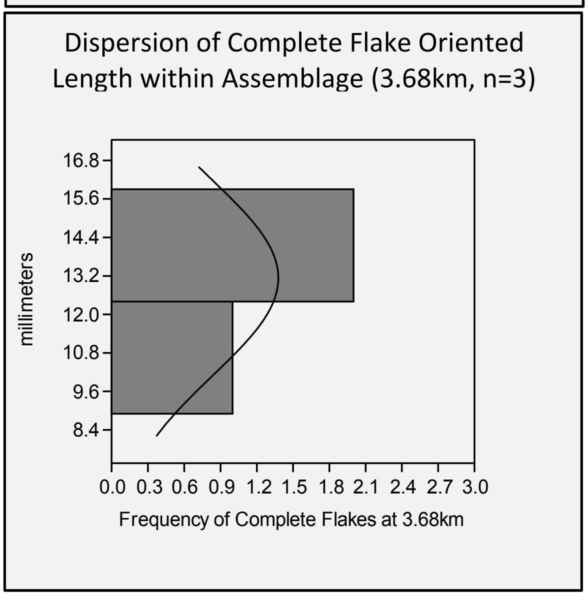

Dispersion of Complete Flake Oriented
Length within Assemblage (2.61km, n=21)
2.61km
10 15 20 25 30 35 40 45 50 55
millimeters

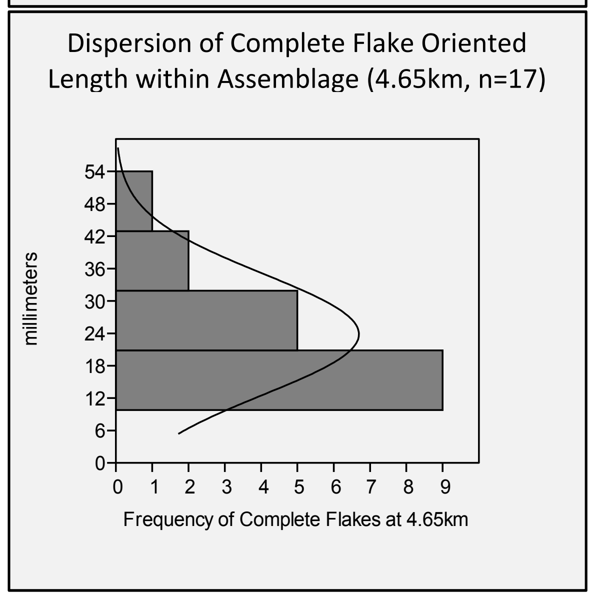

Dispersion of Complete Flake Oriented
Length within Assemblage (2.40km, n=14)
millimeters
0 10 20 30 40 50 60 70 80 90
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 2.40km


Dispersion of Complete Flake Oriented
Length within Assemblage (2.61km, n=21)
millimeters
0 6 12 18 24 30 36 42 48 54
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 2.61km

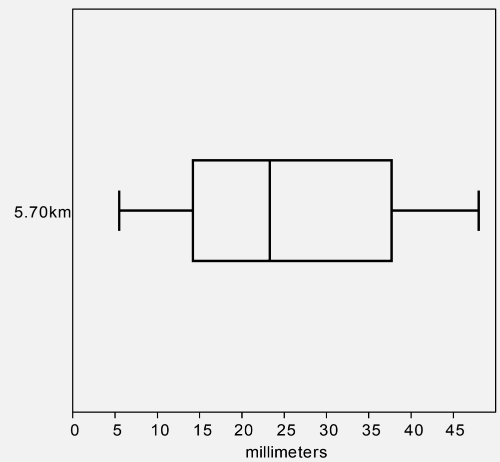

Dispersion of Complete Flake Oriented Length within Assemblage (3.68km, n=3)
3.68km
9 10 11 12 13 14 15 16
millimeters


Dispersion of Complete Flake Oriented Length within Assemblage (4.65km, n=17)
4.65km
0 6 12 18 24 30 36 42 48 54
millimeters

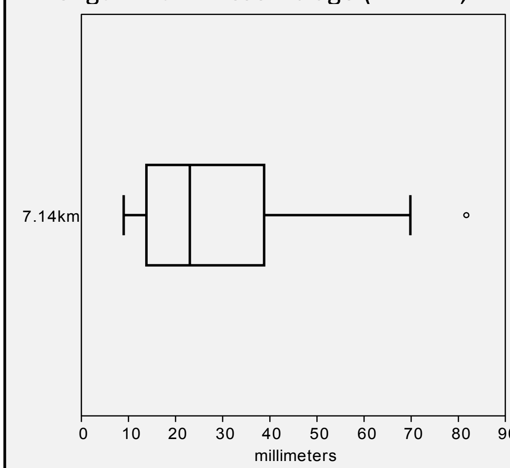

Dispersion of Complete Flake Oriented Length within Assemblage (3.68km, n=3)
millimeters
16.8 15.6 14.4 13.2 12.0 10.8 9.6 8.4
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0
Frequency of Complete Flakes at 3.68km


Dispersion of Complete Flake Oriented Length within Assemblage (4.65km, n=17)
millimeters
54 48 42 36 30 24 18 12 6 0
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 4.65km

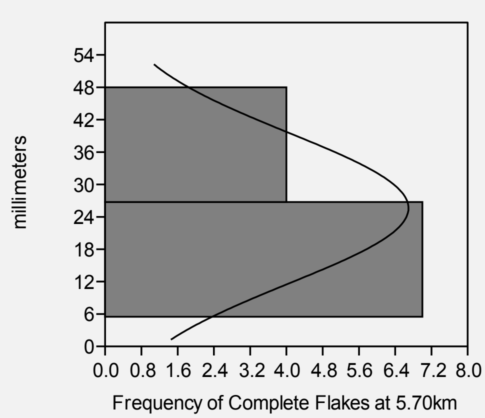
Dispersion of Complete Flake Oriented Length within Assemblage (5.70km, n=11)



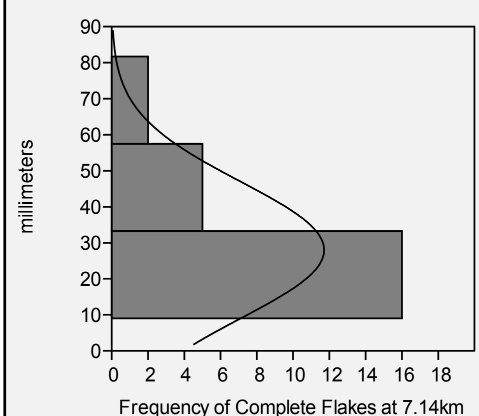
Dispersion of Complete Flake Oriented Length within Assemblage (7.14km, n=23)



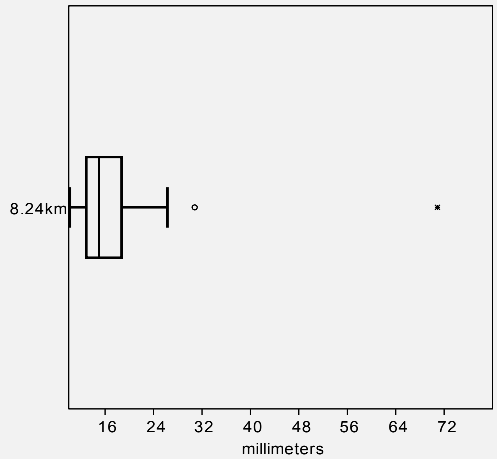
Dispersion of Complete Flake Oriented Length within Assemblage (5.70km, n=11)



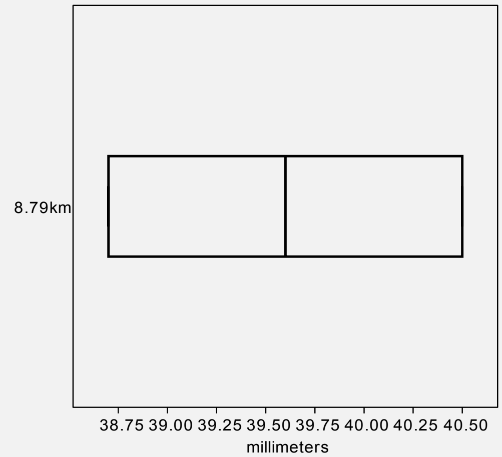
Dispersion of Complete Flake Oriented Length within Assemblage (7.14km, n=23)



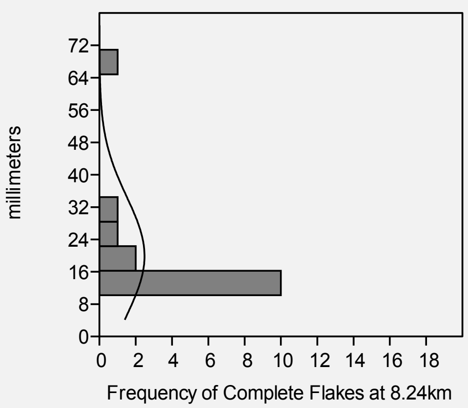
Dispersion of Complete Flake Oriented Length within Assemblage (8.24km, n=15)



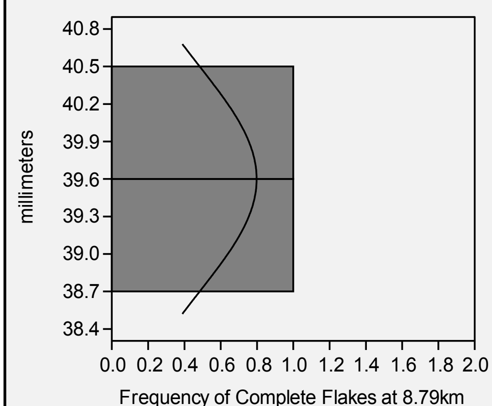
Dispersion of Complete Flake Oriented Length within Assemblage (8.79km, n=2)

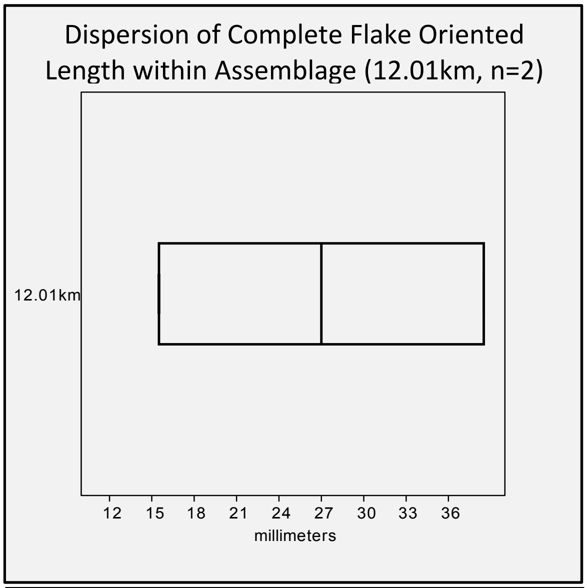


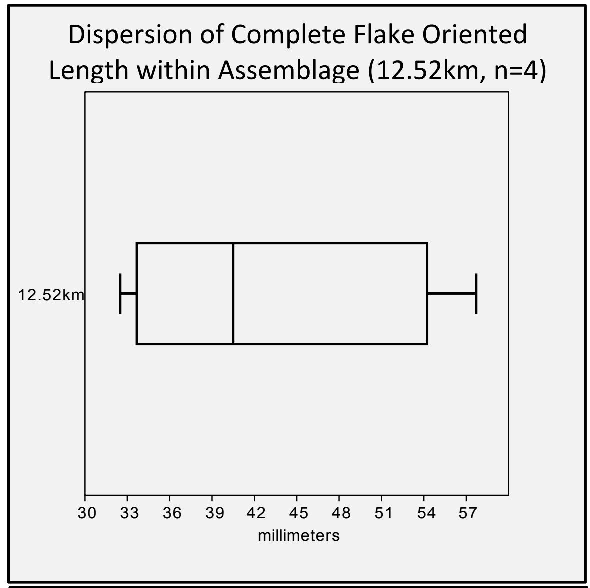
Dispersion of Complete Flake Oriented Length within Assemblage (8.24km, n=15)

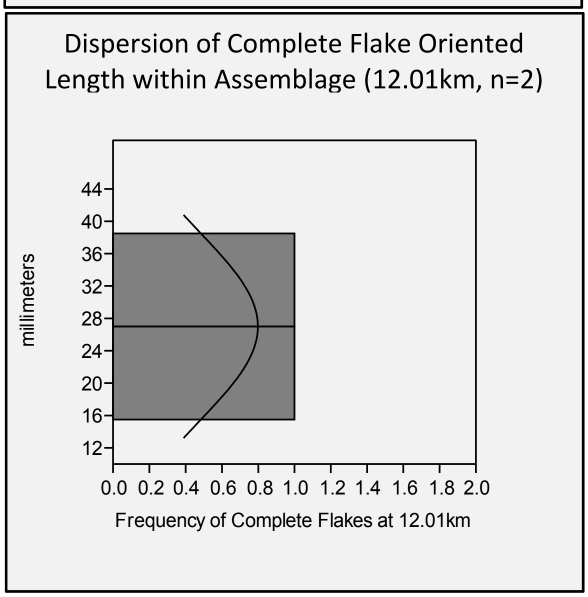


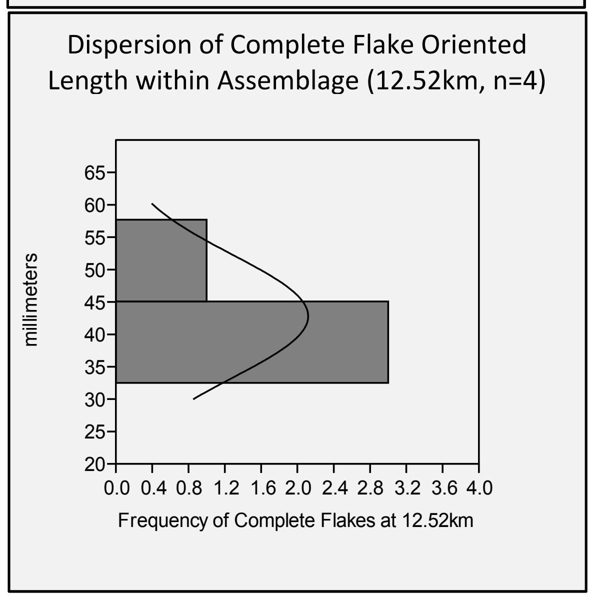
Dispersion of Complete Flake Oriented Length within Assemblage (8.79km, n=2)

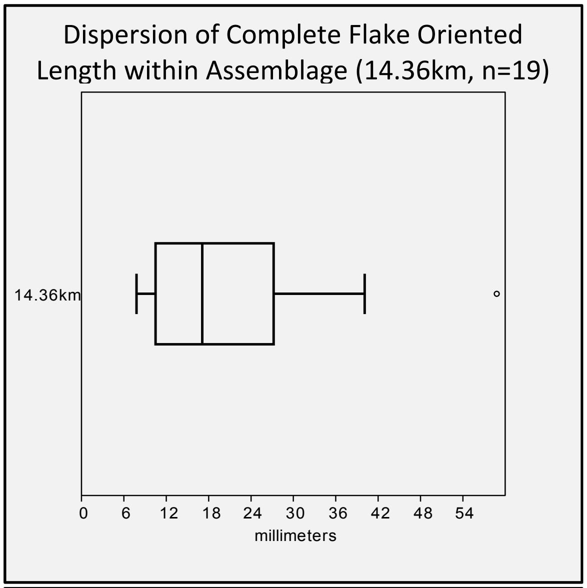


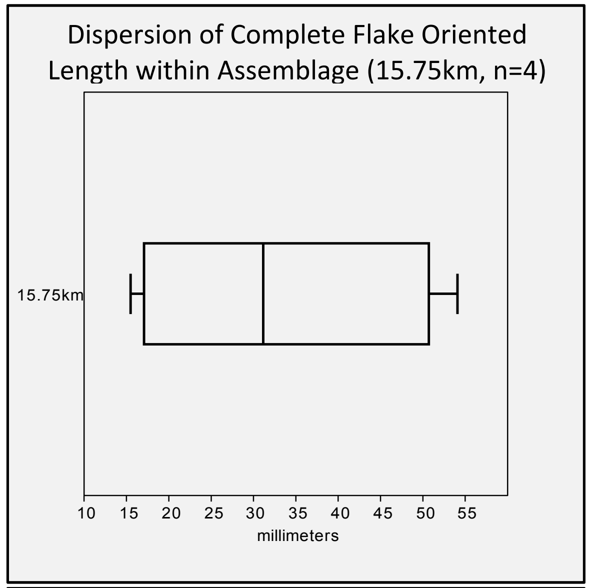

Dispersion of Complete Flake Oriented Length within Assemblage (12.01km, n=2)
12.01km
12 15 18 21 24 27 30 33 36
millimeters

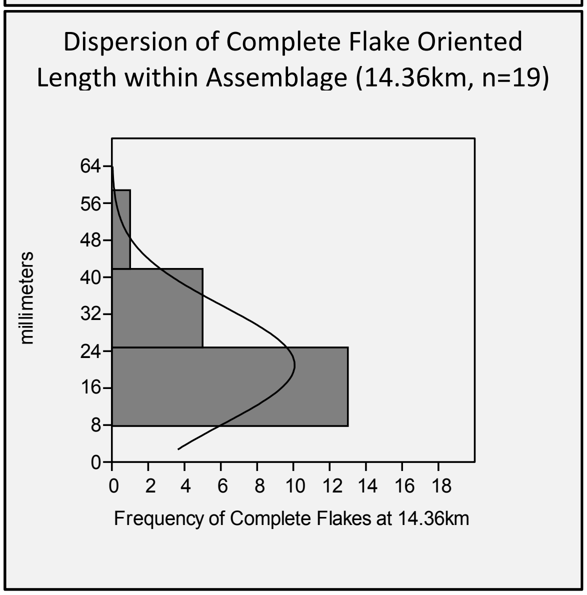

Dispersion of Complete Flake Oriented Length within Assemblage (12.52km, n=4)
12.52km
30 33 36 39 42 45 48 51 54 57
millimeters

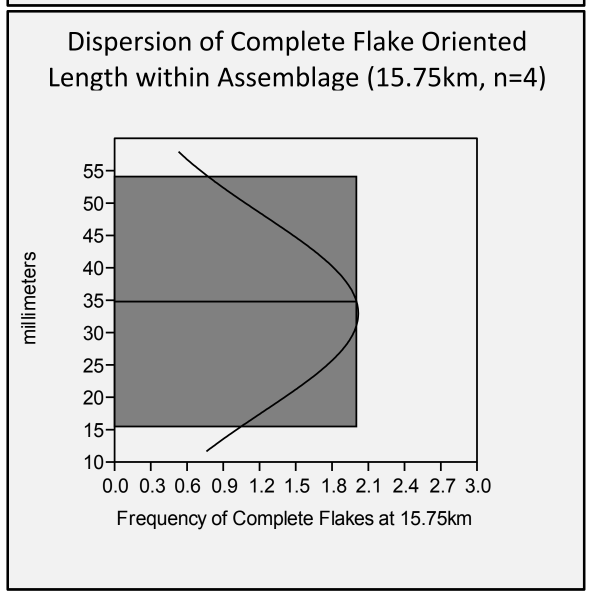

Dispersion of Complete Flake Oriented Length within Assemblage (12.01km, n=2)
millimeters
44 40 36 32 28 24 20 16 12
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0
Frequency of Complete Flakes at 12.01km


Dispersion of Complete Flake Oriented Length within Assemblage (12.52km, n=4)
millimeters
65 60 55 50 45 40 35 30 25 20
0.0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0
Frequency of Complete Flakes at 12.52km

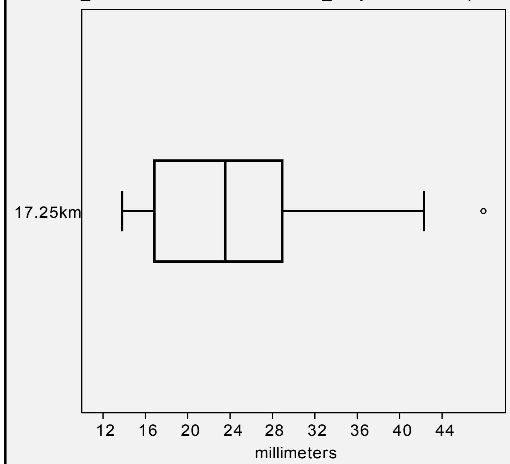

Dispersion of Complete Flake Oriented Length within Assemblage (14.36km, n=19)
14.36km
0 6 12 18 24 30 36 42 48 54
millimeters


Dispersion of Complete Flake Oriented Length within Assemblage (15.75km, n=4)
15.75km
10 15 20 25 30 35 40 45 50 55
millimeters

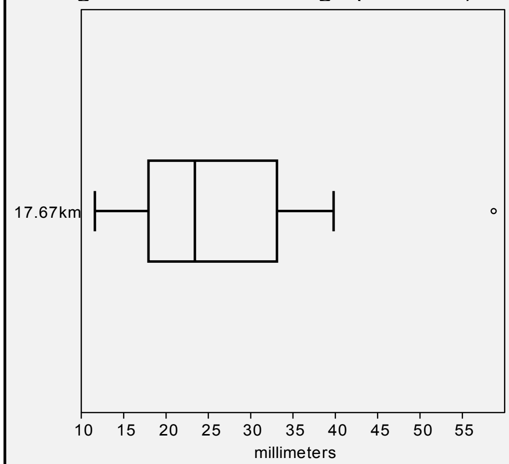

Dispersion of Complete Flake Oriented Length within Assemblage (14.36km, n=19)
millimeters
0 8 16 24 32 40 48 56 64
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 14.36km


Dispersion of Complete Flake Oriented Length within Assemblage (15.75km, n=4)
millimeters
10 15 20 25 30 35 40 45 50 55
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0
Frequency of Complete Flakes at 15.75km

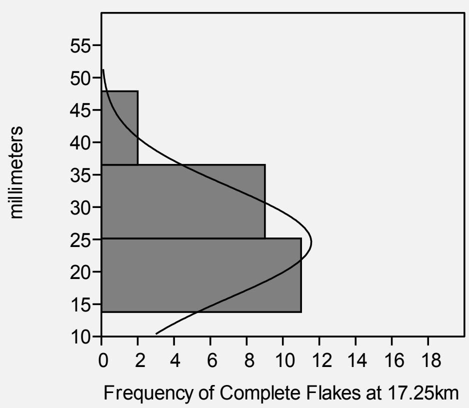
Dispersion of Complete Flake Oriented Length within Assemblage (17.25km, n=22)



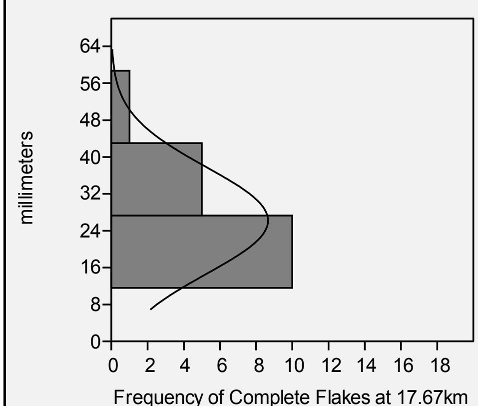
Dispersion of Complete Flake Oriented Length within Assemblage (17.67km, n=16)



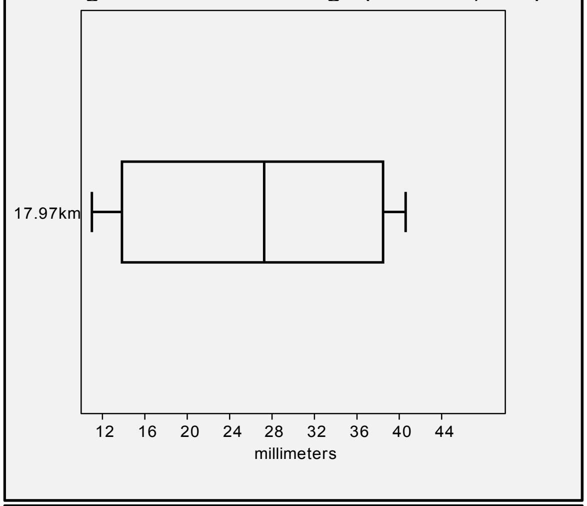
Dispersion of Complete Flake Oriented Length within Assemblage (17.25km, n=22)



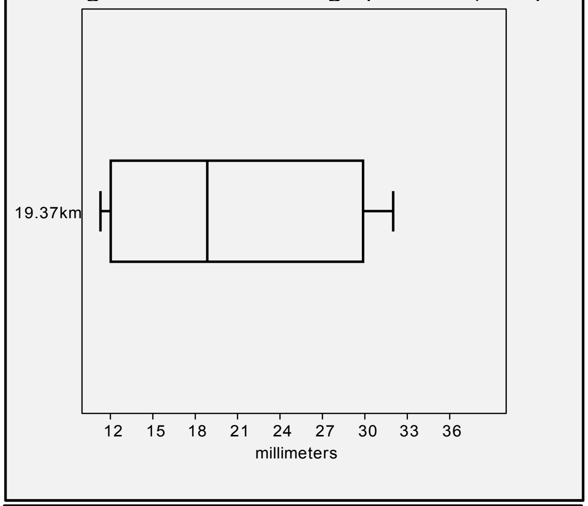
Dispersion of Complete Flake Oriented Length within Assemblage (17.67km, n=16)



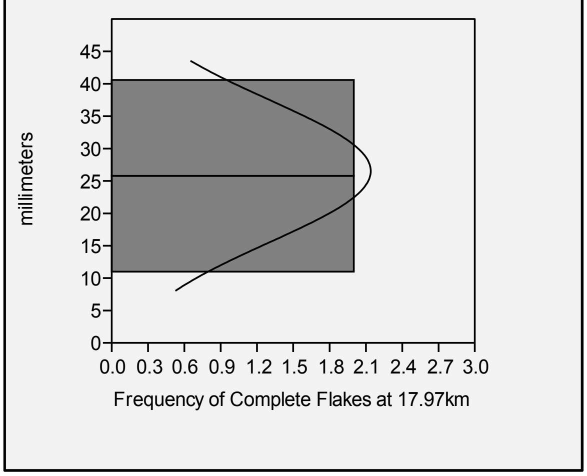
Dispersion of Complete Flake Oriented Length within Assemblage (17.97km, n=4)



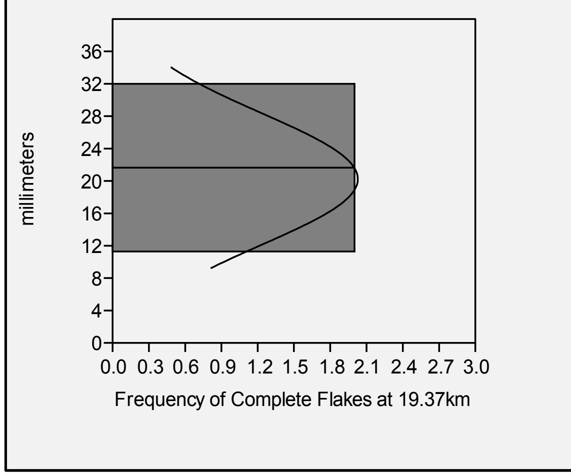
Dispersion of Complete Flake Oriented Length within Assemblage (19.37km, n=4)

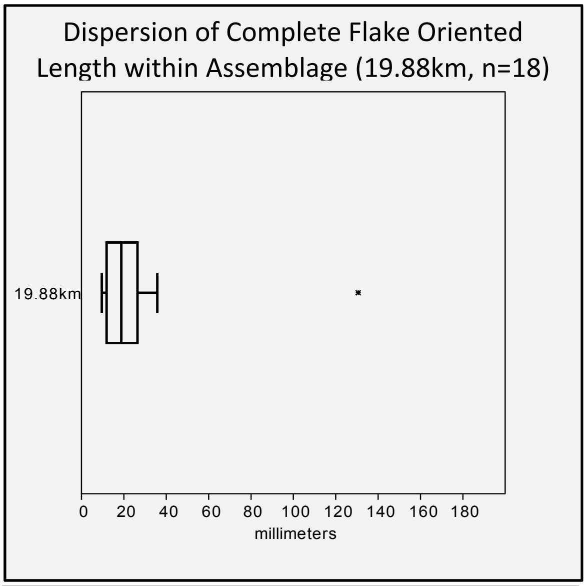


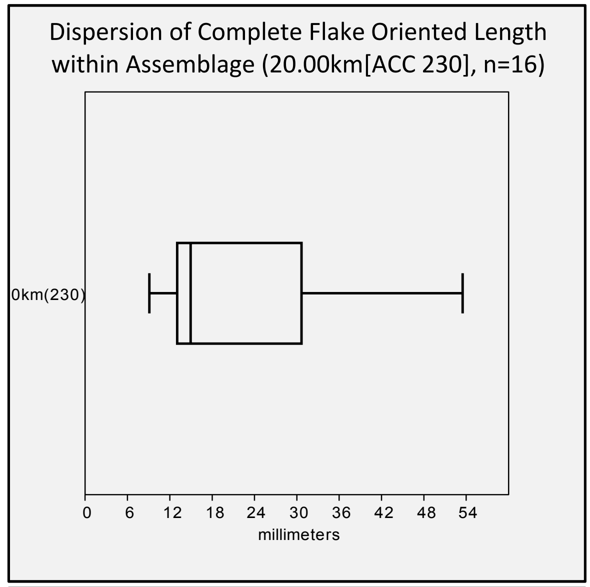
Dispersion of Complete Flake Oriented Length within Assemblage (17.97km, n=4)

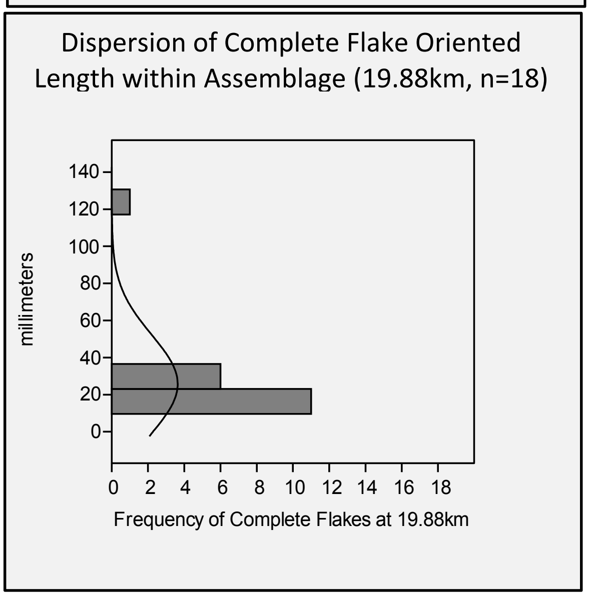


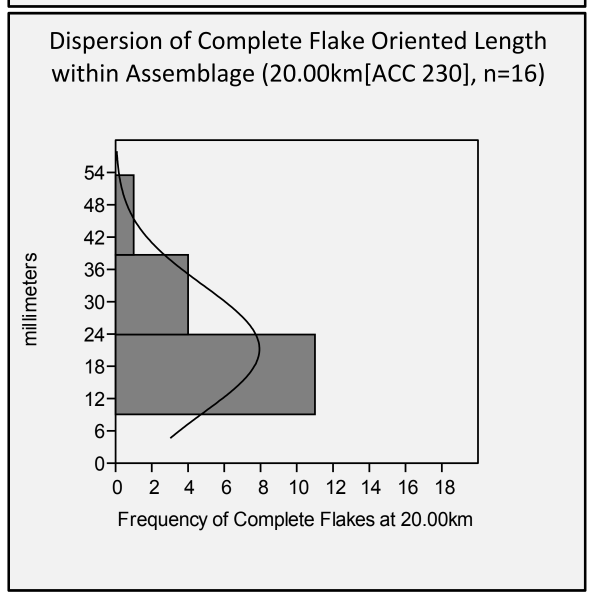
Dispersion of Complete Flake Oriented Length within Assemblage (19.37km, n=4)



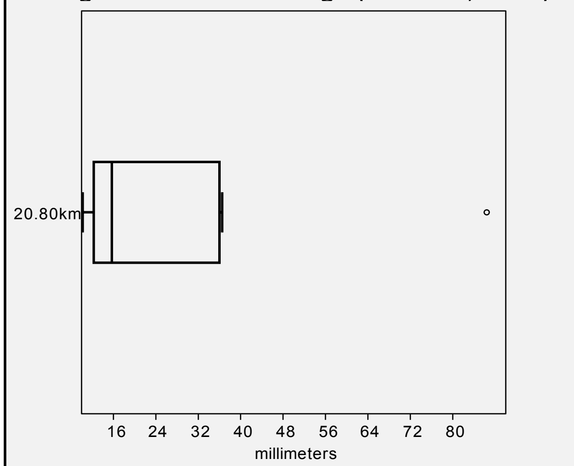

Dispersion of Complete Flake Oriented Length within Assemblage (19.88km, n=18)
19.88km
0 20 40 60 80 100 120 140 160 180
millimeters


Dispersion of Complete Flake Oriented Length within Assemblage (20.00km[ACC 230], n=16)
0km(230)
0 6 12 18 24 30 36 42 48 54
millimeters

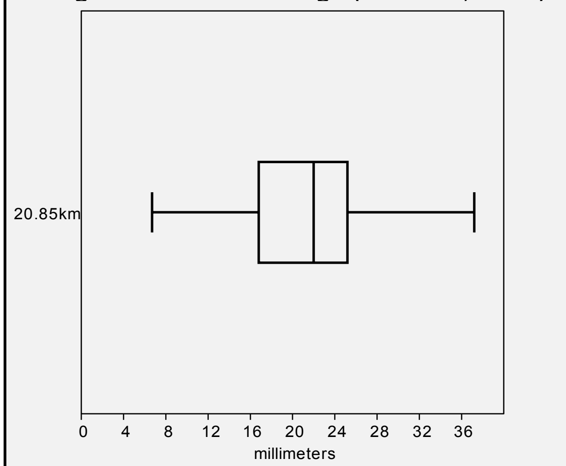

Dispersion of Complete Flake Oriented Length within Assemblage (19.88km, n=18)
millimeters
140 120 100 80 60 40 20 0
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 19.88km


Dispersion of Complete Flake Oriented Length within Assemblage (20.00km[ACC 230], n=16)
millimeters
54 48 42 36 30 24 18 12 6 0
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 20.00km

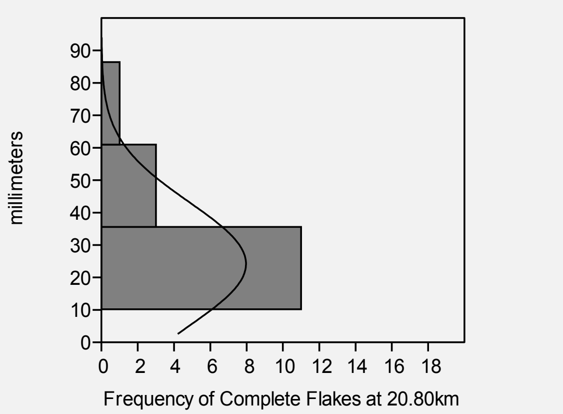
Dispersion of Complete Flake Oriented Length within Assemblage (20.80km, n=15)



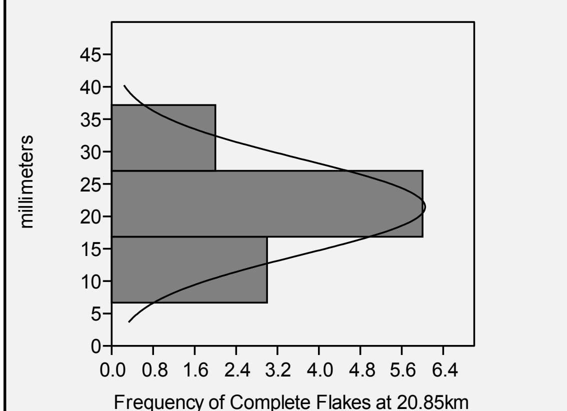
Dispersion of Complete Flake Oriented Length within Assemblage (20.85km, n=11)



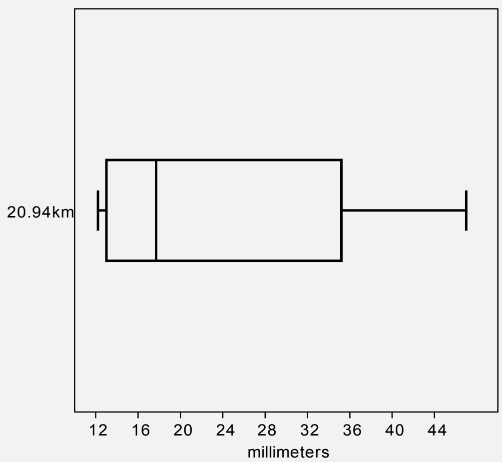
Dispersion of Complete Flake Oriented Length within Assemblage (20.80km, n=15)



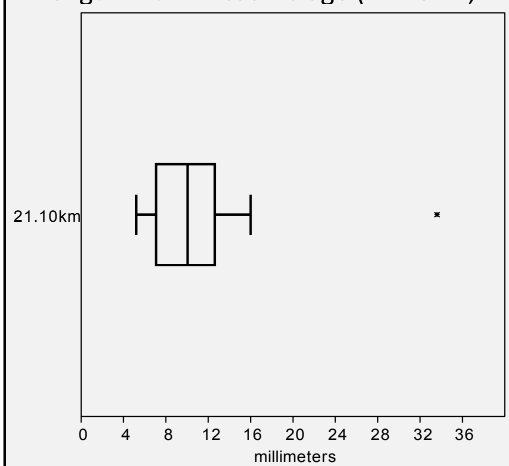
Dispersion of Complete Flake Oriented Length within Assemblage (20.85km, n=11)



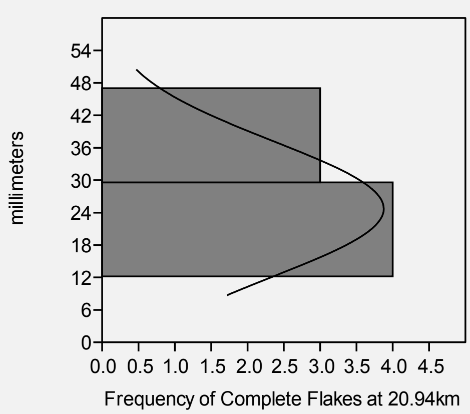
Dispersion of Complete Flake Oriented Length within Assemblage (20.94km, n=7)



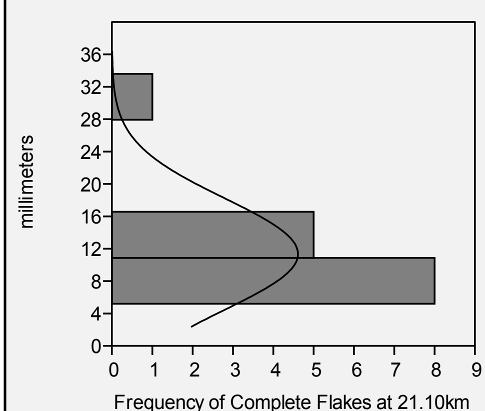
Dispersion of Complete Flake Oriented Length within Assemblage (21.10km, n=14)

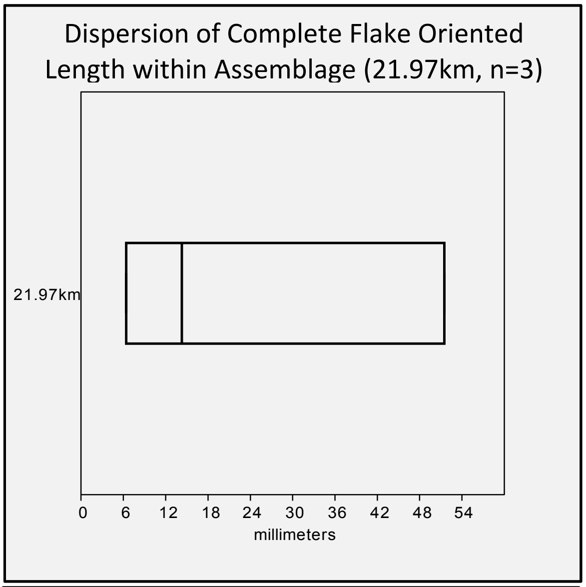


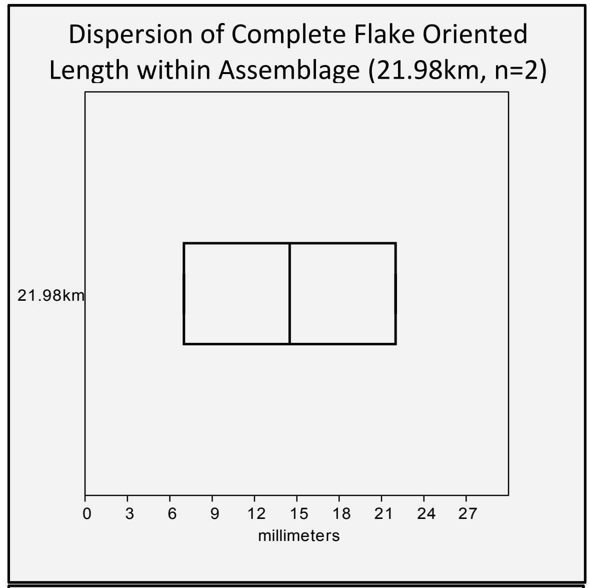
Dispersion of Complete Flake Oriented Length within Assemblage (20.94km, n=7)

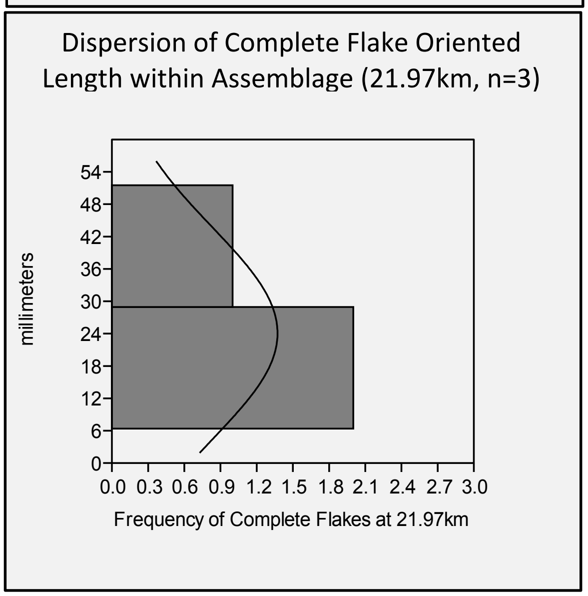


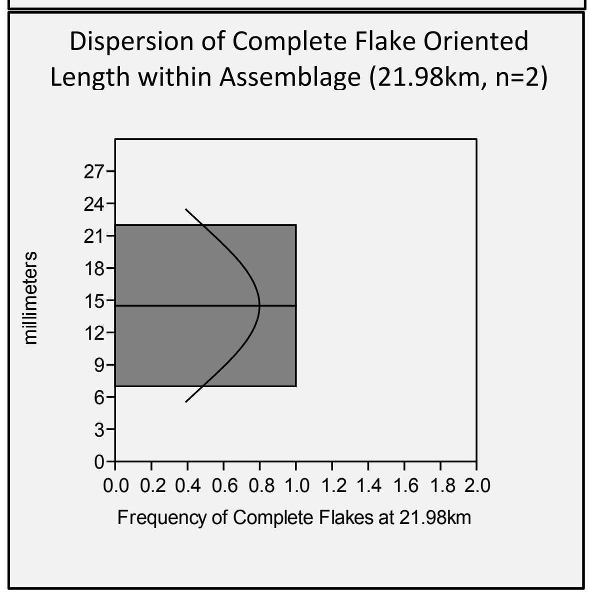
Dispersion of Complete Flake Oriented Length within Assemblage (21.10km, n=14)

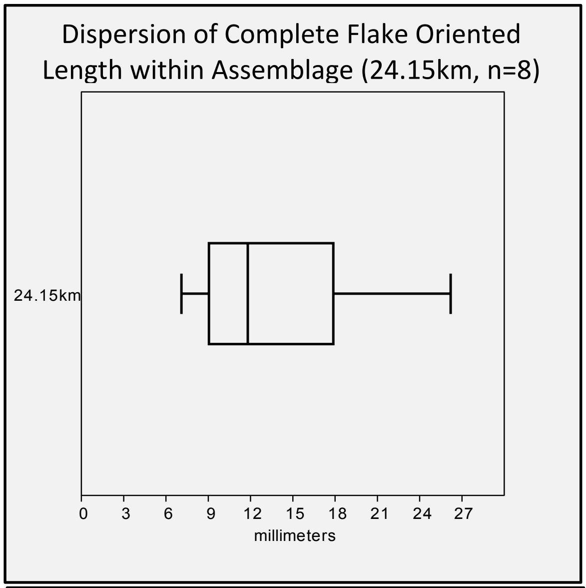


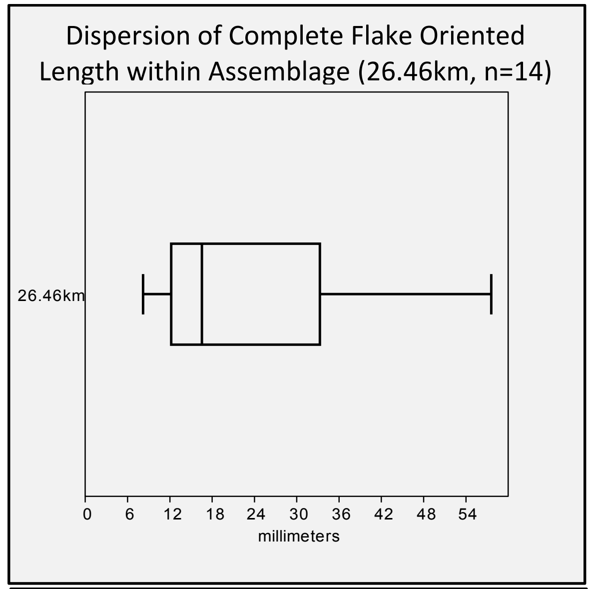

Dispersion of Complete Flake Oriented Length within Assemblage (21.97km, n=3)
21.97km
0 6 12 18 24 30 36 42 48 54
millimeters

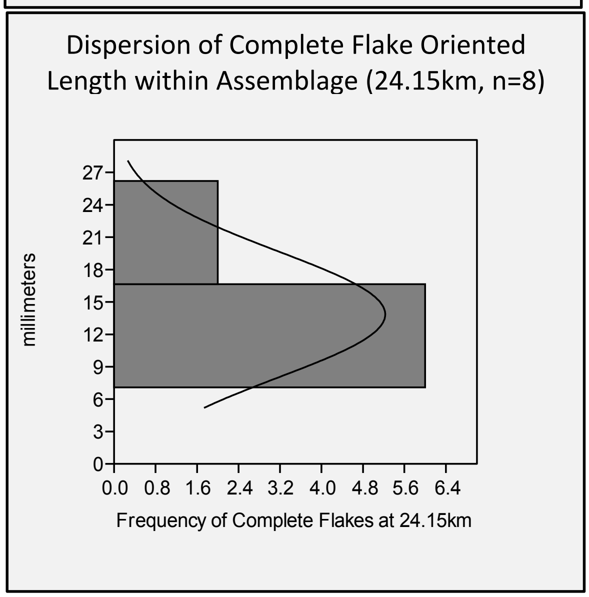

Dispersion of Complete Flake Oriented Length within Assemblage (21.98km, n=2)
21.98km
0 3 6 9 12 15 18 21 24 27
millimeters

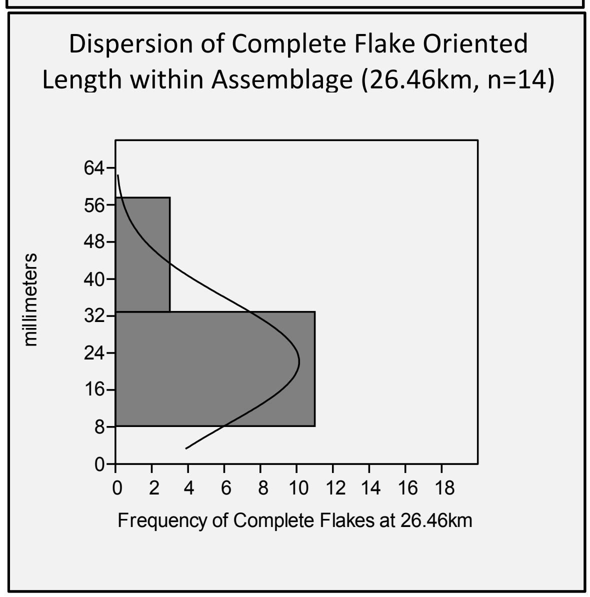

Dispersion of Complete Flake Oriented Length within Assemblage (21.97km, n=3)
millimeters
54 48 42 36 30 24 18 12 6 0
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0
Frequency of Complete Flakes at 21.97km

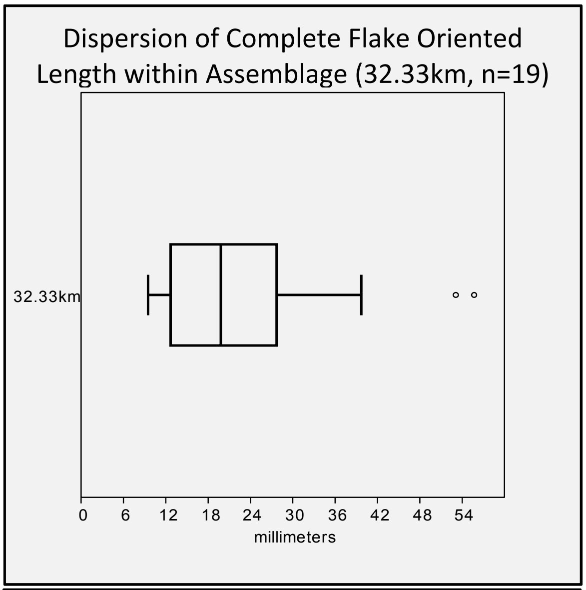

Dispersion of Complete Flake Oriented Length within Assemblage (21.98km, n=2)
millimeters
27 24 21 18 15 12 9 6 3 0
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0
Frequency of Complete Flakes at 21.98km

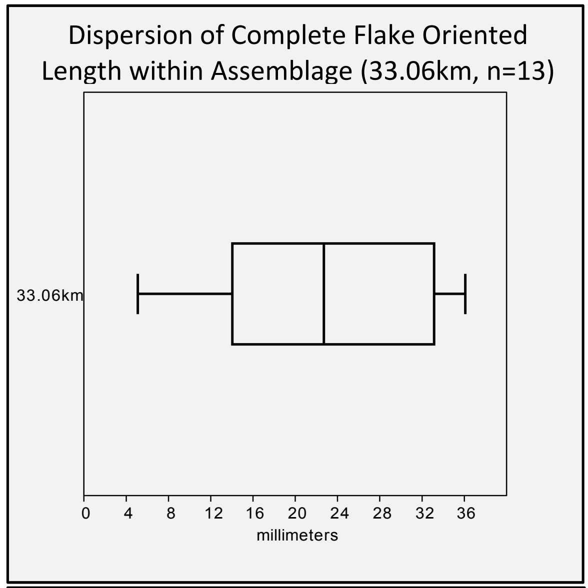

Dispersion of Complete Flake Oriented
Length within Assemblage (24.15km, n=8)
24.15km
0
3
6
9
12
15
18
21
24
27
millimeters

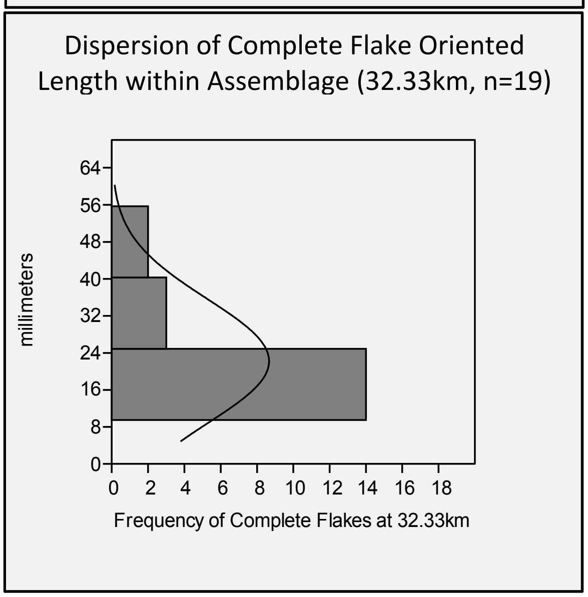

Dispersion of Complete Flake Oriented
Length within Assemblage (26.46km, n=14)
26.46km
0
6
12
18
24
30
36
42
48
54
millimeters

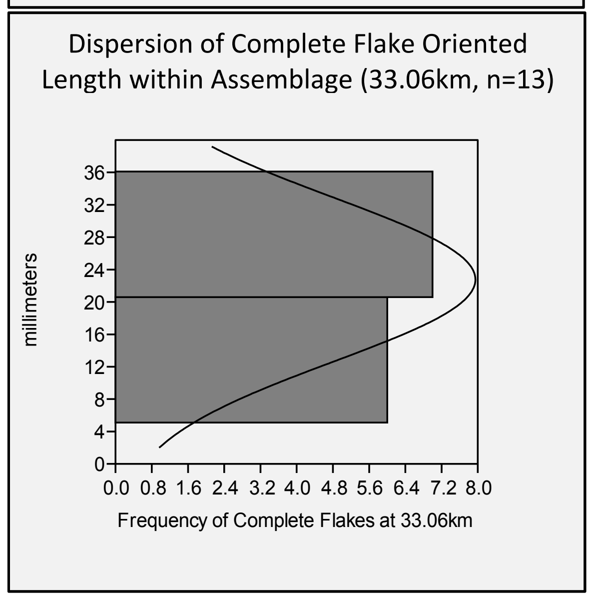

Dispersion of Complete Flake Oriented
Length within Assemblage (24.15km, n=8)
millimeters
27
24
21
18
15
12
9
6
3
0
0.0
0.8
1.6
2.4
3.2
4.0
4.8
5.6
6.4
Frequency of Complete Flakes at 24.15km

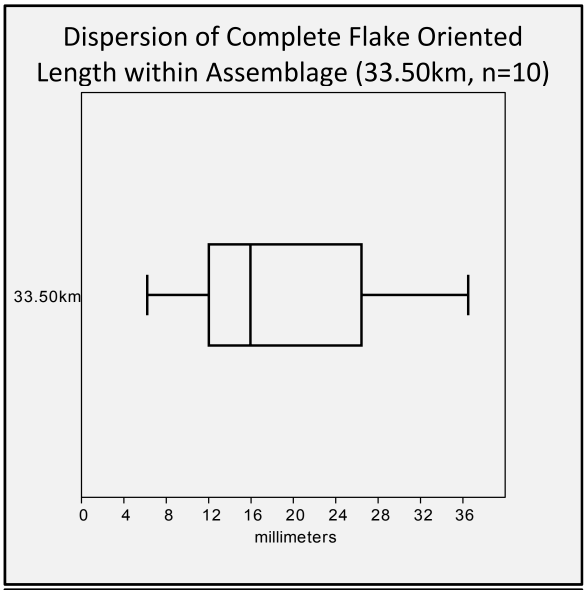

Dispersion of Complete Flake Oriented
Length within Assemblage (26.46km, n=14)
millimeters
64
56
48
40
32
24
16
8
0
0
2
4
6
8
10
12
14
16
18
Frequency of Complete Flakes at 26.46km


Dispersion of Complete Flake Oriented Length within Assemblage (32.33km, n=19)
32.33km
0 6 12 18 24 30 36 42 48 54
millimeters

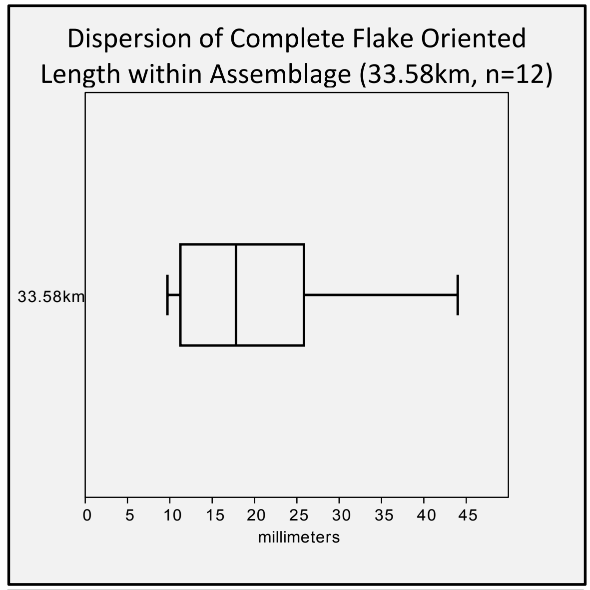

Dispersion of Complete Flake Oriented Length within Assemblage (33.06km, n=13)
33.06km
0 4 8 12 16 20 24 28 32 36
millimeters


Dispersion of Complete Flake Oriented Length within Assemblage (32.33km, n=19)
millimeters
64 56 48 40 32 24 16 8 0
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 32.33km

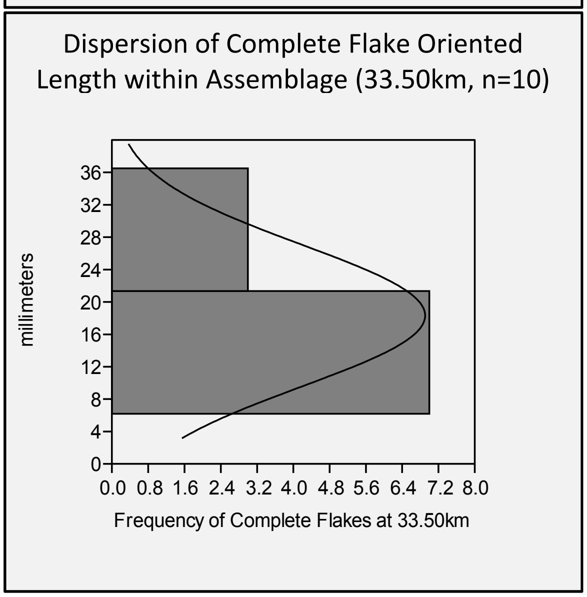

Dispersion of Complete Flake Oriented Length within Assemblage (33.06km, n=13)
millimeters
36 32 28 24 20 16 12 8 4 0
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0
Frequency of Complete Flakes at 33.06km



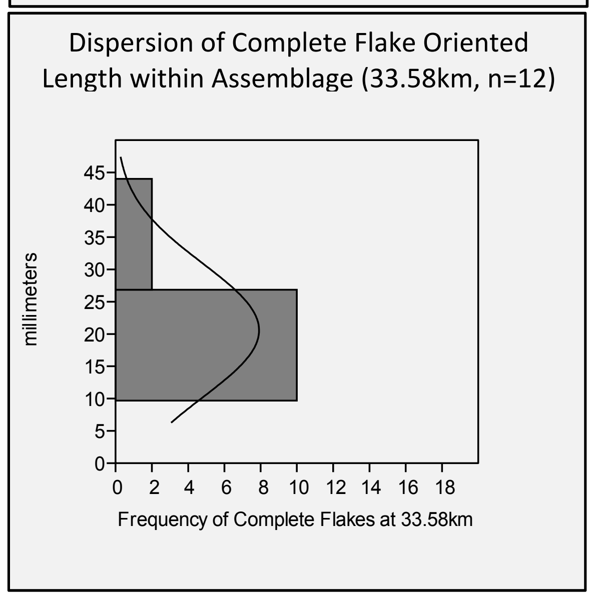
Dispersion of Complete Flake Oriented Length within Assemblage (33.50km, n=10)



Dispersion of Complete Flake Oriented Length within Assemblage (33.58km, n=12)

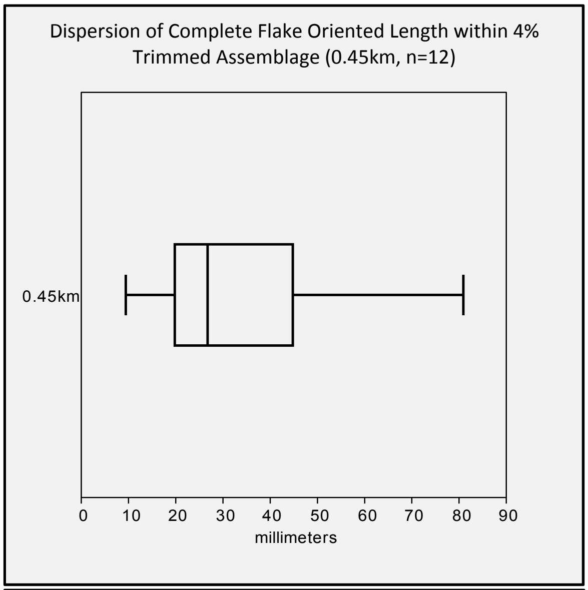


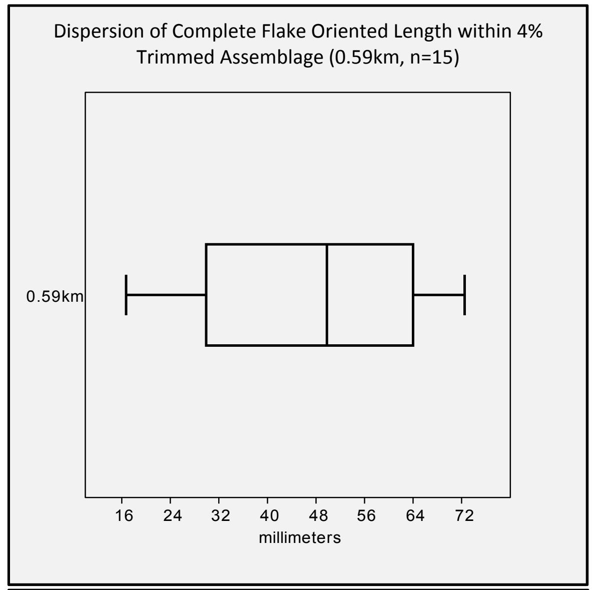
Dispersion of Complete Flake Oriented Length within Assemblage (33.50km, n=10)

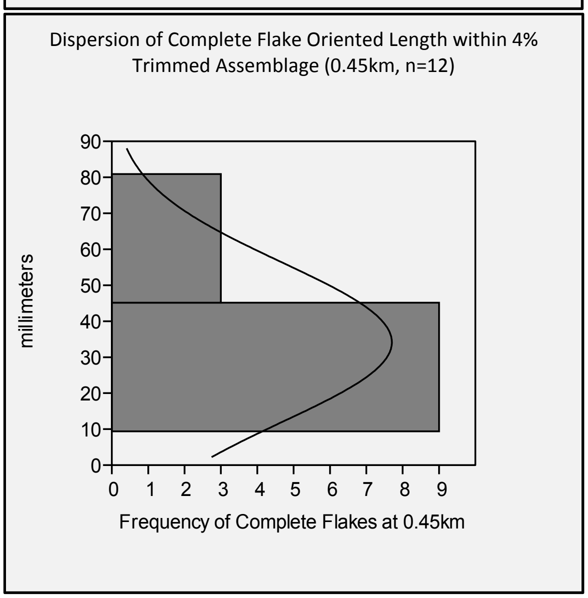


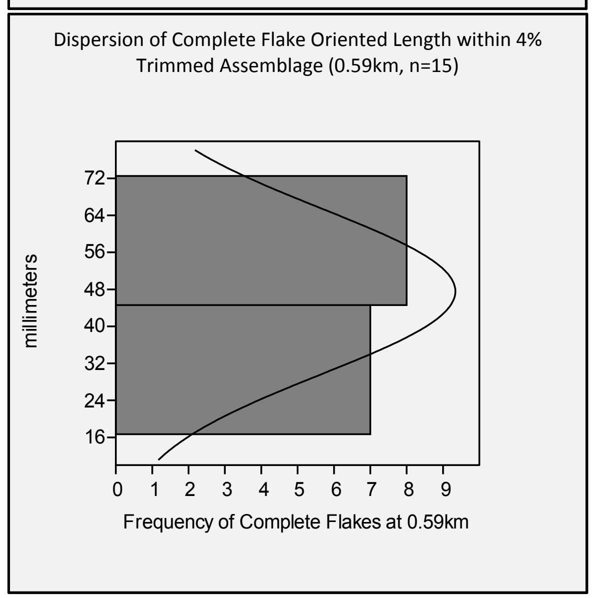
Dispersion of Complete Flake Oriented Length within Assemblage (33.58km, n=12)

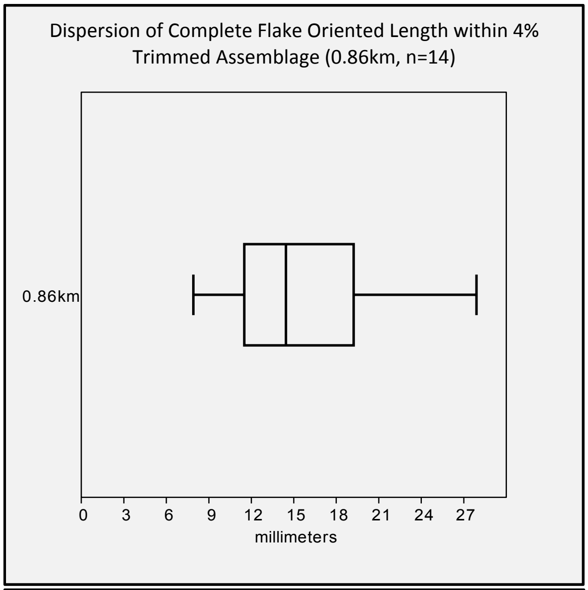
Appendix E: Dispersion of Complete Flake Oriented Length Trimmed

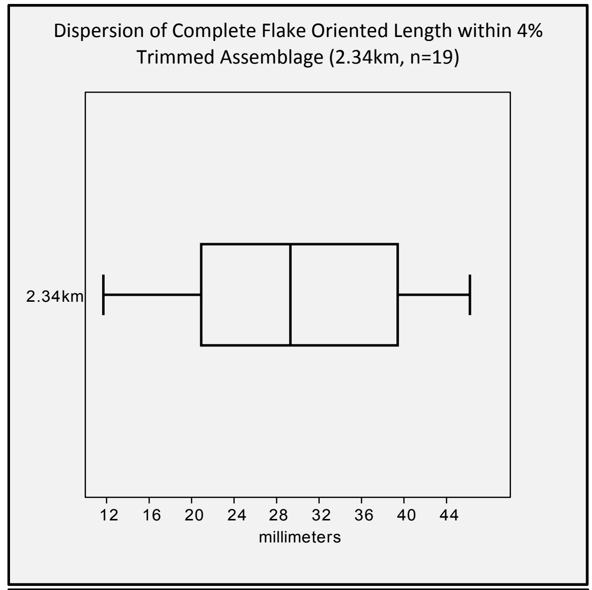


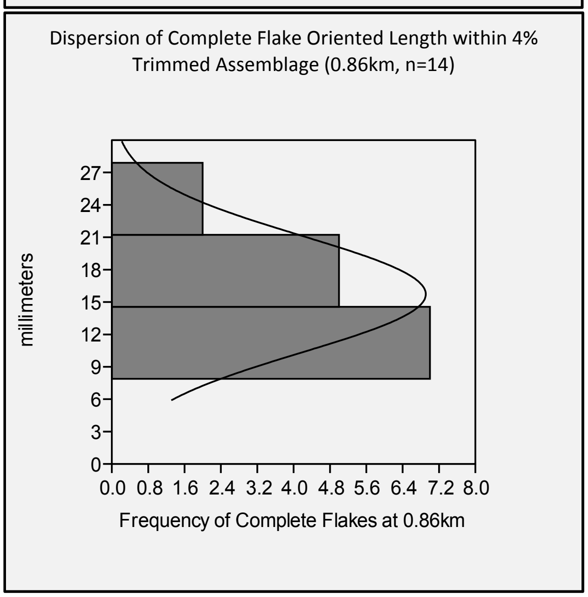


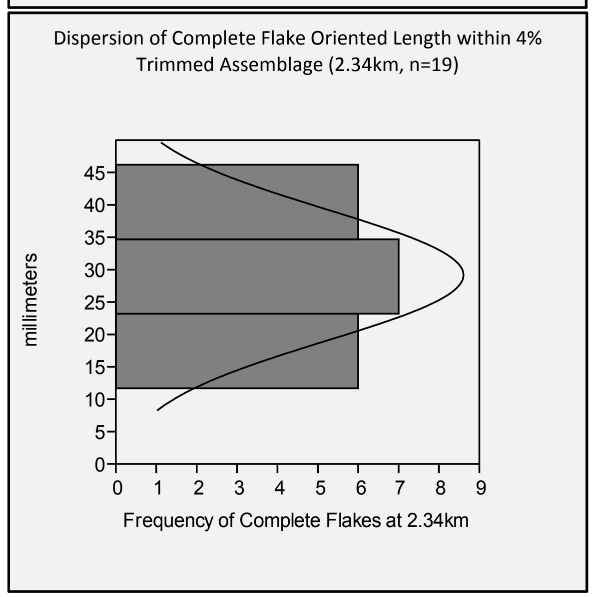




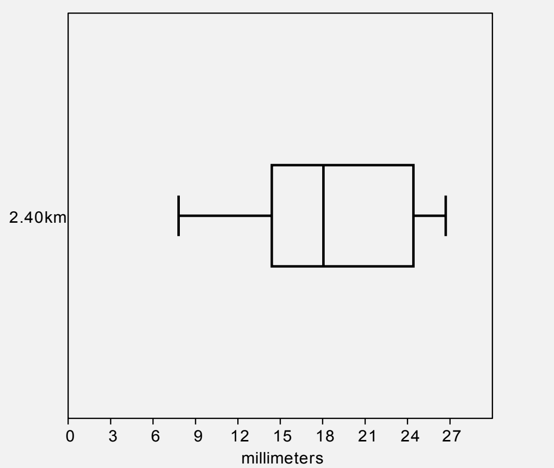

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (0.86km, n=14)
0.86km
0 3 6 9 12 15 18 21 24 27
millimeters


Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (2.34km, n=19)
2.34km
12 16 20 24 28 32 36 40 44
millimeters

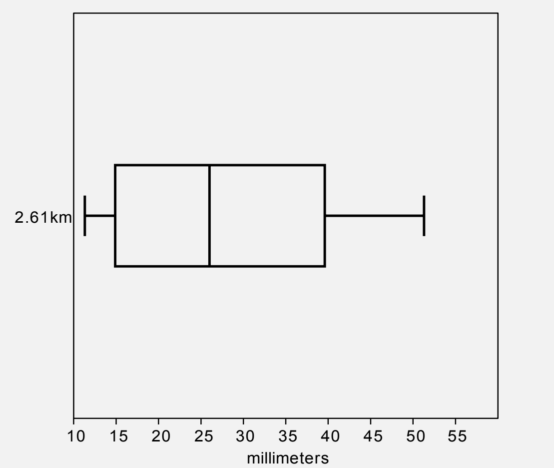

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (0.86km, n=14)
millimeters
0 3 6 9 12 15 18 21 24 27
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0
Frequency of Complete Flakes at 0.86km


Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (2.34km, n=19)
millimeters
0 5 10 15 20 25 30 35 40 45
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 2.34km

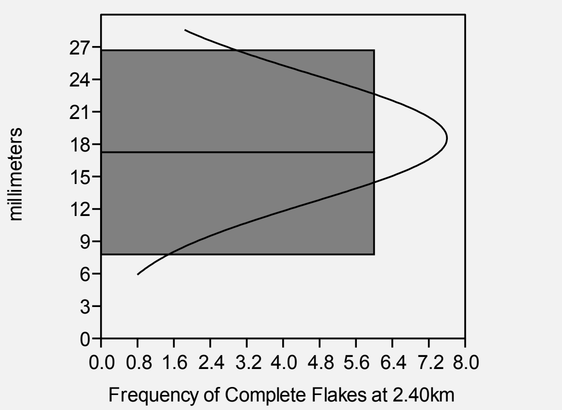
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (2.40km, n=12)



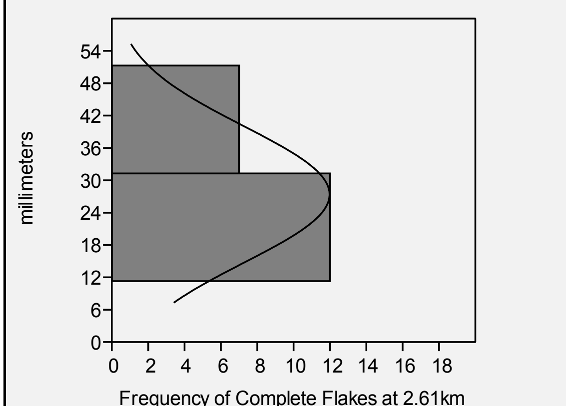
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (2.61km, n=19)

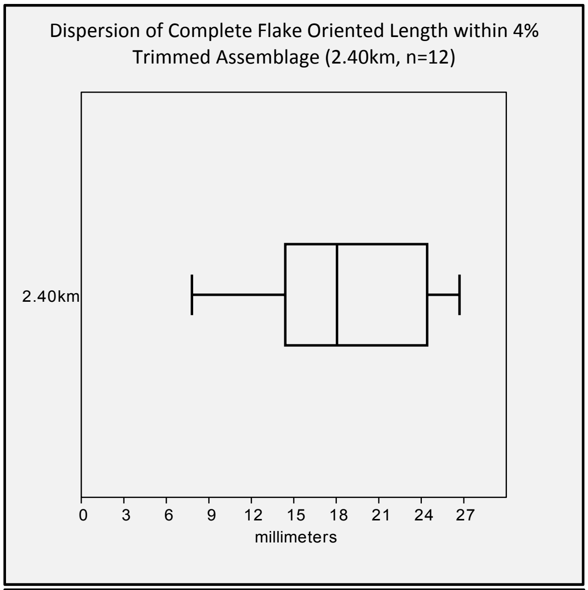


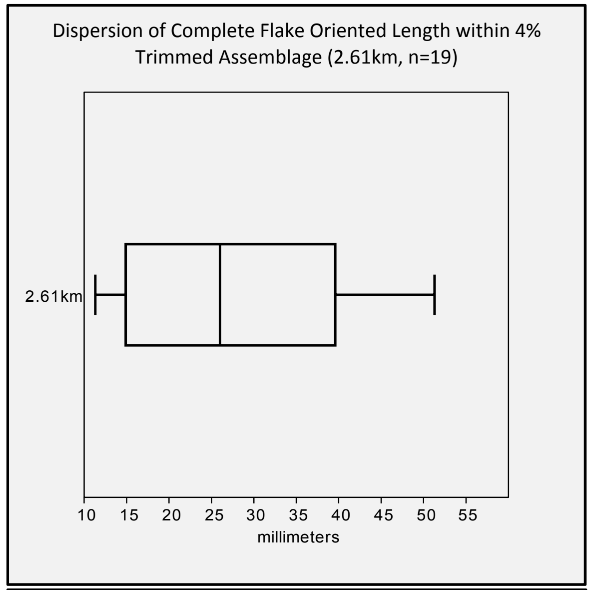
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (2.40km, n=12)

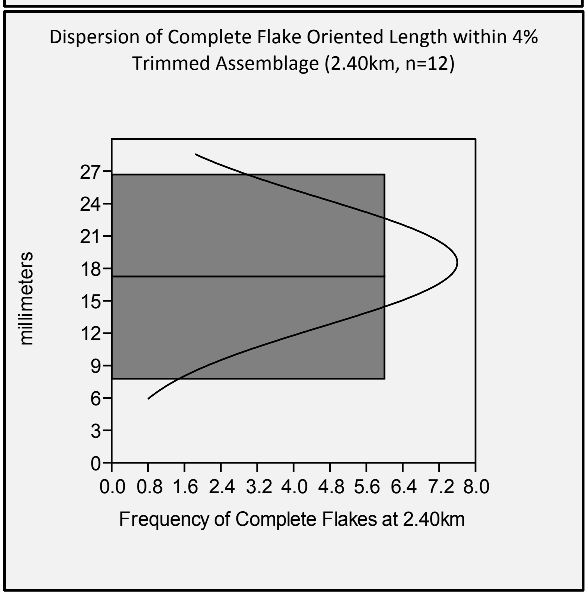


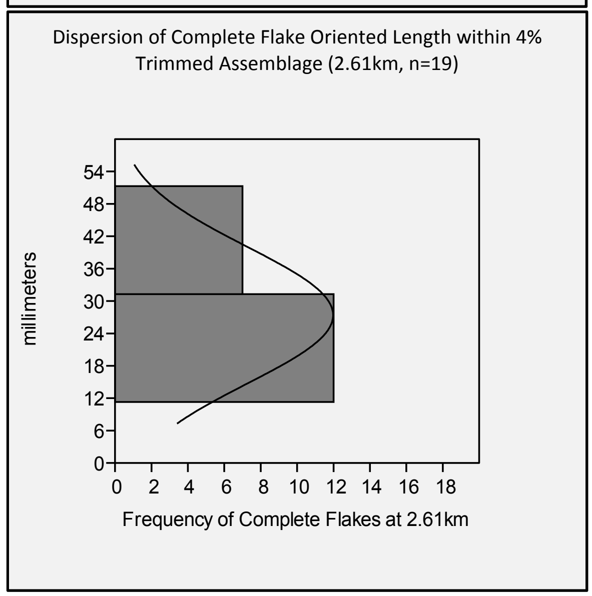
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (2.61km, n=19)



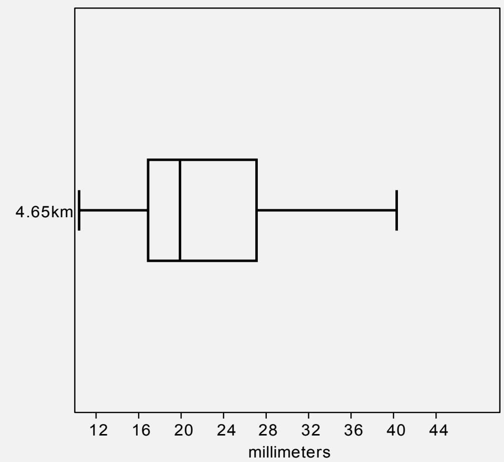

Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (2.40km, n=12)
2.40km
0 3 6 9 12 15 18 21 24 27
millimeters


Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (2.61km, n=19)
2.61km
10 15 20 25 30 35 40 45 50 55
millimeters

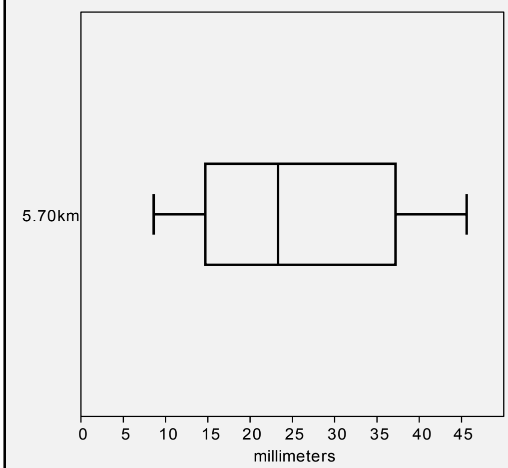

Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (2.40km, n=12)
millimeters
0 3 6 9 12 15 18 21 24 27
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0
Frequency of Complete Flakes at 2.40km


Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (2.61km, n=19)
millimeters
0 6 12 18 24 30 36 42 48 54
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 2.61km

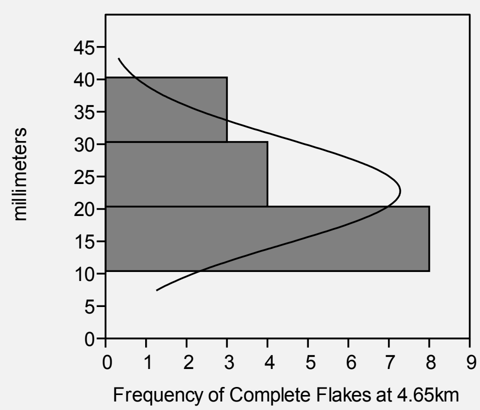
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (4.65km, n=15)



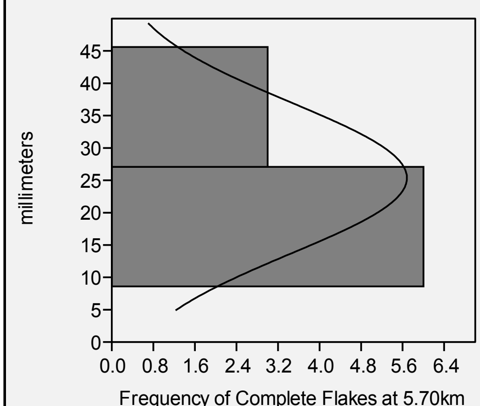
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (5.70km, n=9)



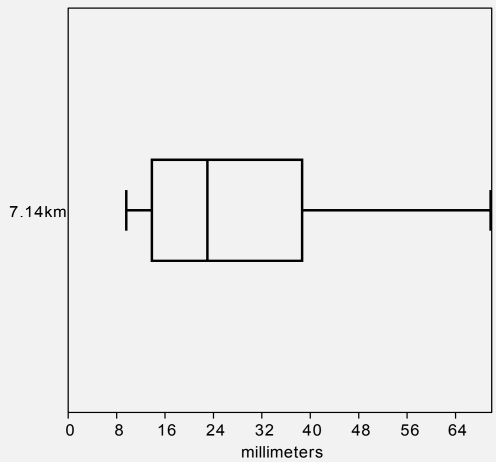
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (4.65km, n=15)



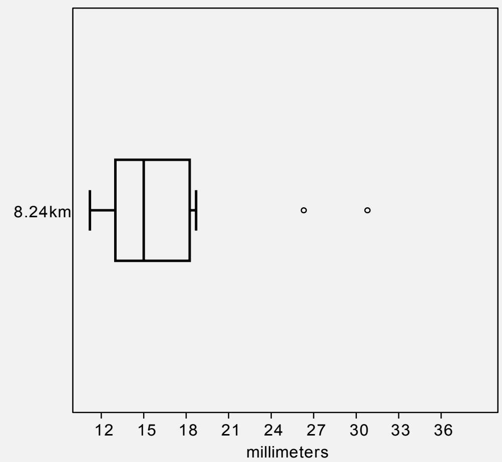
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (5.70km, n=9)



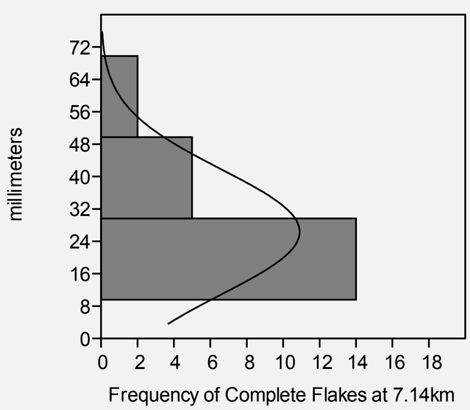
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (7.14km, n=21)



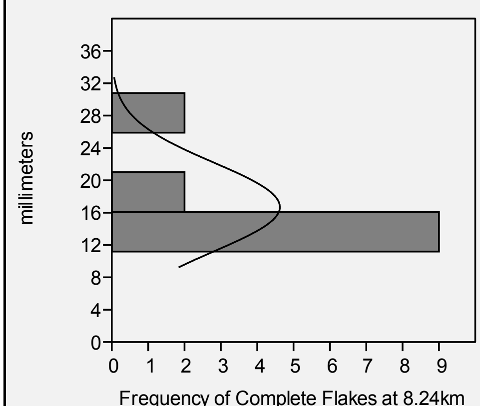
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (8.24km, n=13)



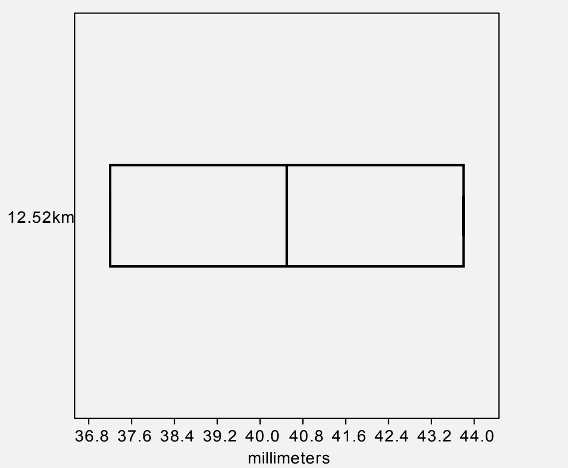
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (7.14km, n=21)



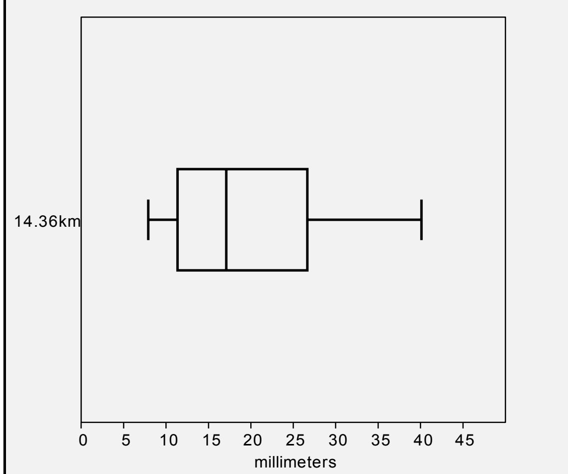
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (8.24km, n=13)



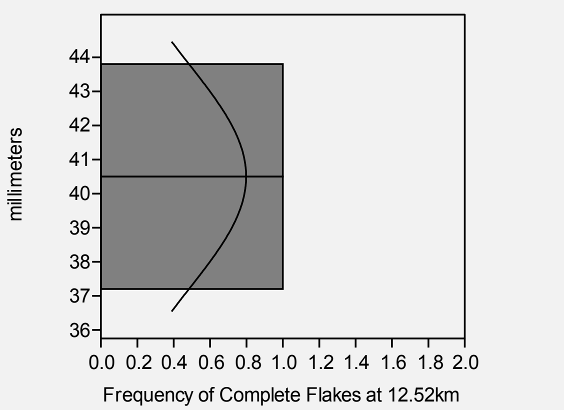
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (12.52km, n=2)



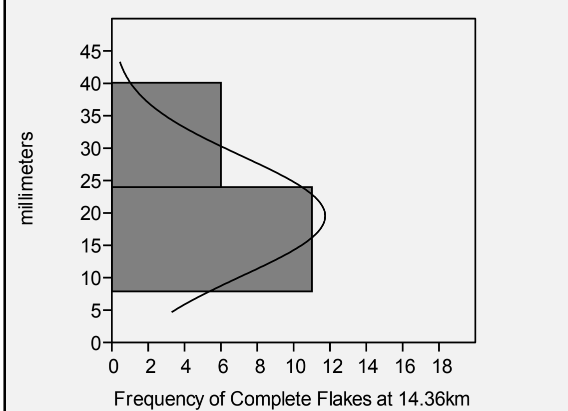
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (14.36km, n=17)



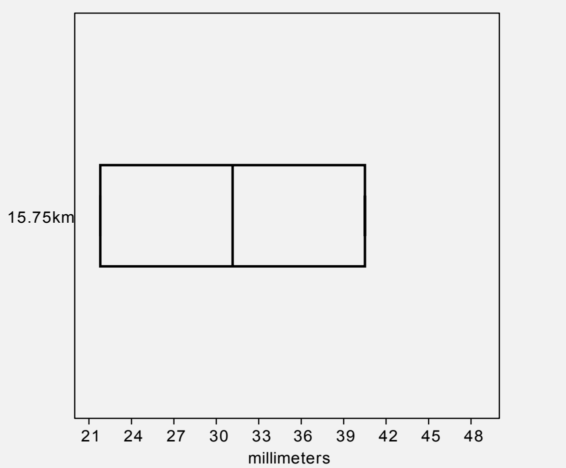
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (12.52km, n=2)



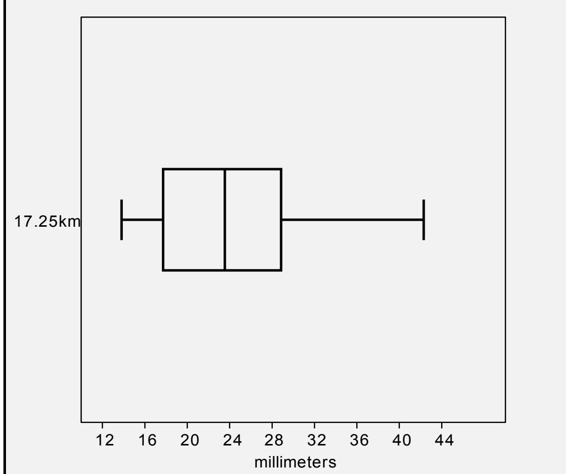
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (14.36km, n=17)



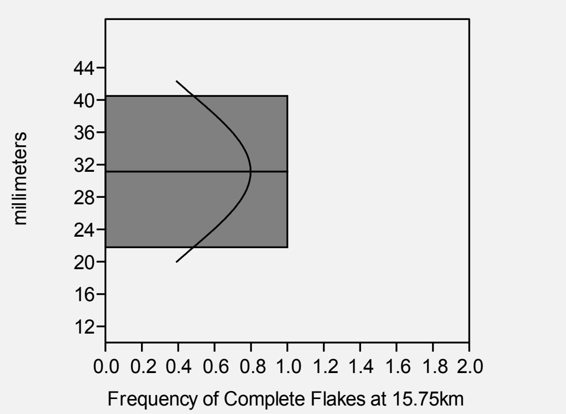
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (15.75km, n=2)



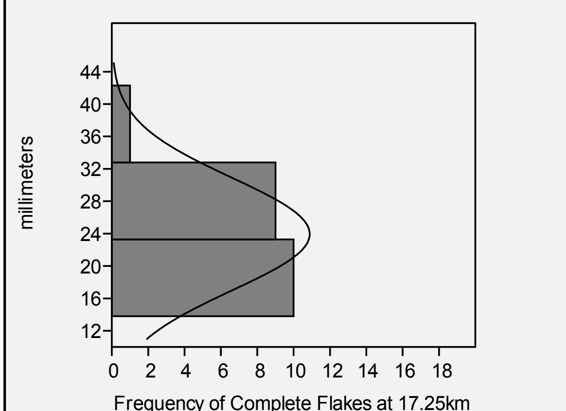
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (17.25km, n=20)

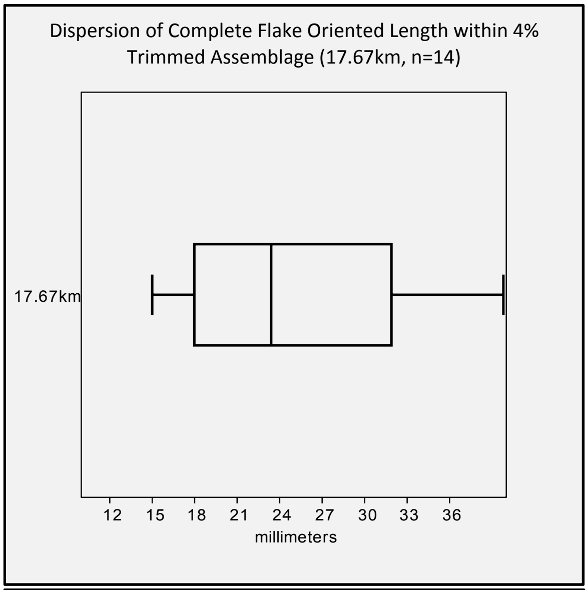


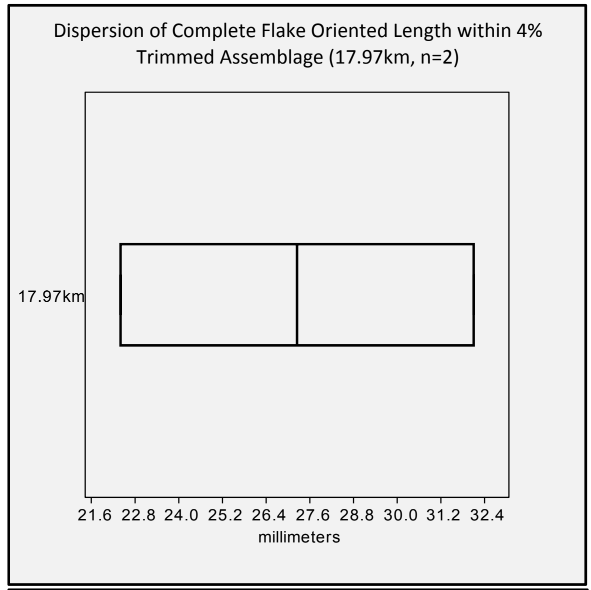
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (15.75km, n=2)

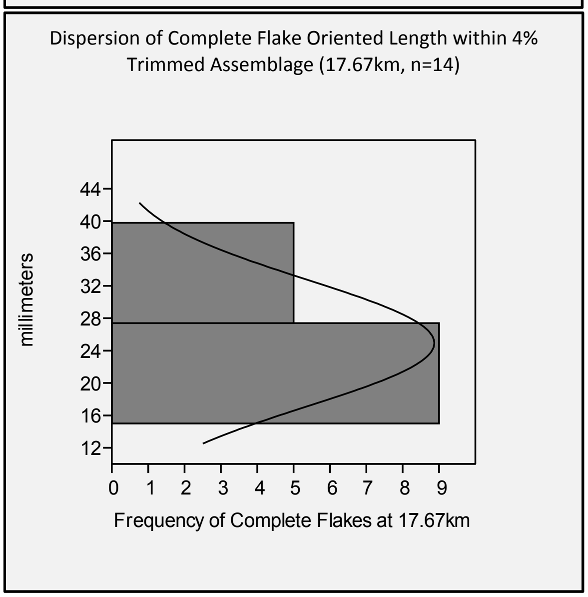


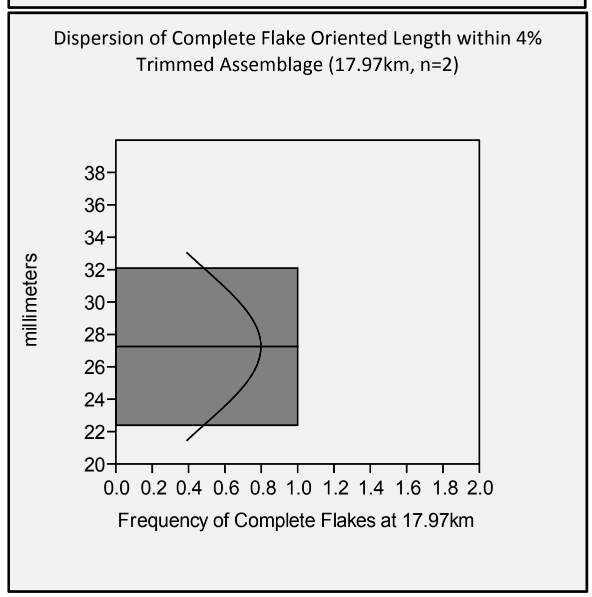
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (17.25km, n=20)

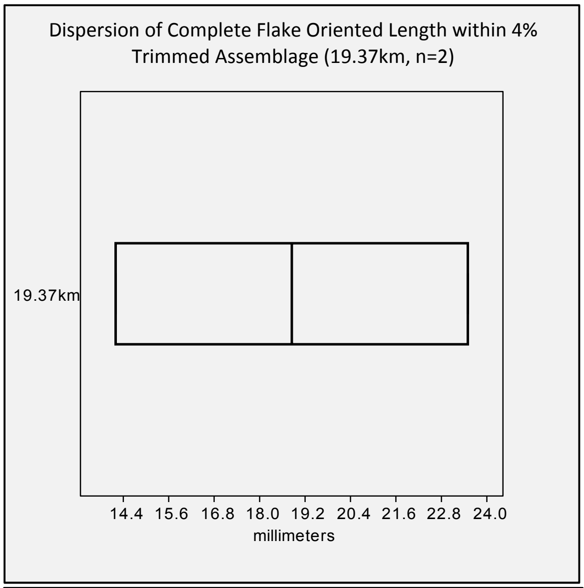


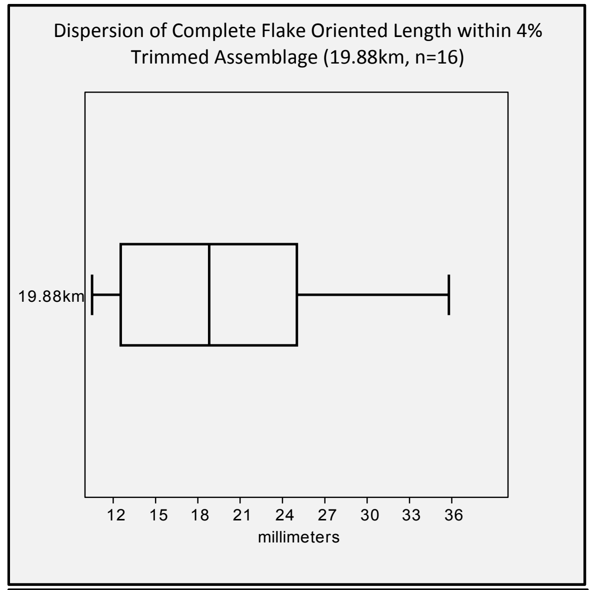

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (17.67km, n=14)
17.67km
12 15 18 21 24 27 30 33 36
millimeters

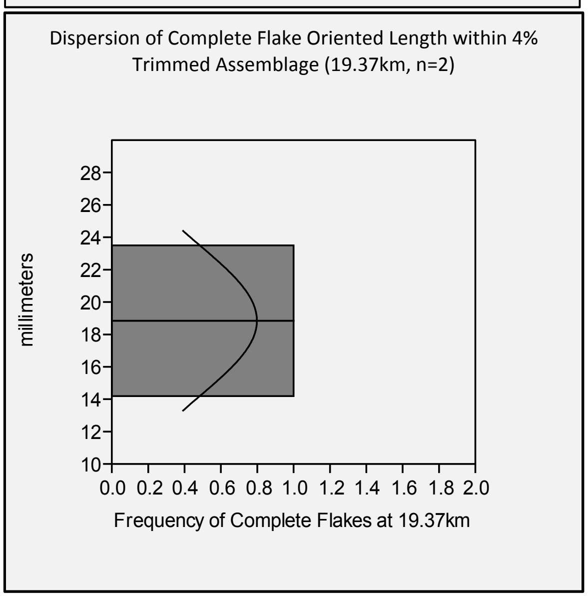

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (17.97km, n=2)
17.97km
21.6 22.8 24.0 25.2 26.4 27.6 28.8 30.0 31.2 32.4
millimeters

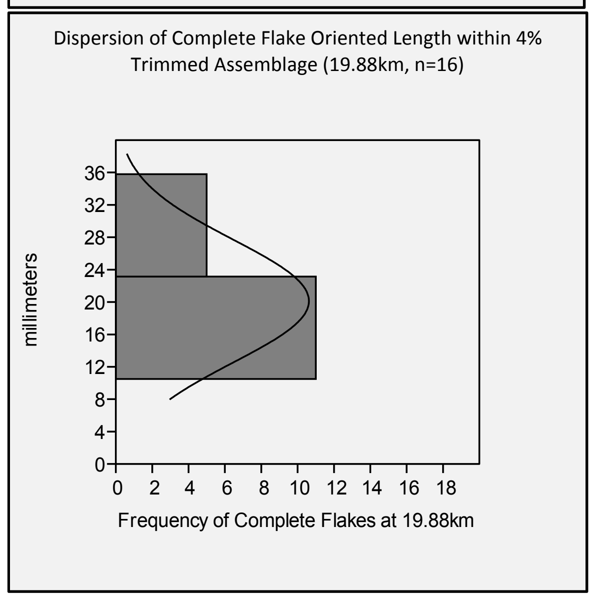

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (17.67km, n=14)
millimeters
44 40 36 32 28 24 20 16 12
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 17.67km


Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (17.97km, n=2)
millimeters
38 36 34 32 30 28 26 24 22 20
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0
Frequency of Complete Flakes at 17.97km

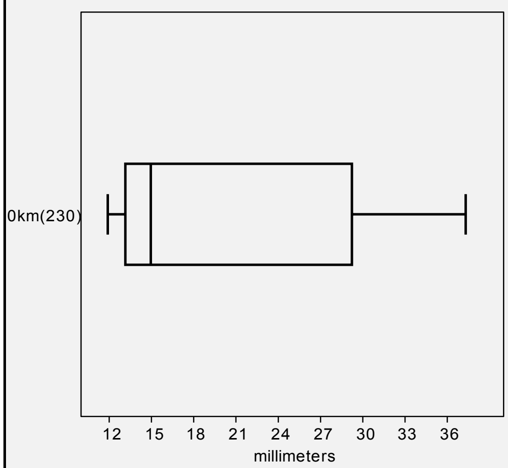

Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (19.37km, n=2)
19.37km
14.4 15.6 16.8 18.0 19.2 20.4 21.6 22.8 24.0
millimeters


Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (19.88km, n=16)
19.88km
12 15 18 21 24 27 30 33 36
millimeters

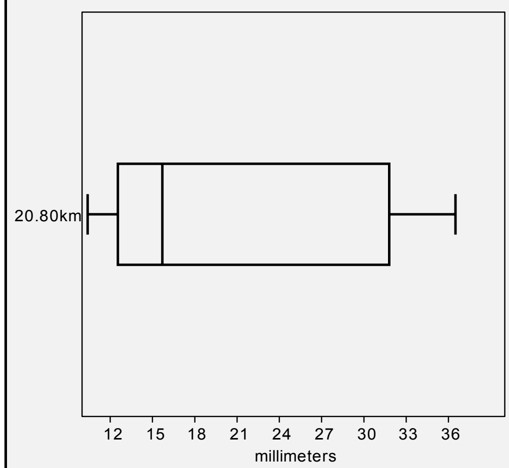

Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (19.37km, n=2)
millimeters
10 12 14 16 18 20 22 24 26 28
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0
Frequency of Complete Flakes at 19.37km


Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (19.88km, n=16)
millimeters
0 4 8 12 16 20 24 28 32 36
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 19.88km

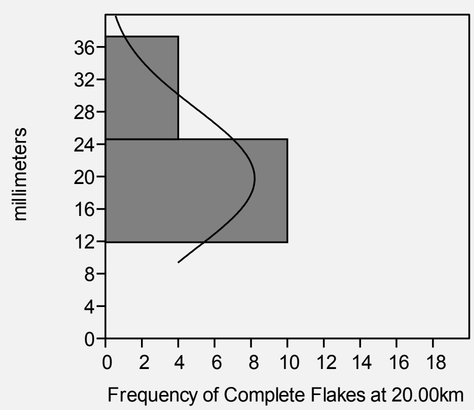
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (20.00km[Acc230], n=14)



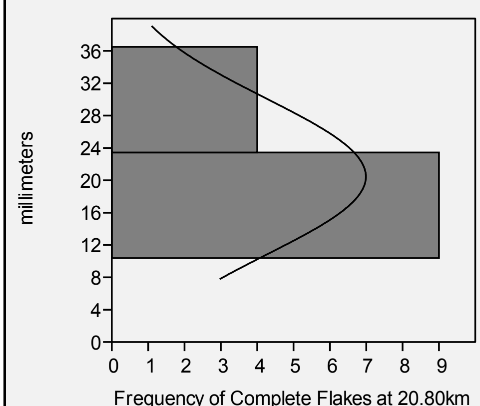
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (20.80km, n=13)

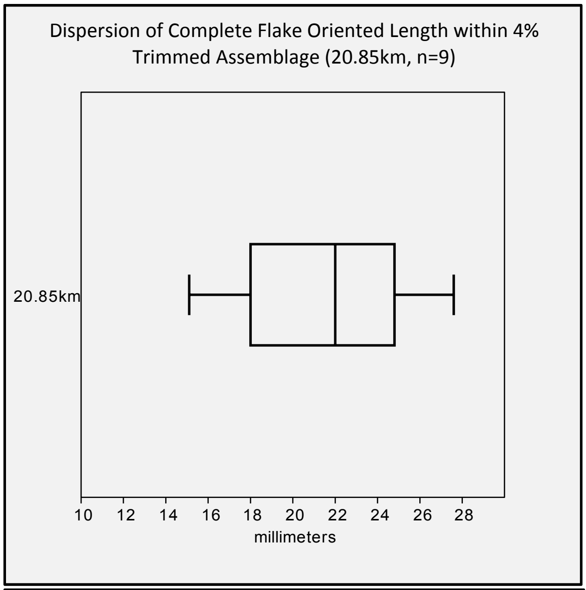


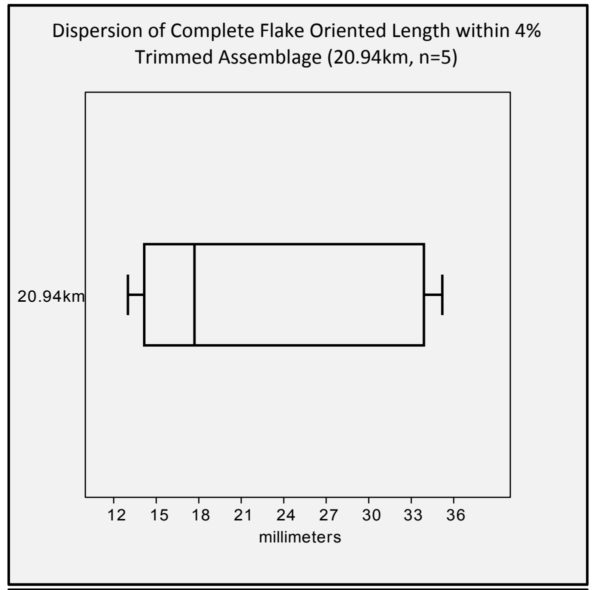
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (20.00km[Acc230], n=14)

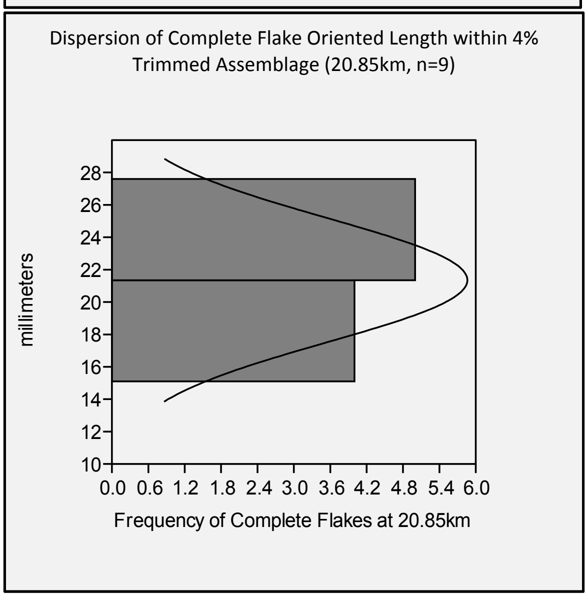


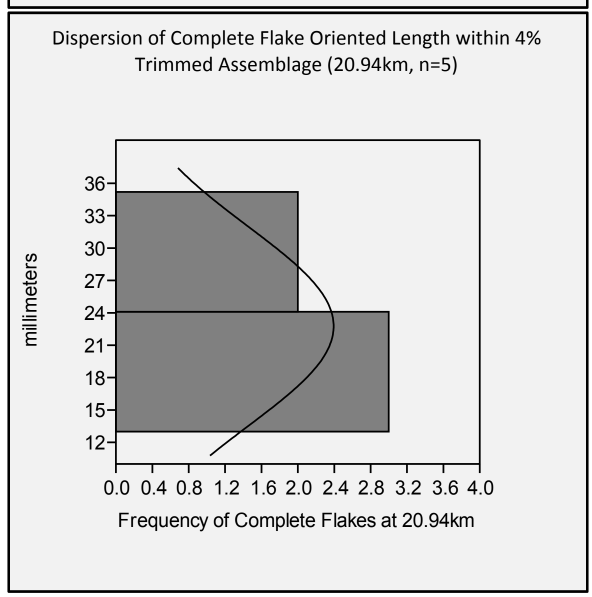
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (20.80km, n=13)



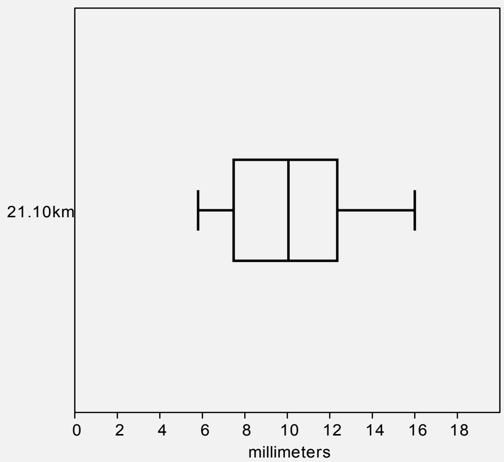

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (20.85km, n=9)
20.85km
10 12 14 16 18 20 22 24 26 28
millimeters


Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (20.94km, n=5)
20.94km
12 15 18 21 24 27 30 33 36
millimeters

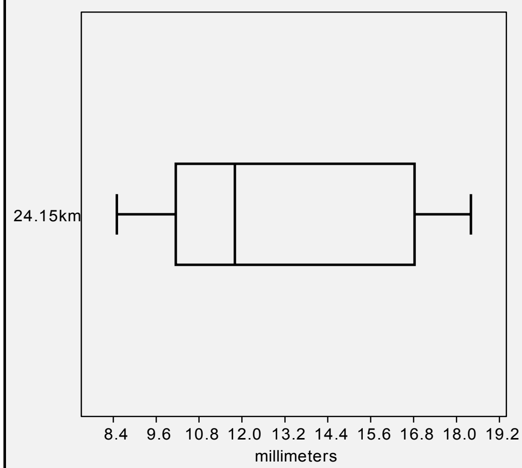

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (20.85km, n=9)
millimeters
10 12 14 16 18 20 22 24 26 28
0.0 0.6 1.2 1.8 2.4 3.0 3.6 4.2 4.8 5.4 6.0
Frequency of Complete Flakes at 20.85km


Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (20.94km, n=5)
millimeters
12 15 18 21 24 27 30 33 36
0.0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0
Frequency of Complete Flakes at 20.94km

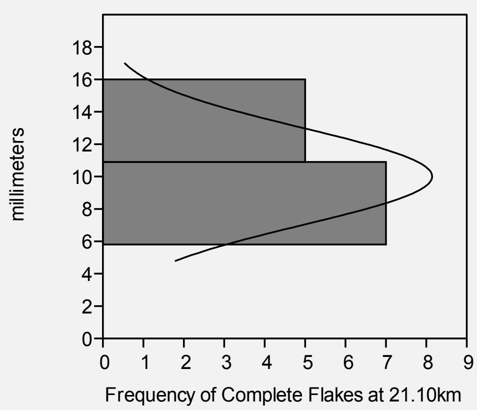
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (21.10km, n=12)



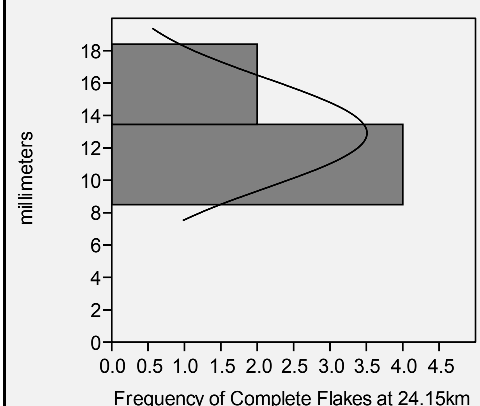
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (24.15km, n=6)

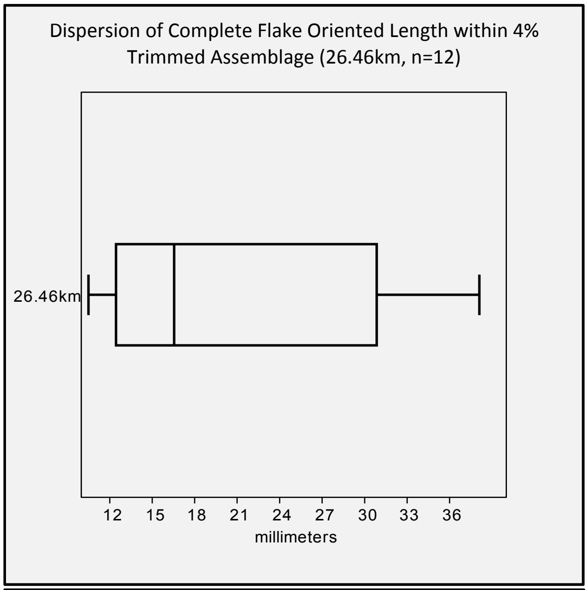


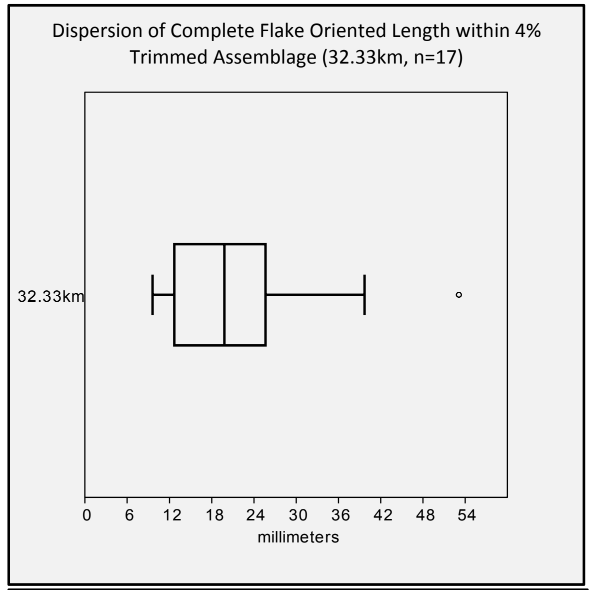
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (21.10km, n=12)

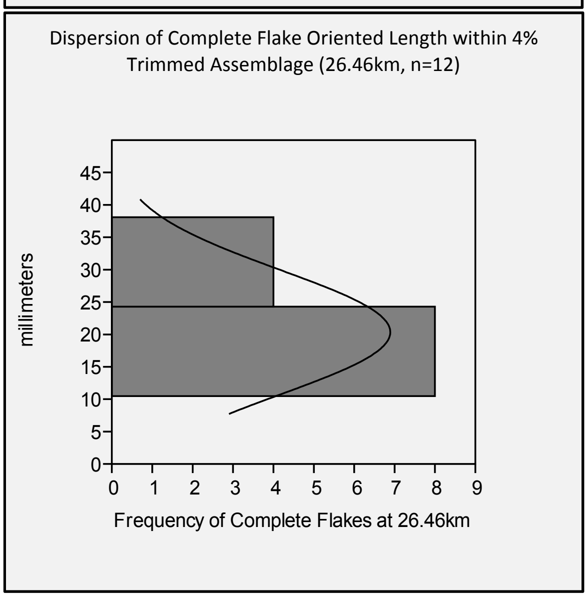


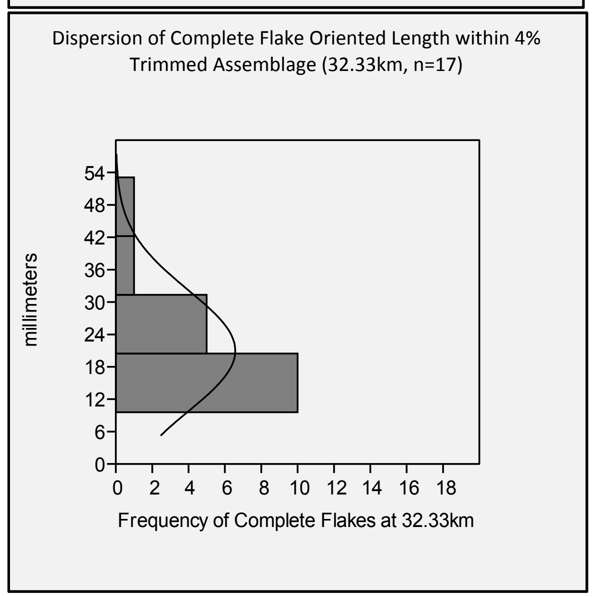
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (24.15km, n=6)

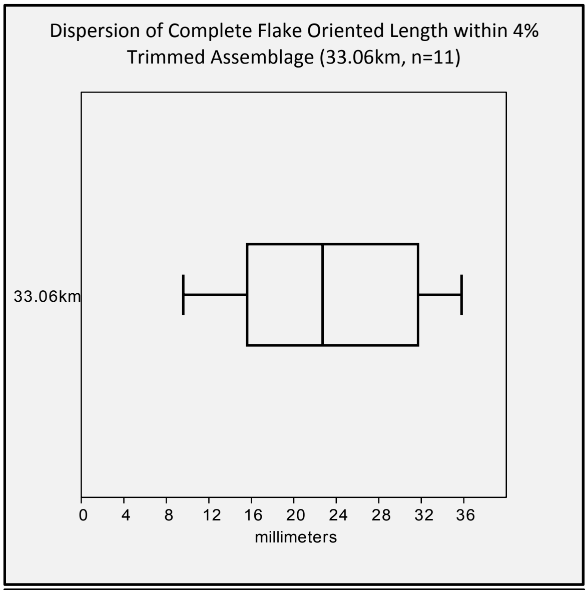


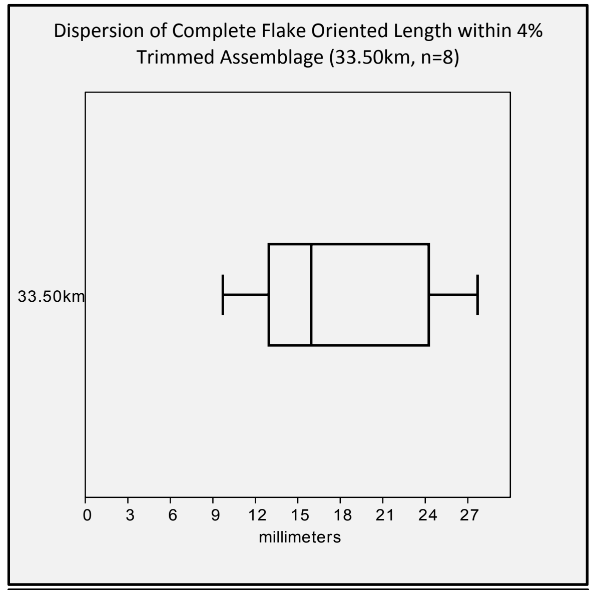

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (26.46km, n=12)
26.46km
12 15 18 21 24 27 30 33 36
millimeters

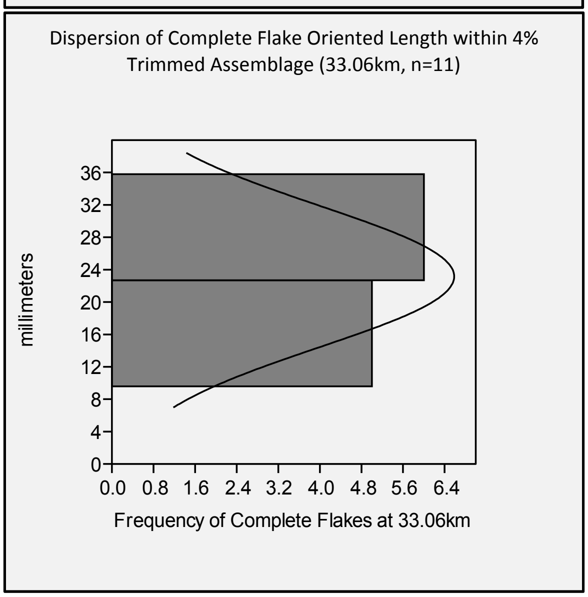

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (32.33km, n=17)
32.33km
0 6 12 18 24 30 36 42 48 54
millimeters

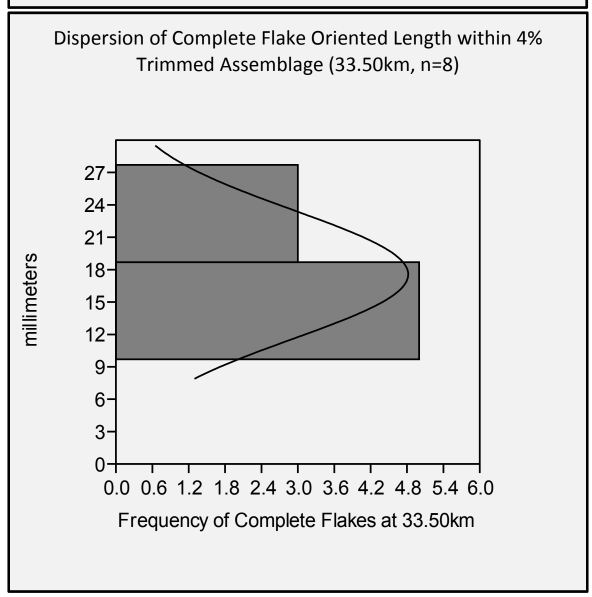

Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (26.46km, n=12)
millimeters
0 5 10 15 20 25 30 35 40 45
0 1 2 3 4 5 6 7 8 9
Frequency of Complete Flakes at 26.46km


Dispersion of Complete Flake Oriented Length within 4%
Trimmed Assemblage (32.33km, n=17)
millimeters
0 6 12 18 24 30 36 42 48 54
0 2 4 6 8 10 12 14 16 18
Frequency of Complete Flakes at 32.33km

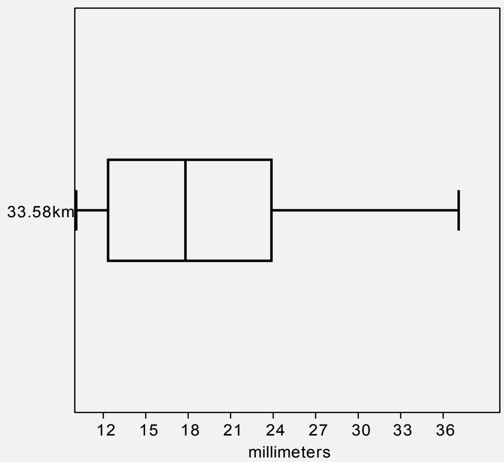

Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (33.06km, n=11)
33.06km
0 4 8 12 16 20 24 28 32 36
millimeters


Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (33.50km, n=8)
33.50km
0 3 6 9 12 15 18 21 24 27
millimeters

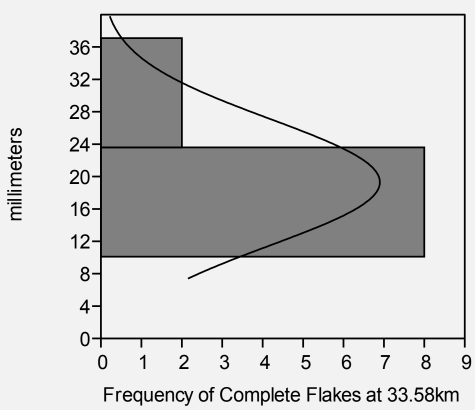

Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (33.06km, n=11)
millimeters
0 4 8 12 16 20 24 28 32 36
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4
Frequency of Complete Flakes at 33.06km


Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (33.50km, n=8)
millimeters
0 3 6 9 12 15 18 21 24 27
0.0 0.6 1.2 1.8 2.4 3.0 3.6 4.2 4.8 5.4 6.0
Frequency of Complete Flakes at 33.50km

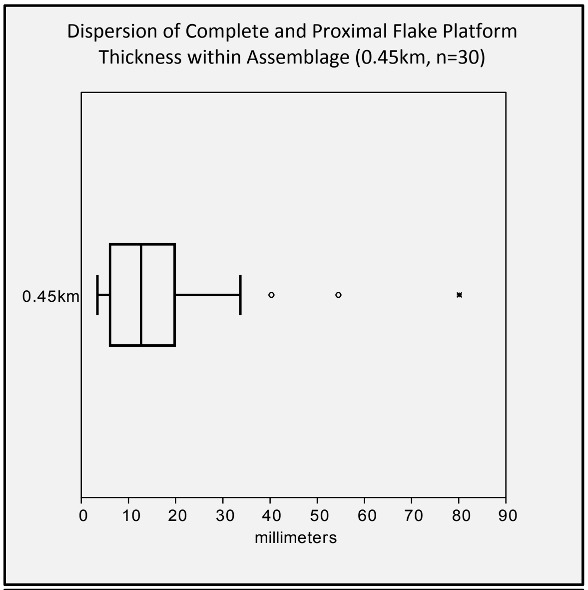
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (33.58km, n=10)

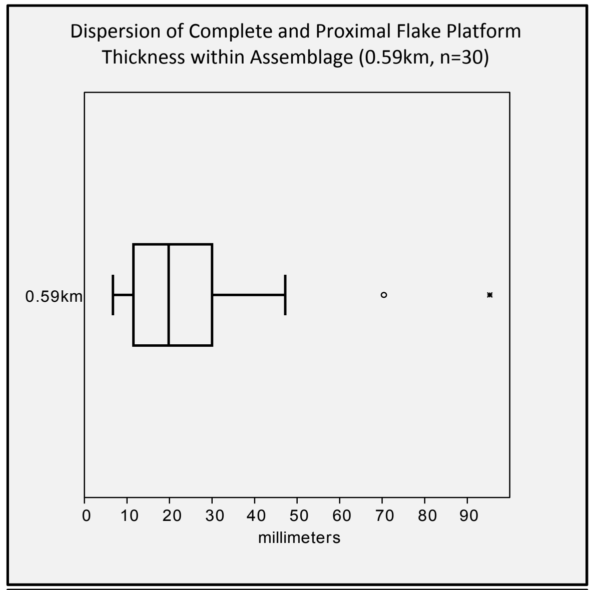


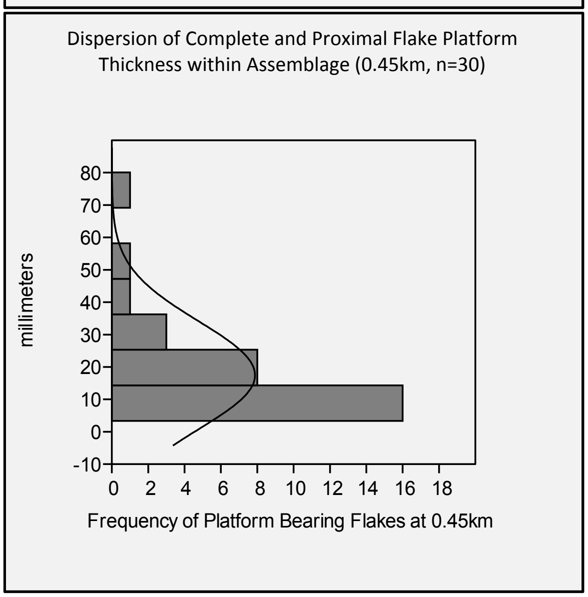
Dispersion of Complete Flake Oriented Length within 4% Trimmed Assemblage (33.58km, n=10)

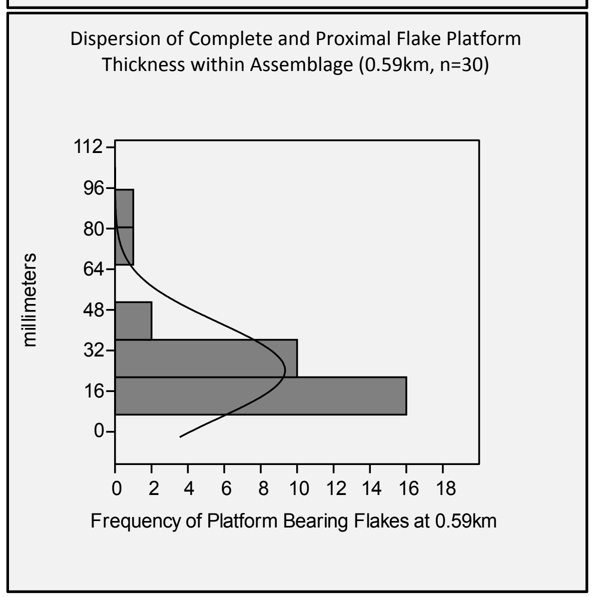


Appendix F: Dispersion of Complete and Proximal Flake Platform Thickness

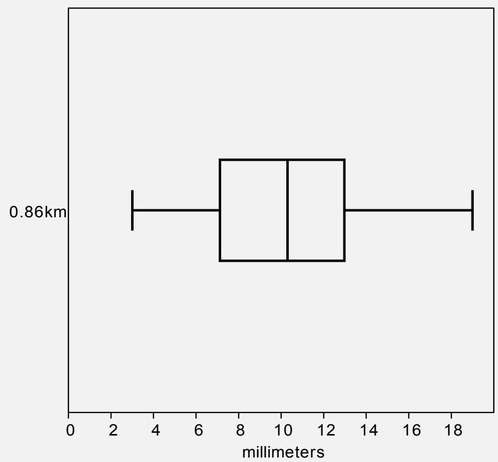




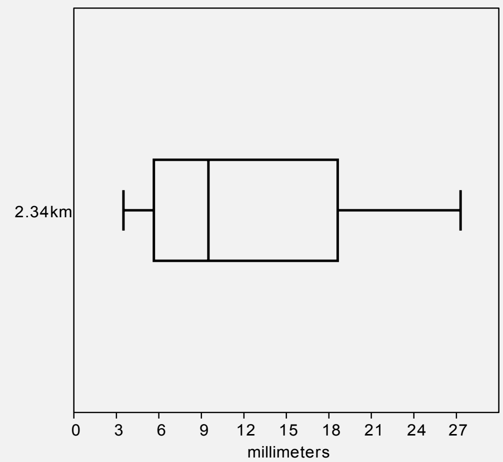




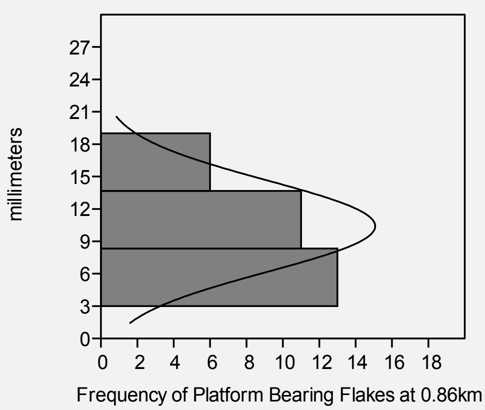
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (0.86km, n=30)



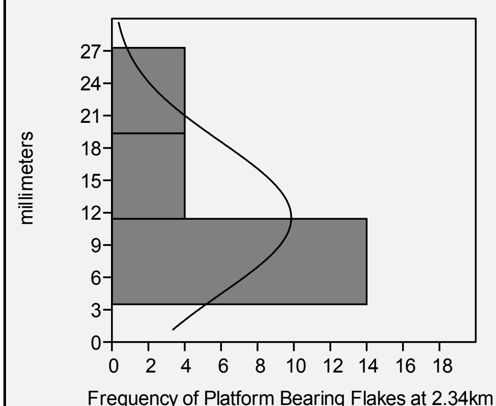
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (2.34km, n=22)

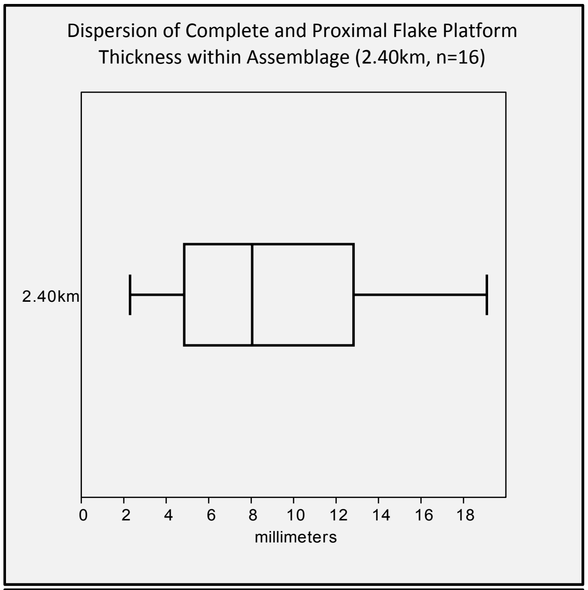


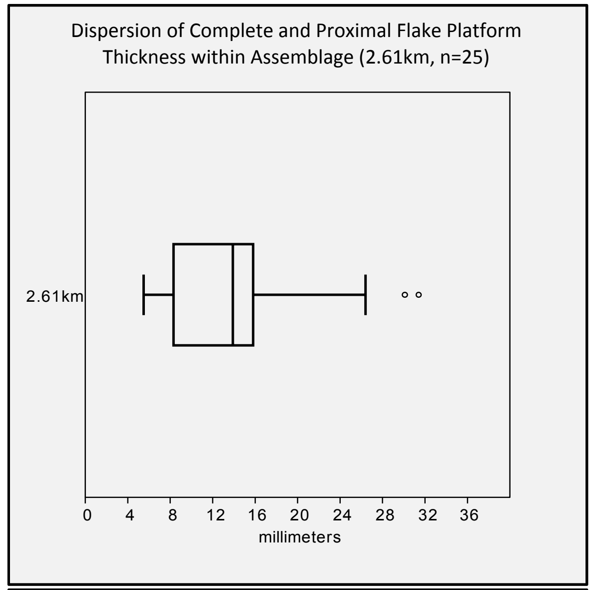
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (0.86km, n=30)

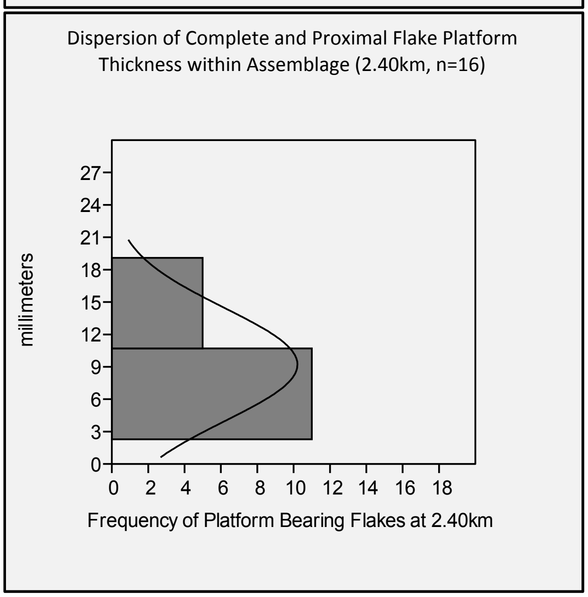


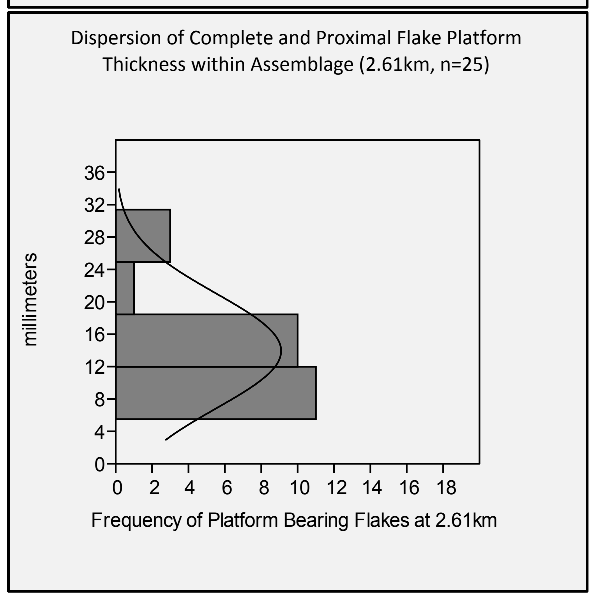
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (2.34km, n=22)



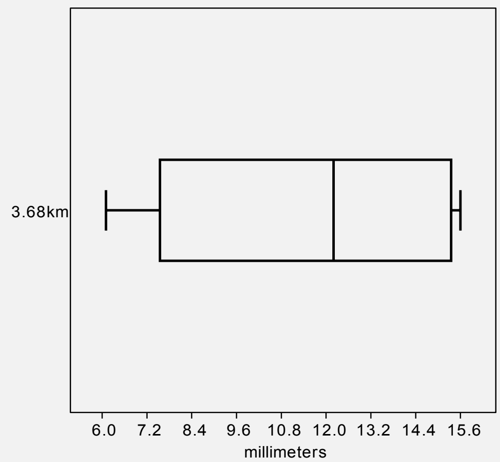

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (2.40km, n=16)
2.40km
0 2 4 6 8 10 12 14 16 18
millimeters


Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (2.61km, n=25)
2.61km
0 4 8 12 16 20 24 28 32 36
millimeters

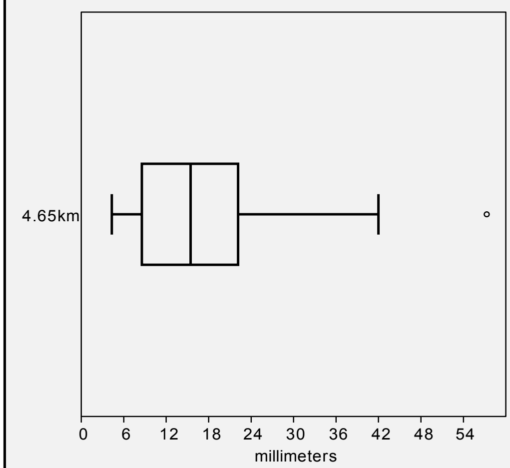

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (2.40km, n=16)
millimeters
27 24 21 18 15 12 9 6 3 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 2.40km


Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (2.61km, n=25)
millimeters
36 32 28 24 20 16 12 8 4 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 2.61km

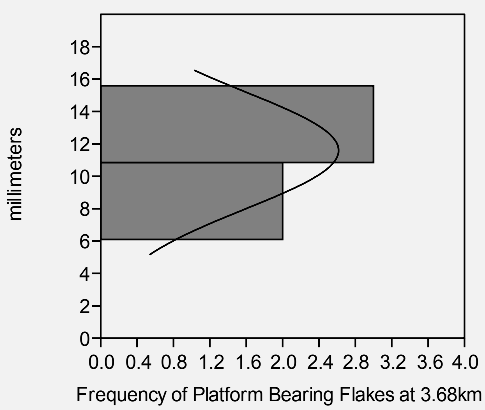
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (3.68km, n=5)



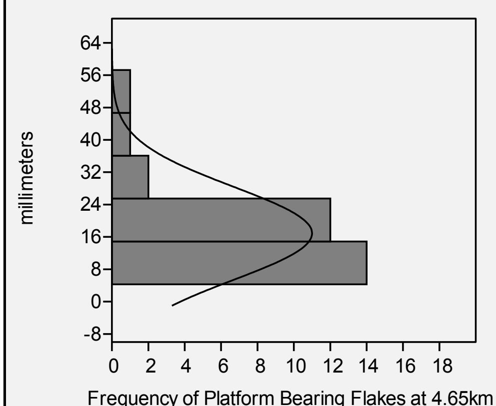
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (4.65km, n=30)



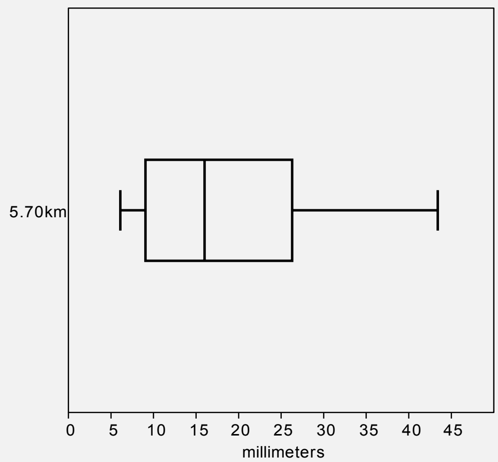
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (3.68km, n=5)



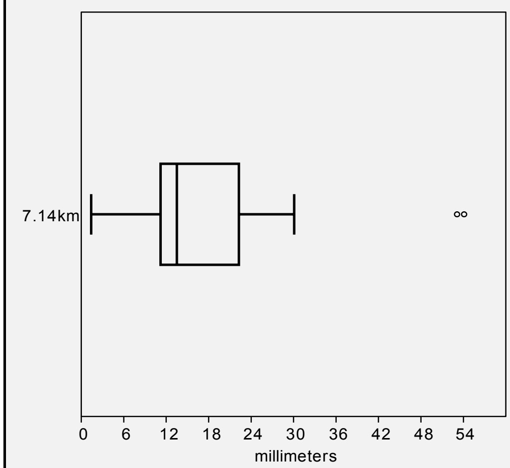
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (4.65km, n=30)



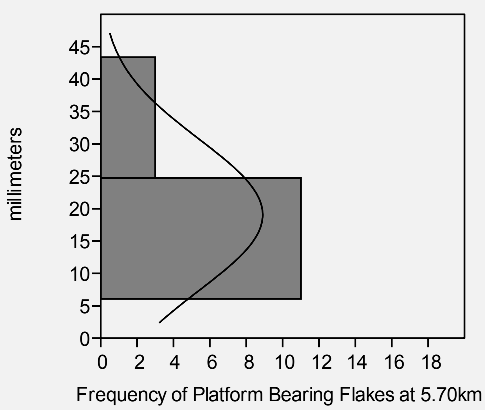
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (5.70km, n=14)



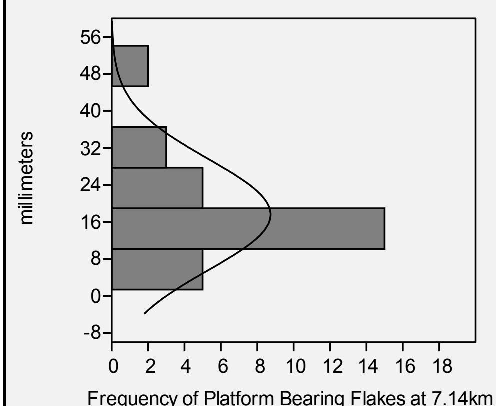
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (7.14km, n=30)

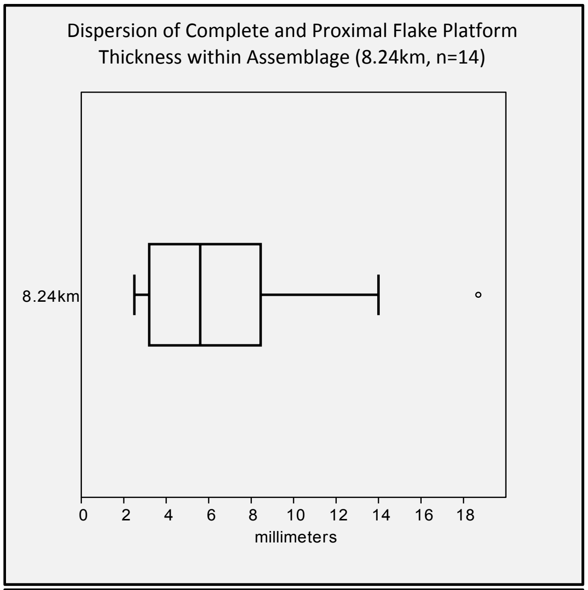


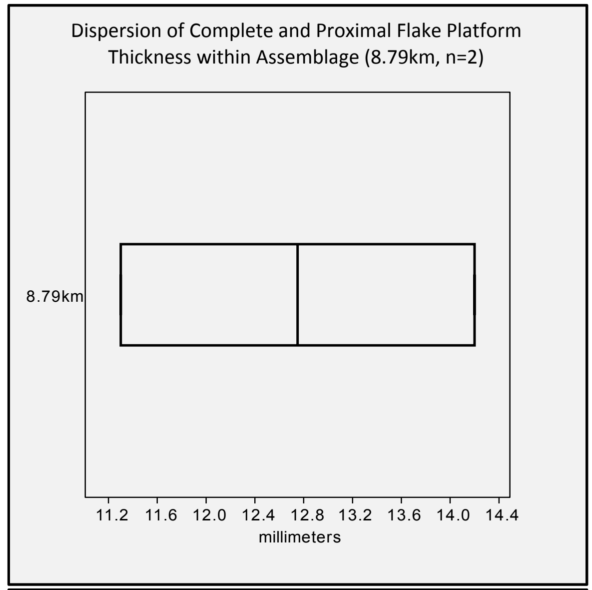
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (5.70km, n=14)

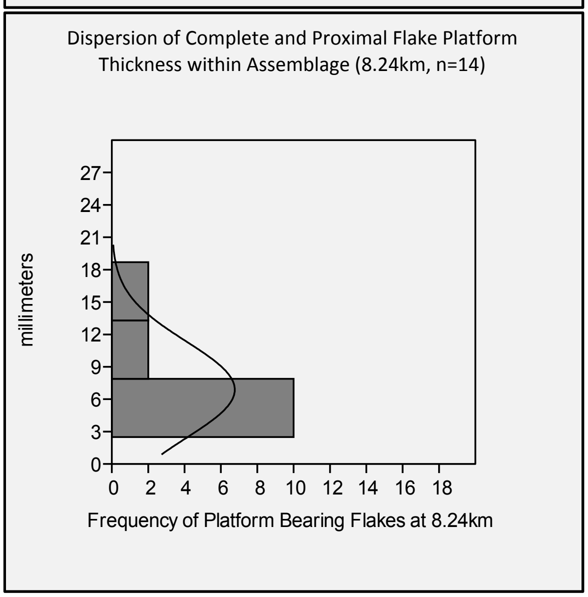


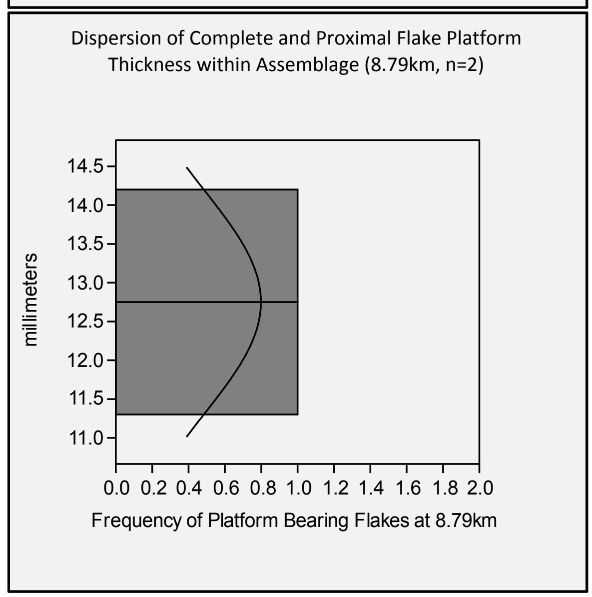
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (7.14km, n=30)



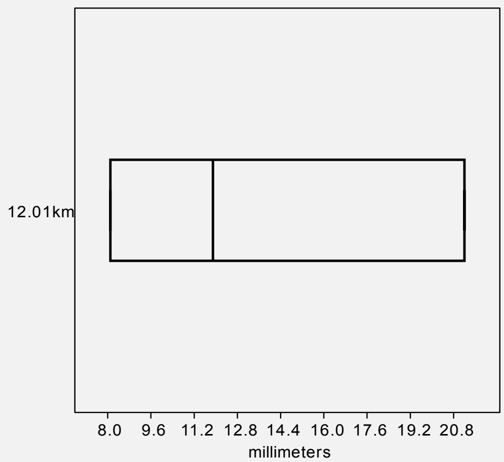

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (8.24km, n=14)
8.24km
0 2 4 6 8 10 12 14 16 18
millimeters


Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (8.79km, n=2)
8.79km
11.2 11.6 12.0 12.4 12.8 13.2 13.6 14.0 14.4
millimeters

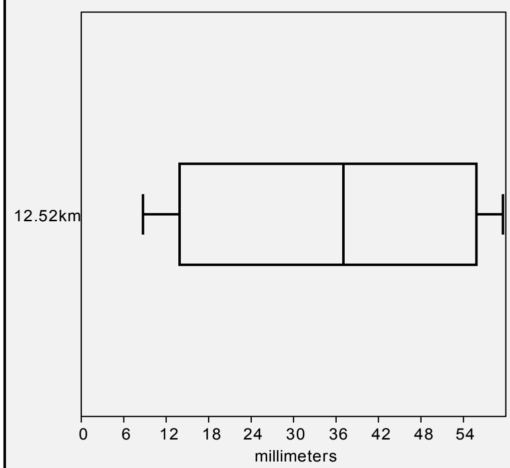

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (8.24km, n=14)
millimeters
27 24 21 18 15 12 9 6 3 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 8.24km


Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (8.79km, n=2)
millimeters
14.5 14.0 13.5 13.0 12.5 12.0 11.5 11.0
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0
Frequency of Platform Bearing Flakes at 8.79km

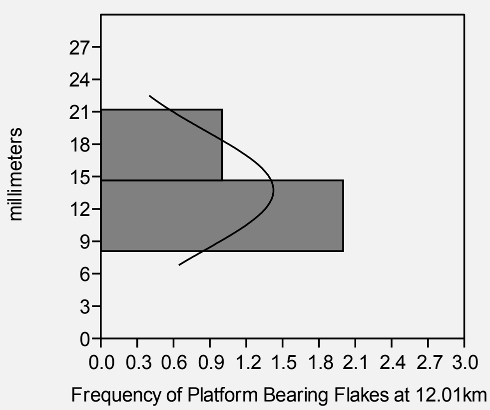
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (12.01km, n=3)



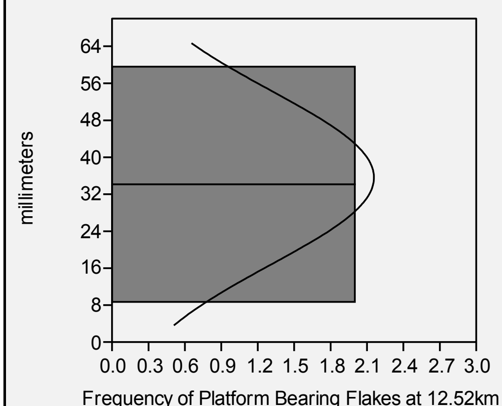
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (12.52km, n=4)

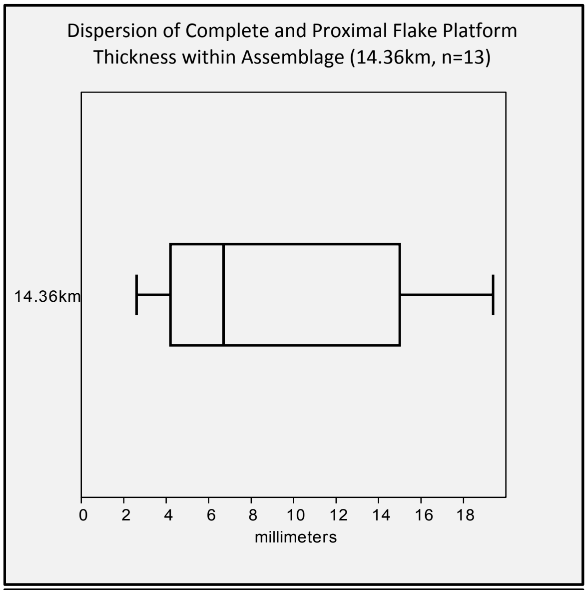


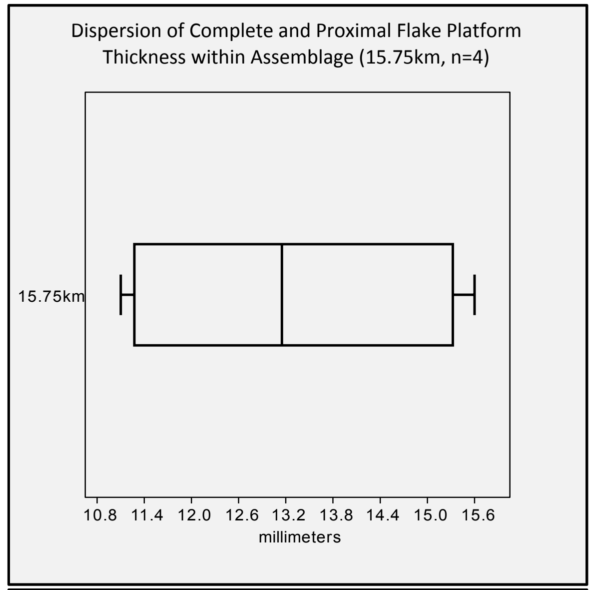
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (12.01km, n=3)

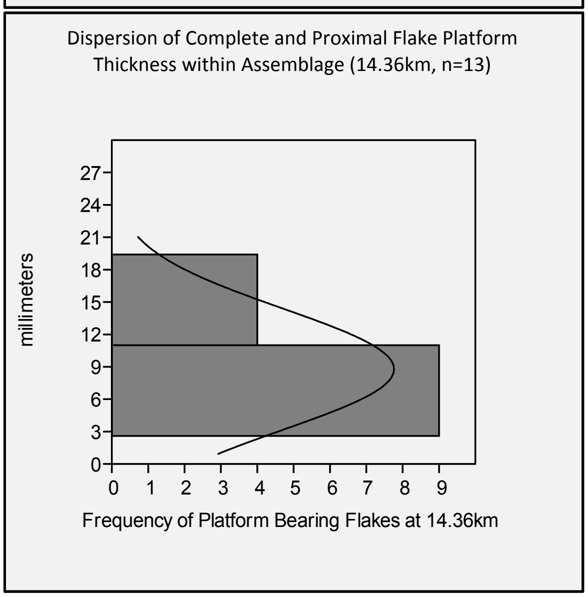


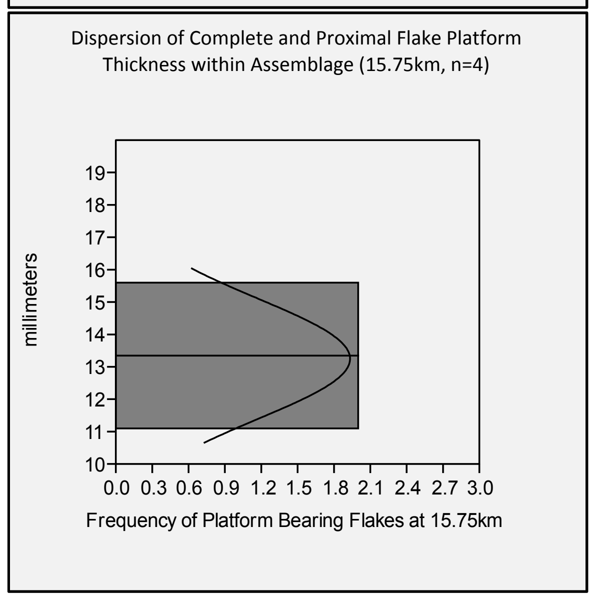
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (12.52km, n=4)

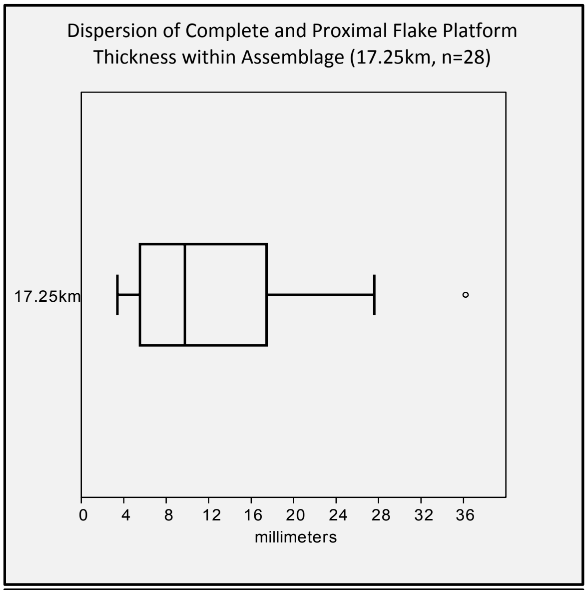


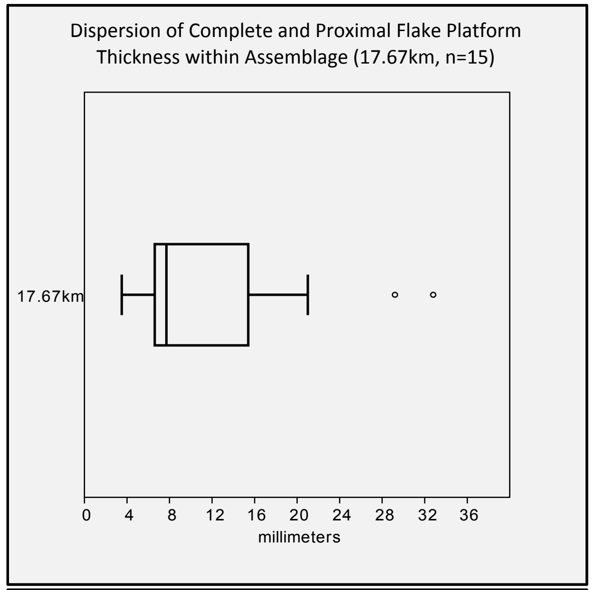

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (14.36km, n=13)
14.36km
0 2 4 6 8 10 12 14 16 18
millimeters

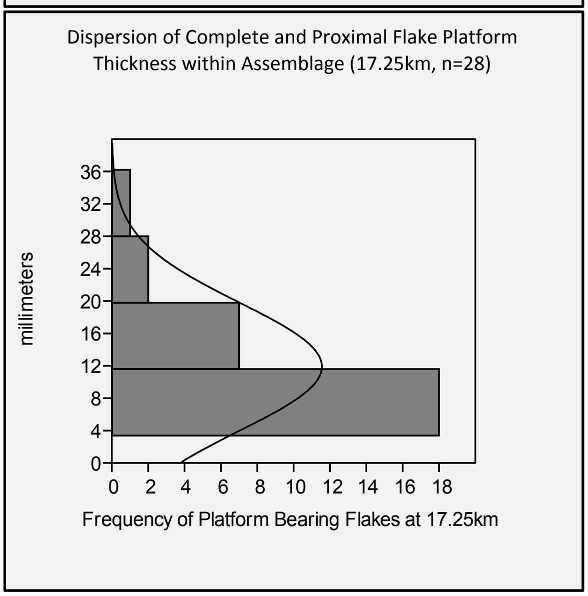

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (15.75km, n=4)
15.75km
10.8 11.4 12.0 12.6 13.2 13.8 14.4 15.0 15.6
millimeters

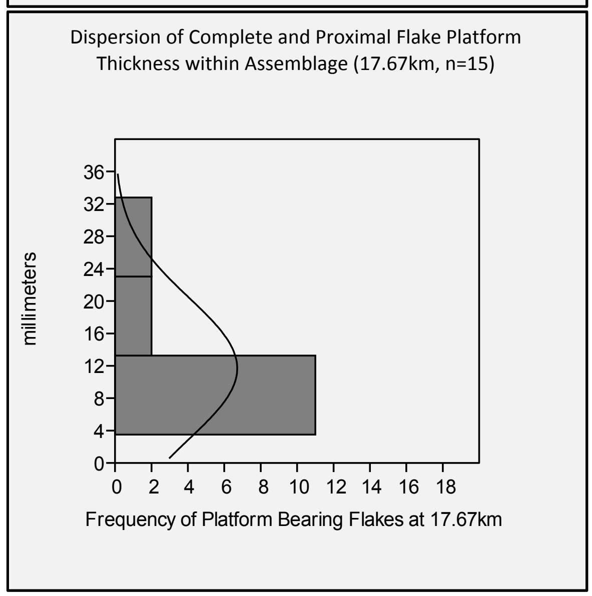

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (14.36km, n=13)
millimeters
0 3 6 9 12 15 18 21 24 27
0 1 2 3 4 5 6 7 8 9
Frequency of Platform Bearing Flakes at 14.36km


Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (15.75km, n=4)
millimeters
10 11 12 13 14 15 16 17 18 19
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0
Frequency of Platform Bearing Flakes at 15.75km

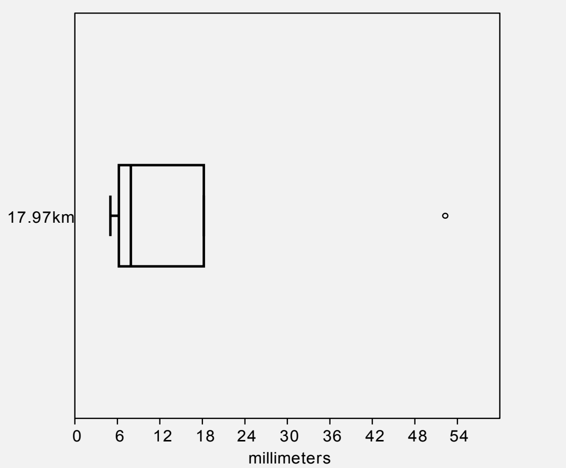

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (17.25km, n=28)
17.25km
0 4 8 12 16 20 24 28 32 36
millimeters


Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (17.67km, n=15)
17.67km
0 4 8 12 16 20 24 28 32 36
millimeters

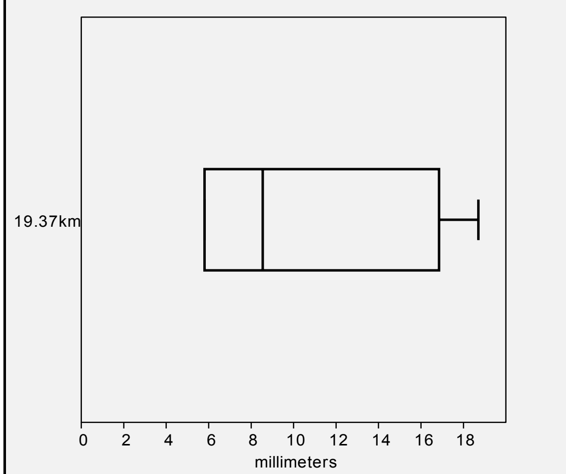

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (17.25km, n=28)
millimeters
36 32 28 24 20 16 12 8 4 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 17.25km


Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (17.67km, n=15)
millimeters
36 32 28 24 20 16 12 8 4 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 17.67km

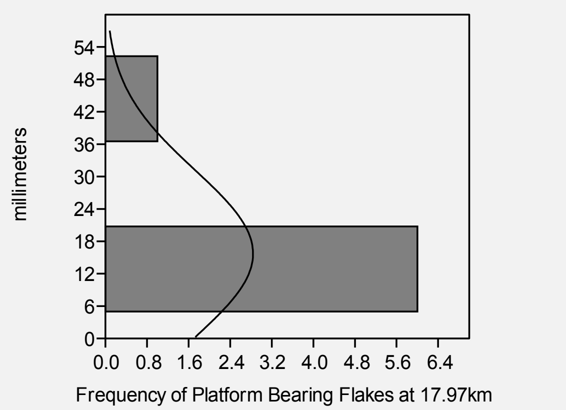
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (17.97km, n=7)



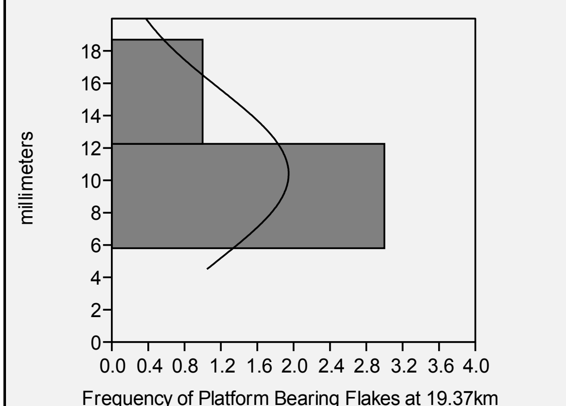
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (19.37km, n=4)



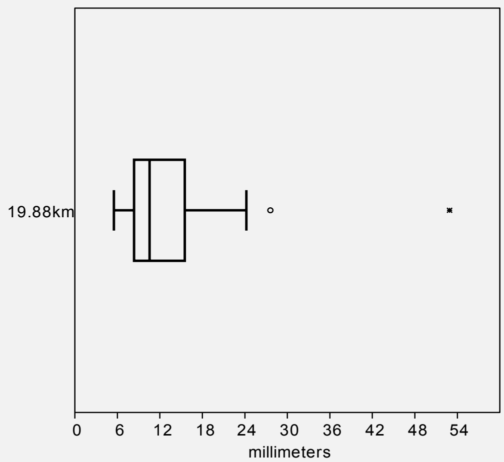
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (17.97km, n=7)



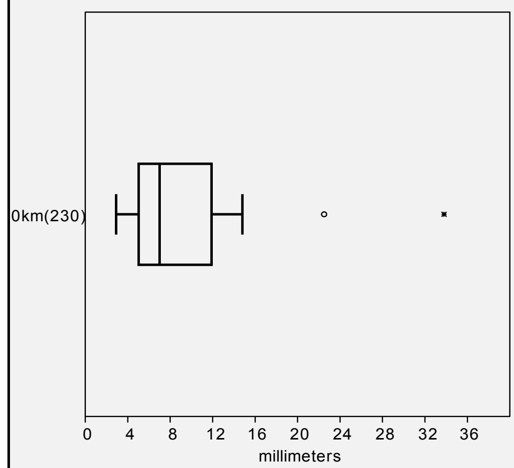
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (19.37km, n=4)



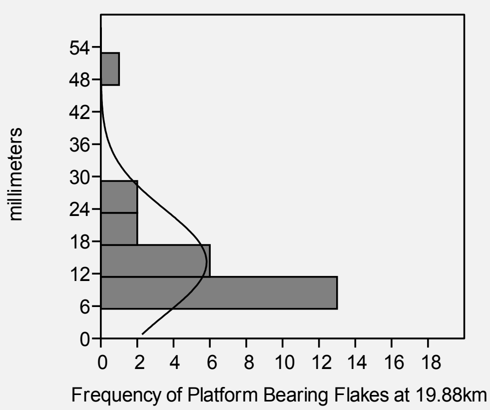
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (19.88km, n=24)



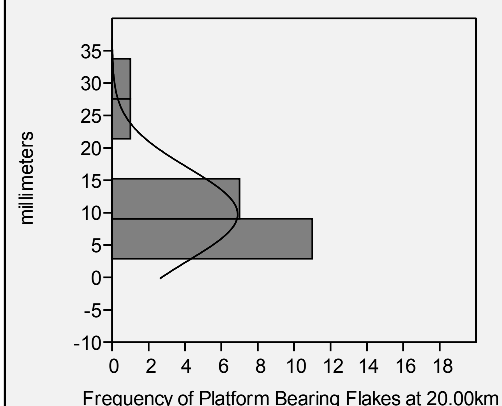
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.00km[ACC 230], n=20)



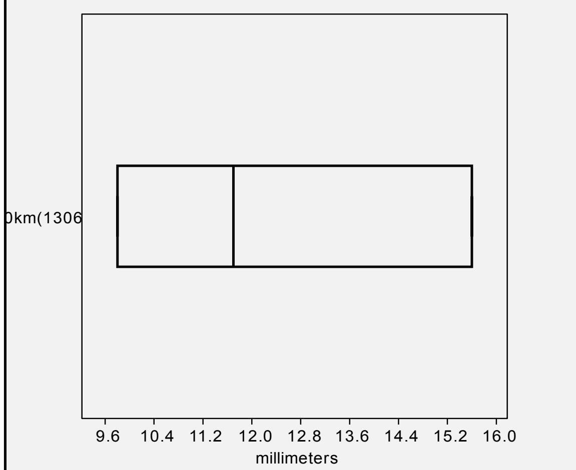
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (19.88km, n=24)



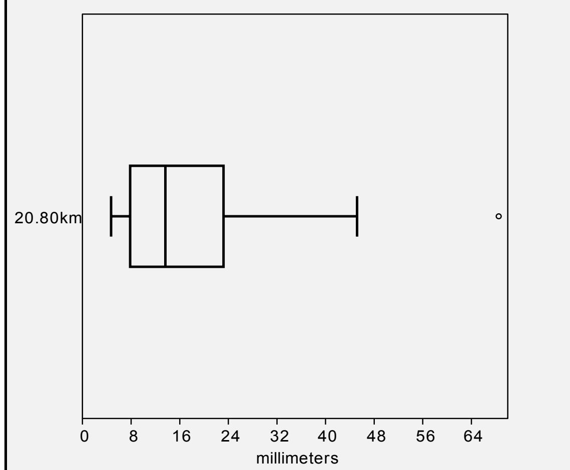
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.00km[ACC 230], n=20)



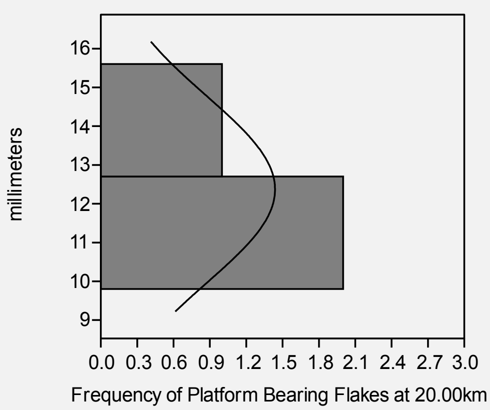
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.00km[ACC 1306], n=3)



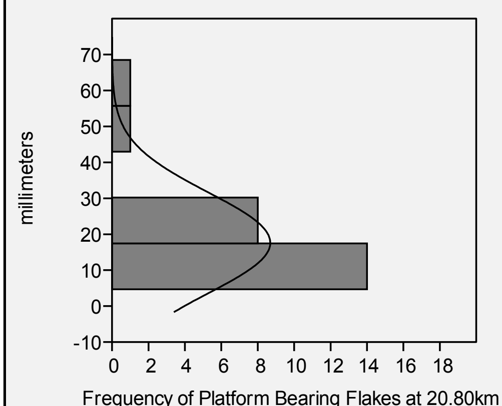
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.80km, n=24)



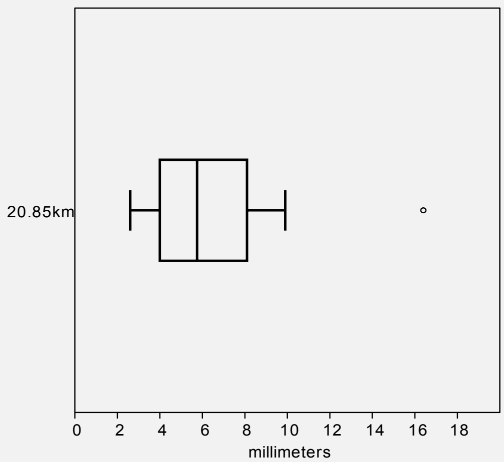
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.00km[ACC 1306], n=3)



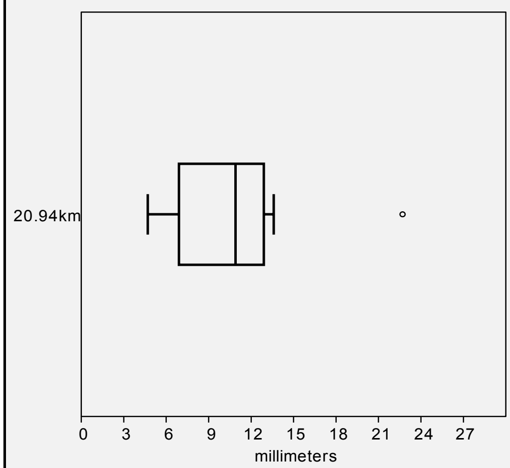
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.80km, n=24)



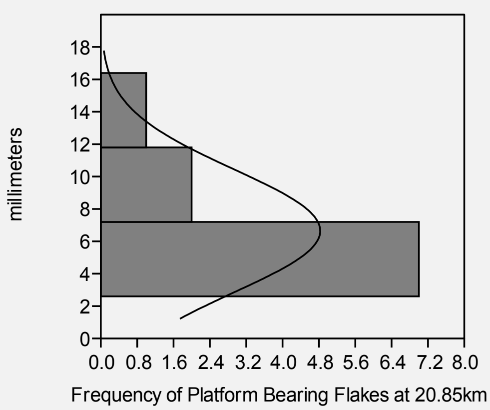
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.85km, n=10)



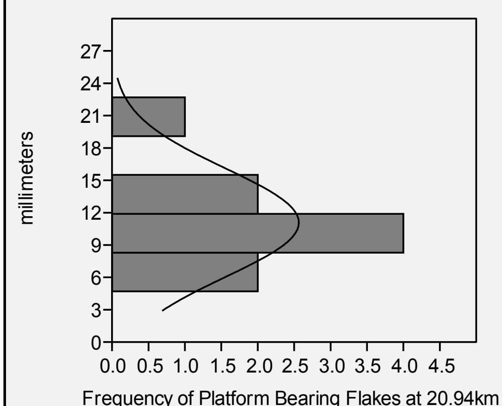
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.94km, n=9)



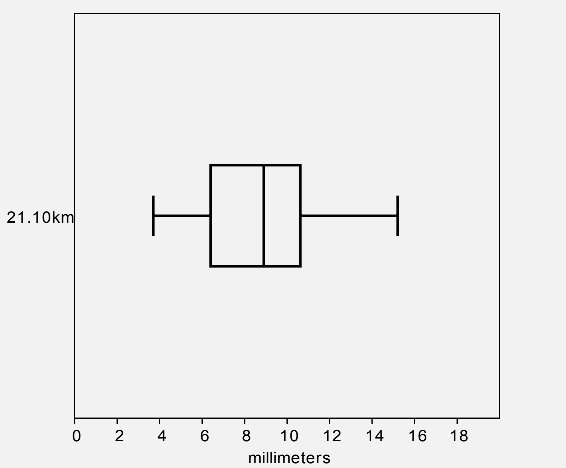
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.85km, n=10)



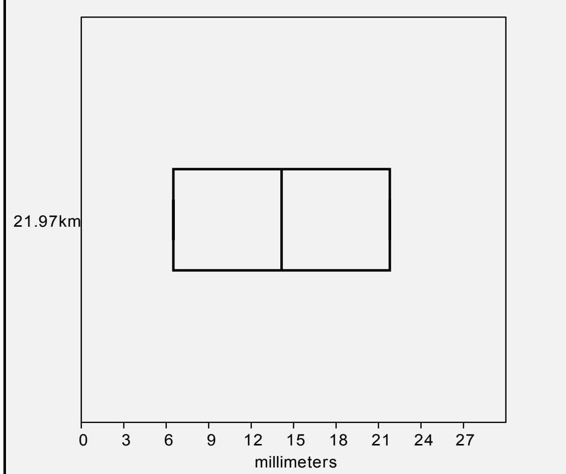
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (20.94km, n=9)



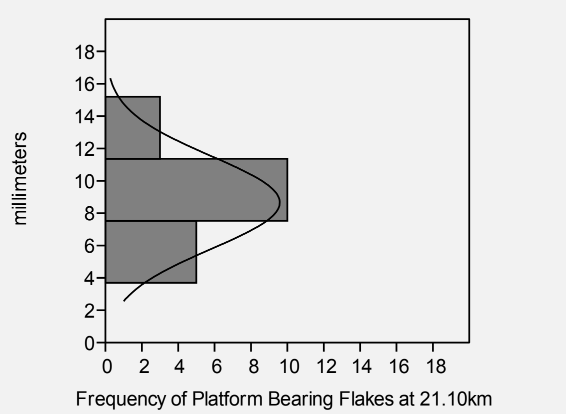
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (21.10km, n=18)



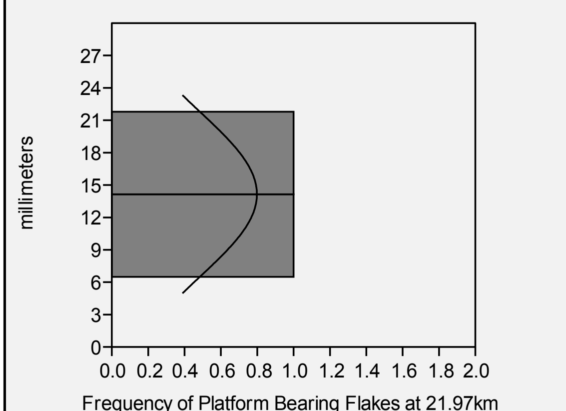
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (21.97km, n=2)

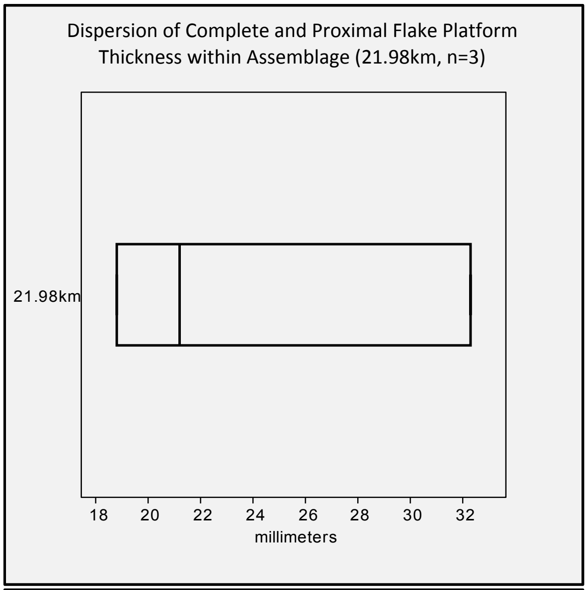


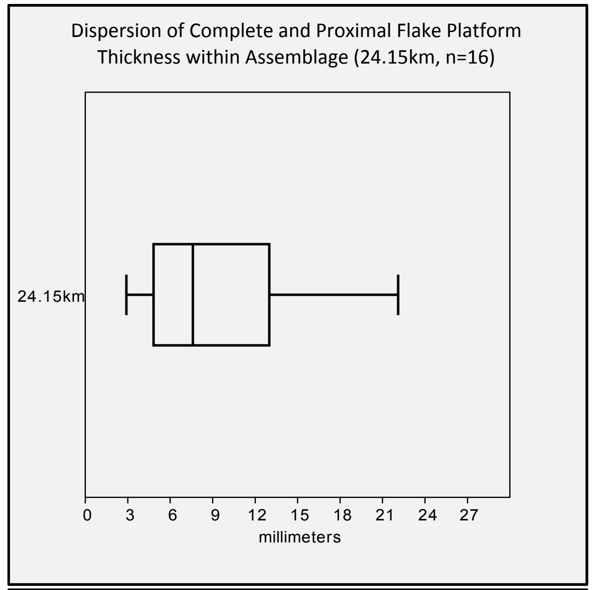
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (21.10km, n=18)

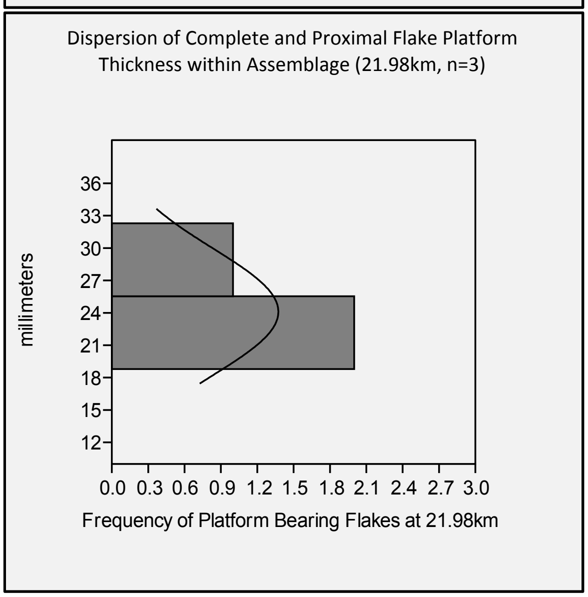


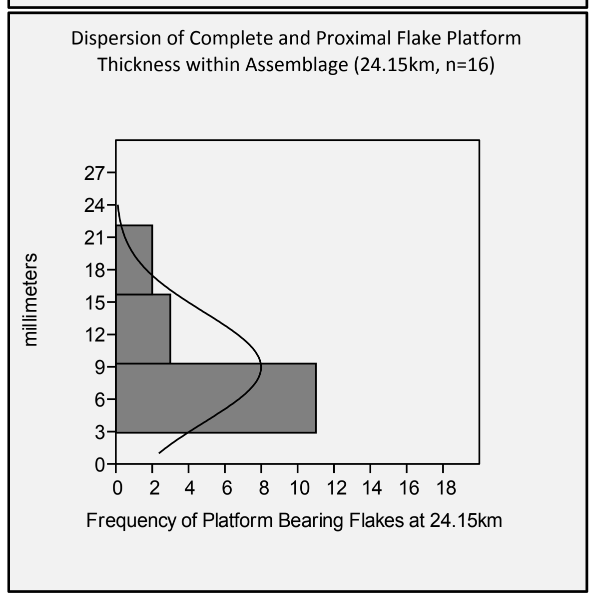
Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (21.97km, n=2)

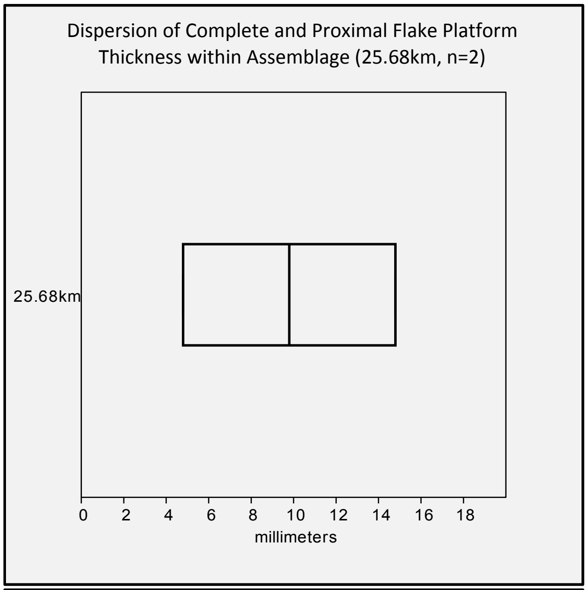


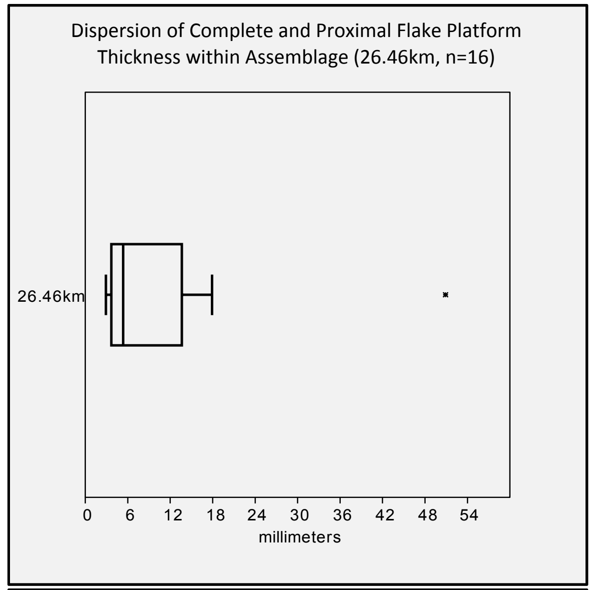

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (21.98km, n=3)
21.98km
18 20 22 24 26 28 30 32
millimeters

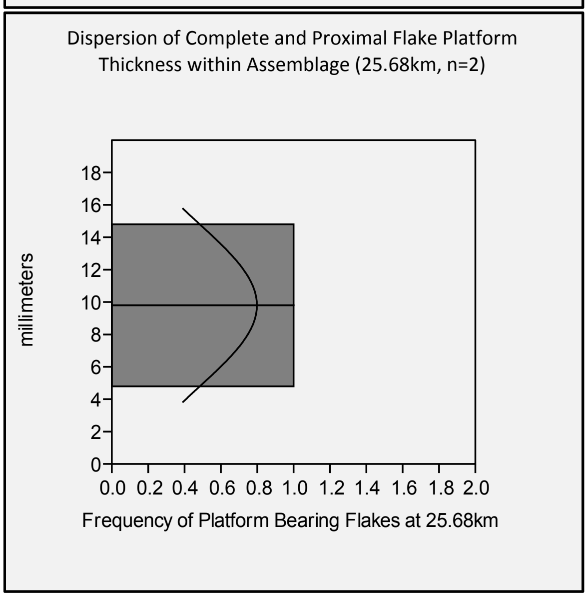

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (24.15km, n=16)
24.15km
0 3 6 9 12 15 18 21 24 27
millimeters

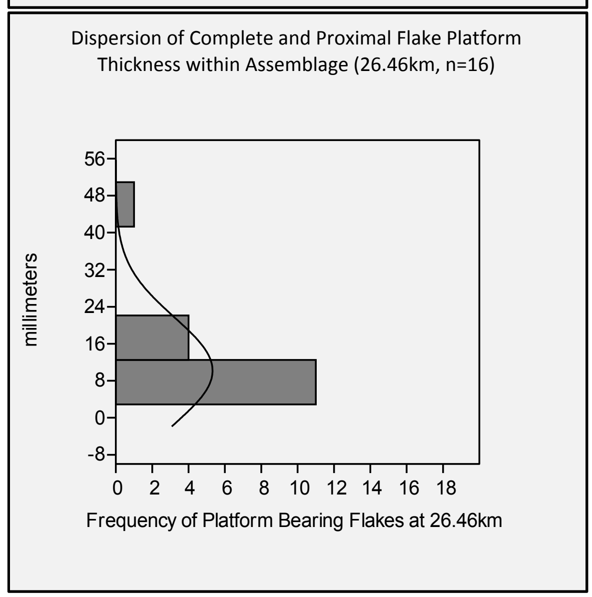

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (21.98km, n=3)
millimeters
36 33 30 27 24 21 18 15 12
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0
Frequency of Platform Bearing Flakes at 21.98km

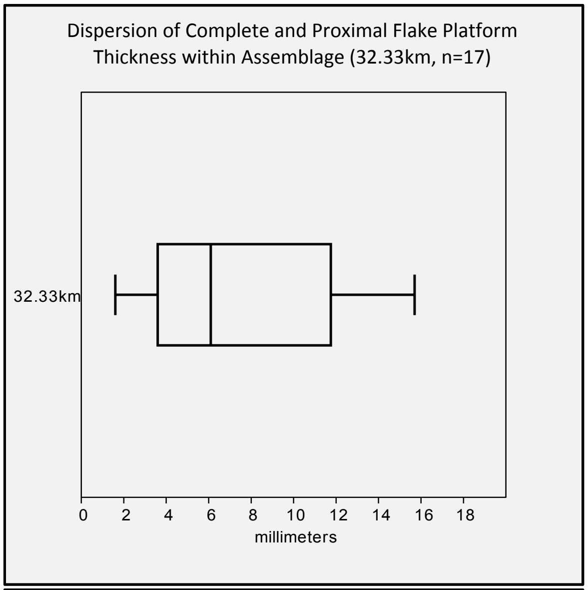

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (24.15km, n=16)
millimeters
27 24 21 18 15 12 9 6 3 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 24.15km

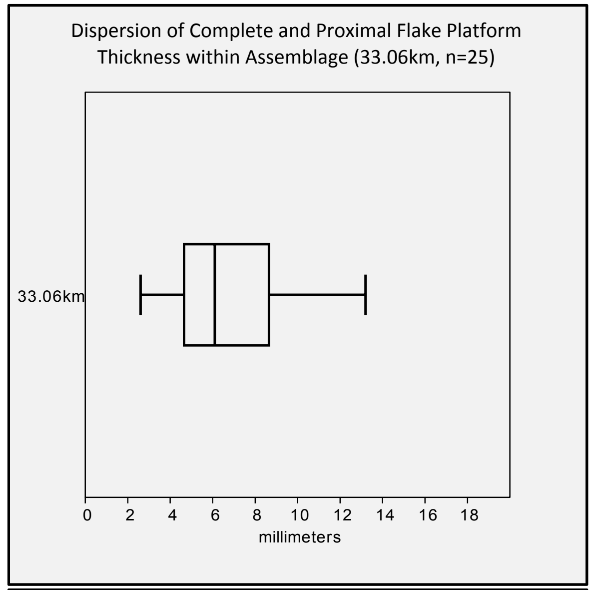

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (25.68km, n=2)
25.68km
0 2 4 6 8 10 12 14 16 18
millimeters

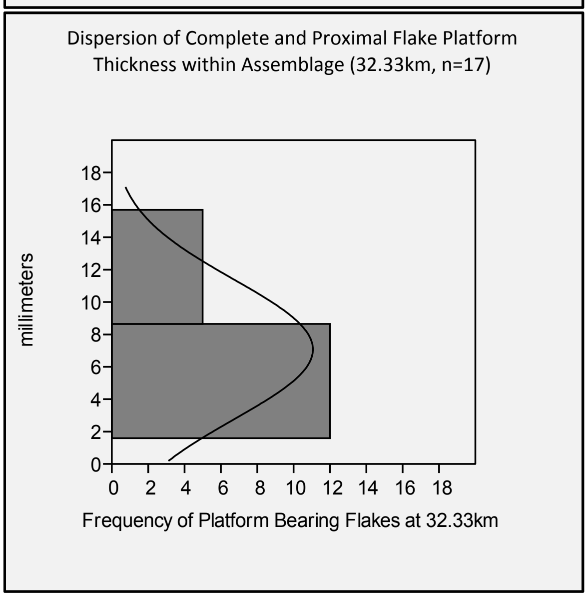

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (26.46km, n=16)
26.46km
0 6 12 18 24 30 36 42 48 54
millimeters

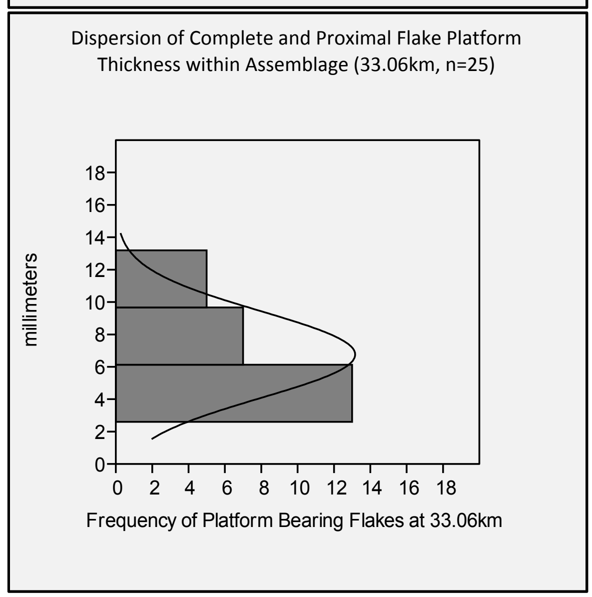

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (25.68km, n=2)
millimeters
18 16 14 12 10 8 6 4 2 0
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0
Frequency of Platform Bearing Flakes at 25.68km

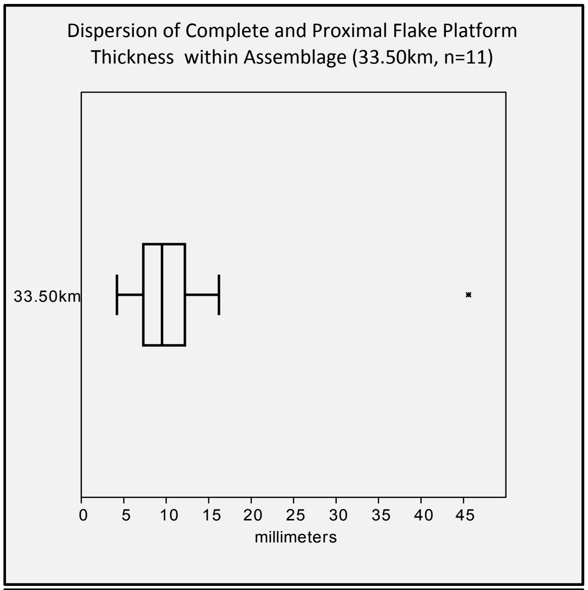

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (26.46km, n=16)
millimeters
56 48 40 32 24 16 8 0 -8
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 26.46km

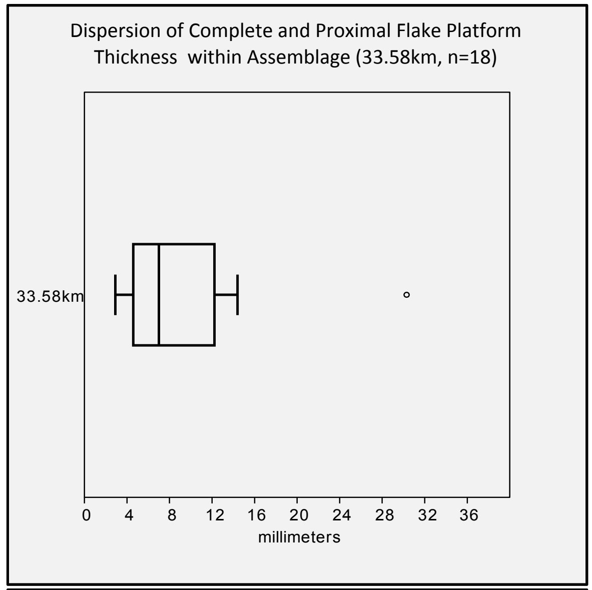

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (32.33km, n=17)
32.33km
0 2 4 6 8 10 12 14 16 18
millimeters

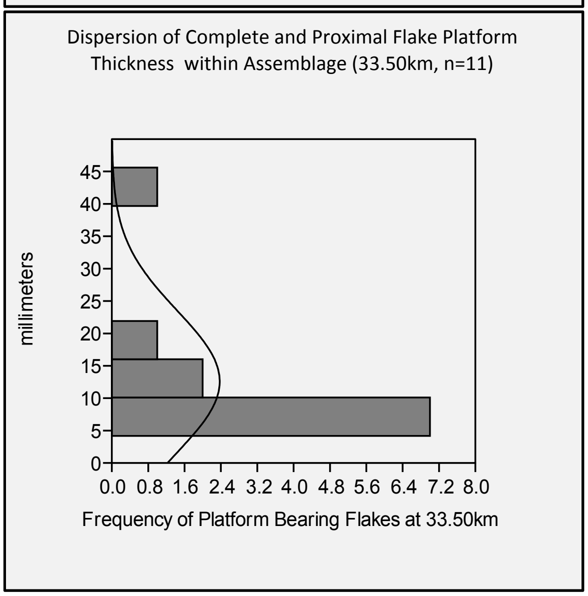

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (33.06km, n=25)
33.06km
0 2 4 6 8 10 12 14 16 18
millimeters

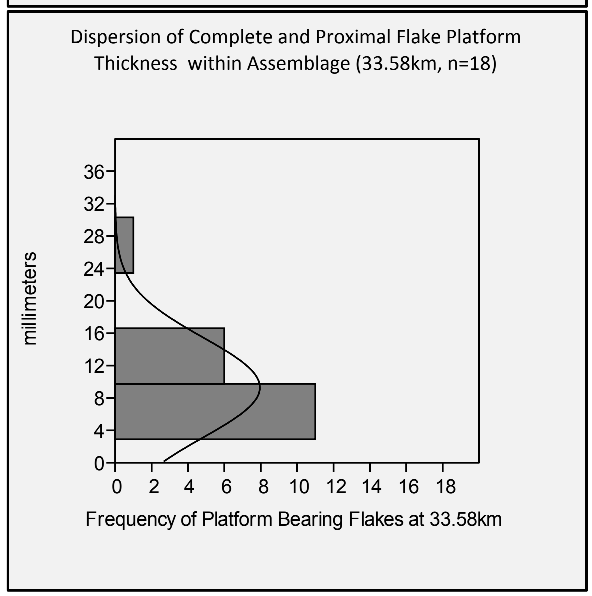

Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (32.33km, n=17)
millimeters
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 32.33km


Dispersion of Complete and Proximal Flake Platform Thickness within Assemblage (33.06km, n=25)
millimeters
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 33.06km

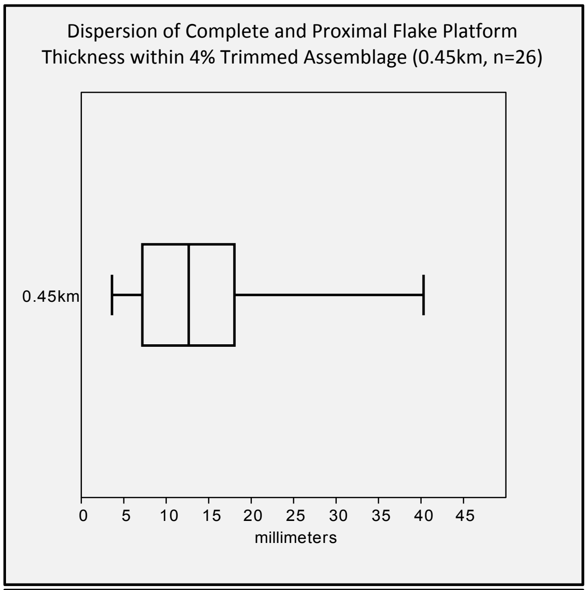

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (33.50km, n=11)
33.50km
0 5 10 15 20 25 30 35 40 45
millimeters

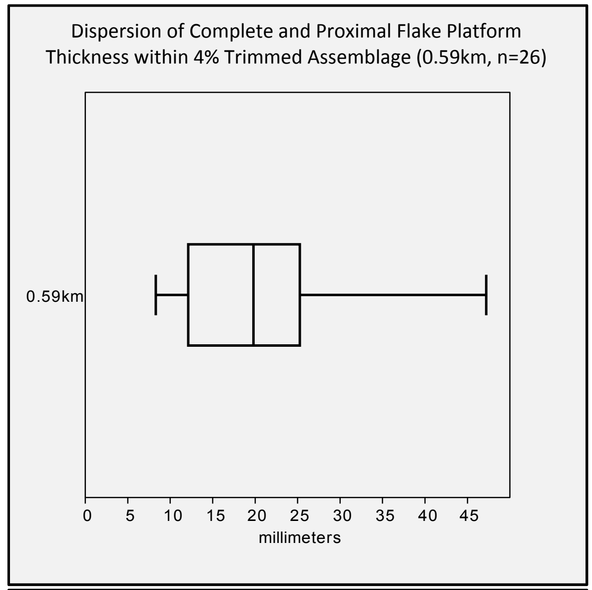

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (33.58km, n=18)
33.58km
0 4 8 12 16 20 24 28 32 36
millimeters

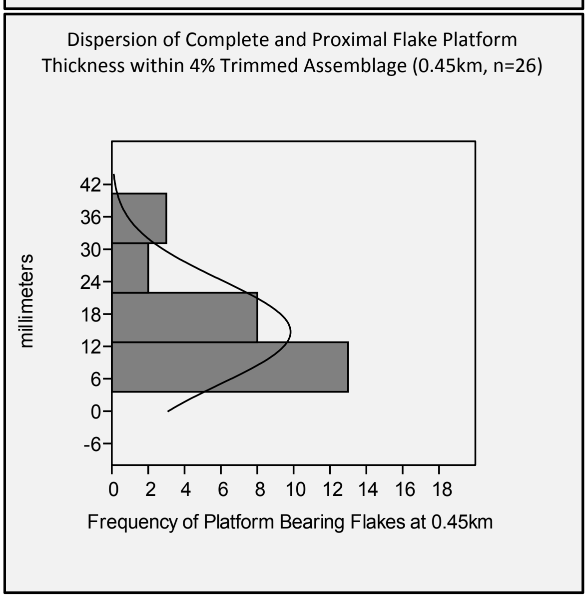

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (33.50km, n=11)
millimeters
45 40 35 30 25 20 15 10 5 0
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0
Frequency of Platform Bearing Flakes at 33.50km

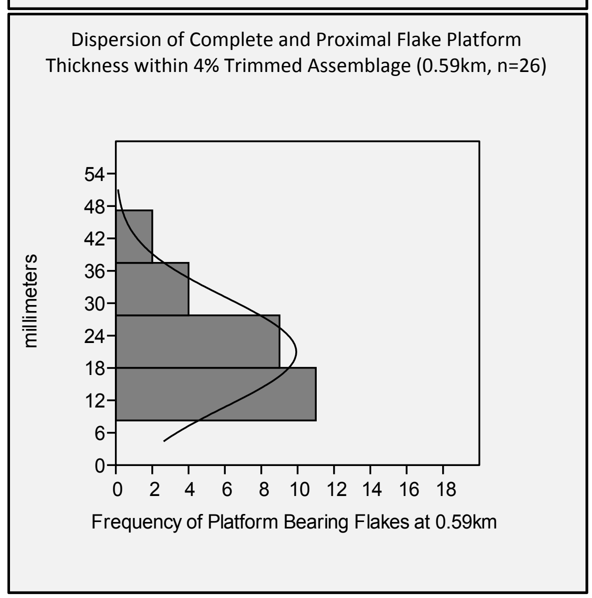

Dispersion of Complete and Proximal Flake Platform
Thickness within Assemblage (33.58km, n=18)
millimeters
36 32 28 24 20 16 12 8 4 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 33.58km

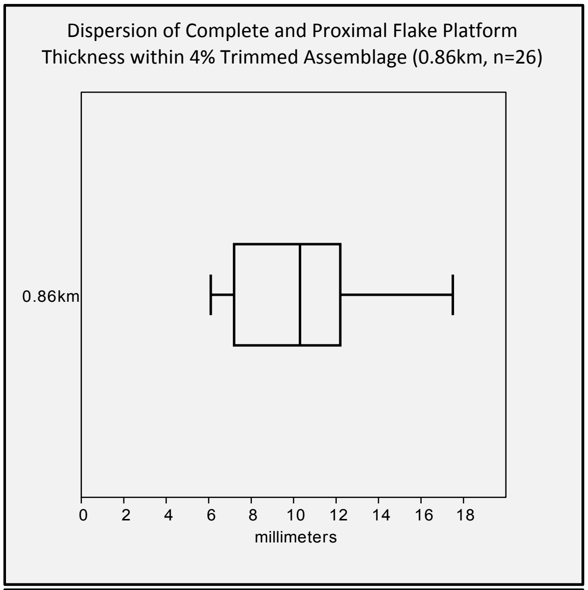
Appendix G: Dispersion of Complete and Proximal Flake Platform Thickness Trimmed

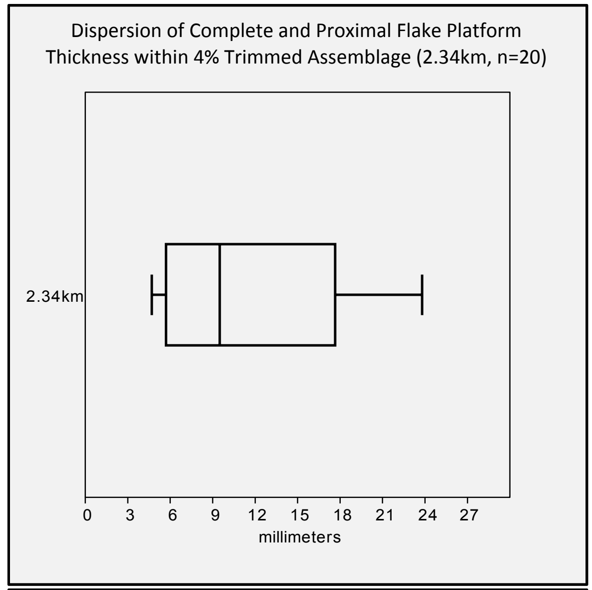


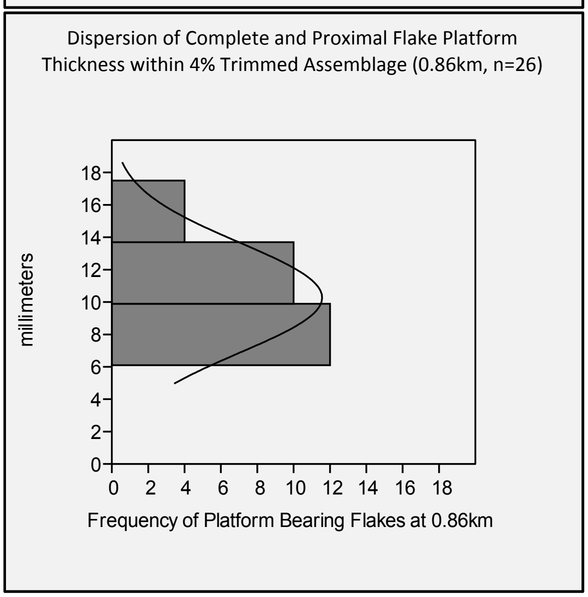


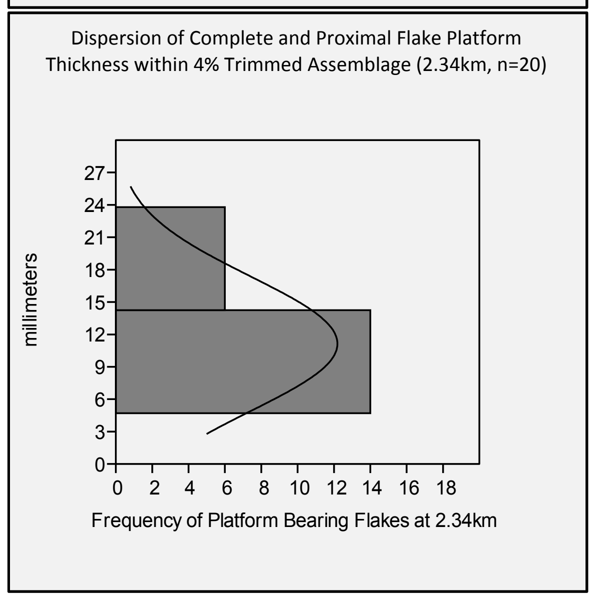




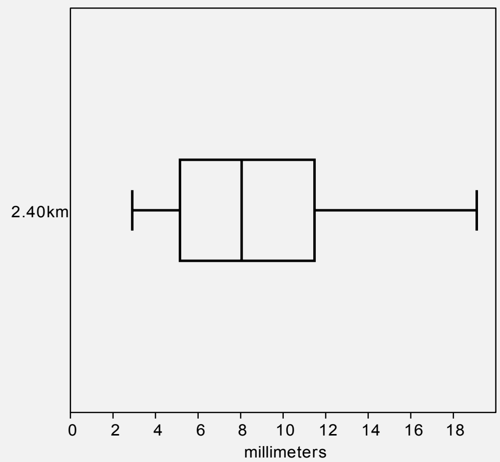

Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (0.86km, n=26)
0.86km
0 2 4 6 8 10 12 14 16 18
millimeters


Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (2.34km, n=20)
2.34km
0 3 6 9 12 15 18 21 24 27
millimeters

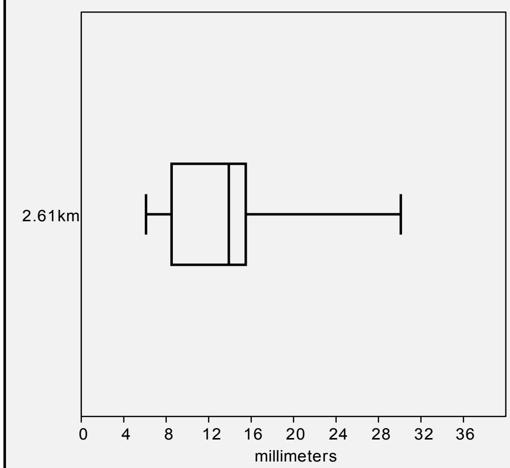

Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (0.86km, n=26)
millimeters
18 16 14 12 10 8 6 4 2 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 0.86km


Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (2.34km, n=20)
millimeters
27 24 21 18 15 12 9 6 3 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 2.34km

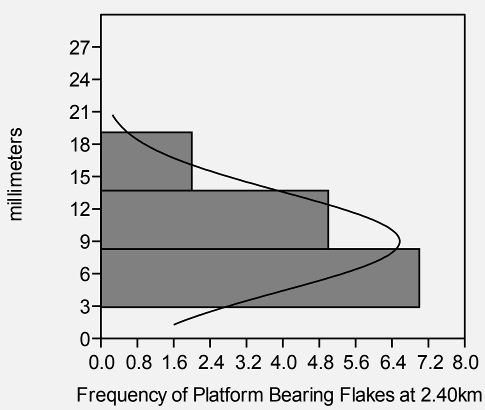
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (2.40km, n=14)



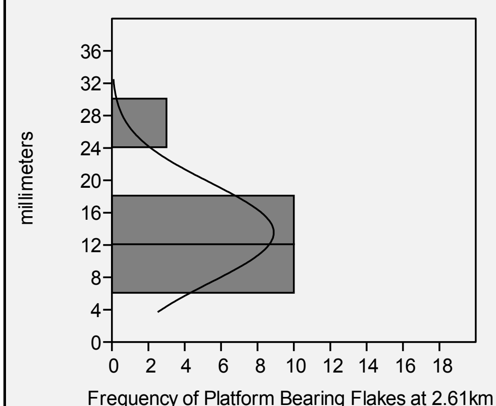
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (2.61km, n=23)



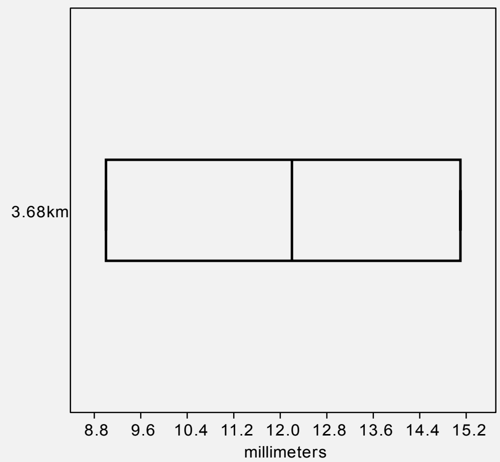
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (2.40km, n=14)



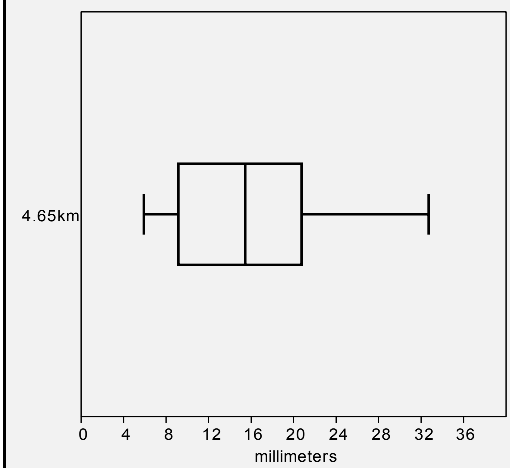
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (2.61km, n=23)



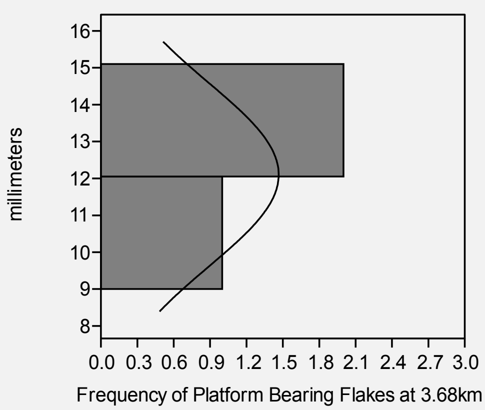
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (3.68km, n=3)



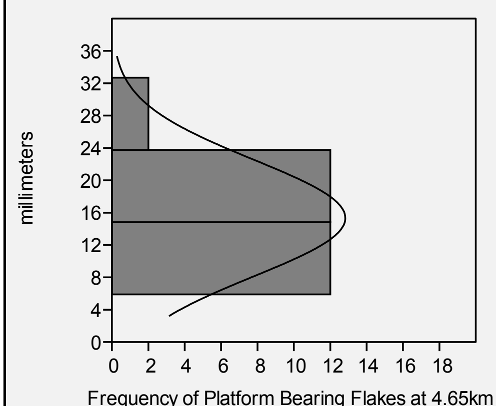
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (4.65km, n=26)



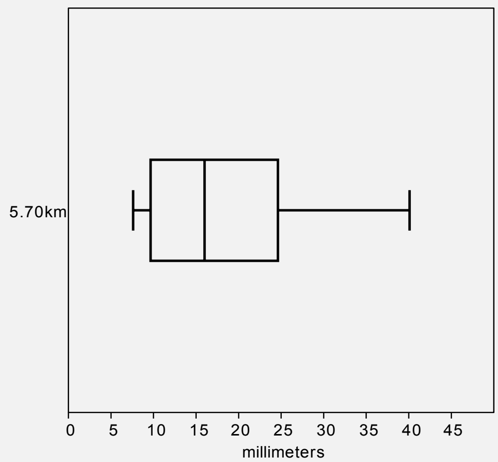
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (3.68km, n=3)



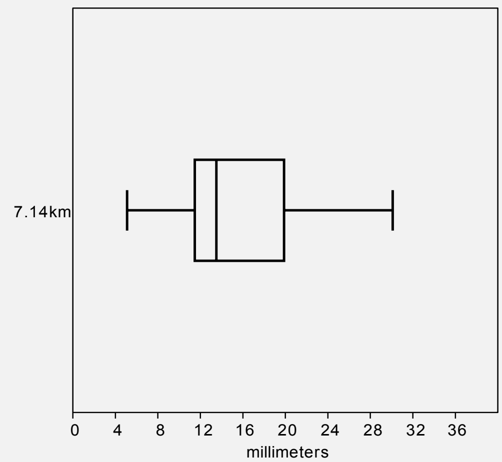
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (4.65km, n=26)



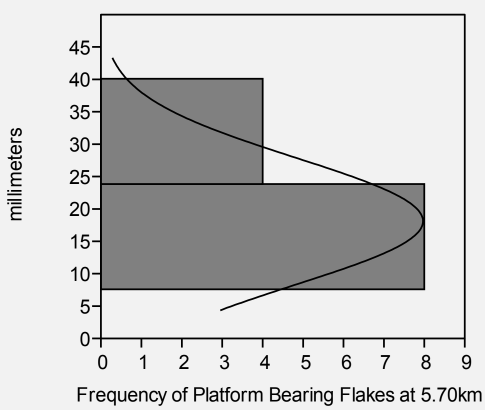
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (5.70km, n=12)



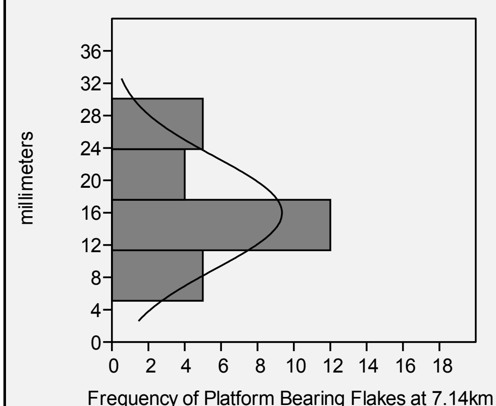
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (7.14km, n=26)



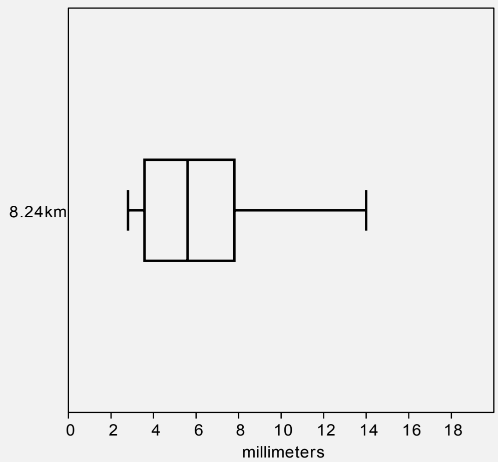
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (5.70km, n=12)



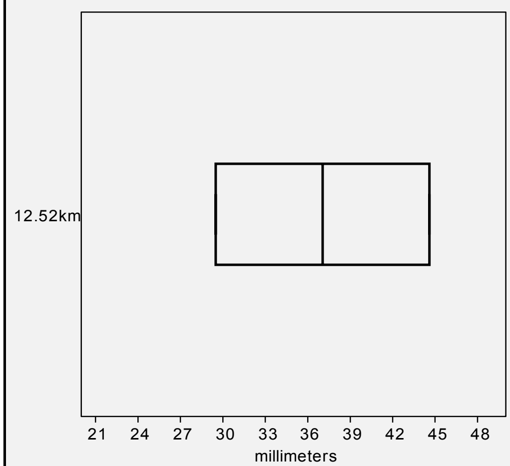
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (7.14km, n=26)



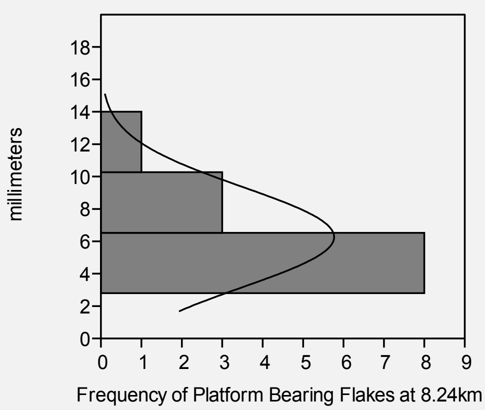
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (8.24km, n=12)



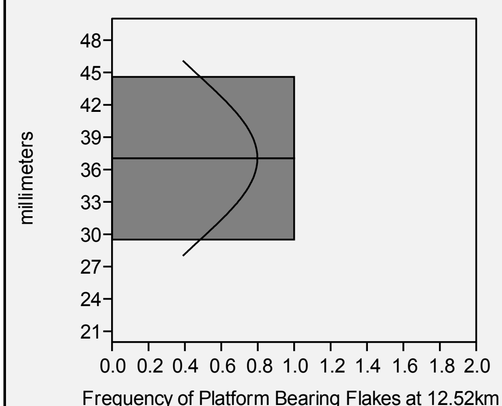
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (12.52km, n=2)



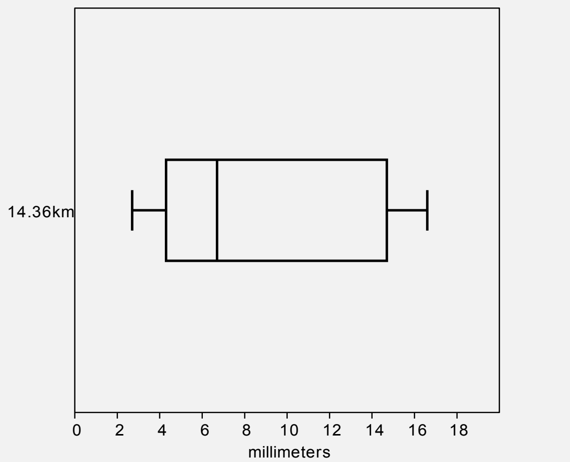
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (8.24km, n=12)



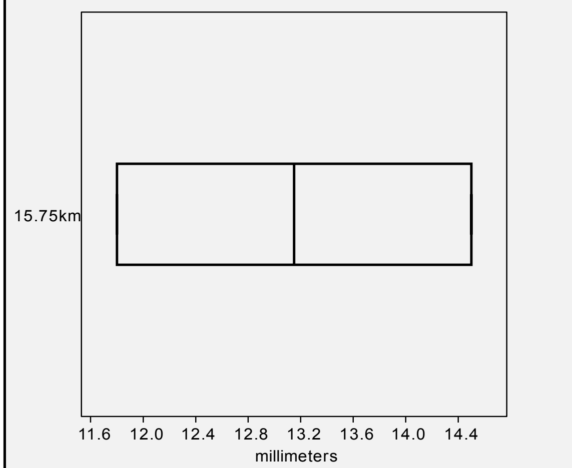
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (12.52km, n=2)



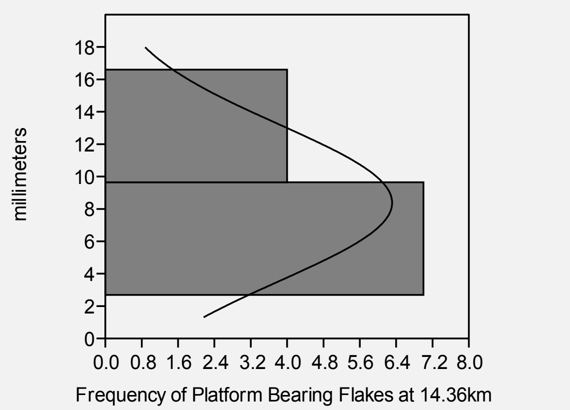
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (14.36km, n=11)



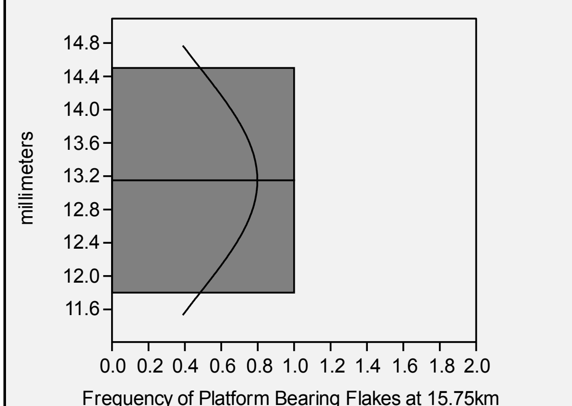
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (15.75km, n=2)

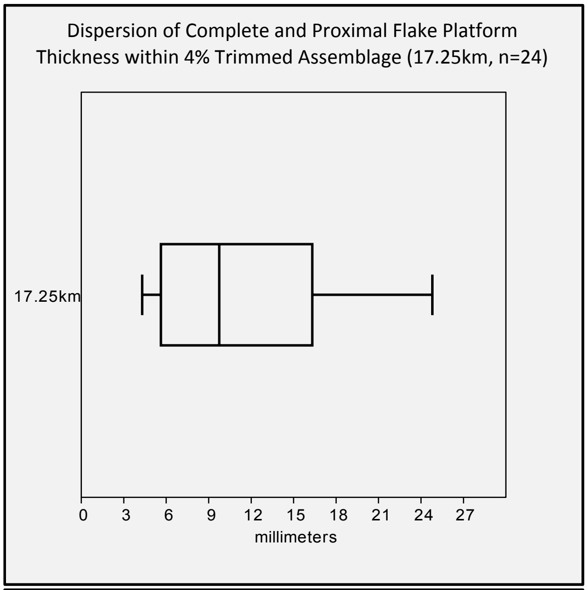


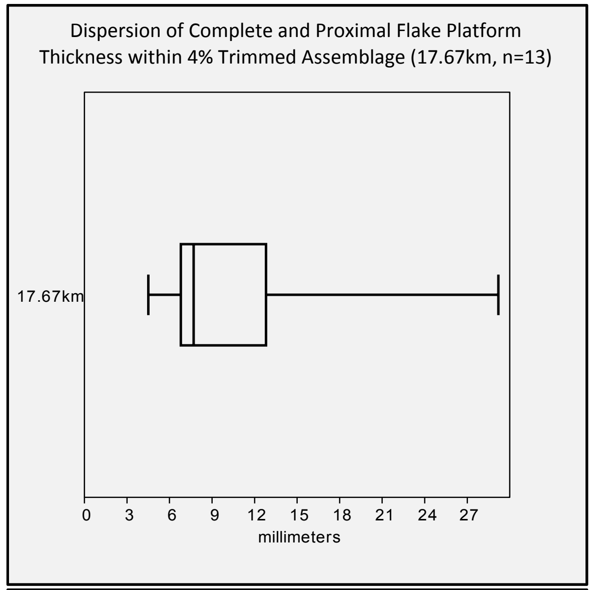
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (14.36km, n=11)

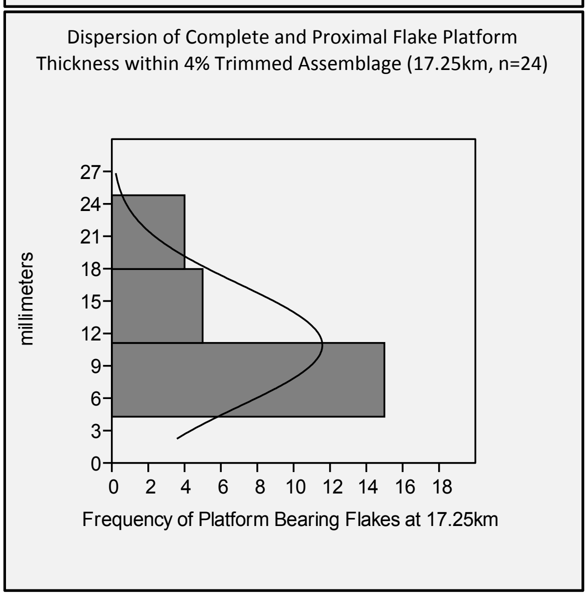


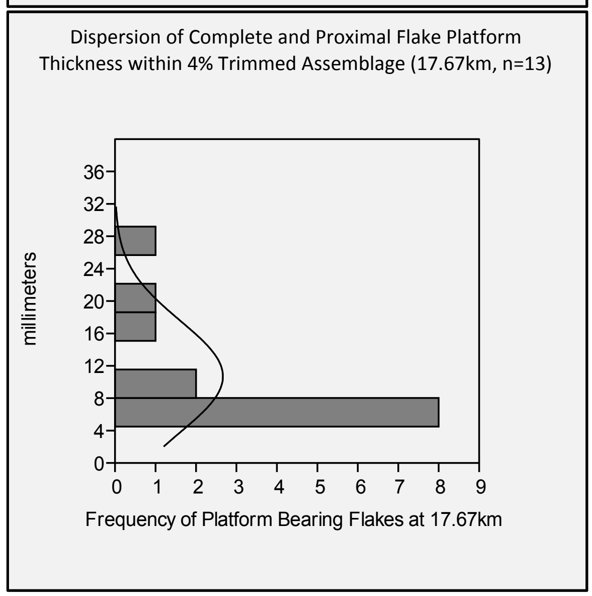
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (15.75km, n=2)



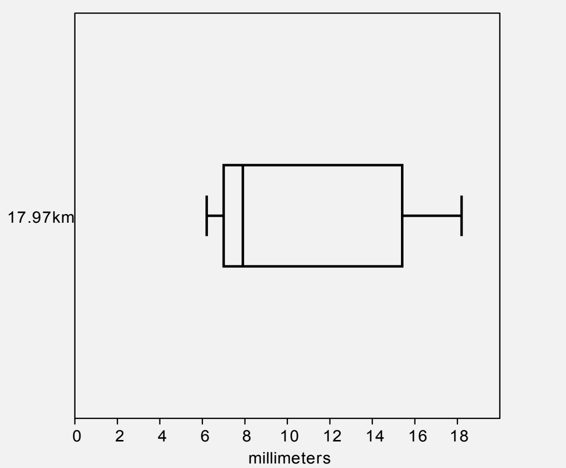

Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (17.25km, n=24)
17.25km
0 3 6 9 12 15 18 21 24 27
millimeters


Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (17.67km, n=13)
17.67km
0 3 6 9 12 15 18 21 24 27
millimeters

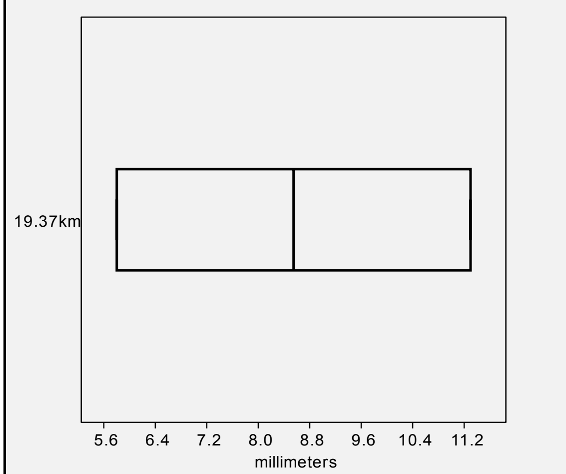

Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (17.25km, n=24)
millimeters
27 24 21 18 15 12 9 6 3 0
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 17.25km


Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (17.67km, n=13)
millimeters
36 32 28 24 20 16 12 8 4 0
0 1 2 3 4 5 6 7 8 9
Frequency of Platform Bearing Flakes at 17.67km

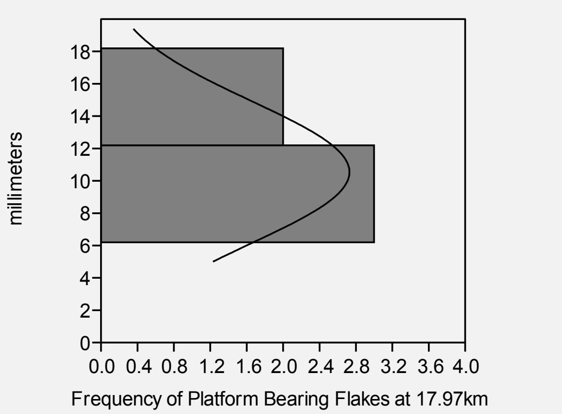
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (17.97km, n=5)



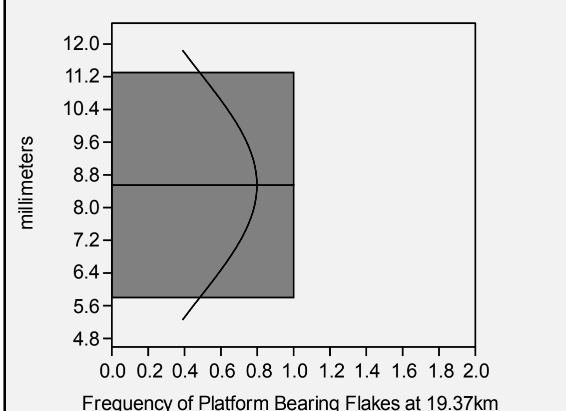
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (19.37km, n=2)



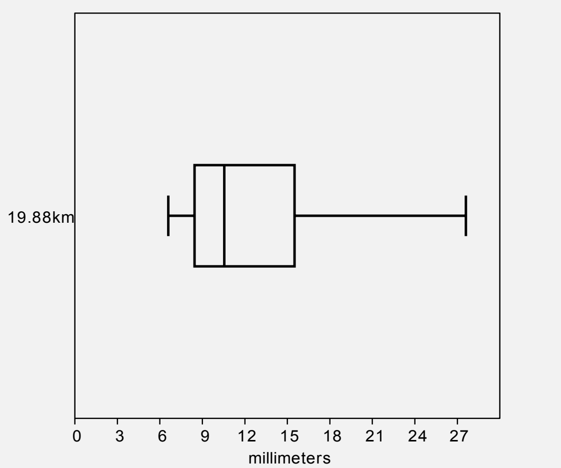
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (17.97km, n=5)



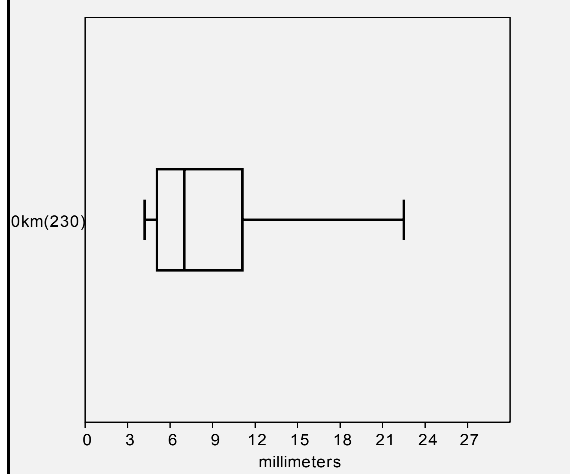
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (19.37km, n=2)



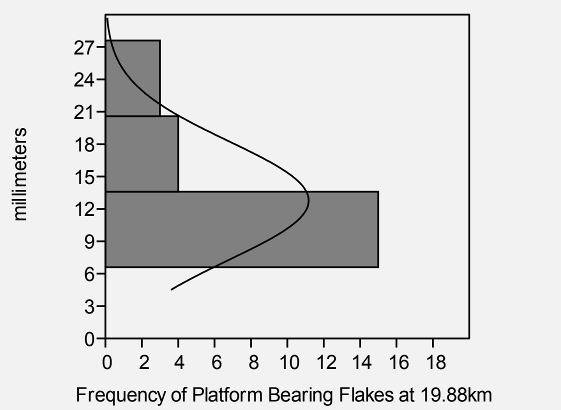
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (19.88km, n=22)



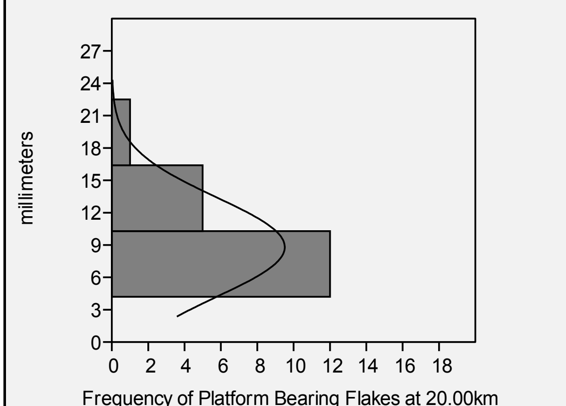
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (20.00km[ACC 230], n=18)

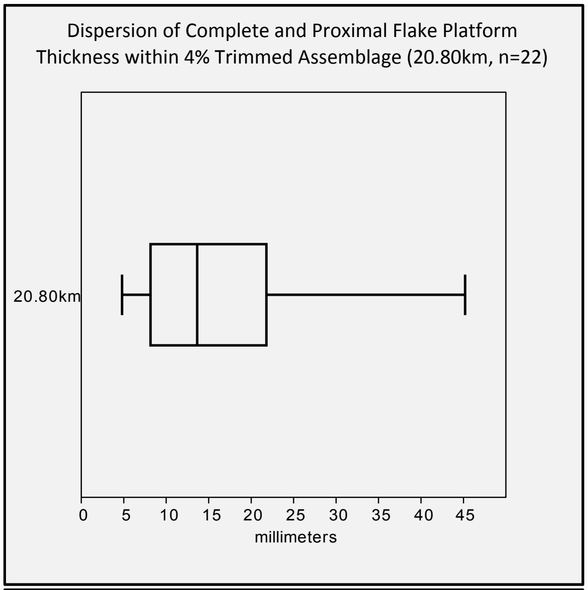


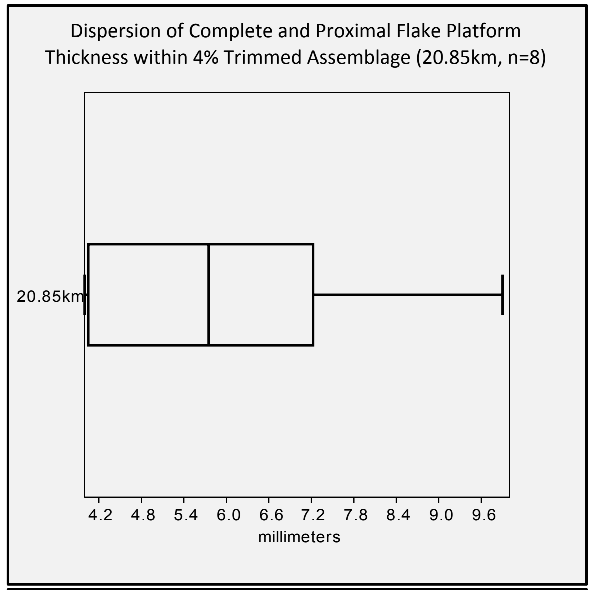
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (19.88km, n=22)

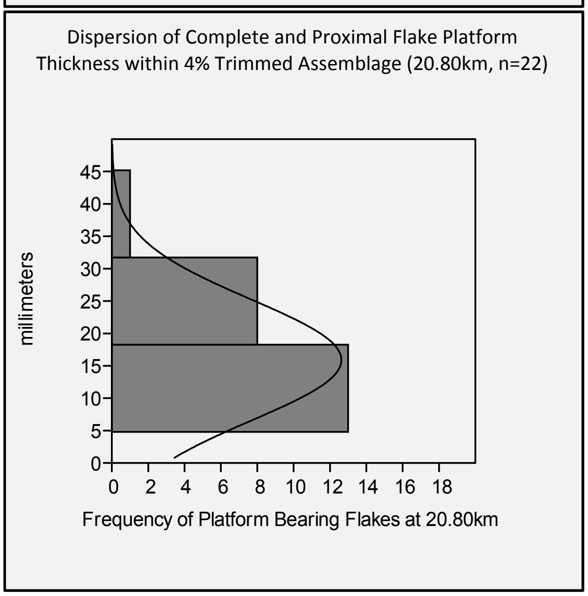


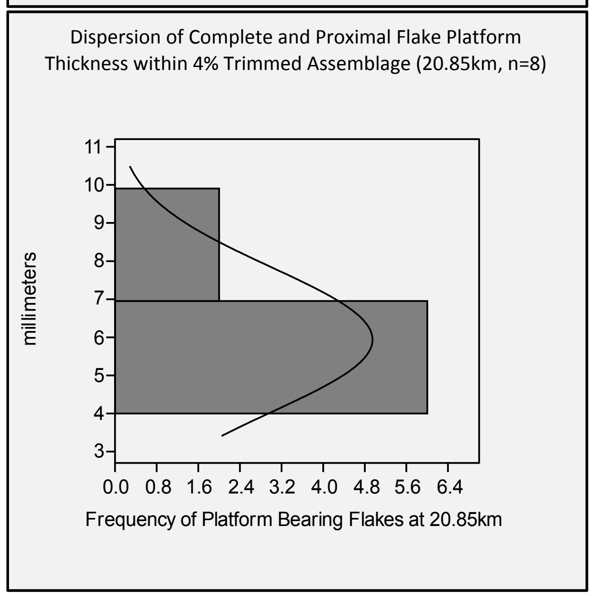
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (20.00km[ACC 230], n=18)



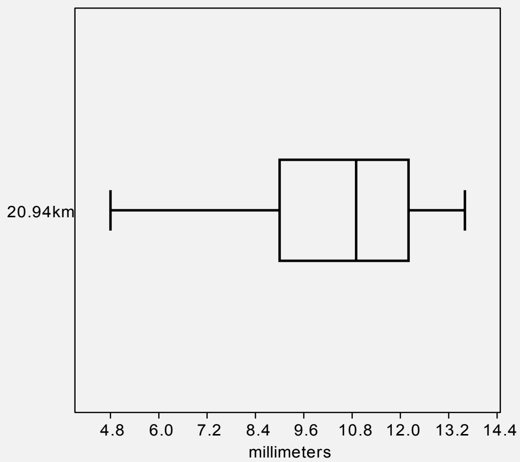

Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (20.80km, n=22)
20.80km
0 5 10 15 20 25 30 35 40 45
millimeters


Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (20.85km, n=8)
20.85km
4.2 4.8 5.4 6.0 6.6 7.2 7.8 8.4 9.0 9.6
millimeters

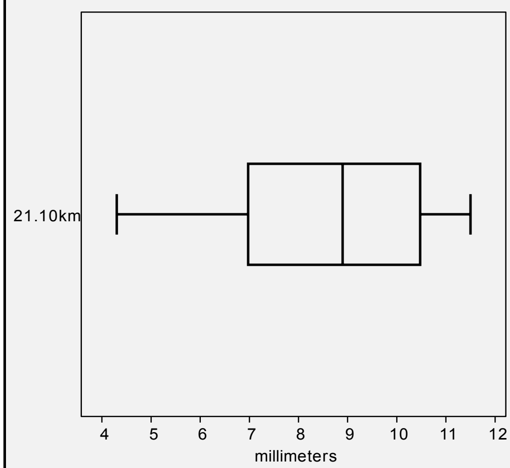

Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (20.80km, n=22)
millimeters
0 5 10 15 20 25 30 35 40 45
0 2 4 6 8 10 12 14 16 18
Frequency of Platform Bearing Flakes at 20.80km


Dispersion of Complete and Proximal Flake Platform
Thickness within 4% Trimmed Assemblage (20.85km, n=8)
millimeters
3 4 5 6 7 8 9 10 11
0.0 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4
Frequency of Platform Bearing Flakes at 20.85km

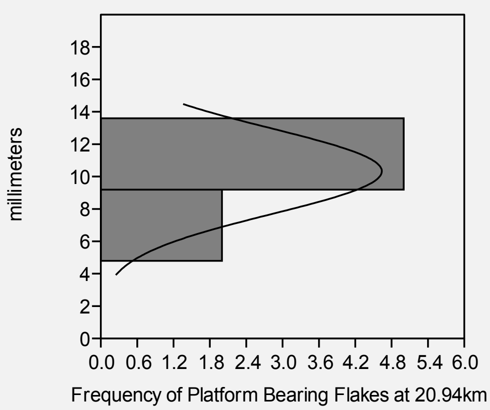
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (20.94km, n=7)



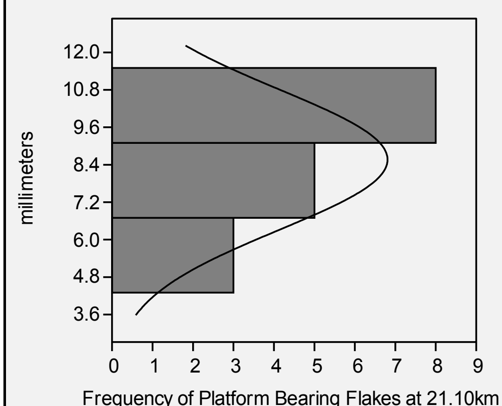
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (21.10km, n=16)



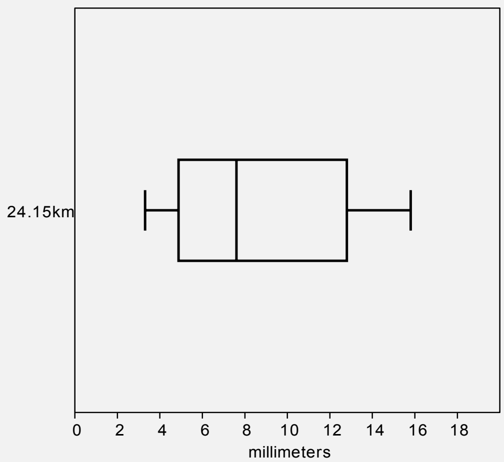
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (20.94km, n=7)



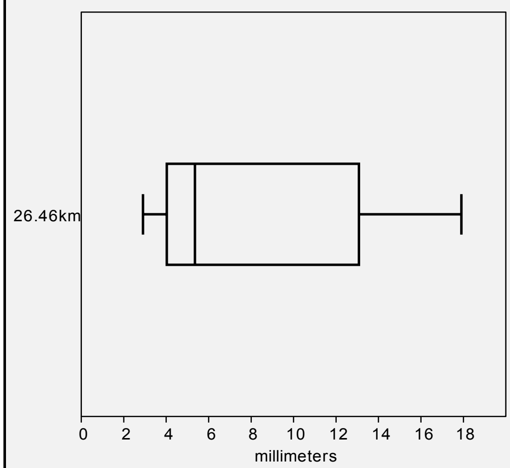
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (21.10km, n=16)



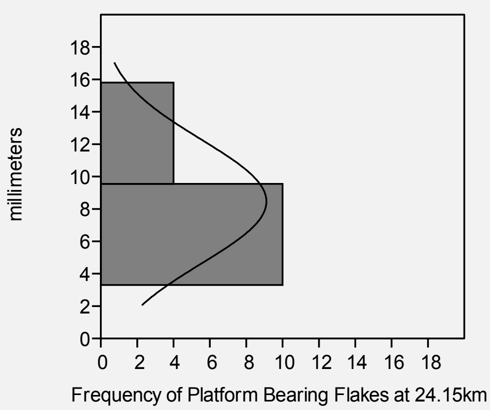
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (24.15km, n=14)



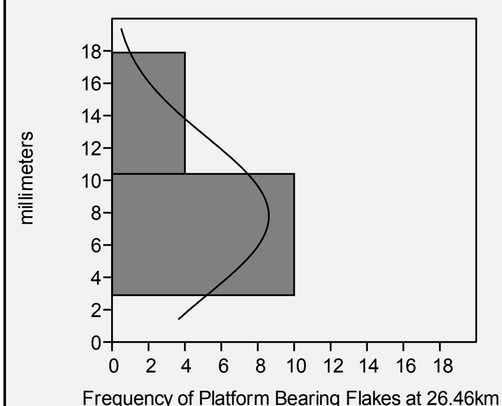
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (26.46km, n=14)

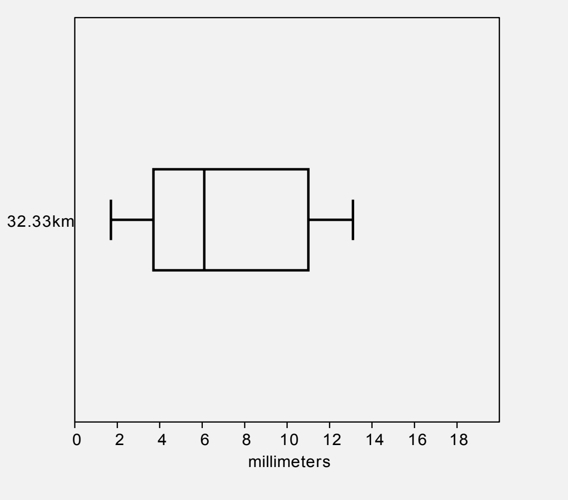


Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (24.15km, n=14)

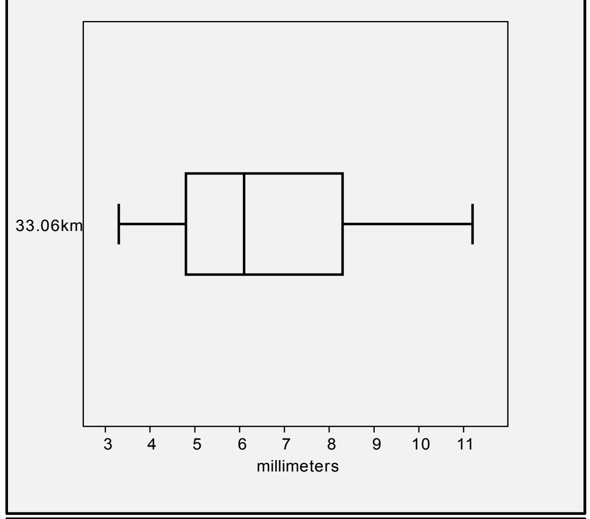


Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (26.46km, n=14)

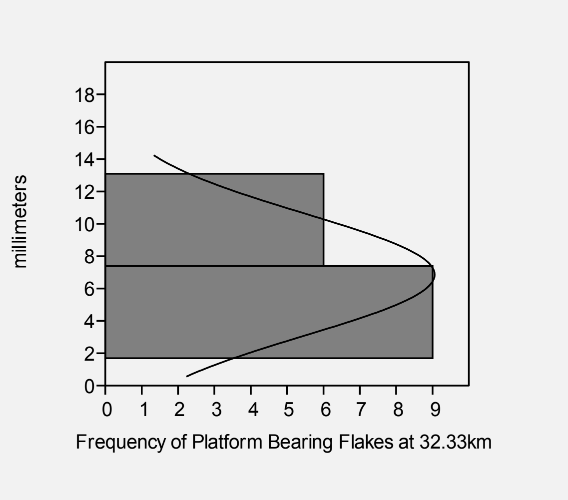




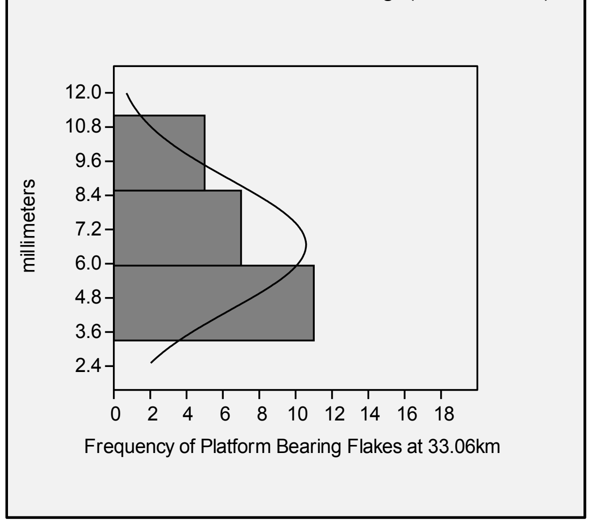
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (32.33km, n=15)



Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (33.06km, n=23)

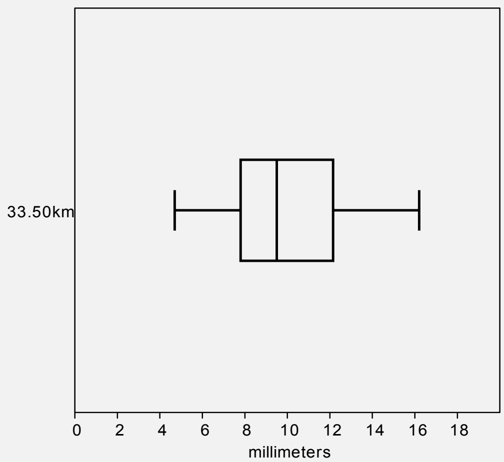


Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (32.33km, n=15)

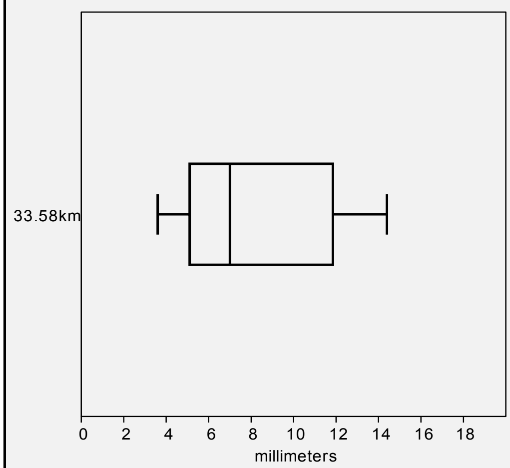


Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (33.06km, n=23)

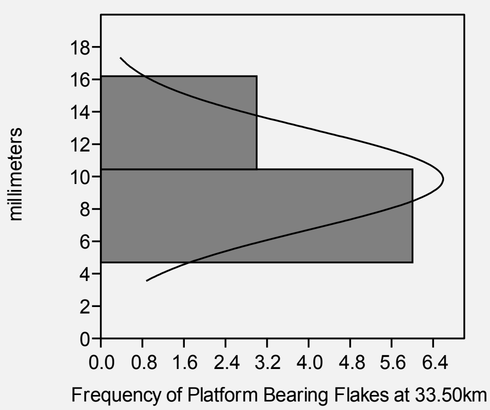
Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (33.50km, n=9)



Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (33.58km, n=16)



Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (33.50km, n=9)



Dispersion of Complete and Proximal Flake Platform Thickness within 4% Trimmed Assemblage (33.58km, n=16)