Of Berry Pickers, Shanty Boys, and the Jack Pine Bird: Patterns of Settlement and Subsistence in Nineteenth Century Oscoda County

Rose Lockwood Moore
Western Michigan University

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OF BERRY PICKERS, SHANTY BOYS, AND THE JACK PINE BIRD:
PATTERNS OF SETTLEMENT AND SUBSISTENCE IN
NINETEENTH CENTURY OSCODA COUNTY

by

Rose Lockwood Moore

A Thesis
Submitted to the
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OF BERRY PICKERS, SHANTY BOYS, AND THE JACK PINE BIRD:
PATTERNS OF SETTLEMENT AND SUBSISTENCE IN
NINETEENTH CENTURY OSCODA COUNTY

Rose Lockwood Moore, M.A.
Western Michigan University, 1990

The provisions of the Homestead Act of 1863 (U.S. Congress 1862a) required a settlement pattern of dispersed single families on small tracts of land, which, in turn, affected the subsistence strategies available to the homesteaders. The interaction of federal land legislation with the ecosystem of southern Oscoda County resulted in marked spatial and temporal differences between the tracts that were homesteaded as opposed to those acquired for their timber. A sample population of quarter sections was analyzed in terms of the physical and biotic environments, date of entry, and use. The analysis confirmed that the timber lands were located on better land and had an earlier entry date than the homesteads. In turn, the small size and submarginal environment of the homesteads greatly limited possible subsistence strategies.
Where a party makes a selection of land for a homestead he must abide by his choice. If he has neglected to examine the character of the land prior to entry, and it proves to be infertile or otherwise unsatisfactory, he must suffer the consequences of his own neglect.

---Circular from the General Land Office (Bruchey 1972:19)

What the plains need is a shower of rain one day and a shower of manure the next.

---William Deyarmond, Oscoda County homesteader (Fockler 1984:18)
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Of berry pickers, shanty boys, and the jack pine bird: Patterns of settlement and subsistence in nineteenth century Oscoda County

Moore, Rose Lockwood, M.A.
Western Michigan University, 1990

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Rose Lockwood Moore
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CHAPTER I

INTRODUCTION

The vast frontier lands of the United States from the end of the Civil War in 1865 to the turn of the century were the focus of unprecedented expansion and development. During this period 14 million people immigrated to the United States (Weisberger 1964b) while exploitation of the nation’s rich and varied natural resources by a free-wheeling, "anything goes" capitalism made the United States a world leader in industry (Bowen 1970). With over 160 billion board feet of standing timber (Maybee 1976) and large tracts of unentered land, northern lower Michigan, including Oscoda County, had an active role in the post-Civil War expansion.

The Problem

Oscoda County is located in the northeastern quarter of Michigan's lower peninsula (Figure 1) and as is the case for most of the Upper Great Lakes region, is within the Canadian biotic province, a heavily glaciated region characterized by uneven topography, acidic, rather infertile soils, and a mixed deciduous-pine forest (Barnes and Wagner 1981; Cleland 1966; Fitting 1975). The Au Sable River, which flows west to east through the center of Oscoda County, was one of the major log transport routes of the late nineteenth century lumber boom. Eastern white pine (Pinus strobus) and red pine (P. resinosa) drew the lumber interests to the county, while the nearly treeless
Figure 1. Location of Oscoda County, Michigan.
"plains" attracted numerous settlers intent on using the Homestead Act of 1863 (U.S. Congress 1862a) as a means of gaining ownership to a farm.

While Oscoda County's pine timber was a source of wealth for lumber barons such as Henry M. Loud and sons, the accounts of the homesteaders in the county were of a constant struggle in a harsh, submarginal environment. Preliminary evidence indicated that there were marked differences between the location of timberlands versus homesteads in terms of soils and landforms. It seemed highly probable that the discrepancy between the fate of the lumber interests compared to that of the homesteaders could be the result of differences in the physical and sociocultural environments in which the two activities operated.

On the surface the Homestead Act of 1863 (U.S. Congress 1862a) was possibly the most progressive action taken by a state society for the benefit of its common citizens. The act allowed any citizen or prospective citizen, male or female, the ability to gain title to a maximum of 160 acres of public land in return for the labor of turning the "wilderness" into a productive farm. The purpose of the act was to promote settlement by small, independent farmers, who, according to the Jeffersonian ideal, were the backbone of a free and democratic society. Preventing the control of large tracts of land by speculators and absentee landlords, as was the case in Europe, was also considered necessary to the desired course of the American frontier. By 1880, during the peak of the lumbering and settlement boom in Oscoda County, the Homestead Act had become the most common
means of gaining title to public land for small farmers (Donaldson 1970; Gates 1968).

The evidence for Oscoda County, however, indicates that the goal of the Homestead Act's sponsors of dividing the landscape into 40 to 160 acre farms was not met. The Homestead Act was not the only active form of land legislation controlling the distribution and acquisition of the public domain. Since the passage of the first land laws in 1785:

Congress had piled land law upon land law . . . frequently without consideration how later legislation might affect earlier laws which were not repealed and yet might be quite out of harmony with the later ones. (Donaldson 1970:vi)

An inconsistent system of land legislation could well prevent any one law within the system from achieving the goals intended by its sponsors. The purpose of this study is to investigate the effects of an inconsistent and incongruous system of federal land legislation upon the original land use and ownership, and on the patterns of settlement and subsistence in Oscoda County, Michigan, during the post-Civil War era.

In order to accomplish this goal, a number of variables were considered. Chapter II presents these variables beginning with an outline of the development of federal land legislation, followed by the relationship between glacial landforms, soils, forest communities, climate, and the aspects of the Kirtland's Warbler's nesting requirements that define the unique nature of the environment of the Grayling sand outwash plains. The special character of frontier
expansion was also considered in terms of its effect on settlement and subsistence in Oscoda County.

Chapter III presents the analysis of several studies by historians and archaeologists that were concerned with patterns of settlement and subsistence in a frontier situation. The studies examined the nature of the interaction between sociocultural variables such as land laws or religious beliefs and elements present in the physical environment.

Chapter IV further defines the problem, presents a hypothesis and the research design and methodology used to test the hypothesis. Chapter V is a discussion of the results of the investigation and presents possible applications and gives directions for future research.

Description of the Study Area

As previously noted, the Au Sable River flowing west to east through the center of Oscoda County divides the county into two almost equal halves. The Huron National Forest under the management of the U.S. Forest Service is located primarily south of the river. The Au Sable State Forest under the management of the Michigan Department of Natural Resources is located north of the Au Sable. As mandated by federal law, the Forest Service is responsible for the location and protection of cultural resources located on federal land. The Forest Service also collects information on these cultural resources and maintains records that can be made available for research with the permission of the Forest Supervisor. The Michigan
Department of Natural Resources does not maintain records on cultural resources located on state forest lands. As a consequence, the area addressed by this study was limited to the southern half of Oscoda County located in Townships 25 North, Ranges 1, 2, 3, and 4 East, and to Townships 26 North, Ranges 1, 2, 3, and 4 East (Figure 2).
Figure 2. Study Area: Southern Oscoda County.
CHAPTER II

THE SOCIOCULTURAL AND PHYSICAL ENVIRONMENTS

Review of Federal Land Policy

Beginning with the Articles of Confederation, the federal government has had jurisdiction over the public domain and has enacted laws and policies to control the disposition of these lands. These land laws, which were the product of the culturally based beliefs and perceptions of the people who supported and legislated the laws, had a profound effect on the development of the American frontier and on the resulting patterns of land use, settlement, and subsistence. Knowledge of the provisions of the laws is essential to understanding their interaction with the local physical, biotic, and sociocultural environments and to the interpretation of the resulting settlement patterns and adaptive strategies observed in the archaeological and historic records of Oscoda County.

Central to the beliefs and perceptions of the legislators and supporters was the concept of individual land ownership complemented by emphasis on the individual and the individual's place in the sociocultural system. The earliest European settlers in the New World brought with them an essentially medieval world view in which the individual's identity was derived from being the member of a community (Deetz 1977; Jackson 1953). The pattern of settlement generated by this corporate world view was characterized by family homes and outbuildings clustered near a centrally placed meeting
house and commons, with the fields, pastures, and woodlots owned and used by the community surrounding the central concentration of people and buildings (Jackson 1953; Trewartha 1948).

Prior to the American Revolution, this corporate world view began to be replaced by a world view derived from the Renaissance. This world view placed emphasis on the individual who lived in an ordered and balanced world. Changes in the material culture of the people who lived in western Europe and eastern North America, including dishes, houses, and cuts of meat, all reflected this increased emphasis on the individual (Deetz 1977). The land legislation developed by the newly formed United States also reflected this emphasis on the individual and was expressed in the resulting settlement patterns and adaptive strategies.

The Ordinance of 1785, the first land division and acquisition policy developed after the American Revolution, required public lands to be surveyed before being offered for public sale. The survey itself was based on a balanced, geometric grid of townships, measuring six miles on a side (Donaldson 1970). Each township was to be subdivided into 36 sections, each one mile on a side. Tracts of not less than 640 acres or one section, could be selected from this gridded landscape and purchased at public sale for not less than $1 an acre (Dunbar 1970). This ordinance set the pattern for the subdivision and disposition of the western frontier and embodied the concept of individual choice and ownership of land.

The Act of April 24, 1820 (U.S. Congress 1841), set the format for all future cash purchases of public land. Designed to encourage
settlement in the frontier, the act set the price per acre at $1.25 for a minimum of 80 acres. Some time before 1850 the minimum unit of land was reduced to 40 acres (Donaldson 1970; Dunbar 1970).

Under this form of land division and acquisition, the prospective settler would build his home and other necessary structures on his purchased 40 or more acres. The nearest neighbor could be no closer than the adjacent 40 acres. The accepted form of settlement had become one of dispersed single families living on their privately owned farms. The occasional town served as the focus of local government, trade in goods and services, and information transfer (Jackson 1953; Trewartha 1948).

The Preemption Act of 1841 (U.S. Congress 1841) further confirmed this dispersed family farm pattern as the approved and accepted form of settlement in the United States. The act required the settler to live on the property and to make improvements in order to have a claim over others on the property and to be able to purchase the land at no more than $1.25 an acre (Donaldson 1970; Dunbar 1970).

The Homestead Act of 1863 (U.S. Congress 1862a) was the third major land policy development enacted by the United States. From Thomas Jefferson on, there were those who favored settlement on the frontier by small, independent farmers, and who argued that turning the wilderness into a productive farm was sufficient payment for the land (Gates 1968). As time passed it became clear that many could not afford even 40 acres at the modest rate of $1.25 an acre. In some areas such as Lake County, Michigan, "squatting" had become the preferred method of obtaining access to public land. "Squatters"
rights groups often successfully fought any other claims made on the land by arguing that it was their patriotic duty to prevent control of the frontier by large land owners (Donaldson 1970). The National Land Reform movement, through its eminent member, Horace Greeley, considered settlement on free lands to the west to be a cure for the evils of urban crowding, poverty, low wages, and unemployment. It was argued that homesteading would provide a "safety valve" for excess labor and marginal farmers in the east should conditions become intolerable (Gates 1968). Northern and western states with large tracts of unentered land supported homesteading as a way to encourage rapid growth and development. The major opposition to homesteading came from the southern states where the plantation system of growing a cash crop with cheap slave labor on large tracts of land was practiced. When the Homestead Act (U.S. Congress 1862a) was finally passed in 1862, the southern opposition had seceded from the Union (Donaldson 1970; Gates 1968).

The provisions of the Homestead Act (U.S. Congress 1862a) entitled any person, male or female, who was the head of a family or twenty-one, and who was a citizen of the United States, or had filed a declaration of intent to become a citizen, to enter up to 160 acres of public land. The homesteader had to establish and maintain a residence on the entered property and cultivate the land for five continuous years in order to receive title to the land (Bruchey 1972; Donaldson 1970). The Homestead Act (U.S. Congress 1862a) not only confirmed the perception that individual land ownership and the resulting settlement pattern of dispersed single families living on
their own parcel of land was good for both the individual and the nation; the Homestead Act (U.S. Congress 1862a) glorified this perception. In the first public land commission's report *The Public Domain*, published in 1883, the Homestead Act (U.S. Congress 1862a) was praised:

> It protects the Government, it fills the states with homes, it builds up communities, and lessens the chances of social and civil disorder by giving ownership of the soils in small tracts to the occupants thereof. It was copied from no other nation's system. It was originally and distinctively American, and remains a monument to its originators. (Donaldson 1970:350)

However perceived and praised, the Homestead Act (U.S. Congress 1862a) did not become the only means of gaining title to public lands as its supporters had desired. Previous means of gaining title including cash purchase, preemption, and military bounty land warrants for veterans all remained available while other forms of land distribution were legislated.

The same year the Homestead Act (U.S. Congress 1862a) was passed, major land grants to railroads and to states for the support of colleges of agricultural and "mechanic" arts were also enacted. Earlier legislation had already reserved the sixteenth section in every township for the support of schools (Donaldson 1970; Dunbar 1970; Gates 1968; Weisberger 1964a). Included in the donation of 140 million acres of public land for education through the Morrill Land Grant Act (Donaldson 1970; Gates 1968; U.S. Congress 1862b) was some of the most productive land in Oscoda County (Randall n.d.). In addition, one complete section and portions of others in the county were included in land grants to railroads (Register of Deeds n.d.).
The effect of this legislation was to close land to homesteading and
to limit the choices available to prospective settlers (Donaldson

The Physical and Biotic Environments of Oscoda County

Located in the Upper Great Lakes region, Oscoda County was
heavily glaciated and has the characteristic uneven landforms and
acidic, rather infertile soils formed during the late Wisconsinan
 glaciation (Burgis 1981; Cleland 1966). The glacial landforms in the
study area include the St. Helen and Mack Lake outwash plains, the
Polly plain, the Shotgun, Kneeland, and Boiling Springs outwash
channels, the Maltby and Coy kames, the West Branch moraine, and the
 glacial Au Sable River valley (Figure 3).

The climate of southern Oscoda County is described as a cool
temperate zone climate. However, on a year-to-year basis, the
climate is one of extremes. For example, the annual mean temperature
for the county is 44 °F (Barnes and Wagner 1981). But the record
high temperature for the entire state is 112 °F recorded at the
county seat of Mio in July 1936 (Mayfield 1960). On the other hand,
frosts between mid-June and mid-August are a frequent occurrence
(Barnes and Wagner 1981; Mayfield 1960; Ojala, personal communication
1987).

The annual precipitation for Oscoda County ranges between 27 and
30 inches a year. The area between the southeast corner of the Mack
Lake outwash plain and Mio receives an average of 27 inches a year
Figure 3. Glacial Landforms of Southern Oscoda County.
which is the lowest annual precipitation in the state (Barnes and Wagner 1981).

The physical events that create a glacial landform also determine to a large extent the type of soil formed. In addition, the interaction of climate, soil, and landform have a major role in determining the composition of the local biotic environment. As described by Barnes and Wagner (1981:38): "A forest community is a distinctive assemblage of plants and animals dominated by one or more tree species, living together in a common habitat."

For a clearer analysis of the discrepancies between timberlands and homesteads in southern Oscoda County, the soil groups developed by Mang in 1982 from the original soil survey by Veatch, Schoenmann, Millar, and Shearin in 1931, and the land type associations (LTA) developed by the U.S. Forest Service were grouped into categories of similar characteristics.

The first category of the soil groups includes the excessively drained Grayling sands, groups A1 and A2. The second category is composed of the somewhat excessively drained Roselawn and Rubicon sands, soil groups B1 and B1-s. Soil groups B2-t, C1, C2, C8, and C12, well drained silt and sand loams form the third category. The fourth category includes the well to somewhat poorly drained loamy and clayey soil groups E2, E5, and E9. The fifth category is composed of the poorly drained mineral soils, F2, and the very poorly drained organic soils, G1 and G2 (Table 1).

The first category of the land type associations includes the various types of outwash sand plains, zones 1, 2, 3, 4, and 5. Dry
Table 1
Soil Categories for Oscoda County

<table>
<thead>
<tr>
<th>Soil Group Symbol</th>
<th>Category Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1, A2</td>
<td>Excessively drained sandy soils: Grayling sand</td>
</tr>
<tr>
<td>B1, B1-s</td>
<td>Somewhat excessively drained sandy soils included subirrigated phase: Roselawn/Rubicon sands</td>
</tr>
<tr>
<td>B2-t, C1, C2, C8, C12</td>
<td>Well drained silt and sand loams</td>
</tr>
<tr>
<td>E2, E5, E9</td>
<td>Well to somewhat poorly drained loamy and clayey soils</td>
</tr>
<tr>
<td>F2, G1, G2</td>
<td>Poorly drained mineral soils</td>
</tr>
<tr>
<td></td>
<td>Very poorly drained organic soils</td>
</tr>
</tbody>
</table>


sand hills, zones 7 and 8, form the second category. The third category combines zone 6, outwash sand plains over till or lake deposits, with those for morainal hills, zones 9, 10, 11, and 12. Zone 13, wet sand plains, and zone 14, organics and alluvials in stream valleys and plains, form the fourth category. The fifth category is made up of zone 15, clayey hills, and zone 16, clayey plains (Table 2).

The Saint Helen and Mack Lake outwash plains, the Shotgun outwash channel, and the southern portions of the Kneeland and Boiling Springs outwash systems all have the characteristic droughty, acidic, sandy soils found on outwash features as a main component. These
Table 2
Land Type Association Categories for Oscoda County

<table>
<thead>
<tr>
<th>LTA Zone</th>
<th>Category Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2, 3, 4, 5</td>
<td>Outwash sand plains</td>
</tr>
<tr>
<td>7, 8</td>
<td>Dry sand hills</td>
</tr>
<tr>
<td>6</td>
<td>Outwash sand plains over till or lake deposits</td>
</tr>
<tr>
<td>9, 10, 11, 12</td>
<td>Morainal hills</td>
</tr>
<tr>
<td>13, 14</td>
<td>Wet sand plains and organics and alluvials</td>
</tr>
<tr>
<td>15, 16</td>
<td>Clayey hills and plains</td>
</tr>
</tbody>
</table>

Note. From Huron-Manistee National Forests, Land Type Associations, n.d.

soils represented by the soil categories for Grayling and Roselawn/Rubicon sands range between excessively drained to somewhat excessively drained. Water percolates rapidly through these porous soils, resulting in little moisture holding capacity (Barnes and Wagner 1981; Mayfield 1960). The deep tap roots of jack pine (*Pinus banksiana*) and red pine (*P. resinosa*) and their widespread lateral root system maximizes water collection, while their thick needles minimize water loss. These features make jack pine and red pine especially suited to the Grayling and Roselawn/Rubicon sand soil categories and make them the dominant species on the outwash sand plains (Barnes and Wagner 1981). Jack pine and red pine make up the pine community which also includes eastern white pine (*P. strobus*) and smaller numbers of jack or northern pin oak (*Quercus ellipsoidalis*), white
oak (*Q. alba*), scarlet oak (*Q. coccinea*), and quaking aspen (*Populus tremuloidea*). The species that make up the pine community also have some resistance to fire, a frequent event on these outwash sand plains (Barnes and Wagner 1981; Mayfield 1960).

The West Branch moraine and the Maltby kames are part of a massive morainal system that dominates the south central and eastern portions of Oscoda County, while the Coy kamic ridges are located on the west side of the county (Figure 3). These landforms are a combination of dry sand hills, morainal hills, and clayey hills and plains. On the dry sand hills the soil category for Roselawn/Rubicon sands is dominant. The Roselawn and Rubicon sands are a bit more fertile than Grayling sand and have a better moisture holding capacity. As a consequence, the pine community growing on the Roselawn/Rubicon sands is less dominated by jack pine and the vegetation in general is larger, more healthy, and more varied. In areas where Roselawn sand has a clay lens beneath it, species more typical of the northern hardwoods community such as red maple (*Acer rubrum*), balsam fir (*Abies balsamea*), and bigtooth aspen (*P. grandidentata*) begin to grade into the pine community (Barnes and Wagner 1981; U.S. Survey 1838; Veatch et al. 1931).

The areas of the West Branch moraine and Maltby kames located in the south central and southeastern portions of the county are dominated by morainal hills and clayey hills and plains that have a mosaic of brown sandy and clayey till soils (Burgis 1981). Included in this mosaic are the soil categories for well drained silt and sand loams, the well to somewhat poorly drained loamy and clayey soils,
and some poorly drained mineral soils. In general jack pine is far less prevalent, while white pine and red pine sought by the nineteenth century lumber interests are more dominant as members of the northern hardwood, spruce-fir and northern deciduous-conifer swamp communities found on these soils (Barnes and Wagner 1981; U.S. Survey 1838; Veatch et al. 1931).

The category for poorly drained mineral soils and very poorly drained organic soils is located primarily next to streams and the Au Sable River on the LTA category for wet sand plains and organics and alluvials. Depending on soil and water conditions, species such as northern white cedar (Thuja occidentalis), black spruce (Picea mariana), white spruce (Picea glauca), white birch (Betula papyrifera), tamarack (Larix laricina), and white pine are included in the northern deciduous-conifer swamp, spruce-fir, and conifer bog-swamp communities (Barnes and Wagner 1981; U.S. Survey 1838).

As the above association of landforms and soil groups to forest communities demonstrates, a fair portion of the presettlement forest in southern Oscoda County was a mixture of conifers, especially white and red pine, and northern hardwoods. No one species dominated the landscape, with one important exception. On the outwash plains and channels where Grayling sand is the predominant soil type, jack pine far outnumbers the scattered red and white pines and the dry site oaks.

Jack pine, a hardy pioneer species, ranges across the northern United States and a large portion of Canada. Yet the Kirtland's Warbler (Dendroica kirtlandii) nests only on the "jack pine plains"
of north central Michigan (Mayfield 1960; Mohlenbrock 1989). It is the specialized nesting requirements of the "Jack pine bird" that define the unique characteristics of these outwash sand plains.

The major concentration of the Kirtland's Warbler is in the Au Sable River drainage in Crawford, Roscommon, Montmorency, and Oscoda counties (Mayfield 1960; Mohlenbrock 1989). As noted earlier, the area has cool summers with a short 96 to 100 day growing season that can be punctuated by extremes of high and low temperatures, while winter provides the long period of snow cover preferred by jack pine (Mayfield 1960; Zimmerman 1956).

The predominant soil of the outwash plains in the Au Sable River drainage is Grayling sand: a porous, acidic sandy soil that lacks organic matter, phosphoric acid, and potash and has, when present, a humus layer only 2 to 4 cm thick (Mayfield 1960; Veatch et al. 1931). Grayling sand is loose and porous to a depth of 60 cm and has such poor moisture holding capacity that the nests of the Kirtland's Warbler, which are indented into the soil on a level surface, are in little danger of flooding even during a summer rain storm (Mayfield 1960). This low moisture holding capacity of the soil, in combination with the lowest annual precipitation in the state, creates an exceptionally dry habitat. As noted by Barnes and Wagner (1981:25): "Under presettlement forest conditions, competition for light, soil moisture, and nutrients was keen." For certain trees this meant severe restriction to extreme sites. Competition on the moister, more fertile sites restricts jack pine to the "driest, most infertile sandy soils."
The Kirtland's Warbler relies on the lower, needle-covered branches of *Pinus banksiana* to blend with the 30 to 60 cm tall ground cover of grasses, sedges, and small shrubs to provide protective cover for the ground level nest. Since the lower branches of jack pine die off when shaded, the preferred type of protective cover is usually limited to stands of 6- to 20-year-old trees. A constant supply of large tracts of young jack pine is essential to the survival of the Kirtland's Warbler. Since *Pinus banksiana* is shade-intolerant, some form of "clear-cutting" is necessary. Frequent, widespread fires serve this function. The excessively dry jack pine plains allow wild fires to start and continue unimpeded by swamps, or moister, more fire resistant hardwoods. Further evidence that widespread fires were a frequent occurrence on the Grayling sand outwash plains even during prehistoric times is supplied by the fact that jack pine is the only tree species in northern lower Michigan that is dependent on fire for large scale, successful regeneration. The seeds of jack pine are enclosed in tight, resinous jackets that require the intense heat of fire to open the cones and release the seeds. At the same time, fire reduces competition from other plants such as red and white pine because these species lack the ability of jack pine to survive fire, and red and white pine are not successful at regeneration in soil as infertile and dry as Grayling sand (Barnes and Wagner 1981; Mayfield 1960).

Evidence of the unique and extreme environment of the jack pine plains is further supplied by the descriptions of the ground cover made by botanists who explored the area in the 1880s. While all too
often abounding in hyperbole, moments of truth occur as when Bailey notes: "For the most part, these plants are such as delight in the poorest sands" (Zimmerman 1956:188). Among the most common species observed were such acid-loving, drought-resistant plants as bird's foot violet (Viola pedata), bearberry (Arctostaphlos uva-ursi), trailing arbutus (Epigaea repens), hoary and hairy puccoon (Lithospermum canescens and croceum), harebell (Campanula rotundifolia), and low bush blueberry (Vaccinium spp.). Of particular note is sweet fern (Comptonia peregrina), which was described by Zimmerman as being one of the few species that could survive fire and of being "perfectly capable of germinating and colonizing in sand apparently devoid of any organic matter" (Zimmerman 1956:116). Reindeer lichen (Cladonia rangiferina) is another species that can survive fire that is commonly found on the Grayling sand outwash plains (Zimmerman 1956). Reindeer lichen can absorb necessary nutrients and moisture from the atmosphere and is capable of surviving where nothing else can (Crum 1989).

Frontier Oscoda County

Movement by a group of people into a new territory has been a frequent event throughout human existence. The post-Civil War expansion into the North American frontier was remarkable for the large area and the number of people involved. As part of this frontier, Oscoda County was subject to certain features characteristic of most frontiers. These features involve the relationship of the frontier to the expanding sociocultural system, the responses
made by the intrusive group to the new environment, and the effect of settlement and exploitation of the frontier environment.

Expansion into new territory is frequently for the purpose of drawing the frontier into the socioeconomic domain of the expanding sociocultural system (Clark 1972; Lewis 1984). The rich timber resources of northern Michigan were seen as a potential source of wealth that could be realized through their exploitation. Speculators and lumbermen often acquired title to the timberlands at less than the official minimum of $1.25 an acre through such means as discounts given to purchasers of large tracts of public land (Opie 1987) and assignments of Military Bounty Land Warrants for veterans and widows of the War of 1812 (Donaldson 1970). The difference between the cost of the land and the market value of the timber on the land made for a tidy profit for the lumberman (Dunbar 1970).

Permanent settlement in northern Michigan by farmers was perceived as a means of changing the peripheral status of the area to that of a developed region with increased business and tax revenues, a larger labor force, wealth realized from the sale of cut-over lands, and increased access to the "amenities of civilization." To this end, the state and local governments, lumber interests, railroads, and local boosters engaged in a campaign to attract settlers to northern Michigan. Demonstration farms, newspaper and magazine articles, exhibits, and lectures were used to extol the agricultural potential of the area (Fitzmaurice 1889; Miller 1965; Richardson 1976; Schmaltz 1983; Titus 1949). Details, such as high water table, use of large amounts of fertilizer, or tall corn stalks brought into
the area and placed on a snow-covered pine plain to appear as if the corn had grown there, were not mentioned (Schmaltz 1983; Titus 1949).

The physical and biotic environments of northern Michigan and Oscoda County, in particular, were significantly different from those of the settlers' homelands, requiring rapid changes in the adaptive strategies of the homesteaders. A common characteristic of these changes in response to a frontier environment is the process of simplification or cultural impoverishment of the social, economic, and political subsystems of the expanding sociocultural system (Clark 1972; Lewis 1984; Osborne 1977). In turn, the subsistence strategies of the settlers become more generalized and a form of the "most prudent' or minimax strategy, which minimizes the maximum risk, ensuring the best of the nonoptimal outcomes" (Butzer 1982:286) is employed.

Having gone from a population of zero in 1860 to 467 in 1880 (Andriot 1983), Oscoda County was organized as a political and geographical entity in March 1881 (Au Sable River Valley Historical Society 1979a; Stutesman 1984). The organization of the county into townships began immediately, and the first election of county officials was in the general election of 1882 (Au Sable River Valley Historical Society 1979a; Randall n.d.; Stutesman 1984). Over time the number and size of townships has varied with the movements of population and the general economic welfare of the county, but the level of political organization has never gone beyond that of county and township (Au Sable River Valley Historical Society 1979b).
Money was scarce in Oscoda County during the nineteenth century lumbering and homesteading boom. Oscoda County was not alone, however, as this problem existed throughout much of the United States at that time. One major factor in the scarce money situation was the problem caused by the greenback being declared unconstitutional and being withdrawn from circulation (Weisberger 1964a, 1964b). With money scarce, barter was an important means of exchange in the county (Kahn 1985; Klimmek 1979, 1989).

The most obvious sign of cultural impoverishment and rapid adaptation was in the original shelters and later houses built by the homesteaders. For example, the seven members of the Hollowell family lived in a structure made of poles that supported a rough board roof and had blankets for walls. They lived in this make-shift "shanty" for several months until a cabin was built (Brunt 1988). The Miles Colvin family dug their first shelter on their homestead into the side of a hill and placed trees around the entrance for shelter (Zimowske 1986).

The permanent houses of the homesteaders were still quite primitive compared to houses in more developed areas of the same time period. Many Oscoda County homesteaders lived in small, hand-hewn log cabins chinked with cedar strappings, or in rough-hewn board houses that, without building paper at least on the outside, let in snow in the winter and biting insects in the summer (Brunt 1988; G. Cripps 1987; Detweiler n.d.; Fockler 1984; Foley 1988b, 1988c; Yoder 1987). A barn to shelter livestock and store farm implements, and a root cellar in which to store food to protect it from freezing,
spoilage, and pests were the two other structures required by the homesteaders' basic adaptive strategy (Brunt 1988; G. Cripps 1987; Detweiler n.d.; Erwin 1987; Klimmek 1989; Richardson 1976, 1989).

A number of crops and various types of livestock were raised by homesteaders in an attempt to determine the most productive means of adaptation to the jack pine plains. "Shifting from this to that became general. If corn wouldn't do, they tried barley. If potatoes couldn't grow, they tried something else" (Titus 1949:7).

Local resources also figured in the homesteaders' minimax strategy. Game such as bear and rabbits, fish, and wild berries provided food and were sold downstate for cash along with ice and furs (Deyarmond 1985; Erwin 1987; Klimmek 1989; Miller 1965; Richardson 1976, 1989; Vachon 1973). These wild resources were so important to the homesteaders' adaptive strategy that the homesteaders of the jack pine plains were often referred to as "berry pickers" (Nelson, personal communication 1987).

Under the best of circumstances, it takes several years before a farm becomes productive, if ever. Botanist Beal, after studying the problem of farming on the Grayling sand outwash plains concluded that "if the poor homesteader has to depend on what he can dig out of the soil and has no other business to help him, the plains are no place for him" (Titus 1949:8).

Many of Oscoda County's homesteaders were unable to make any sort of living by farming and supplemented or supplied their income through a variety of trades and forms of employment. Throughout the 1880s and into the 1890s, lumbering and the associated railroads and
mills provided employment for the homesteaders. The actual lumbering was limited to men and older boys (Allen 1988a, 1988b; Brunt 1988; Fockler 1984; Foley 1987; Randall 1984; Richardson 1976; Vachon 1973; Yoder 1986, 1987). Many female homesteaders worked in the camps as cooks or took in the shanty boys' laundry (Allen 1988b; G. Cripps 1987; Yoder 1986, 1987).

Other homesteaders worked at trades or small businesses. For example, Union Corners, the first county seat, had a shoe shop, a hotel, a store, a saw mill, and a combination pharmacy and newspaper, all owned and operated by homesteaders. Mack City, a community of homesteaders surrounding Mack Lake, included a store and post office, a blacksmith shop, and a wagon works (Pierce n.d.). Luzerne had a store, a grange hall, a post office, and a grist and saw mill built on the East Branch of Big Creek by homesteader Albert Royce. The postmaster of Luzerne, Myron Hagaman, who had his own homestead nearby, worked for Royce at the mill as the miller (Yoder 1985).

Postmaster, teacher, and county or township official were other ways in which Oscoda County homesteaders increased their chances for success, or at least, not such dismal failure, by earning money to supplement the subsistence gained from other sources. Another controversial subsistence strategy used by some homesteaders was through public relief for those who had lost home and possessions in the fires of 1871. That this was still a subject of concern some ten years later is evident in an article written in the November 18, 1881, issue of the *Northern Mail*, Oscoda County's first newspaper:
The relief question is a puzzling one at best. The writer is well acquainted in the burned district, was there during the fire of '71, and knows whereof he speaks when he ventures the assertion that the aid already extended to nearly one-half of the sufferers is probably in excess of their loss, and that many will not make a single effort to support themselves until the relief committees kick them out. This state of things is of course much better than that the many deserving ones should suffer, but it falls heavily on the businessmen in the burnt district who in addition to finding themselves unable to collect bills, see their trade supplanted by the relief stores in handing out goods free to hundreds of shiftless lying reprobates who deceive the committees by making false affidavits. (Randall n.p.)

Survival alone was difficult for many northern Michigan homesteaders and recovery from losing everything to fire must have been unusually difficult. Smaller, but deadly fires, particularly on the fire-prone jack pine plains, continued to rage across northern Michigan, destroying homes, crops, livestock, and entire towns, and leaving destitute victims to replace those who had left the relief roles (Brunt 1988; Foley 1988b; Kulberg 1986; "Metz Fire" 1987).

The lumber boom began to slow down, along with the rest of the nation's economy, in the early 1890s (Bentley 1893; Weisberger 1964a). As the lumber firms left the county, so did many of the homesteaders (Brunt 1988; Foley 1988c; Randall 1984). Tax delinquent homesteads and cut-over lands became such a problem that Michigan in 1893 enacted legislation to deal with the situation (Alilunas 1942; Titus 1949).

Unfortunately, the effects of expansion into a frontier are usually damaging to the region's ecosystem. Under the conditions of general economic uncertainty typical on the frontier, both homesteaders and lumber interests were engaged in the use of
"destructive, quick-return strategies" (Lewis 1984:12). The lumber barons were concerned with making the maximum profit in the shortest amount of time. There was no thought of reforestation because the plow was to follow the axe, and there were still profits to be made from the sale of cut-over lands (Alilunas 1942; Schmaltz 1983; Titus 1949).

Agricultural expansion, from the Neolithic on, has been perceived as achieving success through fundamental alteration and simplification of the frontier's ecosystem (Butzer 1982). Or, as was the expressed intent of the Homestead Act (U.S. Congress 1862a), turning the wilderness into a "productive" farm (Donaldson 1970; Gates 1968). Imposition of a culturally approved landscape upon an unsuitable environment can cause the entire ecosystem to become fragile and unpredictable and leads to soil depletion and erosion (Butzer 1982). Oscoda County, as did many other counties in northern lower Michigan, experienced large population shifts and losses as settlers suffered repeated crop failures (Andriot 1983; Randall 1984; Schmaltz 1983; Titus 1949). Soil depletion and deforestation led to many sand blow-outs devoid of vegetation and subject to wind and water erosion (Schmaltz 1983). One area in southern Oscoda County, and another in adjacent Iosco County, were so extensive and barren that Civilian Conservation Corps enrollees during the 1930s called the area the Big Sandy and Gobi deserts (Huron-Manistee Historic Records n.d.). About the only species to benefit from the changes in the ecosystem were the low bush blueberry and the Kirtland's Warbler (Klimmek 1989; Mayfield 1960; Mohlenbrock 1989).
The previous discussion presented a synopsis of the legal, physical, biotic, and cultural environmental variables that through their interaction significantly shaped the patterns of settlement and subsistence and of original land use in southern Oscoda County during the post-Civil War era. In order to determine the degree and extent of these patterns, a more detailed analysis of the relationship of land laws to the natural environment will be undertaken following a review of the literature. A sample of one-quarter sections will be analyzed in terms of soils, land type associations, date of entry, and probable use. The degree of cultural impoverishment and other factors that affected the range of available subsistence strategies will be considered through comparison of the written and oral historical records and the archaeological record which includes 28 recorded homestead sites on national forest land in Oscoda County.
CHAPTER III

REVIEW OF THE SELECTED LITERATURE

The interrelationship between human sociocultural systems and the physical and biotic environments, especially expressed as patterns of settlement and subsistence, have been major research concerns for archaeologists for some time. The earliest regional investigation of settlement systems was Willey's, 1953, *Prehistoric Settlement Patterns in the Virú Valley, Peru* (Willey and Sabloff 1980). The arrangement of buildings within a community and the pattern of communities across the landscape, according to Willey (Willey and Sabloff 1980:146-147), are a reflection of the interaction between the natural environment and the subsystems of technology and social interaction and control. Willey's diachronic investigation of settlement pattern related the spatial and temporal aspects of communities with geographical environment, population growth, warfare, interaction with communities in adjacent valleys, subsistence, and the changes caused by the development of irrigation (Lanning 1967:21).

Clark's, 1972, "The Economic Approach to Prehistory" set forth the argument that human economic activities, especially subsistence, utilized natural resources within the context of a given "social inheritance" and were the result of the interaction between culture and the natural environment. He further considered subsistence to be the "most vital aspect of economic life" (Clark 1972:64), and
included the methods used to acquire food. In an approach similar to that used by Willey, in which settlement patterns were a means to understanding the rest of the sociocultural system, Clark (1972:65) stated that "a knowledge of the methods by which early man maintained life is essential to an understanding both of individual cultures and of the process of change unfolded in prehistory." He also emphasized that social choice played an important role in the process of change. While choice may be limited by factors present in the physical environment, choice is still present "and no living organism or association of such can exist unless by coming to terms with the extraneous factors which condition . . . all forms of life" (Clark 1972:65).

Both Clark and Willey considered archaeology to be especially well suited to the recovery and interpretation of the physical remains of settlement systems and subsistence strategies. Their emphasis was on culture being the means of "harmonizing social needs and aspirations with the realities of the physical world" (Clark 1972:64) through the interaction of culture with the natural environment (Clark 1972; Lanning 1967; Willey and Sabloff 1980). Studies such as Clark's and Willey's set the precedent for future archaeological research. When archaeologists began to extend their research interests to historic sites, the concern for investigation of settlement patterns and subsistence strategies within an ecological context were also extended.

One particularly ambitious investigation of settlement and subsistence within a historic context was "Change on the Land: Hill Farms in New Hampshire" by Waldbauer in 1983. The project involved a
regional analysis of the relationship between changes in land use and rural lifeways within the environment of the White Mountains. Documentary, environmental, and archaeological data from 130 farms originally settled during the second quarter of the nineteenth century were used to provide information on agricultural production, social activity, land use, and intrasite patterning.

The mountainous environment dictated a linear settlement pattern of farms that followed the roads leading from the seacoast to the interior. The archaeological record for these farms established a need for extensive cooperative labor as an important part of the adaptive strategy.

Depending on landforms, topography, and soils, the available microterrains were used for gardens, fields, orchards, or forage. Evidence from the archaeological record indicated that field stones and soil were used to form and extend some areas. In addition, cellars and foundations were often chiseled from rock or hardpan. Clusters of households whose members were related by consanguineal and affinal kinship ties provided a source of cooperative labor required by such extensive efforts.

Waldbauer followed the line of thought set by Willey and Clark and argued that the settlement pattern underscored the interrelationship between the sociocultural system and the physical environment. Changes in the larger sociocultural context are considered by Waldbauer to have led to the abandonment of the hill farms. The increasing importance of large-scale commercial, specialized agriculture and the movement of local industries closer to major markets

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disrupted the subsistence strategies of the hill farmers, making it necessary for them to leave the area (Waldbauer 1983).

Another interesting historic example of the interrelationship between settlement pattern, subsistence strategy, and environment is Leone's (1978) "Archaeology as the Science of Technology: Mormon Town Plans and Fences." As described by Leone (1978), technology was the primary sociocultural subsystem that articulated religious beliefs with the Great Basin environment. He attributed the success of the Mormons in this harsh, submarginal environment to the settlement pattern generated by Prophet Joseph Smith's "Plat of the City of Zion" (Leone 1978:195).

The Mormon leadership rejected the American settlement pattern required by several land laws, including the Homestead Act (U.S. Congress 1862a), of dispersed single families living on their individual farms. Instead, the leadership advised the Mormons to gather together in villages in order to maintain regular church attendance and active membership in church-related societies, as well as education and government. Protection from ill-intentioned outsiders and access to help from cooperative efforts were also used to argue for localized settlement in towns. Localized settlement, with a closer proximity of the church's members, also facilitated public sanction of behavior, thus maintaining the social order.

The second major aspect of the Plat of the City of Zion was the reflection of the Mormon ideal of equal distribution and access to available resources. In order to meet this ideal, land inside and outside the town was subdivided into equal geometric units which was
similar to the American geometric subdivision of the public domain into townships and sections. A geometric grid with equal-sized squares, as described by Leone (1978:197), was:

A technological device for subdividing space . . . [that] facilitated and helped to realize the social and religious goals he was after. There is a nonarbitrary connection between equal-sized pieces of space available to farmers and egalitarianism.

To further ensure equality, the various lots were drawn from a hat to allow equal access to all parcels by all participants, as opposed to the American system of individual choice based on a "first come-first served" approach.

Within the Plat of the City of Zion, fences were used to define the boundaries of the niches created and imposed upon the landscape as well as provide protection from livestock, wildlife, and other aspects of the environment. Social and ideological organization were also met by the use of fences:

Fences provided the visible distinction between individual property holdings. . . . In a town where the social structure was based on equal property and close cooperation, and where order was maintained through everybody knowing everybody else's business, fences drew the literal line between closeness and privacy. (Leone 1978:198)

As with other agrarian intrusive groups in a new environment, the Mormons imposed a culturally defined landscape upon the pre-existing environment. Raising a garden behind a fence for a Mormon was a way of showing that a portion of the earth had been "subdued" and "redeemed" creating "a semblance of the divine. . . . Fences are valuable because of what they preserve behind them. What they
preserve in addition to a subsistence base is a man's right to a place in the Kingdom of God" (Leone 1978:198-199).

The Mormon's Plat of the City of Zion produced a settlement pattern that was significantly different from that produced through federal land laws, even though both systems imposed a geometric grid of equal-sized squares upon the landscape prior to distribution of the land, both espoused private land ownership, and both systems included a concept of individual equality in their ideologies.

Historians have also investigated the interrelationship between land laws and policies, settlement patterns, and subsistence. Opie, in The Law of the Land (1987), traced the development of land legislation and policy in the United States and its effect on the western family farmer. He argued that the great American tradition of "unrestrained ownership of private property for personal profit" in combination with the "checkerboard land pattern so agreeably laid out over the public domain since 1785" was, in fact, not the ideal means of securing land ownership as it often has been portrayed. If anything, continued Opie (1987:xi), there is evidence that the policy originally set out by the Land Ordinance of 1785 mismanaged the nation's primary resource.

Opie attributed the concept of unrestrained private ownership of land being equated with personal freedom to English Enlightenment philosophers Harrington and Locke. The founders of the government of the United States, such as Jefferson, agreed with Locke in contending "the right to property was first of all a right to subsistence. All people rightfully had access to land and its fruits so they might not
starve" (Opie 1987:28-29). Life, liberty, and the pursuit of happi­ness for both Locke and Jefferson were equated with the "enjoyment of property." People without land were "dependent, servile, and pos­sessed by others; their condition was terrible, . . . Landowners became free as they became independent of others for food and other benefits of land" (Opie 1987:28-29).

As a consequence, according to Opie, the availability of land for everyone, for both subsistence and profit, has been a primary concern in the formation of land policy in the United States. Perceiving land ownership as both an inalienable right and as a negotiable commodity has created a basic conflict in American land policy, one in which monied interests were often favored over any commitment to the small, independent farmer, or equality. It is this conflict that Opie considers to have played a major role in the problems experienced by farmers in the United States.

Opie (1987:58) also argued that if the division of land had not been based upon a geometric grid, and if only farmers had been allowed to own land, the landscape of the United States would have become a "patchwork quilt of farm lands of irregular shapes, scat­tered amid the Wilderness."

Unfortunately, Opie's arguments are weakened by a lack of cross-cultural perspective and a tendency to be too general. For example, he even mentioned the Mormons, but apparently was not aware of their system of private land ownership and use of a geometric grid to assure both equality in property holdings, access to water, and as a means of cooperative labor. Opie's hypothesized settlement pattern
also failed to take into account the fact that the population of the United States, even without the addition of millions of immigrants, would have pushed into marginal and eventually submarginal lands in an attempt to avoid a subsistence crisis, a situation well supported by evidence in the archaeological and historical records (Clark 1972).

"Frontier Settlement in Eastern Ontario in the Nineteenth Century: A Study in Changing Perceptions of Land and Opportunity" by Osborne (1977) and "Nineteenth-Century Land Use and Settlement on the Canadian Shield Frontier" by Wall (1977) are two historical studies of early settlement policies and changes in perception of the environment as it pertained to the suitability of the Canadian Shield for agrarian settlement. They also noted the competition between homesteading and lumbering as a result of government land use policy.

Osborne's study focused on the progress of settlement and development as it was affected by decisions made at national, local, and individual levels. In turn, he noted the changes in descriptions of shield lands as a function of varying interests and the effect of these descriptions on the pattern of patented lands and population density.

Wall's investigation followed the progress of various government attempts to develop the Muskoka region of eastern Ontario. Like Osborne, Wall also looked at changes in the evaluations of shield lands and changes in government land use policy.

Both Osborne and Wall mentioned that the Canadian Shield lands were originally closed to settlement and were reserved for lumbering
and mineral exploitation. Both mentioned that the original surveys of the Canadian Shield described the land as "exceeding bad, being a constant succession of stony Ledges and sunken Swamps altogether unfit for Cultivation" (Osborne 1977:209). At that time the primary interest of the Canadian and Imperial British governments was to encourage settlement along the United States-Canadian border and not the interior.

Competition between the United States and Canada for settlers and immigrants increased steadily over time with Canada even responding to the passage of the Homestead Act (U.S. Congress 1862a) of 1863 by the United States with its own Free Grants and Homesteads Act in 1868. At the same time more and more of the Shield lands were opened for settlement. Descriptions of the environment of these lands changed from the addition of pockets of land suitable for agriculture surrounded by rocky land and impassable swamps (Osborne 1977:214) to glowing reports that through the magic of enthusiasm described much of the Shield lands as "the finest land in Central Canada" (Osborne 1977:218). Unfortunately for the homesteaders, the real environment of the Canadian Shield began to demonstrate the excesses of the area's promoters. At the same time, the realities of nineteenth century cut-and-run lumbering prevented any long-term symbiotic relationship developing between lumbering and farming. The lumber interests left the region, taking with them the Shield land settlers' markets for their produce and cash employment. Unable to make a living, the homesteaders also left.
Both Osborne and Wall attribute the eventual failure of settlement on the Canadian Shield in eastern Ontario to inaccurate descriptions of the environment which were a poor and biased source of information for prospective settlers. In addition, Canadian land use policy created conflict instead of cooperation between homesteaders and lumber interests, further increasing the burden for the homesteader and, thus, increasing the probability of failure.

Both archaeologists and historians in the articles read here placed emphasis on the role of the environment as it affects the course of settlement of a region. In general, historians placed more emphasis on the development of land laws and policies and related success or failure to perceptions of the environment. The historians also placed more emphasis on the effect of vested interests on the development of land laws and on interpretations of the environment.

Archaeologists, however, have investigated the relationship of settlement pattern and subsistence to the environment both in terms of regional and intrasite placement of habitation and work sites on the landscape. The effect of cultural variables such as transportation routes, land tenure, and religious beliefs were also considered.

Both the historical and archaeological investigations tended to be general in scope with little detailed analysis of environmental variables. Land ownership records, except for the date of patent, were generally not used by either historians or archaeologists. Quantification of data was limited to date of patent and percentages of rate of failure. Only Osborne's study (1977) used maps showing the progress of settlement and population densities.
It would seem that an increased and expanded use of documentary data such as land ownership records would allow a more complete interpretation of the archaeological record for both specific sites and for regional analysis of settlement patterns.
CHAPTER IV

DESIGN AND METHODOLOGY

The emphasis of this study is on the interaction of federal land legislation regarding the acquisition of public land with other variables of the sociocultural and physical environments, and the effect of this interaction of patterns of settlement and subsistence in Oscoda County during the post-Civil War era. An inconsistent and incongruous system of land legislation is considered to have had a major influence in creating the temporal and spatial variation observed between timberlands and homesteads in the county.

In Chapter II, the development of federal land legislation, the relationship between glacial landforms, soils, forest communities, climate, and the unique aspects of the Grayling sand outwash plains were presented. The effect of being part of an expanding frontier on settlement and subsistence in Oscoda County was also considered.

Several studies discussed in Chapter III were considered with the interaction of land laws with the physical environment and other sociocultural factors in terms of the development of settlement in a region. The studies by historians tended to place emphasis on documentary evidence and the influence of monied interests on the development of government land policy, and on the information made available to prospective settlers. In contrast, the studies by archaeologists were concerned with the interrelationship between a sociocultural system and its social and physical environments, and
the effect of this interrelationship on settlement patterns and subsistence strategies. Both the studies by the archaeologists and the historians, however, tended to be general in scope with little quantification of results.

It is the intent of this investigation to more thoroughly examine and quantify the extent to which patterns of settlement and subsistence were affected by the interaction of public land laws with other aspects of the nineteenth century sociocultural system of the United States and with the biotic and physical environments of southern Oscoda County. Documentary evidence such as deeds, chattel and land mortgages, township tax records, articles from the county's first newspaper, and written and oral historic accounts, along with the archaeological data from nineteenth century homestead sites will be used in establishing the post-Civil War patterns of settlement and subsistence in the study area.

Data Collection

Three levels of data collection and analysis were used in this study. The first level of data collection included all of the study area and concentrated on obtaining information on the location, date of entry, and probable original land use. This information was then evaluated according to soil and land type association categories.

At the second level of data collection and analysis, the primary concern was to conduct a more detailed analysis of the relationship between landforms, soil groups, land use, and date of entry. In order to accomplish this goal a stratified random sample was drawn
from the study area. Because the perception of land division and the 
operation of land acquisition for both lumber interests and home­
steaders was based upon the geometric grid of townships and sections 
created by the Land Ordinance of 1785, each township was designated 
as a stratum and quarter sections were the units of the population 
from which the sample was drawn. In order to meet the requirements 
of a 0.01 level of significance, a sample of 26 quarter sections was 
drawn from each township. Section 16, the school section, was 
eliminated from each township prior to drawing the sample because it 
had been reserved for funding schools in the township before the 
first government survey and had never been open to homesteading.

The cultural resource inventories for 28 recorded homestead 
sites in southern Oscoda County provided the third level of data 
collection and analysis (Huron-Manistee Cultural Resources n.d.). 
The archaeological record from these sites provided a control on the 
historical record (Deetz 1977). These sites were all located as a 
consequence of Forest Service activities and, thus, are limited to 
national forest land and are not a random or representative sample of 
the possible homestead sites in the study area.

Land ownership records, in particular the government tract book, 
available at the Register of Deeds Office in the Oscoda County 
Courthouse, Mio, Michigan, were used to provide information on the 
original land entries in southern Oscoda County. The government 
tract book is divided into townships and lists by quarter, quarter 
section, the date of entry; the instrument used to acquire the
property; the name of the purchaser, assignee, or homesteader; and for a homestead, the date the claim was patented or canceled.

The purpose for which the land was originally acquired was determined through a variety of sources. Written and oral accounts of local history, township records, articles from the county's first newspaper, the Northern Mail, and the archaeological record were used to complement the information available in the land township records.

Public land acquired for lumbering or homesteading accounts for most of the original land use in the county. It was assumed, for example, that the provisions of the Homestead Act (U.S. Congress 1862a) limited use of the property entered under that act to that of a family farm. It is worth noting that several histories of the lumbering era have stated that lumber barons were known to file bogus homestead claims in order to acquire timberlands at much less than the $1.25 an acre minimum (Dunbar 1970; Weisberger 1964a). However, numerous accounts of local history, articles from the Northern Mail (Randall n.d.), county land ownership records (Register of Deeds n.d.), township records (Big Creek Township n.d.), oral history interviews (Herberstreit 1989; Klimmek 1989; Richardson 1989), and the archaeological record (Huron-Manistee Cultural Resources n.d.), indicate that most, if not all homesteads in Oscoda County were legitimate.

Cash purchase, scrip, assignment of military bounty land warrants, and scrip for funding colleges of agricultural and "mechanic" arts for states that lacked public land were all used by lumber interests to obtain timberlands. Evidence of this original use of
the land was determined through identification of the purchaser or assignee as being involved in lumbering through the following sources: History of the Lake Huron Shore (1976), Tittabawassee River Log Marks (Strobel 1967), Iosco County and Lake Huron Shore Log Marks (Thornton 1981), and Michigan Log Marks (Works Project Administration 1942).

While lumbering and homesteading were the two most common land uses in the county, a number of properties were obtained for other uses. Of the public lands obtained through cash purchase, scrip, or assignment, a total of 6.75 quarter sections were acquired by people identified in the government tract book and other sources as homesteaders. The Homestead Act (U.S. Congress 1862a) allowed a homesteader to acquire up to 160 acres of land contiguous to the homestead. Once the patent had been issued, there were no further restrictions on the amount of land a homesteader could own (Donaldson 1970).

Only two quarter sections were determined to have been originally obtained for use as a farm. Determination of their use was made through the land ownership history of the property. Deeds and mortgages give the full name, the name of the spouse, and the address of the grantor. Giving the nearest operating post office to the property as the address of the original owner was considered good evidence that the land had been obtained for use as a farm and residence. In addition, in all of these properties, the land was located near other property being homesteaded by people with the same
last name. This evidence for a kin-based group of settlers gives further strength to the identification of the property as a farm.

All of Section 31, T25N, R1E, was part of a grant of all odd-numbered sections, six sections on either side of a proposed railroad to be built by the Amboy, Lansing, and Traverse Bay Railroad Company. The inclusion of the section in the grant was approved in 1871 (Donaldson 1970; Register of Deeds n.d.).

The intended use for which 7.25 quarter sections were obtained could not be determined. The name of the original purchaser or other parties mentioned in the land ownership history could not be found in any local historic account or list of lumber interests, and the addresses given were outside the county. Most of these purchases were made in the early twentieth century and may have been acquired either as an investment or for vacation property.

Located primarily in the eastern portion of the study area were 48.75 quarter sections designated as "U.S.A." in the government tract book. Research into the land ownership histories of a number of these properties indicated that these lands were either part of a grant to the ill-fated Au Sable and Northwestern Railroad (Steiner 1979), or Morrill Land Grant Act (U.S. Congress 1862b) lands which were to be sold for $3 to $5 an acre for the funding of an agricultural college in Michigan (Randall n.d.).

Among the sample units, 98.75 quarter sections were originally obtained by lumber interests, 80 quarter sections were homesteaded, 3.5 quarter sections were purchased by homesteaders, 2.5 quarter sections were obtained for unknown purposes, 11 quarter sections were
designated "U.S.A.", and 12.25 quarter sections remained vacant (Figure 4).

When the dates of entry for timberlands are compared to those for homesteads, a marked temporal clustering is noted for the two different forms of original land use (Figure 5). The entry of timberlands in southern Oscoda County beginning in 1863 was characterized by sharp peaks of activity. The first and largest peak was in 1866 with the entry of 140.75 quarter sections by lumber interests. This was followed by four descending peaks of timberland entries: in 1871 with 74.25 quarter sections, in 1883 with 16.25
Figure 5. Number of Timberlands and Homesteads by Year of Entry.
quarter sections, and in 1886 with the entry of 8.25 quarter sections by lumber interests (Figure 5).

While entries for homesteads started in 1867, the number of quarter sections entered each year remained below three quarter sections until 1878 when 23.5 quarter sections were entered for homesteading. This was followed by a very sharp peak of 153.75 quarter sections entered for homesteading in 1879. The number of quarter sections entered for homesteading decreased gradually from 56 quarter sections entered in 1880 to two quarter sections entered for homesteading in 1893. Homestead entries continued at a low rate until 1917 (Figure 5).

When the locations of timberlands are compared to those for homesteads, a marked spatial clustering is also observed. Between 1863 to 1869 both the timberlands and the few homesteads that were entered were located primarily on the well drained silt and sand loams and the well to somewhat poorly drained loamy and clayey soils found on the morainal hills of the West Branch moraine and the Maltby kames. Timberlands and a few homesteads were also located on the wet sand and clayey plains and alluvial soils of the glacial Au Sable River valley.

The timber entries between 1870 and 1879 expanded into the somewhat excessively drained dry Roselawn/Rubicon sand hills of the West Branch moraine, and the Maltby and Coy kames. The most marked change was in the location of the homestead entries. Including the highest peak of entries in 1879, these homesteads were located primarily on the excessively drained Grayling sand of the Saint Helen,
Mack Lake, and Polly outwash plains, the Shotgun outwash channel, and the dry Grayling sand hills that border the East Branch of Big Creek. After 1880 these formations, particularly the Mack Lake outwash sand plain and the Roseland/Rubicon dry sand hills of the Polly plain and the Coy kames, continued to be settled by homesteaders. Some additional homesteads were located on the Grayling sand outwash plains of the glacial Au Sable River valley and the Kneeland outwash system north of the Au Sable.

In the collection of information concerning the relationship between dates of entry and form of land use to soil and land type association categories, a grid was imposed over each sample unit and the percentage of each soil and LTA category per sample unit was determined.

Hypothesis

While permanent settlement by small, independent farmers was the expressed intent of the Homestead Act (U.S. Congress 1862a), the climate and soil of the Grayling sand outwash plains were exceptionally unsuited to that purpose. The data presented indicate that between 1878 and 1890 people attempted to homestead almost every available quarter section of these outwash sand plains. Yet, by the end of this period, many of these same homesteaders were leaving the area, being unable to make a living on the poor, sandy soils.

It is important to note that simple measures of the number of failed homesteads is not sufficient evidence to determine success or failure of homesteading in a given area.
A common denominator of frontier areas, even those considered to be successful, is a high rate of individual failure and a consequent personal loss and suffering. Indeed, it may be taken as the definitive feature of the frontier experience. (Osborne 1977:203)

It is hypothesized that an inconsistent and incongruous system of federal land legislation in interaction with the other elements of the sociocultural system of the nineteenth century United States and with the physical and biotic environments of southern Oscoda County was instrumental in creating temporal and spatial variation in the original patterns of settlement and land use in the county. While several of the land laws were written to encourage permanent settlement by small, independent farmers, inconsistencies between the provisions of various laws (Donaldson 1970; Gates 1968) and an incongruous perception of land ownership as both an inalienable right and as a negotiable commodity (Opie 1987) tended to favor monied interests such as lumbering. As a result of the interaction of this inconsistent and incongruous system of land laws with the environmental setting of southern Oscoda County, lumber interests acquired the more productive land where the marketable timber grew, some seven to thirteen years before the homesteading boom that occurred between 1878 and about 1885. By the time the homesteaders began to enter their claims, the majority of the lands available for settlement were the droughty and infertile sands of the jack pine plains. In turn, the extremely poor environment of the Grayling sand outwash plains made even a generalized minimax subsistence strategy difficult. While a surprisingly large number of these homesteads were "proved up," which could be defined as success, most reverted to the State of
Michigan for years of delinquent taxes and abandonment (Register of Deeds n.d.; Schmaltz 1983; Titus 1949).

In order to test this hypothesis, it is necessary to define the degree of temporal and spatial variation that existed between timberlands and homesteads in the study area. Dates of entry for timberlands and homesteads in southern Oscoda County will be compared with the expectation that the timberlands will have been entered significantly earlier than most of the homesteads. The sample population will be used to compare the percent of soil groups and land type association zones found in timberlands to that found in homesteads. The expectation here is that the homesteads will have a significantly higher rate of location on the Grayling sand soil category, and of location on the LTA category for outwash sand plains. In contrast, it is expected that the timberland will have a significantly higher rate of location on the more productive soil and LTA categories for Roselawn/Rubicon dry sand hills, well drained silt and sand loams, and well to somewhat poorly drained loamy and clayey soils on morainal and clayey hills and clayey plains, as well as poorly drained mineral to very poorly drained organic soils on wet plains and stream valleys.

The archaeological record for 28 recorded homestead sites located in southern Oscoda County (Huron-Manistee Cultural Resources n.d.) will be used as an independent source of data that will be compared to written and oral historic accounts concerning intrasite patterning. Information on the soils, landforms, and vegetation of
the site locations will be used to further define the homestead environmental profile.

The historical record will be used to fill out the admittedly scanty archaeological data on subsistence from the 28 recorded homestead sites. This combination of information will be used to describe the effect of settlement on the jack pine plains on the major elements of the subsistence strategies of the homesteaders. Since it is possible that not all elements of the homesteaders' subsistence strategies could be attributed only to settlement on the Grayling sand outwash plains, the effect of the frontier experience will also be considered.

Data Analysis

While the dates of entry for timberlands and homesteads, as shown in Figure 5, had sharp peaks of activity, the entry dates for the other categories of land uses did not. The entry dates for public land purchased by homesteaders ranged between 1879 and 1903 and between 0.25 and two quarter sections entered in a single year. The entry dates for land purchased for farming ranged between 1870 and 1890 and between 0.25 and 0.5 of a quarter section entered in a single year. The dates of properties acquired for undetermined purposes ranged between 1867 and 1909 and between 0.25 and 1.5 quarter section entered in a single year. These categories were not included in the test of significance for the relationship between entry dates and land use because of the small number of observations.
involved. The "U.S.A." lands and the vacant lands were also not included because neither category has entry dates.

In order to conduct a test of significance comparing the dates of entry for timberlands to homesteads, it was necessary to group the data into 15-year intervals in order to avoid having categories with less than five observations.

As shown in Table 3 of the 605 quarter sections entered by lumber interests, 507.25 were entered between 1860 and 1875. During that same time interval, only 11.75 quarter sections were entered as homesteads out of a total of 549.75. In the next 15-year interval, between 1876 to 1891, only 71 quarter sections were entered by the lumber interests, while 483.75 quarter sections were entered as homesteads. After 1891, the remaining 26.75 quarter sections of timberlands were entered, as well as the remaining 54.25 quarter sections of homesteads.

Table 3
Number of Timberlands and Homesteads Entered

<table>
<thead>
<tr>
<th>Date of Entry</th>
<th>Timberlands</th>
<th>Homesteads</th>
</tr>
</thead>
<tbody>
<tr>
<td>1860-1875</td>
<td>507.25</td>
<td>11.75</td>
</tr>
<tr>
<td>1876-1891</td>
<td>71.0</td>
<td>483.75</td>
</tr>
<tr>
<td>1892-</td>
<td>26.75</td>
<td>54.25</td>
</tr>
<tr>
<td>Total</td>
<td>605.0</td>
<td>549.75</td>
</tr>
</tbody>
</table>
In this distribution, timberlands and homesteads were classified according to 15-year intervals of entry dates. Chi-square, which evaluates the differences between observed and expected frequencies, was used to test this distribution for significance because a single difference-of-proportions test could not be used (Blalock 1979; Husch 1963). The difference between entry dates for timberlands versus homestead was found to be significant at the 0.01 level of confidence, which provides strength to the argument that the more productive lands where the marketable timber grew were entered well before the majority of homesteaders arrived in Oscoda County.

The percentage of soil and LTA categories were calculated for each sample unit according to original land use. Table 4 shows the number of sample units according to original land use. Table 4 shows the number of sample units with 50% or more of a soil category, according to original land use. As shown, the homesteads had 55 sample units with 50% or more of the Grayling sand category present. In contrast, the timberlands had only 17 sample units with 50% or more of the Grayling sand category. For the somewhat excessively drained Roselawn/Rubicon sands category there were 14.25 homestead sample units with 50% or more of this soil category present. In comparison, the timberlands had 46.5 sample units with 50% or more of the Roselawn/Rubicon sands category present. With 10.75 sample units, the timberlands were the only land use category with 50% or more of the well drained silt and sand loams category. The well to somewhat poorly drained loamy and clayey soils were present 50% or more in four timberland sample units and one homestead sample unit.
The poorly drained mineral soils and the very poorly drained organic soils had 12.5 timberland sample units with 50% or more of this soil category present, and only one homestead sample unit with 50% or more of this soil category.

Table 4
Number of Sample Units With 50% or More of Each Soil Category
According to Original Land Use

<table>
<thead>
<tr>
<th>Soil Category</th>
<th>Timberland</th>
<th>Homestead</th>
<th>Purchased by Homesteader</th>
<th>Unknown</th>
<th>U.S.A.</th>
<th>Vacant</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1, A2</td>
<td>17</td>
<td>55</td>
<td>1.25</td>
<td>0</td>
<td>6.25</td>
<td>5.75</td>
</tr>
<tr>
<td>B1, B1-s</td>
<td>46.5</td>
<td>14.25</td>
<td>0.25</td>
<td>0</td>
<td>2.25</td>
<td>2.5</td>
</tr>
<tr>
<td>B2-t, C1, C2, C8, C12</td>
<td>10.75</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E2, E5, E9</td>
<td>4</td>
<td>1</td>
<td>0.75</td>
<td>0.25</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>F2, G1, G2</td>
<td>12.5</td>
<td>1</td>
<td>0.75</td>
<td>0.25</td>
<td>0.5</td>
<td>0</td>
</tr>
</tbody>
</table>

Only the relationships between timberlands and homesteads to the Grayling sand and Roselawn/Rubicon sand categories were tested for significance because the other categories had too few observations for a valid test. Again, the chi square test was used with the results at the 0.01 level of confidence, allowing for the rejection of the null hypothesis; that is, there was no relationship between soils and land use. The data instead strongly supported the hypothesis that lumber interests acquired the better soils where the
marketable timber grew, while the homesteaders had a high rate of settlement on the poor, sandy soils of the county.

Table 5 shows the number of sample units with 50% or more of a LTA category, according to original land use. As shown, the timberlands had 24.75 sample units with 50% or more of the outwash sand plains category, while the homesteads had 43.75 sample units with 50% or more of the outwash sand plains. For the LTA category for dry sand hills, the timberlands had 37 sample units with 50% or more of this category, while the homesteads had only 17.25 sample units with 50% or more of dry sand hills present. Of the third category, the timberlands had 16.75 sample units with 50% or more of the category for outwash sand plains over till or lake deposits and morainal hills. In sharp contrast, the homesteads had only 0.5 of a sample unit with 50% or more of this category. There were 10 timberland sample units with 50% or more of the wet sand plains and stream valley category, while there were 6.5 homestead sample units with 50% or more of this category. For the clayey hills and plains, there were 11 timberland sample units, the only land use with 50% or more of this LTA category.

Only the relationship between timberlands and homesteads to the LTA zone categories for outwash sand plains and the combined dry sand hills, outwash plains zone 6 and the morainal hills were tested for significance because the other categories had too few observations for a valid test. A chi square test was again used and the results were again significant at the 0.01 level of confidence which allowed rejection of the null hypothesis. The data strongly supported the
hypothesis by demonstrating that the homesteaders had a high rate of settlement on the outwash sand plains, while the lumber interests acquired more property located on the dry sand and morainal hills.

Tables 6 and 7 show the relationship between entry dates for timberlands and homesteads compared to soil and LTA categories for the sample population. As with the comparison of entry dates to land use, the years of land acquisition were grouped into 15-year intervals.

In Table 6 the most active period for the entry of timberlands was between 1860 to 1875, with 16.25 sample units with 50% or more of the Grayling sand soil category. In contrast, the most active period for the entry of homesteads was between 1876 and 1891, with 64 sample units with 50% or more of the Grayling sands.
The single largest entry for the Roselawn/Rubicon sands was between 1860 and 1875, with 22.75 timberland sample units with 50% or more of this soil category. The homesteads for this period had 12.25 sample units with 50% or more of the Roselawn/Rubicon sands, followed by 15.75 homestead sample units entered between 1876 and 1891, with 50% or more of the Roselawn/Rubicon sands category.

The timberlands with 6.75 sample units with 50% or more of the soil category for the well drained silt and sand loams, entered between 1860 and 1875, were the only observations in this soil category.

The number of sample units for the well to somewhat poorly drained loamy and clayey soil category was quite low, with only 2.75

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Table 6
Number of Sample Units for Timberlands and Homesteads With 50% or More of Each Soil Category by Year of Entry

<table>
<thead>
<tr>
<th>Soil Category</th>
<th>Timberlands</th>
<th>Homesteads</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1860-1875</td>
<td>1876-1891</td>
</tr>
<tr>
<td>A1,A2</td>
<td>16.25</td>
<td>1</td>
</tr>
<tr>
<td>B1,B1-s</td>
<td>22.75</td>
<td>3.5</td>
</tr>
<tr>
<td>B2-t,C1,C2,C8,C12</td>
<td>6.75</td>
<td>0</td>
</tr>
<tr>
<td>E2,E5,E9</td>
<td>2.75</td>
<td>0</td>
</tr>
<tr>
<td>F2,G1,G2</td>
<td>5.75</td>
<td>1</td>
</tr>
</tbody>
</table>

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timberland sample units with 50% or more of this soil category entered between 1860 and 1875, and only one homestead sample unit entered during this period with 50% of more of this soil category. In addition 1.6 homestead sample units with 50% or more of the well to somewhat poorly drained loamy and clayey soils entered between 1876 and 1891.

Of the poorly to very poorly drained mineral and organic soils, 5.75 sample units with 50% or more of these soils were entered as timberlands between 1860 and 1875, while 3.25 homestead sample units with 50% or more of this soil category were entered between 1876 and 1891.

This comparison of the relationship between entry dates, land use, and soils further confirms the hypothesized pattern of timberlands being entered earlier and on the more productive soils, while homesteads were entered later in time and predominately on the poorer, sandy soils.

As shown in Table 7 during the period between 1860 to 1875, 22.25 timberland sample units with 50% or more of the outwash sand plains category were entered, while only 0.5 of a homestead sample unit was entered. In sharp contrast, only one sample unit of timberland with 50% or more of the outwash sand plains zones 1 through 5 was entered between 1876 and 1891, while 62.5 homestead sample units with 50% or more of the outwash sand plains category were entered. During the final 15-year interval, only one sample unit each of timberland and homestead with 50% of more of the outwash sand plains category was entered.
Table 7

Number of Sample Units for Timberlands and Homesteads With 50% or More of Each LTA Category by Entry Date

<table>
<thead>
<tr>
<th>LTA Category</th>
<th>Timberlands 1860-1875</th>
<th>1876-1891</th>
<th>1892-1907</th>
<th>Homesteads 1860-1875</th>
<th>1876-1891</th>
<th>1892-1907</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,3,4,5</td>
<td>22.25</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
<td>62.5</td>
<td>1</td>
</tr>
<tr>
<td>7,8</td>
<td>29</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>15.75</td>
<td>0</td>
</tr>
<tr>
<td>6,9,10,11,12</td>
<td>18</td>
<td>1.25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13,14</td>
<td>3.75</td>
<td>9.75</td>
<td>0</td>
<td>1.25</td>
<td>9.25</td>
<td>1.5</td>
</tr>
<tr>
<td>15,16</td>
<td>6.5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Of sample units with 50% or more of dry sand hills, there were 29 timberland units, and only one homestead sample unit entered between 1860 and 1875. Between 1876 and 1891, only one timberland sample unit with 50% or more of the dry sand hills category was entered, while 15.75 homestead sample units with 50% or more of this category were entered.

Of sample units with 50% or more of morainal hills category, 18 timberland sample units were entered between 1860 and 1875, and only 1.25 timberland sample units with 50% or more of this category entered between 1876 and 1891. There were no homestead sample units with 50% or more of the morainal hills category.
The category for wet sand plains and stream valleys accounts for 3.75 timberland sample units with 50% or more of this category entered between 1860 and 1875, while only 1.25 homestead sample units with 50% or more of this category were entered during this period. Between 1876 and 1891, 9.75 timberland sample units with 50% or more of the wet sand plains and stream valleys were entered, and 9.25 homestead sample units with 50% or more of this category were entered.

Timberlands, with 6.5 sample units entered between 1860 and 1875, was the only land use category with 50% or more of the clayey hills and plains category.

The data displayed in Tables 6 and 7 already use combinations of categories and dates of entry. As a consequence, it would be counterproductive to further combine categories in an attempt to increase the number of observations in order to allow a test of significance. The data for dates of entry, soil groups, and LTA zones compared to original land use, however, have been tested for significance and were found to be significant at the 0.01 level of confidence. In addition, the data displayed in Tables 6 and 7 further confirm earlier findings that timberlands were located earlier and with a significantly higher frequency on the Roselawn/Rubicon dry sand hills, the well drained silt and sand loam morainal hills, and the well to poorly drained loamy and clayey hills and plains, than the homesteads which were far more prevalent on the Grayling sand outwash plains.
The archaeological record for 28 recorded homestead sites located in southern Oscoda County was used as an independent source of data that served as a control on the historic record (Deetz 1977; Schuyler 1978). The determination of homestead for each site was based on the land ownership history.

According to historical accounts, a house, barn, and a root cellar were the basic group of buildings required to meet the needs of the adaptive strategies of most homesteaders (Brunt 1988; G. Cripps 1987; Detweiler n.d.; Erwin 1987; Klimmek 1989; Richardson 1976, 1989). A well or spring box, a spring house, privy, chicken coop, or a sheep barn were additional structures used by some of the homesteaders (Huron-Manistee Cultural Resources n.d.; Klimmek 1989; Richardson 1989). Other structures used by some homesteaders in more specialized adaptive strategies included general stores, a blacksmith shop, a wagon repair shop, a hotel, and a shoe shop (Bird 1927; Fockler 1984; Pierce 1985; Randall 1984).

The remains of buildings from these sites in the archaeological record take the form of depressions, with or without berms, bermed structure features, rock concentrations, earthen platforms and ramps, cement foundations, and collapsed buildings. Depressions constitute the greatest number of structural features, with 66 depressions, two sloped depressions, two bermed depressions, and one spring house. In addition, there were five bermed features, two ramps or platforms, three rock concentrations, one low earthen wall, two poured cement foundations, and a single collapsed wooden building (Huron-Manistee Cultural Resources n.d.).
The number of structure features for these homestead sites is between one and eight, with an average of three structure features per site, which fits the intrasite pattern of a house, barn, and root cellar described in both written and oral accounts (G. Cripps 1987; Detweiler n.d.; Erwin 1987; Klimmek 1989; Richardson 1976, 1989).

Table 8 shows the range of variation and mean area of different types of structure features. The category "Depressions" has been subdivided into categories of descending size per site in order to have better control over the range of variation.

The practice of building houses and barns with basements, along with the into-the-earth construction of root cellars, cisterns, wells, and privies accounts for the large number and variation in dimensions observed among depressions from these sites.

The house is the only building described in terms of size. The William Stark cabin was described as measuring 7 m (24 ft) by 5.5 m (18 ft) or 38.5 m$^2$ (G. Cripps 1987), and the dimensions of the Detweiler cabin were recorded as measuring 7 m (24 ft) by 6 m (20 ft) or 42 m$^2$ (Detweiler 1985:15). The floor plan and drawing of the Foley cabin compared to the drawing of the Detweiler cabin in Figure 6 appears to be about the same size as that of the Stark and Detweiler cabins. These dimensions, in turn, are slightly less than the mean area of 49 m$^2$ (7 m x 7 m) shown in Table 8 for the largest depression feature on a recorded homestead site. In general, barns tend to be larger than houses, which would account for the larger features. Root cellars, wells, cisterns, and privies would be smaller than a house and would account for the smaller features.
Table 8
Types of Structural Features and Areas From Twenty-Eight Homestead Sites Located in Oscoda County

<table>
<thead>
<tr>
<th>Type of Feature</th>
<th>Number of Features</th>
<th>Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Range of Variation</td>
</tr>
<tr>
<td>Depressions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feature #1</td>
<td>26</td>
<td>165 m² to 20 m²</td>
</tr>
<tr>
<td>Feature #2</td>
<td>21</td>
<td>112 m² to 9 m²</td>
</tr>
<tr>
<td>Feature #3</td>
<td>11</td>
<td>42 m² to 1 m²</td>
</tr>
<tr>
<td>Sloped Depression</td>
<td>2</td>
<td>35 m² to 30 m²</td>
</tr>
<tr>
<td>Bermed Depression</td>
<td>2</td>
<td>27 m² to 10 m²</td>
</tr>
<tr>
<td>Ramp or Platform</td>
<td>2</td>
<td>150 m² to 20 m²</td>
</tr>
<tr>
<td>Spring house</td>
<td>1</td>
<td>36 m²</td>
</tr>
<tr>
<td>Bermed Feature</td>
<td>5</td>
<td>180 m² to 60 m²</td>
</tr>
<tr>
<td>Rock Concentration</td>
<td>3</td>
<td>36 m² to 6 m²</td>
</tr>
<tr>
<td>Low Earthen Wall</td>
<td>1</td>
<td>36 m²</td>
</tr>
<tr>
<td>Poured Cement Foundation</td>
<td>2</td>
<td>121 m² to 12 m²</td>
</tr>
<tr>
<td>Collapsed Building</td>
<td>1</td>
<td>9 m²</td>
</tr>
</tbody>
</table>

The dates of entry from the government tract book for the 28 recorded homestead sites are shown in graph form in Figure 7. Once again, the year 1879, with 12 homesteads entered, had the highest number of entries. The year with the next highest number of entered homesteads was 1881, with five entries, followed by 1878 with four
Figure 6. Foley and Detweiler Cabins.
homesteads entered. That there were more than 28 total entries reflects some homestead properties being canceled and reentered as new homestead claims.

Information on the physical and biotic environments surrounding the homestead sites is included in the site inventory (Huron-Manistee Cultural Resources n.d.). The relationship between dates of entry for the sample population and the immediate site environs is shown in Tables 9, 10 and 11. As with Figure 7, cancellation and reentry of some homesteads accounts for a total of more than 28 entries.

Figure 7. Number of Entries Per Year for Recorded Homestead Sites.
As shown in Table 9, the highest number of homesteads entered was in 1879 with 11 located on Grayling sand and 3 located on a mosaic of Grayling and Roselawn/Rubicon sands. The next highest number of homestead entries was in 1881 with 5 entries and 1878 with 4 homesteads entered, all located on Grayling sand. One homestead site located on Grayling sand was entered for each of the remaining years, 1880 and 1882 through 1887. One homestead each located on a mosaic of Grayling and Roselawn/Rubicon sands was entered during 1880 and 1887. One homestead site, located on a mosaic on Grayling and Roselawn/Rubicon sands and poorly drained mineral soils, was entered in 1880; and one homestead site, located on a mosaic of Roselawn/Rubicon sand and well drained silt and sand loams, was entered in 1883.

Table 9

Number of Homestead Sites Entered Each Year
According to Soil Category

<table>
<thead>
<tr>
<th>Soil Category</th>
<th>1878</th>
<th>1879</th>
<th>1880</th>
<th>1881</th>
<th>1882</th>
<th>1883</th>
<th>1884</th>
<th>1885</th>
<th>1886</th>
<th>1887</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1, A2</td>
<td>4</td>
<td>11</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>A1, A2, B1</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1, B1-s, F2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1/B2-t</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Table 10 shows the relationship between year of entry and land type associations. The highest number of homestead sites located on outwash sand plains was 13 entered in 1879. The next highest number of homestead entries located on outwash sand plains was 5 in 1881, 4 in 1878, and 2.5 homesteads entered in 1880. In addition, one homestead site located on outwash sand plains was entered for each year from 1882 through 1887. One homestead site entered in 1879, and reentered in 1887, was located on a complex of outwash sand plains and dry sand hills. An additional homestead entered in 1880 was located on a complex of outwash sand plains and wet sand plains.

Table 10
Number of Homestead Sites Entered Each Year According to LTA Categories

<table>
<thead>
<tr>
<th>LTA Zone</th>
<th>1878</th>
<th>1879</th>
<th>1880</th>
<th>1881</th>
<th>1882</th>
<th>1883</th>
<th>1884</th>
<th>1885</th>
<th>1886</th>
<th>1887</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,3,4,5</td>
<td>4</td>
<td>13.5</td>
<td>2.5</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>8</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
</tr>
<tr>
<td>13,14</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The categories of forest communities used in Table 11 were given abbreviated designations in order to fit the available space in the table. The designation for the jack pine association is "Jack Pine." The designation for red pine plantation surrounded by jack pine is "Red Pine." The pine community (Barnes and Wagner 1981), with a high
ratio of jack pine is designated "Pine/Jack." A mixture of northern hardwoods with the pine community (Barnes and Wagner 1981) is designated "Hard/Pine."

Table 11
Number of Homestead Sites Entered Each Year According to Forest Community

<table>
<thead>
<tr>
<th>Forest Community</th>
<th>1878</th>
<th>1879</th>
<th>1880</th>
<th>1881</th>
<th>1882</th>
<th>1883</th>
<th>1884</th>
<th>1885</th>
<th>1886</th>
<th>1887</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jack Pine</td>
<td>3</td>
<td>11</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Red Pine</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Pine/Jack</td>
<td>0.5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard/Pine</td>
<td>0.5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 11 shows the forest communities present at each of the 28 recorded homestead sites. In general, the majority of homesteads entered in 1879, four in 1881, and three homesteads located on the jack pine association entered in 1878. There was also one homestead site located in the jack pine association that was entered for each of the following years: 1880, 1882, 1883, and 1885.

Red pine plantations are human intrusions on the jack pine association. One homestead site entered in 1878 was located in a red pine plantation, as well as three homestead sites entered in 1879 and one each entered in 1884 and 1885.
Part of a homestead site entered in 1879, that was canceled and reentered in 1887 was located in the pine community with a high ratio of jack pine. The remainder of this homestead site and another entered in 1883 were located on a complex of the pine community and northern hardwoods.

Analysis of the dates of entry to the soil groups and land type association for the 28 recorded homestead sites reveals patterns very similar to those obtained for the homestead sample units. Both sites and sample units had the highest number of entries for 1879, and both had the greatest number of entries on Grayling sand and on outwash sand plains.

The "sample" of 28 recorded homestead sites was obtained through haphazard means and could well be subject to sampling error. But even under these circumstances, the dates of entry for the homestead properties and the environmental data from the sites fit the temporal and spatial parameters obtained for homesteads from the study area and the stratified random sample. Inclusion of the fact that all but five of the 28 recorded homestead sites were located in the jack pine association, provides strong evidence that the homesteaders had a high rate of settling on the Grayling sand outwash plains where jack pine was the predominant species.

Being limited by the provisions of the Homestead Act (U.S. Congress 1862a) to a maximum of 160 acres had profound effects on the subsistence strategies of those who settled on the dry and infertile jack pine plains of Oscoda County. It is important to remember that impoverishment of the social, economic, and political aspects of the
intrusive group's expanding sociocultural system and a generalized subsistence strategy are part of the rapid adaptation required by most frontiers. It was the intensity and duration of the cultural impoverishment and generalized subsistence strategies that define the Grayling sand outwash plains as a submarginal environment completely unsuited to farming, or to permanent settlement.

The lumber industry appears to have played a central role in the subsistence strategies of the homesteaders. The main period of employment was during the winter, and single individuals to entire families worked in the lumber woods. The Reverend Hollowell, for example, "took the team into the lumber woods of St. Helen, and this brought in cash enough to insure fair living conditions" (Brunt 1988:28). The Bradley family was less fortunate. When the buckwheat crop failed the first year, Mr. and Mrs. Bradley and their two teenage daughters cut firewood for the railroad that winter and earned just enough for food (Foley 1987). In another account, an Oscoda County resident recalled that "At three years of age, I was bundled off to school with the older children just to get me out of the way" while his mother cooked for a lumber camp (Yoder 1987:32).

The lumber camps also supplied a market for whatever hay, produce, and dairy products the homesteaders could wrest from the poor, sandy soil (Stall 1986; Yoder 1986), along with wild products such as berries (Erwin 1987). While the lumber camps often paid for these products, barter, which was the main form of exchange in the area was also used. In one account a basket of tomatoes was
exchanged for a basket filled with sugar and "lumberjack" cookies (Yoder 1986:25).

Many accounts point out that money was scarce throughout the region well into the 1930s (Deyarmond 1985; Foley 1988a; Hawley 1986; Kahn 1985; Yoder 1988), and barter and exchanges of cooperative labor formed the base of the local economic subsystem. Many homesteaders exchanged butter and eggs at local stores for foods and goods they could not supply on their own (Foley 1988a; Klimmek 1979, 1989). Even local businesses engaged in barter between themselves (Kahn 1985), although one local general store appears to have not used barter, preferring to pay cash to farmers for their products (Foley 1988b; Herberstreit 1989). While barter was a common means of exchange throughout the rural United States at this time, the long-term use of barter in the county was an indication of the degree of economic simplification that could result from settlement in a submarginal environment.

Cooperative labor such as barn raisings and threshing was part of the generalized rural subsistence strategy used throughout the United States. Local accounts include exchanges of both meat and labor.

Fresh meat was usually available when the families of the neighborhood butchered. Part of this meat would be "apportioned" with the neighbors, and when that supply was gone, another neighbor would butcher and apportion fresh meat to his neighbors. (Hanna 1985:35)

Exchanges of high quality food that could be expensive in terms of resources would greatly increase the chances of the entire
neighborhood surviving until homesteads could be "proved up" and could be legally sold.

Judging from the accounts, there was a fair amount of variation among homesteads as to what could be grown. The experience of the farmer, the number of family members who could work on the farm, number of draft animals, if any, and proximity to neighbors and/or relatives available for cooperative labor, all interacted with the local ecosystem in the determination of success or failure of a particular crop, or of the homestead in general. It is worth noting that much of the produce grown for the homesteaders' own consumption, such as carrots, turnips, beans, cabbage, and potatoes were usually grown in a "kitchen" garden and not as a crop out in the field. A garden, being located close to the house, was easier to protect and more carefully tended, greatly increasing the chances for some amount of success. This factor could allow even those on the poorer sites, in a good year, to at least grow enough to eat and be encouraged to stay, which might well increase the degree of failure when it occurred later on.

Livestock, particularly a milk cow, was an important part of the generalized subsistence strategy of the area (Klimmek 1979). While milking can be labor intensive, cows were fairly inexpensive in terms of resources since they could forage for themselves and be fed "marsh hay" harvested from the local environment (G. Cripps 1987; Klimmek 1979, 1989). The sale or exchange of surplus milk from even one cow created another means of supplementing the income from whatever could be grown. Tax statement records and chattel mortgages from Atherton
Township indicate that many homesteaders had one or two cows, although only two homesteads had sheep or hogs (Big Creek Township n.d.). Chicken and other fowl, another source of protein and surplus that could be used in exchange, were not mentioned in the tax statements, perhaps because they were not taxed, or were included in a separate tax as were dogs (Big Creek Township n.d.).

Trades, small businesses, elected and appointed government positions, and teaching were other means of earning money and supplementing whatever could be grown or gathered. As has been mentioned, several homesteaders owned and operated general stores, saw and grist mills, hotels, and blacksmith shops (Bird 1927; Fockler 1984; Pierce 1985; Randall 1984). Almost all of the county and township officials up to the turn of the century were or had been homesteaders (Big Creek Township n.d.; Randall n.d.). In addition to the salary paid elected officials, money could be earned doing such things as moving a bookcase for $2.00, or being an election official for $6.00 a day (Big Creek Township n.d.). While the positions of postmaster and teacher did not bring in large incomes, it was yet another means of earning money that was available to the homesteaders. Many of the early postmasters in the county were homesteaders (Au Sable River Valley Historical Society 1979c), and records from Atherton Township plus several accounts indicated that quite a few of the homesteaders were qualified to teach at the primary school level (Big Creek Township n.d.; Richardson 1985).

Wild resources made up another important aspect of the homesteaders' minimax subsistence strategy. As many as 200 to 300 pints
of wild berries would be picked and canned by a family on a yearly basis, or sold downstate together with fish and other game, ice cut from local lakes, and furs (M. Cripps 1985; Deyarmond 1985; Erwin 1987; Foley 1988c; Klimmek 1989). Wild grasses were cut from the marshes and used to feed cows, oxen, and sheep (G. Cripps 1987; Klimmek 1979, 1989). Many homesteaders supplemented their diets with fish from the Au Sable and its tributaries that, according to the accounts, were plentiful and easily caught (Foley 1988c; Klimmek 1989; Morrison 1987). Grouse, prairie chicken, and even bear were other types of game used by the homesteaders to supplement their diets (M. Cripps 1985; Foley 1987; Klimmek 1989).

The poverty of the jack pine plains ecosystem is underscored by the fact that although the homesteaders utilized a wide variety of means and effort in their subsistence pursuits, the settlement of Oscoda County's Grayling sand outwash plains was short-lived and harmful to land and people alike. As early as 1885 homesteaders began to leave the county. By 1890, when the boom economy of the 1880s had become flat, and lumbering in the region had slowed significantly, a massive exodus of homesteaders began to take place. Tax delinquent and abandoned lands became so numerous that the State of Michigan enacted legislation in 1893 to deal with the problem. By 1900 only a handful of homesteads remained and these were purchased in the 1930s under federal programs intended to remove farmers from marginal lands. These lands were then included in the state and national forests, removing them from the excesses of too much hope and enthusiasm.
CHAPTER V

DISCUSSION

The collection, presentation, and analysis of the data in Chapter IV gave strong support to the hypothesis that the interaction of the inconsistent system of federal land legislation with the physical and biotic environments of southern Oscoda County created a situation in which the monied lumber interests were favored over the homesteaders as expressed in the temporal and spatial variation observed between timberlands and homesteads. As clearly demonstrated by the data, lumber interests were able to enter land earlier than the homesteaders, which allowed the lumbermen first choice of the more productive lands where the marketable timber grew. In contrast, the people who homesteaded the Grayling sand outwash plains would have been hard pressed to find another area east of the Mississippi so completely unsuited for agriculture. Being limited to 160 contiguous acres of submarginal land had a significant effect on local subsistence strategies, persistent cultural impoverishment, and a subsequent high failure rate for the homesteaders.

The initial data analysis involved the comparison of the dates of entry for timberlands and homesteads for the study area. Significant differences between timberlands and homesteads were demonstrated with the majority of timberlands entered some seven to thirteen years before the boom in homesteading that started in 1878. The entry dates for the 28 recorded homestead sites showed a distribution
similar to that for the rest of the homesteads, with the highest number of entries in 1879.

The stratified random sample was used to further define the temporal and spatial variation observed between timberlands and homesteads, through investigation and comparison of the relationships between soils, land type associations, original land use, and entry dates.

In comparing soil categories to original land use, it was observed that the timberlands were located on a wider variety and generally more productive soils than the homesteads, which were limited almost exclusively to the Grayling and Roselawn/Rubicon sands. The relatively large number of both timberland and homestead sample units located on Roselawn/Rubicon sands reflects the variation in vegetation that can be found on these soils as a result of such factors as buried clay lens. The relatively large number of timberland sample units located on 50% or more of Grayling sand is explained by the presence of large red pine trees on these properties. While not as highly prized as white pine, red pine was a commercially important species of timber during the nineteenth century lumber boom, and lands with good red pine would have been considered worth acquiring by the lumber interests.

Original land use was also compared to land type associations. As with soils, the timberlands were located on a wider variety and generally more productive categories of LTA zones. The homesteads, in contrast were located primarily on the outwash sand plains with far fewer units located on dry sand hills or wet sand plains and
stream valleys, and only 0.5 of a homestead sample unit located on the morainal hills category.

The highly variable Roselawn/Rubicon sands are found on both outwash sand plains and dry sand hills, which accounts for the high representation of these two LTA zone categories for both homesteads and timberlands. The previously mentioned large red pine trees have been observed on both outwash sand plains and dry sand hills, which further explains the distribution of timberland sample units among the land type associations.

Chi-square was used to test the comparison of the dates of entry for timberlands versus homesteads for the study area and to test the relationships between timberland and homestead sample units and soil and LTA zone categories. In all cases the results of the tests were significant at the 0.01 level of confidence, which allowed for the rejection of the null hypothesis: that there was no relationship between dates of entry, soils, or land type associations and original land use. Instead, the results of the tests strongly supported the hypothesis, that the lumber interests entered their properties which were located on the more productive soils and land type associations where the marketable timber grew, some seven to thirteen years before the arrival of the homesteaders in Oscoda County. As a result, the homesteaders' choices were limited to the poor, droughty sands of the outwash plains and dry sand hills.

The information from the 28 recorded homestead sites located in southern Oscoda County concerning soils and forest communities reported for the site areas matched the results from the analysis of
the random sample. Most of the homestead sites were located on Grayling sand in the jack pine association (Zimmerman 1956) or in a red pine plantation imposed on the jack pine association.

In the final phase of defining the temporal and spatial variation between timberlands and homesteads, the relationship between dates of entry, original land use, soils, and land type associations were compared. The majority of the timberlands were entered between 1863 and 1875 and were located on Roselawn/Rubicon sands on dry sand hills, well drained silt and sand loams on morainal hills, and poorly to very poorly drained mineral and organic soils on wet sand plains and stream valleys. In contrast, the majority of homesteads were entered between 1878 and 1885 with a very sharp peak of activity in 1879. Most of the homestead sample units were located on Grayling sand on outwash plains, with some additional homesteads on dry sand hills with Roselawn/Rubicon sands. Once again, the hypothesis is strongly supported by the data as it is again demonstrated that the lumber interests entered the more productive soils and landforms significantly earlier than the arrival of the homesteaders to the county, leaving the homesteaders with primarily the dry and infertile Grayling sand located on the jack pine outwash sand plains open for settlement.

The historical and archaeological records were used to provide information on the subsistence strategies and general life styles of the homesteaders. Intrasite and environmental data from 28 recorded homestead sites located in southern Oscoda County were used to provide an independent source of information and act as a control on
data supplied through the historic record in the form of oral and written accounts, chattel and land mortgages, deeds, tax statement records, and articles from the county's first newspaper, the *Northern Mail*.

The range of size and number of structural features per homestead site were compared to historic descriptions of homesteads. The number of features per homestead site ranged between one and eight, with an average of three structures per site. Historic accounts describe a basic complex of house, barn, and root cellar, although some homesteads used the cellar under the house to store food instead of a separate root cellar. Other homesteads had two root cellars, or other farm or homesteading-related structures such as granary, spring house, or sheep barn. Structures such as a general store, blacksmith shop, or a grist and saw mill were the result of more specialized adaptive strategies utilized by some homesteaders.

The types and sizes of structural features were considered in terms of intrasite patterning, function, and as an expression of cultural impoverishment. Depressions, berms, earthen platforms, rock concentrations, and cement foundations are all that has remained of the structures built by the homesteaders. These features range in size between 176 m² and 1 m². The dimensions given for two homesteaders' cabins of 7 m by 5.5 m or 38.5 m², and of 7 m by 6 m or 42 m², fall between the average area for the largest depression category and for the poured cement foundations.

The small size of the houses reported in the historic record is verified through archaeological evidence and through the presence of
similar structures in the county. Living in such cramped quarters as a hewn-log cabin chinked with cedar bark or in a rough board house that needed building paper on the sides to keep out snow and insects is perhaps the clearest measure of the extent and intensity of the simplification experienced by homesteaders.

It has been argued in this investigation that among the inconsistencies in the federal land legislation was the fact that while several of the laws were supposedly written with the intent of encouraging settlement by small, independent farmers, in reality these laws favored acquisition of large amounts of public land by monied interests.

While the Homestead Act of 1863 (U.S. Congress 1862a) allowed the settler to acquire up to 160 contiguous acres of public land for the labor of altering the natural landscape to fit the cultural ideal of a nineteenth century family farm, there were specific limitations in the act not found in the land laws utilized by the lumber interests that worked against the homesteader.

Along with limiting the amount and location of the land a homesteader could obtain, the Homestead Act (U.S. Congress 1862a) required the settler to live on the property for five continuous years. The specific period of time was not chosen because of any connection to the realities of farming, but because it was the length of time required to become a citizen of the United States, and patents could only be issued to citizens (Donaldson 1970; Gates 1968). In the meantime, the homesteader was expected to obtain the bulk of his subsistence from a relatively small amount of land that
probably not at any time was near full production. A cynical state-
ment known throughout the United States and Canada declared that the
government bet 160 acres that the homesteader could not live on the
land for five years without starving (Opie 1987:94; Wall 1977:234),
indicating how difficult this could be even under good circumstances.

As indicated in the written and oral historic accounts, the
homesteaders used a generalized minimax subsistence strategy that
included cash employment, farming, gardening, livestock, wild re-
sources, reciprocal kin and neighbor based obligations, trades, and
even public relief to survive on the jack pine plains. But enthusi-
asm and innovation were not enough. The Grayling sand outwash plains
homesteaders were limited by law to 160 acres of submarginal land
that under the best circumstances could only produce a limited
variety of under-sized vegetables and grain. Without a major source
of local markets and cash employment, as provided by the lumber
industry, continued existence on the "plains" was essentially impos-
sible. The dependence of the local economy on lumbering was empha-
sized when the largest firm in northeastern lower Michigan at the
time, the J. E. Potts Salt and Lumber Company, went bankrupt attempt-
ing to build a railroad from McKinley to the town of Oscoda on the
Lake Huron shore. As described by one Oscoda County resident: "When
the Potts Company went broke . . . everyone was broke" (Yoder
1987:32). It is probably not a coincidence that the major exodus of
homesteaders from the county began about this time.

Unlike the homesteaders, the lumber interests that utilized such
land acquisition laws governing cash sale and assignment of military
bounty lands, were not restricted to amount or location of the different parcels of land. Nor were the lumber interests required to live on the land or develop it within a specific period of time, under threat of losing the land and any further opportunity to homestead (Bruchey 1972; Donaldson 1970; Gates 1968). Still further advantages were extended to those who used cash purchase and assignment to obtain land. If the property was lost through non-payment of taxes or bankruptcy, it was still possible to acquire unlimited amounts of public land. In contrast, the homesteader had only one opportunity of obtaining land through the Homestead Act (U.S. Congress 1862a). If he relinquished or abandoned the claim, or even if the patent was issued, only one attempt at homesteading was allowed.

As demonstrated, the Homestead Act (U.S. Congress 1862a) often failed to achieve the goals intended by its sponsors, because several of its provisions were in conflict with the provisions of other federal land laws: a situation created by Congress failing to correct the inconsistencies between the laws. Further problems stemmed from the fact that the Homestead Act (U.S. Congress 1862a), while written to assist small farmers, was written by those who were not small farmers, and therefore, probably not aware of the problems most small farmers faced.

The information made available to potential homesteaders through private and governmental agencies concerning the environment of the study area had a significant effect on the choices made by the settlers. As noted in Chapter I, local boosters, lumber interests, railroads, and federal, state, and local governments all had vested
interests in the rapid growth and development of the area and used a wide variety of methods to promote the agricultural potential of northern lower Michigan.

At one end of this activity was John Fitzmaurice who traveled between lumber camps selling hospital tickets and lecturing the shanty boys on the benefits of sobriety over the binges of intemperance and debauchery that usually characterized the end of the logging season. "Boys, be good to yourselves, and the fact is as true as taxes, that any honest, sober man can have a home in Michigan within five years if he is only good to himself" (1889:117). It is worth noting that as editor of the East Saginaw Courier, Fitzmaurice was not a homesteader, but had taken it upon himself the task of advocating homesteading as a cure for some of the local social evils.

Reports by supposed experts on the environment of the study area often only served to add confusion rather than inform. One prime example is a report of a trip made by botanists Beal and Bailey through northern lower Michigan. The purpose of the trip was to "see what can be done to make these barren useless districts fertile" (Thomas 1988:38). The report, portions of which were published in the Detroit Free Press, contained a number of conflicting statements. For example, Bailey described many plants observed during the trip as being best suited to dry, sandy soils. However, he also stated that: "Much of the barren land . . . produces great quantities of large wake robin or trillium, a plant ordinarily found in low and rich woods" (Zimmerman 1956:186). Oscoda County was also described as having large amounts of large wild roses and New Jersey tea growing
on the jack pine plains. "The occurrence of these plants cannot fail to inspire the hope that other plants of economic value can be made to grow profitably upon the plains" (Zimmerman 1956:188). At present, the large wake robin, wild roses of any size, and New Jersey tea are rarely, if ever, found on the jack pine plains. It should also be noted that neither wild roses nor New Jersey tea are considered to be indicators of soil suitable for farming.

There is some possibility of bias towards a favorable report on the "barren districts" before the trip began. The statement of the purpose of the trip, ending as it does: "if science knows anything about it, they [the jack pine plains] shall be made as good as any other part of the state in short order" (Thomas 1988:38), indicates bias and may explain the conclusion to Beal's report:

We were surprised to find so many advantages for people of limited means to start homes. We were unable to see why so many should leave Michigan for the prairies of Dakota, and believe most of them would not leave were they familiar with the portions of our State. (Thomas 1988:43)

As with Fitzmaurice, neither Beal nor Bailey were homesteaders attempting to farm on the Grayling sand outwash plains. Certainly a 12-day trip did not provide Beal or Bailey with the experience necessary to understand the problems faced by the homesteaders and, thus, prevented them from making useful recommendations.

By far the most exaggerated and widespread statements concerning the agricultural value of the environment of the study area came from commercial interests such as the H. M. Loud and Sons Lumber Company. With thousands of cut-over acres to sell and a need for a local source of labor, the Louds put out a booklet that described the
region as a "mecca for anyone interested in good land at a cheap price" (Richardson 1976:9). People from other counties and states were lured to Oscoda County with descriptions of 4-foot tall alfalfa and head-high rye (Richardson 1976). The probability is quite low that such conditions ever existed in Oscoda County, indicating a degree of intentional dishonesty on the part of the Reverend Loud and his sons.

The degree and extent of exaggeration to complete falsehood present in the information provided potential settlers had a profound effect upon the homesteaders' perceptions of the environment of the Grayling sand outwash plains and upon subsequent decisions made regarding settlement and adaptive strategies. Additional elements from the emic aspect of the sociocultural system of the homesteaders provides further insight into the perceptions and decisions of the homesteaders.

To identify the relevant material factors in human events is always a difficult task. Practical life wears many disguises. Each life style comes wrapped in myths and legends that draw attention to impractical or supernatural conditions. These wrappings give people a social identity and a sense of social purpose, but they conceal the naked truths of social life. Deceptions about the mundane causes of culture weigh upon ordinary consciousness like layered sheets of lead. It is never easy to circumvent, penetrate, or lift this oppressive burden. (Harris 1974:5)

Promotion of the agricultural potential of the study area was based upon the "myth" that the "plow would inevitably and successfully follow the axe" (Schmaltz 1983:32). This myth was part of the greater nineteenth century ethic of progress that operated at all levels of the information network. According to Osborne (1977:221),
the "credo" of progress was a significant element in the increasingly favorable descriptions of the environment of the Canadian Shield lands. As was the case in Canada, evaluations of the agricultural potential of southern Oscoda County improved as settlement served the needs of various interests groups such as the lumber interests or local boosters. Descriptions of poor, third-rate sandy soils found in the fieldbooks of the original government survey (U.S. Survey 1838) changed to those of a "bonanza land" with "some of the best farming land in the northern States" (Randall n.d.). The "poorest of this once supposed desert will become of service to the agriculturalist and that at no distant day" (Randall 1984:51). It could well be that those who promoted settlement in Oscoda County by farmers used the ethic of progress to justify their overly optimistic descriptions. "If Nature abhorred a vacuum, the nineteenth-century advocates of progress knew how to fill one" (Osborne 1977:221-222).

For the Oscoda County homesteaders, "drawn from all walks of life, some of them practical farmers, many of them not farmers, but all animated by the zeal of the crusader" (Randall 1984:51), the ethic of progress provided them with a noble identity and sense of purpose.

It was on the frontier that the most dynamic expression of the ideal of progress could be found. Here the application of manpower and contemporary technology to the task of developing a mature society and productive economy out of the wilderness set the stage for the several dimensions of economic, social, political, material, and even moral progress. (Osborne 1977:221)

In the short term, the enthusiasm generated by the frontier identity may have provided some survival advantage by allowing the
homesteaders to overcome initial hardships with some humor and grace. Unfortunately, this same enthusiasm may have led the homesteaders, who were already misled by the exaggerated descriptions of the area, to perceive the fire-swept jack pine barrens as "prairies . . . nearly ready for the plow" (Randall n.d.). Too much enthusiasm, or the concept that "opportunity knocks but once," may also account for the surprisingly high number of homesteaders who started with little working capital or even a horse (Brunt 1988; Randall 1984).

Eventually the feedback from the dry and infertile Grayling sand outwash plains overcame the enthusiasm of the homesteaders, changing their perception of the environment. After homesteading on the Mack Lake outwash plain for three years, William Deyarmond observed that farming on the plains was "a very simple matter because a man could plow and sow and never be bothered with the labor of reaping" (Randall 1984:51). As perceptions of the suitability of the jack pine plains for farming changed, so did the decisions of the homesteaders regarding the choices available to them. While attempting to homestead on the jack pine plains may have been maladaptive, the fact that the homesteaders' responses to the situation changed—namely they left southern Oscoda County—is considered to be a form of cultural adaptation (Butzer 1982).

However, to the nineteenth century advocates of progress, homesteaders who failed to stay on the jack pine plains were considered to be inexperienced, lazy, or given to "bad habits" (Schmaltz 1983:33). The ethic of progress was used to disguise the social realities of land laws that, in fact, favored monied interests over
the small farmer for whom the laws had been supposedly written to promote and protect. The hardships endured by individual homesteaders were of little concern to government at the state and federal levels. To the government the homesteader was "a faceless, anonymous factor . . . referred to in terms of gross numbers or overall contribution to national or regional progress," while the frontier experience itself "was described as a morally and economically salutary one" (Osborne 1977:205). So entrenched was this dedication to progress in the form of farming following lumbering, that it took over forty years of evidence to the contrary before the State of Michigan changed its policy of promoting farming in northern lower Michigan to one of establishing forest and wildlife reserves.

Oscoda County was only one of thousands of counties in the United States that was affected by the interaction of federal land laws with the local social, physical, and biotic environments. The pattern of temporal and spatial variation that developed between lands acquired for their timber and those that were homesteaded would be expected to be repeated in areas where there were similar variations in soil, vegetation, and land use. The patterns of settlement and subsistence established in this study could provide a historical, environmental, and sociocultural matrix in which the archaeological data from individual sites could be evaluated and interpreted. Information on the nature and cost of improvements made on individual patented homesteads available through the General Land Office records at the Bureau of Land Management and the National Archives (Levine,
Knight, and Wojcik 1983) could also be used to further enhance interpretation and evaluation of these sites.
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