



Pinetum/Sand Hill Plantation Field Report

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Abstract

In the spring of 2009, the MSU Campus Archaeology Program surveyed multiple areas along the Red Cedar River at Michigan State University in East Lansing, Michigan. The survey was due to the storm tree replacement project being carried out by MSU Landscape Services. One location, surrounded by Munn Ice Arena, Demonstration Hall, and Kalamazoo Street and Chestnut Road, had held significant interest by Michigan State University archaeologists, geologists, and geographers for some time. It was assumed that this pine tree grove, called both the Pinetum and the Sand Hill Plantation, was a sand dune. Because Landscape Services was planting additional trees in this area, the ability for the Campus Archaeology Program to verify these dates was possible, and was done so through partnership with Dr. Alan Arbogast of the MSU Department of Geography. This project verified this suspicion, with Optically Stimulated Luminescence (OSL) dating of the sand indicating that the sand dune had formed nearly 16,000 years ago, during the Late Pleistocene.

Additionally, this report will examine the historical component of the Sandy Hill Plantation. In 1913, the pine trees which currently sit atop the sand dune were planted by the Michigan Agricultural College Forestry Department. This plantation plays an important role in the development of the early campus.

Table of Contents

Introduction	1
Physical Setting and History	1
Previous Investigations	5
Methods and Techniques of Investigation	1
Results of Investigations	1
Discussion and Recommendations	1
References	1

Introduction

The Michigan State University (MSU) Landscape Services Department had plans to plant trees along the Red Cedar River during May of 2009. The Storm Tree Replacement Project included plantings in four major areas along the river that had the potential for archaeological significance (Figure 1). Areas 1-3 were included in the Red Cedar River Survey (Brock 2010), while Area 4 was part of this project, called the Pinetum/Sand Hill Plantation Project.

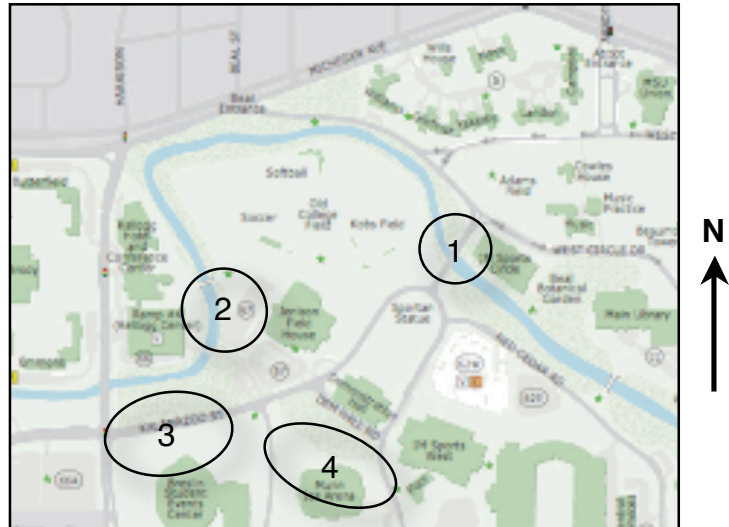


Figure 1: Map showing location of the Sandy Hill Plantation, labeled as survey area #4 (<http://www.maps.msu.edu>).

This report will examine the testing of the Sand Hill Plantation. It will look at the geological survey and testing, as well as the historical significance of this site. Testing excavations were organized by MSU Campus Archaeologist Terry Brock, supervised by Campus Archaeology director Lynne Goldstein, and carried out in partnership with Alan Arbogast of the MSU Department of Geography and excavators from the MSU Landscape Services Department.

Physical Setting and History

Michigan State University is located in East Lansing, Michigan, in the center of the Lower Peninsula. The campus covers 5,200 acres. The Red Cedar River, a tributary of the Grand River, flows through the campus. The area under investigation a large grove of pine trees that sit atop a sandy ridge, is located south of the Red Cedar River. This grove has been called the Sand Hill Plantation, although it also has been referenced by Landscape Services as the Pinetum. Due to the existence of a different area on campus that has historically been referred to as the Pinetum, this site will be referred to in this report as the Sand Hill Plantation.

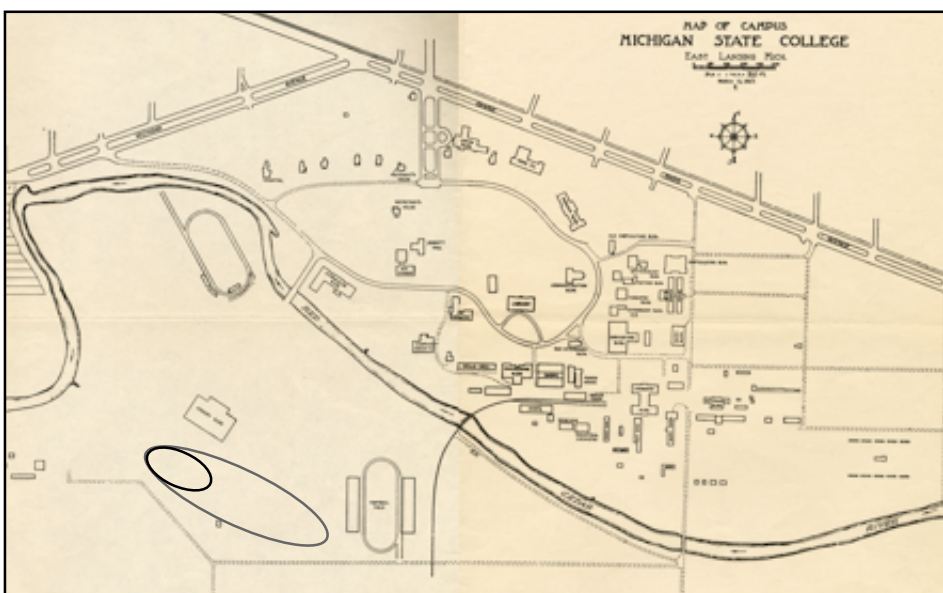


Figure 3: Campus map from 1922 shows the newly developing area south of the river. The grey oval indicates the original area of the Sand Hill Plantation, while the black oval shows the current location (Courtesy of MSU Archives and Historical Collections).

The site is located between two structures, Demonstration Hall to the north and Munn Ice Arena to the south, and is bounded by Kalamazoo Street and Chestnut Road on the east and west, respectively.

Demonstration Hall was built in 1928 to provide a space for military

instruction, which was required per the requirements of the Morrill Land Grant Act of 1862 (Stanford and Dewhurst 2002). Munn Ice Arena was built in 1974, and serves as the home ice arena for the MSU Spartan Hockey team (Stanford and Dewhurst 2002). The Plantation sits in a region of campus that has been dedicated to athletic functions. Nearby structures include Jenison Field House to the west, Old College Field to the northwest, the Intramural Recreation Sports-West (IM West) building and Spartan Stadium to the East, and the Jack Breslin Student Events Center to the southwest. Therefore, the Plantation is an important area in MSU's cultural past: it has served as a go-between for Spartan fans and alumni attending basketball, football, and hockey games over the past 100 years. It even is mentioned in the University alma mater, *The Shadows*, in the line "beneath the pines we'll gather" (Reed 1948).

In 1901, the Michigan Agricultural College (MAC) purchased land south of the Red Cedar River to provide additional space for their growing athletic program. Included in this space was Old College Field, where a track, football field, and baseball field were constructed. This initiated a large expansion by the college southward across the Red Cedar River. In 1913, they purchased 27 acres of the Woodbury Farm, located to the east of the college fields, and leased the remainder of the farm, approximately 209 acres (Beal 1915:304). The sand ridge was located

on this land, and it was clear that the sand ridge would be a hindrance to the college's ability to develop the land, as erosion was causing sand to blow across the athletic fields. Because of this, the newly formed Forestry Department, led by Frank Sanford, used this space as a research area, demonstrating the permanent control of sand blows by planting pine trees on the ridge. Professor Sanford planted 3.76 acres of trees, dividing it into six subplots of different types of trees. The area has been used as a laboratory and teaching space.

Since its original planting, the plantation has been reduced in size from its original 3.76 acres. Identifying the sand ridge from aerial photos is simplified due to the plantation, and earlier photos show that it was much larger than its current size. The earliest photograph (Figure 4)



shows the plantation extending from the western edge of Demonstration Hall to the Eastern edge of Spartan Stadium, called either MAC or Macklin Field at the time the photo was taken (between 1931 and 1937).

In 1955, the Intramural Sports building was constructed, eliminating the eastern edge of the plantation. The addition of Chestnut Road, and the continued expansion of the campus southward continued to cut back the plantation, and, in addition, the sand ridge. The construction of Munn Ice Arena in 1974, however, helped to preserve this space, as the arena was built with a design that was meant to "blend harmoniously with the landscape", particularly the pine tree grove (Stanford and Dewhurst 2002).

As it currently stands, the plantation and sand dune is approximately 100 m. in length and approximately 5 - 8 m. high. It has a crest near the western side, and slopes gradually towards the east. A footpath crosses through the trees, running from the northeast corner to the middle of the southern edge of the plantation, including a small historical plaque discussing the plantings.

Previous Investigations

The Campus Archaeology Program has engaged in a number of archaeological projects across MSU's campus, which is significant when interpreting this project. Of particular importance is the development of a historical model which was devised in order to better understand the transitions and modifications that have occurred on MSU's campus (Goldstein, Brock, Stawski, Pruitt 2010). This model argues that the campus went through four significant changes during its first 100 years that are reflected within the campus landscape and material record.

The first stage (1855-1870) represents the early years of the college, before it received funding from the Land Grant Act. Excavations by the Department of Anthropology at Saints' Rest, the first dormitory, in 2005 and by the Campus Archaeology Program at College Hall in 2009 provide evidence of this early period (Mustonen 2007; Lewandowski and Brock 2010). The second stage (1870-1900) reflects the initial effect that Land Grant funding had on the campus, supporting a large building campaign, and the gradual increase in student population. Excavations at Faculty Row have shown how this resulted in the increasing size of campus, as the number of faculty homes expanded (Goldstein, Brock, Stawski, Pruitt 2010). Excavations at Saints' Rest indicate the effect that the expanding campus and growing population, as new dormitories required functions such as the kitchen to be moved from Saints' Rest to the newer buildings (Mustonen 2007).

The third phase (1900-1925) is a period of dramatic expansion in the College's population and programming, as well as the landscape and built environment. This increase in enrollment and programming forced the campus to expand southward and eastward. Additionally, the invention of the automobile and other modes of transportation dramatically changed how the campus was accessed and its relationship with surrounding communities. Excavations have shown that these factors, in addition to the new central focus of the river, resulted in a multitude of land modifications around the river, including the reuse of the remains of older buildings as fill, and the raising of areas of campus such as the Beal Botanical Gardens (Brock 2010). The addition of automobiles, as well as the growing athletic program, resulted in the construction of a larger bridge to accommodate the rising floodwaters and the heavy automobile traffic during football games (Brock 2010).

The fourth stage (1925-1955) shows the growth of the college into a university. It is during this period that WPA money and the GI Bill dramatically shape the future of Michigan State, dramatically increasing enrollment and expanding the campus both spatially and through the

built environment. This resulted in the construction of larger buildings, dormitories, teaching spaces, and athletic facilities, coupled with the demolition of older, smaller structures. Faculty Row was a prime example of this expansion, as almost all of the homes were demolished to make way for new dormitories (Goldstein, Brock, Stawski, Pruitt 2010).

The purpose of this model is to provide a larger context for our analysis. The historical analysis of this site will place the plantation within the third and fourth phase of this model.

Methods and Techniques of Investigation

No formal archaeological units were excavated during this project. The focus was primarily on identifying and dating the sand ridge. A backhoe operated by MSU Landscape Services was used to gather sample 1, taken at approximately 1.10 m deep. Brock and Arbogast returned later to gather a second sample using a bucket auger. Sample 2 was taken at the depth of 2.5 m. Both samples were taken with copper tubes, and both tested using Optically Stimulated Luminescence (OSL) dating techniques.

Results of Investigations

Results of the backhoe trench verified the assumption that this sand ridge was indeed a sand dune. The trench clearly indicated that the ridge had not been disturbed by the construction of either Munn Ice Arena or Demonstration Hall. Well-formed lamellae indicated long-term soil formation, and there were no cultural intrusions or artifacts that would have indicated human disturbance. OSL testing aged the dune at -16.1 ± 1.8 ka years ago, placing it within the Late Pleistocene.

Auger testing, taken at a higher elevation than Sample 1, verified these dates. OSL testing resulted in a date of -12.4 ± 1.0 ka years ago.

Sample Number	Sample Method	Depth	Dating Method	Testing Results
Sample 1	Backhoe Exposure	1.10 m	OSL	-16.1 ± 1.8 ka
Sample 2	Bucket Auger	2.5 m	OSL	-12.4 ± 1.0 ka

Discussion and Recommendations

The results of this investigation have provided a number of important results regarding this area of campus. We recognize that this space already holds a privileged and respected position on



our campus, and this investigation further demonstrates the value of it not only to MSU's cultural heritage, but also as a rare geological and archaeological specimen.

The results of the geological testing indicate that this sand ridge is indeed an approximately 16,000 year old sand dune. Inland sand dunes are especially rare, as they are often destroyed by development projects, while those located on the shore are typically preserved. It is existence of this formation at Michigan State University that makes it's survival both a surprise and expected. It is a surprise because universities are constantly in a state of development and improvement, indicated by the destruction of the majority of the ridge over the past 100 years. However, universities also rely heavily on established traditions, rituals, and memorialized spaces: the sand ridge, and the trees planted on top of it, have occupied a high traffic area for many Michigan State alumni and athletic fans, being located in the athletic area. It's importance as a cultural space, exemplified through its inclusion in the MSU alma mater, has allowed it to be protected. In fact, this concern with its protection, particularly the protection of the trees as MSU's campus is an arboretum, has kept geological testing from occurring on the ridge earlier. It was through the arrangement with the Campus Archaeology Program and the cooperation of the Landscape Services Department that this testing was able to occur.

This project also prompted a more detailed examination of the historical significance of the site. The planting of trees on the ridge was a result of campus expansion across the river, the primary defining feature of the third phase of campus development at MSU in 1900. This expansion brought a number of environmental impediments: the regular flooding of the Red Cedar River being one of the primary obstacles, which prompted a number of land modification projects between 1900 and 1925 (Brock 2010). The planting of trees, therefore, is an intentional modification of the land in order to actively change the condition of the southern campus. Additionally, this campus development project was also a forestry experiment, using the campus as a means for understanding erosion control. This space, therefore, is simultaneously a demonstration of human intervention through material applications, and also an example of MSU's continued commitment to using the campus as an experimental laboratory.

Recommendations

Identifying the sand ridge as 16,000 year old sand dune is a first step in the involvement of the Campus Archaeology Program's involvement in this area of campus. Identifying this as an undisturbed location verifies the potential for intact surfaces that could have been inhabited or occupied by prehistoric individuals or groups dating back thousands of years. To date, this is the



only place on campus where this potential exists, and therefore any further tree plantings on the sand dune must include proper archaeological and geological mitigation by the Campus Archaeology Program.

Additionally, the historical importance of the tree grove, and its value to both current campus cultural traditions and the maintenance of a cultural landscape, as well as the historical significance associated with the tree plantings, Campus Archaeology recommends that any attempts to modify Sand Hill Plantation receive additional consultation with Campus Archaeologists. We also recommend that this site remain undisturbed and receives similar treatment or designation as the "Sacred Space" in West Circle Drive, which, since the 1870s, has remained undeveloped. Such a treatment is necessary considering the immense significance of this space as a cultural, geological, historical, and prehistoric space.

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