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Building a Predictive Model for Paleo Indian Archaeological Site Location Using Geographic Information Systems

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by

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This research is a multi step method to predict unknown Paleoindian archaeological site locations within Pine Bluffs, Wyoming, situated in the southeastern corner of the state, using a Geographic Information System (GIS). The GIS technology is being used to predict Paleoindian archaeological site locations and will help demonstrate the geographic similarities and differences between already known Paleoindian archaeological sites and random non-site locations in the Pine Bluffs region. Using GIS, one can note the similarities and differences between the Paleoindian sites and the surrounding landscape and, with help of logistic regression analysis, one can predict the location of unknown Paleoindian sites.

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CHAPTER I

INTRODUCTION

This thesis is an attempt to use Geographic Information System (GIS) technology to predict unknown Paleoindian archaeological sites near Pine Bluffs, in Southeastern Wyoming. Paleoindians are the first human beings to inhabit the Americas. The most accepted dates are from 15,000-8,000 years before present. Paleoindians were hunter-gatherers best known for their big game hunting of megafauna such as the mammoth, and this is the time period on which this study is focused.

GIS can help researchers identify critical aspects of the landscape that are associated with known Paleoindian localities. With help of statistical tools like logistic regression, archaeologists can predict the location of unknown Paleoindian sites (Brewster et al., 2003; Carmichael, 1990; Hunt, 1992; Kvamme, 1983, 1989, 1990, 1996; Reddy, 1999) by identifying known sites in the study area and determine the critical environmental factors associated with the sites

Predicting sites with GIS technology puts a topographic map into a spatially referenced configuration of digital space, limited only by the computer's memory. The spatially referenced map provides elevation and Cartesian Coordinates, while the GIS software allows one to digitize different classes of physical data from the landscape, including hydrology, roads, etc. These can be put into separate layers, allowing a variety of different visual and analytical solutions (see figure 1). A strategy that is often employed when using GIS to predict archaeological site locations in a given area is to produce raster images so that the researcher can extract environmental factors such as elevation, degrees of slope, and aspect (Brewster et al., 2003; Carmichael, 1990; Hunt, 1992; Kvamme, 1983, 1989, 1990, 1996; Reddy, 1999). The raster images pose as tools for prediction, and the GIS software allows the researcher to precisely measure variables such as distance to hydrology and elevations of a given area or point. With these data, the researcher can extrapolate the best environmental predictors of sites of archaeological significance by using logistic regression statistics. The outcome shows the researcher the most probable areas where a Paleoindian archaeological site location may exist.

Figure 1- Example of multiple layers.

The question asked in this thesis is: (1) Can the location of unknown Paleoindian archaeological sites be predicted by determining the landscape variables associated with known Paleoindian archaeological site locations.

This thesis uses ArcGIS (ESRI, version 9.0) software and a logistic regression model, using SPSS software, to test the predictive strength of certain landscape variables. The strongest predictive variables were used to create a proximity map with ArcGIS.

The resulting proximity map shows the approximate locations of the most probable Paleoindian archaeological site locations.

CHAPTER II

LITERATURE REVIEW AND THEORETICAL DEBATE

Literature Review

Through the theories of site catchment analysis and locational analysis, Geographic Information Systems have proven to be a useful tool for archaeological site prediction. Kvamme (1989: 176) states "modeling of the regional distribution of archaeological loci…has constituted the largest area of application of GIS technology". GIS provides tools for analyzing spatially oriented data, and works well within the field of archaeology due to the spatial nature of this discipline. GIS has only been used in archaeology since the early 1980's (Kvamme, 1983) and even today, is underutilized by archaeologists (Brewster et al., 2003; Carmichael, 1990; Hunt, 1992; Kvamme, 1983; 1989; 1990; 1996; Reddy, 1999), so its potential remains largely untapped. GIS has the potential to develop regional models of archaeological site location and can significantly reduce the cost of surveys (Brewster et al., 2003; Carmichael, 1990; Hunt, 1992; Kvamme, 1983, 1989, 1990, 1996; Reddy, 1999).

The modern use of GIS in archaeology started in the early 1980's with Kenneth Kvamme's research in digital elevation model (DEM) data to produce large-area maps depicting likely locations of archaeological sites (Kvamme, 1983). Kvamme's 1983 study took place in the U.S. Bureau of Land Management's Glenwood Springs Resource Area in western Colorado. Kvamme (1983) used multivariate statistics to determine patterns of site locations using a control group of non-site locations versus site location areas in a two group discriminant analysis. Kvamme (1983) then used a classification function to probabilistically assign future additional locations to the site present and site absent groups. The predictor variables used were all environmental factors, and the functions stated above were all based on the environmental data. These functions were derived from logistic regressions "which generally offers improved classificatory performance over the analogous and more familiar discriminant analysis procedure" (Kvamme, 1983; 28). Using DEM's to provide a fixed-elevation grid of 30 meter interval and set to 1: 24,000 or seven-and-one-half minute topographic quadrangles, Kvamme developed FORTRAN IV computer programs and applied these programs to the DEMs to derive the variables used in his predictive model (Kvamme, 1983). These predictor variables include: (1) slope, (2) aspect, (3) viewshed, (4) vantage, (5) and relief. Distance to water was also used as a predictor variable, but Kvamme developed a separate subprogram to digitize this predictor variable. This subprogram, known as SEARCH, computed the distance from hydrology to site locations and chosen non-site locations for data collection and input for the multivariate statistic and analysis. Using logistic regression, he rated locations on a continuum of poor to favorable environmental factors for site presence. Kvamme's (1983) study was a successful production of a predictive model that tested for all cultural complexes and all time periods of a prehistoric nature.

In the 1970's cartographic and spatial analysis began to be implemented into archaeological research. The observations of archaeological data of known locations were calculated with computer graphics and statistical programs to display trend surfaces (Wheatley and Gillings, 2002). Trend surface analysis was first utilized by geologists and was frequently used by archaeologists in the late 1970's and early 1980's (Larson, 1975; Feder, 1979; Heitala and Larson, 1979; Bove, 1981). The input data used with this software usually consisted of artifact densities and 3-D site coordinates (Kvamme, 1996). The results of analysis were sometimes displayed with DEMs (Kvamme, 1983). This type of analysis and resulting display is actually a precursor to the type of GIS application used in archaeology today.

GIS in archaeology was primarily adopted in North America due to its potential for creating predictive models of archaeological site location (Judge and Sebastian, 1988; Wheatley and Gillings, 2002). The North American attraction to archaeological predictive models comes from the specific requirements of cultural resource management (CRM) (Kvamme, 1995; Wheatley and Gillings, 2002). CRM is largely charged with the management of large geographic areas facing conditions of development and exploitation, where only small parts of this land have actually been archaeologically surveyed. Naturally, predictive models benefit archaeologists by helping to narrow the survey area (Kvamme, 1995; Wheatley and Gillings, 2002). Scholtz (1981), Hasenstab (1983), and Kvamme (1983) met the challenge with independent solutions using GIS for the demands of CRM. Working independently, Scholtz (1981) and Kvamme (1983) developed almost identical methods for predicting archaeological site locations. These authors developed their models using environmental variables and univariate statistics. In addition to writing computer programs to digitize required map inputs, they also interpolated DEMs, derived analytical surfaces and performed distance operations to produce their predictive model surfaces.

Scholtz's (1981) study took place in the uplands of Calhoun County, Arkansas at the Sparta mine. Scholtz's model used environmental predictor variables to determine location selection by prehistoric cultures. Scholtz's study also used multivariate logistic regression to discriminate between geographic areas which were known to have been selected as site locations and areas where sites had not been found. Two models were actually created to determine site sensitivity for historic and prehistoric site locations. Both the historic and prehistoric model tested successfully with some exceptions for sites outside of the high probability areas. This was explained as the result of cultural settlement location choice, and not due to environmental factors.

Meanwhile, Hasenstab (1983) accomplished the same feat for an area near the Passaic River, New Jersey. This predictive model was completed in 1983 as a subcontract to Soil Systems, Incorporated (SSI) of Atlanta, Georgia. SSI was contracted by the New York District, Army Corps of Engineers to create an archaeological predictive model for the sites of flood control facilities throughout the Passaic River basin of New Jersey. Hasenstab's study focused on an area of 5000 acres of structural impact area. The goal of Hasenstab's study was to develop a model of cultural resource sensitivity of the study area. Hasenstab's predictive model was derived inductively on the basis of known site locations within the study area because of the unique environment of the Passaic River Basin. Hasenstab (1983) followed Kvamme's (1983) strategy of developing a "training set." A training set is where the known site locations are used for deriving locational patterns as the basis of the predictive model (Hasenstab 1983, Kvamme 1983). For the GIS portion of the predictive model, raster images were used for segmenting the study area into an encoded grid and for measuring environmental predictor variables. Hasenstab applied univariate statistical tests to each environmental variable to determine the patterning with respect to the variable. Each grid cell was rated on a scale of high, medium, and low archaeological sensitivity. Hasenstab's predictive model of the Passaic River basin was successful for all prehistoric and historic cultural complexes.

Today, GIS in archaeology has been adopted by not only cultural resource managers but also by research archaeologists. Beginning in the 1990's, research archaeologists using GIS started to record vast geographic archaeological datasets such as state site record inventories (Wheatley and Gillings, 2002). GIS offers a map-based representation of site locations as a primary interface, instead of an index record keeping format. For example, conventional databases allow the recording of attribute components of a specific historic or prehistoric record, but this type of recording is ultimately limited with respect to the recording of spatial and topological workings. If the specific site in question is linear or is an entire geographic region then there is a problem, unless GIS is used to record all of the heritage records. A GIS is not limited to a specific area or location, it is essentially unlimited in reference to any geographic region. The ability to hold this information on a map-based reference particularly interested archaeologists.

More recently archaeologists have been drawn toward the more advanced abilities of the modern technological advantages GIS provides. Brewster et al. (2003) constructed a predictive model for the coastal area of Camp Pendleton Marine Corps Base on the northern coastline of San Diego, California. Using strictly ArcGIS based raster calculations and environmental predictor variables, Brewster et al. (2003) constructed a model which derives its predictions on a scale of one to three, one being the least likely area for an archaeological site and three being the most likely area. These values represent the predictor variables, if one is the least likely area to contain an archaeological site then it only has one predictor variable in it. In retrospect, if three is the most likely area to contain an archaeological site then this area has three environmental predictor variables. Brewster et al. (2003) showed with this study how even a GIS minimally applied can be advantageous for archaeology.

Theoretical Debate

Since the 1990's there has been a growing interest in GIS among archaeologists (Carmichael, 1990; Gaffney V. and van Leusen PM, 1995; Gaffney V. and Stancic Z. et al, 1995; Hunt ED, 1992; Kvamme, 1990, 1995, 1996, and 1997; Reddy SN, 1999; Warren, 1990a and 1990b; Wheatley D, 1998; Zubrow EBW, 1990). With growing interest and greater popularity have come differing opinions and techniques involving GIS and some controversies over its application to archaeology (Wheatley and Gillings, 2002). The main debate that has surfaced within the archaeological literature is the relationship between predictive modeling and environmental determinism (Gaffney and van Leusen, 1995; Kvamme 1997; Wheatley, 1998). Some archaeologists argue that GIS based research leads to an overemphasis on environmental factors. Gaffney and van Leusen (1995) state that any research that does not include cognitive factors, proves the ultimate misuse of GIS in archaeology. Gaffney and van Leusen (1995: 369) have concerns for predictive models, suggesting that if a predictive model is used it should only be used for CRM and that there should be "no story" to justify the predictions due to the practical uses of the model. Gaffney and van Leusen (1995: 369) say that predictive models ultimately lead to "the repetitious confirmation of otherwise obvious relationships." Other archaeologists argue that interpretations of culture often overshadow the impact of environmental factors as prime movers for cultural activity (Wheatley and Gillings, 2002). Wheatley and Gillings (2002) also state that the use of the term "environmental determinism" to describe the predictive modeling approach is inaccurate, the use of environmental variables in archaeological predictive models is based on their availability over cultural variables. Wheatley and Gillings (2002: 180) add that the availability of environmental variables "should not be taken as an indication of theoretical orientation" towards functionalism.

Kvamme's (1997) goal is to keep GIS in archaeology neutral. Kvamme's (1997) idea includes two suggestions, the first being to keep theory essentially out of the question by thinking of GIS as yet another tool much like C14 dating. The second suggestion is to try and use both environmental and cultural predictor variables when possible. Kvamme (1997) notes that cultural variables are much harder to empirically prove, and thus can not be used in an archaeological predictive model all the time. In defense of a past criticism in which predictive models are said to only show obvious relationships, Kvamme (1997) states that this can be the case but is not the point to the model, the point to the model is to try and highlight the unforeseen physical environmental relationships, and to document these relationships in regional studies.

Wheatley (1998) responds to Kvamme (1997) by first stating that archaeology had a profound effect to C14 dating and that archaeologists had to rethink some chronologies, and it required theoretical consideration of how to apply these chronologies in a better fashion, and some theoretical consideration must be adhered to GIS and its application to archaeology. The idea of neutrality has been challenged by Wheatley (1998). Wheatley states that Kvamme's "theoretically neutral" notion of GIS has a hidden agenda which encourages theoretical systems approaches to explaining archaeology in GIS. Wheatley (1998: 6) states that a more "Pluralistic" approach to interpretation must be accepted. This pluralistic approach means that there may be many valid accounts of the past and that these can all stem from differing theoretical starting points, and we must not follow just one theory but rather look for archaeological truths in many theories. Wheatley (1998) shows that pluralism will allow for the debating of one viewpoint against another and that all valid viewpoints are continuously debated and refined.

The neutral or "Holistic View" may be the best theoretical framework to follow when using GIS in archaeological analysis. Kvamme (1997: 3) shows that both physical and social environments are fundamentally important for understanding the past:

> We might regard the physical environment as the backdrop within which the human play is enacted, but one that greatly influences the nature of the acts performed. It sets the boundaries or conditions within which we may assess various socio-cultural phenomena of the past.

Deductive and Inductive Models

Archaeological predictive models using GIS include the study of a geographic region to extract the statistical associations between environmental variables from the surrounding landscape and known archaeological site locations (Kvamme, 1995). The statistical associations are calculated by logistic regression analysis (Tabachnick and Fidell, 2001). Logistic regression tests the strength of predictor variables, the outcome of the test shows the strongest predictor variables and with these predictor variables the probability of site presence and absence can be shown with ArcGIS (Tabachnick and Fidell, 2001).

The methodology of GIS in archaeology uses one of two distinct approaches an inductive or empirical correlative approach, and a deductive or cognitive approach. The inductive approach for predictive models involves drawing general conclusions from specific facts such as patterns that are detected in empirical observations. Deductive models, infer by reasoning (Warren, 1990a). The deductive model is analogous to the type of prediction that is associated with the scientific method, in essence deductive models deduce from theory (Warren, 1990a). Inductive models on the other hand do not seek to test a culturally based hypothesis, while deductive models tend to try and understand spatial behaviors (Kohler, 1986). It is important to describe both inductive and deductive models because a predictive model in essence must be either descriptive or explanatory (Warren, 1990b). The following two case studies show the possibilities of both inductive and deductive GIS models in archaeology.

An Empirical Predictive Model of the Western Shawnee National Forest

The Illinois State Museum created a predictive model for an area called the Western Shawnee National Forest in southern Illinois in 1987. The predictive model was implemented for cultural resource planning in the forest (Warren 1990a). A predictive model was thought ideal for the area due to its rugged, forested terrain that contains a diverse array of plant, animal and mineral resources that covary from one place to another. This implies that the environment could have been a strong influence on settlement decision making processes by the prehistoric inhabitants of the area (Warren

1990a). The study area was approximately 91km², of which previous opportunistic surveys had covered 12km² or 13% of the study area. The study area also contained sixty-eight known prehistoric sites covering 5.8% of the ground surface (Warren 1990a).

The first step Warren (1990a) implemented was to digitize lines and polygons directly from basic maps of elevation contours, stream courses, soil series and chert out-crops from the study area. Warren (1990a) then edited the images by imposing a grid and interpolating elevation data. The grid was a regular lattice with more than 145,000 cells; each cell measured 25 meters on a side. As stated above, 13 per cent of the study area (or cells) were previously surveyed, including 18,071 nonsite cells and 1,112 site cells. Warren (1990a) chose 26 environmental variables for statistical analysis (see Table 1).

Elevation	Total relief in 100m radius of catchment
Total relief in 500m radius of catchment	Above-site relief in 100m radius of catchment
Above-site relief in 500m radius of catchment	Below-site relief in 100m radius of catchment
Below-site relief in 500m radius of catchment	Surface aspect (deviation from northerly aspect)
Surface slope in percent grade	Distance to nearest permanent stream in meters
Distance to nearest stream in meters	Soil series
Distance to nearest major chert outcrop in kilometers	Soil association
Soil parent material	Biome of soil formation
Soil subgroup classification	Soil moisture regime
Soil landform	Soil permeability
Soil drainage	Soil flood frequency
Soil surface runoff	Soil productivity (this variable was adjusted for slope and erosion)
Soil erosion potential	Minimum depth to seasonal high water table in centimeters

Table 1- Western Shawnee National Forest Predictive Variables (from Warren 1990a).

Multivariate statistical tests were used by Warren (1990a) to compare site and nonsite locations. The multivariate statistical tests used on the 26 independent variables test for a significant environmental difference between site and nonsite locations. The predictive model was created using a multivariate logistic regression program in the BMDP software package. The multivariate logistic regression statistic measured the predictive power of each independent variable and created a regression of the strongest predictors. Warren (1990a) used a technique in the predictive model called a "training sample". This technique was developed by Kvamme (1983) and is used to test the predictive variables. The training sample used for the logistic regression analysis consisted of 1,238 grid cell locations, which included a stratified cluster sample of 569 site cells and a stratified random sample of 669 nonsite cells. The eight independent variables that were selected by the program to be the most powerful combination of predictors were three topographic variables, two hydrologic variables, two soil variables, and one lithic resource variable.

Warren (1990a) then compared the actual with the predicted group membership of the surveyed locations to test the accuracy of the model. Next, he evaluated the internal consistency of the model by using training sample locations the training sample locations that included the site and nonsite cells that were used to generate the initial model. The results correctly classified 60 per cent of sites, 75 per cent of nonsites, and 68 per cent of all training sample locations with a cut point probability of 0.49.

Lastly, independent cross-validation tests were computed on the test sample locations. Cross-validation is used when the researcher needs to know how well the coefficients generalize to a new sample of cases (Tabachnick and Fidell, 2001). The cross-validation showed that the results from the evaluation of internal consistency were overly optimistic. The cross-validation was used on a test sample of 543 site cells and 17,402 nonsite cells, Warren (1990a) states that none of these cells were used in the process of model development. Satisfactory results were obtained with a cut point probability of 0.50. With this cut point the model correctly predicts 67 per cent of site locations but only 39 per cent of nonsite locations. Warren (1990a) affirms that these results are statistically significant, but barely better than a chance classification. Over all results show that sites are most probable in two settings: high upland ridge crests and elevated terraces near creeks. The model also shows that the probabilities are low on the flood plains of creeks and on dissected valley slopes.

Warren's (1990a) predictive model is a perfect example of a successful inductive technique. The next case study is an example of an explanatory or deductive GIS model used in archaeology.

A Cognitive Approach to Rock Art Archaeology in Scotland Using GIS

With the increasing application of GIS to archaeology there has been an increasing tension between archaeologists who apply inductive and deductive GIS methods in archaeology (Wheatley and Gillings, 2002). The archaeologists who use deductive methods tend to believe that inductive methods are too environmentally deterministic, meaning that inductive methods overemphasis the importance of the environment to culture. Gaffney (1995, p. 41) shares this belief "…the use of GIS modules may lead to the unwitting exposition of an environmentally or functionally deterministic viewpoint…" Gaffney gives a cognitive alternative, putting culture first in his interpretation and GIS analysis.

Gaffney applies a cognitive approach to the study of prehistoric rock art and ritual monuments in Argyll in south-western Scotland. This study shows how objects that retain a cultural message and share a relationship to the surrounding physical landscape can be analyzed with a GIS approach. The study area is a lowland north of Kintyre, Scotland called Crinnan, the entire area is called Kilmartin. Crinnan faces west to the island of Jura and Ireland and is an important portage intersecting with a series of significant traveling routes to the north and west. This area also contains a high potential for agriculture (due to its lowland estuary) for prehistoric community landuse, as well as a concentration of ritual monuments relating to a number of prehistoric periods (Gaffney 1995).

Gaffney's study incorporates the analysis of viewshed data. The viewshed can be defined as the entire area that can be seen by an individual from the monument. The data used in the study was all the non-settlement sites listed by the Royal Commission for the Ancient and Historical Monuments of Scotland (RCAHMS) for the Kilmartin area from Neolithic to Bronze Age and includes 76 sites. The purpose of this study is to "provide a mapable, spatially variable index of perception, which incorporates groups of monuments and plots their visual relationship with the surrounding landscape" (Gaffney 1995, p. 54). This analysis according to Gaffney (1995) gives an insight into the cognitive landscape within which the monuments operated. The analysis included the calculation of the viewshed for each monument. Gaffney (1995) states the importance of viewshed as the area within which the monument is likely to communicate visual information to others.

The monuments were broken down into five basic groups for analytical purposes: chambered cairns (6), individual or groups of decorated natural rock faces (26), standing stones, alignments and circles (15), and the henge at Ballymeanoch along with the cists, cairns, burials and barrows which encompass it (26). The multiple viewsheds were then designated a numerical value, the monuments that are only visible to one other monument have a value of one and the areas that are visible to more than one other monument have a value of two.

The chambered cairns and rock art have the lowest mean value of visibility from other monuments. However, the standing stones, cists and burials have an increasing value of visibility to other monuments with the Ballymeanoch Henge being the single most visible monument. The data were broken down further to measure the relationships between the monuments. This calculation shows how small the relationship is between the chambered cairns and rock art with any other type of monument while there is an increasing relationship between the standing stones and the henge monument. There is also a positive relationship between the henge and the later dated cists and barrows (Gaffney 1995). Gaffney's (1995) conclusions are that the cambered cairns are not integral with the other monuments, since rock art interacts at a very low level with other monuments, and that the henge is a focal point for the standing stones and cists.

Gaffney's (1995) interpretation is that the relationship between the henge and the standing stones and cists indicates that the later burial monuments were deliberately sited to be in visual contact with the henge, "emphasizing its special position within the area" (p. 55). The land contained within monument viewsheds is also worth noting. The mean proportions of lowland within the viewsheds of each monument group were then calculated to show the relationship between monuments and the nature of the land in its viewshed. This calculation shows that once again the Ballymeanoch Henge has the greatest amount of mean lowland. Gaffney (1995) interprets this to show a chronological pattern with the Early Neolithic communities that built the chambered cairns used a variety of environments, while the later communities which built the cist graves were more interested in agricultural pursuits.

Gaffney (1995) concludes that his results suggest a tendency for the most complex monuments in the Kilmartin area to be associated with the valley entrances to the Crinnan estuary. The rock art is interpreted as having been very closely associated with the landscape in a more intimate sense (Gaffney 1995, p. 60). Gaffney states that with the emergence of a coherent pattern from this disorder over time, the viewshed analysis was a success since "the analysis shows that the valley entering the estuary to the north clearly forms the ritual cognitive focus of the area centering on some of the most important and imposing monuments in the valley" (Gaffney 1995, p.60).

Gaffney's (1995) study of Scottish prehistoric rock art gives a cognitive interpretation on the rock art locations. The only weakness of this study was the lack of data in the article itself. Nevertheless, because of Gaffney's (1995) push for explanation of archaeological phenomena, his cognitive study is important to the archaeological field and GIS applications to archaeology, and is noteworthy in the study of GIS applications to archaeology.

In spite of the great promise of GIS for both inductive (i.e., site prediction) and deductive (i.e., cognitive) archaeological investigation, the technique continues to be under utilized by archaeologists (Brewster et al., 2003; Carmichael, 1990; Hunt, 1992; Kvamme, 1983, 1989, 1990, 1996; Reddy, 1999).

CHAPTER III

METHODOLOGY

Predictive modeling in archaeology is a multi-step process. That includes collecting data from the field, creating the digital portion of the model, and using statistical analysis to determine the best landscape predictor variables. The difficulty of data collection from the study area in which one tends to predict archaeological site locations is a mater of knowledge of one's study area and access to the study area. The researcher must be familiar with the location with frequent access in order to make proper adjustments in the GIS to account for real world phenomena, such as man-made disturbances. The researcher must also be familiar with GIS and certain statistical analyses. Both GIS and statistics are vast and complex procedures and play a vital role in procuring a predictive model. This chapter systematically breaks down the multiple steps that the researcher used in order to create this predictive model.

Collecting data from the field was possibly the least complex portion. The Paleoindian archaeological site data was given to the author by Dr. Reher of the University of Wyoming, the archaeologist responsible for survey of the southeastern portion of Wyoming, the Pine Bluffs area. The locations of the sites were pinpointed on a UTM 7.5 minute quadrangle topographic map (see Appendix D) by the High Plains Archaeology Project director, Dr. Reher at the time of discovery through many years of hard work in thoroughly archaeologically surveying the Pine Bluffs area.

The High Plains Archaeology Project is an innovative, long-term research, education and economic development project centered in the small southeastern

Wyoming town of Pine Bluffs. Originally started with NSF EPSCoR program funding, it is now entering its 20th year of continuous operation. HPA has established permanent facilities such as field labs, a dining hall and two museums, all of which are made accessible to several thousand interested visitors each summer (Peterson and Reher, 1992; Reher 1988, 1989a, 1989b, 1990a, 1990b, 1990c, 1991, 2006c).

HPA work is centered at excavation of the deeply stratified Pine Bluffs Site (48LA312), which has levels extending from an Early Historic period to Paleoindian periods. The Pine Bluffs Site is one of the key sites in this thesis analysis. Overall the HPA project research also has reported extensively on relevant research on local environmental patterns, geology, climate, and as well as prehistoric settlement patterns (Baber and Reher, 1988; Miller, 1991; McFaul 1989; Latady and Deuholm, 1987; Reher, 1983, 1989b, 1996, 2003).

A major part of HPA research has included intensive survey in the "scarp woodlands" of southeast Wyoming. Some 2500 stone circles or tipi rings have been located in the bluffs extending south and north from Pine Bluffs. This systematic survey, along with attention to local avocational collections, produced the base data adapted for this thesis. The Paleoindian components in the area had received some attention as part of this excavation and survey process (Reher and Jaime et al 2004; Reher 2006a, 2006b) but not the detailed treatment presented by the research summarized below.

There are twelve Paleoindian archaeological site locations included in this study, the sites were chosen regardless of surrounding landscape features. All of which are surface collections, and each artifact collected is a projectile point (see Appendix E). The only deciding factor for choosing one site over another was the study area. The study area starts at the very southeastern corner of Wyoming and extends thirty-five thousand meters north and twenty thousand meters west (see figure 2).

The study area was chosen to include the majority of the sites and to place the bluffs in the center of the study area. This decision was based on the premise that approximately half of the study area would be at higher elevation (eastern half) than the other half (western half), and that this would keep the predictive model objective (see figure 3).

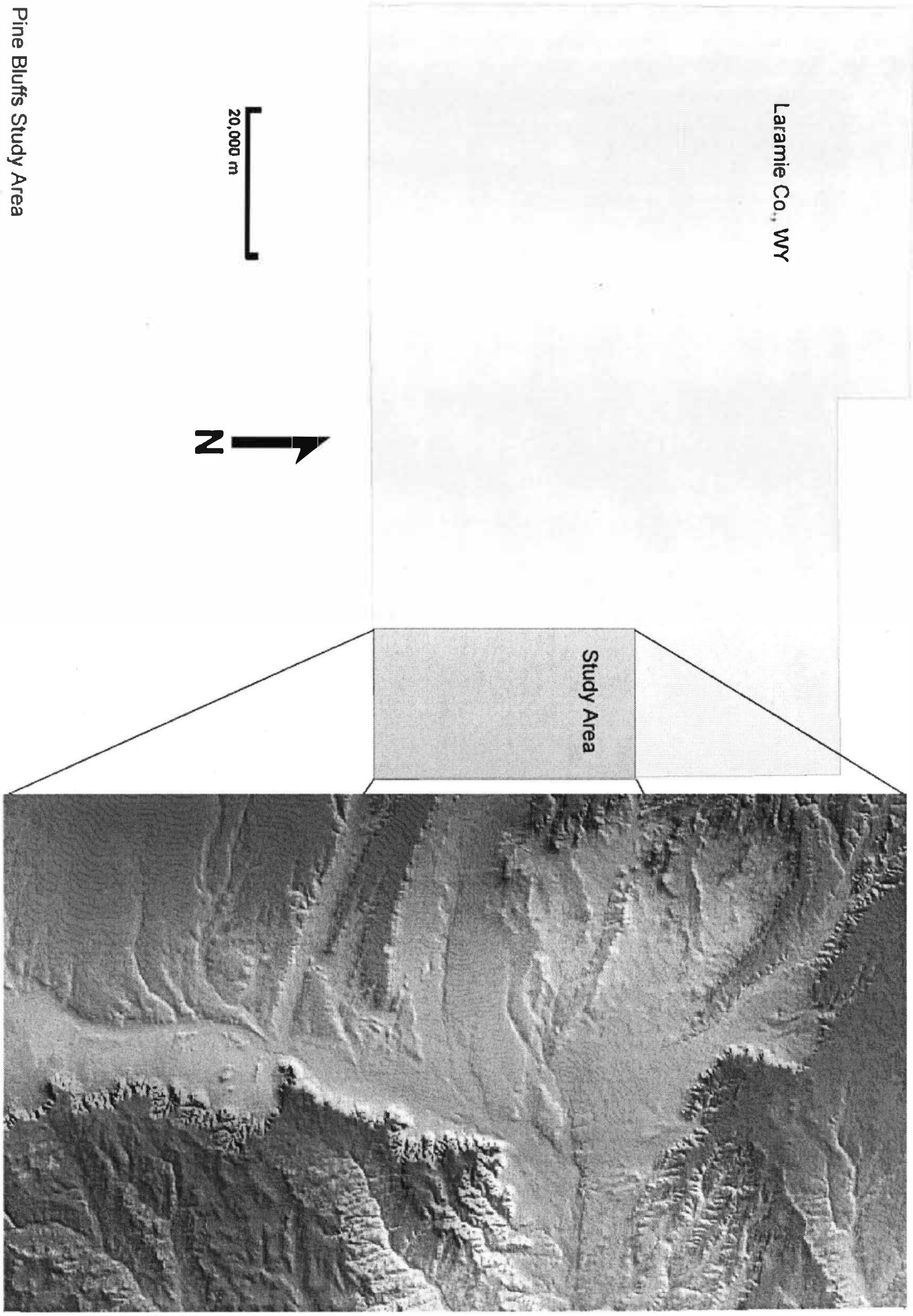

Figure 2- Pine Bluffs study area.

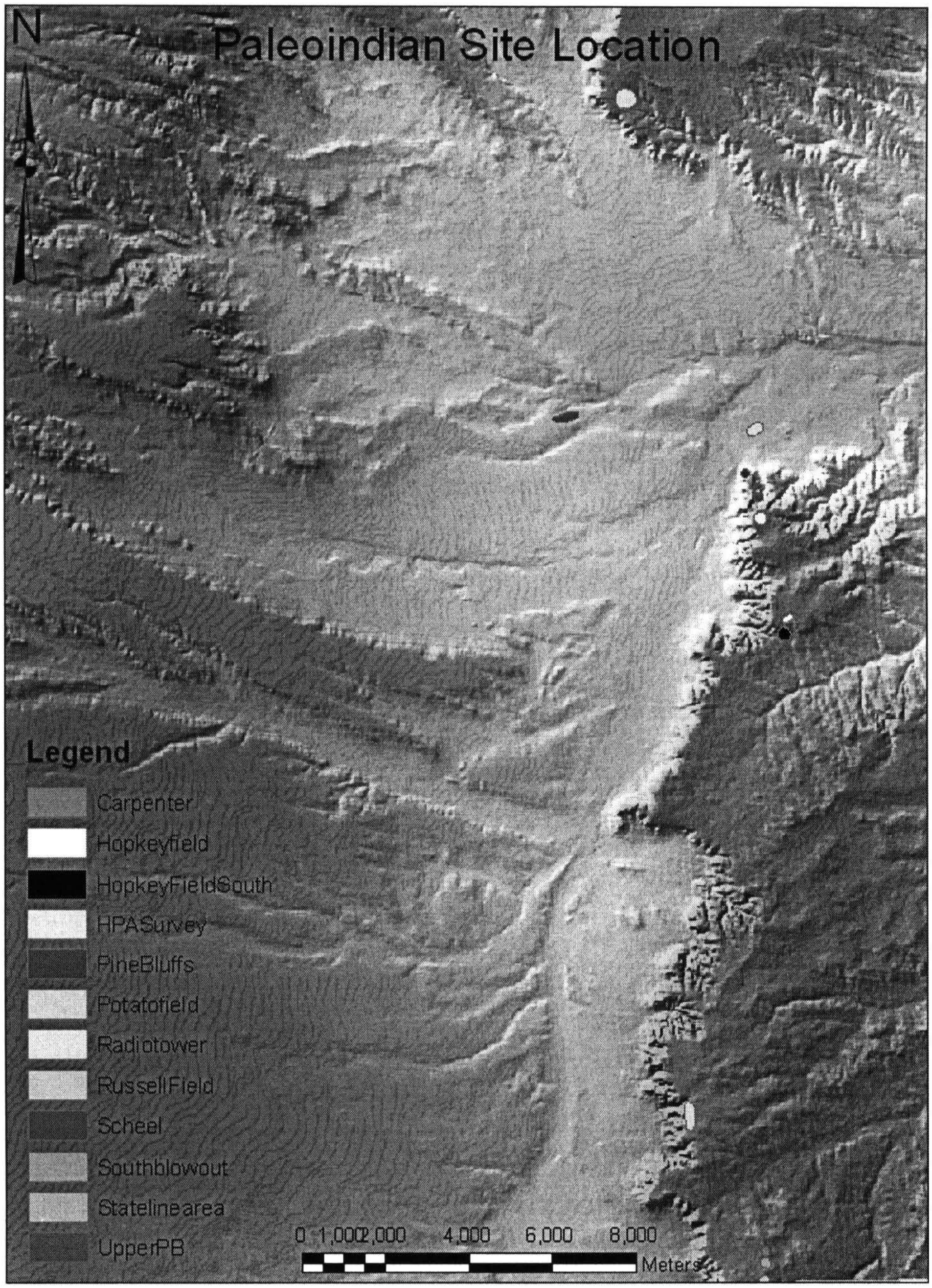

Figure 3- Paleoindian site locations.

The Digital Elevation Model and the Digital Ortho Quarter Quads used in this study to produce all of the digitized features and raster graphics were downloaded from two Wyoming GIS databases. The DEM was downloaded from the Wyoming Geographic Information Science Center (www.wygisc.uwyo.edu/clearinghouse/). The Digital Ortho Quarter Quads were downloaded from the Wyoming Geographic Information Advisory Council (wgiac2.state.wy.us/html/aboutDOQQ2002). These two websites were the only two resources used to procure GIS data for this study. All of the digitized maps and raster maps were developed using the initial DEM and DOQQ's (see figures 4 and 5).

Digitizing in ArcGIS involves drawing polygons, lines, or points on a desired geographic area in a spatially referenced digital format. The portions of this study that were digitized are the Paleoindian sites, scarp line, hydrology, the highest degree of slope, the study area, and the grid (which includes the cells). Digitizing is straight forward, using digitized shapes one can represent certain features within a map without actually showing the map; in essence it highlights certain features (see figure 6).

Another process in the development of the predictive model is the procurement of the raster graphics. A raster is essentially a grid of equally sized square cells where each cell in the raster stores a value. The value is usually a quantity, for example: elevation, slope, or aspect. The cell is a measured location of a desired feature; the measured feature is thus represented by a continuous color ramp in a GIS.

The development of raster images is made possible by the Spatial and 3D analyst extensions contained within ArcGIS. With the utilization of Digital Elevation Models of the study area raster images were produced using the spatial analyst extension. The raster

Figure 4- A Digital Ortho Quarter Quad of Pine Bluffs, Wyoming.

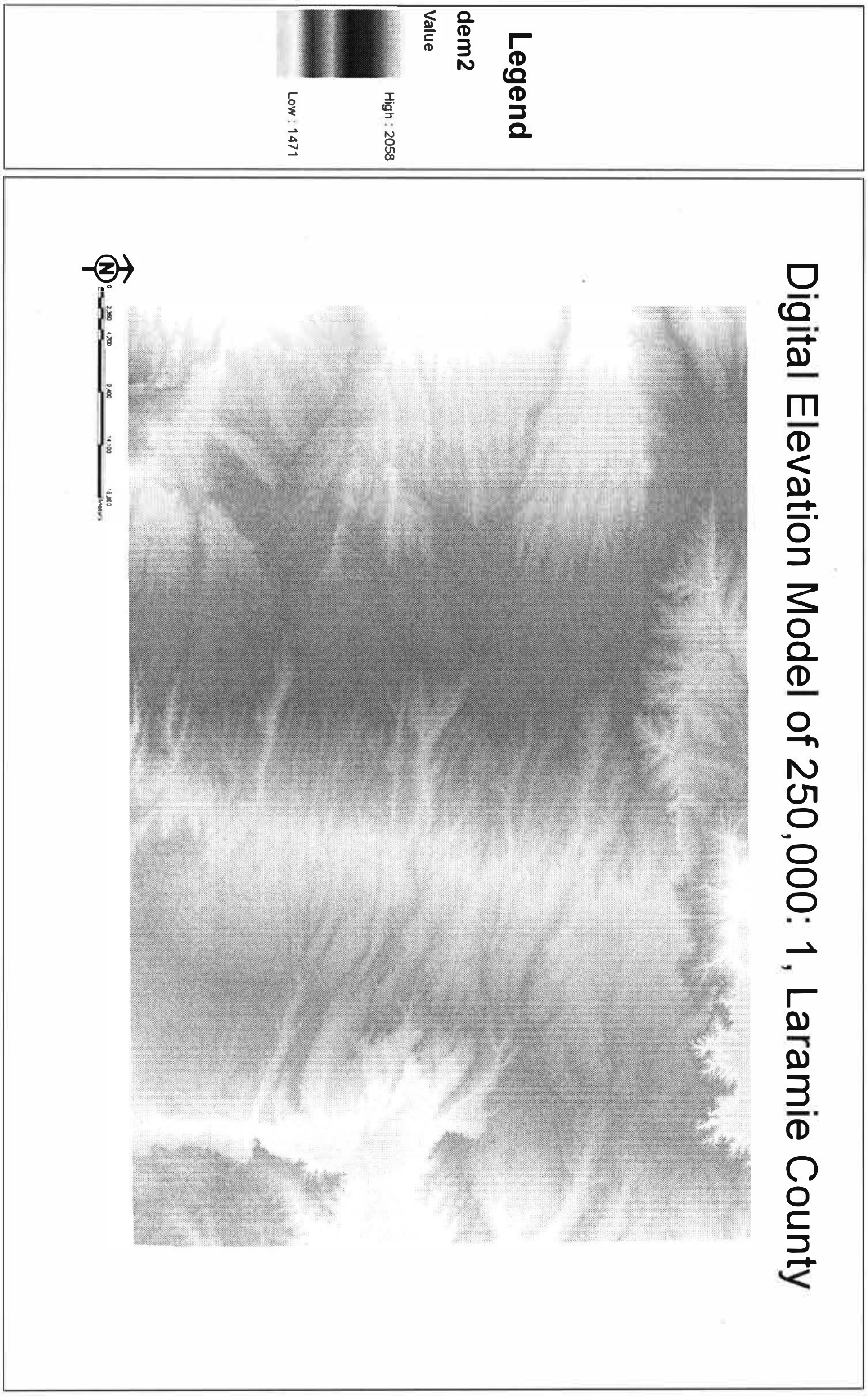

Figure 5- Digital elevation model of 250,000: 1, Laramie County.

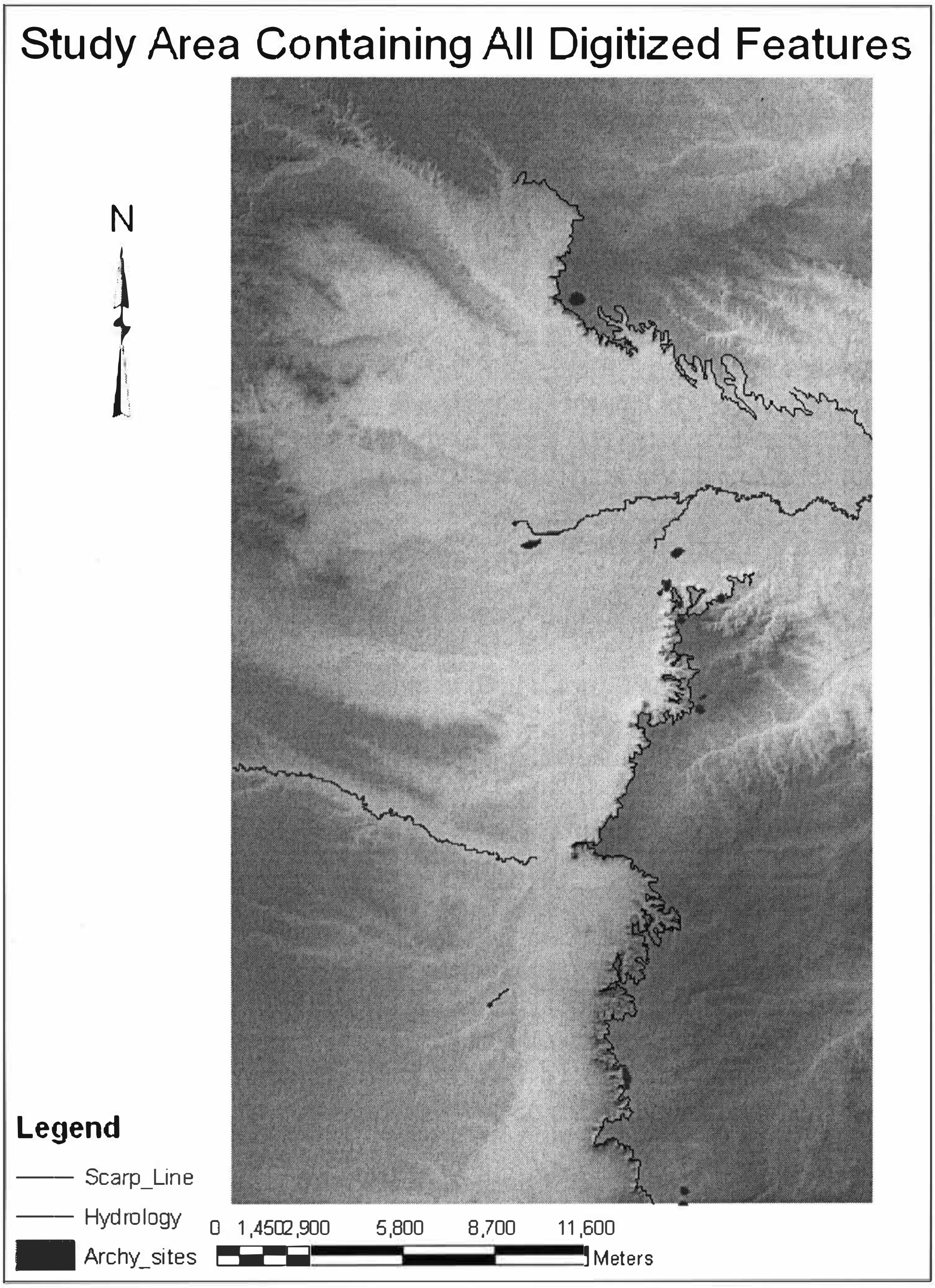

Figure 6- Study area containing all digitized features.

images that were produced are images that show slope, aspect, and elevation. These images will be the catalyst for procuring the measurements of these variables (see figures 7, 8, and 5).

The data collection of all the variables in the predictive model could only be accomplished after completely creating the grid, study area, site locations, and selecting the random cells using the random cell process. The study area, grid, and cells within the grid were digitized using the Arc Editor extension within the ArcGIS software program. The study area as described earlier in this chapter is located in the most southeastern corner of Wyoming covering the Pine Bluffs area. The study area extends thirty-five thousand meters north and twenty thousand meters west. The grid is the same area, the grid contains one million one hundred and twenty thousand cells, and each cell is exactly twenty-five meters by twenty-five meters in dimension. There are one thousand four hundred and forty-seven site cells and twelve hundred and fifty random non-site cells. The site cells represent .129% of the study area (see figure 9).

The random cell process was created to keep this study as objective as possible. The random cells were chosen in a systematic process, every three hundredth cell horizontally throughout the grid was chosen as a random cell. If the method actually landed on a site cell then the plan was to extend an extra one hundred cells in order to keep the random cells distinct from the site cells. In fact this was not needed, since the random cell process did not land on any site cells.

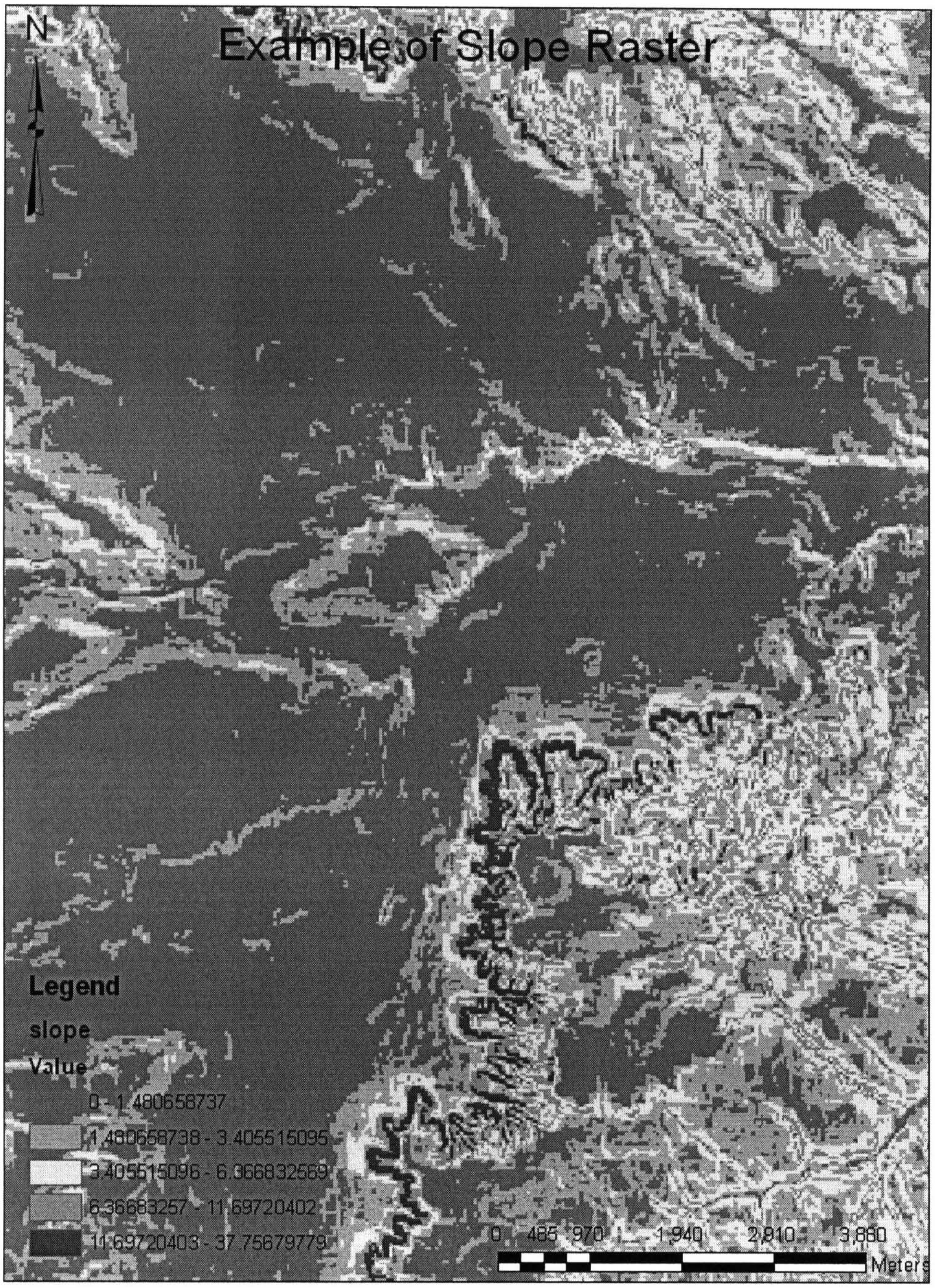

Figure 7- Example of slope raster.

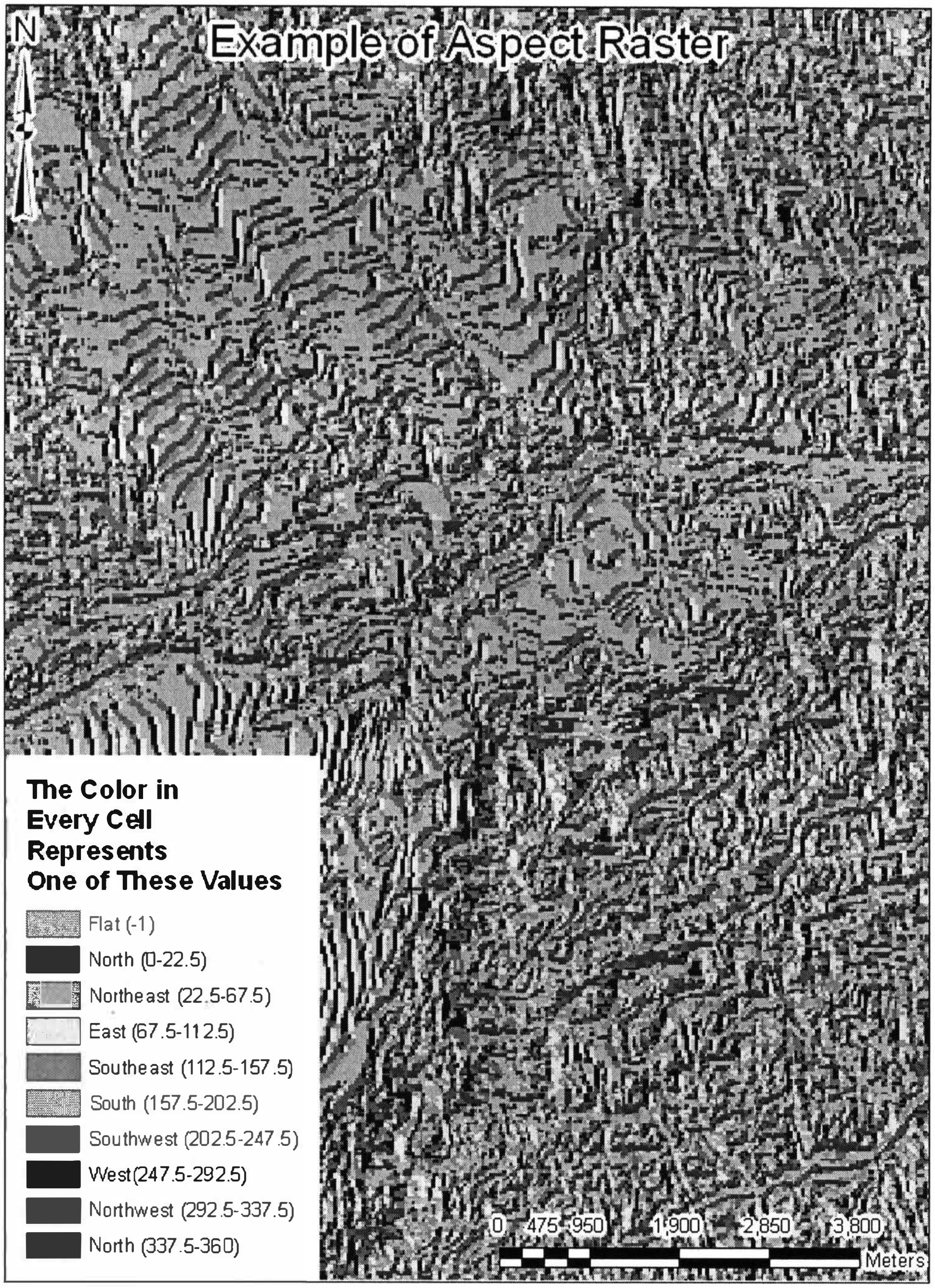

Figure 8- Example of aspect raster.

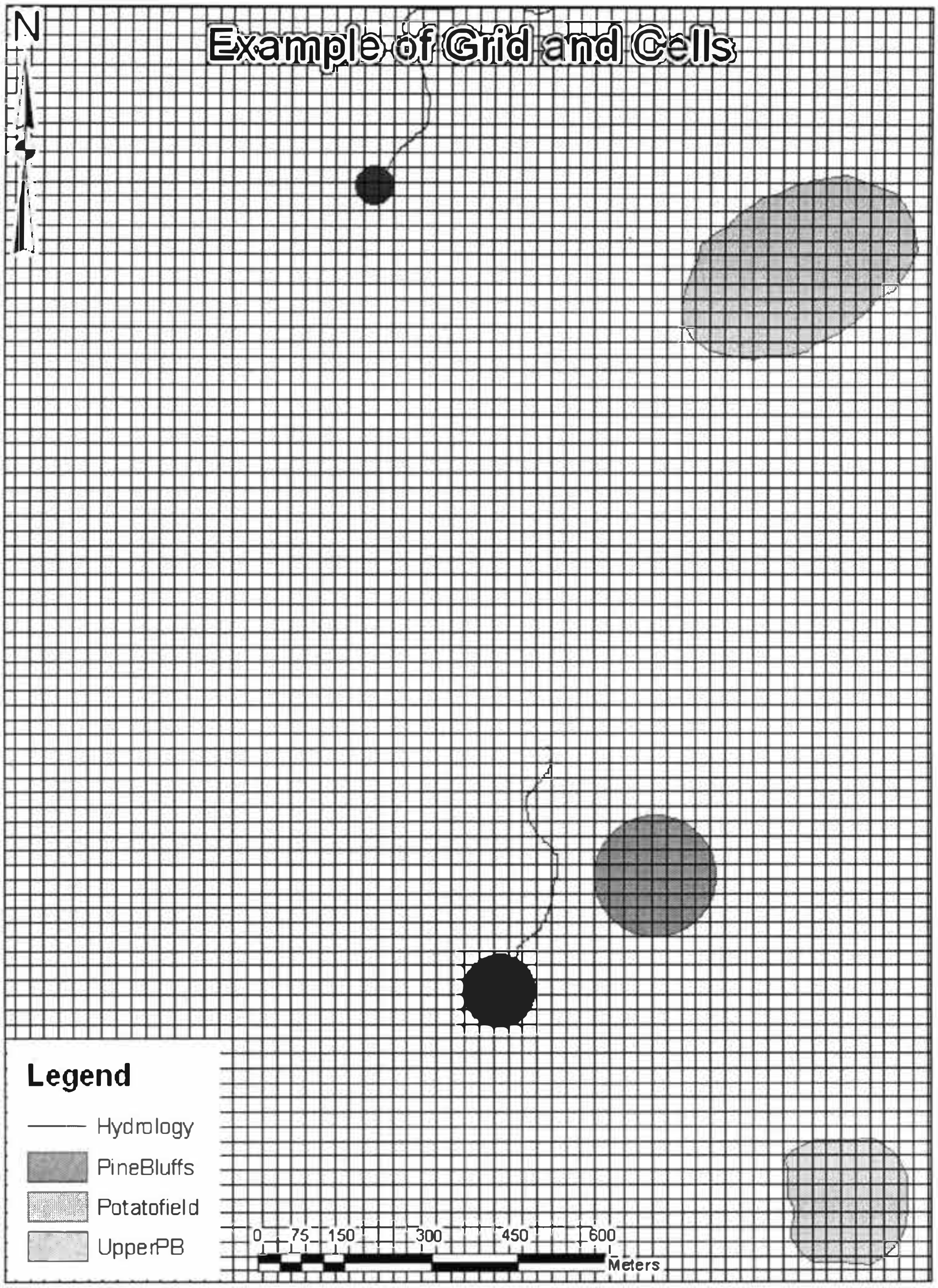

Figure 9- Example of grid and cells.

The data collection of each variable from all site cells and non-site cells within the grid is accomplished using multiple analysis techniques. For distance to hydrology, distance to scarp line, and distance to the highest degrees of slope predictor variables a tool called the “Ruler” contained within ArcView was used. This specific tool seemed to be the most economic and precise in its measurements. The elevation, aspect, and slope were measured with a tool called the “ID” tool. This tool identified the specific values in the raster cells in which the operator selected. This process was repeated for all 1447 site cells and for all 1250 non-site cells.

The variables were chosen based on empirical observations of the surrounding landscape that encompass the southeastern area of Pine Bluffs, Wyoming and the Paleoindian site locations within the area. The predictor variables chosen for the model are either a distance measured from one digitized feature to another digitized feature created from their respective locations from the Digital Ortho Quarter Quads or raster cell values. The first three predictor variables are measured from digitized features: distance to the scarp line of the bluffs to site cells and non-site cells within the grid in meters, distance to the area’s hydrology to the site cells and non-site cells within the grid in meters, and distance from highest degrees of slope (11.7-37.76 degrees) to the site cells and non-site cells within the grid in meters.

The last three predictor variables are raster cell values: elevation of each site cell and randomly chosen non-site cell within the grid, slope of each site cell and randomly chosen non-site cell within the grid in degrees. The last predictor variable was the aspect collected in cardinal direction, each site cell and randomly chosen non-site cell within the grid was measured for aspect. After measuring or collecting all data from each site cell and randomly chosen non-site cell, a zero or a one was recorded for site absence or site presence. The zero recorded represented site absence for the random non-site cells, and the one represented site presence for site cells (see Appendix A).

From this point the data was entered into Microsoft Excel. All of the predictor variables were placed in their own column, while the site cells and random non-site cells were given a specific number and row. This format allowed the data to be prepared for the statistical analysis which took place in SPSS 12.0.

The statistical methodology employed in this study involves logistic regression analysis. Logistic regression is an advanced nonparametric statistic that is used when the dependent variable is dichotomous, for example in this study it is site presence or site absence, and the independent variables are continuous. Logistic regression can also identify the relative importance of different predictor variables. Logistic regression is most useful for its predictive capabilities; it can predict an outcome such as site absence or site presence from a set of predictor variables (Tabachnick and Fidell, 2001). For example, a Cultural Resource Management company using the logistic regression procedure can predict archaeological site locations from a set of predictor variables, which are empirical observations of the landscape. Thus, the CRM company can survey an area where the locations suggested a high probability in containing archaeological sites instead of surveying a larger area which may or may not have a high probability of containing an archaeological site.

The last and final part of this study is the procurement of the probability map. A probability map represents the culmination of the GIS data collection and analysis coupled with the results of the logistic regression analysis. The probability map depicts the most likely areas for containing Paleoindian site location based on the results of the logistic regression analysis.

The probability map was constructed with GIS and the Spatial Analyst extension and central tendency descriptive statistics. The central tendency statistics allowed the author to observe and distinguish the measurements in site cells and non-site cells that attest to the predictive model. Once the central tendencies were distinguished among the site cell predictor variables the probability map could then be constructed. The central tendencies for the distance measured predictor variables were put into a GIS format as buffers, or a certain distance around a landscape feature, shown in different colors (see feature 10). After the buffers are created the features must be converted into raster images by using Spatial Analyst's Convert Feature into Raster so that they can be combined with the central tendencies of elevation or cell slope which are already raster images.

The central tendencies for the raster images, such as elevation or cell slope, were shown as reclassified raster images. The reclassify process is performed in Spatial Analyst. Reclassifying a raster image negates the values of all other cells in a raster image except the cell values that are chosen, such as the central tendency of that raster (see feature 11). The last step in the probability map procurement process is to use Spatial Analyst's Raster Calculator. The Raster Calculator will perform any number of mathematical actions with separate raster images, in this case simply adding the raster images together to form one raster with one value and negating all other values except the values of the different raster images that directly over lay one another.

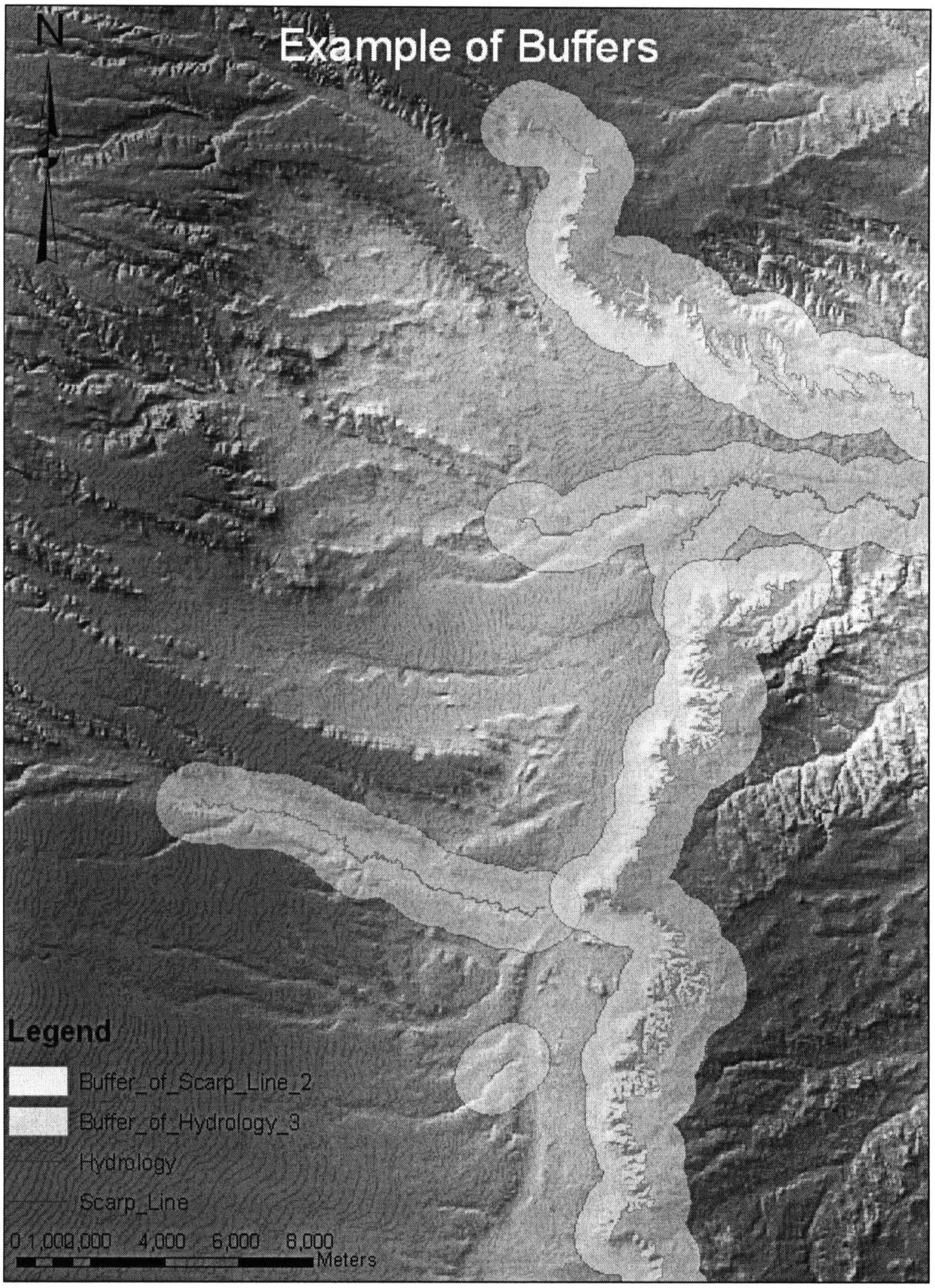

Figure 10- Example of buffers.

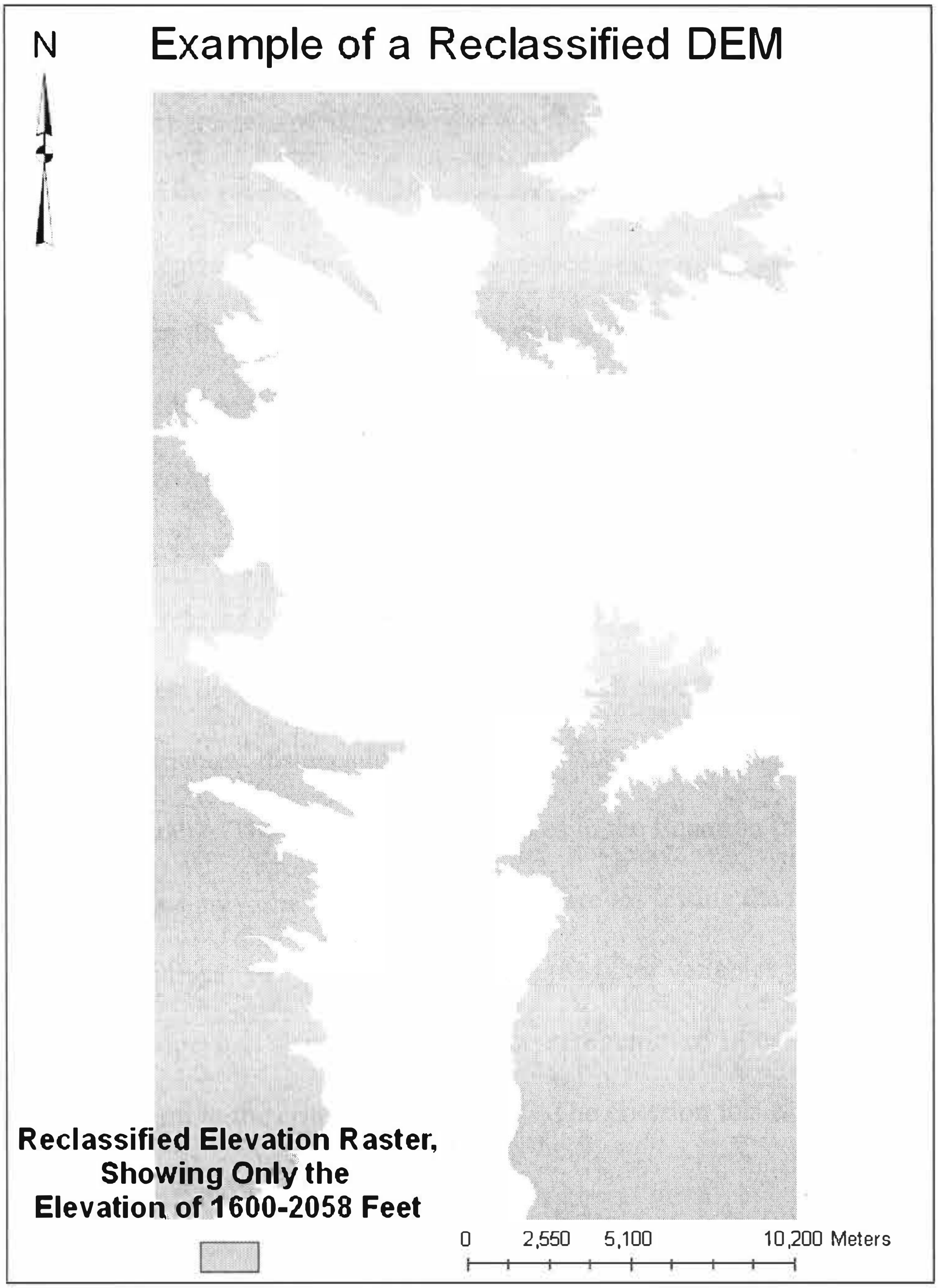

Figure 11- Example of reclassified DEM.

CHAPTER IV

RESULTS

The logistic regression process was run in a forward stepwise method. This approach takes all of the predictor variables and enters them into the analysis in a step by step fashion. The stepwise method starts with one predictor variable and adds a predictor variable on each step, the first predictor variable will be the strongest predictor variable and each variable added in the following steps are regressively worse predictors. The stepwise logistic regression will also remove a predictor variable if the variable does not add to the predictive capabilities of the logistic regression model.

The logistic regression model removed three of the six predictor variables: distance to the highest degree of slope, cell slope, and cell aspect. This left the three highest predictor variables: distance to scarp line, distance to hydrology, and cell elevation (in that order). The chart labeled Variables in the Equation (see table 2) is important for this fact only, the Beta, S.E. and Wald are for testing the multicollinearity of the predictor variables. As this chart shows, the predictor variables distance to the highest degree of slope, cell slope, and cell aspect were removed from the model because they failed to conform to the criteria for inclusion. The criterion for inclusion is a significance of .001 addition to the model strength.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	dist#_sc	-.001	.000	654.170	1	.000	.999
	Constant	1.612	.068	569.119	1	.000	5.011
Step 2[b]	dist#_hy	.000	.000	195.260	1	.000	1.000
	dist#_sc	-.001	.000	589.105	1	.000	.999
	Constant	2.834	.121	544.226	1	.000	17.013
Step 3[c]	dist#_hy	-.001	.000	300.971	1	.000	.999
	dist#_sc	-.001	.000	396.334	1	.000	.999
	elev#	.045	.003	250.682	1	.000	1.046
	Constant	-66.896	4.351	236.424	1	.000	.000

a. Variable(s) entered on step 1: dist#_sc.

b. Variable(s) entered on step 2: dist#_hy.

c. Variable(s) entered on step 3: elev#.

Table 2- Variables in the Equation.

This section also shows the individual strength of the predictor variables by the order of entry into the equation of each predictor variable. The predictor variable distance to scarp line appears in Step 1, suggesting it has the highest predictive strength in the analysis. In Step 2 the predictor variable distance to hydrology appears making it the second highest predictor, and lastly cell elevation appears in Step 3, making it the lowest predictor variable in the model.

The Model Summary chart (see table 3) shows the examination of the effects of each of the three independent variables have on the dependent variable. For example, in Step 1, when the predictor variable distance to scarp line is examined we see that 47.9% of the variation in Paleoindian archaeological site location is explained by variable 1. If we look at Step 2, where the predictor variable distance to hydrology is added to the model along with distance to scarp line then 55.1% of the variation in Paleoindian archaeological site location in the study area is explained by variables 1 and 2. When

Step 3 is considered, the predictor variable cell elevation is added to the model along with the first two predictor variables then 65% of the variation in Paleoindian archaeological site location in the study is explained by variables 1,2, and 3 combined.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2524.598[a]	.359	.479
2	2289.440[b]	.412	.551
3	1925.528[c]	.487	.650

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

b. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

c. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Table 3- Model Summary.

The Classification Table (see table 4) indicates how successful the model is at correctly identifying the predictive capabilities of each step. In Step 1 68.8% of non-site cells and 87.7% of site cells were predicted correctly by the distance to scarp line predictor variable, giving this Step a 78.9% of correct classification. In Step 2 where distance to hydrology is added 72.3% of the non-site cells and 80.3% of the site cells were predicted correctly, giving Step 2 a percentage of correct classification of 76.6%. In Step 3 where all three predictor variables are added 78.7% of the non-site cells and 87.7% of the site cells were predicted correctly, giving Step 3 and the entire model a successful overall percentage of correct classification of 83.5% predictive capability.

Classification Table[a]

Observed			Predicted pres_abs .00	Predicted pres_abs 1.00	Percentage Correct
Step 1	pres_abs	.00	859	390	68.8
		1.00	178	1269	87.7
	Overall Percentage				78.9
Step 2	pres_abs	.00	903	346	72.3
		1.00	285	1162	80.3
	Overall Percentage				76.6
Step 3	pres_abs	.00	983	266	78.7
		1.00	178	1269	87.7
	Overall Percentage				83.5

a. The cut value is .500

Table 4- Classification Table.

The successful overall percentage of correct classification of 83.5% must be compared to a chance percentage of 50%, this shows that the predictive model is highly successful.

With the completion of the logistic regression analysis the central tendencies of the three strongest predictor variables is clear. The distance to hydrology central tendency or most likely distance for Paleoindian site locations is 0 meters to 6,666 meters (see figure 12).

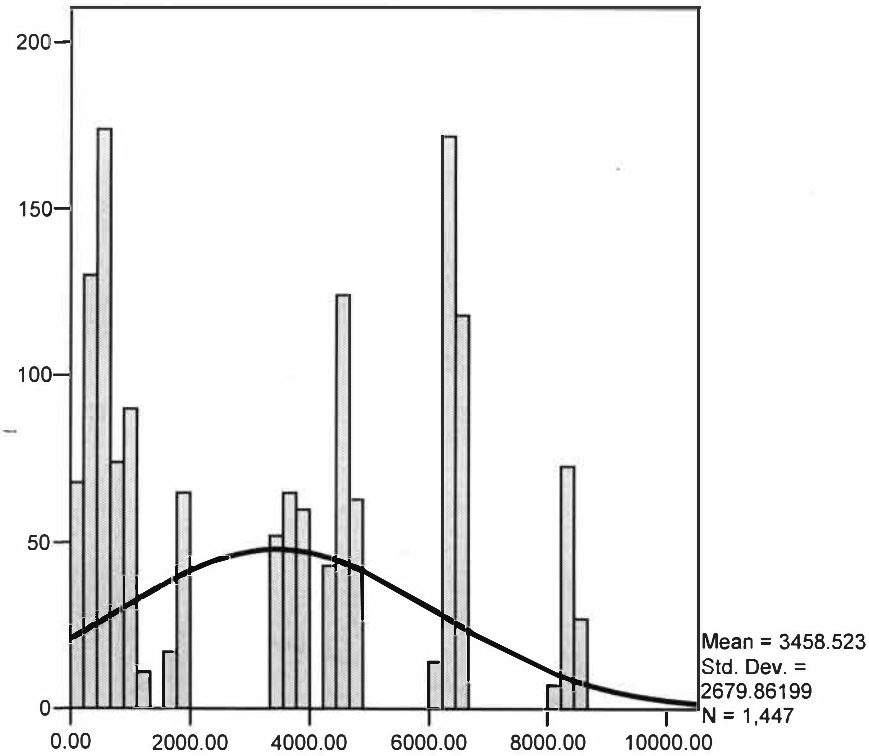

Figure 12- Distance to hydrology histogram.

The central tendency for distance to scarp line variable or most likely area for a Paleoindian site location based on scarp line is from 0 meters to 1,266 meters (see figure 13).

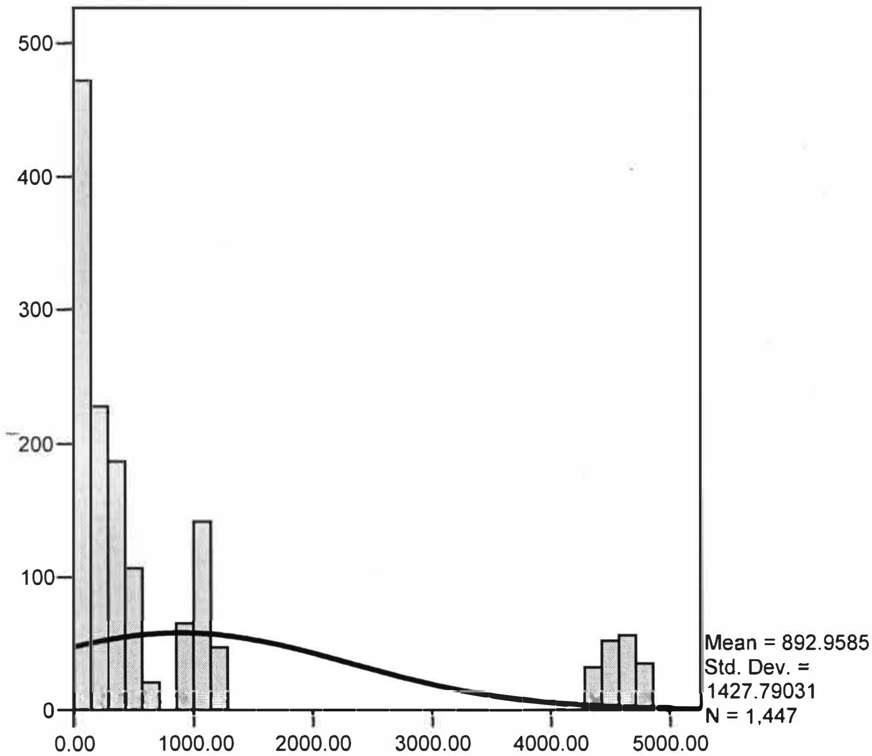

Figure 13- Distance to Scarp line histogram.

The central tendency for cell elevation variable or most likely elevations for a Paleoindian site location were 1537 meters to 1540 meters, 1614 meters to 1630 meters, and 1656 to 1660 meters (see figure 14).

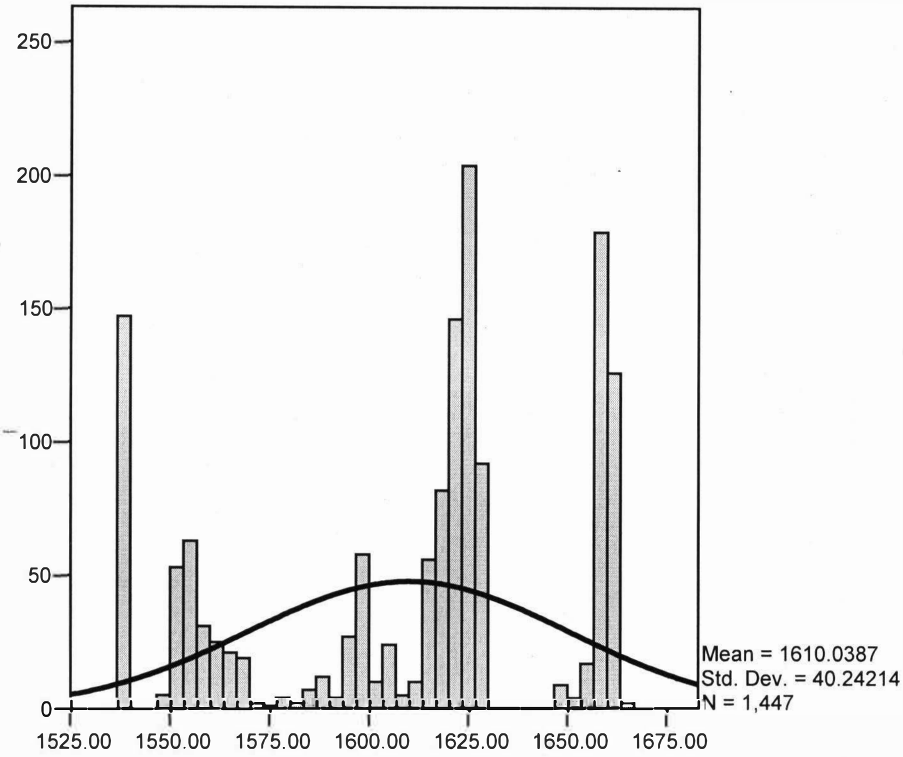

Figure 14- Elevation histogram.

The choosing of the central tendencies on all three predictor variables allows for the modes of the site cell predictor variables to play the largest factor possible in the creation of the probability map. The probability map was constructed using all three central tendencies stated above (see figure 15).

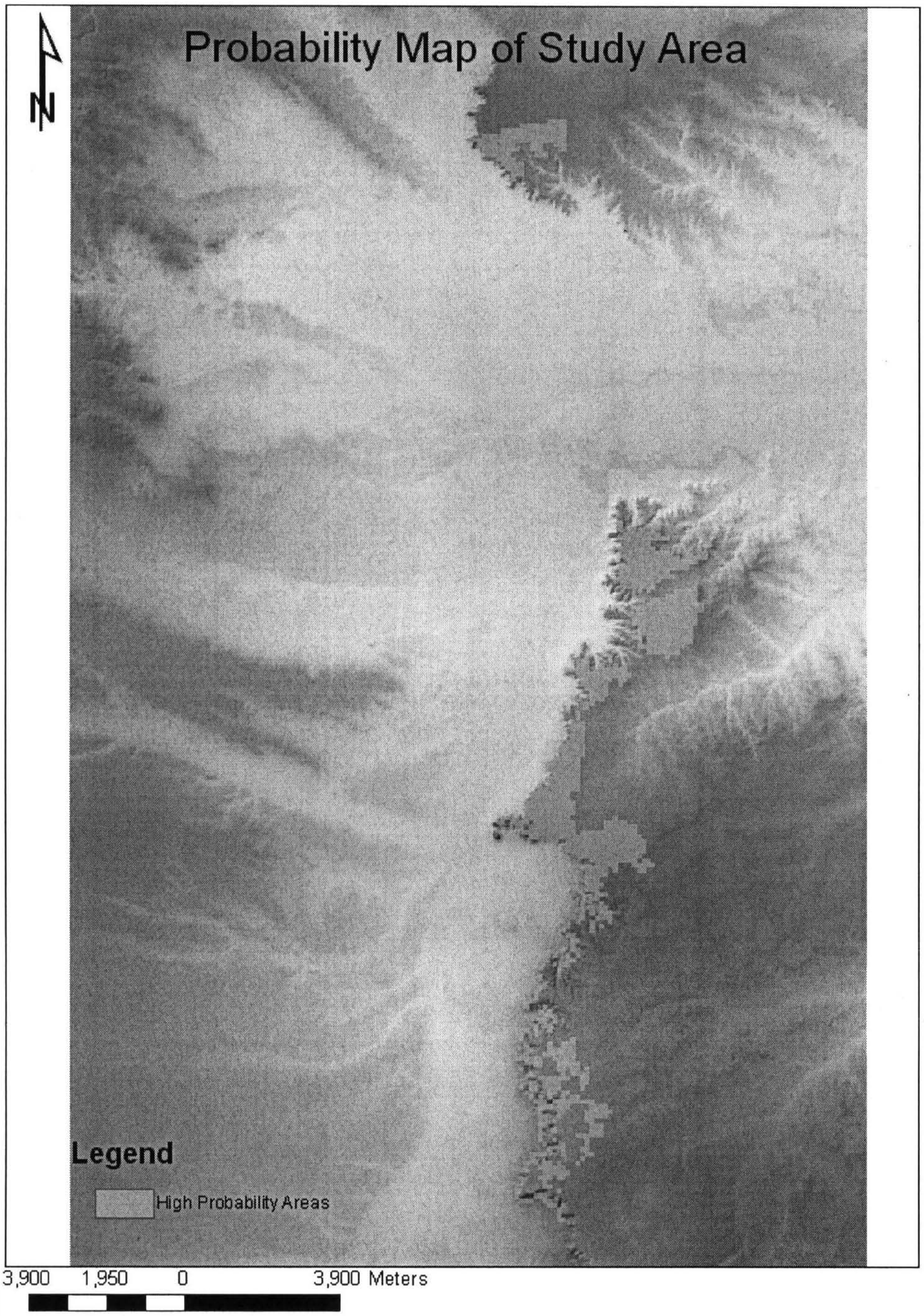

Figure 15- Probability map.

CHAPTER V

DISCUSSION

The initial question asked in this project is: Can the locations of unknown Paleoindian archaeological sites be predicted by contrasting the landscape variables of known Paleoindian archaeological site locations to a random sample of non-site locations using logistic regression and ArcGIS? The answer to that question is yes, the Paleoindian archaeological site locations can be predicted by using logistic regression statistics and ArcGIS. The results of the logistic regression show that this model has a statistical success rate of 83.5% chance of predicting a Paleoindian archaeological site location within the study area. Now there are several points that must be discussed in order to clarify the above hypothesis.

The first point is, is this study environmentally deterministic? Well, yes by the definition of "Environmental Determinism" this study is environmentally deterministic. The predictor variables used were solely landscape features. In order to keep this study as empirical as possible the predictor variables were based on the local landscape features. The ability to predict human behavior both psychologically and culturally is a very debatable topic and was therefore avoided by using environmental predictors to determine the probable locations of the Paleoindian sites within the Pine Bluffs, Wyoming region. Due to the variable nature of factors such as migration routes of certain fauna known to be hunted by Paleoindian cultures, the study would have been difficult if not improbable to map within an ArcGIS context. Human and animal behavior is not obvious or as empirical as factors such as distance to hydrology or elevation of a known area. This is why cultural faunal predictor variables were not used, as the author wanted to keep the study as inductive as possible.

The next point is, is this study too simplistic? No this study is not too simplistic, but at the same time this study can be called simplistic. For instance, six predictor variables are easier to analyze than twenty five, more predictor variables does not necessarily mean more accuracy, in fact any added predictor variables may be confounders within the study. This study could have also had multiple cultural eras, such as Paleoindian, Archaic, Woodland, Late Prehistoric, and Historic, this would have made things more difficult and more prone to error. The addition of these other cultural eras would decrease the accuracy of this predictive model because of the changing nature of both catchment and settlement patterns throughout history and prehistory. It was important for these reasons to keep this predictive model simple, as it helped the analysis to be as accurate and precise as possible.

The last point pertains to the mechanics of this study, are there any relationships between the three predictor variables used in the final analysis? There is definitely a relationship or relationships among the predictor variables. When analyzing the Classification Table (see table 4), notice the change in correct classification percentages of the three Steps. Step 1 shows a correct classification percentage of 78.9%, Step 2 shows a correct classification percentage of 76.6%, and Step 3 shows a correct classification percentage of 83.5%. The correct classification percentage in Step 2 is lower than Step 1, and the correct classification percentage in Step 3 is boosted to even higher than the first two. This result proves that there is definitely a relationship between the distance to scarp line, the distance to hydrology, and the elevation of the Paleoindian site cell predictor variables. The reason for this relationship is truly unknown, but it could be due to the fact that elevation is naturally a visual landscape advantage (meaning one can see further at a higher elevation), whether the cultural reason be for hunting game or for defense. The point is that this can be tied in with the predictor variable distance to hydrology for the availability of a water source near this advantageous elevation feature. If the elevation is being used for a visual advantage then the predictor variable distance to scarp line would play a vital role, in which it does, being the strongest predictor variable entered in Step 1 of the stepwise logistic regression analysis.

Further explanation must also be given as to why sites may occur outside of the high probability areas contained within the Pine Bluffs, Wyoming region. The most probable cultural reasons are the type of catchments used in this area and potential ceremonial possibilities. These catchments may be related to specific uses, such as hunting or other economic resource gathering, and not specific habitation bases. Meaning while Paleoindian peoples may be residing in one location, they may be sending smaller groups to gather distant resources from that base location. Although even harder to define, ceremonial reasons may play a factor in that it would be difficult to determine in any scientific study without ethnographic information. Ceremonial reasons for these outlier locations may be sacred places contained within the landscape or specific areas devoted to purely ceremonialism.

Another possible reason for these outliers may result from floral and faunal locations that differ from present floral and faunal locations. Specifically, migratory routes of extinct faunal species may have no relation to the migratory routes of present faunal species. Furthermore, as little interpretation can be made on behavior patterns of extinct faunal species, then there is little way to know these patterns and to be able to use them within a predictive modeling context.

One last point must be made; can this successful model of Paleoindian archeological site prediction be used on a different geographic location? Yes this model can be used for any cultural complex in any geographic location, as long as there has already been archaeological cultural material discovered in the same location. The predictive model needs to be adjusted for the geographic region and different landscape features for the predictive variables. Specifically predictor variables such as scarp line would not be as affective, such as in the northeast coast, as scarp line does not have the same environmental impact as it does in the high plains. Particularly such as the continental United States where landforms and hydrology can change across the broad spectrum of that region, it is important to remember that each smaller region has its own environment and thus will have different predictor variables.

Due to the results of this research there is the need for further study, in order to validate this model in an archaeological context. The areas of high predictability for sites are shown in the probability map and must be pedestrian surveyed for Paleoindian archaeological material. However, if possible a survey done in a grid of 5 to 10 meter interval shovel tests would give further insight than a pedestrian survey, this process must be completed in order for this study to be archaeologically valid. The relationships between the predictor variables must be analyzed thoroughly, because a predictive model is generally used for discovering the relationships between predictor variables. In doing so these relationships must be explained in an archaeological context. The distributions of the Paleoindian archaeological sites will help to explain Paleoindian settlement patterns within the high plains, specifically the Pine Bluffs, Wyoming region. In order for this research to be valid it must be repeated within the same Paleoindian archaeological context in different geographic regions.

APPENDIX A

INDIVIDUAL PREDICTOR VARIABLE DATA

Cell #	Dist. Hydro.	Aspect	Dist. Scarp	Cell Slope	Dist. 11.7-37.76 Deg. Sl.	Elev.	Pres./Abs.
1	6644.63	0.001	434.39	1.06	484	1626	1
2	6637.59	90	457.68	1.06	507	1626	1
3	6629.69	90	480.97	1.06	531	1625	1
4	6623.29	0.001	507.9	0.001	563	1625	1
5	6614.74	78.69	532.46	1.35	586	1625	1
6	6608.27	75.96	558.27	2.18	609	1624	1
7	6635.56	135	381.53	0.84	433	1627	1
8	6628.17	108.44	407.28	0.84	459	1626	1
9	6620.74	135	430.55	0.37	483	1626	1
10	6612.74	116.57	458.77	1.18	509	1626	1
11	6605.88	108.44	483.3	0.84	533	1625	1
12	6598.19	135	507.8	0.37	560	1625	1
13	6591.8	116.57	532.32	1.18	584	1625	1
14	6584.61	98.13	558.07	1.87	602	1624	1
15	6576.45	90	582.62	2.12	620	1623	1
16	6570.07	90	608.33	2.12	646	1622	1
17	6626.4	180	333.03	1.06	380	1626	1
18	6617.94	161.57	357.31	0.37	409	1626	1
19	6610.26	161.57	386.84	0.37	436	1626	1
20	6604.43	135	411.15	0.84	459	1626	1
21	6597.06	108.44	435.6	1.18	483	1626	1
22	6590.25	116.57	460.27	0.37	506	1625	1
23	6581.54	135	483.28	0.84	531	1625	1
24	6573.96	108.44	508.97	1.18	546	1625	1
25	6566.16	116.57	533.61	1.18	568	1624	1
26	6560.26	108.44	557.84	1.67	591	1624	1
27	6553.52	104.04	582.47	2.18	609	1623	1
28	6545.93	98.13	609.33	1.87	634	1622	1
29	6539.78	101.31	635.04	1.35	655	1621	1
30	6532.9	116.57	658.24	1.18	675	1621	1
31	6602.91	180	337.52	1.06	382	1626	1
32	6594.08	198.44	363.93	0.84	410	1626	1
33	6587.95	198.44	391.54	0.84	431	1626	1
34	6579.52	180	412.78	0.53	457	1626	1
35	6572.99	116.57	438.28	1.18	471	1626	1
36	6564.87	108.44	461.37	0.84	492	1625	1
37	6557.73	0.001	488.14	0.001	511	1625	1
38	6549.98	90	511.41	1.06	533	1625	1
39	6542.22	90	536.85	1.06	555	1624	1
40	6536.42	98.13	561.23	1.87	577	1624	1
41	6528.74	104.04	572.28	2.18	598	1622	1
42	6522.85	101.31	577.96	1.35	619	1622	1

43	6515.77	98.13	590.38	1.87	641	1621	1
44	6508.45	120.96	600.96	1.54	666	1620	1
45	6502.2	120.96	610.98	1.54	685	1620	1
46	6496.27	120.96	624.06	1.54	667	1619	1
47	6586.35	180	321.4	1.06	358	1625	1
48	6579.34	180	345.11	1.06	379	1625	1
49	6570.09	225	367.34	1.06	395	1625	1
50	6564.36	225	391.25	1.12	416	1625	1
51	6555.58	180	411.54	0.53	437	1626	1
52	6547.87	116.57	436.4	1.18	455	1625	1
53	6541.34	135	460.34	0.37	474	1625	1
54	6533.6	0.001	479.05	1.06	498	1625	1
55	6524.68	90	499.24	1.06	522	1625	1
56	6519.08	90	522.22	1.06	539	1624	1
57	6511.14	81.87	534.82	1.87	562	1624	1
58	6498.4	75.96	544.63	2.18	593	1622	1
59	6497.32	78.69	555.69	1.35	614	1622	1
60	6491.97	90	568.87	2.12	639	1621	1
61	6484.49	98.13	583.05	1.87	654	1620	1
62	6477.89	116.57	595.37	1.18	678	1619	1
63	6471.15	116.57	612.56	1.18	647	1619	1
64	6464.51	108.44	626.99	1.67	658	1619	1
65	6563.78	0.001	309.99	1.06	343	1625	1
66	6554.25	0.001	335.03	1.06	360	1625	1
67	6546.94	251.57	355.72	1.06	383	1625	1
68	6539.67	251.57	380.84	0.84	402	1625	1
69	6530.98	180	402.48	0.53	424	1626	1
70	6524.89	108.44	423.41	0.84	443	1625	1
71	6517.51	0.001	445.96	0.37	462	1625	1
72	6509.53	0.001	465.67	1.06	486	1625	1
73	6503.18	90	489.06	1.06	507	1625	1
74	6494.95	90	510.43	1.06	529	1624	1
75	6488.35	78.69	510.81	1.35	550	1624	1
76	6479.69	75.96	521.98	2.18	572	1623	1
77	6472.84	81.87	534.69	1.87	585	1622	1
78	6467.84	90	547.97	2.12	589	1621	1
79	6461.77	90	560.57	2.12	599	1620	1
80	6455.16	90	575.42	1.06	610	1620	1
81	6447.6	90	591.26	1.06	624	1619	1
82	6440.37	98.13	608.12	1.87	635	1619	1
83	6538.73	180	301.73	1.06	324	1625	1
84	6530.59	180	323.15	1.06	346	1625	1
85	6524.94	206.57	351.08	1.18	362	1625	1
86	6517.23	206.57	368.17	0.84	386	1625	1
87	6508.2	198.44	389.11	0.84	411	1625	1
88	6501.27	135	410.97	0.37	429	1625	1
89	6493.25	0.001	431.14	0.37	451	1625	1
90	6484.47	135	457.19	0.37	470	1625	1
91	6478.64	116.57	465.34	1.18	496	1625	1
92	6471.81	108.44	473.88	0.84	518	1624	1

93	6464.21	90	485.88	1.06	544	1624	1
94	6457.65	90	500.79	2.12	550	1623	1
95	6450.16	81.87	510.21	1.87	557	1622	1
96	6443.28	66.8	525.66	2.02	570	1621	1
97	6437.85	63.43	532.84	2.37	576	1620	1
98	6431.85	59.04	543.52	2.37	589	1619	1
99	6425.06	59.04	559.28	1.54	601	1619	1
100	6417.54	75.96	572.82	2.18	612	1619	1
101	6409.67	78.69	588.18	2.18	623	1617	1
102	6522.01	180	269.48	1.06	291	1624	1
103	6514.56	180	294.17	1.06	309	1624	1
104	6508.9	180	317.79	1.06	330	1624	1
105	6499.47	206.57	334.48	1.18	352	1624	1
106	6492.75	206.57	354.8	1.18	373	1624	1
107	6484.19	206.57	376.27	1.18	398	1625	1
108	6476.52	180	397.5	1.06	418	1625	1
109	6470.7	180	424.21	1.06	437	1625	1
110	6462.52	153.44	430.81	1.18	463	1625	1
111	6455.54	135	444.28	1.12	491	1624	1
112	6448.06	135	451.93	0.75	512	1624	1
113	6439.86	120.96	463.65	1.54	524	1624	1
114	6432.84	113.2	474.92	2.02	530	1623	1
115	6426.74	90	490.84	1.06	535	1622	1
116	6419.17	45	497.51	1.5	542	1622	1
117	6413.81	45	510.2	2.62	551	1621	1
118	6406.3	45	525.85	2.62	566	1621	1
119	6398.62	45	536.4	2.72	574	1620	1
120	6392.85	60.95	552.45	2.72	589	1619	1
121	6385.87	63.43	567.92	2.37	604	1618	1
122	6498.49	225	262.93	0.37	274	1624	1
123	6491.65	180	277.58	1.06	295	1624	1
124	6483.66	180	300.02	1.06	317	1624	1
125	6475.96	225	322.58	1.18	338	1624	1
126	6469.41	225	345.11	1.18	362	1624	1
127	6459.71	198.44	367.73	1.18	381	1625	1
128	6453.71	180	387.01	1.06	407	1625	1
129	6445.28	180	394.16	1.06	427	1624	1
130	6438.66	161.57	409.19	0.84	451	1624	1
131	6431.15	135	425.07	0.75	475	1624	1
132	6423.22	135	430.97	1.12	503	1624	1
133	6414.49	123.69	438.53	1.91	526	1624	1
134	6408.2	120.96	453.75	2.02	541	1623	1
135	6401.4	135	461.84	1.06	559	1622	1
136	6396.96	45	477.75	0.37	526	1622	1
137	6387.93	59.04	490.91	1.54	529	1621	1
138	6380.9	45	502.77	2.62	542	1621	1
139	6374.9	54.46	516.52	2.28	557	1619	1
140	6369.33	60.95	531.57	2.72	566	1620	1
141	6363.36	63.43	550.37	2.72	580	1618	1
142	6474.2	225	242.44	0.37	262	1624	1

143	6466.34	180	272.29	1.06	287	1624	1
144	6460.8	180	292.47	1.06	308	1624	1
145	6451.39	180	310.28	0.37	331	1624	1
146	6444.36	180	333	0.84	351	1624	1
147	6436.01	180	352.69	1.06	377	1624	1
148	6428.67	180	361.49	1.06	401	1624	1
149	6422.9	180	375.15	1.06	421	1624	1
150	6413.04	161.57	385.52	0.84	441	1624	1
151	6407.38	135	394.93	0.75	466	1624	1
152	6399.71	135	409.65	1.12	488	1624	1
153	6390.97	123.69	420.82	1.91	476	1623	1
154	6385.68	120.96	433.21	1.06	484	1622	1
155	6378.88	135	447	0.37	490	1622	1
156	6371.89	45	456.82	0.37	500	1622	1
157	6364.44	59.04	467.21	0.37	513	1622	1
158	6357.26	54.46	481.36	2.28	520	1621	1
159	6352.19	54.46	498.16	2.28	532	1621	1
160	6345.45	59.04	512.38	2.51	545	1620	1
161	6337.16	60.95	529.2	2.72	562	1618	1
162	6332.14	63.43	545.76	2.18	574	1618	1
163	6450.75	206.57	230.52	1.18	249	1624	1
164	6443.6	180	255.19	1.18	275	1624	1
165	6436.71	180	275.85	1.06	296	1624	1
166	6429.52	180	297.19	1.06	329	1624	1
167	6419.71	180	317.41	1.06	347	1624	1
168	6413.04	180	328.67	1.06	368	1624	1
169	6405.98	180	341.78	1.06	388	1624	1
170	6396.97	180	355.16	1.06	405	1624	1
171	6390.97	180	370.24	1.06	434	1624	1
172	6381.75	153.44	373.79	1.18	437	1624	1
173	6374.52	135	388.12	1.12	445	1623	1
174	6368.03	101.31	399.33	1.35	447	1623	1
175	6360.38	90	410.9	1.06	456	1622	1
176	6353.83	90	421.37	1.06	468	1622	1
177	6347.28	135	435.16	0.37	478	1622	1
178	6340.16	90	448.3	1.06	485	1622	1
179	6334.1	78.69	461.39	1.35	498	1621	1
180	6327.01	78.69	477.29	0.84	508	1621	1
181	6319.62	71.57	494.59	2.92	525	1621	1
182	6313.5	74.74	511.88	3.02	543	1619	1
183	6308.38	75.96	529.85	2.18	556	1618	1
184	6426.64	198.44	218.37	0.84	241	1623	1
185	6418.59	180	239.2	1.06	262	1623	1
186	6411.59	180	261.85	1.06	284	1623	1
187	6405.63	180	283.39	1.06	311	1623	1
188	6396.82	180	293.44	1.06	332	1623	1
189	6389.61	180	305.62	1.06	353	1623	1
190	6381.23	180	318.66	1.06	373	1623	1
191	6374.35	180	328.53	1.35	401	1623	1
192	6366.23	168.69	341.69	1.67	416	1623	1

193	6358.92	161.57	352.72	1.35	418	1623	1
194	6350.72	168.69	366.35	1.12	421	1623	1
195	6345.06	135	379.71	0.84	428	1623	1
196	6337.47	108.435	389.4	1.18	436	1622	1
197	6330.1	180	398.09	0.37	442	1622	1
198	6322.53	135	415.37	1.18	456	1622	1
199	6316.16	116.57	426.13	0.84	468	1622	1
200	6309.83	108.44	439.95	0.84	477	1621	1
201	6302.52	108.44	462.78	2.12	493	1621	1
202	6295.3	90	473.69	2.92	506	1621	1
203	6289.62	84.81	494.3	2.02	519	1619	1
204	6285.24	66.8	512.77	0.001	537	1618	1
205	6401.88	0.001	206.33	0.001	234	1623	1
206	6395.99	0.001	229.84	0.37	259	1623	1
207	6389.1	135	251.54	0.37	284	1623	1
208	6379.56	161.57	262.17	0.84	310	1623	1
209	6372.85	161.57	272.3	1.06	329	1623	1
210	6365.31	180	283.4	1.06	356	1623	1
211	6356.53	180	296.06	1.06	378	1623	1
212	6348.92	180	308.25	1.18	403	1623	1
213	6343.4	153.44	317.93	1.18	398	1623	1
214	6336.38	153.44	331.37	1.18	386	1622	1
215	6327.08	180	346.39	1.06	395	1622	1
216	6320.09	153.44	354.96	1.18	403	1622	1
217	6313.6	153.44	364.39	1.18	411	1622	1
218	6308.05	180	379.86	1.06	419	1622	1
219	6298.96	153.44	392.19	1.18	429	1622	1
220	6292.2	135	405.51	1.5	443	1621	1
221	6285.28	153.44	421.01	1.5	456	1621	1
222	6278.53	153.44	439.14	1.18	468	1621	1
223	6272.26	108.44	457.01	1.67	486	1621	1
224	6264.86	75.96	476.43	2.18	502	1619	1
225	6377.66	0.001	195.86	0.001	224	1623	1
226	6370.71	0.001	217.49	0.001	242	1623	1
227	6364.17	108.44	242.36	0.84	261	1623	1
228	6357.39	135	262.95	0.84	283	1623	1
229	6350.99	135	250.29	1.06	306	1622	1
230	6341.68	180	264.91	1.06	330	1622	1
231	6333.39	180	272.04	1.06	345	1622	1
232	6325.45	180	283.55	1.06	351	1622	1
233	6319.54	161.57	297.83	0.84	362	1622	1
234	6311.48	135	310.08	0.37	365	1622	1
235	6305.03	135	327.33	0.37	369	1622	1
236	6297.14	135	330.18	1.12	376	1622	1
237	6288.87	149.04	345	1.54	380	1621	1
238	6283.61	171.87	356.13	1.87	397	1621	1
239	6275.39	171.87	372.63	1.87	411	1621	1
240	6267.24	149.04	388.32	1.54	422	1621	1
241	6262.29	149.04	402.75	1.54	432	1620	1
242	6252.28	149.04	420.59	1.54	450	1620	1

243	6246.62	149.04	439.14	1.54
244	6240.54	120.96	457.46	1.54
245	6346.16	0.001	197.6	0.001
246	6339.11	90	205	0.001
247	6333.75	90	215.63	1.06
248	6325.46	90	229.26	1.06
249	6317.51	0.001	242.58	0.001
250	6309.98	0.001	249.56	0.001
251	6303.2	0.001	261.22	0.001
252	6295.68	0.001	276.55	0.001
253	6287.3	0.001	286.53	0.001
254	6281.26	108.44	299.02	0.84
255	6271.3	116.57	311.15	1.18
256	6266.44	116.57	322.46	1.18
257	6258.53	135	336.78	1.12
258	6250.15	180	354.56	1.06
259	6245.07	161.57	368.92	0.84
260	6237.6	116.57	384.16	1.18
261	6231.34	116.57	405.39	1.18
262	6225.11	135	422.88	1.12
263	6323.67	180	172.22	1.12
264	6315.08	135	184.29	1.12
265	6309.25	108.44	195.93	0.84
266	6302.44	108.44	210.5	0.84
267	6294.42	0.001	216.43	0.001
268	6286.98	0.001	227.63	0.001
269	6278.48	135	241.45	0.001
270	6271	135	256.9	0.37
271	6262.99	161.57	266.9	0.84
272	6256.4	135	275.87	1.12
273	6249.53	116.57	287.72	1.18
274	6242.02	120.96	304.83	1.54
275	6234.36	135	317.75	1.5
276	6227.63	180	333.55	1.06
277	6220.85	180	352.08	1.06
278	6213.19	135	367.36	1.06
279	6205.17	135	387.38	1.12
280	6286.77	168.69	174.39	1.35
281	6279.54	168.69	191.06	1.35
282	6272.09	180	193.09	1.06
283	6264.88	180	209.2	1.06
284	6255.29	180	220.55	1.06
285	6248	153.44	234.24	1.18
286	6240.63	149.04	244.94	1.54
287	6232.4	161.57	253.6	1.67
288	6225.8	146.31	269.73	1.91
289	6218.07	135	280.63	2.25
290	6211.38	146.31	296.17	1.91
291	6204.43	171.87	316.52	1.87
292	6196.8	173.66	336.1	2.4

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228	1623	1
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275	1622	1
283	1622	1
290	1622	1
292	1621	1
302	1621	1
309	1621	1
320	1620	1
333	1619	1
346	1619	1
357	1619	1

293	6189.08	168.69	351.11	2.4	375	1619	1
294	6253.85	180	167.28	1.06	221	1621	1
295	6246.63	180	172.85	1.06	238	1621	1
296	6238.93	180	185.07	1.06	254	1621	1
297	6230.46	168.69	201.31	1.35	259	1621	1
298	6224.12	161.57	211.8	1.67	265	1621	1
299	6217.06	149.04	221.06	1.54	268	1621	1
300	6210.11	153.44	233.74	1.18	273	1620	1
301	6200.81	135	248.48	1.5	283	1620	1
302	6193.36	123.69	263.17	1.91	294	1619	1
303	6185.86	135	278.37	1.5	309	1619	1
304	6186.58	180	212.6	1.06	251	1620	1
305	147	333.44	4397	1.18	4205	1552	1
306	147	333.44	4369	1.06	4183	1553	1
307	224	33.69	4623	1.91	4429	1552	1
308	214	11.31	4603	1.59	4404	1552	1
309	203	329.04	4579	1.54	4383	1552	1
310	197	333.44	4555	1.18	4358	1553	1
311	193	348.69	4533	1.06	4335	1553	1
312	185	0.001	4510	1.06	4312	1553	1
313	183	0.001	4484	1.06	4290	1553	1
314	177	0.001	4460	1.06	4265	1553	1
315	173	0.001	4435	1.06	4241	1553	1
316	176	0.001	4413	1.06	4218	1553	1
317	173	341.57	4392	1.06	4195	1553	1
318	172	341.57	4368	0.84	4170	1553	1
319	168	0.001	4341	0.53	4150	1553	1
320	271	63.43	4665	1.5	4471	1554	1
321	256	63.43	4644	2.37	4442	1554	1
322	246	45	4614	1.5	4419	1553	1
323	237	341.57	4593	1.06	4397	1553	1
324	228	341.57	4572	0.84	4372	1553	1
325	223	315	4548	0.37	4351	1553	1
326	217	0.001	4524	1.06	4325	1553	1
327	214	0.001	4499	1.06	4303	1553	1
328	209	0.001	4475	1.06	4279	1553	1
329	203	0.001	4453	1.06	4257	1553	1
330	198	0.001	4429	1.06	4233	1553	1
331	199	315	4403	1.06	4210	1553	1
332	197	341.57	4380	1.06	4187	1553	1
333	194	341.57	4359	1.06	4165	1553	1
334	198	0.001	4332	1.06	4139	1553	1
335	357	35.54	4753	4.54	4555	1557	1
336	337	30.96	4727	3.08	4528	1556	1
337	323	35.54	4701	2.28	4505	1555	1
338	305	45	4680	1.87	4482	1555	1
339	294	54.46	4657	1.87	4459	1554	1
340	280	54.46	4631	1.91	4435	1554	1
341	269	33.69	4606	1.91	4411	1553	1
342	261	11.31	4586	1.35	4386	1553	1

343	260	0.001	4560	0.84	4363	1553	1
344	250	315	4536	1.06	4343	1553	1
345	240	0.001	4513	1.06	4317	1553	1
346	238	0.001	4490	1.06	4229	1553	1
347	237	0.001	4465	1.06	4271	1553	1
348	227	0.001	4444	1.06	4246	1553	1
349	224	0.001	4419	1.06	4223	1553	1
350	225	333.44	4394	1.18	4200	1553	1
351	220	333.44	4371	1.18	4177	1554	1
352	220	333.44	4348	1.06	4154	1554	1
353	221	0.001	4324	1.06	4133	1554	1
354	406	0.001	4791	4.23	4593	1561	1
355	391	26.57	4767	4.72	4566	1561	1
356	371	36.87	4743	5.28	4545	1557	1
357	356	26.57	4720	4.72	4519	1558	1
358	340	25.01	4693	4.37	4496	1555	1
359	326	28.3	4671	3.9	4473	1557	1
360	314	26.57	4648	3.9	4451	1555	1
361	306	26.57	4624	1.91	4425	1553	1
362	296	18.43	4601	3.34	4401	1555	1
363	285	9.46	4577	3.22	4378	1553	1
364	278	0.001	4551	3.17	4355	1554	1
365	279	5.19	4530	2.92	4332	1554	1
366	265	6.34	4505	2.4	4308	1554	1
367	263	8.13	4482	1.87	4284	1554	1
368	258	11.31	4457	1.35	4261	1553	1
369	253	0.001	4435	1.06	4237	1553	1
370	251	0.001	4410	1.06	4214	1554	1
371	247	341.57	4387	0.84	4191	1553	1
372	245	315	4362	1.18	4172	1554	1
373	244	0.001	4339	1.18	4142	1554	1
374	246	0.001	4315	1.06	4122	1554	1
375	481	24.44	4856	3.2	4656	1562	1
376	461	13	4832	3.68	4631	1563	1
377	443	11.31	4806	4.04	4607	1561	1
378	425	11.31	4781	4.23	4583	1561	1
379	405	0.001	4760	4.72	4558	1561	1
380	391	26.57	4736	5.28	4535	1559	1
381	377	36.87	4713	4.72	4512	1558	1
382	362	26.57	4685	4.37	4488	1558	1
383	348	26.57	4661	3.9	4465	1556	1
384	337	26.57	4639	3.55	4441	1556	1
385	326	26.57	4615	4.37	4418	1555	1
386	315	26.57	4592	3.22	4393	1555	1
387	308	18.44	4569	3.22	4371	1556	1
388	303	3.81	4543	3.17	4347	1556	1
389	296	0.001	4522	2.92	4324	1556	1
390	288	11.31	4497	3.34	4300	1554	1
391	286	6.34	4475	1.87	4276	1555	1
392	278	8.13	4450	1.35	4253	1554	1

393	276	23.2	4426	1.06	4229	1554	1
394	275	11.31	4403	1.06	4208	1554	1
395	275	18.44	4378	0.84	4183	1554	1
396	273	341.57	4355	0.37	4160	1554	1
397	270	315	4332	0.37	4136	1554	1
398	520	18.43	4873	3.81	4669	1564	1
399	500	18.43	4850	3.34	4647	1565	1
400	482	13	4826	3.97	4625	1563	1
401	462	3.81	4800	3.97	4599	1563	1
402	442	0.001	4779	4.23	4576	1563	1
403	429	26.57	4752	4.72	4551	1563	1
404	412	36.87	4727	5.28	4530	1561	1
405	396	26.57	4705	4.72	4506	1560	1
406	383	26.57	4681	4.72	4479	1559	1
407	371	26.57	4655	4.72	4457	1558	1
408	360	26.57	4632	4.72	4433	1558	1
409	348	25.02	4610	4.37	4408	1557	1
410	341	15.95	4585	3.85	4386	1556	1
411	334	3.81	4561	3.97	4363	1556	1
412	328	0.001	4538	4.23	4337	1556	1
413	316	11.31	4514	4.04	4315	1556	1
414	321	18.43	4490	3.34	4292	1555	1
415	309	18.43	4467	2.51	4269	1555	1
416	307	23.2	4442	2.02	4245	1554	1
417	303	11.31	4420	1.35	4221	1554	1
418	299	18.43	4393	0.84	4198	1554	1
419	297	45	4370	0.37	4175	1554	1
420	298	0.001	4347	0.37	4148	1554	1
421	553	31.97	4889	1.91	4686	1567	1
422	534	30.97	4866	3.23	4663	1566	1
423	513	13	4842	3.97	4640	1565	1
424	497	3.81	4817	3.97	4616	1565	1
425	479	0.001	4794	4.23	4591	1565	1
426	462	3.81	4768	3.97	4567	1565	1
427	446	29.74	4745	4.26	4543	1565	1
428	431	36.25	4740	4.91	4524	1563	1
429	417	26.57	4696	4.72	4497	1562	1
430	404	26.57	4672	4.72	4472	1561	1
431	391	26.57	4647	4.72	4448	1561	1
432	381	26.57	4624	4.72	4425	1559	1
433	371	26.57	4602	4.72	4401	1559	1
434	365	14.04	4577	4.36	4376	1558	1
435	359	0.001	4554	4.23	4351	1558	1
436	351	3.81	4529	3.97	4332	1558	1
437	345	15.95	4508	3.85	4306	1558	1
438	339	23.2	4482	4.03	4283	1557	1
439	333	15.95	4461	3.85	4260	1556	1
440	329	15.95	4436	3.85	4237	1556	1
441	329	18.43	4412	3.34	4211	1555	1
442	328	32.47	4386	2.37	4188	1555	1

443	550	8.13	4857	1.87	4652	1567	1
444	532	5.19	4833	2.92	4635	1567	1
445	516	6.34	4810	2.92	4606	1567	1
446	499	14.04	4786	2.4	4583	1567	1
447	481	37.88	4760	2.18	4558	1567	1
448	465	33.69	4739	3.01	4535	1566	1
449	453	25.02	4714	3.81	4512	1565	1
450	438	26.57	4691	4.37	4488	1564	1
451	425	22.38	4666	4.72	4466	1563	1
452	414	22.38	4643	4.72	4443	1563	1
453	403	20.22	4619	4.86	4418	1561	1
454	398	11.31	4594	5.34	4393	1561	1
455	385	3.01	4570	5.38	4369	1560	1
456	382	14.04	4548	5.02	4347	1560	1
457	375	15.95	4523	4.36	4322	1560	1
458	368	18.43	4497	3.85	4297	1559	1
459	367	14.04	4474	4.18	4272	1559	1
460	361	14.04	4451	4.36	4250	1558	1
461	358	14.04	4426	4.36	4228	1558	1
462	533	26.57	4800	1.18	4600	1568	1
463	518	26.57	4779	1.18	4576	1567	1
464	503	11.31	4755	1.35	4553	1567	1
465	485	35.54	4732	2.28	4528	1567	1
466	473	29.05	4707	2.72	4506	1566	1
467	464	18.43	4682	3.34	4478	1566	1
468	449	25.02	4658	4.37	4453	1565	1
469	435	16.39	4637	4.68	4434	1564	1
470	427	16.39	4612	4.68	4411	1564	1
471	421	11.31	4587	5.38	4384	1564	1
472	411	10.3	4565	5.9	4360	1563	1
473	405	11.31	4540	5.38	4338	1563	1
474	401	22.38	4515	4.86	4313	1562	1
475	394	14.04	4490	4.36	4289	1561	1
476	507	30.96	4723	1.54	4519	1568	1
477	495	23.2	4699	2.02	4498	1567	1
478	482	6.34	4677	2.4	4474	1567	1
479	470	18.43	4652	3.34	4449	1567	1
480	461	11.31	4627	4.04	4428	1566	1
481	451	7.13	4604	4.26	4401	1566	1
482	445	14.04	4580	4.26	4380	1566	1
483	586	45	1256	0.37	1106	1537	1
484	515	0.001	1221	0.001	1073	1537	1
485	537	0.001	1221	0.001	1077	1537	1
486	556	0.001	1222	0.001	1075	1537	1
487	578	0.001	1223	0.001	1080	1537	1
488	596	0.001	1231	0.001	1083	1537	1
489	618	0.001	1227	0.001	1079	1537	1
490	640	0.001	1223	0.001	1080	1537	1
491	663	45	1215	0.37	1074	1537	1
492	496	0.001	1193	0.001	1049	1537	1

493	511	0.001	1194	0.001	1045	1537	1
494	531	0.001	1196	0.001	1046	1537	1
495	551	0.001	1196	0.001	1048	1537	1
496	571	0.001	1199	0.001	1050	1537	1
497	590	0.001	1201	0.001	1054	1537	1
498	613	0.001	1201	0.001	1056	1537	1
499	631	0.001	1203	0.001	1054	1537	1
500	654	0.001	1198	0.001	1055	1537	1
501	675	0.001	1194	0.001	1051	1537	1
502	697	0.001	1189	0.001	1048	1537	1
503	495	45	1165	0.37	1019	1537	1
504	514	315	1162	0.37	1022	1537	1
505	532	315	1166	0.53	1018	1537	1
506	548	45	1172	0.37	1020	1537	1
507	566	45	1169	0.37	1021	1537	1
508	586	0.001	1175	0.001	1020	1537	1
509	607	0.001	1175	0.001	1028	1537	1
510	625	0.001	1179	0.001	1034	1537	1
511	645	0.001	1183	0.001	1036	1537	1
512	667	0.001	1173	0.001	1031	1537	1
513	688	0.001	1167	0.001	1026	1537	1
514	709	0.001	1164	0.001	1020	1538	1
515	484	45	1143	0.37	999	1538	1
516	497	45	1142	1.12	993	1537	1
517	514	26.57	1139	1.18	996	1537	1
518	532	333.44	1143	1.18	997	1537	1
519	548	333.44	1144	1.06	995	1537	1
520	565	26.57	1144	1.06	996	1537	1
521	584	18.43	1144	0.84	999	1537	1
522	603	18.43	1151	0.84	1002	1537	1
523	623	45	1151	0.37	1002	1537	1
524	641	0.001	1155	0.001	1007	1537	1
525	662	0.001	1158	0.001	1006	1537	1
526	681	0.001	1149	0.001	1004	1537	1
527	702	0.001	1139	0.001	1005	1537	1
528	724	0.001	1137	0.001	994	1537	1
529	489	0.001	1119	0.001	972	1538	1
530	504	45	1116	0.37	970	1538	1
531	519	45	1115	0.37	970	1538	1
532	533	18.43	1114	0.84	970	1538	1
533	550	341.57	1117	0.84	970	1538	1
534	567	341.57	1115	0.53	972	1538	1
535	583	18.44	1118	0.84	969	1538	1
536	604	45	1117	0.84	976	1538	1
537	621	45	1121	1.12	976	1538	1
538	639	71.57	1126	0.84	978	1537	1
539	660	0.001	1131	0.001	984	1537	1
540	678	0.001	1132	0.001	982	1537	1
541	699	0.001	1125	0.001	977	1537	1
542	716	0.001	1119	0.001	976	1537	1

543	738	0.001	1111	0.001	975	1537	1
544	508	0.001	1091	0.001	943	1538	1
545	523	0.001	1088	0.001	943	1538	1
546	538	45	1087	0.37	943	1538	1
547	553	18.43	1093	0.84	943	1538	1
548	570	341.57	1089	0.84	943	1538	1
549	585	341.57	1094	0.84	944	1538	1
550	602	18.43	1093	0.53	945	1538	1
551	621	71.57	1096	0.84	948	1538	1
552	637	71.57	1097	1.12	952	1538	1
553	658	45	1102	0.84	954	1537	1
554	679	18.43	1104	1.06	956	1537	1
555	694	18.43	1110	0.84	957	1537	1
556	714	45	1098	0.37	954	1537	1
557	734	0.001	1097	0.001	951	1537	1
558	756	0.001	1090	0.001	945	1537	1
559	531	0.001	1065	0.001	918	1538	1
560	543	0.001	1069	0.001	918	1538	1
561	556	0.001	1063	0.001	918	1538	1
562	572	0.001	1064	0.001	918	1538	1
563	588	0.001	1068	0.001	918	1538	1
564	604	0.001	1066	0.001	918	1538	1
565	621	0.001	1070	0.001	921	1538	1
566	637	45	1070	0.37	923	1538	1
567	654	45	1072	0.37	925	1538	1
568	672	18.43	1077	0.84	930	1538	1
569	691	26.57	1081	1.06	937	1538	1
570	708	26.57	1083	1.18	934	1538	1
571	727	26.57	1078	1.18	929	1537	1
572	746	0.001	1070	1.06	924	1537	1
573	541	0.001	1040	0.001	896	1538	1
574	552	0.001	1045	0.001	896	1538	1
575	564	0.001	1046	0.001	896	1538	1
576	578	0.001	1042	0.001	896	1538	1
577	593	0.001	1042	0.001	896	1538	1
578	608	0.001	1041	0.001	896	1538	1
579	623	0.001	1040	0.001	896	1538	1
580	638	0.001	1045	0.001	898	1538	1
581	654	45	1046	0.84	901	1538	1
582	673	45	1050	0.84	904	1538	1
583	691	18.43	1055	1.06	906	1538	1
584	710	45	1052	1.18	907	1538	1
585	728	26.57	1061	1.18	906	1538	1
586	744	18.43	1064	1.06	902	1537	1
587	764	0.001	1070	1.06	900	1537	1
588	564	0.001	1020	0.001	869	1538	1
589	573	18.43	1019	0.84	869	1538	1
590	585	45	1015	0.37	869	1538	1
591	599	45	1015	0.001	869	1538	1
592	613	0.001	1015	0.001	869	1538	1

593	627	0.001	1019	0.001	869	1538	1
594	641	0.001	1018	0.001	869	1538	1
595	658	0.001	1018	0.001	872	1538	1
596	674	0.001	1019	0.001	872	1538	1
597	691	0.001	1023	0.001	877	1538	1
598	710	0.001	1032	0.001	875	1538	1
599	726	45	1028	0.37	882	1538	1
600	744	45	1032	0.37	891	1538	1
601	584	0.001	996	1.06	846	1538	1
602	596	18.43	991	0.84	846	1538	1
603	608	45	994	0.37	846	1538	1
604	619	0.001	988	0.001	846	1538	1
605	633	0.001	990	0.001	846	1538	1
606	649	0.001	987	0.001	846	1538	1
607	664	0.001	991	0.001	846	1538	1
608	680	0.001	991	0.001	845	1538	1
609	692	0.001	997	0.001	845	1538	1
610	710	0.001	997	0.001	850	1538	1
611	726	0.001	1000	0.001	857	1538	1
612	745	0.001	1006	0.001	857	1538	1
613	620	26.57	970	1.18	818	1539	1
614	630	26.57	968	1.18	818	1538	1
615	641	0.001	966	1.06	818	1538	1
616	655	0.001	964	1.06	818	1538	1
617	668	0.001	962	1.06	818	1538	1
618	681	0.001	966	1.06	818	1538	1
619	697	0.001	967	1.06	821	1538	1
620	711	18.43	970	1.06	823	1538	1
621	729	18.43	971	0.84	828	1538	1
622	744	45	976	0.37	829	1538	1
623	652	18.43	943	0.84	792	1539	1
624	663	0.001	939	1.06	792	1539	1
625	675	0.001	937	1.06	792	1539	1
626	691	0.001	938	1.06	792	1539	1
627	702	0.001	943	1.06	792	1539	1
628	716	0.001	939	1.06	794	1539	1
629	735	26.57	944	1.06	800	1539	1
630	135	302.01	196	4.98	27	1552	1
631	158	307.88	180	6.01	0.001	1552	1
632	182	294.62	168	13.71	0.001	1555	1
633	208	304.59	159	18.03	0.001	1565	1
634	232	33.44	153	18.29	0.001	1569	1
635	102	279.46	194	5.68	52	1551	1
636	128	291.8	177	5.68	29	1551	1
637	152	297.65	159	6.25	0.001	1554	1
638	177	284.04	145	14.93	0.001	1556	1
639	201	287.1	135	20.66	0.001	1568	1
640	226	308.42	127	18.88	0.001	1577	1
641	252	350.27	126	18.17	0.001	1584	1
642	77	279.46	202	6.41	78	1549	1

643	100	279.46	181	6.41	53	1549	1
644	126	291.8	160	5.68	27	1552	1
645	150	297.65	141	6.25	0.001	1555	1.
646	175	284.04	125	15.9	0.001	1556	1
647	200	287.1	112	20.66	0.001	1570	1
648	225	308.42	103	21.39	0.001	1580	1
649	250	350.27	100	18.17	0.001	1590	1
650	75	265.6	191	6.87	79	1548	1
651	100	265.6	168	6.64	53	1549	1
652	125	267.51	146	7.91	28	1555	1
653	150	276.84	125	6.64	0.001	1555	1
654	175	278.39	107	15.9	0.001	1558	1
655	200	280.08	91	22.9	0.001	1570	1
656	225	289.29	79	21.39	0.001	1580	1
657	250	323.84	75	16.57	0.001	1590	1
658	77	263.16	183	6.64	79	1548	1
659	102	263.16	157	6.64	53	1551	1
660	127	260.54	135	6.41	28	1551	1
661	151	266.19	112	7.91	0.001	1554	1
662	176	271.74	90	16.97	0.001	1559	1
663	203	274.13	71	24.2	0.001	1571	1
664	228	278.65	56	23.27	0.001	1584	1
665	251	293.67	51	17.89	0.001	1595	1
666	82	296.57	177	7.07	79	1551	1
667	107	295.56	152	7.07	53	1551	1
668	132	295.56	126	6.72	28	1551	1
669	157	282.1	103	7.54	0.001	1554	1
670	183	274.03	79	18.2	0.001	1559	1
671	206	277.52	56	26.29	0.001	1571	1
672	233	281.31	36	24.11	0.001	1584	1
673	256	282.53	25	18.82	0.001	1595	1
674	114	302.74	150	8.74	0.001	1554	1
675	137	315	125	10	0.001	1554	1
676	162	322.6	100	11.19	0.001	1556	1
677	182	295.94	74	20.82	0.001	1558	1
678	211	287.18	50	28.01	0.001	1576	1
679	234	287.68	25	23.81	0.001	1589	1
680	145	305.79	127	13.76	0.001	1558	1
681	170	322.97	100	18.26	0.001	1563	1
682	194	314.24	79	26.11	0.001	1568	1
683	220	303.11	56	26.91	0.001	1580	1
684	530	59.04	0.001	4.62	96	1606	1
685	551	59.04	32	4.62	82	1606	1
686	574	45	55	2.99	57	1605	1
687	598	29.05	34	2.72	32	1604	1
688	621	30.96	0.001	3.08	0.001	1604	1
689	644	76.83	17	12.57	0.001	1602	1
690	520	73.44	17	10.11	70	1609	1
691	540	73.44	0.001	10.11	70	1609	1
692	563	66.04	22	5.2	75	1605	1

693	585	60.95	56	2.72	57	1605	1
694	608	59.04	30	1.54	35	1604	1
695	631	71.57	0.001	1.67	0.001	1604	1
696	652	83.37	18	11.31	0.001	1603	1
697	676	81.66	43	19.3	0.001	1594	1
698	533	66.45	0.001	11.12	45	1612	1
699	553	66.45	0.001	7.06	45	1612	1
700	575	63.43	20	7.06	53	1608	1
701	597	63.43	44	3.54	61	1606	1
702	619	66.8	35	2.01	38	1605	1
703	641	71.57	0.001	1.67	21	1604	1
704	665	87.14	15	10.48	0.001	1603	1
705	687	88.41	37	18.4	0.001	1594	1
706	708	86.05	61	15.03	0.001	1585	1
707	546	90	0.001	10.98	20	1614	1
708	567	90	0.001	8.25	20	1614	1
709	589	99.16	17	8.25	33	1609	1
710	611	122	40	4.98	55	1606	1
711	632	145.31	21	4.17	31	1605	1
712	655	152.1	0.001	5.07	0.001	1604	1
713	678	118.61	0.001	13.03	0.001	1604	1
714	700	109.44	34	18.42	0.001	1594	1
715	722	99.25	59	11.38	0.001	1586	1
716	582	100.84	0.001	9.45	0.001	1612	1
717	602	109.44	0.001	9.45	25	1607	1
718	624	124.38	34	6.07	50	1603	1
719	644	142.13	0.001	6.01	32	1602	1
720	665	147.8	0.001	8.38	0.001	1600	1
721	690	124.46	27	15.94	0.001	1597	1
722	710	120	44	15.36	0.001	1586	1
723	733	68.2	65	2.84	12	1583	1
724	595	111.04	21	12.46	0.001	1606	1
725	615	111.04	0.001	9.45	25	1606	1
726	637	86.63	23	4.49	50	1603	1
727	658	77.47	0.001	2.86	31	1601	1
728	679	87.71	23	6.59	0.001	1597	1
729	701	91.08	48	13.76	0.001	1595	1
730	722	68.2	62	8.49	0.001	1584	1
731	744	329.53	76	10.32	13	1588	1
732	592	109.8	25	13.79	0.001	1611	1
733	610	109.8	28	13.79	0.001	1606	1
734	631	111.04	0.001	8.35	25	1606	1
735	650	86.63	0.001	4.49	50	1604	1
736	670	77.47	0.001	4.86	31	1603	1
737	693	87.71	29	7.88	0.001	1597	1
738	714	93.99	54	13.76	0.001	1595	1
739	735	68.2	79	8.49	0.001	1588	1
740	627	155.85	44	15.54	0.001	1605	1
741	646	155.85	24	6.6	25	1605	1
742	666	151.39	0.001	6.6	50	1604	1

743	687	138.58	0.001	5.97	40	1603	1
744	705	115.71	33	7.88	25	1601	1
745	727	93.99	58	11.26	29	1595	1
746	748	308.99	82	5.59	0.001	1588	1
747	701	151.7	32	7.76	60	1596	1
748	723	137.73	46	7.82	52	1595	1
749	893	63.43	22	1.18	56	1627	1
750	904	71.56	25	0.83	57	1626	1
751	924	0.001	30	0.001	56	1626	1
752	880	225	30	1.12	23	1627	1
753	892	180	41	1.05	50	1627	1
754	910	135	44	1.12	75	1627	1
755	925	108.43	49	0.83	80	1626	1
756	941	0.001	52	0.001	80	1626	1
757	960	0.001	60	0.001	80	1626	1
758	884	282.52	0.001	1.12	24	1626	1
759	898	225	36	1.12	48	1627	1
760	913	180	60	1.05	74	1626	1
761	930	135	70	1.12	100	1627	1
762	944	108.43	75	0.83	100	1626	1
763	960	0.001	78	0.001	100	1626	1
764	978	0.001	83	0.001	100	1626	1
765	995	0.001	88	0.001	100	1626	1
766	1012	0.001	96	0.001	100	1626	1
767	891	310.91	0.001	5.23	0.001	1626	1
768	905	310.91	21	5.23	23	1626	1
769	920	0.001	44	0.001	50	1626	1
770	933	161.56	67	0.83	75	1626	1
771	949	161.56	93	0.83	100	1626	1
772	963	135	98	0.37	125	1626	1
773	979	0.001	101	0.001	130	1626	1
774	996	0.001	106	0.001	130	1626	1
775	1013	0.001	113	0.001	130	1626	1
776	1030	0.001	118	0.001	130	1626	1
777	912	329.03	21	3.73	22	1627	1
778	925	329.03	39	1.12	32	1627	1
779	939	45	57	0.83	53	1627	1
780	954	71.56	78	0.83	76	1626	1
781	968	0.001	101	0.001	101	1626	1
782	983	0.001	121	0.001	126	1626	1
783	999	135	126	0.37	150	1626	1
784	1015	161.56	133	0.83	156	1626	1
785	1032	180	139	1.05	156	1626	1
786	1048	198.43	143	0.83	156	1626	1
787	921	246.8	0.001	2.01	29	1626	1
788	933	251.56	36	2.01	55	1627	1
789	946	251.56	57	0.83	78	1627	1
790	959	71.56	76	0.83	104	1627	1
791	974	63.43	93	1.18	129	1626	1
792	989	90	113	0.52	154	1626	1

793	1003	161.56	134	0.83	179	1626	1
794	1019	153.43	152	1.18	182	1626	1
795	1034	153.43	156	1.18	182	1625	1
796	1050	180	164	1.05	182	1625	1
797	1067	206.56	168	1.18	182	1625	1
798	1083	206.56	173	1.18	185	1626	1
799	942	288.43	26	1.67	30	1626	1
800	955	225	49	0.74	53	1627	1
801	967	225	71	0.74	78	1627	1
802	981	161.56	90	0.83	103	1627	1
803	994	108.43	111	0.83	128	1627	1
804	1008	101.31	138	1.34	154	1626	1
805	1023	135	161	1.12	178	1625	1
806	1038	161.56	185	0.83	203	1625	1
807	1054	135	182	0.37	207	1625	1
808	1070	0.001	188	0.001	207	1625	1
809	1085	225	191	0.37	207	1625	1
810	1103	198.43	199	0.83	210	1625	1
811	965	270	31	0.52	29	1627	1
812	976	161.56	55	0.52	53	1627	1
813	990	161.56	80	0.83	79	1626	1
814	1002	180	107	1.05	104	1626	1
815	1015	153.43	131	1.18	129	1626	1
816	1028	120.96	155	1.54	154	1626	1
817	1044	108.43	182	0.83	179	1625	1
818	1058	0.001	206	0.001	205	1625	1
819	1074	135	206	0.37	229	1625	1
820	1088	161.56	209	0.83	230	1625	1
821	1104	180	216	1.05	230	1625	1
822	1122	180	224	1.05	234	1625	1
823	998	180	54	0.52	53	1626	1
824	1011	135	78	0.37	78	1626	1
825	1023	0.001	104	0.001	103	1626	1
826	1036	108.43	129	0.83	128	1626	1
827	1049	116.56	154	1.18	153	1625	1
828	1063	135	180	0.37	178	1625	1
829	1078	135	205	0.37	203	1625	1
830	1093	135	228	1.12	229	1625	1
831	1108	149.03	255	1.54	254	1624	1
832	1125	171.87	277	1.87	254	1624	1
833	1032	0.001	78	0.001	78	1626	1
834	1044	0.001	102	0.001	103	1626	1
835	1057	90	128	1.05	128	1626	1
836	1072	90	154	1.05	153	1625	1
837	1085	0.001	178	0.001	178	1625	1
838	1099	108.43	203	0.83	203	1625	1
839	1113	116.56	229	1.18	228	1624	1
840	1129	116.56	254	1.18	253	1624	1
841	1144	135	278	1.12	278	1623	1
842	1066	135	101	0.37	104	1626	1

843	1078	116.56	126	1.18	129	1626	1
844	1093	108.43	150	0.83	155	1625	1
845	1105	135	175	0.37	179	1625	1
846	1120	116.56	200	1.18	204	1625	1
847	1134	116.56	225	1.18	228	1624	1
848	1150	116.56	250	1.18	255	1624	1
849	1129	108.43	167	0.83	184	1625	1
850	1142	116.56	190	1.18	206	1624	1
851	1157	116.56	212	1.18	232	1624	1
852	1815	8.13	70	5.59	25	1594	1
853	1790	295.25	57	15.14	0.001	1597	1
854	1816	20.22	45	5.34	25	1597	1
855	1841	50.71	46	7.48	49	1593	1
856	1867	9.46	58	8.02	34	1591	1
857	1767	284.03	63	12.87	0.001	1598	1
858	1793	295.25	41	12.87	0.001	1598	1
859	1817	33.69	22	3.81	23	1598	1
860	1842	50.71	23	7.48	50	1595	1
861	1867	2.72	43	6.41	34	1594	1
862	1892	349.38	40	8.55	0.001	1595	1
863	1744	283.24	77	17.88	0.001	1587	1
864	1769	284.03	54	12.87	0.001	1598	1
865	1793	284.03	28	12.87	0.001	1599	1
866	1819	33.69	0.001	3.81	25	1598	1
867	1844	41.63	0.001	6.34	50	1595	1
868	1869	2.72	0.001	5.54	42	1594	1
869	1894	334.65	25	5.54	26	1595	1
870	1919	54.09	36	9.39	0.001	1597	1
871	1719	303.31	88	10.95	22	1582	1
872	1746	277.85	65	15.13	0.001	1587	1
873	1770	268.72	43	11.74	0.001	1598	1
874	1795	268.72	25	11.74	0.001	1598	1
875	1820	18.43	0.001	0.83	25	1599	1
876	1846	39.28	28	3.75	50	1598	1
877	1870	8.13	0.001	3.73	75	1597	1
878	1896	335.55	0.001	3.19	50	1597	1
879	1920	67.38	0.001	6.84	27	1598	1
880	1722	306.87	85	7.89	30	1587	1
881	1747	279.24	59	11.38	21	1589	1
882	1773	267.27	34	10.99	21	1596	1
883	1798	267.27	0.001	10.99	21	1596	1
884	1822	251.56	0.001	1.67	31	1599	1
885	1847	78.69	40	1.34	54	1598	1
886	1872	18.43	17	0.83	77	1598	1
887	1898	341.56	12	0.83	60	1598	1
888	1922	81.86	12	5.59	50	1598	1
889	1946	73.07	12	6.33	49	1593	1
890	1724	326.31	43	9.45	0.001	1587	1
891	1750	308.66	34	10.06	0.001	1589	1
892	1775	288.43	24	9.12	29	1596	1

893	1800	288.43	0.001	9.12	44	1596	1
894	1825	293.19	22	1.12	50	1599	1
895	1850	45	47	1.12	66	1598	1
896	1875	0.001	39	1.05	86	1598	1
897	1900	18.43	37	0.83	82	1598	1
898	1924	77.47	37	4.86	72	1598	1
899	1950	66.03	37	5.19	73	1593	1
900	1728	332.87	19	12.01	0.001	1595	1
901	1753	334.79	0.001	9.84	0.001	1596	1
902	1778	315	0.001	5.59	28	1598	1
903	1804	315	0.001	5.59	50	1598	1
904	1828	288.43	28	0.83	75	1599	1
905	1853	135	52	0.37	100	1599	1
906	1877	315	78	0.37	101	1599	1
907	1902	45	63	0.74	104	1599	1
908	1927	68.96	63	3.68	98	1598	1
909	1952	45	63	4.48	99	1596	1
910	1732	308.29	0.001	6.38	15	1598	1
911	1757	329.03	0.001	3.08	14	1599	1
912	1780	0.001	22	1.05	32	1599	1
913	1807	0.001	34	1.05	55	1598	1
914	1832	135	41	1.12	79	1598	1
915	1856	171.87	61	1.87	105	1598	1
916	1880	194.03	87	2.18	120	1598	1
917	1905	180	86	1.58	127	1599	1
918	1931	104.03	86	2.18	122	1598	1
919	1956	96.34	86	2.39	123	1597	1
920	1759	270	38	0.52	40	1599	1
921	1786	120.96	51	1.54	48	1599	1
922	1809	120.96	71	2.64	66	1598	1
923	1834	126.87	65	2.64	88	1598	1
924	1859	155.55	78	3.19	110	1597	1
925	1884	180	97	4.22	134	1597	1
926	1909	190	112	4.56	151	1597	1
927	1934	164.05	112	3.84	149	1598	1
928	1788	135	68	2.61	70	1598	1
929	1814	135	79	2.61	84	1598	1
930	1839	129.28	86	3.75	102	1597	1
931	1863	139.76	98	4.49	122	1595	1
932	1888	163.3	114	5.51	142	1594	1
933	1912	180	132	7.37	165	1594	1
934	3366	0.001	365	0.001	395	1628	1
935	3374	0.001	390	0.001	420	1628	1
936	3384	0.001	415	0.001	445	1628	1
937	3394	90	442	1.05	470	1628	1
938	3370	63.43	317	1.18	346	1629	1
939	3378	71.56	343	0.83	371	1628	1
940	3388	0.001	367	0.001	396	1628	1
941	3397	0.001	391	0.001	421	1628	1
942	3407	0.001	417	0.001	446	1628	1

943	3416	101.31	441	1.34	471	1628	1
944	3427	116.56	467	1.18	496	1627	1
945	3384	135	297	0.37	322	1629	1
946	3394	116.56	321	1.18	347	1629	1
947	3402	108.43	344	0.83	372	1628	1
948	3410	0.001	371	0.001	397	1628	1
949	3419	0.001	395	0.001	422	1628	1
950	3430	0.001	419	0.001	447	1628	1
951	3440	98.13	444	1.87	472	1628	1
952	3449	116.56	468	1.18	497	1626	1
953	3399	0.001	277	0.001	294	1629	1
954	3407	90	302	0.52	319	1629	1
955	3416	71.56	325	0.83	344	1628	1
956	3425	45	349	0.74	369	1628	1
957	3434	45	375	0.37	394	1628	1
958	3444	0.001	399	0.001	419	1628	1
959	3453	0.001	423	0.001	444	1628	1
960	3463	90	447	2.11	469	1628	1
961	3421	45	271	0.37	293	1629	1
962	3431	45	292	0.37	320	1629	1
963	3439	18.43	313	0.83	344	1629	1
964	3448	45	332	1.12	370	1629	1
965	3458	71.56	355	0.83	394	1628	1
966	3467	0.001	378	0.001	420	1628	1
967	3476	0.001	400	0.001	445	1628	1
968	3485	90	421	2.11	469	1628	1
969	3437	45	236	1.12	272	1630	1
970	3445	45	256	1.12	295	1629	1
971	3454	45	277	0.37	322	1629	1
972	3462	0.001	297	0.001	346	1629	1
973	3471	71.56	321	0.83	371	1629	1
974	3480	63.43	344	1.18	396	1628	1
975	3490	45	365	0.37	419	1628	1
976	3500	0.001	388	0.001	446	1628	1
977	3461	45	221	1.18	276	1630	1
978	3469	63.43	243	1.18	299	1630	1
979	3477	71.56	264	0.83	325	1629	1
980	3486	0.001	287	0.001	350	1629	1
981	3495	45	310	0.37	374	1629	1
982	3506	63.43	332	1.18	399	1629	1
983	3494	90	231	1.05	305	1629	1
984	3502	90	254	0.001	330	1629	1
985	3511	0.001	279	0.001	354	1629	1
986	3605	135	192	0.37	343	1629	1
987	3613	0.001	214	0.001	363	1629	1
988	3614	216.87	135	2.64	321	1628	1
989	3622	243.43	157	1.18	340	1629	1
990	3629	0.001	181	0.001	358	1629	1
991	3636	0.001	203	0.001	377	1629	1
992	3645	0.001	228	0.001	396	1629	1

993	3652	135	251	0.37	417	1629	1
994	3661	116.56	276	1.18	438	1629	1
995	3630	201.8	100	5.68	325	1625	1
996	3638	225	125	4.85	339	1627	1
997	3645	225	148	2.99	357	1629	1
998	3653	191.31	173	1.34	374	1629	1
999	3660	191.31	197	1.05	392	1629	1
1000	3668	180	221	1.05	412	1629	1
1001	3677	144.46	245	2.27	431	1629	1
1002	3685	151.69	271	3.9	452	1628	1
1003	3693	159.44	296	4.51	472	1628	1
1004	3654	211.75	93	6.5	345	1623	1
1005	3661	215.53	118	6.79	359	1625	1
1006	3668	204.44	144	6.37	375	1627	1
1007	3676	191.31	168	5.38	392	1627	1
1008	3684	191.31	192	5.38	410	1628	1
1009	3692	180	218	4.75	428	1628	1
1010	3700	152.35	243	6.25	447	1628	1
1011	3708	154.29	268	7.88	467	1625	1
1012	3716	167.27	292	8.35	487	1624	1
1013	3725	170.21	317	7.74	508	1623	1
1014	3671	196.39	67	4.68	353	1619	1
1015	3677	210.96	93	6.15	365	1620	1
1016	3685	206.56	118	7.06	379	1622	1
1017	3692	198.43	143	7.49	394	1623	1
1018	3700	192.09	167	7.53	411	1624	1
1019	3707	192.09	193	7.53	427	1624	1
1020	3716	178.02	218	7.63	444	1625	1
1021	3723	154.98	242	8.69	463	1624	1
1022	3730	152.65	267	8.57	482	1621	1
1023	3741	165.46	293	7.34	502	1620	1
1024	3749	177.7	317	6.59	521	1619	1
1025	3694	198.43	75	4.17	375	1617	1
1026	3702	210.96	98	4.62	387	1618	1
1027	3709	200.22	122	5.34	400	1619	1
1028	3716	196.92	146	5.34	415	1620	1
1029	3724	191.31	171	6.71	430	1621	1
1030	3732	191.31	196	6.71	445	1621	1
1031	3740	173.66	220	7.15	463	1621	1
1032	3747	155.22	245	7.53	480	1620	1
1033	3755	151.39	270	6.6	499	1618	1
1034	3762	165.25	295	5.18	517	1617	1
	3773	180	319	4.75	537	1617	1
	3781	188.97	345	5.07	557	1617	1
	3719	225	88	2.61	338	1615	1
	3726	233.13	109	2.64	362	1617	1
	3733	194.03	131	2.18	387	1617	1
	3740	204.44	153	3.19	412	1617	1
	3747	198.43	178	3.19	436	1618	1
	3755	198.43	201	3.34	463	1618	1

1043	3764	161.56	225	3.34	488	1618	1
1044	3771	140.19	250	4.12	512	1617	1
1045	3778	140.71	273	3.75	537	1616	1
1046	3787	161.56	299	2.5	561	1615	1
1047	3796	173.66	323	2.39	586	1615	1
1048	3805	180	347	3.17	611	1615	1
1049	3743	255.96	106	2.18	334	1615	1
1050	3750	246.8	124	2.01	359	1617	1
1051	3757	180	144	2.01	384	1617	1
1052	3765	210.96	165	1.54	409	1617	1
1053	3771	203.19	186	2.01	434	1617	1
1054	3779	203.19	210	2.01	458	1618	1
1055	3787	153.43	232	2.36	484	1618	1
1056	3794	127.87	257	3.01	509	1617	1
1057	3805	123.69	280	1.9	534	1615	1
1058	3812	135	305	0.37	560	1615	1
1059	3819	108.43	328	0.83	584	1615	1
1060	3828	135	352	1.12	608	1614	1
1061	3767	233.13	127	2.64	331	1615	1
1062	3774	215.53	142	2.27	358	1616	1
1063	3781	180	159	2.11	383	1616	1
1064	3788	180	178	2.39	408	1616	1
1065	3795	185.19	199	2.92	433	1616	1
1066	3802	185.19	220	3.01	458	1616	1
1067	3810	164.74	243	3.01	483	1616	1
1068	3818	143.13	265	2.64	508	1615	1
1069	3826	149.03	288	1.54	534	1615	1
1070	3835	180	312	1.05	559	1615	1
1071	3843	135	335	1.49	584	1615	1
1072	3852	135	360	1.49	607	1614	1
1073	3791	234.46	149	2.64	333	1614	1
1074	3798	203.19	162	2.01	358	1615	1
1075	3805	180	177	2.11	384	1615	1
1076	3811	180	194	2.11	409	1615	1
1077	3819	180	213	2.11	433	1615	1
1078	3827	180	234	2.11	459	1616	1
1079	3834	171.87	255	2.64	484	1615	1
1080	3843	149.03	276	2.64	509	1615	1
1081	3850	153.43	299	1.18	533	1614	1
1082	3858	168.69	321	1.34	559	1614	1
1083	3867	146.31	344	1.9	584	1614	1
1084	3876	146.31	367	1.9	609	1613	1
1085	3822	203.19	183	1.87	361	1615	1
1086	3829	180	197	2.11	386	1615	1
1087	3836	180	211	2.11	410	1614	1
1088	3843	180	229	2.11	435	1615	1
1089	3850	168.69	248	2.11	461	1615	1
1090	3858	171.87	268	1.87	486	1615	1
1091	3866	149.03	289	1.67	510	1615	1
1092	3875	153.43	311	1.18	534	1614	1

1093	3882	168.69	332	1.34	561	1614	1
1094	3890	146.31	354	1.9	586	1614	1
1095	3899	146.31	377	1.49	609	1613	1
1096	3853	180	218	1.87	390	1614	1
1097	3860	188.13	232	1.87	414	1614	1
1098	3867	188.13	247	1.34	439	1614	1
1099	3874	191.31	265	1.34	462	1614	1
1100	3881	168.69	284	1.34	489	1614	1
1101	3890	161.56	304	1.67	512	1614	1
1102	3898	168.69	324	1.34	537	1614	1
1103	3906	153.43	346	1.18	561	1614	1
1104	3915	135	367	1.49	587	1613	1
1105	3893	206.56	269	1.18	443	1614	1
1106	3899	206.56	283	1.18	467	1614	1
1107	3907	153.43	301	1.18	492	1614	1
1108	3914	149.03	320	1.54	516	1613	1
1109	3924	171.87	339	1.87	541	1613	1
1110	3931	171.87	361	1.87	567	1613	1
1111	4313	313.49	90	13.94	0.001	1650	1
1112	4333	334.44	77	13.25	0.001	1650	1
1113	4352	332.35	60	12.35	0.001	1654	1
1114	4375	332.35	41	8.64	0.001	1654	1
1115	4326	296.11	77	14.7	0.001	1651	1
1116	4346	322.12	59	14.7	0.001	1656	1
1117	4367	322.12	48	8.98	0.001	1656	1
1118	4388	351.87	48	6.5	0.001	1658	1
1119	4407	351.87	0.001	3.73	23	1659	1
1120	4428	9.46	0.001	3.21	47	1658	1
1121	4320	298.49	89	20.2	0.001	1647	1
1122	4340	298.49	65	13.81	0.001	1656	1
1123	4360	310.91	42	13.81	0.001	1658	1
1124	4382	315	24	6.5	27	1658	1
1125	4403	0.001	0.001	1.87	53	1659	1
1126	4422	0.001	0.001	0.52	76	1659	1
1127	4444	18.43	37	0.83	100	1658	1
1128	4465	0.001	63	1.05	125	1659	1
1129	4485	0.001	89	1.05	150	1659	1
1130	4335	271.16	84	12.75	0.001	1650	1
1131	4356	247.16	61	13.81	0.001	1657	1
1132	4376	233.13	35	5.27	0.001	1659	1
1133	4398	225	0.001	5.23	25	1659	1
1134	4417	225	0.001	1.49	50	1659	1
1135	4437	225	40	0.52	75	1659	1
1136	4456	0.001	65	0.001	100	1659	1
1137	4480	315	91	0.37	125	1659	1
1138	4499	0.001	117	0.52	150	1659	1
1139	4351	244.44	84	12.75	0.001	1647	1
1140	4370	238.57	60	10.78	0.001	1657	1
1141	4390	240.25	35	8.47	26	1656	1
1142	4411	225	0.001	1.49	39	1656	1

1143	4430	225	14	0.001	58	1658	1
1144	4452	225	39	0.37	82	1659	1
1145	4471	0.001	64	0.37	107	1659	1
1146	4495	270	89	0.001	131	1659	1
1147	4514	0.001	114	6.71	155	1660	1
1148	4363	244.44	87	11.03	25	1647	1
1149	4385	238.57	62	8.47	25	1649	1
1150	4404	240.25	37	8.47	36	1656	1
1151	4426	225	0.001	1.49	60	1656	1
1152	4445	225	13	1.49	83	1659	1
1153	4467	225	37	1.49	106	1659	1
1154	4488	225	64	0.37	130	1659	1
1155	4508	225	89	0.52	155	1659	1
1156	4530	0.001	111	0.52	179	1660	1
1157	4380	331.26	86	9.27	0.001	1647	1
1158	4399	315	61	10	0.001	1649	1
1159	4419	288.43	36	6.66	30	1656	1
1160	4439	251.56	0.001	2.5	55	1656	1
1161	4459	251.56	14	2.5	80	1657	1
1162	4482	246.8	37	2.01	105	1659	1
1163	4503	251.56	64	0.37	130	1659	1
1164	4521	225	90	0.37	155	1659	1
1165	4542	180	114	0.52	180	1659	1
1166	4562	135	137	0.37	205	1659	1
1167	4392	322.12	86	11.89	0.001	1656	1
1168	4415	343.61	61	9.29	0.001	1658	1
1169	4435	343.61	35	4.68	30	1656	1
1170	4455	343.61	0.001	4.68	55	1657	1
1171	4476	315	14	1.87	80	1657	1
1172	4495	284.03	37	2.18	105	1658	1
1173	4516	300.96	64	1.54	130	1659	1
1174	4536	0.001	90	1.05	155	1659	1
1175	4556	0.001	114	1.05	180	1659	1
1176	4575	0.001	137	1.05	205	1659	1
1177	4410	298.07	80	8.92	0.001	1658	1
1178	4430	344.05	56	3.84	19	1659	1
1179	4450	14.03	31	4.35	35	1659	1
1180	4470	9.46	0.001	3.21	58	1658	1
1181	4489	9.46	20	3.21	81	1658	1
1182	4511	315	45	1.67	106	1658	1
1183	4531	288.43	71	1.67	130	1660	1
1184	4552	341.56	93	0.83	157	1660	1
1185	4573	0.001	120	1.05	182	1660	1
1186	4592	0.001	145	1.05	204	1660	1
1187	4423	301.75	29	6.5	17	1659	1
1188	4446	323.13	0.001	2.64	34	1661	1
1189	4466	18.43	0.001	2.5	57	1661	1
1190	4485	30.96	0.001	2.5	84	1660	1
1191	4506	30.96	27	3.08	107	1660	1
1192	4526	8.13	53	1.87	133	1659	1

1193	4546	296.56	77	1.18	158	1659	1
1194	4566	270	103	0.52	182	1660	1
1195	4586	315	130	0.37	207	1660	1
1196	4605	0.001	153	0.52	231	1660	1
1197	4441	305.53	0.001	4.54	30	1657	1
1198	4460	329.03	0.001	1.54	55	1661	1
1199	4480	71.56	14	0.83	80	1661	1
1200	4500	78.69	24	1.34	105	1661	1
1201	4520	78.69	39	1.34	130	1661	1
1202	4540	26.56	62	1.18	155	1660	1
1203	4560	348.69	85	1.34	180	1660	1
1204	4580	0.001	110	0.52	205	1660	1
1205	4600	270	134	0.52	230	1660	1
1206	4620	315	158	0.37	255	1661	1
1207	4455	291.8	0.001	2.8	30	1662	1
1208	4475	90	21	0.52	55	1662	1
1209	4495	120.96	34	0.52	80	1661	1
1210	4515	135	51	1.54	105	1661	1
1211	4535	135	65	0.52	130	1660	1
1212	4555	270	78	0.52	155	1660	1
1213	4575	341.56	94	0.83	180	1661	1
1214	4595	26.56	113	1.18	205	1660	1
1215	4615	341.56	137	0.83	230	1660	1
1216	4635	315	160	0.74	255	1660	1
1217	4471	201.03	0.001	7.33	30	1661	1
1218	4491	177.27	0.001	5.54	55	1661	1
1219	4511	175.6	0.001	3.44	80	1660	1
1220	4531	175.6	26	3.44	105	1660	1
1221	4551	191.31	45	1.34	130	1660	1
1222	4571	258.69	61	1.34	155	1660	1
1223	4591	288.43	79	0.83	180	1661	1
1224	4611	18.43	98	0.83	205	1661	1
1225	4631	0.001	123	1.05	230	1661	1
1226	4651	341.56	147	0.83	255	1661	1
1227	4486	192.38	43	10.97	30	1656	1
1228	4506	197.44	22	10.97	55	1656	1
1229	4526	217.4	0.001	5.64	80	1658	1
1230	4546	243.43	0.001	5.64	105	1659	1
1231	4566	243.43	19	2.35	130	1659	1
1232	4586	278.13	45	2.36	155	1660	1
1233	4606	296.56	68	1.18	180	1661	1
1234	4626	0.001	92	0.52	205	1661	1
1235	4646	45	117	0.37	230	1661	1
1236	4666	0.001	140	0.001	255	1661	1
1237	4523	235.3	40	8.31	61	1651	1
1238	4543	255.46	31	7.34	83	1657	1
1239	4563	270	0.001	3.7	109	1657	1
1240	4583	270	0.001	2.18	134	1659	1
1241	4603	284.03	29	2.18	160	1661	1
1242	4623	296.56	51	1.18	183	1661	1

1243	4643	0.001	75	0.52	209	1662	1
1244	4663	71.56	100	0.83	233	1661	1
1245	4683	0.001	123	0.001	259	1661	1
1246	4538	290.55	67	8.97	61	1651	1
1247	4558	287.24	45	8.97	83	1657	1
1248	4578	287.24	22	3.84	109	1659	1
1249	4598	285.94	0.001	3.84	134	1659	1
1250	4618	278.13	22	1.87	160	1661	1
1251	4638	270	50	1.05	183	1661	1
1252	4658	315	74	0.37	209	1661	1
1253	4678	63.43	100	1.18	233	1661	1
1254	4698	45	125	0.37	259	1661	1
1255	4554	304.11	60	9.81	61	1651	1
1256	4574	305.53	37	7.98	83	1657	1
1257	4594	308.66	0.001	6.79	109	1666	1
1258	4614	308.66	0.001	1.87	134	1661	1
1259	4634	315	39	1.87	160	1661	1
1260	4654	315	56	1.12	183	1661	1
1261	4674	315	78	0.74	209	1662	1
1262	4694	45	105	1.12	233	1662	1
1263	4714	45	128	1.12	259	1661	1
1264	4569	275.52	48	9.81	61	1655	1
1265	4589	284.03	25	6.79	83	1660	1
1266	4609	284.03	0.001	2.36	109	1660	1
1267	4629	296.56	21	3.38	134	1661	1
1268	4649	315	50	1.87	160	1662	1
1269	4669	315	75	1.12	183	1662	1
1270	4689	315	100	0.74	209	1662	1
1271	4709	45	125	0.37	233	1662	1
1272	4729	45	150	1.12	259	1662	1
1273	4585	275.52	36	8.18	61	1658	1
1274	4605	273.36	0.001	4.35	83	1658	1
1275	4625	296.56	0.001	2.36	109	1661	1
1276	4645	284.03	35	2.36	134	1661	1
1277	4665	288.43	61	0.001	160	1662	1
1278	4685	0.001	85	0.87	183	1662	1
1279	4705	0.001	111	0.37	209	1662	1
1280	4725	0.001	135	0.37	233	1662	1
1281	4745	45	162	1.12	259	1662	1
1282	4601	278.13	35	7.44	63	1656	1
1283	4621	273.36	0.001	4.49	86	1660	1
1284	4641	273.36	22	2.18	109	1662	1
1285	4661	284.03	46	2.18	135	1661	1
1286	4681	0.001	73	0.83	159	1662	1
1287	4701	0.001	97	0.001	185	1662	1
1288	4721	0.001	123	0.001	210	1662	1
1289	4741	0.001	147	0.001	233	1662	1
1290	4761	45	173	0.001	253	1662	1
1291	4618	326.88	17	7.23	75	1658	1
1292	4638	303.69	0.001	3.81	93	1660	1

1293	4658	278.13	32	1.87	117	1662	1
1294	4678	278.13	56	0.83	142	1662	1
1295	4698	270	83	0.52	165	1662	1
1296	4718	0.001	107	0.001	189	1662	1
1297	4738	0.001	134	0.001	218	1662	1
1298	4758	0.001	158	0.001	239	1662	1
1299	4633	348.69	0.001	4.04	94	1662	1
1300	4653	345.96	0.001	2.18	105	1661	1
1301	4673	269.56	38	1.18	120	1661	1
1302	4693	296.56	61	1.18	140	1662	1
1303	4713	288.43	88	0.83	157	1662	1
1304	4733	341.56	111	0.83	179	1662	1
1305	4753	0.001	137	1.05	203	1662	1
1306	4773	0.001	162	1.05	225	1662	1
1307	4651	0.001	21	0.52	69	1662	1
1308	4671	0.001	32	0.83	84	1662	1
1309	4691	18.43	53	1.18	105	1662	1
1310	4711	333.43	77	1.18	124	1662	1
1311	4731	315	102	1.49	146	1662	1
1312	4751	333.43	125	1.18	168	1663	1
1313	4771	0.001	149	1.05	192	1663	1
1314	4791	0.001	175	1.05	216	1663	1
1315	4684	0.001	71	0.001	67	1662	1
1316	4704	0.001	93	0.001	92	1662	1
1317	4724	288.43	118	0.83	114	1663	1
1318	4744	296.56	144	0.37	136	1663	1
1319	4764	315	169	0.37	162	1663	1
1320	4784	0.001	193	0.001	185	1663	1
1321	4804	0.001	219	0.001	212	1663	1
1322	4701	0.001	48	0.001	56	1662	1
1323	4721	0.001	66	0.001	82	1662	1
1324	4741	270	85	1.05	107	1662	1
1325	4761	270	109	1.05	131	1663	1
1326	4781	0.001	130	0.001	158	1663	1
1327	4801	0.001	156	0.001	184	1663	1
1328	4821	0.001	179	0.001	208	1663	1
1329	4717	315	31	1.18	55	1662	1
1330	4737	296.56	48	0.37	81	1662	1
1331	4757	296.56	70	1.18	108	1663	1
1332	4777	288.43	94	0.83	132	1663	1
1333	4797	315	117	0.37	155	1663	1
1334	4817	341.56	143	0.83	182	1663	1
1335	4837	0.001	167	1.05	210	1663	1
1336	4753	315	37	1.49	81	1662	1
1337	4773	326.31	62	1.9	108	1662	1
1338	4793	348.69	89	1.34	132	1663	1
1339	4813	333.43	112	1.18	155	1663	1
1340	4833	333.43	138	1.18	182	1664	1
1341	8221	243.43	1055	1.18	1161	1658	1
1342	8239	233.13	1078	2.64	1185	1659	1

1343	8259	225	1103	2.99	1210	1660	1
1344	8185	0.001	975	0.001	1082	1658	1
1345	8203	0.001	999	0.001	1104	1658	1
1346	8221	0.001	1024	0.001	1130	1658	1
1347	8239	225	1047	1.18	1154	1658	1
1348	8257	225	1073	2.64	1177	1658	1
1349	8275	225	1095	2.99	1202	1660	1
1350	8294	215.53	1119	2.72	1227	1660	1
1351	8313	225	1144	2.84	1252	1660	1
1352	8203	0.001	968	0.001	1075	1658	1
1353	8220	0.001	993	0.001	1099	1658	1
1354	8238	0.001	1016	0.001	1124	1658	1
1355	8256	225	1039	0.37	1148	1658	1
1356	8274	225	1065	1.49	1174	1658	1
1357	8292	225	1090	2.61	1197	1659	1
1358	8311	215.53	1114	1.9	1221	1660	1
1359	8329	225	1138	1.87	1248	1660	1
1360	8220	0.001	961	0.001	1068	1658	1
1361	8238	0.001	986	0.001	1094	1658	1
1362	8256	0.001	1011	0.001	1119	1658	1
1363	8274	0.001	1035	0.001	1143	1658	1
1364	8292	225	1059	0.37	1168	1658	1
1365	8309	239.03	1084	1.54	1192	1658	1
1366	8329	236.31	1108	1.9	1218	1659	1
1367	8348	236.31	1133	1.9	1243	1660	1
1368	8365	236.31	1156	1.9	1266	1661	1
1369	8236	0.001	955	0.001	1065	1658	1
1370	8254	0.001	980	0.001	1091	1658	1
1371	8274	0.001	1005	0.001	1115	1658	1
1372	8291	0.001	1029	0.001	1139	1658	1
1373	8309	0.001	1054	0.001	1164	1658	1
1374	8327	270	1078	1.05	1188	1658	1
1375	8345	258.69	1103	1.34	1212	1659	1
1376	8364	239.03	1128	1.54	1237	1659	1
1377	8382	246.8	1152	2.01	1261	1660	1
1378	8254	0.001	950	0.001	1061	1658	1
1379	8273	315	976	0.37	1087	1658	1
1380	8290	341.56	1000	0.83	1110	1658	1
1381	8308	0.001	1026	1.05	1136	1658	1
1382	8326	0.001	1048	1.05	1160	1658	1
1383	8344	315	1073	1.12	1185	1658	1
1384	8363	288.43	1099	0.83	1209	1659	1
1385	8381	270	1123	1.05	1234	1659	1
1386	8399	261.87	1147	1.87	1259	1659	1
1387	8272	341.56	946	0.83	1056	1658	1
1388	8290	333.43	971	1.18	1081	1658	1
1389	8308	333.43	996	1.18	1107	1659	1
1390	8326	0.001	1020	1.05	1131	1659	1
1391	8342	0.001	1045	1.05	1156	1659	1
1392	8361	341.56	1070	0.83	1182	1659	1

1393	8378	315	1094	0.74	1207	1659	1
1394	8398	296.56	1120	1.18	1230	1659	1
1395	8415	270	1144	1.18	1256	1660	1
1396	8289	333.43	942	1.18	1053	1659	1
1397	8306	333.43	967	1.18	1079	1659	1
1398	8325	333.43	992	1.18	1104	1659	1
1399	8343	0.001	1017	1.05	1129	1659	1
1400	8360	0.001	1042	1.05	1153	1659	1
1401	8378	0.001	1066	1.05	1178	1659	1
1402	8398	333.43	1091	1.18	1203	1659	1
1403	8414	315	1117	1.12	1229	1660	1
1404	8433	315	1140	0.37	1253	1660	1
1405	8324	315	963	1.12	1075	1659	1
1406	8342	329.03	989	1.54	1101	1660	1
1407	8360	351.87	1014	1.87	1126	1660	1
1408	8378	0.001	1038	2.11	1151	1660	1
1409	8396	0.001	1063	2.11	1176	1660	1
1410	8414	351.87	1089	1.87	1201	1660	1
1411	8432	348.69	1112	1.34	1226	1660	1
1412	8450	0.001	1138	1.05	1251	1660	1
1413	8342	315	961	1.49	1073	1660	1
1414	8360	315	987	1.87	1100	1660	1
1415	8378	336.8	1012	2.01	1124	1661	1
1416	8396	0.001	1037	2.11	1149	1661	1
1417	8414	0.001	1061	2.11	1174	1661	1
1418	8432	0.001	1086	2.11	1199	1661	1
1419	8451	8.13	1111	1.87	1225	1661	1
1420	8396	315	1009	2.24	1122	1662	1
1421	8414	348.69	1034	2.69	1148	1662	1
1422	8432	5.19	1059	2.92	1173	1662	1
1423	8449	6.34	1084	2.39	1197	1662	1
1424	8519	153.43	963	1.18	1099	1661	1
1425	8484	270	886	1.05	1021	1661	1
1426	8501	225	911	0.37	1046	1661	1
1427	8518	180	936	0.52	1071	1661	1
1428	8536	135	961	0.74	1096	1661	1
1429	8554	135	985	1.49	1121	1661	1
1430	8572	156.8	1012	2.01	1147	1660	1
1431	8485	225	860	0.74	995	1660	1
1432	8502	243.43	885	1.18	1021	1661	1
1433	8520	180	909	0.52	1045	1661	1
1434	8537	153.43	935	1.18	1071	1661	1
1435	8554	153.43	960	2.36	1095	1661	1
1436	8571	149.03	986	3.08	1120	1660	1
1437	8587	165.96	1010	2.18	1146	1659	1
1438	8607	191.31	1035	1.34	1171	1659	1
1439	8503	180	859	0.52	995	1660	1
1440	8522	198.43	884	1.67	1020	1660	1
1441	8539	180	909	2.11	1045	1661	1
1442	8554	150.94	934	2.72	1069	1660	1

1443	8571	149.03	959	3.08	1095	1659	1
1444	8589	153.43	984	2.36	1120	1658	1
1445	8608	191.31	1009	1.34	1144	1658	1
1446	8624	206.56	1035	1.18	1170	1659	1
1447	8643	180	1061	1.05	1195	1659	1
1448	13816	26.56	3327	1.18	3607	1622	0
1449	13595	161.56	3130	0.83	3521	1623	0
1450	13373	180	2941	1.05	3448	1621	0
1451	13146	180	2760	1.05	3394	1620	0
1452	12924	0.001	2577	0.001	3354	1619	0
1453	12700	0.001	2402	0.001	3328	1619	0
1454	12473	270	2246	0.52	3317	1619	0
1455	12251	220.6	2093	3.44	3316	1612	0
1456	12023	168.69	1953	1.34	4040	1617	0
1457	11803	48.81	1841	5.6	3902	1614	0
1458	11577	108.43	1743	0.83	3774	1616	0
1459	11359	161.56	1666	0.83	3652	1617	0
1460	11128	0.001	1626	0.001	3539	1616	0
1461	10911	0.001	1611	0.37	3441	1616	0
1462	10687	135	1265	0.37	3351	1615	0
1463	10463	198.43	1271	0.83	3275	1614	0
1464	10240	207.64	1319	5.7	2382	1606	0
1465	10016	180	1400	2.11	2159	1593	0
1466	9793	161.56	1511	0.83	1933	1589	0
1467	9569	135	1647	0.37	1707	1587	0
1468	9345	243.43	1798	1.18	1484	1586	0
1469	9123	225	1964	0.37	1259	1585	0
1470	8904	225	2144	1.12	1033	1583	0
1471	8679	225	2331	1.12	808	1579	0
1472	8458	225	2524	0.37	589	1577	0
1473	8233	198.43	2721	0.83	366	1575	0
1474	8014	56.3	2921	0.74	139	1576	0
1475	7792	52.12	3124	8.98	13	1583	0
1476	7567	60.25	3329	4.26	236	1588	0
1477	7350	116.56	3544	1.18	269	1589	0
1478	7129	0.001	3750	0.001	423	1588	0
1479	6909	71.56	3963	3.34	628	1590	0
1480	6689	225	2577	0.001	840	1595	0
1481	7471	213.69	2620	1.9	1058	1583	0
1482	6250	243.43	2682	1.18	1275	1578	0
1483	6028	188.13	2759	1.87	1500	1572	0
1484	5813	233.13	2855	2.64	1723	1570	0
1485	5593	0.001	2958	0.001	1947	1566	0
1486	5374	0.001	3038	0.001	2172	1564	0
1487	5158	161.56	3216	1.18	2396	1562	0
1488	4963	239.03	3360	1.54	2621	1560	0
1489	4727	270	3509	1.05	2842	1558	0
1490	4509	225	3671	0.001	3067	1557	0
1491	4296	198.43	3831	0.83	3290	1555	0
1492	4085	0.001	4004	0.001	3515	1554	0

1493	3874	0.001	4180	0.001	3740	1554	0
1494	3660	0.001	4358	0.001	3966	1554	0
1495	3456	45	4547	1.12	4191	1555	0
1496	3250	23.19	4732	2.01	4474	1556	0
1497	3048	90	4926	1.05	4658	1558	0
1498	2848	71.56	5112	0.83	4840	1561	0
1499	2651	135	5314	0.37	5024	1561	0
1500	2462	26.56	5511	2.36	5213	1565	0
1501	2276	18.43	5711	3.34	5406	1575	0
1502	2104	135	5915	0.37	5600	1577	0
1503	1940	0.001	6119	0.001	5798	1576	0
1504	1781	187.43	6317	6.11	5963	1567	0
1505	1643	0.001	6527	0.001	6161	1563	0
1506	1540	234.46	6714	2.27	6344	1562	0
1507	1446	78.69	6923	1.34	6545	1559	0
1508	1382	11.3	7134	1.34	6749	1561	0
1509	1361	341.56	7340	0.83	6953	1566	0
1510	1369	104.03	7557	2.18	7165	1569	0
1511	1416	32.47	7763	3.44	7366	1577	0
1512	1470	212.47	6423	3.44	6209	1571	0
1513	1577	18.43	6376	0.83	6152	1566	0
1514	1708	8.13	6327	1.87	6111	1572	0
1515	1854	180	6296	1.05	6078	1576	0
1516	2021	168.69	6266	1.34	6047	1573	0
1517	2191	30.96	6248	1.54	6030	1571	0
1518	2377	71.56	6239	1.18	6022	1576	0
1519	2566	0.001	6228	0.001	6016	1577	0
1520	2756	0.001	6239	0.001	6022	1577	0
1521	2957	63.43	6249	1.18	6033	1578	0
1522	3117	0.001	6193	0.001	5876	1578	0
1523	3318	0.001	6071	0.001	5748	1578	0
1524	3528	63.43	5955	1.18	5632	1578	0
1525	3733	0.001	5847	0.001	5523	1579	0
1526	3947	0.001	5734	0.001	5412	1579	0
1527	4158	153.43	5642	1.18	5312	1578	0
1528	4373	168.69	5552	1.34	5226	1572	0
1529	4581	18.43	5474	0.83	5143	1573	0
1530	4798	0.001	5396	0.001	5063	1574	0
1531	5015	116.56	5334	1.18	5004	1573	0
1532	5077	0.001	5261	0.001	4966	1573	0
1533	4851	0.001	5212	0.001	4918	1574	0
1534	4627	0.001	5176	2.11	4880	1576	0
1535	4394	0.001	5143	0.001	4850	1580	0
1536	4175	45	5126	1.49	4834	1580	0
1537	3949	5.19	5119	2.92	4825	1592	0
1538	3731	0.001	5120	0.001	4830	1602	0
1539	3502	135	5125	0.37	4844	1601	0
1540	3281	225	5146	0.37	4868	1597	0
1541	3053	116.56	5178	3.54	4899	1590	0
1542	2828	135	4183	3.37	4025	1588	0

1543	2601	90	4039	1.05	3883	1581	0
1544	2376	135	3900	1.87	3746	1583	0
1545	2152	0.001	3772	0.001	3623	1576	0
1546	1923	45	3654	0.37	3504	1576	0
1547	1703	45	3547	0.37	3397	1576	0
1548	1474	344.74	3446	3.01	3302	1580	0
1549	1256	341.56	3368	1.67	3224	1588	0
1550	1028	0.001	3299	0.001	3155	1589	0
1551	804	198.43	3236	0.83	3107	1589	0
1552	500	198.43	3186	2.5	3105	1577	0
1553	276	108.43	3160	0.83	3065	1574	0
1554	73	90	3161	1.05	3044	1573	0
1555	182	0.001	3169	2.11	3039	1576	0
1556	409	0.001	3193	1.05	3055	1586	0
1557	629	180	3237	1.05	3078	1585	0
1558	854	0.001	3298	0.001	3124	1585	0
1559	1075	180	3370	1.05	3183	1582	0
1560	1301	180	3454	1.05	3254	1577	0
1561	1473	71.56	3548	0.83	3339	1576	0
1562	1601	303.69	3660	3.81	3416	1580	0
1563	1802	296.56	3782	1.18	3523	1583	0
1564	2003	0.001	3913	0.001	3644	1584	0
1565	2213	0.001	4047	0.001	3775	1584	0
1566	2423	0.001	4185	0.37	3915	1583	0
1567	2633	135	4342	1.49	4065	1582	0
1568	2851	296.56	4493	1.18	4207	1580	0
1569	3071	0.001	4658	0.001	4369	1583	0
1570	3291	0.001	4828	1.05	4530	1585	0
1571	3507	0.001	4999	0.001	4704	1585	0
1572	998	108.43	4017	0.83	3912	1585	0
1573	819	45	3999	0.37	3857	1582	0
1574	677	341.56	3994	0.83	3815	1583	0
1575	586	0.001	3999	0.37	3788	1589	0
1576	563	135	4022	0.74	3771	1589	0
1577	635	90	4052	1.05	3768	1587	0
1578	767	135	4102	0.37	3779	1586	0
1579	936	339.44	4158	4.51	3805	1585	0
1580	1120	45	4226	1.12	3839	1591	0
1581	1321	0.001	4304	0.001	3886	1593	0
1582	1464	0.001	4421	0.001	3635	1592	0
1583	1672	135	4403	0.37	3720	1590	0
1584	1883	71.56	4397	0.83	3723	1591	0
1585	2102	135	4392	0.37	3739	1592	0
1586	2320	26.56	4408	1.18	3760	1593	0
1587	2538	116.56	4434	1.18	3800	1595	0
1588	2759	315	4471	0.37	3857	1594	0
1589	2975	0.001	4523	0.001	3921	1595	0
1590	3196	153.43	4579	1.18	4002	1594	0
1591	3424	180	4647	1.05	4090	1590	0
1592	3641	5.19	3908	2.92	3827	1591	0

1593	3862	146.31	3876	1.9	3782	1592	0
1594	4084	45	3853	1.12	3757	1593	0
1595	4307	225	3854	1.49	3743	1586	0
1596	4529	99.46	3855	3.21	3739	1589	0
1597	4754	144.46	3875	2.27	3752	1583	0
1598	4978	135	3907	1.12	3783	1583	0
1599	5200	45	3955	0.37	3814	1583	0
1600	5427	0.001	4009	0.001	3869	1582	0
1601	5647	0.001	4079	0.37	3936	1582	0
1602	5878	330.94	4164	2.72	4011	1584	0
1603	6098	185.19	4254	2.92	4099	1588	0
1604	12623	108.43	5751	0.83	6142	1597	0
1605	12403	135	5600	0.37	5977	1595	0
1606	12178	210.96	5450	1.54	5829	1591	0
1607	11948	161.56	5311	0.83	5677	1588	0
1608	11728	90	5179	2.11	5538	1586	0
1609	11501	45	5045	1.12	5398	1592	0
1610	11273	104.03	4927	2.18	5268	1591	0
1611	11049	18.43	4814	0.83	5145	1590	0
1612	10829	180	4702	1.05	5021	1589	0
1613	10607	0.001	4608	1.05	4910	1582	0
1614	10374	324.46	5317	0.83	4813	1586	0
1615	10152	315	5284	1.49	4720	1591	0
1616	9930	0.001	5256	0.001	4633	1594	0
1617	9702	108.43	5245	0.83	4551	1594	0
1618	9474	135	5239	0.37	4490	1588	0
1619	9250	90	5246	1.05	4434	1594	0
1620	9027	45	5260	0.37	4393	1595	0
1621	8800	0.001	5276	1.05	4357	1598	0
1622	8578	0.001	5314	1.05	4335	1601	0
1623	8355	0.001	5357	1.05	4325	1603	0
1624	8128	315	3607	0.37	4126	1606	0
1625	7903	341.56	3423	3.34	3933	1611	0
1626	7678	135	3241	1.12	3736	1615	0
1627	7456	45	3065	0.37	3543	1615	0
1628	7226	108.43	2895	0.83	3352	1615	0
1629	7001	45	2733	0.37	3171	1614	0
1630	6776	156.08	2580	2.11	2993	1611	0
1631	6551	116.56	2436	2.36	2824	1604	0
1632	6324	198.43	2312	3.34	2661	1603	0
1633	6099	45	2201	2.24	2502	1602	0
1634	5878	171.87	1881	1.87	306	1601	0
1635	5650	139.76	1665	4.49	330	1596	0
1636	5423	29.74	1445	4.26	354	1583	0
1637	5199	26.56	1229	2.36	488	1598	0
1638	4973	158.19	1023	2.84	673	1596	0
1639	4753	186	812	9.45	868	1587	0
1640	4521	68.96	631	3.68	1081	1593	0
1641	4296	90	475	3.17	1172	1595	0
1642	4077	71.56	183	1.18	947	1598	0

1643	3852	240.94	16	2.72	728	1596	0
1644	3622	219.8	16	4.12	501	1589	0
1645	3402	240.94	39	5.43	284	1578	0
1646	3172	221.42	121	5.97	62	1572	0
1647	2948	225	175	1.87	177	1563	0
1648	2726	135	302	0.37	400	1558	0
1649	2502	18.43	351	2.01	622	1556	0
1650	2280	321.34	481	3.38	847	1560	0
1651	2053	135	664	0.37	1074	1554	0
1652	1828	116.56	874	1.18	1192	1553	0
1653	1605	251.56	1087	2.5	1262	1550	0
1654	1379	0.001	1304	0.001	1666	1548	0
1655	1155	135	1521	0.37	1878	1548	0
1656	935	0.001	1743	0.001	2097	1546	0
1657	714	270	1959	1.05	2312	1542	0
1658	497	0.001	2179	0.37	2535	1543	0
1659	287	225	2409	3.37	2756	1540	0
1660	71	243.43	2632	5.89	2980	1531	0
1661	69	0.001	2855	0.001	3200	1527	0
1662	193	45	3079	0.37	3424	1530	0
1663	393	0.001	3303	0.001	3646	1531	0
1664	934	71.56	2031	0.83	1952	1532	0
1665	1080	315	1817	1.12	1725	1533	0
1666	1105	0.001	1602	0.001	1509	1533	0
1667	1178	0.001	1398	0.001	1284	1534	0
1668	1288	0.001	1186	0.001	1072	1536	0
1669	1427	0.001	994	0.001	856	1537	0
1670	1583	0.001	814	0.001	649	1539	0
1671	1755	0.001	669	1.05	465	1542	0
1672	1934	0.001	571	1.05	327	1547	0
1673	2125	0.001	551	1.05	302	1551	0
1674	1560	0.001	285	2.11	176	1556	0
1675	1545	341.56	226	3.34	168	1563	0
1676	1556	356.98	32	5.02	0.001	1597	0
1677	1605	18.43	69	3.34	167	1598	0
1678	1677	36.86	228	2.64	192	1604	0
1679	1784	161.56	420	6.66	50	1606	0
1680	1902	30.96	576	7.67	85	1615	0
1681	2044	180	764	1.05	145	1625	0
1682	2194	65.55	970	3.19	366	1619	0
1683	2358	142.12	989	3.01	595	1616	0
1684	2529	26.56	587	1.18	785	1611	0
1685	2703	315	465	4.11	818	1621	0
1686	2887	336.8	424	2.01	692	1625	0
1687	3079	71.56	492	0.83	672	1625	0
1688	3271	45	641	1.12	702	1627	0
1689	3466	0.001	666	0.001	699	1628	0
1690	3667	135	612	0.37	706	1628	0
1691	3876	169.69	598	5.89	868	1622	0
1692	4081	153.43	676	1.18	869	1613	0

1693	4288	164.74	712	2.84	927	1605	0
1694	4496	180	864	1.05	1124	1602	0
1695	4705	191.31	1021	1.34	1233	1597	0
1696	4918	198.43	1199	2.5	1370	1592	0
1697	5128	243.43	1392	1.18	1532	1590	0
1698	5345	45	1594	1.49	1704	1596	0
1699	5563	315	1796	1.12	1891	1599	0
1700	5776	315	2005	0.37	2085	1604	0
1701	5996	243.43	2219	3.54	2285	1604	0
1702	6210	30.96	2439	3.08	2486	1603	0
1703	6432	45	2651	1.12	2692	1607	0
1704	5745	63.43	2760	1.18	1325	1613	0
1705	5680	341.56	2971	0.83	1450	1619	0
1706	5628	341.56	3185	0.83	1590	1619	0
1707	5574	243.43	3397	1.18	1753	1624	0
1708	5542	296.56	3613	1.18	1925	1623	0
1709	5510	263.66	3831	1.87	2108	1627	0
1710	5486	45	4051	1.49	2301	1630	0
1711	5478	111.8	4273	2.84	2499	1637	0
1712	5478	108.43	4487	0.37	2700	1630	0
1713	5483	45	4705	0.37	2901	1630	0
1714	5493	0.001	1578	0.001	1800	1629	0
1715	5521	315	1425	0.37	1651	1631	0
1716	5555	326.31	1286	1.9	1510	1636	0
1717	5599	45	1170	0.37	1392	1641	0
1718	5648	225	1096	1.87	1306	1640	0
1719	5710	300.96	1064	1.54	1254	1637	0
1720	5779	315	1077	0.74	1241	1639	0
1721	5855	326.31	1135	1.9	1269	1642	0
1722	5939	149.03	1230	1.54	1337	1643	0
1723	6030	146.31	1359	1.9	1428	1638	0
1724	6128	71.56	1664	0.83	2138	1636	0
1725	6235	45	1684	0.001	2129	1635	0
1726	6346	315	1727	0.37	2146	1636	0
1727	6460	348.69	1806	1.34	2185	1637	0
1728	6584	315	1903	1.12	2245	1640	0
1729	6711	171.87	2020	1.87	2324	1640	0
1730	6842	0.001	2156	1.05	2420	1634	0
1731	6981	90	2307	0.74	2536	1642	0
1732	7123	0.001	2462	1.05	2664	1640	0
1733	7269	26.56	2641	1.18	2805	1644	0
1734	6380	71.56	2361	0.83	2492	1645	0
1735	6419	180	2394	1.87	2517	1643	0
1736	6463	203.19	2445	2.01	2573	1637	0
1737	6515	45	2514	1.49	2638	1634	0
1738	6574	135	2603	0.74	2725	1634	0
1739	6640	63.43	2704	1.18	2823	1635	0
1740	6711	0.001	2819	2.11	2940	1638	0
1741	6792	45	2952	1.49	3067	1644	0
1742	6878	111.8	3092	2.84	3206	1645	0

1743	6971	135	3244	1.49	3350	1639	0
1744	7065	180	2578	1.58	2791	1637	0
1745	7169	341.56	2532	0.83	2752	1634	0
1746	7272	135	2503	0.37	2730	1631	0
1747	7392	26.56	2496	1.58	2727	1633	0
1748	7513	0.001	2508	2.11	2745	1638	0
1749	7638	26.56	2538	1.18	2779	1641	0
1750	7766	59.03	2591	1.05	2827	1644	0
1751	7899	30.96	2663	1.54	2898	1646	0
1752	8036	56.3	2749	1.9	2980	1650	0
1753	8178	45	2853	1.87	3076	1652	0
1754	8460	135	2194	1.67	2275	1649	0
1755	8597	63.43	2088	1.18	2179	1652	0
1756	8731	45	2009	1.87	2106	1660	0
1757	8876	215.53	1950	2.27	2052	1662	0
1758	9021	108.43	1909	0.83	2023	1654	0
1759	9166	135	1902	0.37	2021	1652	0
1760	15125	249.77	7027	5.34	761	1628	0
1761	14921	241.69	6928	3.9	648	1625	0
1762	14717	82.87	6839	4.26	521	1615	0
1763	14517	30.96	6752	1.54	364	1621	0
1764	14315	288.43	6670	1.67	310	1624	0
1765	14112	233.13	6593	2.64	396	1620	0
1766	13913	270	6528	2.11	566	1616	0
1767	13708	254.74	6470	3.01	802	1613	0
1768	13512	194.03	6415	2.18	822	1606	0
1769	13316	135	6370	1.12	668	1603	0
1770	13117	90	6333	1.05	537	1614	0
1771	12919	156.8	6303	4.02	478	1607	0
1772	12724	45	6281	0.37	521	1603	0
1773	12527	354.8	6269	2.92	624	1612	0
1774	12339	0.001	6262	0.001	791	1615	0
1775	12145	351.87	6265	1.87	978	1618	0
1776	11949	45	6274	1.12	1177	1621	0
1777	11766	63.43	6296	1.18	1386	1628	0
1778	11575	18.43	6322	0.83	1599	1630	0
1779	11387	153.43	6352	2.36	1813	1620	0
1780	11200	218.29	6398	6.38	1845	1626	0
1781	11012	204.44	6449	3.19	1905	1607	0
1782	10829	90	6505	1.05	1988	1598	0
1783	10655	0.001	6569	0.001	2089	1598	0
1784	10470	161.56	6643	0.83	2216	1597	0
1785	10292	90	6720	1.05	3111	1596	0
1786	10120	8.13	6805	1.87	3331	1598	0
1787	9945	41.42	6898	5.97	3555	1607	0
1788	9767	248.19	6987	2.84	3774	1613	0
1789	9599	218.66	7094	3.38	3995	1603	0
1790	9433	206.56	7203	0.74	4218	1601	0
1791	9267	135	7317	0.37	2707	1601	0
1792	9103	180	7436	1.05	2500	1598	0

1793	8944	161.56	7562	0.83	2297	1595	0
1794	8783	135	7694	0.37	2099	1595	0
1795	8634	45	7819	0.37	1905	1596	0
1796	8481	53.13	7952	2.36	1723	1601	0
1797	8330	161.56	8097	0.83	1544	1604	0
1798	8191	161.56	7751	0.83	1414	1601	0
1799	8048	40.23	7803	3.08	1222	1605	0
1800	7912	50.19	7866	4.12	1051	1620	0
1801	7783	180	7929	2.11	896	1618	0
1802	7651	34.92	8001	4.86	780	1620	0
1803	7529	180	8081	2.11	716	1631	0
1804	7409	177.7	8164	6.59	721	1611	0
1805	7295	220.23	8250	4.49	780	1598	0
1806	7183	243.43	8346	2.36	899	1589	0
1807	7084	63.43	8446	1.18	1051	1589	0
1808	6983	0.001	8545	0.001	1225	1588	0
1809	6892	0.001	8655	0.001	1415	1588	0
1810	6805	0.001	8767	0.001	1613	1588	0
1811	6725	0.001	8883	0.001	1817	1588	0
1812	6652	135	9002	0.37	2036	1588	0
1813	6589	116.56	9129	1.18	2180	1587	0
1814	6526	63.43	9260	1.18	2352	1586	0
1815	6475	0.001	9392	0.001	2527	1587	0
1816	6433	45	9526	1.12	2710	1588	0
1817	6395	33.69	9666	1.9	2893	1592	0
1818	6368	108.43	9805	1.05	3090	1597	0
1819	6346	116.56	9952	1.18	3287	1597	0
1820	6333	90	10102	3.17	3487	1599	0
1821	6329	95.19	10251	2.92	3690	1599	0
1822	6328	83.65	10403	2.39	3893	1596	0
1823	6341	101.31	10561	1.34	4107	1596	0
1824	6358	90	10719	1.05	4313	1596	0
1825	6388	0.001	10882	1.05	4521	1598	0
1826	6422	296.56	11041	1.18	4734	1600	0
1827	6463	14.03	11210	1.87	4952	1605	0
1828	6511	278.13	11376	1.87	5164	1616	0
1829	6566	243.43	11545	2.36	5379	1615	0
1830	6632	0.001	11716	1.05	5597	1613	0
1831	6700	149.03	11889	1.54	5814	1611	0
1832	6780	0.001	12066	0.001	6032	1606	0
1833	5174	0.001	10757	0.001	6249	1604	0
1834	4948	180	10684	1.05	6465	1602	0
1835	4723	180	10614	1.05	6683	1599	0
1836	4498	180	10550	1.05	6902	1598	0
1837	4272	0.001	10485	0.001	7123	1594	0
1838	4047	26.56	10428	1.18	7339	1594	0
1839	3823	0.001	10381	0.001	7562	1594	0
1840	3596	18.43	10331	0.001	7786	1595	0
1841	3372	315	10290	1.12	8007	1599	0
1842	3144	30.96	10251	1.54	8225	1599	0

1843	2923	26.56	10215	0.83	8446	1602	0
1844	2698	18.43	10188	2.5	8671	1608	0
1845	2474	30.06	10165	5.79	8886	1619	0
1846	2249	0.001	10148	0.001	9109	1622	0
1847	2019	0.001	10134	0.001	9331	1621	0
1848	1799	0.001	10128	0.001	9554	1620	0
1849	1572	0.001	10129	0.001	9779	1620	0
1850	1344	0.001	10128	0.001	9994	1620	0
1851	1123	0.001	10133	0.001	10223	1619	0
1852	895	0.001	10140	0.001	10451	1619	0
1853	674	0.001	10163	0.001	10668	1616	0
1854	444	206.56	10182	2.36	10885	1604	0
1855	225	90	8517	1.05	8421	1601	0
1856	19	0.001	8457	0.001	8354	1594	0
1857	106	0.001	8397	1.05	8296	1595	0
1858	332	56.3	8347	3.81	8245	1602	0
1859	558	71.56	8301	0.83	8201	1610	0
1860	781	45	8268	0.37	8161	1607	0
1861	1007	348.69	8228	1.34	8123	1612	0
1862	1235	0.001	8201	0.001	8093	1613	0
1863	1393	0.001	8185	0.001	8091	1614	0
1864	1607	0.001	8168	0.001	8072	1614	0
1865	1828	45	8159	0.37	8056	1613	0
1866	2048	45	8154	0.37	8047	1615	0
1867	2273	0.001	8162	0.001	8042	1615	0
1868	2494	0.001	8174	0.001	8048	1613	0
1869	2715	71.56	8184	0.83	8055	1612	0
1870	2943	18.43	8212	0.83	8069	1612	0
1871	3012	0.001	8239	0.37	8107	1613	0
1872	3228	45	8273	1.12	8129	1610	0
1873	3443	198.43	8313	0.83	8157	1611	0
1874	3662	90	8360	0.52	8194	1610	0
1875	3883	191.31	8412	1.18	8239	1608	0
1876	4097	174.8	8467	2.92	8282	1606	0
1877	4325	0.001	8535	2.11	8339	1609	0
1878	4534	0.001	8600	0.001	8395	1610	0
1879	4320	90	9133	1.05	9043	1610	0
1880	4516	180	9094	2.11	9007	1606	0
1881	4719	0.001	9067	2.11	8974	1605	0
1882	4919	0.001	9040	0.001	8951	1609	0
1883	5124	0.001	9017	0.001	8931	1611	0
1884	5331	45	9008	0.37	8920	1612	0
1885	5534	0.001	8995	0.001	8911	1612	0
1886	5746	0.001	8995	0.001	8907	1612	0
1887	5534	0.001	9142	0.001	8767	1612	0
1888	5534	0.001	9130	0.001	8742	1612	0
1889	5539	0.001	9123	0.001	8718	1612	0
1890	5556	90	9111	1.05	8704	1611	0
1891	5579	206.56	9120	0.83	8692	1610	0
1892	5613	180	9123	0.52	8692	1609	0

1893	5655	135	9143	1.12	8690	1609	0
1894	5704	0.001	9156	0.001	8695	1609	0
1895	5767	0.001	9240	0.001	9130	1610	0
1896	5833	90	9177	1.05	9067	1610	0
1897	5904	116.56	9118	1.05	9006	1610	0
1898	5982	0.001	9067	0.001	8954	1611	0
1899	6073	0.001	9018	0.001	8902	1611	0
1900	6167	0.001	8972	0.83	8858	1610	0
1901	6267	0.001	8939	0.001	8825	1610	0
1902	6372	0.001	8909	0.001	8786	1609	0
1903	6501	0.001	8891	0.001	8773	1608	0
1904	6619	90	8868	1.05	8751	1607	0
1905	6747	0.001	8856	0.001	8742	1607	0
1906	6873	135	8847	0.001	8722	1607	0
1907	7011	108.43	8843	0.83	8721	1605	0
1908	7146	0.001	8845	0.001	8719	1604	0
1909	7287	135	8851	0.37	8723	1605	0
1910	7435	0.001	8867	0.001	8739	1604	0
1911	7593	0.001	8884	0.001	8777	1604	0
1912	7749	0.001	8909	0.001	8799	1603	0
1913	7903	161.56	8904	1.12	8825	1601	0
1914	8066	0.001	8976	0.001	8854	1598	0
1915	8229	0.001	9019	0.001	8899	1598	0
1916	13482	18.43	3013	1.12	4379	1615	0
1917	13276	180	2795	0.52	4158	1615	0
1918	13067	0.001	2581	0.001	3943	1614	0
1919	12856	0.001	2373	0.001	3714	1613	0
1920	12648	135	2166	0.37	3498	1611	0
1921	12436	90	1964	1.05	3275	1611	0
1922	12236	135	1766	1.18	3046	1610	0
1923	12029	0.001	1569	0.001	2831	1609	0
1924	11826	90	1398	0.37	2613	1609	0
1925	11616	135	1229	1.18	2398	1610	0
1926	11057	45	907	1.12	2180	1608	0
1927	10840	45	697	0.001	1966	1610	0
1928	10622	0.001	489	0.001	1751	1610	0
1929	10404	153.43	309	1.18	1546	1610	0
1930	10186	206.56	237	1.05	1344	1608	0
1931	9971	251.56	346	1.12	1143	1607	0
1932	9751	225	531	2.99	963	1595	0
1933	9538	270	316	0.001	806	1588	0
1934	9327	261.87	457	1.18	689	1587	0
1935	9102	198.43	627	0.83	629	1584	0
1936	8890	270	639	0.001	566	1582	0
1937	8671	0.001	600	0.001	595	1578	0
1938	8457	315	583	0.83	519	1579	0
1939	8241	206.56	386	1.18	258	1583	0
1940	8026	288.43	207	5.43	69	1580	0
1941	7806	149.03	195	2.69	68	1584	0
1942	7600	0.001	259	0.001	159	1582	0

1943	7390	5.47	52	21.04	0.001	1600	0
1944	7183	221.82	144	6.71	71	1585	0
1945	6967	273.81	196	3.97	116	1583	0
1946	6886	316.88	62	19.91	0.001	1604	0
1947	6666	239.03	193	6.15	0.001	1579	0
1948	6437	180	405	1.87	174	1572	0
1949	6220	135	501	1.12	322	1570	0
1950	6000	108.43	658	0.83	452	1569	0
1951	5775	0.001	834	0.001	633	1568	0
1952	5552	0.001	1036	0.001	913	1567	0
1953	5336	135	1243	0.001	1050	1567	0
1954	5116	135	1462	0.37	1269	1566	0
1955	4892	0.001	1672	0.001	1200	1565	0
1956	4696	161.56	2497	0.37	1361	1564	0
1957	4502	108.43	2538	0.001	1530	1563	0
1958	4308	161.56	2600	1.18	1714	1562	0
1959	4118	251.56	2680	0.001	1904	1561	0
1960	3939	180	2774	1.05	2104	1559	0
1961	3760	225	2886	0.37	2312	1558	0
1962	3577	0.001	3011	0.001	2519	1557	0
1963	3409	0.001	3143	0.001	2726	1556	0
1964	3247	0.001	3292	0.001	2936	1555	0
1965	3094	0.001	3442	0.001	3157	1554	0
1966	2539	0.001	3269	0.001	3386	1553	0
1967	2339	0.001	3471	0.001	3585	1552	0
1968	2135	0.001	3676	0.001	3796	1551	0
1969	1949	0.001	3885	0.001	4002	1550	0
1970	1759	0.001	4095	0.001	4208	1549	0
1971	1584	0.001	4307	0.001	4426	1548	0
1972	1426	0.001	4518	0.001	4633	1548	0
1973	1285	90	4732	1.05	4850	1549	0
1974	1166	90	4949	1.34	5062	1547	0
1975	1087	38.65	5160	2.72	5275	1550	0
1976	619	45	4449	6.07	4261	1562	0
1977	450	180	4330	4.86	4151	1556	0
1978	349	74.74	4224	2.5	4058	1550	0
1979	377	344.74	4210	3.34	3966	1548	0
1980	516	116.56	4032	1.18	3890	1552	0
1981	701	0.001	3950	0.001	3821	1552	0
1982	906	0.001	3883	1.05	3767	1559	0
1983	1119	0.001	3826	0.001	3728	1562	0
1984	1140	63.43	3783	1.18	3700	1563	0
1985	1368	0.001	3759	0.001	3682	1564	0
1986	1605	0.001	3731	0.001	3534	1564	0
1987	1825	0.001	3728	0.001	3515	1564	0
1988	2050	0.001	3741	0.001	3518	1565	0
1989	2279	90	3762	1.05	3535	1566	0
1990	2500	206.56	3798	1.18	3561	1566	0
1991	2725	149.03	3846	1.05	3604	1561	0
1992	2953	116.56	3913	0.83	3658	1561	0

1993	3182	0.001	3985	1.05	3727	1561	0
1994	3405	108.43	4070	0.83	3810	1562	0
1995	3628	341.56	4165	2.24	3901	1560	0
1996	3843	333.43	3340	1.18	3036	1562	0
1997	4064	0.001	3203	0.001	2897	1562	0
1998	4295	71.56	3083	0.83	2764	1562	0
1999	4518	0.001	2971	0.001	2654	1563	0
2000	4743	329.03	2871	1.54	2553	1570	0
2001	4968	135	2786	1.12	2469	1571	0
2002	5195	146.31	2726	1.9	2400	1568	0
2003	5423	45	2667	1.12	2356	1563	0
2004	5654	63.43	2638	1.49	2332	1563	0
2005	5867	315	2625	2.24	2326	1567	0
2006	3971	90	2637	1.05	2333	1567	0
2007	3745	123.69	2659	1.9	2362	1566	0
2008	3520	120.96	2703	2.92	2419	1567	0
2009	3301	180	2766	2.11	2484	1567	0
2010	3079	90	2843	1.87	2569	1563	0
2011	2858	90	2936	1.34	2671	1563	0
2012	2639	333.43	3041	0.83	2790	1567	0
2013	2417	45	3160	0.74	2923	1568	0
2014	2198	186.34	3295	2.39	3064	1566	0
2015	1978	45	3433	2.64	3215	1565	0
2016	1770	90	1489	1.05	1349	1564	0
2017	1557	0.001	1290	0.001	1147	1564	0
2018	1345	45	1098	0.37	958	1564	0
2019	1142	0.001	937	0.001	778	1565	0
2020	950	135	791	0.37	634	1565	0
2021	776	135	692	1.12	553	1567	0
2022	628	108.43	659	0.83	552	1564	0
2023	543	0.001	708	0.001	564	1564	0
2024	549	0.001	811	0.001	585	1564	0
2025	626	0.001	961	0.001	646	1564	0
2026	902	0.001	1131	0.001	784	1564	0
2027	1006	315	1317	1.12	935	1563	0
2028	1141	270	1519	1.05	1117	1563	0
2029	1302	71.56	1725	0.83	1305	1565	0
2030	1484	90	1931	2.11	1512	1568	0
2031	1677	71.56	2147	0.001	1716	1566	0
2032	1872	0.001	2363	0.001	1930	1567	0
2033	2074	0.001	2577	0.001	2142	1568	0
2034	2287	0.001	2795	0.001	2358	1569	0
2035	2494	315	3017	0.37	2580	1570	0
2036	1851	251.56	2014	0.001	2003	1569	0
2037	1699	341.56	1869	0.83	1852	1571	0
2038	1570	270	1742	0.37	1715	1572	0
2039	1463	45	1641	0.74	1596	1575	0
2040	1381	315	1560	0.37	1502	1576	0
2041	1336	243.43	1504	1.18	1442	1579	0
2042	1324	18.43	1490	0.83	1408	1579	0

2043	1355	0.001	1512	0.001	1419	1579	0
2044	1418	0.001	1554	0.001	1461	1579	0
2045	1507	225	1633	0.83	1534	1578	0
2046	1628	180	1751	1.05	1309	1575	0
2047	1774	243.43	1872	0.37	1231	1574	0
2048	1928	315	2019	1.49	1191	1574	0
2049	2099	270	2174	0.001	1192	1574	0
2050	2277	0.001	2347	0.001	1237	1574	0
2051	2468	243.43	2517	0.83	1217	1574	0
2052	2657	270	2704	1.05	1232	1574	0
2053	2858	0.001	2895	0.001	1293	1575	0
2054	3054	0.001	3083	0.001	1382	1575	0
2055	3261	26.56	3282	0.83	1500	1576	0
2056	3278	270	2029	1.05	1639	1577	0
2057	3463	288.43	1865	0.37	1512	1578	0
2058	3656	270	1716	1.05	1411	1578	0
2059	3849	341.56	1581	0.52	1339	1578	0
2060	4051	225	1476	0.37	1302	1578	0
2061	4240	315	1391	1.49	1307	1580	0
2062	4447	261.87	1345	1.18	1344	1579	0
2063	4655	315	1334	1.18	1421	1577	0
2064	4861	270	1357	0.52	1524	1578	0
2065	5065	0.001	1418	1.05	1654	1579	0
2066	5279	333.43	1500	1.54	1349	1582	0
2067	5488	270	1607	0.001	1446	1585	0
2068	5700	270	1743	0.001	1578	1585	0
2069	5908	288.43	1891	0.83	1726	1584	0
2070	6123	0.001	2049	0.001	1887	1583	0
2071	6337	288.43	2221	0.83	2055	1583	0
2072	12877	90	7745	1.05	8087	1583	0
2073	12649	90	7630	1.05	7969	1583	0
2074	12436	0.001	7525	0.001	7855	1582	0
2075	12213	45	7429	0.37	7744	1584	0
2076	11991	0.001	7330	0.001	7640	1585	0
2077	11775	0.001	7241	0.001	7542	1584	0
2078	11552	90	7157	1.05	7449	1583	0
2079	11337	63.43	7082	1.18	7362	1584	0
2080	11116	156.8	7006	2.01	7281	1583	0
2081	10900	161.56	6942	0.83	7201	1573	0
2082	10681	26.56	6845	1.18	7146	1574	0
2083	10461	348.69	6784	1.34	7080	1578	0
2084	10245	302.47	6723	3.44	7023	1584	0
2085	10029	333.43	6675	0.83	6973	1586	0
2086	9811	30.96	6628	1.54	6930	1590	0
2087	9596	45	6593	2.99	6891	1596	0
2088	9380	324.46	6567	2.27	6865	1600	0
2089	9166	0.001	6548	3.01	6850	1612	0
2090	8947	63.43	6529	1.18	6830	1607	0
2091	8732	135	6524	0.74	6826	1611	0
2092	8526	225	5094	0.37	1434	1610	0

2093	8302	203.19	4871	2.01	1246	1604	0
2094	8075	108.43	4641	0.83	1073	1602	0
2095	7854	26.56	4419	1.18	927	1602	0
2096	7628	202.62	4194	6.84	817	1605	0
2097	7404	201.8	3969	2.84	760	1589	0
2098	7178	18.43	3744	4.49	761	1590	0
2099	6960	204.44	3517	3.19	815	1592	0
2100	6736	18.43	3292	4.35	922	1590	0
2101	6510	140.71	3067	2.99	1068	1595	0
2102	6284	122.47	2842	3.44	835	1586	0
2103	6061	253.61	2623	9.29	822	1578	0
2104	5838	213.69	2395	3.81	852	1567	0
2105	5616	146.31	2168	3.81	937	1572	0
2106	5388	22.38	1945	4.85	440	1583	0
2107	5168	153.43	1718	1.18	258	1585	0
2108	4949	139.39	1493	3.25	198	1580	0
2109	4727	229.76	1273	4.49	321	1568	0
2110	4502	221.18	1046	5.27	521	1558	0
2111	4279	191.31	824	1.05	732	1551	0
2112	4061	81.86	587	1.87	953	1551	0
2113	3840	315	370	0.37	1170	1551	0
2114	3620	351.87	145	1.12	1396	1559	0
2115	3401	170.53	82	3.21	1611	1553	0
2116	3183	45	87	0.37	1840	1562	0
2117	2968	116.56	148	1.18	2063	1562	0
2118	2754	111.8	58	2.84	2288	1561	0
2119	2535	164.74	105	3.01	2512	1549	0
2120	2322	135	332	0.001	2736	1538	0
2121	2112	56.3	559	1.9	2960	1537	0
2122	1821	0.001	779	0.001	3186	1537	0
2123	1626	180	1001	1.05	3413	1535	0
2124	1444	191.31	1223	1.34	3637	1534	0
2125	1272	0.001	1448	0.001	3862	1534	0
2126	1118	0.001	1676	0.001	4087	1534	0
2127	996	180	1900	1.05	4314	1535	0
2128	911	204.44	2125	3.19	4536	1529	0
2129	527	180	2350	1.05	4761	1524	0
2130	423	135	2575	0.001	4986	1522	0
2131	363	123.69	2800	1.49	5208	1520	0
2132	0.001	0.001	2203	0.001	1145	1518	0
2133	195	18.43	2020	3.34	915	1524	0
2134	415	45	1846	0.37	698	1529	0
2135	639	0.001	1681	1.05	471	1531	0
2136	864	0.001	1534	1.05	249	1535	0
2137	1088	325	1410	7.23	29	1551	0
2138	1313	6.34	1311	2.39	124	1554	0
2139	1540	261.87	1244	5.59	127	1567	0
2140	1765	135	1214	2.61	235	1568	0
2141	1987	288.43	1228	3.34	438	1562	0
2142	2212	327.52	1345	3.17	545	1564	0

2143	2437	125.53	1371	2.27	576	1566	0
2144	2659	147.52	1430	3.75	387	1566	0
2145	2887	4.39	1525	6.92	169	1665	0
2146	3109	338.96	1645	3.68	31	1593	0
2147	3334	90	1780	1.05	203	1595	0
2148	3561	100.3	1935	5.89	427	1598	0
2149	3786	145	2103	6.6	649	1609	0
2150	4008	71.56	2281	5.83	873	1602	0
2151	4233	198.43	2467	3.34	645	1590	0
2152	4542	25.34	2945	5.54	1246	1591	0
2153	4640	116.56	2921	1.18	1120	1599	0
2154	4752	153.43	2916	1.18	1025	1598	0
2155	4868	191.31	2931	4.04	974	1592	0
2156	4998	123.69	2958	1.9	975	1590	0
2157	5128	217.87	3010	6.01	1013	1583	0
2158	5270	47.86	3066	7.45	1101	1579	0
2159	5415	95.19	3145	2.92	1222	1587	0
2160	5563	90	3237	2.11	1365	1584	0
2161	5718	161.56	3338	3.34	1538	1568	0
2162	5873	347.47	3212	2.84	1257	1582	0
2163	6042	95.19	3257	2.92	1026	1583	0
2164	6210	288.43	3324	2.27	811	1584	0
2165	6381	278.13	3398	3.73	590	1592	0
2166	6556	73.3	3489	5.51	382	1602	0
2167	6731	84.8	3588	2.92	204	1607	0
2168	6915	335.55	3696	3.19	199	1615	0
2169	7099	0.001	3821	0.001	281	1625	0
2170	7282	251.56	3950	0.83	299	1622	0
2171	7470	315	4093	1.12	442	1622	0
2172	7659	0.001	4335	0.001	637	1624	0
2173	7847	0.001	4480	0.37	844	1625	0
2174	8044	90	4625	1.05	1060	1626	0
2175	8240	45	4777	0.37	1283	1626	0
2176	8437	194.03	4936	2.18	1499	1624	0
2177	8634	146.31	5095	1.9	1719	1617	0
2178	8837	16.38	5266	4.68	1942	1622	0
2179	9035	198.43	5429	0.74	2165	1626	0
2180	9235	153.43	5606	1.18	2391	1622	0
2181	9439	8.13	5784	1.87	2612	1623	0
2182	7989	45	3747	0.74	3952	1630	0
2183	8004	0.001	3681	0.001	3887	1623	0
2184	8031	63.43	3631	1.18	3829	1629	0
2185	8059	180	3597	1.05	3787	1629	0
2186	8098	135	3581	0.37	3757	1628	0
2187	8141	116.56	3572	1.18	3741	1631	0
2188	8191	270	3582	1.05	3738	1630	0
2189	8245	225	3600	2.61	3749	1629	0
2190	8303	270	3633	1.87	3776	1628	0
2191	8369	315	3679	0.37	3810	1630	0
2192	8447	0.001	4163	1.05	3856	1635	0

2193	8520	198.43	4169	3.97	3915	1632	0
2194	8609	38.65	4189	3.38	3986	1623	0
2195	8694	90	4224	1.05	4070	1631	0
2196	8787	155.55	4269	3.19	4165	1622	0
2197	8878	116.56	4321	0.74	4268	1619	0
2198	8985	210.96	4389	1.54	4381	1615	0
2199	9085	18.43	4468	2.5	4509	1616	0
2200	9196	45	4555	2.99	4633	1625	0
2201	9311	324.46	4647	2.27	4768	1631	0
2202	8827	63.43	4860	1.18	4987	1629	0
2203	8902	74.05	4876	3.21	5001	1631	0
2204	8935	153.43	4905	2.36	5031	1627	0
2205	8970	161.56	4939	1.67	5062	1623	0
2206	9016	225	4988	1.87	5114	1620	0
2207	9062	81.86	5040	1.87	5168	1620	0
2208	9119	180	5104	1.87	5232	1618	0
2209	9176	63.43	5180	1.18	5308	1621	0
2210	9240	156.8	5242	2.01	5388	1617	0
2211	9310	0.001	5355	0.001	5482	1616	0
2212	9751	108.43	5187	0.37	5252	1616	0
2213	9818	315	5224	1.12	5287	1618	0
2214	9882	315	5267	1.49	5330	1623	0
2215	9955	341.56	5325	0.83	5382	1626	0
2216	10037	270	5390	4.22	5442	1629	0
2217	10119	288.43	5460	0.83	5517	1627	0
2218	10206	0.001	5541	0.52	5599	1631	0
2219	10293	296.56	5628	2.36	5686	1634	0
2220	10392	270	5727	1.05	5779	1634	0
2221	10491	288.43	5829	0.83	5879	1636	0
2222	10616	239.03	4514	1.54	4635	1639	0
2223	10720	303.69	4472	1.9	4593	1638	0
2224	10832	315	4434	0.001	4559	1640	0
2225	10945	300.96	4406	2.61	4537	1644	0
2226	11061	255.96	4396	2.01	4525	1644	0
2227	11183	188.13	4393	2.36	4522	1644	0
2228	14234	45	4920	0.83	1585	1631	0
2229	14018	180	4783	0.001	1402	1631	0
2230	13798	0.001	4647	0.001	1225	1629	0
2231	13585	180	4519	1.05	1066	1628	0
2232	13368	0.001	4395	0.001	936	1628	0
2233	13152	0.001	4281	0.001	851	1628	0
2234	12941	116.56	4185	1.18	813	1627	0
2235	12724	108.43	4089	0.83	839	1627	0
2236	12515	251.56	4004	5	1050	1623	0
2237	12306	268.02	3931	7.63	1002	1613	0
2238	12085	184.39	3873	3.44	1012	1610	0
2239	11874	206.56	3825	4.72	1064	1603	0
2240	11662	225	3790	1.12	1156	1592	0
2241	11452	45	3773	1.49	1287	1592	0
2242	11243	71.56	3757	0.83	1435	1592	0

2243	11027	28.3	3769	3.9	1604	1600	0
2244	10837	90	3795	1.05	1788	1602	0
2245	10623	45	3827	1.05	1980	1604	0
2246	10415	75.96	3870	2.18	2174	1606	0
2247	10210	348.69	3927	1.34	2377	1604	0
2248	10002	45	3996	2.99	2582	1608	0
2249	9789	26.56	4081	1.18	2794	1616	0
2250	9583	191.31	4172	1.54	3003	1613	0
2251	9379	26.56	4269	1.18	3213	1613	0
2252	9150	198.43	4377	4.17	2490	1598	0
2253	8948	153.43	4496	2.36	2452	1587	0
2254	8747	188.13	4626	1.87	2433	1578	0
2255	8544	0.001	4759	0.001	2436	1575	0
2256	8344	0.001	4898	0.001	2457	1575	0
2257	8146	18.43	5047	1.67	2503	1580	0
2258	7950	108.43	5199	2.5	2565	1577	0
2259	7752	0.001	5343	0.001	2644	1576	0
2260	7561	45	5516	1.12	2719	1577	0
2261	7369	0.001	5685	0.001	2825	1576	0
2262	7178	0.001	5856	1.05	2944	1577	0
2263	6988	333.43	6033	1.05	3076	1585	0
2264	6799	191.31	6206	1.34	3223	1584	0
2265	6614	149.03	6387	1.54	3369	1582	0
2266	6432	0.001	6572	1.12	3534	1581	0
2267	6256	66.8	6758	1.9	3699	1582	0
2268	6093	45	5522	1.87	3871	1586	0
2269	5915	239.03	5611	3.08	4050	1579	0
2270	5744	203.19	5718	1.9	4229	1570	0
2271	5575	281.31	5825	1.34	4419	1571	0
2272	5418	251.56	5939	0.83	4610	1567	0
2273	5265	90	6061	1.05	4800	1565	0
2274	5113	108.43	6188	0.83	4994	1565	0
2275	4962	8.13	6324	1.87	5193	1566	0
2276	4816	14.03	6461	4.35	2034	1574	0
2277	4685	101.31	6607	1.34	2158	1589	0
2278	4559	225	6752	1.12	2296	1583	0
2279	4439	68.96	6904	4.72	2443	1582	0
2280	4335	180	7061	2.92	2609	1577	0
2281	4230	90	7224	1.05	2780	1576	0
2282	4139	45	7378	0.37	2953	1576	0
2283	4061	135	7550	3.19	3137	1583	0
2284	3993	156.8	7715	2.01	3332	1578	0
2285	3933	123.69	7884	1.9	3518	1578	0
2286	3894	45	8059	1.49	3716	1576	0
2287	3860	0.001	8242	0.001	3914	1575	0
2288	3843	90	8414	0.52	4117	1575	0
2289	3831	71.56	8601	0.83	4327	1576	0
2290	3843	0.001	8776	0.001	4526	1577	0
2291	3864	18.43	8961	0.83	4739	1581	0
2292	3895	18.43	8859	2.36	5725	1583	0

2293	3893	0.001	8831	0.001	5881	1591	0
2294	4000	161.56	8797	0.83	6048	1590	0
2295	4069	135	8773	1.12	6217	1589	0
2296	4151	71.56	8759	0.83	6390	1590	0
2297	4242	18.43	8741	2.5	6567	1593	0
2298	4346	1116.56	8736	1.18	6744	1595	0
2299	4449	168.69	8735	1.05	6926	1594	0
2300	4557	0.001	8544	0.001	7117	1592	0
2301	4681	90	8443	1.05	7298	1591	0
2302	4812	63.43	8354	0.37	7483	1592	0
2303	4949	0.001	8264	0.001	7671	1592	0
2304	5092	198.43	8180	0.83	7869	1591	0
2305	5241	0.001	8103	0.001	8062	1590	0
2306	5397	210.96	8026	1.54	8263	1582	0
2307	5560	0.001	7964	0.001	8458	1579	0
2308	4656	45	7903	1.12	7577	1585	0
2309	4432	116.56	7848	1.18	7519	1585	0
2310	4205	90	7798	1.05	7477	1584	0
2311	3987	90	7759	1.05	7433	1585	0
2312	3759	0.001	7724	0.001	7397	1584	0
2313	3534	0.001	7685	0.001	7376	1585	0
2314	3304	45	7666	0.83	7347	1586	0
2315	3084	0.001	7646	3.17	7330	1590	0
2316	2856	26.56	6935	3.54	6831	1601	0
2317	2631	0.001	6807	1.05	6703	1610	0
2318	2407	135	6686	0.001	6580	1611	0
2319	2187	135	6573	0.37	6458	1610	0
2320	1953	168.69	6456	1.34	6345	1609	0
2321	1734	180	6355	2.92	6239	1601	0
2322	1506	191.31	6254	1.34	6137	1598	0
2323	1283	26.56	6160	1.18	6046	1597	0
2324	1053	34.69	6074	4.17	5990	1604	0
2325	828	206.56	5998	1.18	5907	1607	0
2326	604	183.81	5928	3.97	5840	1597	0
2327	379	153.43	5865	2.36	5772	1589	0
2328	153	180	5808	1.05	5711	1586	0
2329	20	153.43	5763	1.18	5659	1584	0
2330	89	33.69	5728	1.18	5619	1584	0
2331	313	26.56	5699	3.44	5585	1587	0
2332	537	45	5675	1.34	5557	1598	0
2333	758	168.69	5661	0.001	5549	1594	0
2334	988	21.8	5657	2.84	5543	1600	0
2335	1212	101.31	5667	1.34	5549	1602	0
2336	1435	135	5678	1.12	5562	1598	0
2337	1663	45	5706	1.54	5588	1601	0
2338	1882	101.31	5739	1.34	5643	1599	0
2339	2108	135	5776	1.12	5661	1600	0
2340	2335	14.03	5832	2.64	5653	1599	0
2341	2559	101.31	5890	2.69	5701	1601	0
2342	2787	53.13	5947	2.01	5759	1602	0

2343	3010	206.56	6032	0.37	5823	1603	0
2344	3230	210.96	6105	3.08	5896	1603	0
2345	3455	243.43	6194	2.36	5975	1596	0
2346	3683	33.69	6291	1.49	6062	1595	0
2347	3911	180	6390	1.05	6160	1598	0
2348	3513	90	6988	0.52	6763	1592	0
2349	3409	45	6918	0.37	6675	1594	0
2350	3317	8.13	6852	1.87	6592	1597	0
2351	3228	45	6797	1.12	6523	1599	0
2352	3163	0.001	6746	0.001	6450	1600	0
2353	3112	0.001	6708	0.001	6391	1600	0
2354	3076	135	6673	0.37	6337	1599	0
2355	3058	90	6645	1.05	6296	1599	0
2356	3042	0.001	6700	0.001	6261	1601	0
2357	3053	90	6669	1.05	6228	1602	0
2358	3085	90	6647	1.05	6205	1602	0
2359	3126	180	6636	1.05	6193	1600	0
2360	3183	0.001	6627	0.001	6183	1596	0
2361	3256	0.001	6627	0.001	6188	1598	0
2362	3344	333.43	6635	1.18	6198	1601	0
2363	3443	0.001	6649	0.001	6214	1601	0
2364	3551	0.001	6670	0.001	6387	1601	0
2365	3672	0.001	6704	0.001	6411	1601	0
2366	3799	0.001	6741	0.001	6448	1601	0
2367	3937	0.001	6788	0.001	6490	1601	0
2368	4083	90	6837	1.05	6538	1601	0
2369	4232	90	6897	1.05	6590	1602	0
2370	4392	0.001	6963	0.001	6657	1601	0
2371	4553	0.001	7036	0.001	6723	1601	0
2372	4721	0.001	7119	0.001	6844	1601	0
2373	4900	0.001	7201	0.001	6920	1601	0
2374	5068	180	7296	1.05	6999	1599	0
2375	5256	0.001	7389	0.001	7091	1598	0
2376	5439	0.001	7459	0.001	7183	1598	0
2377	5628	0.001	7599	1.05	7280	1598	0
2378	5818	161.56	7715	0.83	7385	1599	0
2379	6011	0.001	7833	0.001	7495	1598	0
2380	6014	0.001	7649	0.001	7142	1598	0
2381	6210	0.001	7747	0.001	7253	1598	0
2382	6406	195.25	7854	3.01	7371	1596	0
2383	6599	161.56	7964	0.83	7493	1590	0
2384	6801	0.001	8079	2.11	7625	1592	0
2385	12791	71.56	4145	0.83	4679	1604	0
2386	12569	0.001	3973	0.001	4471	1605	0
2387	12353	0.001	3811	0.001	4267	1605	0
2388	12124	116.56	3661	1.18	4068	1604	0
2389	11902	0.001	3516	0.001	3865	1606	0
2390	11681	0.001	3379	0.001	3668	1607	0
2391	11466	0.001	3252	0.001	3478	1607	0
2392	11245	225	3136	0.83	3238	1605	0

2393	11023	270	3034	1.05	3104	1603	0
2394	10807	270	2948	1.05	2925	1601	0
2395	10586	180	2356	0.83	2750	1597	0
2396	10368	23.19	2205	2.01	2586	1595	0
2397	10145	63.43	2063	1.18	2434	1599	0
2398	9934	341.56	1947	0.83	2291	1601	0
2399	9714	315	1845	0.001	2163	1602	0
2400	9490	315	1767	0.37	2052	1604	0
2401	9277	296.56	1716	1.18	1959	1605	0
2402	9055	0.001	1695	0.001	1891	1607	0
2403	8839	206.56	1702	1.18	1844	1605	0
2404	8626	45	1736	1.49	1823	1604	0
2405	8408	116.56	1539	1.18	2105	1606	0
2406	8186	296.56	1580	1.18	2034	1606	0
2407	7975	333.43	1656	1.18	1986	1606	0
2408	7757	0.001	1753	2.11	1962	1612	0
2409	7546	0.001	1876	0.001	1962	1614	0
2410	7332	0.001	2014	0.001	1993	1615	0
2411	7120	153.43	2172	1.18	2047	1614	0
2412	6908	108.43	2335	0.83	2124	1614	0
2413	6692	63.43	2506	1.18	2221	1613	0
2414	6485	90	2593	1.05	2331	1614	0
2415	6206	98.13	452	1.87	533	1614	0
2416	5981	90	292	1.05	342	1613	0
2417	5757	135	172	0.37	229	1612	0
2418	5527	125.53	111	2.27	174	1608	0
2419	5307	214.99	0.001	6.43	145	1599	0
2420	5080	159.44	116	4.51	100	1582	0
2421	4855	45	88	10.75	0.001	1583	0
2422	4630	147.09	35	5.34	59	1599	0
2423	4405	100	0.001	11.17	0.001	1597	0
2424	4178	165.96	174	4.35	87	1565	0
2425	3971	180	403	1.05	314	1559	0
2426	3743	225	628	0.37	536	1558	0
2427	3519	225	842	0.37	760	1557	0
2428	3289	116.56	1075	1.18	988	1557	0
2429	3069	225	1302	0.37	1213	1557	0
2430	2843	0.001	1524	0.001	1437	1556	0
2431	2621	225	1752	0.37	1660	1555	0
2432	2394	210.96	1977	1.54	1887	1554	0
2433	2169	0.001	2202	0.001	2112	1551	0
2434	1951	135	2424	0.37	2337	1550	0
2435	1712	108.43	3105	0.83	2557	1550	0
2436	1485	0.001	3215	0.001	2779	1549	0
2437	1267	180	3321	0.001	3001	1547	0
2438	1041	0.001	3448	0.001	3229	1546	0
2439	819	0.001	3586	0.001	3454	1544	0
2440	595	261.87	3726	2.01	3676	1543	0
2441	385	315	3877	0.37	3906	1540	0
2442	188	251.56	4031	1.67	4126	1537	0

2443	69	180	4203	1.05	4353	1536	0
2444	140	336.801	4372	2.01	4586	1539	0
2445	292	284.03	2439	2.18	2622	1548	0
2446	460	71.56	2246	0.83	2425	1551	0
2447	658	0.001	2057	1.05	2233	1552	0
2448	869	180	1870	1.05	2052	1552	0
2449	663	195.25	1698	3.01	1881	1544	0
2450	653	0.001	1539	0.001	1717	1541	0
2451	709	0.001	1407	0.001	1569	1543	0
2452	832	0.001	1289	3.17	1444	1547	0
2453	982	135	1208	0.001	1343	1550	0
2454	1167	63.43	1159	1.18	1279	1548	0
2455	855	90	1246	1.05	1024	1549	0
2456	837	90	1238	2.11	1021	1548	0
2457	876	135	1236	0.37	1014	1546	0
2458	967	0.001	1241	0.001	891	1546	0
2459	1101	315	1255	0.37	884	1548	0
2460	1261	135	1366	0.37	936	1548	0
2461	1437	0.001	1421	0.001	941	1549	0
2462	1624	105.25	1444	3.01	939	1549	0
2463	1821	336.8	1260	2.01	808	1548	0
2464	2023	90	1240	1.05	808	1549	0
2465	2193	0.001	1246	0.37	990	1549	0
2466	2397	0.001	1240	0.001	838	1549	0
2467	2610	315	954	1.49	801	1551	0
2468	2824	225	968	0.37	805	1552	0
2469	3038	270	821	1.05	464	1554	0
2470	3251	269.56	612	1.18	316	1555	0
2471	3468	322.12	434	2.64	254	1562	0
2472	3686	322.76	270	12.54	0.001	1575	0
2473	3908	233.13	187	7.89	42	1579	0
2474	4129	22.38	119	4.85	21	1615	0
2475	4345	236.31	354	3.18	121	1574	0
2476	4566	276.34	390	2.39	180	1574	0
2477	4789	260.53	195	3.21	103	1576	0
2478	5010	270.97	83	15.24	0.001	1592	0
2479	5229	198.43	58	4.17	96	1609	0
2480	5459	338.8	18	13.64	0.001	1617	0
2481	5675	253.17	51	11.72	0.001	1606	0
2482	5898	0.001	52	1.05	73	1618	0
2483	6123	116.56	164	1.18	209	1618	0
2484	6345	90	198	1.05	249	1618	0
2485	3419	90	317	1.05	367	1619	0
2486	3318	45	311	0.37	413	1619	0
2487	3224	135	453	1.49	456	1616	0
2488	3141	135	544	0.37	558	1615	0
2489	3076	0.001	699	1.05	713	1616	0
2490	3028	135	578	1.12	625	1617	0
2491	2991	90	389	1.05	430	1616	0
2492	2976	0.001	278	0.001	264	1617	0

2493	2976	267.51	0.001	6.07	50	1616	0
2494	2990	225	0.001	8.57	0.001	1615	0
2495	3028	225	383	3.36	396	1594	0
2496	3075	234.46	511	2.27	375	1593	0
2497	3142	0.001	441	0.001	244	1594	0
2498	3220	353.66	431	4.78	47	1593	0
2499	3315	243.43	336	3.54	65	1596	0
2500	3419	348.69	317	4.68	51	1597	0
2501	3535	8.61	154	8.76	0.001	1612	0
2502	3661	318.57	31	5.97	46	1624	0
2503	3793	251.56	0.001	3.34	0.001	1632	0
2504	3941	299.05	202	2.72	68	1610	0
2505	4091	25.2	338	9.84	20	1631	0
2506	4247	19.23	176	11.88	0.001	1627	0
2507	4409	17.3	163	16.44	0.001	1633	0
2508	4579	225	235	5.96	0.001	1639	0
2509	4752	51.34	0.001	3.38	137	1638	0
2510	4928	35.53	90	2.27	361	1652	0
2511	5113	315	141	1.12	369	1653	0
2512	5295	205.34	43	5.54	142	1646	0
2513	5478	277.3	83	10.29	29	1640	0
2514	5672	50.19	98	4.12	70	1641	0
2515	5871	345.96	134	4.35	293	1654	0
2516	6059	225	365	1.12	467	1658	0
2517	6257	161.56	584	0.83	747	1659	0
2518	6459	324.46	620	2.27	751	1659	0
2519	6659	251.56	592	1.18	566	1659	0
2520	6861	90	348	1.05	376	1655	0
2521	7063	5.19	182	2.92	227	1659	0
2522	7269	0.001	166	1.05	216	1660	0
2523	7476	0.001	207	0.001	310	1661	0
2524	7679	315	254	0.74	344	1663	0
2525	7896	45	182	1.12	310	1665	0
2526	8101	300.96	91	1.54	261	1664	0
2527	8308	270	89	0.52	230	1665	0
2528	8524	330.94	31	2.72	266	1665	0
2529	8729	168.69	153	1.34	394	1656	0
2530	8941	90	348	1.05	572	1655	0
2531	9159	216.87	568	2.64	324	1654	0
2532	9368	81.86	148	1.87	136	1651	0
2533	9582	278.61	23	8.76	15	1648	0
2534	9800	305.53	25	2.27	49	1651	0
2535	9930	293.19	201	9.97	29	1625	0
2536	10137	282.99	222	3.52	44	1624	0
2537	10353	254.98	90	11.09	15	1633	0
2538	10560	275.06	120	20.12	0.001	1642	0
2539	10779	230.19	327	4.12	40	1631	0
2540	10993	251.56	468	4.17	124	1625	0
2541	12909	180	9872	1.05	5780	1575	0
2542	12682	0.001	9649	1.05	5564	1574	0

2543	12457	18.43	9428	0.83	5341	1576	0
2544	12232	161.56	9206	0.83	5125	1574	0
2545	12010	225	8985	3.38	4911	1571	0
2546	11785	120.96	8766	1.54	4693	1564	0
2547	11555	18.43	8540	0.83	4480	1564	0
2548	11335	6.34	8318	2.39	4265	1568	0
2549	11105	0.001	8098	0.52	4054	1578	0
2550	10880	348.69	7878	1.34	3841	1579	0
2551	10660	329.03	7663	1.54	3638	1580	0
2552	10433	9.46	7450	6.01	3426	1592	0
2553	10205	45	7227	0.74	3217	1595	0
2554	9986	101.31	7010	1.34	3012	1595	0
2555	9761	45	6787	1.12	2810	1597	0
2556	9539	135	6569	0.37	2631	1597	0
2557	9314	180	6354	1.05	2413	1595	0
2558	9083	45	6136	0.37	2226	1593	0
2559	8853	146.31	5917	1.9	2046	1590	0
2560	8631	6.34	5703	2.39	1872	1593	0
2561	8409	90	5476	1.05	1735	1598	0
2562	8388	0.001	5263	0.001	1516	1600	0
2563	7954	174.8	5046	2.92	1299	1598	0
2564	7734	0.001	4834	1.05	1082	1601	0
2565	7509	153.43	4618	1.18	871	1599	0
2566	7282	186.34	4414	2.39	670	1597	0
2567	7057	45	4199	1.49	495	1596	0
2568	6832	18.43	3995	0.83	366	1597	0
2569	6607	188.74	3784	6.92	143	1594	0
2570	6382	213.69	3581	4.86	120	1582	0
2571	6161	187.12	3370	1.87	307	1569	0
2572	5934	171.87	3170	1.87	527	1561	0
2573	5712	90	2975	1.05	757	1557	0
2574	5492	64.98	2790	4.37	980	1567	0
2575	5270	201.8	2602	2.84	1206	1568	0
2576	5040	225	2425	1.12	1428	1567	0
2577	4817	225	2255	1.49	1655	1560	0
2578	4590	95.19	2096	2.92	1877	1554	0
2579	4365	239.03	1953	1.54	2105	1548	0
2580	4140	209.05	1824	1.87	2329	1546	0
2581	3918	92.29	1348	6.11	2553	1541	0
2582	3690	161.56	1143	0.83	2776	1546	0
2583	3463	315	945	1.12	3001	1531	0
2584	3240	41.63	763	6.34	3228	1536	0
2585	3015	351.87	609	1.87	3453	1545	0
2586	2788	56.3	513	1.87	3683	1544	0
2587	2566	90	466	1.05	3903	1546	0
2588	2338	90	348	1.05	4130	1546	0
2589	2116	225	255	3.36	4352	1543	0
2590	1891	94.39	85	3.44	4575	1540	0
2591	1660	159.77	100	5.34	4803	1529	0
2592	1432	333.43	323	1.18	5028	1523	0

2593	1215	237.52	548	3.44	5253	1523	0
2594	988	135	778	1.12	5477	1519	0
2595	767	81.86	1001	1.87	5702	1520	0
2596	535	161.56	1225	0.83	5927	1525	0
2597	318	173.66	1448	2.39	6149	1518	0
2598	105	135	1675	1.12	6374	1515	0
2599	63	30.96	1900	1.54	6604	1510	0
2600	216	63.43	2128	1.18	6827	1515	0
2601	480	90	2343	1.05	1116	1517	0
2602	473	0.001	2565	0.001	908	1521	0
2603	559	333.43	2793	2.36	704	1526	0
2604	716	315	3015	1.49	521	1529	0
2605	900	26.56	3240	8.22	381	1544	0
2606	1098	281.31	3462	1.34	349	1550	0
2607	1305	180	3692	0.52	428	1550	0
2608	1519	315	3920	4.48	594	1554	0
2609	1734	248.96	4137	3.68	789	1555	0
2610	1952	10	4372	4.56	993	1563	0
2611	2169	171.02	4591	3.34	1806	1557	0
2612	2383	171.87	4824	1.87	1759	1558	0
2613	2605	225	5048	1.49	1738	1551	0
2614	2824	63.43	5276	1.18	1759	1546	0
2615	3042	81.02	5504	5.07	1801	1552	0
2616	3263	45	5519	1.34	1865	1552	0
2617	3484	45	5948	0.74	1958	1554	0
2618	3711	200.55	6176	4.51	2071	1548	0
2619	3931	135	6395	2.61	2196	1549	0
2620	4145	0.001	6625	1.05	2342	1544	0
2621	4382	347	4673	3.52	714	1549	0
2622	4608	270	4793	1.58	749	1558	0
2623	4828	336.8	4917	2.01	842	1562	0
2624	5054	254.74	5052	2.92	979	1569	0
2625	5272	264.8	5194	2.92	1146	1569	0
2626	5501	333.43	5341	1.18	391	1576	0
2627	5725	28.3	5493	3.9	167	1593	0
2628	5946	205.01	5651	5.89	65	1596	0
2629	6172	299.05	5808	2.72	286	1583	0
2630	6391	255.96	5971	4.35	508	1582	0
2631	6620	0.001	5650	5.27	707	1583	0
2632	6842	236.31	5685	3.81	930	1588	0
2633	7063	254.74	5729	6.01	1157	1588	0
2634	7289	0.001	5778	4.22	1382	1591	0
2635	7514	321.34	5833	3.38	1607	1600	0
2636	7738	24.44	5907	3.19	1834	1612	0
2637	7962	270	5872	0.83	2054	1612	0
2638	8186	315	6058	1.12	2287	1613	0
2639	8405	45	6150	0.37	2509	1614	0
2640	8632	135	6238	1.12	2737	1612	0
2641	8857	8.13	7132	2.01	2837	1615	0
2642	9084	170.53	7015	3.21	2898	1614	0

2643	9308	171.87	6888	1.87	2962	1606	0
2644	9527	59.03	6783	1.54	3053	1604	0
2645	9757	0.001	6683	0.001	3158	1607	0
2646	9984	329.03	6585	3.08	3268	1611	0
2647	10206	26.56	6498	0.37	3391	1619	0
2648	10433	173.66	6413	2.39	3525	1616	0
2649	10658	26.56	6334	1.18	3670	1619	0
2650	10885	153.43	6258	2.36	3817	1620	0
2651	10492	98.13	6211	1.87	3979	1617	0
2652	10507	15.25	6153	3.01	4147	1619	0
2653	10521	149.03	6110	2.27	4314	1621	0
2654	10547	63.43	6066	1.18	4485	1618	0
2655	10576	30.96	6030	1.54	4666	1622	0
2656	10607	153.43	6010	2.36	4847	1618	0
2657	10648	71.56	5993	0.83	5035	1624	0
2658	10689	99.46	5988	3.21	5227	1616	0
2659	10735	90	5984	2.11	5415	1620	0
2660	10790	180	5996	4.75	5612	1619	0
2661	10838	185.19	6013	2.92	5806	1607	0
2662	10984	81.86	6037	2.11	6005	1607	0
2663	10955	180	6069	2.11	6204	1604	0
2664	11028	135	6116	1.49	6407	1603	0
2665	11105	149.03	6161	1.54	6613	1599	0
2666	11182	0.001	6221	1.05	6818	1601	0
2667	11267	135	6284	0.37	7020	1601	0
2668	11348	71.56	6360	0.83	7229	1601	0
2669	11433	161.56	6436	1.87	7433	1599	0
2670	11535	278.13	6525	1.87	7648	1598	0
2671	11886	291.8	7342	2.84	7487	1603	0
2672	11895	45	7354	2.24	7498	1603	0
2673	11910	71.56	7377	0.83	7518	1613	0
2674	11929	59.03	7400	1.54	7546	1615	0
2675	11953	63.43	7434	1.18	7575	1620	0
2676	11978	206.56	7469	1.18	7614	1619	0
2677	12013	270	7514	4.22	7659	1616	0
2678	12046	278.13	7566	1.87	7710	1614	0
2679	12092	270	7624	1.05	7768	1616	0
2680	12129	45	7684	0.3	7834	1619	0
2681	11774	45	7671	1.12	7735	1619	0
2682	11833	26.56	7694	0.83	7760	1626	0
2683	11905	353.66	7729	2.39	7791	1630	0
2684	11970	171.87	7767	1.87	7832	1626	0
2685	12052	90	7810	1.05	7875	1624	0
2686	12124	45	7864	2.61	7925	1622	0
2687	12204	66.8	7919	2.01	7986	1626	0
2688	12297	45	7982	1.87	8042	1628	0
2689	12386	0.001	8048	0.001	8116	1631	0
2690	12481	206.56	8130	1.18	8182	1631	0
2691	12887	45	6959	1.12	7090	1629	0
2692	12972	156.8	6922	2.01	7061	1632	0

2693	13065	33.69	6896	1.9	7041	1631	0
2694	13161	161.56	6869	0.83	7026	1632	0
2695	13255	63.43	6864	1.18	7014	1630	0
2696	13363	135	6861	1.12	7023	1629	0

APPENDIX B

LOGISTIC REGRESSION RESULTS

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	2696	97.2
	Missing Cases	79	2.8
	Total	2775	100.0
Unselected Cases		0	.0
Total		2775	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
.00	0
1.00	1

Block 0: Beginning Block

Classification Table[a,b]

			Predicted		
			pres_abs		Percentage Correct
	Observed		.00	1.00	
Step 0	pres_abs	.00	0	1249	.0
		1.00	0	1447	100.0
	Overall Percentage				53.7

a. *Constant is included in the model.*

b. *The cut value is .500*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.147	.039	14.515	1	.000	1.159

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	dist#_hy	304.477	1	.000
		dist#_sc	984.150	1	.000
		elev#	162.009	1	.000
	Overall Statistics		1293.063	3	.000

Block 1: Method = Forward Stepwise (Conditional)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	1198.297	1	.000
	Block	1198.297	1	.000
	Model	1198.297	1	.000
Step 2	Step	235.158	1	.000
	Block	1433.455	2	.000
	Model	1433.455	2	.000
Step 3	Step	363.912	1	.000
	Block	1797.367	3	.000
	Model	1797.367	3	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2524.598[a]	.359	.479
2	2289.440[b]	.412	.551
3	1925.528[c]	.487	.650

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

b. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

c. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Classification Table[a]

	Observed		Predicted		
			pres_abs		Percentage Correct
			.00	1.00	
Step 1	pres_abs	.00	859	390	68.8
		1.00	178	1269	87.7
	Overall Percentage				78.9
Step 2	pres_abs	.00	903	346	72.3
		1.00	285	1162	80.3
	Overall Percentage				76.6
Step 3	pres_abs	.00	983	266	78.7
		1.00	178	1269	87.7
	Overall Percentage				83.5

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	dist#_sc	-.001	.000	654.170	1	.000	.999
	Constant	1.612	.068	569.119	1	.000	5.011
Step 2[b]	dist#_hy	.000	.000	195.260	1	.000	1.000
	dist#_sc	-.001	.000	589.105	1	.000	.999
	Constant	2.834	.121	544.226	1	.000	17.013
Step 3[c]	dist#_hy	-.001	.000	300.971	1	.000	.999
	dist#_sc	-.001	.000	396.334	1	.000	.999
	elev#	.045	.003	250.682	1	.000	1.046
	Constant	-66.896	4.351	236.424	1	.000	.000

a. Variable(s) entered on step 1: dist#_sc.

b. Variable(s) entered on step 2: dist#_hy.

c. Variable(s) entered on step 3: elev#.

Model if Term Removed[a]

Variable		Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 1	dist#_sc	-1889.105	1253.612	1	.000
Step 2	dist#_hy	-1267.951	246.462	1	.000
	dist#_sc	-1761.646	1233.853	1	.000
Step 3	dist#_hy	-1312.197	698.865	1	.000
	dist#_sc	-1344.284	763.039	1	.000
	elev#	-1180.705	435.882	1	.000

a. Based on conditional parameter estimates

Variables not in the Equation

			Score	df	Sig.
Step 1	Variables	dist#_hy	217.235	1	.000
		elev#	7.899	1	.005
	Overall Statistics		489.822	2	.000
Step 2	Variables	elev#	329.355	1	.000
	Overall Statistics		329.355	1	.000

APPENDIX C

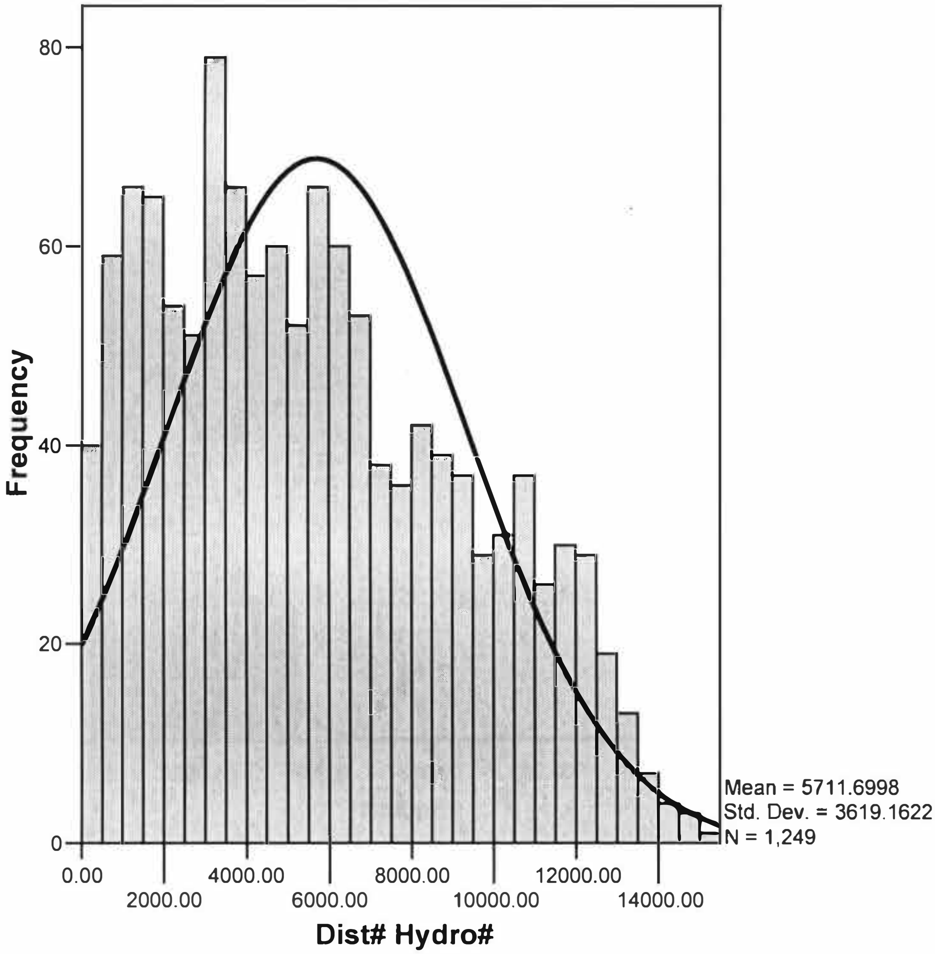
DESCRIPTIVE STATISTICS AND HISTOGRAMS

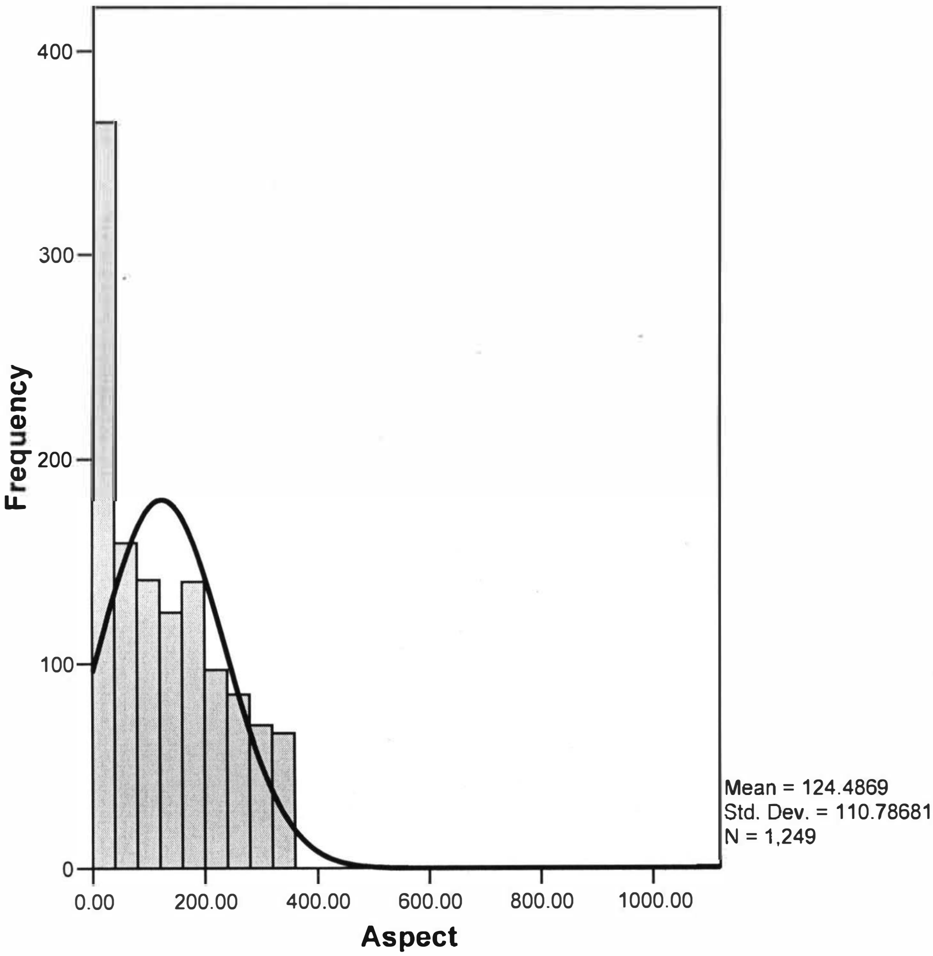
Non-Site Cell Descriptive Statistics and Histograms

Descriptive Statistics

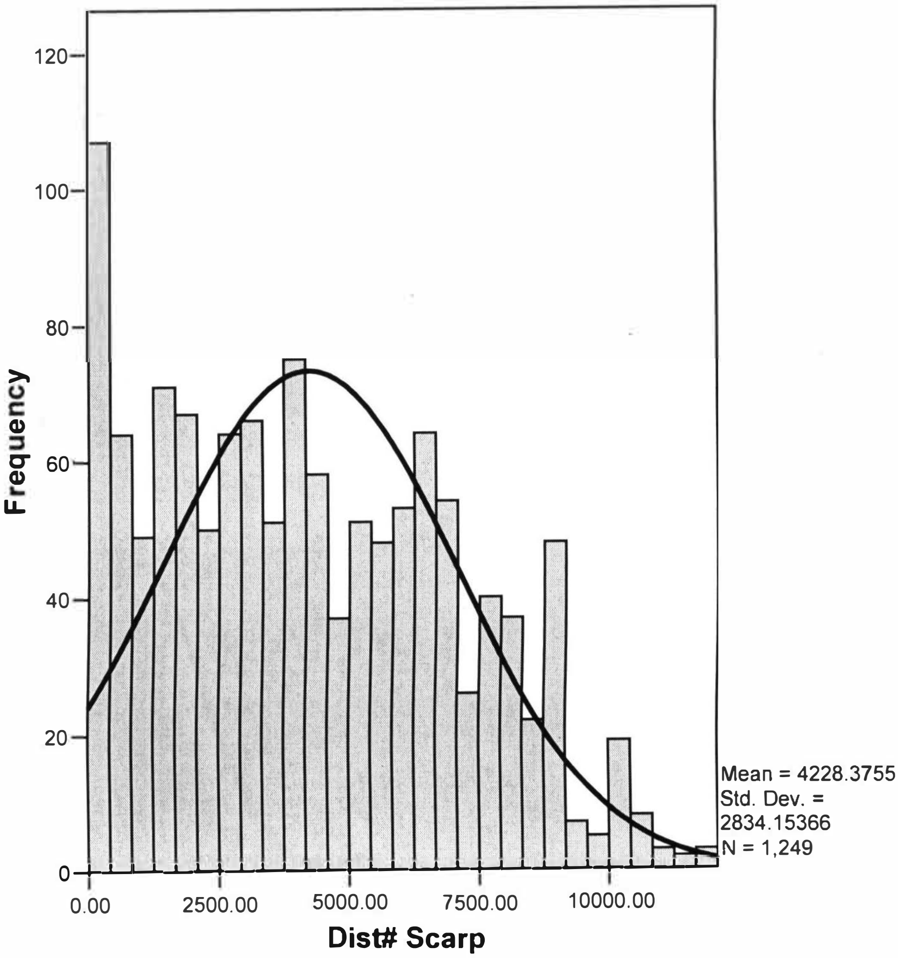
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Dist# Hydro#	1249	15125.00	.00	15125.00	5711.6998	3619.16220
Aspect	1249	1116.56	.00	1116.56	124.4869	110.78681
Dist# Scarp	1249	12066.00	.00	12066.00	4228.3755	2834.15366
Cell Slope	1249	21.04	.00	21.04	1.7033	2.08667
Dist# 11#7-37#76 Deg# Sl#	1249	10885.00	.00	10885.00	3330.3691	2546.79948
Elev#	1249	155.00	1510.00	1665.00	1592.1009	28.75749
Valid N (listwise)	1249					

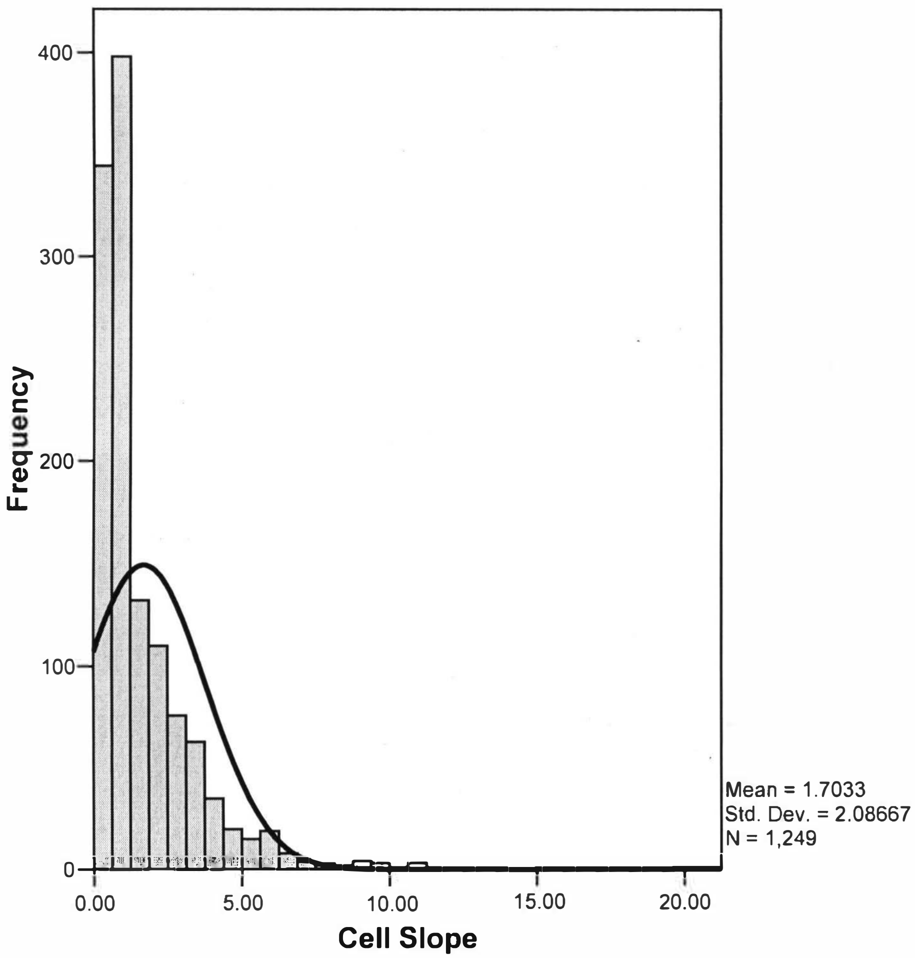
Non-site Cell Histograms

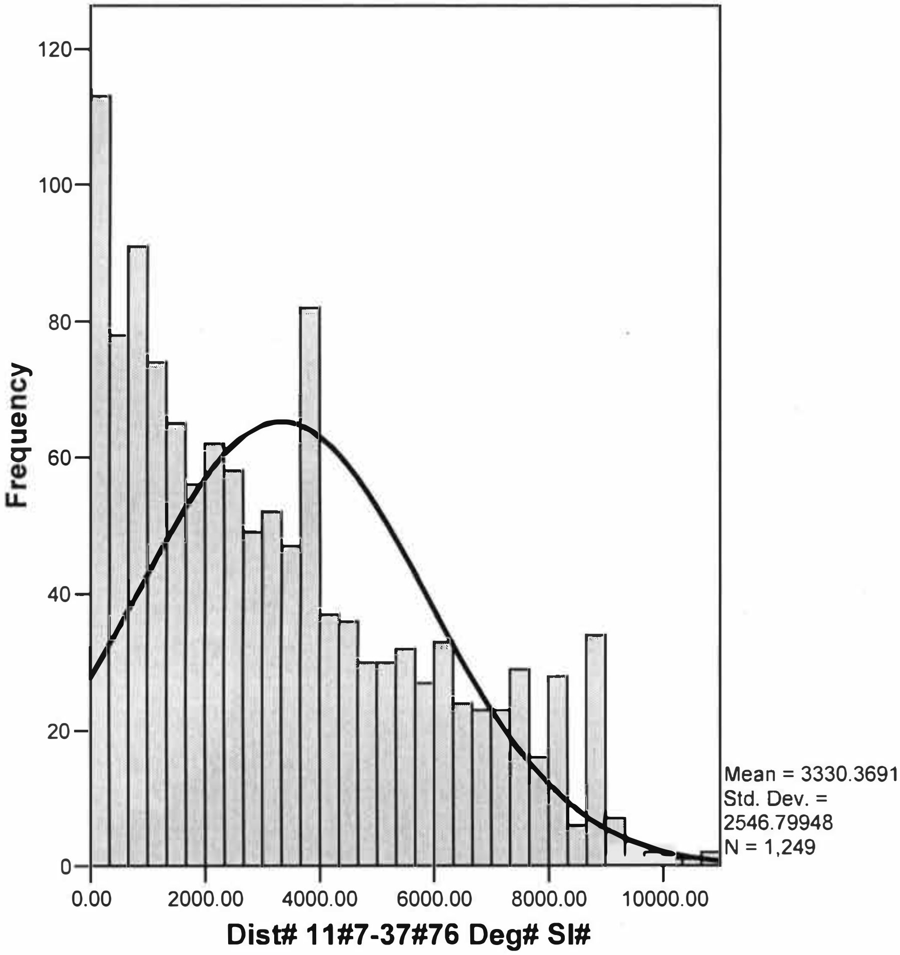


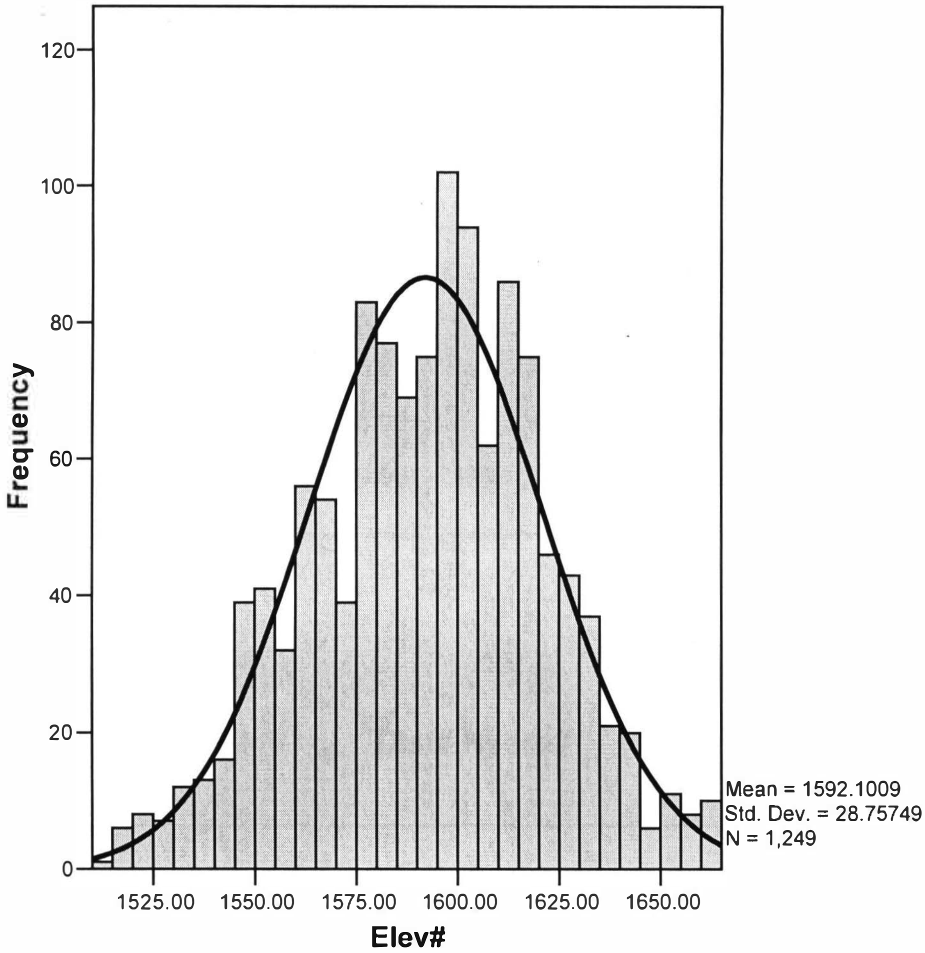


400
300
200
100
0
Frequency
0.00
200.00
400.00
600.00
800.00
1000.00
Aspect
Mean = 124.4869
Std. Dev. = 110.78681
N = 1,249


120
100
80
60
40
20
0
Frequency
0.00
2500.00
5000.00
7500.00
10000.00
Dist# Scarp
Mean = 4228.3755
Std. Dev. =
2834.15366
N = 1,249


400
300
200
100
0
Frequency
Mean = 1.7033
Std. Dev. = 2.08667
N = 1,249
0.00
5.00
10.00
15.00
20.00
Cell Slope


Frequency
120
100
80
60
40
20
0
0.00
2000.00
4000.00
6000.00
8000.00
10000.00
Dist# 11#7-37#76 Deg# SI#
Mean = 3330.3691
Std. Dev. =
2546.79948
N = 1,249

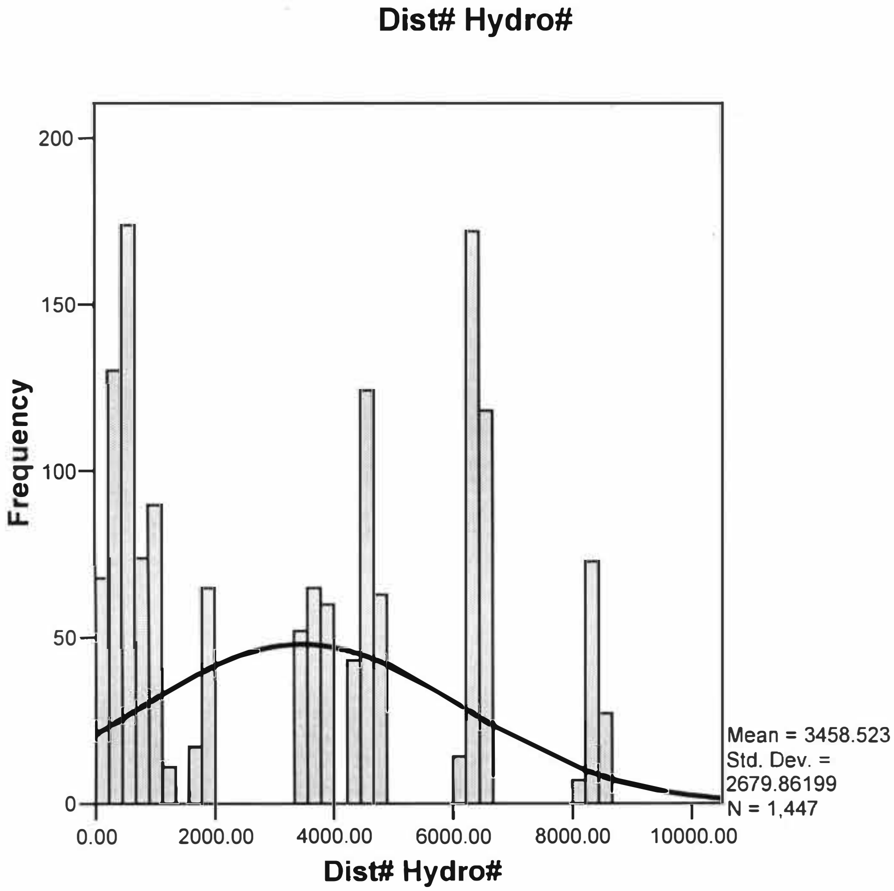


Frequency
120
100
80
60
40
20
0
1525.00
1550.00
1575.00
1600.00
1625.00
1650.00
Elev#
Mean = 1592.1009
Std. Dev. = 28.75749
N = 1,249

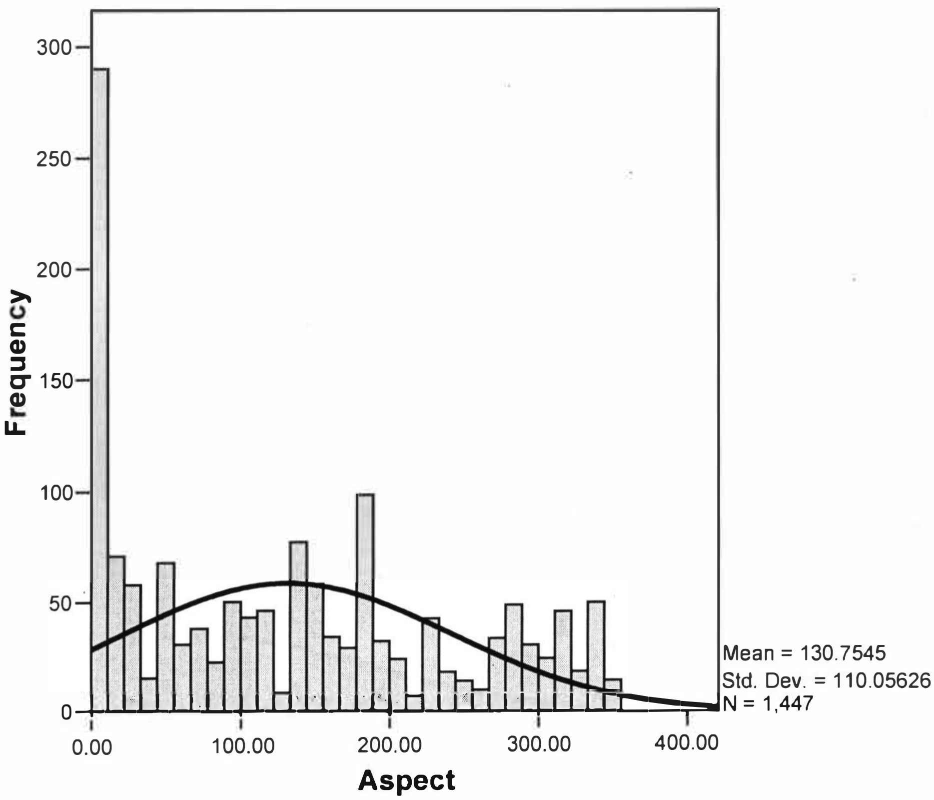
Site Cell Descriptive Statistics and Histograms

Descriptive Statistics

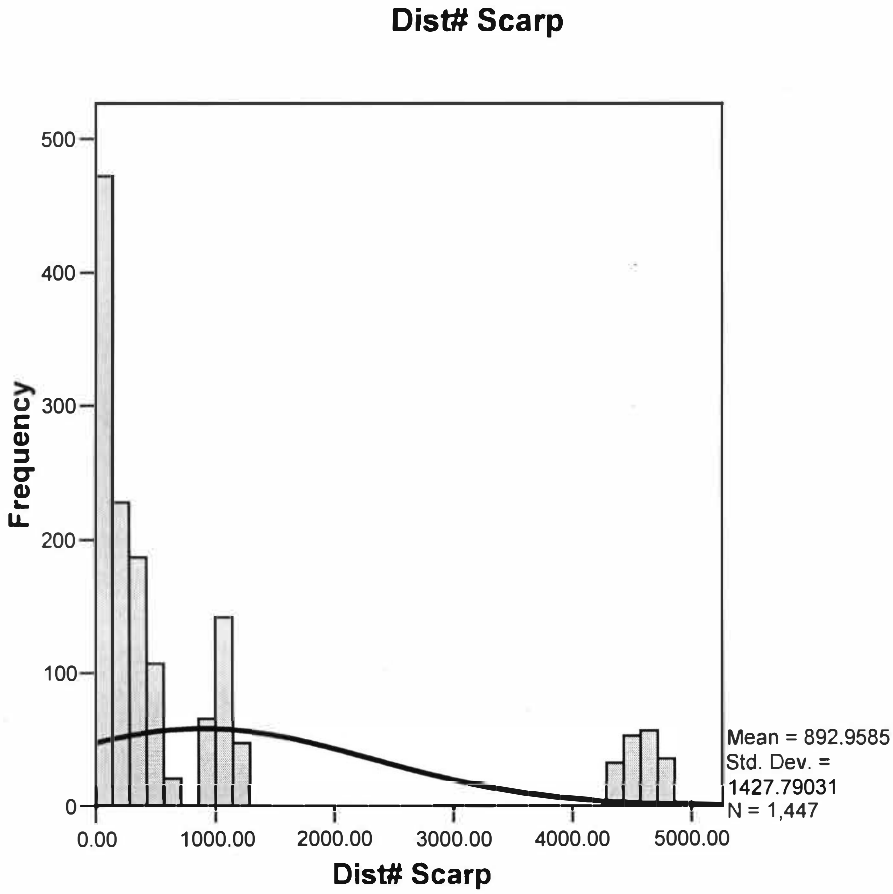
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Dist# Hydro#	1447	8568.00	75.00	8643.00	3458.5230	2679.8620
Aspect	1447	351.87	.00	351.87	130.7543	110.0565
Dist# Scarp	1447	4889.00	.00	4889.00	892.9584	1427.7903
Cell Slope	1447	28.01	.00	28.01	2.8135	3.9405
Dist# 11#7-37#76 Deg# Sl#	1447	4686.00	.00	4686.00	897.1126	1350.0305
Elev#	1447	129.00	1537.00	1666.00	1610.0387	40.2421
Valid N (listwise)	1447					



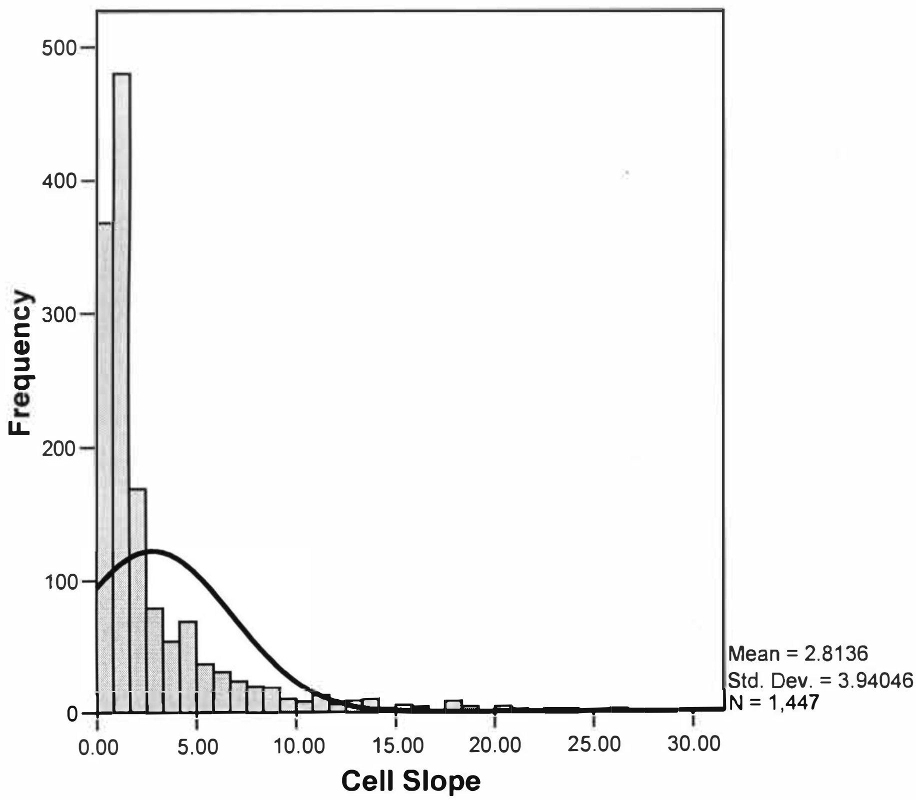
Aspect



Frequency
300
250
200
150
100
50
0
0.00
100.00
200.00
300.00
400.00
Aspect
Mean = 130.7545
Std. Dev. = 110.05626
N = 1,447

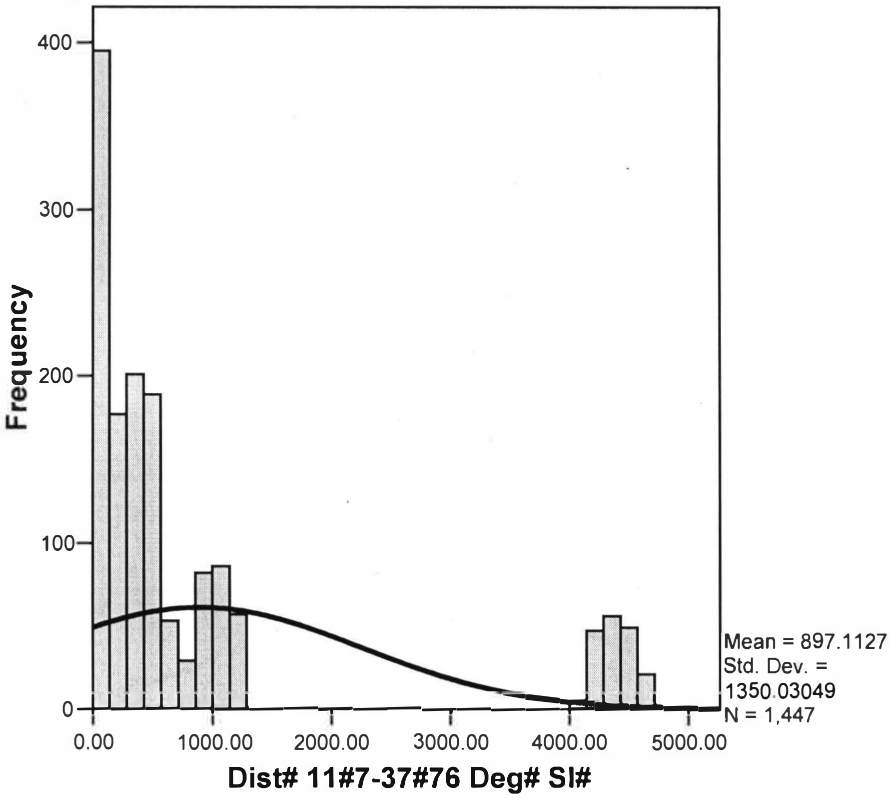

Dist# Scarp
500
400
300
200
100
0
Frequency
0.00
1000.00
2000.00
3000.00
4000.00
5000.00
Dist# Scarp
Mean = 892.9585
Std. Dev. =
1427.79031
N = 1,447

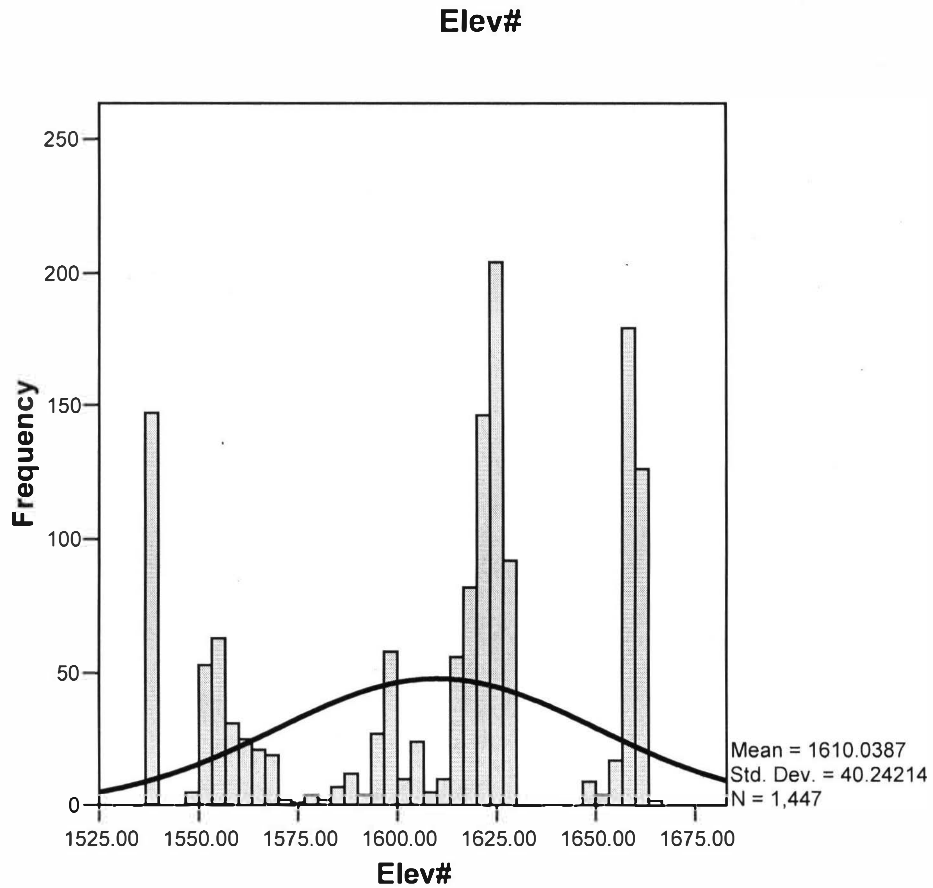
Cell Slope



Frequency
500
400
300
200
100
0
0.00
5.00
10.00
15.00
20.00
25.00
30.00
Cell Slope
Mean = 2.8136
Std. Dev. = 3.94046
N = 1,447

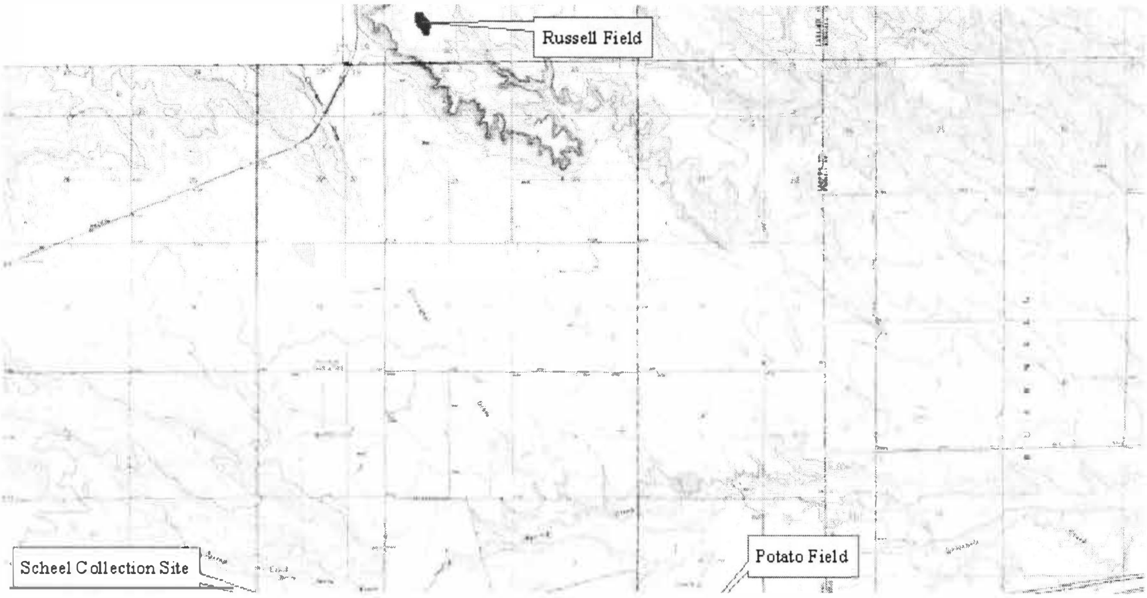
Dist# 11#7-37#76 Deg# SI#



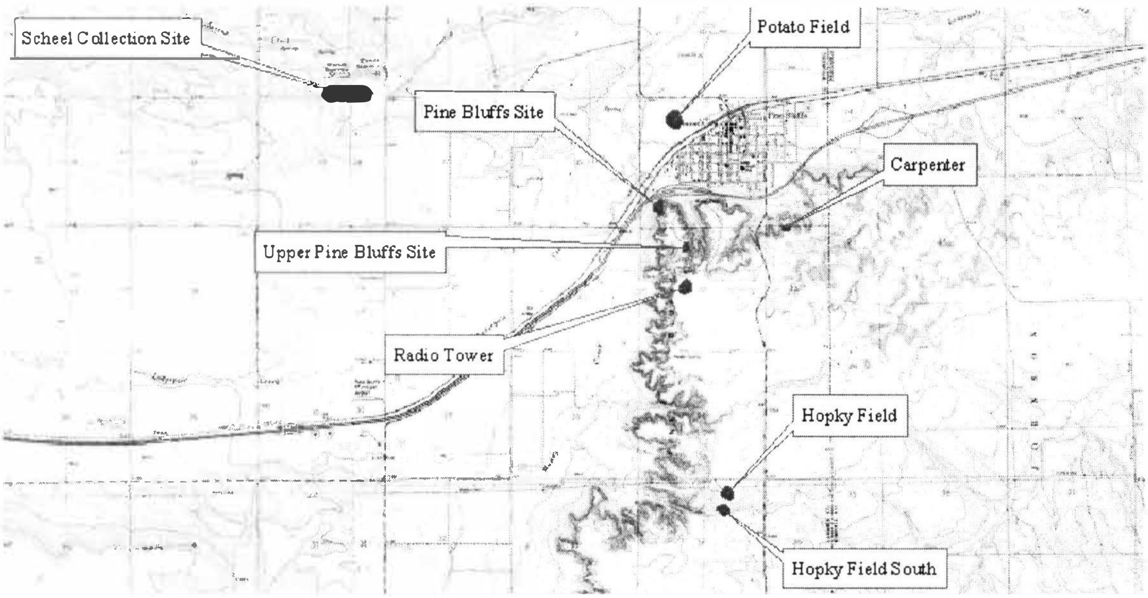

Elev#
250
200
150
100
50
0
Frequency
1525.00
1550.00
1575.00
1600.00
1625.00
1650.00
1675.00
Elev#
Mean = 1610.0387
Std. Dev. = 40.24214
N = 1,447

APPENDIX D

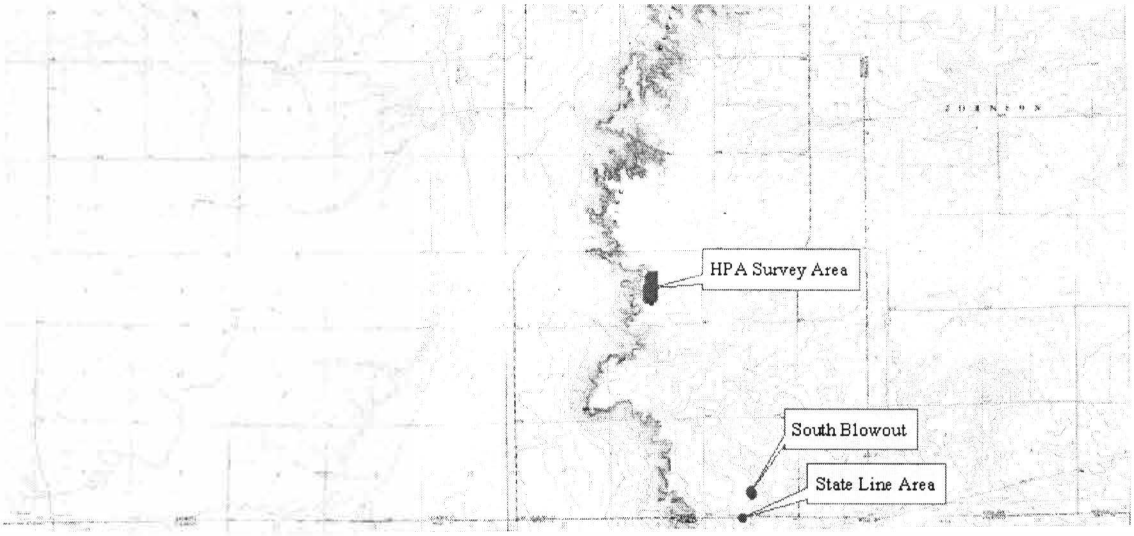
PALEOINDIAN SITE LOCATION ON 7.5 UTM TOPOGRAPHIC QUADS



Location of Russell Field in comparison to the town of Pine Bluffs.



Location of the core Paleoindian Sites in comparison to the town of Pine Bluffs.



Location of Southern three Paleoindian sites on the Bluffs.

APPENDIX E

PALEOINDIAN SITES AND ASSOCIATED PROJECTILE POINTS

Site Name	Number of Projectile Points	Projectile Point Type	Years Before Present
Russell Field	2	Goshen	11,000
		Cody	9,000
Scheel	10	Jimmy Allen	8,000
		Terminal Paleoindian	7,500-8,000
		Terminal Paleoindian	7,500-8,000
		Terminal Paleoindian	7,500-8,000
		Eden	9,000
		Scottsbluff	9,000
		Scottsbluff	9,000
		Scottsbluff	9,000
		Alberta	9,500
		Folsom	10,300
Potato Field	1	Agate Basin	10,250
Pine Bluffs	14	Hell Gap	10,000
		Hell Gap	10,000
		Alberta	9,500
		Scottsbluff	9,000
		Alberta	9,500
		Alberta	9,500
		Terminal Paleoindian	7,500-8,000
		Terminal Paleoindian	7,500-8,000
		Terminal Paleoindian	7,500-8,000
		Terminal Paleoindian	7,500-8,000
		Terminal Paleoindian	7,500-8,000
		Agate Basin	10,250
		Fredrick	8,250
		Fredrick	8,250
Upper Pine Bluffs	2	Folsom	10,300
		Folsom	10,300
Carpenter	1	Eden	9,000
Radio Tower	2	Cody	9,000
		Cody	9,000
Hopke Field	2	Eden	9,000
		Scottsbluff	9,000
Hopke Field South	1	Folsom	10,300
HPA Survey	1	Terminal Paleoindian	7,500-8,000
South Blowout	1	Scottsbluff	9,000
State Line Area	1	Jimmy Allen	8,000

BIBLIOGRAPHY

Baber KC, and Reher CA (1988) Surface to Bedrock: Report of Investigations at the Pine Bluffs Site, A Large Stratified Habitation Site in Southeastern Wyoming. 46th Annual Plains Anthropological Conference.

Bove FJ (1981) Trend surface analysis and the Lowland Classic Maya collapse. American Antiquity 46:93-112.

Brewster A, Byrd BF, and Reddy SN (2003) Cultural Landscapes of Coastal Foragers: An Example of GIS and Drainage Catchment Analysis from Southern California. Journal of GIS in Archaeology 1:48-60.

Carmichael D (1990) GIS Predictive Modelling of Prehistoric Site Distributions in Central Montana. In KMS Allen, SW Green and EBW Zubrow (eds.): Interpreting Space: GIS and Archaeology. London, New York, Philadelphia: Taylor and Francis.

Feder KL (1979) Geographic patterning of tool types as elicited by trend surface analysis. In S Upham (ed.): Computer graphics in archaeology: Arizona University, pp. 95-102.

Gaffney V, and van Leusen PM (1995) Postscript-GIS, Environmental Determinism and Archaeology: A Parallel Text. In G Lock and Z Stancic (eds.): Archaeology and Geographical Information Systems: A European Perspective: Taylor and Francis, pp. 367-382.

Gaffney V, Stancic Z, and Watson H (1995) Moving from Catchments to Cognition: Tentative Steps Towards a Larger Archaeological Context for GIS. Scottish Archaeological Review 9:41-64.

Hasenstab RJ (1983) A Preliminary Cultural Resource Sensitivity Analysis for the Proposed Flood Control Facilities Construction in the Passaic River Basin of New Jersey: Passaic River Basin Special Studies Branch: Department of the Army, New York Army Corps of Engineers, Marietta, Georgia: Soil Systems, Inc.

Hietala HJ, and Larson Jr PA (1979) SYMAP analyses in archaeology: intrasite assumptions and a comparison with TREND analysis. Norwegian Archaeological Review 12:57-64.

Hunt ED (1992) Upgrading Site-Catchment Analyses with the Use of GIS: Investigating the Settlement Patterns of Horticulturalists. World Archaeology 24:283-309.

Judge J, and Sebastian L (1988) Quantifying the Present and Predicting the Past: Theory, Method, and Application of Archaeological Predictive Modeling. Denver: U.S. Department of the Interior, Bureau of Land Management Service Center.

Kohler T (1986) Predictive models for archaeological resource location: Advances in Archaeological Method and Theory. New York: Academic Press, pp. 397-452.

Kvamme KL (1983) Computer Processing Techniques for Regional Modeling of Archaeological Site Locations. Advances in Computer Archaeology 1:26-52.

Kvamme KL (1989) Geographic Information Systems in Regional Archaeological Research and Data Management. In MB Schiffer (ed.): Archaeological Method and Theory. Tucson, Arizona: The University of Arizona Press, pp. 139-203.

Kvamme KL (1990) Fundamental Principles and Practice of Predictive Archaeological Modeling: Mathematics and Information Science in Archaeology; a Flexible Framework: Bonn and Holos.

Kvamme KL (1995) A View From Across the Water: The North American Experience in Archaeological GIS. In G Lock and Z Stancic (eds.): Archaeology and Geographical Information Systems: A European Perspective. London: Taylor and Francis, pp. 1-14.

Kvamme KL (1996) Investigating Chipping Debris Scatters: GIS As an Analytical Engine. In HDG Maschner (ed.): New Methods, Old Problems: Geographic Information Systems in Modern Archaeological Research: Southern Illinois University, pp. 38-71.

Kvamme KL (1997) Ranters Corner: bringing the camps together: GIS and ED. Archaeological Computing Newsletter:1-5.

Latady WR, and Dueholm K (1987) Modern Plant Communities in the Vicinity of Pine Bluffs, Wyoming: Report prepared for the Department of Anthropology NSF/EPSCoR High Plains Archaeology Project: Department of Anthropology, University of Wyoming.

Larson Jr PA (1975) Trend analysis in archaeology. Norwegian Archaeological Review 8:75-80.

McFaul M (1989) Geoarchaeological Interpretations, Main Block Profile (48LA312): Report prepared for the Department of Anthropology NSF/EPSCoR High Plains Archaeology Project: Department of Anthropology, University of Wyoming.

Miller J (1991) Geomorphology and Paleoclimates of the Pine Bluffs Site (48LA312), Laramie County, Wyoming: Report prepared for the Department of Anthropology NSF/EPSCoR High Plains Archaeology Project: Department of Anthropology, University of Wyoming.

Peterson MR, and Reher CA (1992) The High Plains Archaeology Project: Report on the 1992 Season. Annual Plains Anthropological Conference.

Reddy SN (1999) Applying GIS to Archaeological Site Prediction on Camp Pendleton, Southern California. Pacific Coast Archaeological Society Quarterly 35:7-18.

Reher CA (1983) Analysis of Spatial Structure in Stone Circle Sites. In: From Microcosm to Macrocosm: Advances in Tipi Ring Investigation and Interpretation. Plains Anthropologist Memoir *19:*193-222.

Reher CA (1988) Cultural Change and Continuity on the Prehistoric High Plains. 53rd Annual Meeting of the Society for American Archaeology.

Reher CA (1989a) Pursuing the Past to Further the Future: Research, Education, and Economic Development at the High Plains Archaeology Project. 54th Annual Meeting of the Society for American Archaeology.

Reher CA (1989b) The High Plains Archaeology Project: Interim Report. Wyoming Archaeologist *32*.

Reher CA (1990a) The High Plains Archaeology Project: Research, Education, and Economic Development in Southeast Wyoming. Journal of the Colorado-Wyoming Academy of Science *22*.

Reher CA (1990b) The High Plains Archaeology Project: Research, Education, and Economic Development in Southeast Wyoming. 61st Annual Meeting of the Colorado-Wyoming Academy of Science.

Reher CA (1990c) Time and Tempo: Cultural Dynamics on the Prehistoric High Plains. 55th Annual Meeting of the Society for American Archaeology.

Reher CA (1991) The High Plains Archaeology Project: Retrospect and Prospect. 49th Annual Plains Anthropological Conference.

Reher CA (1996) Resource Distribution and Settlement Systems on the Prehistoric High Plains: Piney Breaks, Cedar Gaps and Other Islands. 54th Annual Plains Anthropological Conference.

Reher CA (2003) The Stone Circle Landscape at Pine Bluffs. 68th Annual Meeting of the Society for American Archaeology.

Reher CA (2006a) Research Potential of Large Projectile Point Surface Collections. Annual Meeting of the Wyoming Archaology Society.

Reher CA (2006b) Patterns of Obsidian Use in Eastern Wyoming. 64th Plains Anthropological Conference.

Reher CA (2006c) High Plains Archaeology Project Subjects and Data. Personal Communication. Laramie, Wyoming.

Reher CA, Jaime ZY, Miller J, and Smith D (2004) The Paleoindian Presence at Pine Bluffs: Continued Research on Chronology, Geological Contexts, Lithic Sources, Site Types, Settlement Patterns and Other Basics. 62nd Plains Anthropological Conference.

Scholtz SC (1981) Location choice models in Sparta. In RH Lafferty III, JL Otinger, SC Scholtz, WF Limp, B Watkins and RD Jones (eds.): Settlement Predictions in Sparta: A Locational Analysis and Cultural Resource Assessment on the Uplands of Calhoun County, Arkansas. Fayetteville: Arkansas Archaeological Survey, pp. 207-222.

Tabachnick BG, and Fidell LS (2001) Using Multivariate Statistics. Needham Heights: Allyn and Bacon.

Warren RE (1990 a) Predictive modeling of archaeological site location: a case study in the Midwest. In KMS Allen, SW Green and EBW Zubrow (eds.): Interpreting Space: GIS and Archaeology. New York: Taylor and Francis Pub., pp. 201-215.

Warren RE (1990 b) Predictive Modelling in Archaeology: a primer. In KMS Allen, SW Green and EBW Zubrow (eds.): Interpreting Space: GIS and Archaeology. London: Taylor and Francis.

wgiac2.state.wy.us/html/aboutDOQQ2002 (2003) Wyoming Geographic Information Advisory Council: Wyoming State Geological Survey.

Wheatley D (1998) Ranters Corner: Keeping the camp fires burning: the case for pluralism. Archaeological Computing Newsletter 1:2-7.

Wheatley D, and Gillings M (2002) Spatial Technology and Archaeology: The Archaeological Applications of GIS. London and New York: Taylor and Francis.

www.wygisc.uwyo.edu/data.htm (2001) Wyoming Geographic Information Science Center: University of Wyoming, Office of Academic Affairs.

Zubrow EBW (1990) Modelling and prediction with geographic information systems: a demographic example from prehistoric and historic New York. In KMS Allen, SW Green and EBW Zubrow (eds.): Interpreting space: GIS and archaeology. London: Taylor & Francis, pp. 307-318.