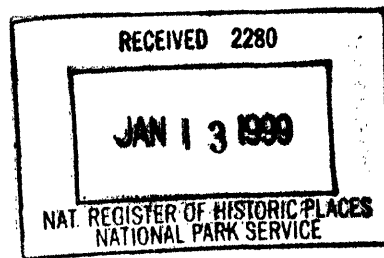


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# National Register of Historic Places Multiple Property Documentation Form



OMB No. 10024-0018

This form is used for documenting multiple property groups relating to one or several historic contexts. See instructions in How to Complete the Multiple Property Documentation Form (National Register Bulletin 16B). Complete each item by entering the requested information. For additional space, use continuation sheets (Form 10-900-a). Use a typewriter, word processor, or computer to complete all items.

☒ New Submission ☐ Amended Submission

## A. Name of Multiple Property Listing

Commercial Logging in Minnesota (1837-1940s)

## B. Associated Historic Contexts

St. Croix Triangle Lumbering (1830s-1900s)  
Northern Minnesota Lumbering (1870s-1930s)  
Indian Communities and Reservations (1837-1945)

## C. Form Prepared By

name/title Douglas A. Birk, Senior Archaeologist/ Historian  
IMA Consulting, Inc.

street & number 2635 Fourth Street SE telephone (612) 623-0299  
city or town & state Minneapolis, MN zip code 55414

## D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. (See continuation sheet for additional comments.)

Signature and title of certifying official Ian R. Stewart, Deputy SHPO

Date 12/11/98

Minnesota Historical Society  
State or Federal agency and bureau

I hereby certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

Elson H. Beall  
Signature of the Keeper

Date Feb. 12, 1999

NATIONAL REGISTER OF HISTORIC PLACES

CONTINUATION SHEET

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E. STATEMENT OF HISTORIC CONTEXTS

INTRODUCTION

The commercial logging industry played a major role in the development and settlement of the area of present-day Minnesota in the nineteenth and early twentieth centuries and continues to play an important economic role today. From 1837 through the 1920s loggers made a near-complete harvest of all “original-growth” white and red pine in northern and east-central areas of Minnesota while providing wood products to build cities, factories, and farms within and beyond the state’s borders. Black spruce logging similarly laid the foundation for the pulpwood (paper) industry, and cedar and tamarack were cut for railroad ties, fence posts, and utility poles. Logging also stimulated the manufacture of furniture, containers, and boats, and such things as boardwalks, shipping pallets, cable reels, and Insulite, a “structural wood fibre insulation board” first developed in 1914 (Fritz 1986:103).

The logging industry involved a suite of sequentially-phased activities beginning with an initial reconnaissance of harvesting potentials and ending with the sale of wood products and the disposal of mill waste (Table 1). Increasingly, after 1900, there was also a concern for reforestation, leading to “tree farming.” The procurement aspects of the industry, the focus of this Multiple Property Documentation Form (MPDF), relate more narrowly to the actual business of cutting trees and moving logs to the mills or commercial yards.

PHASE	TASKS	SCHEDULE
<i>Reconnaissance</i>	<i>Finding marketable trees in viable harvesting areas.</i>	<i>Year around</i>
Acquisition	Gaining access, cutting rights, or rights of ownership.	As necessary
<i>Forest Operations</i>	<i>I. Establishing and outfitting camps and readying other support and harvest facilities.</i>	<i>Late summer/ early fall.</i>
	<i>II. Falling trees and preparing them for removal from cutting areas.</i>	<i>Fall/ winter</i>
<i>Transportation</i>	<i>I. Moving felled trees or bucked logs from cutting areas to landing or storage locations.</i>	<i>Winter</i>
	<i>II. Moving stock-piled logs from harvest regions to mills.</i>	<i>Spring/ early summer</i>
Milling	Milling logs into wood products.	As necessary
Marketing	Marketing wood products.	Ongoing
Waste Disposal	Disposing of mill waste.	As necessary

Table 1. A list of sequential phases involved in the commercial logging industry, with reference to the general anticipated scheduling of activities (based on Karamanski 1989:66; Birk 1996). Those phases having properties directly associated with the procurement aspects of the logging industry are italicized.

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In Minnesota, as in other Great Lakes' states, log-procurement activities occurred on dynamic frontiers wherever there were sufficient resources to attract lumbermen, where access and acquisition were possible, and where harvesting technologies and transportation systems might allow profitable cutting. Because the forest was stationary and the lumbering frontiers, in a sense, moved through it, activities and facilities associated with the harvest were usually of a transitory nature. Physical evidence left in the wake of the harvest should thus reflect the progression of the frontiers and the growing range and refinement of logging properties as strategies evolved and technologies advanced. The field identification of logging properties can, in many cases, be enhanced by oral or documentary evidence that might help to date the properties or to define their age, use, affiliations, and interrelationships (e.g., Overstreet 1982; Stiles 1993). Significance is not only drawn from a comprehension of the nature, age, and content of individual properties themselves, but also from a knowledge of how the properties functioned within broader systems. Comparative studies might also show how logging properties and systems have varied through time, by location, or through other means.

### GEOGRAPHICAL CONSIDERATIONS

In the years preceding the rapid ingress of Euroamerican settlement in the second half of the nineteenth century, about two-thirds of the area of present-day Minnesota was covered by forests and the remainder by prairie (Figure 1). An area of hardwoods known as the "Big Woods," extending from north of what is now St. Cloud southward into the Mankato region, was comprised of large stands of maple, basswood, elm, ash, butternut, black walnut, and other broad-leafed species mixed with oak. The Big Woods was bordered on its south and west by prairie grasslands. Some historians have concluded that the Big Woods actually "counted for little" as a source of lumber in the initial development of the state of Minnesota and that trees there were generally cut and burned to make way for farms and villages (Larson 1949:6-7; Grimm 1985).

In contrast to the Big Woods was a contiguous area of mixed coniferous-deciduous forest to the northeast sometimes called the "pineries" or, more nostalgically, the "North Woods." The pineries, especially areas of white pine (*Pinus strobus*), were eagerly sought out and exploited beginning in the 1830s and the logging industry thereafter became an integral part of the state's economic and cultural development. Though scattered islands of pine were found as far south as the present-day Twin Cities, the richest pineries extended from Taylors Falls on the St. Croix River, to Princeton on the Rum River, to Little Falls on the Mississippi River, to Frazee on the Otter Tail River, and then northwards to Lake of the Woods on the Canadian border. The pine was not evenly distributed in the pineries but formed a patchwork or mosaic of white, red, or jack pine stands intermixed with spruce, fir, cedar, tamarack, aspen, birch, and other commercial species. These major ecological communities—the prairie grasslands, the deciduous woodlands marginal to the prairie, and the mixed forest—were the result of long-term natural processes involving interactions among soils, geology, climate, and fire (Tester 1995:6-7), and the intervention of human populations (Grimm 1985).

The lumbering industry required reliable, cost-effective modes of transportation to move logs from harvesting cells or frontiers to mills or use-areas, and waterways were of primal importance in that regard. Minnesota's logging districts, in large measure, coincided with a remarkable network of natural waterways, including many lakes and rivers that were suitable for driving buoyant logs to distant locations (Figure 2). In areas where waterways were normally too narrow or shallow to float logs, the water levels and currents were often augmented through the use of dams, dikes, and artificial channels. When moved through areas of slack-water, such as found on lakes, the logs might be secured in rafts or booms and pulled across with the use of a towboat or headworks (floating winches turned by human, horse, or steam-power) (Hall et al. 1996).

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Logs cut in the headwaters regions of the Mississippi, Rum, and St. Croix rivers were typically moved southward to be milled. Logs cut on the St. Louis and Pigeon rivers and in intervening places along the North Shore were typically moved out to Lake Superior and then to central places like Duluth, or Bayfield, Wisconsin. Prior to the use of logging railroads, logs cut in areas tributary to the Rainy River were often floated via the Rainy to [REDACTED]

[REDACTED] Similarly, logs cut within areas of the Red River basin were often floated to mills or mill towns near the prairie-forest edge in northwestern Minnesota. The Minnesota climate, with its temperature extremes and "moderate precipitation" (Tester 1995:6), worked to shape both the character as well as the harvest of the forest. Log-procurement followed a seasonal rhythm, and the use of waterways for transportation normally dictated that log drives be conducted in the spring when winter snows melted and the runoff was generally at its peak.

Throughout Minnesota's forests, through the 1920s, most of the wood product was removed for eventual milling or use in outside areas. Because of the low-density of resident consumer populations in the northern pineries and the nature of transportation systems, only a small percentage of the log harvest was actually consumed within the areas of the cut-over landscapes themselves. This underscores the fact that logging frontiers, as variants of what have been called "industrial frontiers" (e.g., Hardesty 1985; Lewis 1984:263-92), lacked self-sufficiency and were closely linked to outside markets and economies (Steffen 1980:xii). The labor force for such operations were usually transient, ethnically-diverse, and male-dominated (Kohlmeyer 1956:533) and, in Minnesota, it involved large numbers of resident Native Americans along with immigrated laborers and technicians working either in direct or supportive roles (Birk 1997a).

## LOG PROCUREMENT

The era of pine logging, the initial and most intensive lumbering industry, began in Minnesota in the 1820s with the establishment of Fort Snelling, an isolated United States Army outpost, at the juncture of the Mississippi and Minnesota rivers. The troops built a sawmill [REDACTED] where they milled logs obtained on the Mississippi and Rum rivers in central Minnesota to produce building materials for the fort. The industry was commercialized in the late-1830s when treaties with the Dakota and Ojibwe (Chippewa, Anishinaabeg) began to open Minnesota to broader Euroamerican exploitation, and it lasted about a century or until the pine forests were depleted. The procurement of pine logs facilitated the Euroamerican settlement while prompting the displacement of tribal peoples and paving the way for later forest industries. Commercial aspects of the pine-logging industry were built upon an insatiable American demand for wood products and a general belief that the pineries were inexhaustible. Over time, as technical and methodological innovations created more efficient harvesting systems, the logging frontiers expanded and the rate of the harvest accelerated. The growing costs of labor, technologies, and transportation simultaneously required ever larger capital investments, inviting control of the pine-logging industry by big business (Birk 1996).

Other forest species besides pine were also commercially important in the late-nineteenth and early twentieth centuries and the technologies and property types used in their harvest were similar to those used in the pineries. The railroad tie industry made extensive use of tamarack and cedar and, after 1890, by one estimate, was one of the "largest industries" in northern Minnesota (Ryan 1976:41). Iron mines, paper mills, and utility companies were also major consumers of wood products (LeBarron 1948; Ryan 1976:39-41, 45-47; 1980:10-12; Boese 1984; Mellor 1990), and, in 1911, Armour & Company began harvesting basswood and ash in Aitkin and Itasca counties for use in manufacturing lard pails, butter tubs, and other food containers (Lemen 1970:15).

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The logging industry was conducted systematically (Table 1), and its procurement aspects occurred on dispersed fronts tributary to linear transportation lanes (like rivers or railways) along which logs were conveyed to mills or other destinations. The falling and movement of trees was typically done by crews of men who wintered in the woods, and the historic properties related to their habitation activities and transportation systems are widely represented in the archaeological record on Minnesota's rural landscapes and waterways (Birk 1997a).

Log procurement required the use of a process whereby logs were cut and transported on an anticipated schedule (Nelligan 1969:148). Procurement activities generally followed a logical, phased progression within an annual cycle (Knight 1981) so that logging camps were usually established in the fall, logs were harvested and stored during the winter, and the logs were sent to the mills in the spring. Logs, often being heavy and bulky, were difficult to move on land but, if buoyant (like pine), were relatively easy to manage when floated in water (Rector 1953:91). At first, short-distance overland movement of logs was done with dray animals and brute human force, while long-distance transportation relied on natural and improved waterways. After 1886, with the introduction of logging railroads in Minnesota, logs were also shipped by rail. Procurement ended when the logs reached their ultimate destination--the mill, mill pond, or commercial yard.

### CHRONOLOGY

Temporal controls are important for studying changes, constants, or aberrations in the logging industry and are also a necessary prerequisite for dating, interpreting, or evaluating logging properties or systems. Commercial logging in America developed during the Industrial Revolution and was subject to numerous innovations aimed at fixing or reducing the unit costs of procurement while extending harvesting thresholds and outputs. Although high levels of tradition and standardization are hallmarks of industrial frontiers, the methods and technologies of log procurement did evolve over time. Chronological considerations can enhance our understanding of the nature, causes, and affects of that evolution. They can also help to delineate situations where different methods were used to solve similar problems, or situations where operators found it possible to compete with dated methods or equipment (e.g., Hardesty 1985:218-20; Birk 1996).

Certain diachronic aspects or conditions of logging are demonstrated through documentary sources (e.g., Hagg 1948; Larson 1949; Dinsdale 1965; Clarke 1979; Rohe 1985, 1986; Fries 1989) and should be evident in the archaeological record. For example, historical accounts suggest that, with the increased use of improved logging roads and horses in the late-1870s, oxen were generally replaced by horses by the turn of the century (Larson 1949:175-77; Rosholt 1982:26). Likewise, it is said that oxen were used extensively in the pineries of central Minnesota and as far north as Grand Rapids, but were little used in more northerly areas of the state that were cut later (Ryan 1975:22; 1980:44). The differential use of horses and oxen may also be evident in log-transportation thresholds (Birk 1996). Such temporal shifts and spatial distinctions should reflect archaeologically through the occurrence and distribution of horse and oxen shoes, the nature of harness gear, and the size of sled runners (e.g., Rosholt 1982:17). Similar investigations may trace the formal and functional evolution of logging camps (e.g., Rohe 1986) and the living conditions and diets of lumbermen (Rock 1984; Ryan 1980:35-37; Busch 1981), along with the adaptation and proliferation of logging railroads. In studying log-procurement activities, sites, and systems, the most comprehensive results might be expected from integrating documentary and archaeological evidence and through the use of material evidence to test theoretical constructs developed from historical records, or vice versa.

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The development of commercial-logging frontiers in Minnesota can often be explained by environmental and technological factors. However, the establishment of state and national forests (e.g., Searle 1971), state parks (e.g., Dobie 1959), and Indian reservations (HRA 1992), along with government policies, business alliances, financial constraints, and other forces also affected the acquisition or harvest of many forested areas and worked to shape logging frontiers. Prior to World War I, thousands of acres of trees were appropriated through operations involving political favoritism, faulty estimates, or fictitious or concocted "dead and down" sales. Promiscuous cutting beyond the bounds of legal ownership was facilitated through fraudulent land claims or trespassing on public or Indian lands. Government-sanctioned programs in the 1880s and 1890s removed large tracts of forested or arable reservation land from Ojibwe control in northern Minnesota by giving each head of family or others a land allotment and then selling off the "surplus" acreage to outside interests. Later, other restrictions on the sale of Indian lands were removed, making additional acreage available for harvest (e.g., Larson 1949:289-327; Searle 1971). Logging was often considered beneficial to the Ojibwe because it generated revenues, provided employment, produced materials for building houses, and opened land for agriculture. All such activities were an "integral part of... federal efforts to 'civilize' the Indians and to incorporate them into the mainstream of American society" (HRA 1992:3-2-3).

## CONTEXTUAL SUMMARY

The Minnesota State Historic Preservation Office (MnSHPO) currently recognizes two principal statewide historical contexts for evaluating most Minnesota logging-related properties: *St. Croix Triangle Lumbering, 1830s - 1900s* and *Northern Minnesota Lumbering, 1870 - 1930s* (MnSHPO 1993). A third context, *Indian Communities and Reservations, 1837-1945* (Anfinson 1994), is used when evaluating logging properties on Indian lands, or properties, like Indian operated logging camps, that otherwise significantly involved Indian peoples.

The two primary lumbering contexts are based largely on geographical, ecological, and chronological considerations. Though often treated as geographically-discrete entities of the logging industry (e.g., Larson 1949:6-7; Swanholm 1978:7) the areas of the contexts actually merge and overlap to reflect a broad continuum of industrial expansion and change over time. In general terms, it should be understood that the statewide lumbering contexts were developed not only to provide historic frameworks for evaluating individual properties, but also to reflect broad patterns of the state's history.

*St. Croix Triangle Lumbering*

Early Euroamerican traders saw vast reserves of pine in the upper reaches of the valleys of the St. Croix and Rum rivers and, through their commercial transactions and intermarriage with resident Indian peoples, paved the way for later land-ceding government treaties. Logging in the St. Croix Triangle actually began just prior to the signing of the Dakota and Ojibwe treaties of 1837 which ceded the area.

With ratification of the treaties in 1838, increasing numbers of Yankee entrepreneurs, many with skills learned in the forests of New England, moved into the St. Croix Valley. Building on prior experience, they introduced a rhythmic lumbering industry based on the harvesting of pine during the winter and the transportation of stockpiled logs downstream in the spring. At first they freely took trees from the public domain. Nonetheless, through the 1840s some loggers continued the time-honored protocol of giving gifts to the Ojibwe, largely to appease those Ojibwe who remained to hunt and fish on the treated lands. Two additional Ojibwe treaties in 1847 ceded the remainder of their land south of the Crow Wing River west of the Mississippi.

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Commercial pine logging above St. Anthony began in 1847, on the eve of Minnesota becoming a territory and just before the advent of public land sales in the formal area of the St. Croix Triangle. Logs cut that winter at a camp on Ojibwe lands on the west side of the Mississippi below Crow Wing were purchased at so-much-per-tree from an Ojibwe chief and then floated downstream to a new commercial sawmill at St. Anthony Falls. After 1848, when government land sales allowed pineries to pass into private hands, greater numbers of logging camps were placed in operation and the logging frontier moved rapidly up the Snake and Kettle rivers into the interior of east-central Minnesota. Mills and mill towns, including river settlements like Marine and Stillwater, sprang up, stimulating immigration, employment, and an increase in river activity (Dunn 1966). Minnesota's ascendance to statehood in 1858, followed by passage of the Homestead Act of 1862, also spurred settlement while increasing the labor force and regional markets.

*Northern Minnesota Lumbering* had similar origins. By the 1850s the harvest of pine entered the [REDACTED] but logging did not begin in earnest north of the St. Croix Triangle until after 1870. Minnesota's Ojibwe populations got involved in the logging industry as landowners, laborers, lessors, or through other means. The mills at St. Anthony Falls formed the nucleus of a new community (Minneapolis), and the subsequent flow of logs and agricultural products soon turned that place into Minnesota's largest urban center (Larson 1949:34). At the same time, cut-over areas were increasingly occupied by farmers, leading to an agricultural land boom in more northerly regions. Logging railroads, first introduced in Minnesota in 1886, played a larger role in the harvesting of pine in northern Minnesota than they did in the St. Croix Triangle (e.g., Ryan 1946; King 1981). Pine lumber sent to western farms and prairie settlements also stimulated Minnesota's railroad and agricultural developments just as the opening of new logging roads and railroads and the commencement of steamboat activity in northern lake-forest districts promoted tourism and recreation.

The *Northern Minnesota Lumbering* context incorporates a large area of northern Minnesota that drains north to Hudson Bay, south to the Gulf of Mexico, and east, via the Great Lakes, to the Atlantic Ocean. The great size and natural diversity of that area, along with the uneven distribution of its forests and the changing political climates, presented a wide range of challenges and opportunities, and logging there progressed on a number of fronts, each within its own particular time frame. For example, commercial logging operations began in the Duluth area and along the North Shore of Lake Superior after the Ojibwe Treaty of 1854. The first loggers concentrated their harvests near the mouths of rivers like the St. Louis and Nemadji, and they milled their logs using hand whipsaws. By 1859 steam sawmills were in operation at what are now Two Harbors and Duluth. The region suffered economic reversals and population loss during the Panic of 1857, and most lumber produced there through the 1870s was consumed locally. Aided by later use of logging railroads and the practice of towing logs along the North Shore, Duluth-area logging peaked in the 1890s only to experience rapid decline after 1910 when the most accessible trees were gone (Ryan 1976).

In contrast, the cutting of logs in more isolated regions between the Canadian border and the headwaters of the St. Louis and Mississippi rivers began in the 1880s and, through the eventual adoption and then heavy use of steam-technology (i.e., railroads, steam crawlers, and steamboats), peaked after 1910. Early on, much of the pine harvested along Minnesota's northern border region was milled at Rat Portage (Kenora) from where lumber was shipped by the Canadian Pacific Railway to farming areas farther west (Fritz 1986:24). One of the last great logging frontiers in northern Minnesota was a region around the source of the Mississippi that remained inaccessible until logging railroads were introduced there in the 1890s (Hagg 1948). Log harvesting did not legally begin on Red Lake Reservation until 1896. The Nett Lake Indian Reservation was also isolated and, for want of ready markets, little timber was harvested there before World War I (HRA 1992:4-16).

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Lumbering associations with *Indian Communities and Reservations* are closely tied to the chronology of treaties with the Ojibwe (Figure 3). In 1837, the Ojibwe ceded their lands east of the Mississippi River south of the mouth of the Crow Wing River. Prior to ratification of the treaty in 1838, lumbermen made agreements with various Ojibwe groups and the first major lumber camp was established at the mouth of the Snake River (Larson 1949: 13). In 1847, several Ojibwe bands ceded their lands west of the Mississippi River south of the Crow Wing River. Daniel Stanchfield, under an agreement with the Ojibwe chief Hole-in-the-Day, established a camp and cut timber on the west bank of the Mississippi just south of the mouth of the Crow Wing during the winter of 1847-48. By the early 1850s, lumbermen were already looking at the rich pine lands north of the Crow Wing River and gained access to it through a treaty in 1854 which ceded northeastern Minnesota and a treaty in 1855 which ceded the Mississippi headwaters region. In 1866, the Nett Lake area was ceded. Most of the Red Lake area was ceded in 1889. Lumbering rapidly entered the ceded lands.

While logging was the driving force to acquire Ojibwe lands in Minnesota and rapid destruction of the northern Minnesota ecology forced the Ojibwe to abandon many aspects of their traditional way of life, the Ojibwe also participated in commercial logging. Ryan (1989) contends that Indians played a very minor role in the lumber industry and he characterizes them as unreliable workmen who were largely limited to working as "river pigs" on fast river drives because they enjoyed the thrill of riding the logs. Historical Research Associates (1992) present a different view.

[REDACTED] HRA 1992: 3-4, 3-6, 3-17). Other Ojibwe, who resisted moving to the reservations, worked in lumber camps near their villages (HRA 1992:3-6). Ryan (1989) also infers the Ojibwe avoided hard work in lumber camps, but HRA (1992:3-8) contend that the Fon du Lac Ojibwe "earned a reputation for being steady and reliable workers." The lack of Indian loggers in camps distant from villages may have been due to conflicts between the lumbering cycle and traditional Ojibwe lifeways. Winter in northern Minnesota was a difficult time when men were needed at home to provide food for their families. For the men to spend the winter in a lumber camp far from home would have caused hardships and threatened the very survival of some Indian families.

## CONCLUSION

Over time, as the logging industry expanded, log-procurement practices in Minnesota became more sophisticated, mechanized, and intense. The frequent movement or abandonment of old facilities, in turn, provided opportunities for retooling or restructuring operations and favored the adoption of new equipment, innovations, and standards (Kohlmeyer 1956:533). Material evidence left in the wake of the harvest can be studied to show the progression and configuration of frontiers as well as the changing nature of the logging industry as cutting strategies evolved and technologies advanced.

A baseline against which to measure historical developments can be produced by reconstructing the distribution of the desired raw materials at the time the industry began (e.g., Rohe 1985:362). Evidence for defining the dispersion history and nineteenth-century distribution of Minnesota's forests is found in palynological sources (e.g., Jacobson 1979) and the field notes of the original government land surveys (e.g., Marschner 1974). Other evidence for developing contexts can be found in public and business records, newspapers, reminiscences, maps, photographs, oral traditions, and place names (e.g., Overstreet 1982:58-64). Meteorological data are also relevant for studying diachronic change or innovation in the logging industry. Warm winters or winters of little snow, for example, might have impeded the log-procurement process, causing loggers to seek new ways to transport logs (e.g., Rector 1953:196). Integrating all the various strands of evidence can help to generate more precise local or regional perspectives on loggers and logging culture and to provide data relevant to understanding the motivations, timing, and implications of shifts in logging methods and technologies.



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### F. PROPERTY TYPES

As used in reference to the National Register of Historic Places (NRHP), property types are “groupings” of historical or cultural properties that share some “common physical and associative attributes” (NRB-15 1991:53). Prior research in Minnesota has typically led to the categorization of log-procurement properties by geographical location, period, and function, though some studies have provided evidence to show the corporate affiliation of specific sites or structures or even their association with named individuals (e.g., Peters et al. 1983:151-155; Fritz 1986; Larson 1995). The harvesting of logs can be seen in much the same light as other procurement systems used to gather wild rice and workable stone, or furs, minerals, and potters’ clay. Such varied activities resulted in differing material outputs, cultural properties, and property distributions, all of which were subject to spatial influences and diachronic change.

The nature and focus of recent logging-site management studies are summarized in an article by geographer Randall Rohe (1985). Among the range of approaches used for identifying and evaluating sites, all appear to share at least some things in common. A concern of most investigators is to conduct documentary research to develop regional historical overviews of logging while, at the same time, providing more detailed histories of specific sites (to include logging railroads). Public agencies concerned with managing logging properties have often placed great emphasis on developing and maintaining inventories of those properties, and archaeologists have advocated the need for conducting field evaluations so that the physical integrity, research potential, and interpretive value of sites may be established (e.g., Overstreet 1982; Stiles 1993; Emerson and Magner 1996).

Determining the exact function (or range of functions) of specific logging sites without the benefit of precise documentation can be problematic. For example, in considering just logging camps alone, Rohe identifies “dam camps, drive camps, boom camps, spike camps, sawmill camps, and other forms of logging camps” (like farm camps, hay camps, hoist camps, sleigh or steam-haul camps, railroad-construction camps, headquarters camps, State-of-Maine camps, etc.) and notes that no one has yet “identified the diagnostic characteristics for each type” (Rohe 1985:370). Adding to the problem is that there are literally hundreds (if not thousands) of logging properties in Minnesota, and archaeological assessments of those properties are typically made during reconnaissance level field investigations, often by persons with little formal training or experience in historical archaeology. On the other hand, all para-professionals and archaeologists could likely tell the difference between the remains of a logging camp and a railroad grade on the basis of surface observation alone (Birk 1997a).

When in use, all timber-procurement properties were directly or indirectly involved in the cutting and movement of logs. Understanding the processes and properties involved in logging is made easier by visualizing where the logs were and how and by whom they were handled at every step of the way from the stumps to the mills. While the distribution of log-procurement properties may have been influenced by government policies, ownership rights, or political subdivisions, in many cases the thresholds of logging frontiers might also reflect boundary conditions beyond which it was not feasible or profitable to cut and transport timber until more effective means of procurement were introduced. Initial pine harvests focused on cutting shore timber; that is, trees growing within skidding distance of good log-driving streams. Innovations like the use of iced sled roads, dams, and railroads increased the efficiency of the harvest and typically extended the thresholds, opening new areas to exploitation. A fruitful avenue of inquiry for identifying, evaluating, and interpreting logging properties may be within the context of the frontier boundaries or harvesting thresholds in which the properties functioned (Dinsdale 1965; Karamanski 1989; Peters et al. 1983:172-79; Larson 1995; Birk 1996).

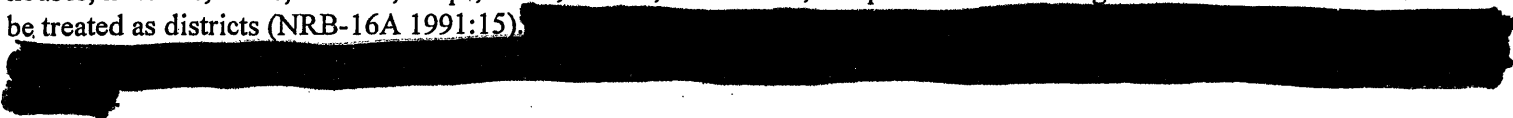
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Through the use of documentary evidence (including photographs) it is possible to define the various tasks and activities engendered in the log procurement process and to hypothesize how each might be expressed in the archaeological record (Birk 1997a, Appendix B). Because of the broad range of possible material representations, the best course when categorizing logging sites for management purposes would seem to be to start with a lowest feasible number of property types. Narrowing the number of property types should facilitate their field identification while serving to eliminate needless guess work on the part of surveyors. Towards that end, four log-procurement property types are proposed:

(1) *Habitation properties* include all forms and variations of settlement sites and loci along with associated features like gardens, corrals, fire hearths, wells, debris scatters, and trash middens, and the remains of buildings or structures like bunk houses, kitchens, barns, shelters, shops, sheds, offices, root cellars, and privies. Areas of significant resource concentration may be treated as districts (NRB-16A 1991:15).



Habitation properties are generally the remains of transient, temporary, or semi-permanent camps or facilities used directly in support of logging operations and transportation. Such places often provided structured environments for housing and feeding animals and laborers, conducting company business, and for making, maintaining, or storing equipment. This would include logging camps, driving camps, logging dam construction camps, logging railroad construction camps, and cruiser camps. Wells and privies were common features at many logging camps, though garbage like empty food containers and organic wastes may have been deposited in dumps up to a quarter mile away from living areas (Peters et al. 1983:164).

There was a general proliferation in number and size of logging camps in the late nineteenth century (e.g., Rohe 1986; Birk 1996) while, in some areas, after 1920, corporate arrangements led to an increase in the size of camps and crews, with a coincidental decrease in the number of camps in operation (Peters et al. 1983:169). With the introduction of logging railroads in northern Minnesota in 1886 (Ryan 1946), for example, there was a concurrent rise of rail-based camps (including railroad-construction camps). Written accounts of life in the camps is of varied quality, often biased, and largely incomplete (Peters et al. 1983:169). Habitation properties (sites) contain archaeological information relating to such things as living arrangements, sanitary conditions, diets, architecture, or ethnicity. Because most such properties, when in use, were likely located near ongoing logging operations, their locations and distribution might also inform about the placement and configuration of contemporary logging frontiers, harvesting thresholds, and transportation links as well as about the nature of other political or economic forces or conditions that may have worked to shape these various phenomena.

Habitation sites are often littered with artifacts and have long been a focus of collecting and looting. District Heritage Paraprofessional, Keith Matson, at Chippewa National Forest, recently lamented:

I have not seen a pristine [logging camp] site on this Forest. Sites have been collected for scrap iron in the scrap drives of the two World Wars, [altered by] past timber harvesting and site preparation activities...dating to as early as the CCC era when these logging era sites were not deemed important as historic sites and were not protected, and...damaged by pot hunters and collectors. This is not to say that all sites have been totally trashed, indeed many of the sites still retain foundation berms, cellar and well pits and some artifacts buried on the sites. Rather, this means that the...volume of metal...usually abandoned with a logging camp has been removed, save for tin can dumps found at some of the camps dating to the later periods of the logging era (Matson 1996).

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(2) *Transportation properties* include all variations of log conveyance or control facilities and features including skidways, landings, supply (tote) roads, sled roads, railroad grades, rail or roadway systems, bridges, trestles, hoists, dams, dikes, diversion channels, flumes, pilings, cribs, sorting gaps, booms, log rafts, sunken logs, log jams, boats, locomotives and cars, shops, storage sheds, shelters, directional signs or signals, and survey or boundary markers. In terms of NRHP evaluations, transportation properties may include buildings, sites, structures, objects, and districts (NRB-16A 1991:15-16). Such properties may be in upland or wetland areas, or in settings near, over, in, or under water. Examples of transportation properties include [REDACTED] (Ryan 1946; Vandersluis 1974; King 1981), [REDACTED] (Hall et al. 1996:42-48).

Transportation properties can be studied to learn about supply connections and harvesting processes as well as to determine how certain procurement methods and technologies may have worked, inter-related to natural features, changed over time, or differed from one region or company to another. While transportation properties may be considered individually, they are perhaps best understood when considered as parts of broader systems. The greatest threats to the integrity of transportation properties have been natural deterioration and more recent developments, some of which have involved the adaptive reuse of former logging constructs (such as the conversion of abandoned tote roads or railroad grades into modern roadways). The potential for retrieving certain classes of data or artifacts in such places or settings may now also be significantly reduced by vandalism and collector activities.

(3) *Complex properties* (or site complexes) might contain elements of all other logging property types including an interfacing of land and water transportation properties or resources. Within this category are sites like logging dams with associated dam-tender's cabins; camps, hoists, or landings on or aside rail-lines; or the place of convergence of a logging road or a network of such roads at a waterway where logs were dumped or banked for the spring drive. Examples of complex properties are the [REDACTED] Peters et al. 1983:146-147, 152).

In addition to the attributes listed under property types 1 and 2 above, complex properties might inform about the blending or separation of living and work environments on logging frontiers, or about the level of investments made in planning, establishing, and developing such facilities or environments. Throughout Minnesota, shoreline areas have been widely developed for residential and recreational purposes since the period of World War II. Many old log-hoisting or landing sites have now been incorporated into private developments or are used to provide public or private access to waterways. Uncontrolled public access areas in particular are now often heavily contaminated through the introduction of modern materials and debris left by hunters, fishermen, boaters, picnickers, and revelers.

(4) *Find spots* are the sites where isolated object or artifact finds are made. Objects are small, relatively simple constructions such as mileposts or monuments. Artifacts may include such things as a coupling pin, sled runner, horse shoe, ax, boom chain, or saw log. Find spots are generally of limited historical interest unless they involve complex or datable items or widely scattered items that occur in large numbers or in historically significant patterns. In combination, individually diagnostic finds may give important clues about logging methods and technologies, the use, reliability, and makers of certain kinds of tools, or the work habits of various logging crews. Isolated find spots may range from accidental discoveries resulting from ground disturbance activities to purposive recoveries made by professional archaeologists, or by artifact hunters who make a hobby of collecting bottles, metal objects, and other kinds of artifacts. While the actual locations (i.e., sites) of most find spots will not be significant (i.e., eligible), the patterns of the finds and the finds themselves may be interest to scholars and exhibitors.

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The great majority of log procurement properties in Minnesota are sites or structures. There are very few buildings remaining and almost all of these have already been identified. Extant buildings associated with commercial log procurement in Minnesota are the [REDACTED]

[REDACTED] A few other buildings may survive, but probably not in their original locations and in greatly altered condition such as a reported logging camp building at Camp Comfort Resort on Gull Lake in Cass County (Birk 1985:41). Because properties reviewed under this MPDF have to be *directly* involved in the procurement or transportation of timber, the following property types related to the lumber industry are not included for consideration under this Multiple Property Documentation Form: homesteads, cutover farms, logging company farms, sawmills, mill towns, supply towns, CCC camps, lumbermen's houses and offices, tree plantations, and cutting areas.

## REGISTRATION REQUIREMENTS

In order to be eligible for the NRHP, properties must possess both *significance* and *integrity*. As illustrated in Table 2, log-procurement properties will be nominated to the NRHP under one or more of four significance criteria: **Criterion A** (for their contributions to association with historic events or broad patterns of history), **Criterion B** (for their association with notable persons), **Criterion C** (for their distinctive or non-distinctive qualities or characteristics), or **Criterion D** (for their research potential). Before the criteria can be applied, the physical and historic integrity of the property or resource must be evaluated. Integrity is a measure of a property's condition or of the authenticity of its historic identity based on certain inherent qualities (NRB-16A 1991:4). David Overstreet, of the Great Lakes Archaeological Research Center, has shown that site evaluations can be complicated by the fact that selected properties may be evaluated using different temporal and geographical scales and that they may be considered important to local residents, county historical societies, management agencies, archaeologists, social scientists, and humanities scholars for different reasons (Overstreet 1982; Peters et al. 1983:144).

PROPERTY TYPES	PROPERTY CATEGORIES	NRHP ELIGIBILITY CRITERIA
Habitation properties	Sites Buildings Structures Objects Districts	Criteria A, C, and D, but rarely B
Transportation properties	Sites Buildings Structures Objects Districts	Criteria A, C, and D, but rarely B
Complex properties	Sites Buildings Structures Objects Districts	Criteria A, C, and D, but rarely B
Find spots	Sites Objects	A, B, C, but rarely D

Table 2. Log-procurement property types, resource categories, and NRHP eligibility criteria.

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CONTINUATION SHEETSection F Page 12 Commercial Logging in Minnesota (1837-1940s)**Significance Criteria**

Log-procurement properties may qualify for local, national, or statewide significance under **Criterion A** for contributing to the broad patterns of history. In the contexts of *St. Croix Triangle Lumbering* and *Northern Minnesota Lumbering*, commercial logging generated employment and capital investments, opened previously-forested lands to settlement, agriculture, and recreation, and helped to develop transportation systems and supply routes in formerly isolated areas. Because procurement activities were firmly linked to external markets, they fueled the development of supportive or ancillary industries and businesses, including equipment manufacturers and dealers, food producers and suppliers, bankers, inspectors, dam tenders, teamsters, steamboat operators, and railroaders, to name but a few. Logging camps were social cauldrons where men of varied ethnic origins and language or physical skills worked and lived together and dined on common fare. The log harvests also supplied sawmills which, in turn, often formed the nuclei of industrial centers or communities and provided wood products for developments in treeless prairie environments often far removed from the forests of Minnesota. Under the context of *Indian Communities and Reservation*, logging included the involvement of Native American peoples yet accelerated the erosion of their land-base and the alteration of traditional ways of life.

Log-procurement properties may also qualify for local, national, or statewide significance under **Criterion A** for their association with specific historical events or trends. One site that might qualify for the National Register on the basis of an event is that of the Virginia and Rainy Lake (VRL) Lumber Company's Camp 41 located near Cusson, Minnesota. In 1916 a number of lumbermen went on strike at Camp 41 to protest poor working conditions, long hours, and low pay. Their strike was also incited by the example of the Industrial Workers of the World, a "radical labor group" which advocated "industrial unions and the overthrow of capitalism." During their rebellion, the strikers allegedly seized control of a bunkhouse, "slept in bunks not assigned to them, ordered themselves fed, intimidated nonstriking workers, and ran the cook out of camp." The short-lived strike, described by an apparently-biased local press as a "reign of terror" involving a "rebel gang," resulted in the arrest, removal, and subsequent release of 53 loggers. The Camp 41 protest was linked to other labor strikes in 1916 in Minnesota and elsewhere which led Minnesota, "along with twenty-one other western states and two territories" to pass "a criminal syndicalism law in 1917" (Haynes 1971:163, 171, 174).

An example of a logging property that may qualify for the Register more for an associated political event than for its industrial purpose or design is the remains of the [REDACTED]. In 1901, when Ojibwe from the White Earth Reservation learned that a lumber company entrusted to take "dead and down" timber from the reservation had actually overstepped the bounds of its contract and harvested a good deal of green timber as well, they decided to stop the log drive that involved the contraband. A group of "sixty or seventy armed Indians" appeared at the dam and threatened to blow up that facility and other dams on the reservation if the drive was not halted and some remuneration made. The drive was held up for several days before a government inspector agreed to rescale the harvest based on an appraisal of the stumps; the premise being that the illegal cutting of green trees would be revealed by the presence of sap-oozing stumps left in the forest. In a later law suit the Indians' case was upheld in court, and they were awarded an additional \$40,000 for their timber (Vandersluis 1974:299-300). [REDACTED] if yet extant, might help to illustrate the scene and events of the 1901 intervention as well as to shed light on Indian-white relationships at White Earth during the era of pine logging.

Few log procurement properties will be eligible under **Criterion B**, their association with a significant person, except perhaps on the local level. Many prominent individuals in 19<sup>th</sup> century Minnesota were associated with logging (e.g., John Pillsbury, William Washburn, Frederick Weyerhaeuser), but most of them did not spend a significant amount of time at individual log procurement sites and thus their association with any one property is indirect. An exception may be [REDACTED]. Daniel Stanchfield was a prominent early logger in Minnesota who did some of the first cutting in the state (cf. Stanchfield 1901). [REDACTED]

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Few log procurement properties will also be eligible under **Criterion C**, embodying distinctive design, construction, or workmanship elements. Very few buildings associated with log procurement exist and most of those are already listed on the National Register (e.g., Schroeder Lumber Company Bunkhouse, Tettagouche Camp Filer's Shack and Barn). Surviving structures will largely be Transportation properties such as dams, railroad grades, road beds, or even a few railroad trestles. Most of these are not distinctive, although a collection of Transportation properties in an area may represent a designed system that could be significant. The archaeological remnants of Habitation properties will generally not be eligible under Criterion C. The layout of individual lumber camps varied by the terrain they occupied, the company they were associated with, and the number of individuals in residence. Camps of certain eras were typical in the number and type of buildings present, but not necessarily their design. A Complex archaeological property may be eligible under Criterion C if the surviving features demonstrate design attributes that help explain how the various components functioned.

Most logging Habitation and Complex properties that are eligible for the National Register will be probably be eligible under **Criterion D**, information potential. For example, if the remains of VRL Camp 41 survive (see above), archaeological research there might reveal more about the living arrangements, diets, and sanitary conditions that supposedly sparked the protest, and might provide specific details that would enhance public interpretation of life and possible discord in Minnesota's lumber camps. Other viable courses of archaeological research under Criterion D include:

1. to examine log-procurement properties as part of an ecological relationship in which certain industrial behaviors are seen as accommodations to environments and opportunities (e.g., Bennett 1969; Flader 1983; Lewis 1984:2). The adaptations that pioneering human populations undergo when establishing in new areas could reflect in things like settlement choices, innovative responses, or economic adjustments (e.g., Hess 1979:123-24). The premise is that procurement operations were structured around resource distributions, markets, political boundaries, government and company policies, technological capabilities, and harvesting thresholds (e.g., Dinsdale 1965; Karamanski 1989; Birk 1996). A strength of archaeology is that it can recognize patterns that suggest the "positioning" of adaptive systems in geographic space which, in turn, can enhance our understanding of places and activities used during operation of the system (Binford 1982:5-6; Knight 1981). The same data might provide a means to predict, evaluate, and interpret lumbering sites and activities (e.g., Knight 1981; Rohe 1985) and can promote the comparison of logging frontiers with other kinds of industrial frontiers, or with logging frontiers in different times or places (Steffen 1980).
2. to examine log-procurement properties as part of a colonizing process in which the rise of commercial logging in Minnesota in the nineteenth century disrupted earlier social, cultural, and settlement systems while, at the same time, promoting human migration, demanding new skills, and opening lands to new forms of radical exploitation. The advent of logging often resulted in the first major Euroamerican impact to the natural landscapes and waterways in the forested regions of Minnesota (Rohe 1985:359, 362). Archaeology and regional archaeological perspectives can contribute to our knowledge of the immediate and ongoing human and environmental impacts of the early pine-logging industry and its effects on later human settlement and land use (Dinsdale 1965; Hardesty 1985; Karamanski 1989).
3. the development of chronologies, based on material and documentary evidence, that can be used to date objects, features, deposits, structures, sites, and districts even in the absence of direct, associated historical documentation (Stiles 1993:36). Working chronologies can also demonstrate the changing or unchanging nature of habitation or transportation properties or of log-harvesting methods, technologies, and systems over time (Overstreet 1982; Karamanski 1989; Rohe 1985, 1986; Birk 1996).

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Other avenues of logging research might address living and working conditions and ethnicity (Orcutt 1925; Franzen 1992:75; Peters et al. 1983:159-169), gender and business relations (Larson 1949; Brashler 1991), management and environmental concerns (Rohe 1985; Richner 1986; Emerson and Magner 1996), or other issues including public interpretation and archaeological preservation (e.g., Buchanan 1978:53; Brashler 1991:54). Given the dearth of good historical information on Native American-owned or operated logging camps, archaeological studies could also help to locate, describe, identify, and interpret such places.

### Aspects of Integrity

For a property to have integrity it must be able to "convey its significance" through possessing some of the features or qualities of location, design, setting, materials, workmanship, feeling, and association (NRB-15 1991:44-49; Townsend et al. 1993:16-21). The following discussion should help to clarify the meaning of physical and historic integrity as applied to log-procurement properties:

Location: The place where a property was constructed or used is its location. In many cases, location may be a key to understanding the age, function, affiliation, and abandonment of a property. Although log-procurement properties are generally not eligible for listing on the NRHP if they are removed from their original location, there are certain exceptions to that rule. The remains of logging boats, wanigans, sleds, road-watering tanker sleds, locomotives, railroad cars, steam hoists, or other vehicles or vessels which were, when in use, transient properties, may be eligible as structures (i. e., functional constructs made for purposes other than providing human shelter). Buildings and sheds that were typically moved from place to place might also be eligible, if they are basically intact and situated within a setting or environment that relates to their original use. In Minnesota, a lumber-company cook shanty that was moved to an unrelated non-industrial setting (site 21CA147), and then remodeled and incorporated as an addition to another building, has been deemed ineligible for listing on the NRHP (Birk 1985:41).

Design. The design of a property is defined by the combination of elements that create its form, space, structure, and style. Log-procurement properties were conceived, located, and constructed to perform specific functions. The choice of layout, style, and materials used in fabricating habitation and transportation properties required advance planning and technological skills, and the final designs, even if only now exemplified by archaeological remains, might reflect the needs, capabilities, traditions, standards, and intentions of the designers. Integrity of design requires that a property be sufficiently intact or comprehensible to convey a sense of original plan, appearance, and function. This aspect of integrity is usually associated with Criterion C, and because few log-procurement properties will be eligible under this criterion, it will rarely apply.

Setting. The setting of industrial properties involves natural and cultural elements of the physical environment, including the relationship of a site to natural features, usable resources, political subdivisions, and supply or shipping lines. In a broader sense, setting may also reveal a property's relationship to industrial centers, labor forces, and markets. The position of logging properties informs about their age and function, their connection with landscapes or waterways, and their role within larger natural, cultural, or economic systems. Setting, then, may be considered on differing scales. The setting of individual properties can reflect human needs and preferences as well as the basic physical conditions under which a property was built, used, or abandoned. On another scale, settings can also reveal the patterns of industrial development or other conditions or activities inherent to log-procurement processes. Integrity of the local setting requires that a site area must generally resemble the character and, to a lesser extent, the appearance that it had during the site's period of significance. In other words, the site area should be recognizable to someone who saw or experienced it at the time of original use. For example, a logging camp now incorporated into a town would lack integrity of setting.



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**Materials.** Materials are the physical elements used in particular times and ways to form a historic property. Materials can reflect choices or traditions, technological capabilities, and resource availability, and can inform about the possible interconnections a logging property or system might have with the local and outside world at the time of its construction or use. In archaeological contexts, the nature and arrangement of materials on a site might allow reconstruction of the site's plan, use, and development, and the events that occurred during the time of abandonment or later. To retain integrity of materials, a site must have surviving structural elements, features, deposits, or artifacts that may be studied through remote sensing (aerial photography and geophysical prospecting), surface or submarine reconnaissance, or subsurface investigation (probing, excavation, profiling, etc.). A modern reconstruction of a historic property, even if made as an exact recreation of an original (such as the logging camp at the Forest History Center near Grand Rapids, Minnesota), is not eligible.

**Workmanship.** Workmanship is the physical evidence of the labor and skill of the individuals who constructed or altered a building, structure, object, or site. Workmanship may reflect traditions, innovations, and qualities of construction. It can provide evidence of technological capabilities and practices, aesthetic principles, and decision-making processes, including the implementation of idiosyncratic solutions. Integrity of workmanship requires that historic properties be of sufficient quality to demonstrate the construction methods used. Sites, buildings, or structures that have been partly altered, destroyed, obscured, or reconstructed may still retain integrity of workmanship if enough remains to document original construction methods.

**Feeling.** Feeling is the capacity of a property's physical or symbolic attributes to evoke a human response. A log-procurement property has integrity of feeling if such elements as its location, setting, features, design, materials, and workmanship collude to convey the site's historic character. Feeling is a subjective and personal quality that might excite individual emotions, enhance a visitor experience, or inspire an appreciation for the lives, industries, or human conditions of past generations. Feeling is a quality that allows one to visualize how a site might have once looked or functioned. It is strongly influenced by the integrity of setting. If a property was originally in a remote rural area and it is now surrounded by residential or commercial structures, then the property may not have integrity of feeling.

**Association.** Association is the direct link between properties and people or events. A property retains association if it is sufficiently intact to convey a sense of place and related events or activities to an observer. Association requires the presence of physical features, structures, or deposits that convey the essence of a property's historic character. Archaeological sites that reflect the development or use of log-procurement methods and technologies are directly associated with events that have made significant contributions to the broad patterns of history and are likely eligible under Criterion A. Properties that show a strong relationship between significant data or information and important research questions may be eligible under Criterion D.

Log-procurement properties qualify for listing on the National Register without retaining all aspects of integrity. Integrity requirements are closely tied to significance criteria. For example under Criterion D, intra-site variables become increasingly important when it is desirable to identify internal attributes and research potentials. Archaeological properties that contain intact features or deposits with data, information, or assemblages that can address *meaningful* research questions regarding log-procurement activities or processes may be eligible for the NRHP. The site need not have integrity of feeling, setting, workmanship, or design to address these research questions. A significant portion of the site should remain in place following the archaeological work, however, or that work itself may excessively diminish the site's integrity. The comparison of properties is also considered a viable means of evaluating integrity (NRB-15 1991:47). Inter-site comparisons can help to determine what physical features are likely to be present at various property types, though such evaluation may be unnecessary if an individual property obviously retains evidence of all elements of its original structure. Comparative information is particularly important when a rare surviving example of a property type is being evaluated, or if one is seeking to define spatial patterns or the range of temporal or formal variation among properties or other resources.



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### Overview of Eligibility

Minnesota's log-procurement properties may be evaluated for eligibility under one or more National Register criteria (Table 2). Evaluations involving several criteria will most commonly use some combination of Criterion A, C, and/or D. Criterion A must be established for nominations based on statewide Historic Contexts. Criterion B might be used in evaluating properties that were built by an important individual or that were used by some definable and significant group of people. A Native American logging camp, for example, might qualify under Criterion B if it is associated with a particular Ojibwe band.

In general terms, for log-procurement properties to be eligible under National Register Criteria A and B, they must be in good condition and exhibit well-preserved physical features, deposits, and spatial relationships to the extent that the remains are able to convey important associations with events or persons or broad patterns of history. Documenting the significance of properties under Criterion A or B will usually require historic research. Archaeological evidence, particularly evidence that supports or validates theoretical constructs or documentary evidence, may also promote or assist a determination. If the properties are archaeological sites it is not necessary that the essential elements or components of the sites be visible on the surface, although there must be integrity of location and setting, along with good preservation of materials.

For log-procurement properties to be eligible under National Register Criterion C they must be in good condition and exhibit well-preserved physical elements and possible spatial relationships to the extent that the remains are able to illustrate a site type, time period, a method or style of construction, or the work of a master craftsman. Criterion C may be applied to properties that exhibit the distinctive or non-distinctive qualities or characteristics of a certain time period or tradition, and it is also applicable to properties or structures that reflect technological, material, or design innovation or that were planned or built with special or unique characteristics related to a specific place or setting or to environmental conditions in which they were used. Structures or buildings that have been moved may still be eligible under Criterion C. Again, if the properties are archaeological sites, it is not necessary that the essential elements or components of the sites be visible on the surface.

For properties to be eligible under Criterion D, there is less emphasis on overall condition, and the integrity of setting and feeling may be largely irrelevant. Evaluation of physical integrity is based more on location, design, materials, and perhaps workmanship. Significance and historic integrity are primarily focused upon a property's potential to yield specific data that address important research questions relating to the historic context or contexts with which the property is identified. Since many log-procurement properties were built without formal plans, or such plans or other accounts are no longer available, pertinent research questions about many properties may now only be answered through archeological investigation. Questions regarding the function, design, materials, construction, or interrelationship of properties, or regional or temporal variations of such site or structural characteristics, are examples of information that can be assembled through archaeological investigation.

In terms of eligibility, the issue of integrity also hinges on research objectives. Again, the physical condition of a property is of less concern when studies are focused outwardly on external relationships rather than on intra-site variables "like contents and structural details, that might inform about...living conditions, diets, ethnicity, gender, and occupational specialization in such places" (Birk 1996). Transportation properties, like sled roads, railroad grades, and landings, can often best be defined and evaluated (particularly during reconnaissance level field investigations) through a consideration of their external qualities, placements, and interrelationships. "Internal" (including subsurface) investigation of transportation properties may only be necessary, in fact, to explore specific structural details, materials, or workmanship of facilities, to define associated activity areas, or to assess the above-referenced elements of integrity. In Minnesota, the best time of year to explore upland transportation sites, particularly linear properties like railroad grades and sled roads, is generally during the cold-weather

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months when the leaves are down. Optimum conditions are often found in late fall or early winter after freeze-up makes it possible to walk or drive over marshes and lakes, and a dusting of snow enhances the definition of surface features. The use of aerial photographs and period maps to assist field surveys is also helpful.

The mere presence of well-preserved properties used during the period of significance does not ensure that they are eligible or should be nominated to the National Register. A determination of eligibility involves an assessment of integrity and significance in terms of NRHP criteria. The register is not intended to be nor is it an open inventory. It is a listing of those particular properties with the greatest integrity that best represent the resource (i.e., how well a specific property illustrates the property type and how it relates to the historic context [NRB-16B:16]). Because some logging properties, like skidways or winter roads, might have had no notable or enduring physical improvements, the qualities of design, materials, and workmanship may be of little use in determining the integrity of certain resources.

Most log-procurement properties such as find spots, properties lacking physical integrity, and properties that date to the last 50 years, are generally not eligible for listing on the NRHP, *unless* they are determined to be of exceptional significance. For example, the St. Croix Boom Site has no demonstrated physical remains, but because the location was so important and because it retains integrity of feeling and setting, it is listed on the NRHP.

*Habitation and Complex Properties*

Habitation properties are the most common property type associated with logging in Minnesota. While only several hundred logging habitation properties are recorded in existing cultural resource management inventories, several thousand may exist in the state. Complex properties share many traits with habitation properties in that they occupy a limited area and are principally archaeological in nature. In general, to be eligible to the NRHP under Criterion D, a habitation or complex property must minimally retain integrity of materials and association; integrity of location is assumed for archaeological sites. If the property is a building or structure, it will also need to need to retain design integrity if eligible under Criterion C (but not necessarily location) and also retain integrity of location, setting, and feeling if eligible under Criterion A or B. Archaeological sites should retain integrity of materials and association in at least half the original site, have sufficient artifacts to answer research questions as demonstrated by archaeological evaluation, and contain at least one major feature.

With regard to significance, habitation or complex properties will usually be eligible under Criterion A or D. The earlier the property the more likely it is to be eligible both due to the rarity of early camps and the existence of poorer written records moving back in time. Few camps dating to the 20<sup>th</sup> century will be eligible unless some significant event took place there, they are exceptional for some other reason like the last or largest camp in a particular area, or they have been demonstrated to contain an exceptional inventory of materials and features that make them especially amenable to archaeological investigation. Redundancy of data and questions of importance must be carefully considered with regard to logging camps.

In instances where habitation or complex properties have been re-used or developed for other purposes, subsurface testing may be required to determine whether any *in situ* primary remains or features are present (e.g., Stiles 1993). Such is the case with the [REDACTED]—a combined railroad terminus, log landing, and company headquarters camp on [REDACTED]. The area of the site complex is now subdivided and widely developed by residences, businesses, roads, and a church. One can estimate and visualize the area of the old camp and adjacent log landing from documentary sources, but field conditions suggest that little significant cultural evidence may be left intact except for a short segment of railroad grade, a few cellar depressions, some possible buried features, parts of the log dump along the shoreline of the lake, and scattered pockets of debris (including possible offshore deposits and sunken logs).

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Geophysical prospecting or subsurface investigations may be necessary when evaluating habitation properties or complex properties in which habitation activities played a part, though, again, meaningful assessments can often be made without investing in excavation (and the resulting need for artifact curation). Site boundaries are very often suggested by the distribution of visible surface features and debris scatters, the contours or features of the surrounding terrain, the presence of old clearings or waterways, or some combination of these attributes. In rural settings, the core elements of most extant habitation properties may be protected by extending a buffer around the area that one can tangibly or intuitively defend as the "indefinite" site boundaries. If other means are not available, the physical limits of a site can usually be established through remote sensing or through the use of a shovel test grid or a system of radiating shovel-test transects with the individual tests spaced at some standard and appropriate interval.

The use of subsurface investigation becomes increasingly necessary when the integrity or research potentials of a property are not obvious from surface observation or remote sensing and when there is no other known evidence to assist such assessments. Excavation may also be necessary to test or confirm site evaluations made during initial archaeological surveys. An example is the Stanchfield Logging Camp Site (21Mo137), the remains of which were located through documentary research (Stanchfield 1901; Birk 1986) and more firmly identified during subsequent field investigations (Ketz 1996; Birk 1997b).

### *Transportation Properties*

In terms of numbers, habitation sites will dominate the inventory of log-procurement properties, but in terms of total area, transportation properties may equal or exceed habitation sites. Transportation properties, in particular railroad lines and tote roads, are more likely to be adversely affected by modern activities. Logging camps, since they often involve small areas, can usually be avoided, but roads and railroads traverse large areas and are often either used by modern transportation facilities or cannot be avoided by construction projects.

Natural waterways, like the St. Croix and Mississippi rivers or Cass or Rainy lakes, that were used as parts of log-transportation systems, are in and of themselves, not eligible for listing on the National Register. Canals, channels, flumes, chutes, booms, dikes, dams, and other engineered or artificial features that made use of water to transport logs, or that assisted the water-born transportation of logs, may be eligible. So might wrecked abandoned logging vessels, sunken logs or log rafts, and log jams. Even though the wooden superstructures or other exposed remains of old logging trestles, piers, and bridges, might be gone, evidence for design, materials, and workmanship may yet exist underwater and, in the case of pilings, may be impaled in lake or river bottoms. Sometimes, unrecorded trestle pilings may be revealed during periods of low water.

The remains of a transportation property like a logging dam may not be eligible for listing by itself if it lacks physical integrity, but it may as a component of a series of dams that were built and operated on a particular stream or within a particular area to systematically assist the movement of logs from cutting areas to distant mills. In such a case, any and all of the dams in the series might, by their location, setting, and construction help to demonstrate certain engineering principles or processes that shaped and comprised the system as a whole. Dams that appear in patterns or series along with other associated resources (like dikes, channels, flumes, and landings) might qualify as complex properties or historic districts.

An abandoned logging-railroad grade may retain integrity if the line is clearly visible, the original alignment, scale, and basic gradations of the bed are retained, the character and setting of the line are not marred by modern developments, and the line is of adequate length to convey a sense of purpose or destination. Short lengths of grade that can be wholly observed from any position on the grade, or railroad grades that are cut into short disconnected segments are probably not eligible. Similarly,

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grades that are considerably modified, heavily used by modern vehicular traffic, or paved, are likely ineligible. Segments of abandoned railroad grade that have become overgrown or that have been adopted as minimal-maintenance roadways may be eligible if the lines can be followed without great difficulty and if they evoke a sense of original design or use. Abandoned grades in marshy areas are often obscured by slumpage, flooding, beaver dams, or vegetation and, therefore, may lack visible or readily accessible evidence of design, materials, and workmanship. Archaeologists in Superior National Forest report finding evidence of rail lines that originally consisted of ties and rails "laid on the surface of a swamp or bog after freeze up." Such remains, now usually reduced to only "a cut line" through the forest and a "series of ties mired in the moss" (Peters et al. 1983:177, 179), will probably not qualify for listing on the NRHP by themselves, but may be contributing elements if they are included within a broader district.

In areas where a "contained" series of interconnected railroad lines reflect the system or processes used in the local harvest and transport logs, the entire network may be eligible as a complex or district, even if some segments of grade within the network are individually undistinguished (NRB-15 1991:46). Use of the material evidence of grades or grade networks to study logging methods may be further enhanced if associated features like sled roads, hoists, landings, skidways, wyers, and camps are identified. An example is seen at [REDACTED] where field investigation of an interrelated network of sled roads, railroad grades, and waterways makes it possible to reconstruct the general early patterns of pine harvesting in that vicinity (Birk 1996).

Another example, currently under study [REDACTED] The Camp #2 spur is actually a network of short-lines laid out and constructed to enable "hot logging," a technique whereby logs were skidded directly to the rail-line without the use of sleds (Rosholt 1982:26). Preliminary evidence suggests that the entire Camp #2 complex may be contained within an area about equal in size to a single township.

Another good example of a rail system within a confined area is a network of grades once used by the Swan River Logging Company in the area of [REDACTED] (Larson 1995). Other such networks are found throughout the forested districts of northern Minnesota (King 1981). Similarly contained and interconnected networks of sled roads, with or without associated railroad grades, may likewise be eligible if they possess physical integrity and illustrate the local system or processes used to procure logs. Generally speaking, the best evidence for such systems is usually found in sparsely-populated areas of rolling or rugged terrain (Birk 1996).

Remains of railroad lines and roads will usually be eligible only under Criterion A, since most possess only indirect associations with significant persons (Criterion B), are rarely part of a formal significant design (Criterion C), and have little potential to yield important information (Criterion D) through archaeological excavation.

*Find Spots*

The sites of individual objects will generally not be eligible for the NRHP, especially if the object is removed from its setting. The item itself may be eligible as an object, but eligible objects are primarily artistic or commemorative in nature and thus few logging-related objects qualify. To be eligible, the object must be left in place. Objects in museums are not eligible. An example of a potentially eligible object would be a wood carving completed by a logger, a boundary marker designating a particular logging parcel, or a monument commemorating a particular camp providing it met the minimum age requirement (over 50 years old). No extant eligible objects are currently known.

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### G. GEOGRAPHICAL DATA

The geographical area involved in log procurement includes the harvesting areas in north-central, northeast, and east-central Minnesota (Figure 1) and the transportation lanes (land and water routes) there and elsewhere within the state that were used to convey saw logs to the sawmills or other destinations.

### H. IDENTIFICATION AND EVALUATION METHODS

The writing of this MPDF was principally done by IMAC Consulting, Inc. (IMAC) as a part of the Minnesota Logging Study. IMAC was contracted with in October 1996 by the Minnesota State Historic Preservation Office (MnSHPO) of the Minnesota Historical Society to conduct the Minnesota Logging Study as a cooperative cultural-resource project of the MnSHPO, the Chippewa and Superior National Forests, Voyageur's National Park, and the Forestry Division of the Minnesota Department of Natural Resources. The project involved a literature search, the development of property types, and the completion of a narrative report, State Archaeological Site forms, a Multiple Property Documentation Form (MPDF), and a National Register nomination form for the Stanchfield Lumber Camp. The MPDF was revised by Scott Anfinson of MnSHPO following a workshop on historic logging properties held at Deep Portage Conservation Reserve in Cass County, Minnesota on April 8-9, 1998. The workshop was attended by Midwestern archaeologists, historians, geographers, and cultural resource management professionals. The draft version of the MPDF was discussed at the workshop.

The Minnesota Logging Study was conducted by IMAC Senior Archaeologist/Historian, Douglas A. Birk, under the review of project principal investigator, IMAC Senior Archaeologist/Historian John P. McCarthy. Birk has a long-standing interest in and familiarity with Minnesota logging properties and has studied the logging industry through the use of archaeological and documentary evidence and oral accounts for over 35 years. The perspectives espoused in this MPDF were derived through linking Birk's personal knowledge and experiences with the growing corpus of descriptive and analytical works on logging and logging frontiers that have emanated from academic and cultural-resource management circles since the 1940s. In many ways the ideas expressed in this MPDF are an outgrowth of an earlier paper presented by Birk at a logging symposium at the January 1996 Society for Historical Archaeology meeting in Cincinnati, Ohio (Birk 1996). A version of that paper, entitled "Outta the Woods and Onto the Mills: Shifting Timber-Harvest Strategies on Minnesota's Early Lumbering Frontiers," will soon be published in *The Michigan Archaeologist*.

The Minnesota Logging Study was based largely on documentary research and data analysis and did not require survey work beyond photographing an example of each of the proposed property types (excepting a Find Spot). The sites photographed were the Stanchfield Logging Camp in Morrison County, various parts of the Cross Lake Logging Railroad Headquarters Camp in Crow Wing County, and a grade segment of the Spider Lake branch of the Brainerd & Northern Minnesota Logging Railroad near Gull Lake in Cass County. The nature and results of the field visits are reported in Birk (1997a and 1997b). Documentary research was conducted at the Forest History Center at Grand Rapids, Minnesota, the MnSHPO files and Minnesota Historical Society Library in St. Paul, the University of Minnesota libraries in St. Paul and Minneapolis, and in the author's own extensive library. The author met in Grand Rapids with Skip Drake of the Forest History Center and Keith Matson of the Chippewa National Forest to discuss property types, and he gained access to privileged logging information through the help of Scott Anfinson of the MnSHPO, Skip Drake of the Forest History Center, Patricia Emerson of the Forestry Division of the Minnesota Department of Natural Resources, Mary Graves of Voyageur's National Park, Andrea LeVasseur, Keith Matson, and Bill Yourd of the Chippewa National Forest, Gordon Peters of the Superior National Forest, and staff members of the Nicolet and Ottawa national forests in Wisconsin.

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The primary historic contexts used in the Minnesota Logging Study were earlier developed by MnSHPO personnel. The lumbering contexts generally divide Minnesota's logging industry into two contiguous geographical areas each with its own bracketing dates. The names given the two contexts generally follows historical tradition. For example, historian Agnes M. Larson, in her 1949 book, the *History of the White Pine Industry in Minnesota*, included chapters entitled, "The Pinelands of the St. Croix Delta Become the Property of Lumbermen" and "The Pinelands of Northern Minnesota Become Private Property" (Larson 1949). The two areas she describes correspond to the MnSHPO's contexts, St. Croix Triangle Lumbering (1830s-1900s) and Northern Minnesota Lumbering (1870-1930s).

The log-procurement property types proposed in this MPDF are based on the function of sites both in isolation as well as part of broader procurement systems. Future study of procurement properties should help to refine the definition and chronology of sites along with the attributes, features, and artifact assemblages common to each.

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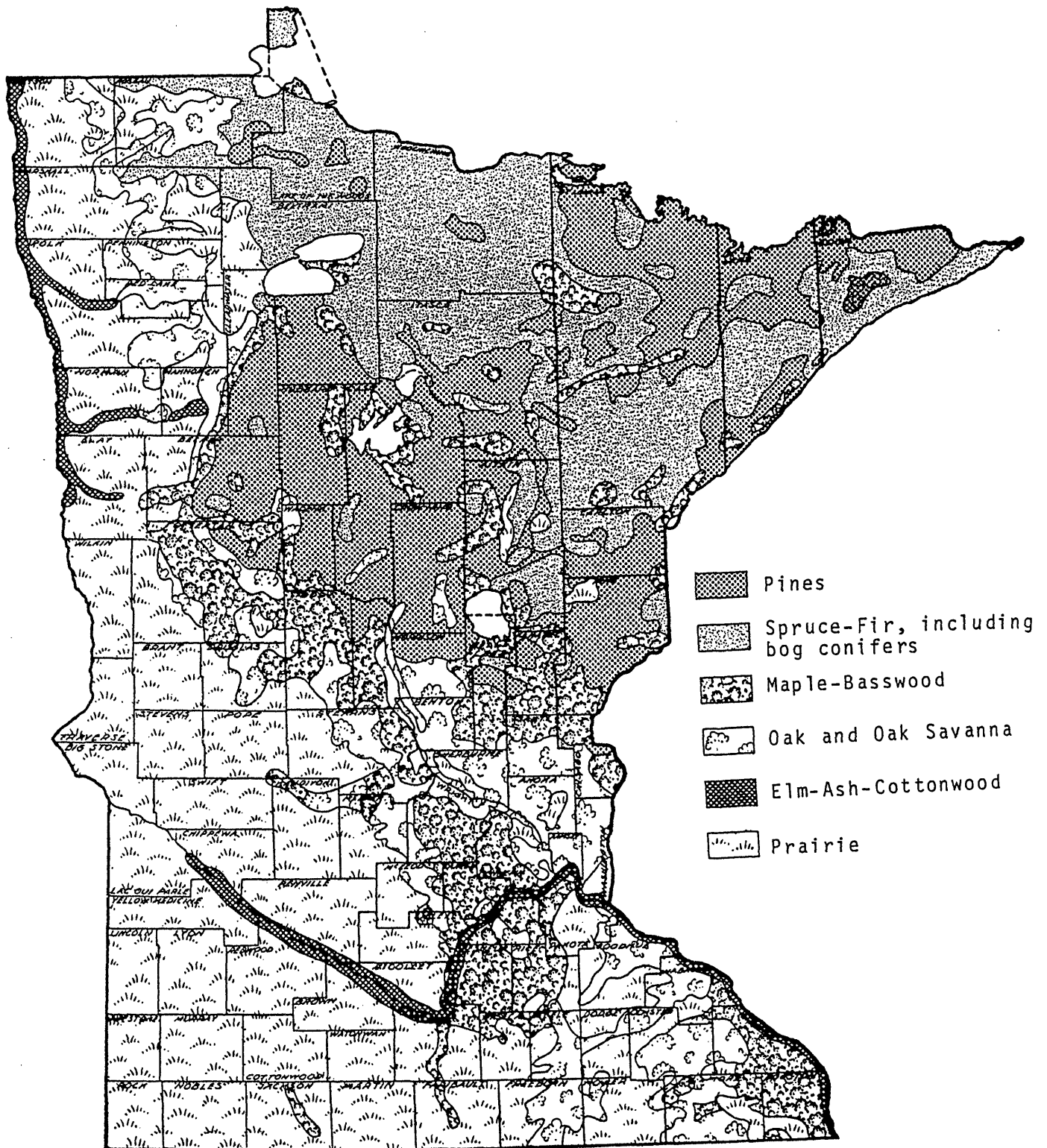


Figure 1. The patterns of vegetation in Minnesota at the time of earliest white settlement (adapted from Marschner, 1974).

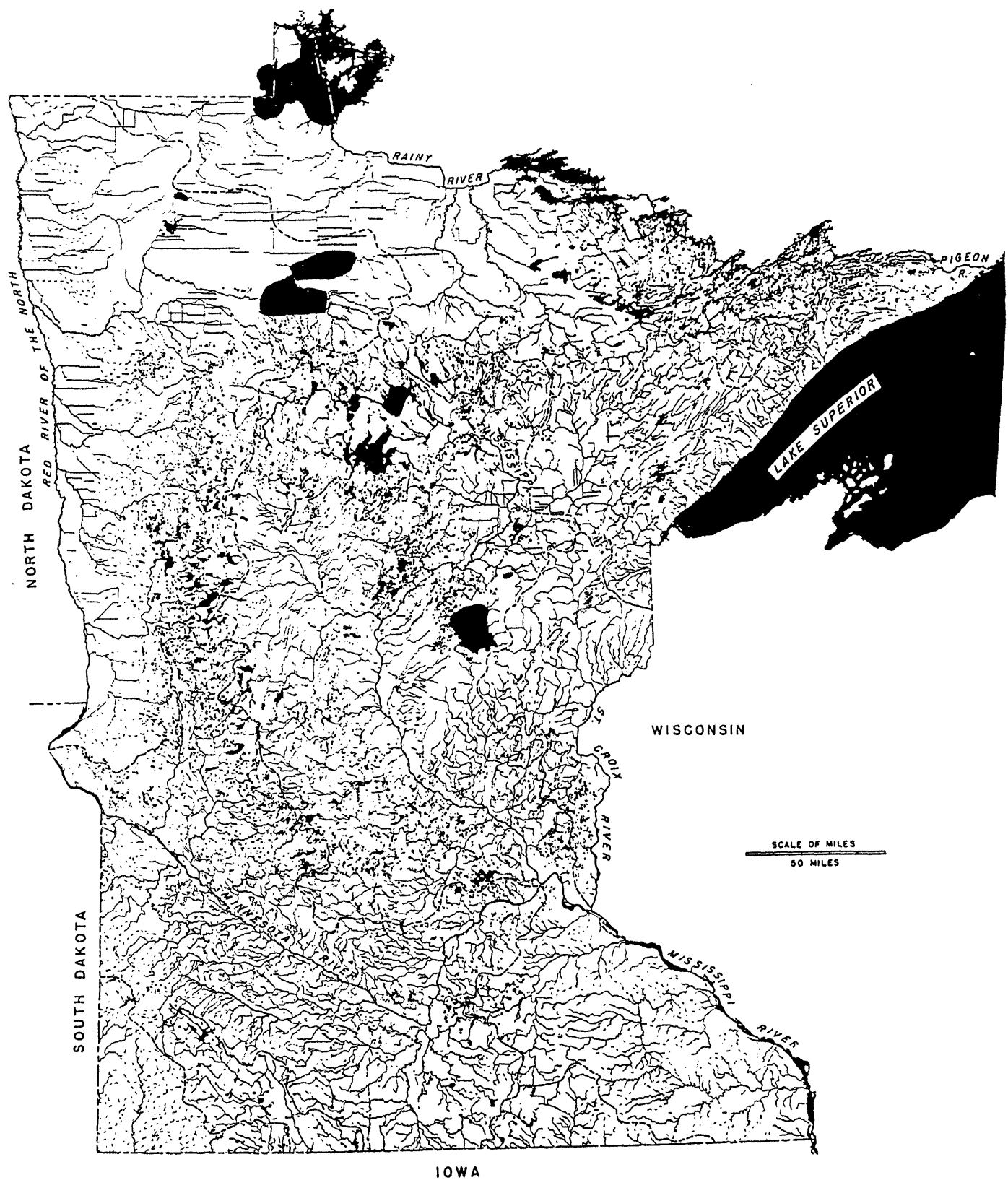


Figure 2. Rivers and Lakes in Minnesota. Dashed lines define major drainage basins.

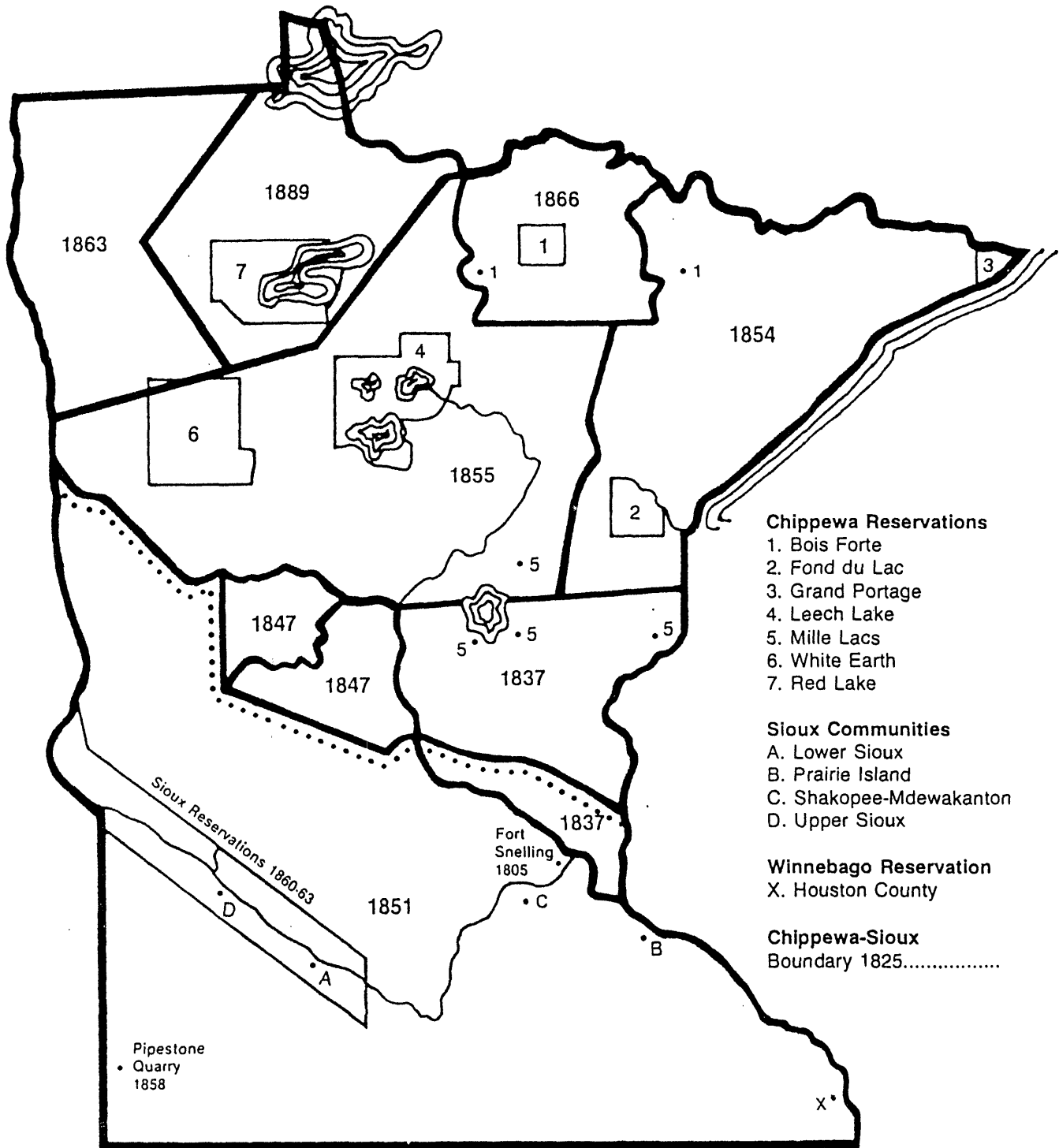


Figure 3. Major Minnesota Indian land cessions and locations of current communities and reservations (Rosenblatt 1985).



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Logs cut in the headwaters regions of the Mississippi, Rum, and St. Croix rivers were typically moved southward to be milled. Logs cut on the St. Louis and Pigeon rivers and in intervening places along the North Shore were typically moved out to Lake Superior and then to central places like Duluth, or Bayfield, Wisconsin. Prior to the use of logging railroads, logs cut in areas tributary to the Rainy River were often floated via the Rainy to Rat Portage (Kenora) in Canada, at the outlet of Lake-of-the-Woods. Similarly, logs cut within areas of the Red River basin were often floated to mills or mill towns near the prairie-forest edge in northwestern Minnesota. The Minnesota climate, with its temperature extremes and "moderate precipitation" (Tester 1995:6), worked to shape both the character as well as the harvest of the forest. Log-procurement followed a seasonal rhythm, and the use of waterways for transportation normally dictated that log drives be conducted in the spring when winter snows melted and the runoff was generally at its peak.

Throughout Minnesota's forests, through the 1920s, most of the wood product was removed for eventual milling or use in outside areas. Because of the low-density of resident consumer populations in the northern pineries and the nature of transportation systems, only a small percentage of the log harvest was actually consumed within the areas of the cut-over landscapes themselves. This underscores the fact that logging frontiers, as variants of what have been called "industrial frontiers" (e.g., Hardesty 1985; Lewis 1984:263-92), lacked self-sufficiency and were closely linked to outside markets and economies (Steffen 1980:xii). The labor force for such operations were usually transient, ethnically-diverse, and male-dominated (Kohlmeyer 1956:533) and, in Minnesota, it involved large numbers of resident Native Americans along with immigrated laborers and technicians working either in direct or supportive roles (Birk 1997a).

### LOG PROCUREMENT

The era of pine logging, the initial and most intensive lumbering industry, began in Minnesota in the 1820s with the establishment of Fort Snelling, an isolated United States Army outpost, at the juncture of the Mississippi and Minnesota rivers. The troops built a sawmill at nearby St. Anthony Falls in 1821 where they milled logs obtained on the Mississippi and Rum rivers in central Minnesota to produce building materials for the fort. The industry was commercialized in the late-1830s when treaties with the Dakota and Ojibwe (Chippewa, Anishinaabeg) began to open Minnesota to broader Euroamerican exploitation, and it lasted about a century or until the pine forests were depleted. The procurement of pine logs facilitated the Euroamerican settlement while prompting the displacement of tribal peoples and paving the way for later forest industries. Commercial aspects of the pine-logging industry were built upon an insatiable American demand for wood products and a general belief that the pineries were inexhaustible. Over time, as technical and methodological innovations created more efficient harvesting systems, the logging frontiers expanded and the rate of the harvest accelerated. The growing costs of labor, technologies, and transportation simultaneously required ever larger capital investments, inviting control of the pine-logging industry by big business (Birk 1996).

Other forest species besides pine were also commercially important in the late-nineteenth and early twentieth centuries and the technologies and property types used in their harvest were similar to those used in the pineries. The railroad tie industry made extensive use of tamarack and cedar and, after 1890, by one estimate, was one of the "largest industries" in northern Minnesota (Ryan 1976:41). Iron mines, paper mills, and utility companies were also major consumers of wood products (LeBarron 1948; Ryan 1976:39-41, 45-47; 1980:10-12; Boese 1984; Mellor 1990), and, in 1911, Armour & Company began harvesting basswood and ash in Aitkin and Itasca counties for use in manufacturing lard pails, butter tubs, and other food containers (Lemen 1970:15).

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The development of commercial-logging frontiers in Minnesota can often be explained by environmental and technological factors. However, the establishment of state and national forests (e.g., Searle 1971), state parks (e.g., Dobie 1959), and Indian reservations (HRA 1992), along with government policies, business alliances, financial constraints, and other forces also affected the acquisition or harvest of many forested areas and worked to shape logging frontiers. Prior to World War I, thousands of acres of trees were appropriated through operations involving political favoritism, faulty estimates, or fictitious or concocted “dead and down” sales. Promiscuous cutting beyond the bounds of legal ownership was facilitated through fraudulent land claims or trespassing on public or Indian lands. Government-sanctioned programs in the 1880s and 1890s removed large tracts of forested or arable reservation land from Ojibwe control in northern Minnesota by giving each head of family or others a land allotment and then selling off the “surplus” acreage to outside interests. Later, other restrictions on the sale of Indian lands were removed, making additional acreage available for harvest (e.g., Larson 1949:289-327; Searle 1971). Logging was often considered beneficial to the Ojibwe because it generated revenues, provided employment, produced materials for building houses, and opened land for agriculture. All such activities were an “integral part of... federal efforts to ‘civilize’ the Indians and to incorporate them into the mainstream of American society” (HRA 1992:3-2-3).

### CONTEXTUAL SUMMARY

The Minnesota State Historic Preservation Office (MnSHPO) currently recognizes two principal statewide historical contexts for evaluating most Minnesota logging-related properties: *St. Croix Triangle Lumbering, 1830s - 1900s* and *Northern Minnesota Lumbering, 1870 - 1930s* (MnSHPO 1993). A third context, *Indian Communities and Reservations, 1837-1945* (Anfinson 1994), is used when evaluating logging properties on Indian lands, or properties, like Indian operated logging camps, that otherwise significantly involved Indian peoples.

The two primary lumbering contexts are based largely on geographical, ecological, and chronological considerations. Though often treated as geographically-discrete entities of the logging industry (e.g., Larson 1949:6-7; Swanholm 1978:7) the areas of the contexts actually merge and overlap to reflect a broad continuum of industrial expansion and change over time. In general terms, it should be understood that the statewide lumbering contexts were developed not only to provide historic frameworks for evaluating individual properties, but also to reflect broad patterns of the state’s history.

*St. Croix Triangle Lumbering* is centered on the triangle or “delta” formed by the St. Croix and Mississippi rivers south of the mouth of the Crow Wing River in east-central Minnesota. A small portion of the geographical limits of the context need to be amended to extend west of the Mississippi south of the Crow Wing River. Early Euroamerican traders saw vast reserves of pine in the upper reaches of the valleys of the St. Croix and Rum rivers and, through their commercial transactions and intermarriage with resident Indian peoples, paved the way for later land-ceding government treaties. Logging in the St. Croix Triangle actually began just prior to the signing of the Dakota and Ojibwe treaties of 1837 which ceded the area. Troops from Fort Snelling were at first restricted to cutting pine on the Rum River in the western half of the St. Croix Triangle in the 1820s, but were logging above Little Falls on the Mississippi by the mid-1830s.

With ratification of the treaties in 1838, increasing numbers of Yankee entrepreneurs, many with skills learned in the forests of New England, moved into the St. Croix Valley. Building on prior experience, they introduced a rhythmic lumbering industry based on the harvesting of pine during the winter and the transportation of stockpiled logs downstream in the spring. At first they freely took trees from the public domain. Nonetheless, through the 1840s some loggers continued the time-honored protocol of giving gifts to the Ojibwe, largely to appease those Ojibwe who remained to hunt and fish on the treated lands. Two additional Ojibwe treaties in 1847 ceded the remainder of their land south of the Crow Wing River west of the Mississippi.

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Commercial pine logging above St. Anthony began in 1847, on the eve of Minnesota becoming a territory and just before the advent of public land sales in the formal area of the St. Croix Triangle. Logs cut that winter at a camp on Ojibwe lands on the west side of the Mississippi below Crow Wing were purchased at so-much-per-tree from an Ojibwe chief and then floated downstream to a new commercial sawmill at St. Anthony Falls. After 1848, when government land sales allowed pineries to pass into private hands, greater numbers of logging camps were placed in operation and the logging frontier moved rapidly up the Snake and Kettle rivers into the interior of east-central Minnesota. Mills and mill towns, including river settlements like Marine and Stillwater, sprang up, stimulating immigration, employment, and an increase in river activity (Dunn 1966). Minnesota's ascendance to statehood in 1858, followed by passage of the Homestead Act of 1862, also spurred settlement while increasing the labor force and regional markets.

*Northern Minnesota Lumbering* had similar origins. By the 1850s the harvest of pine entered the Crow Wing, Gull, and Rabbit rivers in areas just beyond the geographical limits of the St. Croix Triangle, but logging did not begin in earnest north of the St. Croix Triangle until after 1870. Minnesota's Ojibwe populations got involved in the logging industry as landowners, laborers, lessors, or through other means. The mills at St. Anthony Falls formed the nucleus of a new community (Minneapolis), and the subsequent flow of logs and agricultural products soon turned that place into Minnesota's largest urban center (Larson 1949:34). At the same time, cut-over areas were increasingly occupied by farmers, leading to an agricultural land boom in more northerly regions. Logging railroads, first introduced in Minnesota in 1886, played a larger role in the harvesting of pine in northern Minnesota than they did in the St. Croix Triangle (e.g., Ryan 1946; King 1981). Pine lumber sent to western farms and prairie settlements also stimulated Minnesota's railroad and agricultural developments just as the opening of new logging roads and railroads and the commencement of steamboat activity in northern lake-forest districts promoted tourism and recreation.

The *Northern Minnesota Lumbering* context incorporates a large area of northern Minnesota that drains north to Hudson Bay, south to the Gulf of Mexico, and east, via the Great Lakes, to the Atlantic Ocean. The great size and natural diversity of that area, along with the uneven distribution of its forests and the changing political climates, presented a wide range of challenges and opportunities, and logging there progressed on a number of fronts, each within its own particular time frame. For example, commercial logging operations began in the Duluth area and along the North Shore of Lake Superior after the Ojibwe Treaty of 1854. The first loggers concentrated their harvests near the mouths of rivers like the St. Louis and Nemadji, and they milled their logs using hand whipsaws. By 1859 steam sawmills were in operation at what are now Two Harbors and Duluth. The region suffered economic reversals and population loss during the Panic of 1857, and most lumber produced there through the 1870s was consumed locally. Aided by later use of logging railroads and the practice of towing logs along the North Shore, Duluth-area logging peaked in the 1890s only to experience rapid decline after 1910 when the most accessible trees were gone (Ryan 1976).

In contrast, the cutting of logs in more isolated regions between the Canadian border and the headwaters of the St. Louis and Mississippi rivers began in the 1880s and, through the eventual adoption and then heavy use of steam-technology (i.e., railroads, steam crawlers, and steamboats), peaked after 1910. Early on, much of the pine harvested along Minnesota's northern border region was milled at Rat Portage (Kenora) from where lumber was shipped by the Canadian Pacific Railway to farming areas farther west (Fritz 1986:24). One of the last great logging frontiers in northern Minnesota was a region around the source of the Mississippi that remained inaccessible until logging railroads were introduced there in the 1890s (Hagg 1948). Log harvesting did not legally begin on Red Lake Reservation until 1896. The Nett Lake Indian Reservation was also isolated and, for want of ready markets, little timber was harvested there before World War I (HRA 1992:4-16).

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Lumbering associations with *Indian Communities and Reservations* are closely tied to the chronology of treaties with the Ojibwe (Figure 3). In 1837, the Ojibwe ceded their lands east of the Mississippi River south of the mouth of the Crow Wing River. Prior to ratification of the treaty in 1838, lumbermen made agreements with various Ojibwe groups and the first major lumber camp was established at the mouth of the Snake River (Larson 1949: 13). In 1847, several Ojibwe bands ceded their lands west of the Mississippi River south of the Crow Wing River. Daniel Stanchfield, under an agreement with the Ojibwe chief Hole-in-the-Day, established a camp and cut timber on the west bank of the Mississippi just south of the mouth of the Crow Wing during the winter of 1847-48. By the early 1850s, lumbermen were already looking at the rich pine lands north of the Crow Wing River and gained access to it through a treaty in 1854 which ceded northeastern Minnesota and a treaty in 1855 which ceded the Mississippi headwaters region. In 1866, the Nett Lake area was ceded. Most of the Red Lake area was ceded in 1889. Lumbering rapidly entered the ceded lands.

While logging was the driving force to acquire Ojibwe lands in Minnesota and rapid destruction of the northern Minnesota ecology forced the Ojibwe to abandon many aspects of their traditional way of life, the Ojibwe also participated in commercial logging. Ryan (1989) contends that Indians played a very minor role in the lumber industry and he characterizes them as unreliable workmen who were largely limited to working as “river pigs” on fast river drives because they enjoyed the thrill of riding the logs. Historical Research Associates (1992) present a different view. Sawmills were established quite early on Ojibwe reservations to provide employment and lumber for local construction. White Earth and Leech Lake reservations ran their own logging camps (HRA 1992: 3-4, 3-6, 3-17). Other Ojibwe, who resisted moving to the reservations, worked in lumber camps near their villages (HRA 1992:3-6). Ryan (1989) also infers the Ojibwe avoided hard work in lumber camps, but HRA (1992:3-8) contend that the Fon du Lac Ojibwe “earned a reputation for being steady and reliable workers.” The lack of Indian loggers in camps distant from villages may have been due to conflicts between the lumbering cycle and traditional Ojibwe lifeways. Winter in northern Minnesota was a difficult time when men were needed at home to provide food for their families. For the men to spend the winter in a lumber camp far from home would have caused hardships and threatened the very survival of some Indian families.

### CONCLUSION

Over time, as the logging industry expanded, log-procurement practices in Minnesota became more sophisticated, mechanized, and intense. The frequent movement or abandonment of old facilities, in turn, provided opportunities for retooling or restructuring operations and favored the adoption of new equipment, innovations, and standards (Kohlmeyer 1956:533). Material evidence left in the wake of the harvest can be studied to show the progression and configuration of frontiers as well as the changing nature of the logging industry as cutting strategies evolved and technologies advanced.

A baseline against which to measure historical developments can be produced by reconstructing the distribution of the desired raw materials at the time the industry began (e.g., Rohe 1985:362). Evidence for defining the dispersion history and nineteenth-century distribution of Minnesota’s forests is found in palynological sources (e.g., Jacobson 1979) and the field notes of the original government land surveys (e.g., Marschner 1974). Other evidence for developing contexts can be found in public and business records, newspapers, reminiscences, maps, photographs, oral traditions, and place names (e.g., Overstreet 1982:58-64). Meteorological data are also relevant for studying diachronic change or innovation in the logging industry. Warm winters or winters of little snow, for example, might have impeded the log-procurement process, causing loggers to seek new ways to transport logs (e.g., Rector 1953:196). Integrating all the various strands of evidence can help to generate more precise local or regional perspectives on loggers and logging culture and to provide data relevant to understanding the motivations, timing, and implications of shifts in logging methods and technologies.

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Through the use of documentary evidence (including photographs) it is possible to define the various tasks and activities engendered in the log procurement process and to hypothesize how each might be expressed in the archaeological record (Birk 1997a, Appendix B). Because of the broad range of possible material representations, the best course when categorizing logging sites for management purposes would seem to be to start with a lowest feasible number of property types. Narrowing the number of property types should facilitate their field identification while serving to eliminate needless guess work on the part of surveyors. Towards that end, four log-procurement property types are proposed:

(1) *Habitation properties* include all forms and variations of settlement sites and loci along with associated features like gardens, corrals, fire hearths, wells, debris scatters, and trash middens, and the remains of buildings or structures like bunk houses, kitchens, barns, shelters, shops, sheds, offices, root cellars, and privies. Areas of significant resource concentration may be treated as districts (NRB-16A 1991:15). Examples of logging habitation properties are the Stanchfield Logging Camp Site (21Mo137) in Morrison County (Birk 1997b) and the Schroeder Lumber Company Bunkhouse in Cook County (MnSHPO 1990:14).

Habitation properties are generally the remains of transient, temporary, or semi-permanent camps or facilities used directly in support of logging operations and transportation. Such places often provided structured environments for housing and feeding animals and laborers, conducting company business, and for making, maintaining, or storing equipment. This would include logging camps, driving camps, logging dam construction camps, logging railroad construction camps, and cruiser camps. Wells and privies were common features at many logging camps, though garbage like empty food containers and organic wastes may have been deposited in dumps up to a quarter mile away from living areas (Peters et al. 1983:164).

There was a general proliferation in number and size of logging camps in the late nineteenth century (e.g., Rohe 1986; Birk 1996) while, in some areas, after 1920, corporate arrangements led to an increase in the size of camps and crews, with a coincidental decrease in the number of camps in operation (Peters et al. 1983:169). With the introduction of logging railroads in northern Minnesota in 1886 (Ryan 1946), for example, there was a concurrent rise of rail-based camps (including railroad-construction camps). Written accounts of life in the camps is of varied quality, often biased, and largely incomplete (Peters et al. 1983:169). Habitation properties (sites) contain archaeological information relating to such things as living arrangements, sanitary conditions, diets, architecture, or ethnicity. Because most such properties, when in use, were likely located near ongoing logging operations, their locations and distribution might also inform about the placement and configuration of contemporary logging frontiers, harvesting thresholds, and transportation links as well as about the nature of other political or economic forces or conditions that may have worked to shape these various phenomena.

Habitation sites are often littered with artifacts and have long been a focus of collecting and looting. District Heritage Paraprofessional, Keith Matson, at Chippewa National Forest, recently lamented:

I have not seen a pristine [logging camp] site on this Forest. Sites have been collected for scrap iron in the scrap drives of the two World Wars, [altered by] past timber harvesting and site preparation activities...dating to as early as the CCC era when these logging era sites were not deemed important as historic sites and were not protected, and...damaged by pot hunters and collectors. This is not to say that all sites have been totally trashed, indeed many of the sites still retain foundation berms, cellar and well pits and some artifacts buried on the sites. Rather, this means that the...volume of metal...usually abandoned with a logging camp has been removed, save for tin can dumps found at some of the camps dating to the later periods of the logging era (Matson 1996).

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(2) *Transportation properties* include all variations of log conveyance or control facilities and features including skidways, landings, supply (tote) roads, sled roads, railroad grades, rail or roadway systems, bridges, trestles, hoists, dams, dikes, diversion channels, flumes, pilings, cribs, sorting gaps, booms, log rafts, sunken logs, log jams, boats, locomotives and cars, shops, storage sheds, shelters, directional signs or signals, and survey or boundary markers. In terms of NRHP evaluations, transportation properties may include buildings, sites, structures, objects, and districts (NRB-16A 1991:15-16). Such properties may be in upland or wetland areas, or in settings near, over, in, or under water. Examples of transportation properties include the Saint Croix Boomsite (MnSHPO 1990:82), logging dams on the south fork of the Pine River in Cass County (Birk 1996), extant sections of old logging railroad grades found in forested regions of northern Minnesota (Ryan 1946; Vandersluis 1974; King 1981), and the shipwreck of a "gator" (log-towing vessel) in Burntside Lake near Ely (Hall et al. 1996:42-48).

Transportation properties can be studied to learn about supply connections and harvesting processes as well as to determine how certain procurement methods and technologies may have worked, inter-related to natural features, changed over time, or differed from one region or company to another. While transportation properties may be considered individually, they are perhaps best understood when considered as parts of broader systems. The greatest threats to the integrity of transportation properties have been natural deterioration and more recent developments, some of which have involved the adaptive reuse of former logging constructs (such as the conversion of abandoned tote roads or railroad grades into modern roadways). The potential for retrieving certain classes of data or artifacts in such places or settings may now also be significantly reduced by vandalism and collector activities.

(3) *Complex properties* (or site complexes) might contain elements of all other logging property types including an interfacing of land and water transportation properties or resources. Within this category are sites like logging dams with associated dam-tender's cabins; camps, hoists, or landings on or aside rail-lines; or the place of convergence of a logging road or a network of such roads at a waterway where logs were dumped or banked for the spring drive. Examples of complex properties are the Cross Lake headquarters camp settlement and log dump (21Cw23) on Cross Lake in Crow Wing County, a log hoist and railroad yard at Norway Beach on Cass Lake in Cass County (Larson 1995:16), and various hoist camps reported in the Superior National Forest (Peters et al. 1983:146-147, 152).

In addition to the attributes listed under property types 1 and 2 above, complex properties might inform about the blending or separation of living and work environments on logging frontiers, or about the level of investments made in planning, establishing, and developing such facilities or environments. Throughout Minnesota, shoreline areas have been widely developed for residential and recreational purposes since the period of World War II. Many old log-hoisting or landing sites have now been incorporated into private developments or are used to provide public or private access to waterways. Uncontrolled public access areas in particular are now often heavily contaminated through the introduction of modern materials and debris left by hunters, fishermen, boaters, picnickers, and revelers.

(4) *Find spots* are the sites where isolated object or artifact finds are made. Objects are small, relatively simple constructions such as mileposts or monuments. Artifacts may include such things as a coupling pin, sled runner, horse shoe, ax, boom chain, or saw log. Find spots are generally of limited historical interest unless they involve complex or datable items or widely scattered items that occur in large numbers or in historically significant patterns. In combination, individually diagnostic finds may give important clues about logging methods and technologies, the use, reliability, and makers of certain kinds of tools, or the work habits of various logging crews. Isolated find spots may range from accidental discoveries resulting from ground disturbance activities to purposive recoveries made by professional archaeologists, or by artifact hunters who make a hobby of collecting bottles, metal objects, and other kinds of artifacts. While the actual locations (i.e., sites) of most find spots will not be significant (i.e., eligible), the patterns of the finds and the finds themselves may be of interest to scholars and exhibitors.

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The great majority of log procurement properties in Minnesota are sites or structures. There are very few buildings remaining and almost all of these have already been identified. Extant buildings associated with commercial log procurement in Minnesota are the Schroeder Lumber Company Bunkhouse in Cook County, the Filer's Shack and Barn (both moved from a nearby Alger Smith and Company camp) at Tettagouche Camp in Lake County, and the St. Croix Boom Company House and Barn in Washington County. A few other buildings may survive, but probably not in their original locations and in greatly altered condition such as a reported logging camp building at Camp Comfort Resort on Gull Lake in Cass County (Birk 1985:41). Because properties reviewed under this MPDF have to be *directly* involved in the procurement or transportation of timber, the following property types related to the lumber industry are not included for consideration under this Multiple Property Documentation Form: homesteads, cutover farms, logging company farms, sawmills, mill towns, supply towns, CCC camps, lumbermen's houses and offices, tree plantations, and cutting areas.

### REGISTRATION REQUIREMENTS

In order to be eligible for the NRHP, properties must possess both *significance* and *integrity*. As illustrated in Table 2, log-procurement properties will be nominated to the NRHP under one or more of four significance criteria: **Criterion A** (for their contributions to association with historic events or broad patterns of history), **Criterion B** (for their association with notable persons), **Criterion C** (for their distinctive or non-distinctive qualities or characteristics), or **Criterion D** (for their research potential). Before the criteria can be applied, the physical and historic integrity of the property or resource must be evaluated. Integrity is a measure of a property's condition or of the authenticity of its historic identity based on certain inherent qualities (NRB-16A 1991:4). David Overstreet, of the Great Lakes Archaeological Research Center, has shown that site evaluations can be complicated by the fact that selected properties may be evaluated using different temporal and geographical scales and that they may be considered important to local residents, county historical societies, management agencies, archaeologists, social scientists, and humanities scholars for different reasons (Overstreet 1982; Peters et al. 1983:144).

PROPERTY TYPES	PROPERTY CATEGORIES	NRHP ELIGIBILITY CRITERIA
Habitation properties	Sites Buildings Structures Objects Districts	Criteria A, C, and D, but rarely B
Transportation properties	Sites Buildings Structures Objects Districts	Criteria A, C, and D, but rarely B
Complex properties	Sites Buildings Structures Objects Districts	Criteria A, C, and D, but rarely B
Find spots	Sites Objects	A, B, C, but rarely D

Table 2. Log-procurement property types, resource categories, and NRHP eligibility criteria.



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### Significance Criteria

Log-procurement properties may qualify for local, national, or statewide significance under **Criterion A** for contributing to the broad patterns of history. In the contexts of *St. Croix Triangle Lumbering* and *Northern Minnesota Lumbering*, commercial logging generated employment and capital investments, opened previously-forested lands to settlement, agriculture, and recreation, and helped to develop transportation systems and supply routes in formerly isolated areas. Because procurement activities were firmly linked to external markets, they fueled the development of supportive or ancillary industries and businesses, including equipment manufacturers and dealers, food producers and suppliers, bankers, inspectors, dam tenders, teamsters, steamboat operators, and railroaders, to name but a few. Logging camps were social cauldrons where men of varied ethnic origins and language or physical skills worked and lived together and dined on common fare. The log harvests also supplied sawmills which, in turn, often formed the nuclei of industrial centers or communities and provided wood products for developments in treeless prairie environments often far removed from the forests of Minnesota. Under the context of *Indian Communities and Reservation*, logging included the involvement of Native American peoples yet accelerated the erosion of their land-base and the alteration of traditional ways of life.

Log-procurement properties may also qualify for local, national, or statewide significance under Criterion A for their association with specific historical events or trends. One site that might qualify for the National Register on the basis of an event is that of the Virginia and Rainy Lake (VRL) Lumber Company's Camp 41 located near Cusson, Minnesota. In 1916 a number of lumbermen went on strike at Camp 41 to protest poor working conditions, long hours, and low pay. Their strike was also incited by the example of the Industrial Workers of the World, a "radical labor group" which advocated "industrial unions and the overthrow of capitalism." During their rebellion, the strikers allegedly seized control of a bunkhouse, "slept in bunks not assigned to them, ordered themselves fed, intimidated nonstriking workers, and ran the cook out of camp." The short-lived strike, described by an apparently-biased local press as a "reign of terror" involving a "rebel gang," resulted in the arrest, removal, and subsequent release of 53 loggers. The Camp 41 protest was linked to other labor strikes in 1916 in Minnesota and elsewhere which led Minnesota, "along with twenty-one other western states and two territories" to pass "a criminal syndicalism law in 1917" (Haynes 1971:163, 171, 174).

An example of a logging property that may qualify for the Register more for an associated political event than for its industrial purpose or design is the remains of the Round Lake dam on the Otter Tail River near the town of Ponsford, Minnesota. In 1901, when Ojibwe from the White Earth Reservation learned that a lumber company entrusted to take "dead and down" timber from the reservation had actually overstepped the bounds of its contract and harvested a good deal of green timber as well, they decided to stop the log drive that involved the contraband. A group of "sixty or seventy armed Indians" appeared at the dam and threatened to blow up that facility and other dams on the reservation if the drive was not halted and some remuneration made. The drive was held up for several days before a government inspector agreed to rescale the harvest based on an appraisal of the stumps; the premise being that the illegal cutting of green trees would be revealed by the presence of sap-oozing stumps left in the forest. In a later law suit the Indians' case was upheld in court, and they were awarded an additional \$40,000 for their timber (Vandersluis 1974:299-300). The Round Lake Dam site, if yet extant, might help to illustrate the scene and events of the 1901 intervention as well as to shed light on Indian-white relationships at White Earth during the era of pine logging.

Few log procurement properties will be eligible under **Criterion B**, their association with a significant person, except perhaps on the local level. Many prominent individuals in 19<sup>th</sup> century Minnesota were associated with logging (e.g., John Pillsbury, William Washburn, Frederick Weyerhaeuser), but most of them did not spend a significant amount of time at individual log procurement sites and thus their association with any one property is indirect. An exception may be the Stanchfield Logging Camp in Morrison County. Daniel Stanchfield was a prominent early logger in Minnesota who did some of the first cutting in the state (cf. Stanchfield 1901). He spent the winter of 1847-48 at this camp on the Mississippi River in Morrison County.



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months when the leaves are down. Optimum conditions are often found in late fall or early winter after freeze-up makes it possible to walk or drive over marshes and lakes, and a dusting of snow enhances the definition of surface features. The use of aerial photographs and period maps to assist field surveys is also helpful.

The mere presence of well-preserved properties used during the period of significance does not ensure that they are eligible or should be nominated to the National Register. A determination of eligibility involves an assessment of integrity and significance in terms of NRHP criteria. The register is not intended to be nor is it an open inventory. It is a listing of those particular properties with the greatest integrity that best represent the resource (i.e., how well a specific property illustrates the property type and how it relates to the historic context [NRB-16B:16]). Because some logging properties, like skidways or winter roads, might have had no notable or enduring physical improvements, the qualities of design, materials, and workmanship may be of little use in determining the integrity of certain resources.

Most log-procurement properties such as find spots, properties lacking physical integrity, and properties that date to the last 50 years, are generally not eligible for listing on the NRHP, *unless* they are determined to be of exceptional significance. For example, the St. Croix Boom Site has no demonstrated physical remains, but because the location was so important and because it retains integrity of feeling and setting, it is listed on the NRHP.

*Habitation and Complex Properties*

Habitation properties are the most common property type associated with logging in Minnesota. While only several hundred logging habitation properties are recorded in existing cultural resource management inventories, several thousand may exist in the state. Complex properties share many traits with habitation properties in that they occupy a limited area and are principally archaeological in nature. In general, to be eligible to the NRHP under Criterion D, a habitation or complex property must minimally retain integrity of materials and association; integrity of location is assumed for archaeological sites. If the property is a building or structure, it will also need to need to retain design integrity if eligible under Criterion C (but not necessarily location) and also retain integrity of location, setting, and feeling if eligible under Criterion A or B. Archaeological sites should retain integrity of materials and association in at least half the original site, have sufficient artifacts to answer research questions as demonstrated by archaeological evaluation, and contain at least one major feature.

With regard to significance, habitation or complex properties will usually be eligible under Criterion A or D. The earlier the property the more likely it is to be eligible both due to the rarity of early camps and the existence of poorer written records moving back in time. Few camps dating to the 20<sup>th</sup> century will be eligible unless some significant event took place there, they are exceptional for some other reason like the last or largest camp in a particular area, or they have been demonstrated to contain an exceptional inventory of materials and features that make them especially amenable to archaeological investigation. Redundancy of data and questions of importance must be carefully considered with regard to logging camps.

In instances where habitation or complex properties have been re-used or developed for other purposes, subsurface testing may be required to determine whether any *in situ* primary remains or features are present (e.g., Stiles 1993). Such is the case with the Cross Lake Logging Camp (21CW23)--a combined railroad terminus, log landing, and company headquarters camp on Cross Lake in Crow Wing County (Birk 1996). The area of the site complex is now subdivided and widely developed by residences, businesses, roads, and a church. One can estimate and visualize the area of the old camp and adjacent log landing from documentary sources, but field conditions suggest that little significant cultural evidence may be left intact except for a short segment of railroad grade, a few cellar depressions, some possible buried features, parts of the log dump along the shoreline of the lake, and scattered pockets of debris (including possible offshore deposits and sunken logs).

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grades that are considerably modified, heavily used by modern vehicular traffic, or paved, are likely ineligible. Segments of abandoned railroad grade that have become overgrown or that have been adopted as minimal-maintenance roadways may be eligible if the lines can be followed without great difficulty and if they evoke a sense of original design or use. Abandoned grades in marshy areas are often obscured by slumpage, flooding, beaver dams, or vegetation and, therefore, may lack visible or readily accessible evidence of design, materials, and workmanship. Archaeologists in Superior National Forest report finding evidence of rail lines that originally consisted of ties and rails "laid on the surface of a swamp or bog after freeze up." Such remains, now usually reduced to only "a cut line" through the forest and a "series of ties mired in the moss" (Peters et al. 1983:177, 179), will probably not qualify for listing on the NRHP by themselves, but may be contributing elements if they are included within a broader district.

In areas where a "contained" series of interconnected railroad lines reflect the system or processes used in the local harvest and transport logs, the entire network may be eligible as a complex or district, even if some segments of grade within the network are individually undistinguished (NRB-15 1991:46). Use of the material evidence of grades or grade networks to study logging methods may be further enhanced if associated features like sled roads, hoists, landings, skidways, wyes, and camps are identified. An example is seen at the Island Lake Spur, or Spur 42, a branch line of the old Brainerd & Northern Minnesota Railroad north of Pine Mountain Lake in Cass County, where field investigation of an interrelated network of sled roads, railroad grades, and waterways makes it possible to reconstruct the general early patterns of pine harvesting in that vicinity (Birk 1996).

Another example, currently under study near Longville, Minnesota, is the Camp #2 spur of the old Cross Lake logging railroad. The Camp #2 spur is actually a network of short-lines laid out and constructed to enable "hot logging," a technique whereby logs were skidded directly to the rail-line without the use of sleds (Rosholt 1982:26). Preliminary evidence suggests that the entire Camp #2 complex may be contained within an area about equal in size to a single township.

Another good example of a rail system within a confined area is a network of grades once used by the Swan River Logging Company in the area of the present Chippewa National Forest near Cass Lake (Larson 1995). Other such networks are found throughout the forested districts of northern Minnesota (King 1981). Similarly contained and interconnected networks of sled roads, with or without associated railroad grades, may likewise be eligible if they possess physical integrity and illustrate the local system or processes used to procure logs. Generally speaking, the best evidence for such systems is usually found in sparsely-populated areas of rolling or rugged terrain (Birk 1996).

Remains of railroad lines and roads will usually be eligible only under Criterion A, since most possess only indirect associations with significant persons (Criterion B), are rarely part of a formal significant design (Criterion C), and have little potential to yield important information (Criterion D) through archaeological excavation.

*Find Spots*

The sites of individual objects will generally not be eligible for the NRHP, especially if the object is removed from its setting. The item itself may be eligible as an object, but eligible objects are primarily artistic or commemorative in nature and thus few logging-related objects qualify. To be eligible, the object must be left in place. Objects in museums are not eligible. An example of a potentially eligible object would be a wood carving completed by a logger, a boundary marker designating a particular logging parcel, or a monument commemorating a particular camp providing it met the minimum age requirement (over 50 years old). No extant eligible objects are currently known.