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thesis entitled

EVALUATING THE MANAGEMENT APPLICATION OF
RECREATION OPPORTUNITY SPECTRUM STANDARDS AND GUIDELINES
IN NON-WILDERNESS SEMIPRIMITIVE AREAS OF THE
HIAWATHA NATIONAL FOREST

presented by

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has been accepted towards fulfillment
of the requirements for

Master of Sci. degree in Park & Recreation Resources

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Date July 7, 1995

EVALUATING THE MANAGEMENT APPLICATION OF RECREATION OPPORTUNITY SPECTRUM STANDARDS AND GUIDELINES IN NON-WILDERNESS SEMIPRIMITIVE AREAS OF THE HIAWATHA NATIONAL FOREST

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

Department of Park, Recreation, and Tourism Resources

1995

ABSTRACT

EVALUATING THE MANAGEMENT APPLICATION OF
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The U. S. Forest Service applies Forest Plan and Recreation Opportunity Spectrum User Guide, Eastern Region Supplement Standards and Guidelines in management of non-wilderness semiprimitive areas of the Hiawatha National Forest. In order to assess the Forest Service compliance with these standards and guidelines, an independent monitoring program was developed and implemented. This monitoring program allows managers to obtain site-specific information necessary to address public concern about the management of semiprimitive areas, thereby alleviating an inadequacy in the Hiawatha's Monitoring and Evaluation Program. The program identified four areas of noncompliance. These included; 1) facilities exceeding suitable Recreation Development Level standards; 2) snowmobile trails bisecting nonmotorized areas; 3) trail maintenance below standards for traveler safety; and 4) numerous low standard roads, which should be closed, are accessible to motorized travel. Suggestions for mitigating these and other inconsistencies identified are offered.

To my Mother and Father;
For all their endearing love and support.

ACKNOWLEDGMENTS

I would first like to thank Susan Olderwald and the rest of the staff at the Forest Supervisors Office and Hiawatha National Forest for all their assistance throughout this project. I would also like to thank Mike Vasievich of the USFS North Central Forest Experiment Station for his support of this project.

Secondly, I would like express my appreciation to Dr. Charles Nelson for his countless contributions, from his guidance throughout the project to his other efforts during my work with him over the past three years in the Department of Park, Recreation and Tourism Resources.

Thirdly, I owe a great deal of gratitude to Kristine Dawson for her editorial assistance, but more importantly for her support in maintaining my sanity while writing my thesis. Next, much of the persistence and hard work that went into this and my graduate studies at Michigan State University came as a direct result of my mother and father, who were always there to encourage me in this process. I cannot truly express my appreciation to them for the impacts they have made. Additionally, I am appreciative of my brother Jason, older sister Julie and my twin sister Jill, to whom I owe equal thanks for their encouragement and support. Lastly, I would like to include all my friends for showing their support and, of course, all of my committee members and faculty at Michigan State University who, in their own ways, contributed to the success of this thesis and my education.

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CHAPTER I

INTRODUCTION

The Evolution and Management of Our National Forests

With the passage of the Forest Reservation Act in 1891, the President of the United States (U. S.) became able to designate areas of the public domain as forest reserves. In accordance with the Organic Act of 1897, the General Land Office of the U. S. Department of the Interior protected and administered these forest reserves to safeguard watersheds and provide timber (Loomis, 1993). Gifford Pinchot, head of the Division of Forestry under the U. S. Department of Agriculture (USDA) in 1898, fought in earnest to gain control of these forest reserves (Wellman, 1987). As a conservationist, Pinchot believed that these forest reserves could be maintained for future generations and be actively managed to produce commodities for our growing nation (Wellman, 1987). Urged by Pinchot and President Theodore Roosevelt, Congress passed the Transfer Act in 1905, which shifted these Forest Reserves to the newly created Forest Service in the Department of the Agriculture (USDA-FS) (Wellman, 1987). Under the Agricultural Appropriations Act of 1907 these forest reserves were renamed National Forests (Loomis, 1993). Most of the National Forests in the eastern U. S. were created by the Weeks Act of 1911, which authorized the purchase of private forest lands in the interest of protecting the flow of navigable rivers (Kundson, 1984). Since 1891, the National Forests System has expanded to 191 million acres (Findley, 1982), of which approximately 132 million acres was designated during Roosevelt's tenure.

In addition to the original uses of the Organic Act of 1897, Forest Service managers also provided a variety of secondary outputs including outdoor recreation, wildlife and fish habitat, and range management. This management orientation for National Forests prevailed until 1960. Cubbage, O'Laughlin, and Bullock (1993) noted that following World War Two, expanding resource uses, in particular for recreation and timber, coupled with an escalating public concern over National Forest management policies, resulted in the passage of the Multiple-Use Sustained Yield Act of 1960 (MUSYA). This statute extended the original management objectives of the Organic Act (Loomis, 1993) to include secondary resource uses. Furthermore, MUSYA stipulated that each resource would be given equal "consideration," and be managed, "so that they are utilized in combination that would best to meet the demands of the American public."

The passage of the MUSYA was a milestone for recreation management in National Forests because for the first time recreation had been recognized as equally important to commodity resources, such as timber. Moreover, the MUSYA mandated that recreation be integrated into National Forest management and planning.

National Forest Planning

The decade of the 1960's was symbolized by increasing public concern about environmental impacts and the management of natural resources. As a result of this concern, the National Environmental Policy Act of 1969 (NEPA) was enacted. This act mandated all federal land management agencies integrate special planning requirements to evaluate the environmental impacts of management activities into their decision-making processes.However, at the time of NEPA's enactment, no nation-wide statutory planning and management framework existed for National Forests (Wilkinson & Anderson, 1987).

This lack of a long-term planning framework, coupled with the ever present conflicts among the different resource interests in National Forests, resulted in the enactment of the Forest and Rangeland Renewable Resources Planning Act of 1974, (RPA), and its subsequent amendment, the National Forest Management Act of 1976 (NFMA) (LeMasters, 1984). These statutes established the framework from which all land and resource management planning would occur for our National Forests. The RPA was primarily an agency-wide strategy which set forth two key obligations. First, an inventory assessment of resources was to be conducted every ten years. Second, this information was to be used in the development of general resource goals for the National Forests every five years (Cubbage et al., 1993). Though RPA was a major step towards implementing a comprehensive forest planning strategy for National Forests, it did not provide the detail necessary for forest-level planning. This deficiency, along with the successful court challenge to clear cutting in West Virginia's Monongahela National Forest, led to the establishment of NFMA (Ellefson, 1992). Among its provisions the NFMA reaffirmed the concept of multiple-use management, ordered the preparation of integrated comprehensive land and resource management plans for all National Forests, and mandated and regulated public input in the planning process (Loomis, 1993).

While the passage of the RPA and the NFMA were major policy initiatives in the management of National Forests, these policies had one major shortcoming. Neither provided the mechanics to integrate all resource uses, particularly recreation, into multiple-use planning and management (Driver, 1989). However, a transformation was occurring in the way researchers and managers viewed recreation and its management.

Recreation Management and Planning

The goals and objectives of early recreation management revolved around a couple key principles. Many early advocates of outdoor recreation management recognized the importance of diversity in providing opportunities in National Forests (Leopold, 1921; Marshall, 1938; Wagar, 1951). Yet, recreation was perceived by early managers simply as participation in activities (Driver & Tocher, 1970). Hence, recreation management was aimed at providing a diverse set of activity opportunities (Driver & Brown, 1978). Correspondingly, the design of early recreation inventory systems, such as Recreational Opportunity Inventory and Evaluation, and the Bureau of Outdoor Recreation Area Classification Plan reflected these principles. Each system identified forest settings based on their ability to provide for activities (Driver & Brown, 1978). This orientation and these inventory systems, were found to be inadequate for integrating recreation into multiple-use planning and management (Driver & Brown, 1978) because activities are not resources. Therefore, they can not be compared to the other forest resources, such as timber, nor could they be integrated into multiple-use planning.

Gradually, a new perspective of recreation began to emerge. One which incorporated a behavioral component, where participation in recreational activities was motivated by achieving a rewarding experience (Driver & Tocher, 1970). Research had also begun to identify aspects of satisfyingrecreational experiences for different users (e.g. Clark, Hendee, & Campbell, 1971; Lucas, 1964). Work had also begun to distinguish different attributes of forest settings which were believed to contribute to satisfying recreation experiences (Driver, Brown, Stankey, & Gregoire, 1987).

Parallel to this shifting perspective, researchers had also begun to characterize recreational opportunities in terms of different environments (Burch, 1964; Lucas, 1964; Wagar, 1966). This linkage eventually led Lloyd and Fisher (1972) to suggest offering a range of choices, both "concentrated and dispersed" for recreation activities. Stankey (1977), expanding upon this idea, offered a number of ways to characterize the limits of a continuum. Additionally, early inventory systems, particularly the Recreation Inventory Instructions (RII) were also instrumental in further evolution of classifying recreation opportunities. The significance of the RII was that it attempted to link "Recreation Experience Levels" to various attributes in the forest (Brown, Driver, & McConnell, 1978). Conceptually, this strategy along with the various concepts and principles that had evolved from recreation research during the 1960's and 1970's formed the foundation of the Recreation Opportunity Spectrum (ROS) framework. This framework transformed recreation management by linking recreation values to the forest, substantiating recreation as a resource, and thus enabling it to be interfaced into multiple-use management. The ROS framework, unlike any previous inventory systems, established both a planning and management tool, guiding inventory and demand analysis, as well as the development of management guidelines and objectives (Driver, 1989).

The Recreation Opportunity Spectrum

The foundation of ROS was laid by Driver and associates (1978), while the planning and management framework of ROS, eventually adopted by the Forest Service under FSM Title 2300 in 1980 (USDA-FS, 1986a), was shaped by Clark and Stankey (1979). ROS was designed to weave together recreation and the other forest resources into a land and resource plan, as stipulated by the requirements of the MUSYA, RPA, and NFMA.

The basic structure of the ROS framework is founded on viewing recreation as a goal orientation, where recreationalists realize satisfactory experiences through engaging in preferred activities in a desired settings (Driver & Brown, 1978). The ROS framework combines these elements, classifying them along a spectrum of six opportunities classes (USDA-FS, 1986a). These opportunity classes are: primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, rural, and urban describe a setting in which recreational experiences can be actualized (see Appendix A for class descriptions). Each class is in turn characterized by blending physical, biological, social, and managerial setting criteria, which are used to distinguish and delineate the forest into specific management areas (Clark & Stankey, 1979). These areas are then managed to achieve or retain the desired conditions of the ROS class and to foster recreational experiences and activities compatible with those settings.

Applying ROS in the Hiawatha National Forest

The dedicated boundaries of the Hiawatha National Forest (HNF), located in Michigan's Upper Peninsula, encompass approximately 1.3 million gross acres with 887,890 net acres actually in federal ownership. In 1986, the HNF Land and Resource Management Plan (LRMP), or Forest Plan, was approved and implemented. ROS was one of the tools used in structuring this plan.

The Forest Plan establishes the management direction for the resources of the HNF. ROS is linked to this plan through the Management Areas (MA), which delineate the forest into specific management units. Though there are number of MA representing different purposes, conceptually they are intended to reflect the characteristics of one of the six ROS class. The management direction of each MA is defined the description of the Desired Future Condition

of the Land, Management Prescriptions (MP), and ROS Standards and Guidelines. The ROS User Guide, Eastern Region Supplement supplies managers with the standards and guidelines, influencing both the management of recreation and non-recreational uses and activities in MP's (USDA-FS, 1985a) for the HNF. The success of achieving recreational objectives set forth for each ROS class is influenced by the extent that each class's standards and guidelines are used to delineate the MA and the development of the MP's (USDA-FS, 1985a) as well in guiding management activities for each Management Area.

Public interest in the HNF has focused on two ROS classifications, Semiprimitive Nonmotorized (SPNM), and Semiprimitive Motorized (SPM). These MAs are characterized a natural forest appearing landscape without highly visible evidence of management activities (USDA-FS, 1986b). (See Figure 1 and Figure 2 for names and location of these MA's). In particular, the number, size and management of semiprimitive areas, were major constituent concerns that surfaced in the public review of the HNF Land and Resource Management Plan (USDA-FS, 1986b).

Management Problem

The Recreation Opportunity Spectrum, which was developed by Forest Service to resolve the dilemma of integrating recreation with other resource management activities is widely implemented in the National Forest System (Schneider, Anderson, & Jakes, 1993). ROS has been considered a key "innovation" to meeting the goal of managing recreation (Schneider et al., 1993). This significance, as well as its simplicity, has contributed to its adoption by Bureau of Land Management (BLM) and its use in other countries as well (Driver et al., 1987).

The emphasis of ROS, since its adoption by the Forest Service fifteen years ago, has been the implementation of the principles established by the ROS Users Guide (USDA-FS, 1982). Yet, little has been done to assess the extent that ROS objectives, and standards and guidelines are met by field managers.

Conducting such an assessment and monitoring the field application of ROS can provide a multitude of benefits for forest managers. It would establish baseline information on the status of these areas under ROS management, such as an inventory of facilities and their conditions related to its ROS Classification. An assessment would also provide data regarding the extent that resource management activities are conforming to management guidelines. Identifying the points of divergence from Management Plans would enable managers to correct divergent situations. Furthermore, the information accumulated would aid managers establishing maintenance schedules and budgets. On-site monitoring, which is the continuing systematic evaluation between planned activities and their accomplishment, will determine over time whether efforts are reaching targeted goals and objectives (Shands, Sample, & LeMaster, 1990).

If such an assessment and on-going monitoring are not conducted, recreation sites may not meet user expectations, impairing an individual's ability to have positive recreational experiences. This could open up conflict between managers and the public. Addressing this issue is important, especially in light of a predicted expansion in many outdoor recreation activities (Cordell, 1988) and the public's rising concern for the management their National Forests (Gippert, 1990; Larsen et al., 1990).

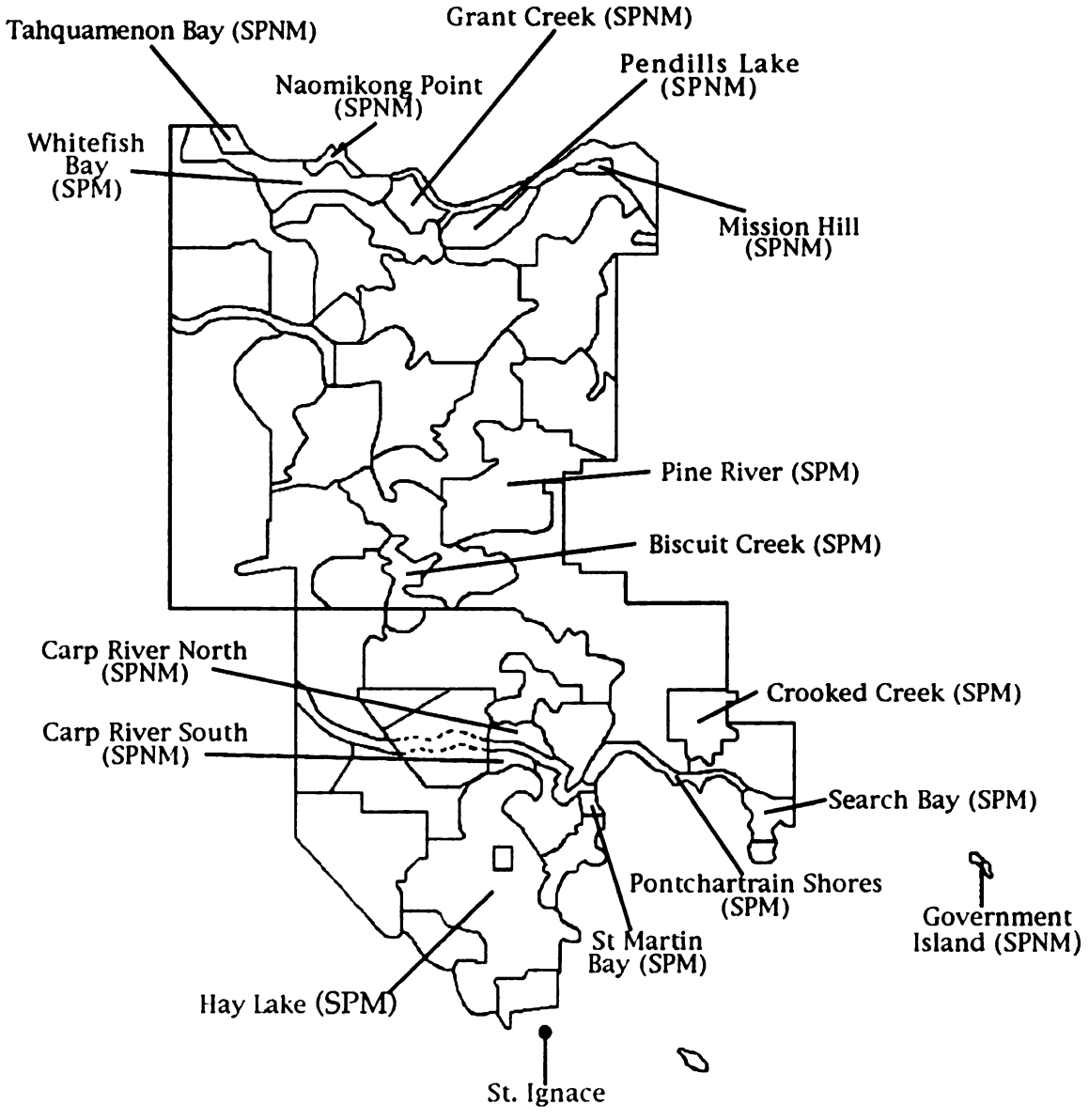

Figure 1. Names and locations of Semiprimitive Management Areas in the Eastern Unit of the Hiawatha National Forest.

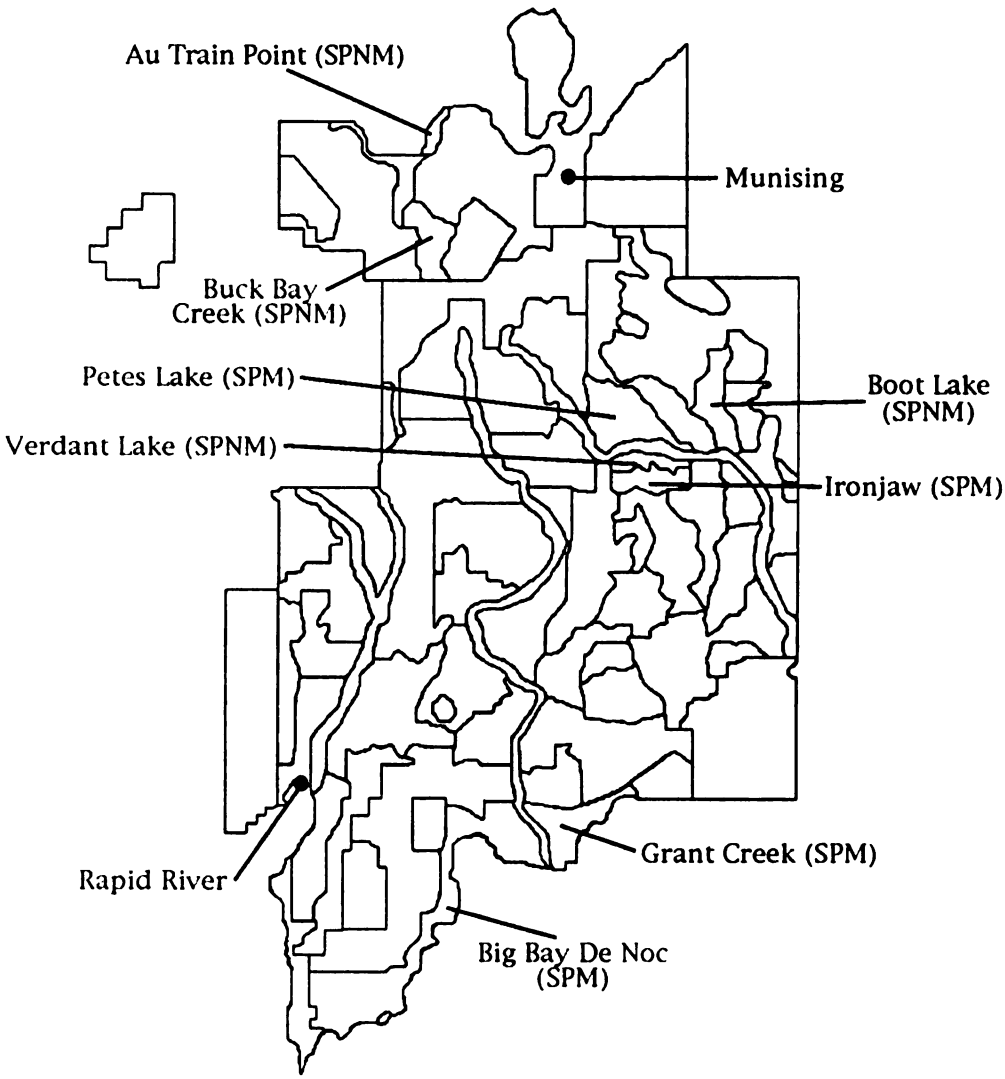

Figure 2. Names and locations of Semiprimitive Management Areas in the Western Unit of the Hiawatha National Forest.

Management Problem in the Hiawatha National Forest

One of the key management concerns that evolved during the preparation of the Hiawatha's LRMP centered on the management of Semiprimitive Management Areas (SPMAs). In the Draft Environmental Impact Statement (DEIS) (USDA-FS, 1985b), 15,600 acres of SPNM and 111,700 acres of SPM Management Areas, both of which included some acreage as wilderness study, were proposed for the HNF.

However, these acreage totals were altered based on the public's review of the DEIS. The majority of the public comments centered on the lack of SPNM opportunity (USDA-FS, 1986c). As a result, the acreage in the Final Environmental Impact Statement (FEIS), or LRMP, was increased to 86,470 acres of SPNM and 127,400 acres of SPM (USDA-FS, 1986c). However, the concern over semiprimitive areas persisted even after the Hiawatha's LRMP was approved. The principle concerns raised during the appeal process included 1) the need for these areas 2) how they were to be managed (USDA-FS, 1988). The appellant groups to the Forest Plan included the Serria Club, Wilderness Society, Michigan Association of Timberman, and the Michigan United Conservation Clubs. The agreement they eventually reached with the Forest Service resulted in the designation of 28,551 gross acres of SPNM with 26,560 of that net acres (Table 1) and 117,438 gross acres of SPM recreation opportunities with 88,180 net acres (Table 2), with a combined total of approximately 146,000 acres (Olderwald, Personal Communication, January 19, 1995). This does not include the acreage in the five designated wilderness areas established by law in 1990.

The management of the Hiawatha's semiprimitive areas is controlled by the Management Prescription Standards and Guidelines, interfaced with ROS objectives. These define the range of conditions of the settings and facilities for semiprimitive areas. In addition, they provide a framework which managers use

1. Gross and net acreage of Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest in 1995 (a).

Ranger District and Management Area (b)	Gross Acreage	Net Acreage
St. Ignace District		
Carp River North	1,870	1,870
Carp River South	1,156	1,156
Government Island	269	269
District Total	3,295	3,295
Sault St. Marie District		
Grant Creek	3,266	3,256
Mission Hill	755	755
Naomikong Point	1,030	990
Pendills Lake	4,569	3,669
Tahquamenon Bay	1,163	1,163
District Total	10,783	9,833
Manistique District		
Boot Lake	5,800	5,560
Verdant Lake	2,250	2,250
District Total	8,050	7,810
Munising District		
Au Train Point	1,227	426
Buck Bay Creek	5,196	5,196
District Total	6,423	5,622
Forest Total	28,551	26,560

(a) Gross acreage based on 1995 USFS GIS Map. Net acreage based on USGS, 1989 HNF Eastern Unit Management Area map and USGS, 1990 HNF Western Unit Management Area map; subtracting in-holder acreage from gross acreage.
(b) Names of Management Areas correspond to dominant local natural feature.

Table 2. Gross and net acreage of Semiprimitive Motorized Management Areas in the Hiawatha National Forest in 1995 (a).

Ranger District and Management Area (b)	Gross Acreage	Net Acreage
St. Ignace District		
Crooked Creek	6,493	3,973
Hay Lake	31,559	25,039
Pontchartrain Shore	2,787	1,947
Search Bay	2,501	2,141
St. Martin Bay	715	395
District Total	44,055	33,495
Sault St. Marie District		
Biscuit Creek	3,414	3,224
Pine River	17,444	15,324
Whitefish Bay	8,777	4,537
District Total	29,635	23,085
Manistique District		
Big Bay De Noc	23,810	16,240
Bull Run	7,050	3,340
Ironjaw	3,742	3,642
District Total	34,602	23,222
Munising District		
Petes Lake	9,146	8,306
District Total	9,146	8,306
Forest Total	117,438	88,180

(a) Gross acreage based on 1995 USFS GIS Map. Net acreage based on USGS, 1989 HNF Eastern Unit Management Area map and USGS, 1990 HNF Western Unit Management Area map; subtracting in-holder acreage from gross acreage.
(b) Names of Management Areas correspond to dominant local natural feature.

to direct and target their management activities. Presumably, HNF managers also use the guidance provided by the ROS Users Guide - Eastern Supplement (USDA-FS, 1985a). Even so, there are circumstances which may arise that inhibit the manager's ability to achieve the desired results of the ROS objectives. For example, the ROS User Guide - Eastern Region Supplement (USDA-FS, 1985a), contains a variety of internal discrepancies.

Background on Monitoring and Evaluation of Forest Plans

The NFMA also sets forth requirements for monitoring and evaluating (M&E) Forest Plan implementation (Gippert, 1990). The aim of the M&E Program, such as one developed as part of Hiawatha's Forest Plan, is to determine progress in meeting plan goals. This includes the implementation of objectives, prescriptions, and standards and guidelines (USDA-FS, 1986b).

The significance of monitoring and evaluating Forest Plan implementation is well recognized (Dunster, 1992; Gippert, 1990; Unger, 1990). However, there are evident shortcomings and gaps associated with M&E Programs (Shands et al., 1990). One is the gap between the basic aim and structure of M&E Programs, and the substance of the information gathered (Bergen, 1990; Reynolds, 1990). The current program is designed to assess the administration of the entire the Forest Plan. As a result, this broad strategy cannot adequately collect or assess site-specific data (USDA-FS, 1993). Data collected regarding recreation facilities meeting standards in semiprimitive areas is limited to only that information gathered from sections 36 CFR 219.12(k) of NFMA which ascertains if the Forest Plan objectives, standards, and guidelines are correctly being applied and adhered to, and 36 CFR 219.12(K)(2) which determines the effects of applying

Forest Plan MA Prescriptions (USDA-FS, 1986b). These sections employ tactics that assess management of a whole MA. They are not able to gather specific on-site information for a particular resource.

Procedures used in M&E Programs are also often untested. Data is also collected based on a sample of sites rather than a census of the facilities, which limits the scope of the information as there is an unwarranted assumption of a normal distribution of situations and also it is assumed that all are of equal importance (Unger, 1990). Furthermore, few M&E tools specifically address the management of recreation. Often those used are common between forests, which may have little in common (Super, 1990). Lastly, M&E work is part of the annual forest agenda and is subject to constraints such as lack of personnel, budget, and time (Unger, 1990; USDA-FS, 1993).

Because of these deficiencies, the current strategies used to assess the management of semiprimitive areas in the Hiawatha are ineffective. In order for managers to accomplish this task another strategy must be employed. Since ROS objectives were established to define the desired conditions and general management in these areas, they can serve as the criteria to determine the Forest Services level of compliance (Avers, 1990). ROS as a monitoring system is not a new idea. Several writers have suggested its applicability (Driver et al., 1987; Super, 1990). Unfortunately, no specific system was ever designed, or offered for forest level managers to implement on their forests. (Warren Bacon, Personal Communication, February 10, 1994).

Study Objectives

As such, this study has the following objectives:

1) Analyze, for consistency and clarity the ROS User Guide, Eastern Region Supplement. When analysis is completed, suggest revisions as needed.

2) Develop a site specific monitoring system which will allow comprehensive and site specific assessment of the management of recreation facilities and settings in semiprimitive areas of the Hiawatha National Forest.

3) Implement this monitoring system for the Hiawatha National Forest.

4) Audit and evaluate management of Semiprimitive Areas on the Hiawatha National Forest. Suggest appropriate management actions to meet the goal of compliance with the spirit and letter of ROS guidelines and standards for recreation facilities and settings.

CHAPTER II

LITERATURE REVIEW

Introduction

The principal aim of this thesis is to devise a strategy that determines whether recreation related Forest Plan Management Prescriptions and ROS standards and guidelines are being implemented in the management of semiprimitive areas of the HNF. Few examples were discovered in the literature, relevant to monitoring compliance in implementing policy specifications, or management standards and guidelines. The bulk of the literature pertained to ascertaining the consequences of implementing natural resource management policies, tools, and plans. Nevertheless, this literature offers valuable information that can be used in monitoring the management of SPMAs of the HNF.

Application and Principles of Evaluation Research

Evaluation has been recognized as a very intricate and valuable component of administrative and management processes (Patton & Sawicki, 1986; Rossi & Freeman, 1993; Unger, 1990). Evaluation is undertaken for a variety of reasons (Chelimsky, 1978) with the overall purpose being to determine if a defined point of success or a particular outcome was achieved. According to Rossi and Freeman (1993), evaluation research can be divided into three broad categories; 1) analysis related to conceptualization and design, 2) monitoring implementation, and 3) assessing utility (effectiveness and efficiency).

Implementation evaluation is aimed at reviewing whether theexecution of the plan, or policy is consistent with intended specifications. Utility evaluation is concerned with measuring the success of the desired outcomes, such as meeting management goals or objectives, within defined parameters of efficiency. The vast majority of evaluation inquiries focus on measuring the utility, or success of the management plan, program or policy, rather then assessing the application of the established plan (Patton & Sawicki, 1986; Williams & Elmore, 1976).

To accomplish evaluation three steps are necessary (Chilman, Lane, Foster, Everson, & Lannoy, 1990; Dunster, 1992; Marion, 1991; Parker, 1991). First is monitoring, where data is repeatedly and systematically collected over time. Second is auditing, where the data is compared to the conditions that are supposed to exist and discrepancies and consequences are noted. Third is evaluation, which concentrates on understanding the relationship between the variation in actual and desired conditions and what can be done to improve the situation.

Monitoring, Auditing, and Evaluation in Resource Management

The use of monitoring and auditing in natural resource management and planning focuses on two areas, environmental auditing and wilderness and backcountry areas.

Environmental Auditing

The impetus for environmental auditing, sometimes referred to as environmental assessment (Tuppen, 1993) was the multitude of environmental laws and regulations of the 1960's and 1970's (Reed, 1992). Many of these laws and regulations were aimed primarily at industrial enterprises and were meant to establish a level of acceptable impact industrial facilities could cause to a

particular resource. In response, businesses developed and instituted auditing type procedures. These were intended to verify compliance to both internal and legislative regulations, as well as appraise whether their facilities conformed to sound environmental practices (Duffy & Potter, 1992; Hubert van Engelshoven, 1991). Typically, these audits focused on pollution control programs (International Chamber of Commerce [ICC], 1991), such as air and water quality (Parker, 1991; Wood, 1988), and hazardous and solid waste (Duffy & Potter, 1992). However they were also applied to health and safety programs (Kesling, 1992).

Wilderness Conditions

Wilderness areas, which represent relatively pristine environments and significant ecosystems, have become the focus of many types of environmental quality monitoring studies (Bratton, 1988). The first widespread program was the Biosphere Reserve Project (BRP) (Hendee, Stankey, & Lucas, 1978). Established in 1973, the purposes of the BRP were to set aside major natural areas for ecological research and monitoring (Hendee et al., 1978). Recently, the BLM has initiated a similar program, referred to as the Baseline Wilderness Monitoring Study (Sestak & Riebau, 1992). The focus of these projects is directed at documenting changes in the conditions of air and water, wildlife, soil and vegetation resources as they relate to various threats (Marlatt, Riebau, Erickson, Sestak, & Smith, 1989). These analysis focus on assessing changes in environmental conditions in wilderness areas (Sestak & Riebau, 1990), rather than discerning the result of management activities.

Monitoring, Auditing, and Evaluation Related to Recreation

Monitoring, auditing, and evaluating environmental threats to wilderness resources is currently being conducted in the National Wilderness Preservation System (Bratton, 1988). In addition to evaluating these threats, managers and researchers alike have been concerned about the impacts created by wilderness recreationalists (Cole, 1994). Correspondingly, an array of these techniques have focused on recreation impacts (Bratton, 1988). The foundation of these activities has emanated from recreation carrying capacity management and planning (Chilman, 1981; Washburne, 1982).

Recreation Carrying Capacity

The fundamental emphasis of the Wilderness Act of 1964 was preserving and protecting the attributes of wilderness environments, while providing the opportunity for our enjoyment (Brown, McCool, & Manfredo, 1987). Intensifying recreation use of these areas during the late 1960's, and early 1970's inevitably produced broad based impacts to these environment and the recreation experience (Stankey & McCool, 1991). In order to mitigate these impacts, a management concept, referred to as carrying capacity was developed (Brown et al., 1987). It was to define the total amount of use which the physical and social environment could withstand without impairing the recreational experience or causing permanent biological damage (Knudson, 1984). Yet, defining such capacities was problematic, mainly because of an insufficient understanding of the relationship between use and impacts (Cole, 1987; Graefe, Kuss, & Loomis, 1986; Graefe, Kuss, & Vaske, 1984). Building on past carrying capacity models, several management frameworks were devised to help resolve the problems associated with the carrying capacity concept (Brown et al., 1987). These include

the Limits of Acceptable Change (Stankey, Cole, Lucas, Petersen & Frissell, 1985); the Visitor Impact Management system (Graefe, Kuss, & Vaske, 1990); and the Carrying Capacity Assessment Process (Shelby & Heberlein, 1986).

Ultimately, the purpose of these models was to reduce the impacts created by recreationalists (Brown et al., 1987; Stankey & Manning, 1988). This allowed impact management frameworks (Shindler, 1990) from which standards of acceptable impacts can be developed. These standards in turn define the conditions managers desired to achieve or maintain in wilderness areas (McCool, 1988). To assure that these conditions were being maintained, various types of monitoring, auditing, and evaluation programs have been developed and incorporated into carrying capacity and impact management frameworks (Chilman, 1986; Phelps, 1989; Shelby & Heberlein, 1986).

Monitoring Recreation Use and Impacts

Some of the earliest recreation related monitoring in wilderness areas, was associated with describing wilderness use and users (Brown et al., 1987). Monitoring recreation use was particularly important, as use forms the basis of the carrying capacity concept (Hennessy, 1991; Shelby, 1991; Lucas, 1990; Watson, 1990; Thompson, Reesman, Hodapp, & Berger, 1989). Hollenhorst, Whisman, and Ewert (1992) as well as James (1971) describe different approaches for inventorying and monitoring wilderness recreation use, as well as offer examples of the types of monitoring programs conducted.

Carrying capacities models include ecological and social dimensions (Brown et al., 1987). Generally, evaluation activities associated with these dimensions, focus on describing recreational impacts. For instances, the scope of ecological evaluation emphasizes campsites and trails impacts (Bratton, 1988; Merigliano, 1990). Marion (1991) and Cole (1983; 1989) both conducted

comprehensive reviews of monitoring wilderness campsites, and outline the various approaches that have been applied. As for social impact evaluation, its focus is on the quality of the recreational experience (Lucas, 1990), particularly regarding issues related to crowding (Stankey & Manning, 1986). For example, there have been studies on privacy in wilderness campsites (Lucas, 1985), quality of the experience and contacts among individuals (Chilman, 1986; Manfredo, Driver, & Brown 1983), and conflicts among hikers and pack users (Watson, Niccolucci, & Williams, 1993).

Evaluation: Issues, Processes, and Procedures

As the preceding summary of monitoring, auditing, and evaluation verifies, few examples specifically related to analysis of management standards implementation were found. Likewise, Brown et al. (1987), notes a similar conclusion in their examination of wilderness monitoring, auditing, and evaluation. Nevertheless, those principles underlying environmental and recreation impact evaluation can provide assistance in structuring a evaluation system for assessing the management of semiprimitive areas. Virtually all monitoring systems operate around a basic set of activities. These include, defining relevant information, gathering the data, data analysis, selection and implementation of actions (Cole, 1989; Marion, 1991).

Monitoring Issues and Challenges

Monitoring is an important element in recreation management because it supplies managers with objective information, so that informed decisions can be made (Cole, 1989). However, because managers face a variety of constraints, implementing a monitoring and evaluation program is not as simple as it appears (Chilman, 1986). For instance, monitoring occurs over an extended

periods of time (Marlatt et al., 1989). Thus management commitment and support of a program is crucial to its success (ICC, 1991; Marion, 1991). Typically support of these programs is deficient because governmental resource managers generally have high turnovers rates. Moreover, there is often a general reluctance to instituting monitoring, auditing, and evaluation programs because they are viewed as exposing weakness in management and criticizing managers (ICC, 1990). In addition, inadequate budgets and staffing are significant in determining the extent of monitoring programs (Beum, 1989; Chilman et al., 1990). Most monitoring programs are vulnerable to budget cuts as they are generally labor intensive. Monitoring is also an involved and complicated process, where many mangers often lack the necessary knowledge about methods, implementation, and coordination of these programs (Chilman, 1986). Furthermore, monitoring programs are often implemented over vast and remote areas, making access and data collection difficult (Bratton, 1988).

The Monitoring Process

Designing a successful monitoring program is dependent on having a comprehensive development framework (ICC, 1990). Marion (1991) and Cole (1989), both outline steps necessary in developing a system for monitoring visitor impacts in wilderness and backcountry recreation sites, especially related to campsites. Similarly, the International Chamber of Commerce (1991) offer a series of the basic phases needed for successful environmental monitoring and auditing programs. Though each process is different, they generally evolve around four fundamental stages;

1. Defining the Monitoring Program
2. Establishing the Monitoring Program
3. Conducting the Monitoring Program
4. Analyzing and Reporting

1. Defining the Monitoring Program

This initial stage involves defining the subject matter to be evaluated, describing the issues, need and usefulness of instituting a monitoring program, specifying the goals and objectives of the program, and identifying an intended plan of action (ICC ,1991; Marion, 1991). In addition, the evaluation parameters, or criteria are defined and selected (Marion, 1991). Naturally, choosing evaluation parameters should based on satisfying the goal and objectives of the monitoring program, as well as management needs (Cole, 1989). Site condition indicators, or impact parameters, serve as the evaluation criteria in campsite monitoring programs, where policy standards or regulatory requirements serve as the evaluation criteria in environmental situations. Lastly, it is important that organizational support for the monitoring program is established (ICC, 1990).

2. Establishing the Monitoring Program

The second stage involves defining the necessary components of the monitoring program. This includes; analyzing documentation relevant to the evaluation subject matter, reviewing and designing data collection procedures, testing and refining collection procedures, , auditing, and evaluation and finally training the personnel to carry out the monitoring program.

Initially, some type of analysis should be conducted on all documents that pertain to the evaluation subject matter. The evaluation criteria selected and any associated management policies (ICC, 1990). The information gathered will

assist researchers in comprehending factors affecting monitoring results, and policy or management performance.

Once this analysis is completed, the next step is examining, and designing data collection procedures. For obvious reasons, the evaluation criteria should dictate the design of these procedures, while efforts should be made to assure that the design of the procedures is based on sound principles (ICC, 1990). Factors such as cost in gathering the data, and desired level of accuracy and precision of the data will influence quality (Cole, 1989; Marlatt et al., 1989). Though each of these are important, quality of data collection procedures is most often related to financial resources (Cole, 1989). Cole (1989) and Marion (1991) both conducted comprehensive reviews of data collection approaches and techniques associated with campsite monitoring programs. These approaches are categorized into one of three types: *Photographic*, which Magill and Twiss (1965) describe as a technique where campsite impacts are documented and analyzed through successive photographs; *Condition Class Estimates*, which is described as a visual-based approach where evaluation of site conditions are paired with condition description; and finally *Mulitparameter Systems*, which use a number of quantitative measurements of particular resource indicators to define conditions (Cole, 1983, 1989; Marion, 1991). The data collection techniques associated with environmental auditing vary considerably depending on the intended program goals or objectives. Observation and quantitative based approaches are used, yet informal and formal inquires, such as interviews of administrators are also employed to gather information (ICC, 1990). In most cases, observation evidence is physically based and is the primary element of environmental audits (ICC, 1990).

Almost all of the approaches above utilize some type of field data forms to record information. Careful design of these forms is invaluable in gathering quality data (Marion, 1991). Checklist type formats, characteristic of observation techniques, is often the basis used in data collection procedures. For instances, checklists are used in environmental auditing programs (Pelletier, 1992), safety analysis of industrial facilities (Kesling, 1992), playground safety and maintenance inspections (Gold, 1991; Sacks, Brantley, Holmgreen, & Rochat, 1992), and in inspecting and evaluating compliance with the America Disabilities Act (Tetlow, 1993).

Finally, developing a procedural manual and conducting staff training is essential for a successful monitoring program. Testing both monitoring procedures and field data forms will allow researchers to assess the level of quality and expose any problems (Cole, 1989). To gain the most from these trial runs, the procedures and forms should be applied in the most diverse situations (Marion, 1991). Furthermore, to assure quality in data collection procedures, a monitoring program procedural manual is indispensable, yet it is also the most often neglected step (Cole, 1989; Marion, 1991). Marion (1991) maintains that this manual should contain a description of the scope and purpose of the monitoring program, a section carefully delineating step by step procedures for data collection, definitions of critical terms, and rules of thumb on judging subjective measurements. He goes on to mention that it is critical that this manual be written to allow those who may not have any experience in conducting a monitoring analysis to participate. Once these steps are completed, a program to train those who will carry out the monitoring becomes essential. This training program should focus mainly on instructing and demonstrating the procedures to develop consistency among data collectors in discerning different circumstances (Cole, 1989; Marion, 1991).

3. Conducting the Monitoring Program

Marion (1991) suggests that using small numbers of evaluators, working full time for a short period, is the best way to achieve quality information. Cole (1989), additionally mentions that open discussion of issues and problems associated with data collection procedures, as well as the program, should be instituted from the beginning, so that the process can be refined to achieve the best possible results.

4. Auditing and Evaluation

The final stage of the monitoring process is analyzing and reporting the results of the program. The type of analysis conducted is ultimately determined by the information collected (Cole, 1989). Four broad types of analysis can be performed, including: quantitative analysis (e.g. data listing of the results); quantitative analysis (e.g. statistical approaches); evaluation parameter analysis (e.g. weighting or statistical testing of the evaluation parameters); and trend analysis (e.g. statistical or evaluation testing among two separate assessments) (Marion, 1991).

The report is used to communicate the results of the program and analysis. Typically, this consists of a description of the methods used, results, a summary of the status or success of the management plan, program or policy and recommendations regarding corrective measures to adjust any deficiency and the reasons for those deficiencies (ICC, 1990).

Recent ROS Literature

A review of recent literature associated with the ROS did not reveal any research relating to evaluating the application of ROS standards and guidelines to on-site management. However, other studies were discovered focused on the use of ROS in planning and management, as well as evaluation type research on its conceptual foundations.

The topics relating to planning and management include a study by Claesson (1993) concerning the opinions of selected stakeholders regarding the percentage of Michigan's Huron and Manistee National Forests allocated to Semiprimitive ROS Classes. All three stakeholder groups, which consisted of dispersed forest recreationalists, known semiprimitive area users, and land owners within the dedicated boundaries of the forests, indicated that they wanted additional acres of the forest designated semiprimitive, beyond the current 10% (100,000 acres) of the million acre net forest area (Claesson, 1993). The results of this study supported the importance of semiprimitive areas, and their management to forest stakeholders in Michigan.

Furthermore, Lichtkoppler and Clonts (1990) reported on a project which was directed at improving the ROS planning framework to allow for accurate inventory and delineation of recreation resources in eastern forests. By incorporating LAC principles with ROS's criteria, they were able to improve the identification of recreation opportunities in the Blankhead National Forest of Alabama, as well as provided a more complete management system through monitoring changes to ROS classes using the LAC Framework. Daniels and Krannich (1990) described how ROS's standards and guidelines can be used in mitigating conflicts between different resource users.

Heywood (1991), Virden and Knopf (1989), and Yuan and McEwen (1989) conducted studies that focused on evaluating the theoretical components of ROS. Heywood (1991) investigated campers perceptions of ROS setting components related to inventory and analysis criteria. Virden and Knopf (1989) used psychometric measurements to investigate the association of desired experiences, and preferred environment settings; two of the three tenets of ROS. Yuan and McEwen (1989) conducted a study to comprehend whether the experience preferences of campers differed among camping areas with different ROS classes. Each of these studies offer valuable information related to ROS, but none were useful in developing a monitoring program to assess the application of ROS standards and guidelines.

CHAPTER III

METHODS

Introduction

The method applied to evaluate whether recreation related Management Prescriptions and ROS standards and guidelines have been properly implemented in SPMAs of the HNF is presented in four parts. Each corresponds to the development framework outlined in the literature review.

Defining the Monitoring Program

Although monitoring forest plan implementation is mandated by the National Forest Management Act of 1976, no specific process has been developed to assess the implementation of ROS and recreation management related semiprimitive standards and guidelines (Bacon, Personal Communication February 10, 1994). The impetus to develop and institute a monitoring and evaluating program in the HNF is associated with this legal mandate and two other factors. First, the value of semiprimitive opportunities to the public is clearly substantial, as deduced during the development of the Hiawatha LRMP and substantiated in Claesson's (1993) study of stakeholders opinions about the designation of semiprimitive areas. Consequently, assuring quality in the management of these areas has become a major concern of forest managers. Next, the second iteration of the Hiawatha LRMP commences in 1996. As required by the National Forest System Land and Resource Management Planning Regulations (Gippert, 1990), the Hiawatha LRMP will

be reopened for revisions and it is anticipated that the management of semiprimitive areas will once again be a major concern of the public.

In view of these prevailing circumstances, managers of the HNF revised a cooperative agreement with Michigan State University to include the evaluation of the management of SPMAs, specifically pertaining to recreation facilities and visual quality. The goal was to determine the consistency of on-site management with the LRMP and related standards and guidelines as presented in the ROS Users Guide, Eastern Region Supplement (USDA-FS, 1985a) and to suggest explanations for discrepancies and steps to improve compliance.

Methodological Challenges and Issues

A couple of challenges and issues confronted researchers in developing a suitable monitoring system to obtain the information managers required. Foremost was the lack of a conceptual bases which researchers could utilize in structuring a monitoring plan and subsequent method. As a consequence, a considerable amount of resources and effort would be required in developing and refining a comprehensive methodology to secure valid and reliable results. Moreover, this methodology had be capable of collecting detailed information on a variety of recreation facilities and attributes in each of the SPMAs of the HNF. As of 1994-95 there are twelve SPM and twelve SPNM areas (excluding designated wilderness areas) covering approximately 146,000 gross acres of a forest base of 1.3 million acres.

Aside from these challenges, researchers were also confronted with other issues. Accurate and valid data is directly influenced by the design and quality of the methods applied. Qualitative measurement procedures, primarily

observation-based, were used in gathering the data in this assessment. Consequently, the precision and reliability of data collector's judgments was a major concern.

Further exacerbating these issues, the mixture of objective and subjective standards and guidelines produced many obstacles. The majority of the data collected was objective, yet in those cases where subjective information was collected, different approaches had to be devised to assure accuracy. Lastly, as delineated in more detail in the next section, researchers also encountered a variety of discrepancies with the ROS standards and guidelines, as well as the Management Prescription Standard and Guidelines. These discrepancies made developing sound data collection instruments, as well as collection procedures, a formidable task.

Establishing the Monitoring Program

Formalizing the monitoring involved iterations of developing and refining the data collection instruments. Conceiving, drafting, and extensive testing was required in light of the foregoing challenges and dilemmas. Even after contending with these issues in the formation of this monitoring system, data collection was done twice to obtain the required data because of various problems explained below.

ROS Users Guide: Eastern Region Supplement & Forest Plan Review

The management of semiprimitive areas in the HNF is guided by Forest Plan MP Standard and Guidelines (USDA-FS, 1986b) (see Appendix I), together with ROS standards and guidelines (see Appendix H), as delineated in the ROS Users Guide, Eastern Region supplement (USDA-FS, 1985a). A comprehensive review of these documents was conducted to identify problems.

A number of discrepancies were uncovered. These discrepancies not only impact the ability of managers to meet goals, but they create a dilemma for researchers operationalizing methods to monitor the application of standards and guidelines on the forest. These discrepancies are segmented into five categories; 1) generalized parameters dimensions, 2) non-specific orientation, 3) inconsistent and conflicting provision, and 4) omitted facilities.

Imprecise Parameters

Effective standards should be bounded by concise parameter dimensions. This examination detected a number of situations which lacked explicit parameter dimensions. To illustrate this discrepancy, one standard denoted that in SPNM areas, "roads and trails (are) normally closed to public motor use" (USDA-FS, 1985a p. 6). The use of the word 'normally' does not make it clear which roads and trails are to be closed or open and the decision making rule for the exception.

Imprecise parameters are also emphasized in a following section of the ROS Users Guide which uses diagrams and accompanying text to describe the design characteristics of different facilities within each ROS class. Figure 8, which outlines the appropriate Recreation Facilities Development Levels in each ROS Class, indicates that both Development Levels 1 and 2 were acceptable in SPNM areas, while levels 1, 2, and 3 were suitable for SPM areas. This range means that flush toilets and camping sites for 10 or more people are permissible in SPM areas. Though it is explicitly stated that "this information is meant to guide and is not absolute" (USDA-FS, 1985a, p. 14), it nevertheless sets very broad ranges on what is acceptable. This author feels that permitting this wide range in acceptable levels of development creates the possibility of a multitude of interpretations and thus undue conflict.

Non-Specific Orientation

Standards and guidelines are more useful if they are specific in nature. This review found many vague standards. For instance, in both SPM and SPNM areas "native material (are) to be used in construction of facilities" (USDA-FS, 1985a, p. 7 & 9). What is a "native material"? It is dimensional lumber, pressure treated wood, gravel, etc.? Further expressing this point, "trail maintenance for protection of resources and public safety" (USDA-FS, 1985a, p. 8 & 11). Is public safety compromised by certain resource protection activities? What are key resources to protect? For the most part, these particular standards and others like them are not functional because their generality manifests few target attributes for which manage.

Inconsistency and conflict

Further detailed examination of the Eastern Region Supplement resulted in the discovery of standards and support material where provisions were inconsistent or directly conflicting with one another. For example, one SPNM and SPM standard which declares "developed facilities will contain no more then ten sites, and are Development Level 1" (USDA-FS, 1985a p. 6 & 8), is directly inconsistent with Figure 8 in chapter three, which outlines the appropriate Recreation Facilities Development Levels for each ROS Class. This figure incorporates Development Level 2 in SPNM areas, while level 3 is accepted in SPM areas. Furthermore, the text accompanying Figure 10, Camping Facilities/Conditions Related to ROS Class, infers that 10 - 25 sites are acceptable in both SPM and SPNM areas. This text conflicts the original standard which stipulates that only 10 sites are permissible in either MA.

Additionally, conflicting components were also uncovered in chapter three concerning Visual Management. In this instance, the text preceding a chart displaying the different ROS Classes and their Visual Quality Objectives (VQO), states that "for both semiprimitive areas, the range would be retention and partial retention, with specific areas managed with in modification" (USDA-FS 1985a, p. 21). This statement directly conflicts with the VQO standard in the preceding chapter which declares that modification is not considered an acceptable objective in SPNM areas.

Omitted Facilities

Fourth, neither the Forest Plan nor the Eastern Region Supplement included specific standards for boat launches, other than the general standards for all recreation facilities about appropriate Recreation Development Levels. The same is true of cross-country skiing, equestrian trails, and mountain biking. All three of these facilities were found on the HNF.

Devising Inventory Guides and Data Collection Procedures

As enunciated in the literature review, a monitoring and evaluation process initially consists of checking the degree of correspondence between operation specifications and their implementation. Frequently, evidence is gathered through observation type approaches, typically using checklist formats, where observations are compared to some kind of established standard (ICC, 1990).

Based on the seven recreation monitoring topics identified by Hiawatha managers, Boat Launch, Camping, Interior Roads, Picnic/Swim Areas, SPM Trail, and SPNM Trails field inventory guides (see Appendices B through G) were developed to gather the necessary information. Essentially composed of a

checklist type format, their individual elements corresponded to the standards and guidelines as outlined in the Eastern Region Supplement and Forest Plan related to these monitoring topics.

Data collectors using these guides in the each of the semiprimitive areas, assessed and recorded whether specific standard and guidelines were implemented. To minimize the issue of judgment precision and reliability, definitions for different terms and principles were incorporated in the inventory guides. Further, reference materials were provided to data collectors to help clarify terms and principles, as well as assist them in resolving any issues they might encounter.

Though the majority of components of the inventory guides were objective in nature, they also contained a few subjective components. To assure consistency, data collectors were directed to clarify subjective assessments with detailed explanations, sketches, and photographs. Evaluating the Visual Quality Objectives (VQO) of different management activities was considered the most subjective aspect in this study. To assure quality, data collectors certified their assessment by 35mm photographs. This way, in the event that controversies arise, an assessment can be made by Forest Service Landscape Architects based on the photographs.

Pre-Test and Training Data Collectors

Once the initial inventory guides were drafted, researchers performed a pre-test in July of 1993 on data collection procedures and instruments in the HNF to determine their utility. Few changes were made as a result of this testing. Following the pre-testing, researchers conducted two day training sessions with

the data collectors in August of 1993 to familiarize them with the project and demonstrate assessment procedures. Data collection occurred during September and October of 1993.

However, after the initial examination of this data, it became apparent that greater accuracy was needed. As a result it was decided that methods would be revised and a subsequent evaluation instituted the following spring.

There were two problems with the initial data collection. The first was incomplete and poorly structured inventory guides. The second was inadequately training data collectors. In both areas the greatest challenges revolved around subjective criteria such as visual quality, as well as a general misunderstanding of different concepts and definitions. Implementing rigorous training, supplemented with a comprehensive monitoring manual, would have likely alleviated the problems.

During the spring of 1994, modifications were made to inventory guides based on the initial data gathered and data collector's input. Once these changes were made, feedback was solicited from the various investigators of this project and Forest Service personnel on the Hiawatha and at the North Central Experimental Station. This resulted in some additional improvements.

Conducting the Monitoring Program and Analyzing Results

Data Collection

Final data collection was conducted by the author from May through July of 1994. All analysis presented in this document is based on this data collection, though the initial collection was used in some instances for comparison. It was decided that a single observer, following rigorous criteria, would be most effective in monitoring and in decisions about subjective items. Observations of management activities regarding visual quality, the most complex situation, were

limited to the Forest Service land bordering roads and trails, and areas visible from recreation sites. In areas such as Big Bay De Noc or Hay Lake, where ownership of land was fragmented, Forest Service modified USDI Geological Survey 7.5 minute series maps were used to distinguish ownership. These maps were also used in locating and assigning Forest Service road numbers to roads ways. Assessment of recreation sites focused on sites located along roads and trails. Most were official Forest Service designated sites. Data collected along trails was gathered either from mountain bikes or foot travel by this author and his assistant.

Data Base Development and Analysis of Results

A computer data base management program, Foxbase Pro, was used to organize the data collected in the second assessment. This data was then reviewed and cleaned by the author and preliminary tabulations were generated during August 1994. These provided the author with a list of the raw data segmented by the four Ranger Districts.

Auditing was conducted by comparing what was found on-site with existing standards, and summarizing any inconsistencies among them. This analysis was performed in January of 1995 and followed a three stage process. First, all Forest Plan management and ROS standard and guidelines were compiled relative to the seven monitoring topics. For ease in auditing, bridge construction data was complied and separated from the trails inventory guides. The second phase involved defining the standard parameters. In the cases where conflicts arose among the standards and guidelines of these two documents, Forest Plan standards were used. Once completed, tally type charts were used to

compile the results from the data based reports. These tally sheets in turn aided the author in determining whether recreation related Forest Plan and ROS standards and guidelines were properly implemented in SPMAs of the HNF.

CHAPTER IV

RESULTS

Inventory Summary

Designated facilities within ROS Semiprimitive Classes are generally isolated and undeveloped (USDA-FS, 1986a). Reflecting this basic standard, few designated and developed recreation facilities and areas were inventoried in non-wilderness semiprimitive areas of the HNF (Table 3). The distribution of those facilities and areas was generally even across the specific MAs.

Table 3. Total number of designated and non-designated recreation facilities and areas inventoried in Semiprimitive Nonmotorized and Motorized Management Areas in the Hiawatha National Forest in 1994 (a).

	Recreation Facilities and Areas				
Area	Boat Launches	Camping Areas	Picnic & Swimming Areas	Non-motorized Trails	Motorized Trails
Nonmotorized					
Designated	1	10	0	8	2
Non-Designated	3	0	2	0	0
Total	4	10	2	8	2
Motorized					
Designated	18	16	1	10	5
Non-Designated	5	4	1	0	0
Total	23	20	2	10	5

(a) Designated sites and areas includes all those designated and managed by the Forest Service, while non-designated includes forest visitor established sites and areas with a past history of significant use.

Boat launches and camping areas were the most common facilities, swimming areas and motorized trails the least common. While most facilities were Forest Service designated, a number, especially boat launches and camping areas were not planned but developed through visitor use. Furthermore, four of the eight nonmotorized trails inventoried were found in the Buck Bay Creek MA. The major inconsistency revealed in Table 3 was designated snowmobiles trails in two SPNM areas.

In SPM areas, inventoried recreation facilities and areas were considered relatively appropriate to the character of this class. Two particular MAs had a significant portion of the total boat launches, camping areas, and trails. For instance, twelve of the twenty-three boat launches inventoried were located in the Petes Lake MA. Additionally, Petes Lake MA contained eight of the twenty camping areas, while an additional eight others were inventoried in the Ironjaw MA. Further, these MAs had eight of the fifteen trails inventoried in SPM areas.

Boat Launches

Nonmotorized and Motorized Class Standards

Standard parameters for boat launches in SPNM and SPM Classes are outlined in Table 4. Summarized in detail in Appendix J, Recreation Development Levels are arranged along a continuum from 1 to 5, with each level establishing a set of criteria dictating the intensity of development of a particular recreation facility (USDA-FS, 1986b). The Development Level standard for all recreation facilities in semiprimitive areas is limited to Levels 1 and 2. However, a couple of recreation facilities were assessed at Development Level 3 parameters. Development Level 1 is minimum modification and controls, while facilities are simple and constructed of natural materials. Comparatively, semiprimitive areas at Development Level 2 contain sites where modifications

and controls are used slightly more often,but facilities are constructed similarly to Level 1. In Development Level 3, sites are moderately modified, with inconspicuous controls, while facilities are constructed mostly of native materials and are contemporary, but rustic.

Table 4. Boat launch standards for Semiprimitive Nonmotorized and Motorized Areas (a).

Standard	Parameter
1. Recreation Development Level (b)	Facilities and sites constructed to Levels 1 & 2, with Level 2 defined by the inclusion of any of the following factors; A Rec. Facilities: pit or vault toilet, bulletin board, trash receptacles, handpump, and picnic tables B Facility Material: native material such as wood, stone with synthetic material such as, plywood, cinder blocks, cement, and plastics accepted, if subordinate, rustic, and rudimentary appearing C Launch Base: earth or gravel only
2. Site Access	Parking lot capacity limited to 10 vehicles
3. Lake Access	
Nonmotorized Areas	Majority of sites Carry-in
Motorized Areas	Open vehicle access to lake

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Nonmotorized and Motorized Management Areas.
(b) For definition and description of Recreation Development Levels see Appendix J.

Generally, two components characterize these boat launches. First, construction of these facilities is aimed at maintaining the natural integrity of the area. Subsequently, only gravel or earth may serve as the base material for these launches. Second, neither the Eastern Region Supplement, nor the Hiawatha LRMP promote the use of power boats in SPNM areas. However, SPNM or SPM guidelines do not contain specific standards regarding the level of accessibility to waters edge. Consequently, for the purpose of this investigation, the author

suggests the parameters for access in SPNM areas are limited to carry-in craft only, while in motorized areas access to lake's edge is possible for small trailered and car top crafts. This in the spirit of the nonmotorized and motorized designation.

Nonmotorized Results

Only one designated and managed boat launch, accessing Boot Lake in the Boot Lake MA, was found in the SPNM areas (Table 5). Three other non-administered launches, all of which showed signs of significant use, were also included in this inventory. As Table 5 denotes, all of the four launches adhered to the standards for Recreation Development Level and parking lot capacities. Only at the launches at Boot Lake and Pendills Lake were vehicles able to back trailers into the lake. Access has been long provided at Boot Lake because this launch was constructed prior to the designation of the area as a SPNM from the 1988 Forest Plan appeals decisions (USDA-FS, 1988). The launch to Pendills Lake was not established by Forest Service management activities.

Motorized Results

A total of twenty-three boat launches, five non-designated and eighteen designated were assessed in SPM areas (Table 6). Three of the eighteen launches, at Lake Huron in St. Martin Bay MA, Ogontz Bay in Bay De Noc MA, and Petes Lake in Petes Lake MA were determined as exceeding Recreation Development Level 2 factors, primarily because launches were constructed of concrete or asphalt. The only other standard where launches exceeded parameters pertained to parking capacities (Table 4). Launches at Search Bay, Ogontz Bay, and Lake Huron had parking lot sizes exceeding space for ten vehicles.

Table 5. Boat launch characteristics in Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	Site	Parking Lot Size (a)	Launch Material	Vehicle Access to Lake Possible	Rec. Dev. Level
St. Ignace District					
Carp River North	None				
Carp River South	None				
Government Island	None				
Sault St. Marie District					
Grant Creek	None				
Mission Hill	None				
Naomikong Point	None				
Pendills Lake	Pendills Lk (b)	2	Earth	Yes	1
Tahquamenon Bay	None				
Manistique District					
Boot Lake	Boot Lake	4	Gravel	Yes	2
Verdant Lake	Rumble Lk. (b)	0	Earth	No	1
Munising District					
Au Train Point	None				
Buck Bay Creek	Addis Lk. (b)	2	Earth	No	1

(a) Estimated by the number of vehicles able to park in lots or areas preceding the launch head. To estimate totals for vehicles with trailers, divide by 2.5.
(b) Non-designated launches.

Table 6. Boat launch characteristics in Semiprimitive Motorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	Site	Parking Lot Size (a)	Launch Material	Vehicle Access to Lake Possible	Rec. Dev. Level
St. Ignace District					
Crooked Creek	None				
Hay Lake	Round Lake	2	Earth	No	1
Pontchartrain Shore	None				
Search Bay	Search Bay	20	Gravel	Yes	1
	Search Bay North (b)	2	Earth	Yes	1
St. Martin Bay	Lake Huron	30	Concrete	Yes	3
Sault St. Marie District					
Biscuit Creek	None				
Pine River	None				
Whitefish Bay	None				
Manistique District					
Big Bay De Noc	Ogontz Bay	30	Concrete	Yes	3
Bull Run (c)	None				
Ironjaw	Swan Lake North	3	Earth	Yes	1
	Swan Lake South	10	Earth	No	1
	Ironjaw Lake	2	Earth	Yes	1
	Lake Nineteen	2	Earth	Yes	1
	Triangle Lk. E.	4	Earth	Yes	1
	Triangle Lk. N.	2	Earth	Yes	1
Munising District					
Petes Lake	Petes Lake	6	Asphalt	Yes	3
	Herman Lk. (b)	3	Earth	Yes	1
	Mckeever Lake	6	Gravel	Yes	2
	Blue Joe Lake	2	Earth	Yes	1
	Grassy Lk. W.(b)	2	Earth	No	1
	Grassy Lake S.	5	Gravel	Yes	2
	Cookson Lake	2	Gravel	Yes	1
	Red Lake East	2	Earth	No	1
	Red Lake W. (b)	5	Earth	No	1
	Kimble Lk. (b)	1	Earth	No	1
	Wedge Lake	2	Earth	No	1
	McKeever Lake Cabin	0	Earth	No	1

(a) Estimated by the number of vehicles able to park in lots or areas preceding the launch head. To estimate totals for vehicles with trailers, divide by 2.5.
(b) Non-designated launches.
(c) The Fishdam Boat Launches falls with in this Management Areas but is administered by the Michigan Department of Natural Resources.

Camping Areas

Nonmotorized and Motorized Class Standards

Closeness to nature, primitive conditions, and rudimentary facilities emphasizing site protection rather than comfort, are characteristic of camping facilities in semiprimitive areas. Table 7 reflects these characteristics, delineating appropriate Recreation Development Level factors related to camping facilities and area capacities.

Table 7. Camping area standards for Semiprimitive Nonmotorized and Motorized Areas (a).

Standard	Parameter
1. Recreation Development Level (b)	Facilities and sites constructed to Levels 1 & 2, with Level 2 defined by the inclusion of any of the following factors; A Rec. Facilities: pit or vault toilet, bulletin board, trash receptacles, handpump, picnic tables, and manufacture fire ring. B Facility Material: native material such as wood, stone with synthetic material such as, plywood, cinder blocks, cement, and plastics accepted, if subordinate, rustic, and rudimentary appearing C Site Condition: leveled and graveled D Setting: site should offer privacy and a natural setting
2. Number of Sites	Total capacity limited to a maximum of 10 sites

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Nonmotorized and Motorized Management Areas.
(b) For definition and description of Recreation Development Levels see Appendix J.

Nonmotorized Results

All ten camping areas inventoried in SPNM areas fell within the standard parameters (Table 8). Included with these ten areas were two adirondack shelters, both of which were found in the Verdant Lake MA, off of the Rumble Loop and Triangle Loops of the Pine Marten Run Trail System. Neither the Eastern Region ROS Users Guide or the Hiawatha LRMP have any standards pertaining to these shelters. However, comparing the construction of these sites with the ROS setting descriptions and Recreation Development Levels (see, Appendix J), they were assessed as Development Level 2.

Motorized Results

A total of twenty camping areas were assessed in SPM areas (Table 9). Camping areas at Herman Lake, Blue Joe Lake, Lake Nineteen, and Grassy Lake are non-designated, but were included in this inventory because each showed signs of significant use. Except for the site at Lake Nineteen, each was accessible by a passenger vehicle and thus were classified at Development Level 2 even though there may not have been any developed facilities.

Two of the sixteen designated sites, Foley Creek Campground and the Petes Lake Campground were found to be in excess of Development Level 2. Both of these campgrounds were highly developed with roadways and trails paved. In addition, pressurized water hydrants were found in Foley Creek Campground. Finally, both Foley Creek and Petes Lakes exceeded the maximum number of sites with 54 and 49 respectively. These characteristics are clearly Development Level 3. Additionally, as in the SPNM areas, a single adirondack shelter was found along the Ironjaw Loop of the Pine Marten Run Trail System in the Ironjaw MA. There is also a cabin at McKeever Lake in the Petes Lake MA. Both of these structures and sites were evaluated as Development Level 2.

Table 8. Camping areas characteristics in Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Areas	Camping Area	No. Sites	Mean Distance between Sites in Feet	Site Surface Material	Site Leveled	Rec. Dev. Level
St. Ignace District						
Carp River North	None					
Carp River South	None					
Government Island	Site #1 (a)	2	60	Earth	No	2
	Site #2 (a)	2	60	Earth	No	2
	Site #3 (a)	3	30	Earth	No	2
	Site #4 (a)	1	NA	Earth	No	2
	Site #5 (a)	1	NA	Earth	No	2
	Site #6 (a)	1	NA	Earth	No	2
Sault St. Marie District						
Grant Creek	None					
Mission Hills	None					
Naomikong Point	None					
Pendills Lake	None					
Tahquamenon Bay	None					
Manistique District						
Boot Lake	None					
Verdant Lake	Rumble Lake Shelter	1	NA	NA	No	2
	Indian River Shelter	1	NA	NA	No	2
Munising District						
Au Train Lake	None.					
Buck Bay Creek	NCT Disperse Site	1	NA	Earth	No	2
	NCT Disperse Site	1	NA	Earth	No	1

(a) See Figure 3 for location of camping sites.

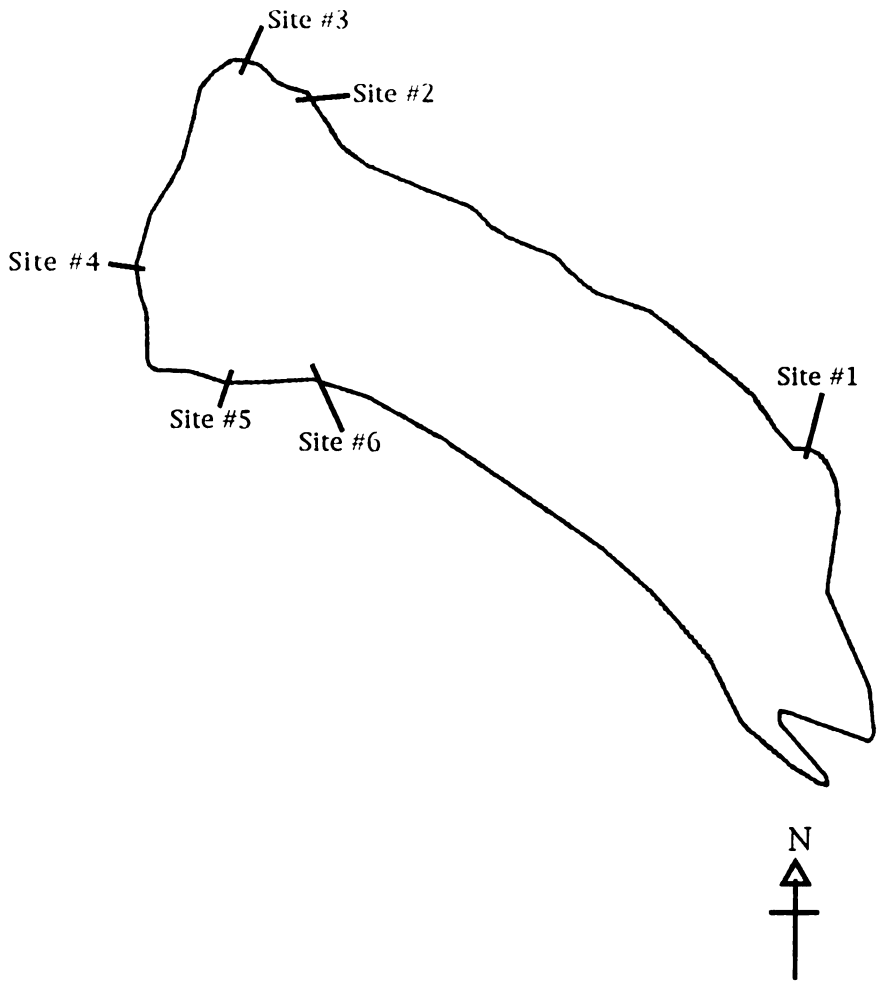

Figure 3. Government Island camping area locations.

Table 9. Camping areas characteristics in Semiprimitive Motorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Areas	Camping Area	No. Sites	Mean Distance between Sites in Feet	Site Surface Material	Site Leveled	Rec. Dev. Level
St. Ignace District						
Crooked Creek	None					
Hay Lake	Foley Creek	54	33	Gravel	Yes	3
	NCT Disp Site	1	NA	Earth	No	1
	Round Lake	1	NA	Earth	No	1
	Hay Lake	1	NA	Earth	No	1
Pontchartrain Shore	None					
Search Bay	Search Bay	9	10	Earth	No	2
St. Martin Bay	None					
Sault St. Marie District						
Biscuit Creek	None					
Pine River	None					
Whitefish Bay	None					
Manistique District						
Big Bay De Noc	None					
Bull Run	None					
Ironjaw	Swan Lk. N.	1	NA	Earth	No	2
	Swan Lk. S.	3	20	Earth	No	2
	Ironjaw Lake	1	NA	Earth	No	2
	Triangle Lake North	1	NA	Earth	No	2
	Triangle Lake South	1	NA	Earth	No	2
	Rim Lake Shelter	1	NA	NA	NA	2
	Lake Nineteen (a)	1	NA	Earth	No	1
Munising District						
Petes Lake	Petes Lake	49	30	Gravel	Yes	3
	Cookson Lk.	5	50	Earth	No	2
	McKeever Hills Cabin	1	NA	NA	NA	2
	Ewing Point	1	NA	Earth	No	2
	McKeever Lake	1	NA	Earth	No	2
	Herman Lake (a)	1	NA	Earth	No	2
	Grassy Lk.(a)	1	NA	Earth	No	2
	Blue Joe Lk.(a)	1	NA	Earth	No	2

(a) Non-designated camping areas.

Picnic Areas

Nonmotorized and Motorized Class Standards

Picnic areas parameters, outlined in Table 10, resemble those for camping areas.

Table 10. Picnic area standards for Semiprimitive Nonmotorized and Motorized Areas (a).

Standard	Parameter
1. Recreation Development Level (b)	Facilities and sites constructed to Levels 1 & 2, with Level 2 defined by the inclusion of any of the following factors; A Rec. Facilities: pit or vault toilet, bulletin board, trash receptacles, handpump, picnic tables, and manufacture fire ring. B Facility Material: native material such as wood, stone with synthetic material such as, plywood, cinder blocks, cement, and plastics accepted, if subordinate, rustic, and rudimentary appearing C Atmosphere: site should offer privacy and a natural atmosphere
2. Number of Tables	Total capacity limited to a maximum of 10 sites

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Nonmotorized and Motorized Management Areas.
(b) For definition and description of Recreation Development Levels see Appendix J.

Nonmotorized Results

Site number two, a designated camping areas on Government Island MA (See figure 3 for location) also appeared to be a popular non-official picnic site and was inventoried as such (Table 11). Since a manufactured fire ring, picnic table, trash can, and pit toilet were present, the site was assessed as Development Level 2.

Table 11. Picnic area characteristics in Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	Site	Recreation Development Level
St. Ignace District		
Carp River North	None	
Carp River South	None	
Government Island	Site #2 (a)	2
Sault St. Marie District		
Grant Creek	None	
Mission Hill	None	
Naomikong Point	None	
Pendills Lake	None	
Tahquamenon Bay	None	
Manistique District		
Boot Lake	None	
Verdant Lake	None	
	None	
Munising District		
Au Train Lake	None	
Buck Bay Creek	None	

(a) See Figure 3 for location of this site.

Motorized Results

Table 12 displays the picnic areas inventoried in SPM areas. The only designated site in all of the SPMAs in the HNF was a conjoined picnic and swimming area in the Petes Lake Recreation Area. The picnic area was highly developed, containing a 40 car paved parking lot, paved trails, two handicapped accessible picnic sites, grills, and an open atmosphere. As a result of these factors, this site was assessed as a Development Level 3, exceeding the Recreation Development Level standards parameters for these areas.

Table 12. Picnic area characteristics in Semiprimitive Motorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	Site	Recreation Development Level
St. Ignace District		
Crooked Creek	None	
Hay Lake	None	
Pontchartrain Shore	None	
Search Bay	None	
St. Martin Bay	None	
Sault St. Marie District		
Biscuit Creek	None	
Pine River	None	
Whitefish Bay	None	
Manistique District		
Big Bay De Noc	None	
Bull Run	None	
Ironjaw	None	
Munising District		
Petes Lake	Petes Lake Recreation Area	3

Swimming Areas

Nonmotorized and Motorized Class Standards

Swimming areas, of all the recreation facilities SPMAs, are unique because they are to remain natural, containing no improvements of any kind (Table 13).

Table 13. Swimming area standards for Semiprimitive Nonmotorized and Motorized Areas (a).

Standard	Parameter
1. Swimming Area	Contains no improvements

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Nonmotorized and Motorized Management Areas.

Nonmotorized Results

A non-designated day use area located in between camping sites 5 and 6 (see, Figure 3 for location) on Government Island MA was the only swimming area found in SPNM areas (Table 14). No developed facilities were found specifically related to the beach area, and thus this site conformed to standard parameters.

Table 14. Swimming area characteristics in Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	Site	Site contains amenities
St. Ignace District		
Carp River North	None	
Carp River South	None	
Government Island	Between Sites #5 and #6 (a)	No
Sault St. Marie District		
Grant Creek	None	
Mission Hill	None	
Naomikong Point	None	
Pendills Lake	None	
Tahquamenon Bay	None	
Manistique District		
Boot Lake	None	
Verdant Lake	None	
	None	
Munising District		
Au Train Lake	None	
Buck Bay Creek	None	

(a) Non-designated site.

Motorized Results

The swimming sites inventoried in SPM areas are displayed in Table 15. A non-designated swimming area at the end of FS 3436 in the Search Bay MA appears to be a popular day use area. No facilities were present and thus this site conformed to the standard parameter for swimming areas. The only officially designated area in both of the SPMAs of the HNF was documented at the Petes Lake Recreation Area. Combined with the picnic area, this swimming area was highly developed, a changing house, mowed grassy area, and a roped off swimming area, were inventoried. All of these aspects exceed the standard parameters for SPM areas.

Table 15. Swimming area characteristics in Semiprimitive Motorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	Site	Site contains amenities
St. Ignace District		
Crooked Creek	None	
Hay Lake	None	
Pontchartrain Shore	None	
Search Bay	Search Bay (a)	No
St. Martin Bay	None	
Sault St. Marie District		
Biscuit Creek	None	
Pine River	None	
Whitefish Bay	None	
Manistique District		
Big Bay De Noc	None	
Bull Run	None	
Ironjaw	None	
Munising District		
Petes Lake	Petes Lake Recreation Area	Yes

(a) Non-designated site.

Interior Roads

Nonmotorized Class Standards

The amount and type of access in semiprimitive areas, whether via roadways or trails, is a major setting characteristic affecting the types of uses permitted and influencing the recreation experience. It requires a balancing of demand for access with the emphases on solitude and natural appearance of the area. Table 16 outlines the standard parameters for SPNM areas. Here, a majority of the roads are closed to public motorized use or limited to specific recreation sites. In these cases, roads are likely to be primarily Traffic Service Level C and occasionally Traffic Service Level D. Characterized as a single Lane of minimum standard, Level C roads are generally suitable for standard passenger cars, while on the other hand Level D roads are primitive, single lane, and primarily passable only by vehicles with high ground clearance.

Table 16. Interior road standards for Semiprimitive Nonmotorized Areas (a).

Standard	Parameter
1. Internal Road System	All TS Level D (b), and unmarked roads (c) are physically closed and/or obliterated to public motorized travel, unless they are assessed as long-term roads
2. Long-Term Road Densities (d)	Long-term roads will average 2 miles per sq. mile of Management Area

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Nonmotorized Management Areas.
(b) For definition and description of Traffic Service Levels see Appendix K.
(c) Unmarked roads - are non Forest Service number Level D roads, as well as temporary roads such as skid trails and two-trackers.
(d) Long-term- includes all roads classified as TS Level C and those TS Level D roads that access designated recreation facilities.

Nonmotorized Results

Table 17 illustrates the number of open marked and unmarked Level D roads and the density of open long term roads. Four of the twelve SPNM areas, including Government Island MA, Tahquamenon Bay MA, Verdant Lake MA, and Au Train Point MA had no open roads. The other eight, each had at least one Level D road providing possible access to vehicle travel. Five of the MAs had long-term or site specific roads. The density of these roads was substantially below the maximum for each of the MAs.

Table 17. Number of open access roads and density of long-term roads in Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	No. of Open Level D Roads Not Accessing Desig. Rec. Facilities	No. of Open Long-Term Roads (a)	Total Miles of Long-Term Roads	Net Sq. Miles of MA	Density of Long Term Roads per sq. Mile
St. Ignace District					
Carp River North	4	0	0	2.9	0.0
Carp River South	2	0	0	1.8	0.0
Government Island	0	0	0	0.4	0.0
Sault St. Marie Dist.					
Grant Creek	1	0	0	5.1	0.0
Mission Hill	3	1	.9	1.2	0.8
Naomikong Point	0	1	1.1	1.5	0.7
Pendills Lake	5	1	1.4	5.7	0.2
Tahquamenon Bay	0	0	0	1.8	0.0
Manistique District					
Boot Lake	15	5	9.4	8.7	1.1
Verdant Lake	0	0	0	3.5	0.0
Munising District					
Au Train Point	0	0	0	0.7	0.0
Buck Bay Creek	12	2	3.3	18.1	0.4

(a) Long-term- includes all roads classified as TS Level C and D accessing designated recreation facilities.

Motorized Class Standards

The standard parameters for access of to SPM areas closely resemble those of SPNM areas (Table 18). The chief difference is that motorized areas generally have slightly greater opportunities for access.

Table 18. Interior road standards for Semiprimitive Motorized Areas (a).

Standard	Parameter
1. Internal Road System	All TS Level D (b), and unmarked roads (c) are physically closed and/or obliterated to public motorized travel, unless they are assessed as long-term roads
2. Long-Term Road Densities (d)	Long-term roads will average 2 1/2 miles per sq. mile of Management Area

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Motorized Management Areas.
(b) For definition and description of Traffic Service Levels see Appendix K.
(c) Unmarked roads - are non Forest Service number Level D roads, as well as temporary roads such as skid trails and two-trackers.
(d) Long-term- includes all roads classified as TS Level C and these TS Level D roads that access designated recreation facilities.

Motorized Results

Seven of the twelve SPM areas had at least one Level D road open to possible travel (Table 19). Management Areas, Hay Lake, Big Bay De Noc, and Petes Lake, had greater than one-third of their TS Level D roads open to possible vehicle travel. Long-term road access to these areas remained relatively high, with nine of the twelve MAs having at least one Level C or above road accessible. Compared to SPNM areas, while there were more open, long term roads, the density was also within the specified standard.

Table 19. Number of open access roads and density of long-term roads in Semiprimitive Motorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	No. of Open Level D Roads Not Accessing Desig. Rec. Facilities	No. of Open Long-Term Roads (a)	Mileage of Long-Term Roads	Net Sq. Miles of MA	Density of Long-Term Roads per sq. Mile
St. Ignace District					
Crooked Creek	1	0	0	6.2	0.0
Hay Lake	21	5	27.4	39.1	0.7
Pontchartrain Shore	0	1	2.4	3.1	0.8
Search Bay	4	1	2.7	3.3	0.8
St. Martin Bay	0	0	0	0.6	0.0
Sault St. Marie District					
Biscuit Creek	1	2	.9	5.0	0.2
Pine River	5	3	11.9	23.9	0.5
Whitefish Bay	0	1	2.5	7.1	0.4
Manistique District					
Big Bay De Noc	11	1	1.3	25.4	0.1
Bull Run	0	0	0	5.2	0.0
Ironjaw	0	6	7.5	5.7	1.3
Munising District					
Petes Lake	19	6	13.2	12.9	1.0

(a) Long-term- includes all roads classified as TS Level C and D accessing designated recreation facilities.

Trails

Nonmotorized and Motorized Class Standards

Trails in SPNM areas are to be open to foot, ski, and horseback use only. In the SPM areas, use by off road vehicles, all terrain vehicles, and snowmobiles is allowed on trails designated for these uses, while nonmotorized trails closed to motorized use may also exist. Providing a challenging, often rugged experience, is the desired experience on all trails. They are constructed and maintained to protect the integrity of the environment and the safety of the recreationalist.

Table 20 outlines the standard parameters for trails in both SPNM and SPM areas. The key distinguishing standards between them are the designated uses and the acceptable density of trails within the MA.

Table 20. Trail standards for Semiprimitive Nonmotorized and Motorized Areas (a).

Standard	Parameter
1. Designated Uses	
Nonmotorized Areas	Open to foot, horse, and ski only (b)
Motorized Areas	Open to foot, horse, ski, and specific motorized activities such as snowmobiles
2. Trail Closure	All Nonmotorized trails physically restrict motorized vehicle travel
3. Trail Density	
Nonmotorized Areas	Maximum of 3 miles of nonmotorized trail per sq. mile of Management Area
Motorized Areas	Maximum of 1 mile of nonmotorized trail per sq. mile of Management Area and a maximum of 3 miles of motorized trail per sq. mile of Management Area
4. Trail Assurance	Blaze marks only
5. Trail Signing	Signs show destinations, mileage, regulatory information, and safety messages only
6. Trail Tread	A maximum of 18" on cleared trail and 48" for trails following roads
7. Trail Conditions	Adequate or Above Adequate conditions for designated travel (c)

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Nonmotorized and Motorized Management Areas.
(b) No standards are indicated in either LRMP or Eastern Region Supplement for mountain bikes.
(c) Below Adequate - high occurrence of conditions such as mud holes, trail obstructions, potential dead-falls, and unmarked intersections found along the trail. Adequate - little occurrences of conditions such as mud holes, trail obstructions, potential dead-falls, and unmarked intersections found along the trail. Above Adequate - very little occurrence of the previous conditions found along the trail.

Nonmotorized Management Area Results

The North Country Trail (NCT) section bisecting the Naomikong Point MA was the only trail of ten inventoried in SPNM areas (Table 21) which was consistent with each of the standard parameters. All of the other trails exceeded at least one standard parameter. While most of these inconsistencies were secondary in nature, two were considered detrimental to the character of these areas. Snowmobile trails were found bisecting Tahquamenon Bay MA and Buck Bay Creek MA. The presence of these motorized trails in non-motorized areas is a significant inconsistency because they directly conflict with the character of these areas. For example, the Raco-Paradise trail in the Tahquamenon Bay MA eventually merged with the NCT section in this MA.

Another important trail characteristic that was deficient related to trail conditions. Three of the eight nonmotorized trails, Addis Lakes, Bay De Noc - Grand Island, and the NCT section in Tahquamenon Bay MA were maintained below an adequate level for protection of resource and public safety. In each of these cases, travel along these trails was considered difficult, because of the high occurrence of downed trees, mud holes, overgrown areas, or poorly signed trail sections.

Secondary inconsistencies were more numerous, but considered less critical because they were mainly inconsequential to character of these area or the recreational experience. For instance, only five of the eight nonmotorized trails were effectively closed to possible motorized use. Three of these five trails were located in the Buck Bay Creek MA, while Addis Lakes, and the Bay De Noc - Grand Island shared the same trail head. However, none showed visible signs of motorized use. All SPNM areas, with the exception of Verdant Lake MA, had total trail mile densities less than the maximum of three miles of trail per square mile of MA. Verdant Lake MA had a slightly greater

Table 21. Trail characteristics for Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest 1994.

Ranger District and Management Area	Trail	Trail Uses (a)	Barrier Closing Tr. to Motorized Use	Tr. Mile per sq. Mile of MA (b)	Type On-Trail Marker	Type of Trail Signs (c)	Trail Condition (e)
St., Ignace District							
Carp River North	None						
Carp River South	None						
Government Island	None						
Sault St. Marie District							
Grant Creek	None						
Mission Hills	None						
Naomikong Point	NCT Section	F	Yes	0.8	Blazes	D, M	Adqt.
Pendills Lake	None						
Tahquamenon Bay	NCT Section	F	Yes	1.1	Tags	D, M	Blw. Adqt.
	Raco - Paradise (f)	S	Yes	NA	Tags	S	Abv. Adqt.
Manistique District							
Boot Lake	None						
Verdant Lake	Rumble Loop	F, H	Yes	#	Tags	D, R, S	Abv. Adqt.
	Triangle Loop	F, H	Yes	#	Tags	D, S	Abv. Adqt.
	Total			3.3			
Munising District							
Au Train Point	None						
Buck Bay Creek	NCT Section	F	Yes	#	Tags	D, M	Adqt.
	Bay De Noc- Grand Island	F, H	No	#	Tags	D, M	Blw. Adqt.

"Table 21 (cont'd)"

Au Train Songbird	F	No	#	Tags	D, M	Abv. Adqt.
Addis Lakes	F, X-C	No	#	Tags	D, M, R	Blw. Adqt.
North Hiawatha	S	No	NA	Tags	M, S	Abv. Adqt.
Total			1.5			

(a) F-foot, H-horse, X-C-cross country skiing, and S-Snowmobile.
(b) Square miles of MA represents total area of Forest Service land. Percentage was adjusted by the inverse of allowable nonmotorized trail mileage per square mile of MA.
(c) D-destination, M-mileage, R-regulatory information, and S-safety.
(d) Majority Traffic Service Level D.
e) Blw. Adqt.- many mud holes, trail obstructions, potential dead-falls, and unmarked intersections. Adqt.- few mud holes, trail obstructions, potential dead-falls, and unmarked intersections. Abv. Adqt.- very few mud holes, trail obstructions, potential dead-falls, and unmarked intersections.
(f) This trail is posted Raco-Paradise Snowmobile Trail along FH 42, while a DNR/USFS map indicates it is the Rod and Gun - Naomikong Snowmobile Trail.

density at 3.3 miles. However, this density was not considered to impact the quality of the MA. Seven of the eight nonmotorized trails were marked with tags, as opposed to blazes. This was also not viewed to be serious. For the most part all other trail characteristics, including type of trail signage and trail tread width, fell within acceptable limits.

Motorized Management Area Results

A total of fifteen trails, segmented into three different designated uses were inventoried in the SPM areas (Table 22). Five of these fifteen were sections of designated snowmobile routes, seven were foot or horse trails, and three independently assessed loops were part of the Mckeever Hills Cross Country Ski Trail System. Each of the sections of the snowmobile trails bisecting MAs followed either Forest Service administed or county roadways. Thus, each adhered to all of the standard parameters.

Every one of the nonmotorized trails were generally consistent with standard parameters, with minor, but acceptable deviations from the limits. For instance, three trails, the NCT section in Hay Lake MA, Loop C of the McKeever Hills, and Bruno's Run Trail were open to possible motorized use. Trail development in SPM areas primarily emphases motorized use. As a result, trail density for nonmotorized trails in the Ironjaw and Petes Lake MAs were greater than the standard of one mile per square mile of MA. However, because the location of the three trails inventoried is spread over the entire MA, this inconsistency was not considered a detrimental to the overall MA character. Additionally, as with the trails in SPNM areas, all trail assurance were marked with tags instead of the blazes. Lastly, of the nonmotorized trails, only the Mckeever Lake Trail had trail maintenance below adequate level for designated travel.

Table 22. Trails characteristics for Semiprimitive Motorized Management Areas in the Hiawatha National Forest 1994.

Ranger District and Management Area	Trail	Trail Uses (a)	Barrier Closing Tr. to Motorized Use	Mile per sq. Mile of MA for all Non-Motor Tr. uses (b)	Tr. Mile per sq. Mile of MA for all Motor Tr. uses (b)	Type of On-Trail Marker	Type of Trail Signs (c)	Trail Condition (d)
St., Ignace District								
Crooked Creek	St. Ignace Rd.	S	No	NA	0.5	Tags	S	Abv. Adqt.
Hay Lake	NCT Section	F	No	0.2	NA	Tags	D	Adqt.
	Castle Rock	S	No	NA	#	Tags	D, S	Abv. Adqt.
	Cedarville	S	No	NA	#	Tags	S	Abv. Adqt.
	Total			0.2	0.3			
Pontchartrain Shore	None							
Search Bay	Developing							
St. Martin Bay	None							
Sault St. Marie District								
Biscuit Creek	None							
Pine River	Rudyard-Trout	S	No	NA	0.4	Tags	M, S	Abv. Adqt.
Whitefish Bay	NCT Section	F	Yes	0.6	NA	Tags	D, M	Adqt.
	Rod & Gun-Naomikong	S	No	NA	0.4	Tags	S	Abv. Adqt.
Manistique District								
Big Bay De Noc	None							
Bull Run	None							
Ironjaw	Swan Lk Loop	F, H	Yes	#	NA	Tags	D, R	Abv. Adqt.
	Hardwood Loop	F, H	Yes	#	NA	Tags	D, R, S	Abv. Adqt.
	Ironjaw Loop	F, H	Yes	#	NA	Tags	D	Abv. Adqt.
	Total			1.9				

"Table 22 (cont'd)"

					NA			
Munising District								
Petes Lake	Mckeever			#	NA			
	Loop A	X-C	No			Tags	D, M	Abv. Adqt.
	Mckeever			#	NA			
	Loop B	X-C	Yes			Tags	D, M	Adqt.
	Mckeever			#	NA			
	Loop C	X-C	Yes			Tags	D, M	Adqt.
	Bruno's Run	F	No	#	NA	Tags	None	Adqt.
	McKeever				NA			
	Lake Trail	F	Yes	#		Tags	D, M	Blw. Adqt.
	Total			1.3				

(a) F-foot, H-horse, X-C-cross country skiing, and S-Snowmobile.
(b) Square miles of MA represents total area of Forest Service land. Percentage was adjusted by the inverse of allowable nonmotorized or motorized trail mileage per square mile of MA.
(c) D-destination, M-mileage, R-regulatory information, and S-safety.
(d) Blw. Adqt.- many mud holes, trail obstructions, potential dead-falls, and unmarked intersections. Adqt.- few mud holes, trail obstructions, potential dead-falls, and unmarked intersections. Abv. Adqt.- very few mud holes, trail obstructions, potential dead-falls, and unmarked intersections.

Trail Bridges

Nonmotorized and Motorized Class Standard

The general characteristics of bridge construction and design in SPNM and SPM areas are rustic, simple, and adequate for safe crossing. Consequently, the standard parameters (Table 23), are basically the same for both classes. The emphases in this evaluation is placed on design and construction of the bridges.

Table 23. Trails bridge standards for Semiprimitive Nonmotorized and Motorized Areas (a).

Standard	Parameter
1. Bridge Design	Footlog or multiple-stringer with deck
2. Tread Width	
Nonmotorized Areas	Footlogs no wider then 18" and multiple-stringer with deck no wider then 24"
Motorized Areas	Nonmotorized trail bridges same parameters as above, while for motorized trail bridges multiple-stringer with deck no wider then 60"
3. Bridge Material	Natural, native material such as lumber and rock, and synthetic materials such as plywood, treated lumber, and concrete accepted if material is not visually evident
4. Bridge Design	Simple and rustic design
5. Motorized Bridges	Designed for one-way traffic only

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Nonmotorized and Motorized Management Areas, with additional guidance provided by the Acceptable Trail Bridge Types by ROS Class pamphlet supplied by Warren Bacon, Personal Communication, February 10, 1994.

Nonmotorized Results

Ten trail bridges were inventoried in four SPNM areas in the HNF (Table 24). Of these, two were considered exceeding standard parameters. The first is an elaborate suspension bridge, constructed using dimensional lumber, telephone poles, and steel cable crossing Naomikong Creek along the NCT in the Naomikong Point MA. These aspects make the bridge a popular visitor attraction. The second bridge in excess of standard parameters was found in the Tahquamenon Bay MA. Serving the NCT and Raco - Paradise Snowmobile Trail, it appears that this bridge was planned to be open to motor vehicle trail traffic. All other bridges fell within the appropriate standards parameters.

Motorized Results

Table 25 displays the assessments conducted on all trail bridges found in SPM areas. All bridges inventoried were part of nonmotorized trails. Of the five bridges, the one crossing the Pt aux Chenes River on the NCT in the Hay Lake MA was considered to be the furthest excess of standard parameters because tar was applied as a treatment to preserve the wood. Two bridges were also found that were wider than 24 inches for multi-stringers with deck along Bruno's Run Trail. None of these exceptions was considered to seriously impact the semiprimitive character of the areas.

Table 24. Trail bridge characteristics in Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest in 1994 (a).

Ranger District and Management Area	Location	Brdg. Type (b)	Open to Motor Use	Tread Wdth	Simple Design	Rustic, Natural
St. Ignace District						
Carp River North	None					
Carp River South	None					
Government Island	None					
Sault St. Marie District						
Grant Creek	None					
Mission Hill	None					
Naomikong Point	NCT	M	No	80"	No	No
Pendills Creek	None					
Tahquamenon Bay	NCT / Paradise-Raco	M	Yes	80"	No	No
Manistique District						
Boot Lake	None					
Verdant Lake	Triangle Loop	M	No	20"	Yes	Yes
Munising District						
Au Train Point	None					
Buck Bay Creek	Au Train Songbird	M	No	20"	Yes	Yes
	Au Train Songbird	M	No	20"	Yes	Yes
	Au Train Songbird	M	No	24"	Yes	Yes
	Grand Is - Bay De Noc	M	No	24"	Yes	Yes
	Grand Is - Bay De Noc	M	No	24"	Yes	Yes
	Grand Is - Bay De Noc	M	No	24"	Yes	Yes
	NCT/Buck Bay Cr.	M	No	24"	Yes	Yes

(a) Does not include any bridge open to public car/truck travel.
(b) (M) - Multi-stringer bridge, (F) - Footlog.

Table 25. Trail bridge characteristics for Semiprimitive Motorized Management Areas in the Hiawatha National Forest in 1994 (a).

Ranger District and Management Area	Location	Brdg. Type (b)	Open to Motor Use	Tread Wdth	Rustic, Simple Design	Rustic, Natural
St. Ignace District						
Crooked Creek	None					
Hay Lake	NCT - Pt aux Chenes	M	No	24"	Yes	No
Pontchartrain Shore	None					
Search Bay	None					
St. Martin Bay	None					
Sault St. Marie District						
Biscuit Creek	None					
Pine River	None					
Whitefish Bay	None					
Manistique District						
Big Bay De Noc	None					
Bull Run	None					
Ironjaw	None					
Munising District						
Petes Lake	Bruno's Run Tr. Dipper Lk.	M	No	24"	Yes	Yes
	Bruno's Run Tr. Deer Cr.	F	No	30"	Yes	Yes
	Bruno's Run Tr.	M	No	48"	Yes	Yes
	Mckeever Lake Tr.	M	No	20"	Yes	Yes

(a) Does not include any bridge open to public car/truck travel.
(b) (M) - Multi-stringer bridge, (F) - Footlog.

Interpretation

Nonmotorized and Motorized Class Standard

In Semiprimitive areas, the recreational experience is characterized by independence, closeness to nature, and self-reliance (USDA-FS 1986a). Interpretation in semiprimitive areas is left up to the recreationalist. Reflecting this emphases, Table 26 outlines the standards parameters for both ROS SPNM and SPM Classes.

Table 26. Interpretation service standard for Semiprimitive Nonmotorized and Motorized Areas (a).

Standard	Parameter
1. Service	Self discovery, augmented through publications found at visitor contact stations; no on-site facilities provided in Management Area

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Nonmotorized and Motorized Management Areas.

Nonmotorized Results

Two interpretive services, outlined in Table 27 were inventoried in SPNM areas. The first of these amenities, found at the beginning of the Rumble Loop along FS 2100 in Verdant Lake MA, included a receptacle for maps of the Pine Marten Run Trail System. Secondly, though the Au Train Songbird trail head originates outside the Buck Bay Creek MA in the Au Train Campground, approximately two miles of the trail is within this MA. The trail has a series of signs with illustrated pictures and written text describing of different songbirds of the area. It appears that the Songbird Trail was developed prior to the designation of Buck Bay Creek MA as a SPNM area from the 1988 Forest Plan appeals decisions (USDA-FS, 1988).

Table 27. Interpretation services in Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	Location	Description of Interpretive Service
St. Ignace District		
Carp River North	None	
Carp River South	None	
Government Island	None	
Sault St. Marie District		
Grant Creek	None	
Mission Hill	None	
Naomikong Point	None	
Pendills Lake	None	
Tahquamenon Bay	None	
Manistique District		
Boot Lake	None	
Verdant Lake	Rumble Loop	Maps of the Pine Marten Run Trail System are provided in a box at the beginning of the trail
Munising District		
Au Train Point	None	
Buck Bay Creek	Au Train Songbird Trail	A series of illustrated signs describing song birds are found along this trail.

Motorized Results

In SPM areas, only one interpretative service was provided to forest visitors (Table 28). Similar to the amenity in Verdant Lake MA, a map receptacle with maps of the Pine Marten Run Trail System was provided at the trail head of the Hardwood Loop, along FS 2727 in the Ironjaw MA.

Table 28. Interpretation services in Semiprimitive Motorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Area	Location	Description of Interpretive Service
St. Ignace District		
Crooked Creek	None	
Hay Lake	None	
Pontchartrain Shore	None	
Search Bay	None	
St. Martin Bay	None	
Sault St. Marie District		
Biscuit Creek	None	
Pine River	None	
Whitefish Bay	None	
Manistique District		
Big Bay De Noc	None	
Bull Run	None	
Ironjaw	Hardwood Loop	Maps of the Pine Marten Run Trail System are provided in a box at the trail head.
Munising District		
Petes Lake	None	

Visual Quality

Nonmotorized and Motorized Class Standards

The standard parameters for visual quality in Semiprimitive areas are, outlined in Table 29. They, reflect the predominately natural or natural-appearing setting characteristics of these classes (USDA-FS, 1986a). Assuring that this character is maintained is done by establishing Visual Quality Objectives (VQO). These objectives refer to the degree of acceptable alteration of the landscape from management activities (USDA-FS, 1986b). Both areas are managed primarily under Preservation and Retention objectives, with Partial Retention accepted only in Motorized Areas on a few sites. Modification is clearly not compatible in these MAs, though due to past management activities

some areas will be found managed under such. Defined in Appendix L, a Preservation Objective allows only natural processes to alter the forest landscape, while under Retention, management activities are permissible, but should not be visually evident to the casual forest visitor. Management activities are evident under a Partial Retention Objective, but these should remain subordinate to the natural landscape for the casual forest visitor. In contrast, Modification allows management activities to be dominant to the casual visitor in viewing the site.

Table 29. Visual quality standards for Semiprimitive Nonmotorized and Motorized Areas (a).

Standard	Parameter
1. Visual Quality Objective (b)	
Nonmotorized Areas	Preservation, Retention as majority, Partial Retention incompatible
Motorized Areas	Preservation, Retention as majority, Partial Retention from sensitive roads, trails and recreation use areas

(a) Based on Hiawatha LRMP and ROS Users Guide: Eastern Region Supplement standard and guidelines for Nonmotorized and Motorized Management Areas.
(b) For definition and descriptions of Visual Quality Objectives (VQO) see Appendix L.

Systematically identifying and classifying management activities as fitting a particular VQO is very challenging, due to the subjectivity and ambiguous of nature of these standard parameters (Hull, 1988). In the Forest Service, this activity is left primarily to the judgment of landscape architects. To validate each assessment in this study, 35mm color photographs were taken of all sites audited as not in compliance with standards. One of the main issues noted in conducting these assessments was distinguishing the age of the management activity. Most of these semiprimitive areas have only been designated since 1986, with some

additions in the late 1980's. Some activities assessed and included in this report appear to have been conducted prior to the designation of the areas. Further, one of the important management concepts of SPMAs is to allow areas to revert from visibly modified to more natural appearing landscapes. However, this takes time, often more then the six to nine years these areas have been under semiprimitive designation.

Nonmotorized Results

As Table 30 displays, the majority of the management activities assessed in SPNM areas were associated with timber harvesting. Three of the twelve MAs, including Carp River North, Boot Lake, and Buck Bay Creek had the most incidents of unacceptable VQO ratings. In the case of Boot Lake and Buck Bay Creek, where modification was assessed, the age of the activity might be a factor since both of these areas have only been designated as semiprimitive areas since the 1988 Forest Plan appeals decision (USDA-FS, 1988). At Carp River North, the greatest density of exceptions were noted considering the relatively small size of the MA.

Motorized Results

Three of the twelve SPM areas, Hay Lake, Search Bay, and Big Bay De Noc were found to contain at least three areas of Modification (Table 31). Most of the management activities recorded related to timber harvesting, though three other activities were recorded. For example, a series of nesting platforms in the pond located off of FS 3436 in the Search Bay MA were considered Modification because of their unnatural appearance and their dominance of the landscape. Additionally, white cylinder like devices, believed as part of a research project were located off of FS 2850 in the Big Bay De Noc MA. They too was assessed as

Table 30. Sites visible from roads or trails with visual quality rated as partial retention or modification through management activities in Semiprimitive Nonmotorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Areas	Road-Trail Location	Activity	VQO Rating (a)	Picture Reference (b)
St. Ignace District				
Carp River North			Partial	
	FS 3309	Timber harvest	Retention	C-22
	FS 3309	New road const.	Modification	C-21
	FS 3309	New road const.	Modification	C-23
	FS 3308C	Timber harvest	Modification	D-2 & 3
Carp River South	None			
Government Island	None			
Sault St. Marie District				
Grant Creek	None			
Mission Hill	None			
Naomikong Point	None			
Pendills Lake	FS 3092	Timber harvest	Modification	D-6
Tahquamenon Bay	None			
Manistique District				
Boot Lake			Partial	
	CO 437	Timber harvest	Retention	A-26 & 27
	CO 437	Timber harvest	Modification	A-28
	FS 2872	Gravel pit	Modification	A-2 & 3
	FS 2872	Log landing	Modification	A-5
	M 94	Timber harvest	Modification	A-25
	FS 2102	Timber harvest	Modification	A-23
	FS 8119	Timber harvest	Modification	A-29
	FS 2284	Timber harvest	Modification	A-14 & 15
Verdant Lake	None			
Munising District				
Au Train Point	None			
Buck Bay Creek			Partial	
	FS 2579	Timber harvest	Retention	B-18 & 19
	Grand Is/ Bay De Noc	Timber harvest	Partial Retention	D-22
	FS 2528	Timber harvest	Modification	B-24 & 25
	FS 2579	Timber harvest	Modification	B-20
	FS 2579A	Timber harvest	Modification	B-21
	FS 2572	Timber harvest	Modification	C-5

(a) For definition and descriptions of Visual Quality Objectives (VQO) see Appendix L.
(b) Picture references can be located at the U. S. Forest Services Hiawatha National Forest Supervisors Office in Escanaba, Michigan.

Modification VQO because they dominated the forest landscape. On a per square mile basis there were fewer exceptions to VQO standards in SPM areas then in SPNM areas.

Table 31. Sites visible from road or trails with visual quality rated as modification through management activities visible in Semiprimitive Motorized Management Areas in the Hiawatha National Forest in 1994.

Ranger District and Management Areas	Road-Trail Location	Activity	VQO Rating (a)	Picture Reference (b)
St. Ignace District				
Crooked Creek	CO 235	Timber harvest	Modification	C-24 & D-1
Hay Lake	FS 3105	Timber harvest	Modification	E-10
	FS 3105	Timber harvest	Modification	E-11
	FS 3105	Timber harvest	Modification	E-12
	FS 3118	Timber harvest	Modification	E-16
	FS 3118C	Timber harvest	Modification	E-17 & 18
Pontchartrain Shore	None			
Search Bay	FS 3436	Timber harvest	Modification	E-25
	FS 3436	Nest platforms	Modification	E-26
	FS 3436 Boat Launch	Timber harvest	Modification	E-24
St. Martin Bay	None			
Sault St. Marie District				
Biscuit Creek	FS 2123	Timber harvest	Modification	E-7
	H 40	Timber harvest	Modification	E-3 & 4
Pine River	None			
Whitefish Bay	None			
Manistique District				
Big Bay De Noc	FS 2850	Research	Modification	C-11
	FS 2850	Timber harvest	Modification	C-12
	FS 2850	Timber harvest	Modification	C-13
	FS 8036	Clearing	Modification	C-14
	FS 2531	Clearing	Modification	C-15
Bull Run	None			
Ironjaw	None			
Munising District				
Petes Lake	FS 2258	Timber harvest	Modification	A-34 & 35

(a) For definition and descriptions of Visual Quality Objectives (VQO) see Appendix L.
(b) Picture references can be located at the U. S. Forest Service Hiawatha National Forest Supervisors Office in Escanaba, Michigan.

CHAPTER V

DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

Introduction

The reason for implementing this independent monitoring and evaluation program was to provide baseline data regarding the application of semiprimitive area standards and guidelines, as outlined in the Hiawatha's Forest Plan and the ROS User Guide, Eastern Regional Supplement and suggestions for improvements. The level of compliance with these standards and guidelines provides an indication of the quality of management within these areas, which in turn directly affects the quality of the recreational experience. This is primarily linked to the manager's commitment to alleviating areas of non-compliance and regularly monitoring them in the future.

A program of monitoring and evaluation is important because forests are dynamic and constantly being altered, potentially affecting the quality of the semiprimitive experience. By identifying compliance problems and implementing management actions to mitigate them, managers reduce conflicts and improve their credibility with the constituents of the HNF. Additionally, management of these areas can be improved by reviewing and revising management documents such as the ROS User Guide, Eastern Region Supplement, to reflect current management practices.

Mitigating Key Areas of Non-Compliance

As outlined in Chapter Four, a number of incidents of non-compliance were identified during monitoring. Although such areas of non-compliance are generally considered unfavorable, not all necessarily alter the status of the area. Determining whether a particular area of non-compliance has undesirable ramification requires a judgment about its overall effects across the MA. Three key factors need to be considered. First, is the area consistent with the general character of the Semiprimitive Classes as outlined in the ROS User Guide (USDA-FS, 1986a). Second, is visitor safety compromised. Third, is the integrity of the environment in the MA threatened.

Based on the audit data for the HNF, substantial compliance was attained in the overall management of these areas. Many of the inconsistencies recorded in the MAs were evaluated as not detrimental because they did not dominate the overall character of the area or quality of the recreational experience. For example, the use of tags as trail assurance markings instead of blazes was considered a secondary inconsistency. Tags are generally considered to be a more acceptable management practice since blazes increase trees' susceptibility to the spread of disease. Moreover, the inconsistencies associated with presence of interpretive amenities were also determined to be secondary because they too were considered inconsequential. Likewise, the few non-designated recreation sites inventoried in these MAs was not significant enough to affect the quality of these semiprimitive areas.

However, four major areas of non-compliance, with substantial undesirable impacts, were identified. They were; 1) snowmobiles trails bisecting SPNM areas, 2) MAs with numerous low standard roads accessible to motorized travel, 3) facilities exceeding Recreation Development Level Standards, and 4) trails maintained below standards for resource protection and user safety.

Incompatible Snowmobile Trails

A major conflict emphasized in this inventory, as outlined in Table 21, was the two snowmobile trails bisecting SPNM areas. The Raco-Paradise trail in the Tahquamenon Bay MA and the North Hiawatha trail in the Buck Bay Creek MA conflict with the intended activity and experience settings of these SPNM areas. They also impose a considerable danger to forest visitors. This danger is most clearly an issue in the Tahquamenon Bay MA because the snowmobile trail and the nonmotorized North Country Trail are combined for a segment and they use a common bridge to cross the Silver Creek.

Given these repercussions, it is critical that managers explore the feasibility of rerouting this snowmobile trail around the Tahquamenon Bay MA. Perhaps there are other routes which can be utilized in the Whitefish Bay SPM area to the west. If no alternatives exist, at the very least, managers should separate these two trails and provide adequate warning to users along the trail, especially at the crossing of Silver Creek.

As for the snowmobile trail in the Buck Bay Creek SPNM MA, accepting it as a manageable inconsistency is a reasonable solution to mitigate this dilemma. The entire length of the trail in this MA follows a major roadway, which is not maintained or accessible in the winter by automobile. Consequently, conflicting use in this area is likely to be minimal. In making this management change, it is important that justification and documentation be adequate and made available to the public.

Numerous Traffic Service Level D Roads

Of the twenty-four designated SPMAs in the HNF, fourteen had at least one Traffic Service Level D road accessible to motorized use that did not access a designated recreation facility (see Tables 17 & Table 19). Half of these MAs were

SPNM. The presence of these Level D roads, especially in the SPNM areas, compromises the general aim and character of these areas. This concern is particularly relevant and apparent in Carp River North, Boot Lake, and Buck Bay Creek SPNM MAs (Table 17), as well as in Hay Lake, Big Bay De Noc, and Petes Lake SPM MAs (Table 19). The total number of open Level D roads in these MAs were significantly higher than the other semiprimitive areas.

Presence of these Level D roads can be attributed to two factors. First, these same SPNM areas were created from ROS Roaded Natural areas during final resolution of the Hiawatha FEIS - LRMP (USDA-FS, 1986b) appeal concerning semiprimitive areas. The presence of Level D roads is typical of Roaded Natural MAs and reflects the influence of the political process in additional designation rather than the initial judgment of managers following ROS standards and guidelines. Secondly, managing these areas under their semiprimitive status has been a relatively recent event in the HNF. The current management plan has only been implemented since 1986, with amendments occurring up to 1990. As a result, many roads were constructed to access recreation areas and extract resources prior to semiprimitive designation.

Regardless of the factors of this dilemma, these open roads are a major negative influence on the general setting characteristics of semiprimitive areas. Fortunately, closing these inconsistent roads is relatively simple and feasible. In many cases, these Level D roads were previously closed, but for various reasons they have been re-opened. Furthermore, it appears that many of these roads have not been used in years. Those that will not be used again in the near future can be blocked, while those that currently serve a management purpose can be gated.

Facilities Exceeding Recreation Development Level 2

The third major area of non-compliance relates to the number of facilities found within semiprimitive areas which were evaluated as Recreation Development Level 3. Foley Creek campground located in Hay Lake MA, all the facilities associated with the Petes Lake Recreation Area in Petes Lake MA, Lake Huron boat launch in St. Martin Bay MA, and Ogontz Bay boat launch in Big Bay De Noc MA were all incompatible with the general semiprimitive character of these areas. They clearly exceed the appropriate intensity of development.

Restoring these facilities to compatible development levels is not always feasible, particularly in light of the personnel limitations, cost constraints, and current use patterns. For example, it would not be sensible to close or eliminate popular facilities such as Foley Creek and Petes Lake Campground because of public disenchantment with such action, a sizable investment in the facilities, concessionaire agreements, and their presence prior to semiprimitive area designation. However, managers can contend with this predicament by adjusting the boundary of these MAs to eliminate this inconsistency. Many factors must be considered with this option because any reallocation of a semiprimitive area, or portion of that area, to a Roaded Natural ROS Class would have to be justified in the Forest Plan, which is scheduled to be reopened for revisions in 1996. However, this option has considerable appeal because it offers a relatively simple solution to an otherwise complex problem, especially for those areas of non-compliance which lie on the border of a MA.

For example, Boot Lake boat launch is on a lake with the majority of its property in private ownership. A line drawn north to south, midway through Section 29, could effectively segment this launch in a Roaded Natural MA to the east. The Lake Huron boat launch in the St. Martin Bay MA is in a similar situation. An east - west line drawn at the mid-portion of the boundary of

Section 21 would put it in the Carp River MA, which is in a Roaded Natural ROS Class. Likewise, re-drawing of MA boundaries would remove the inconsistencies associated with the highly developed Petes Lake Recreation Area, including the boat launch, swimming and picnic area, and campground. In this case, the boundary of the MA should be adjusted to follow the FS 2173 road at its origin until it reaches the mid-portion of the boundary of Section 7, where a line drawn back to Highway 13 would exclude these sites from the SPM area.

In those cases where rectifying the inconsistency through management actions is impossible or undesirable because of costs, environmental impacts, or public concern, managers could sanction the inconsistency. Ogontz Bay boat launch is one such facility which fits under this option. It should be accepted because the craft typically launched at this site are generally larger than in other SPMAs, since they must be worthy for Great Lakes travel. This requires a site where sizable boat trailers can be backed into the water on a firm surface, and where drivers have enough room to park and turn around.

Hazardous Trails

Lastly, four trails, including the NCT section in the Tahquamenon Bay MA, the Bay De Noc - Grand Island Trail, the Addis Lakes Trail, and the McKeever Lake Trail, were evaluated as maintained below adequate conditions for resource protection and safe travel (Tables 21 & 22). The conditions of these facilities leads visitors to form a negative perception of Forest Service management, while also endangering visitors' safety and the quality of the environment. However, the status of many of these trails can be easily upgraded, by implementing scheduled maintenance activities. The NCT, the Bay De Noc - Grand Island Trail, and the McKeever Lake Trail could all be easily improved with better maintenance since designation is not a problem. The

Addis Lakes Ski and Foot Trail System, however, was considered essentially impassable because there was neither trail tread nor adequate trail markings. Since the use of this trail is minimal, it might be easier to close it rather than manage it. The Valley Spur Cross Country Trail, located a couple of miles down the road, is open and provides a well-managed, quality cross country skiing opportunity.

Monitoring Implementations

To ensure that management responses to mitigate areas of non-compliance are effective, regular reappraisals must be completed. It is this feed-back loop which will ensure that semiprimitive areas of the HNF will be adequately managed in the future. As with any monitoring program, a clear plan of action and time-frame for the assessment are essential. Most visitor impact monitoring programs are conducted every five years (Cole, 1983, 1989). In light of the dynamics of the forest, this time-frame is both reasonable and practical for monitoring the semiprimitive areas of the HNF.

Since the Hiawatha's Forest Plan is on a ten-year implementation cycle, the monitoring schedule should be segmented into two monitoring programs. The initial monitoring program should be aimed at securing independent, objective baseline data about these areas. This assessment should be conducted prior to the conclusion of the current implementation cycle so that the information can be used in forming strategic plans for the next implementation cycle. The subsequent reappraisal, performed halfway through the Forest Plan implementation cycle, does not have to be as detail oriented as the initial assessment. This program can be conducted by Forest Service personnel to reassess managers' responses to the key concerns identified in the initial

program, as well as the identification of new concerns. Consequently, those areas of non-compliance identified above should be the main elements of the subsequent reappraisal in the HNF.

Specifically, this mid-cycle monitoring program should focus on six key concerns. Given its significance, the first aspect this reappraisal should target is ensuring that the hazards created from the snowmobile trails are mitigated. Second, facility construction and maintenance is considered an important defining element in these areas. Consequently, the monitoring program should focus on any alterations or new developments in recreation facilities, to evaluate their consistency with standards and to assure that the inconsistencies related to Recreation Development Levels listed above are rectified. The third aspect of this program should center on evaluating trail conditions and maintenance, especially for those trails that were considered a concern in this assessment. Fourth, accessible Traffic Service Level D roads were another major area of non-compliance in this assessment. Since roads are constantly being opened by management or through illegal activity, the status of all secondary roadways within these MAs should be assessed to identify areas of conflict. For the same reasons, all nonmotorized trails and boat launches within SPNM areas need to be evaluated for possible non-compliance's associated with access. Finally, areas of non-compliance associated with visual quality were considered an acceptable inconsistency in this program because most were believed to exist prior to the official semiprimitive designation of the area. However, management is continually occurring and various activities are planned in these areas for future years. Accordingly, future assessments should address the visual quality of these activities to ensure that they areas are meeting the proper objectives.

Revising the Monitoring Program

The monitoring system employed in this study fulfilled HNF managers' requirements. Consequently, the reappraisal should follow the basic format applied in the baseline assessment. However, this baseline program was both time and personnel intensive. Some key points and revisions can improve future assessments and significantly reduce the time needed to complete either the baseline or mid-cycle assessment.

First, detailed maps of these areas are essential. U.S. Geological Survey (USGS) 7.5 minute maps were copied and MAs were highlighted to aid in locating recreation facilities, defining Forest Service road numbers, and in recording areas where VQO exceeded parameters. Furthermore, all Recreation Opportunity Guides and trail guides available to the public and applicable to these areas were collected, offering valuable assistance in distinguishing designated facilities from non-designated ones. As a result, supplying data collectors with current maps locating designated recreation sites is necessary since it provides valuable assistance in gathering valid data.

From a conceptual standpoint, monitoring is a relatively uncomplicated, though often time consuming, process. In the reappraisals, the time needed to refine data collecting instruments should be greatly reduced. Abbreviated inventory guides can serve as the data collection instruments in these mid-cycle reappraisals. This will allow researchers to follow the original format used in the baseline assessment, while allowing some flexibility to develop data collection instruments with the most relevant information which meets management needs. Additionally, in future base line assessments, reducing information gathered and time spent can make monitoring less expensive.

One of the key reasons behind a second round of data collection in this study was that too many questions remained unanswered, or could not be answered, in the initial data collection process. As a result, better guidance for data collectors is crucial. This can be best achieved by establishing a procedural manual and a structured training program.

Lastly, different technologies can be applied to improve data collection and aid in data analysis. A portable computer could eliminate the need to use the inventory sheets, which would in turn greatly reduce the time needed in this process since data could be directly entered into a database on-site. Moreover, a hand-held Global Positioning System unit can use latitude and longitude coordinates to pin-point VQO, non-complying roads, and many other factors. Along the same lines, Geographic Information System can be applied to identifying recreation sites and current management activities, delineating MA boundaries, and organizing and presenting data in map format.

Clarifying ROS User Guide Eastern Region Supplement

As outlined in Chapter 3, the examination of the standards and guidelines, provided in ROS User Guide, Eastern Region Supplement and the Hiawatha's Forest Plan, revealed a number of concerns and discrepancies. Rectifying dilemmas in these documents, especially those which directly conflicted with the general character of these areas, is essential in order to accomplish the management goals and objectives of these areas.

Limited car/truck access and mobility is one of the defining characteristics of semiprimitive areas. According to the ROS User Guide (USDA-FS, 1986a), motorized use is intended to be restricted to specific recreation sites in SPNM areas, while in SPM areas access is limited, but admissible. However, the Eastern Region Supplement only specifies roads are normally closed to motorized use.

This standard is not adequate, because it allows to much flexibility, and thereby creates to much conflict. To rectify this inadequate standard, motorized access should be restricted to only long-term roads. All Traffic Service Level D roads should be eliminated or gated only to be used for management purposes. Exceptions to this should be limited to only those roads that lead to specific recreation sites, for in-holders to reach their property, and in those cases where appropriate seasonal activities are dependent on motorized vehicles.

A second key conflicting element of this document, which defines the character of these areas, pertains to appropriate Recreation Development Levels and facility capacities. The Recreation Development Level framework specifically defines criteria for both semiprimitive classes at Level 2 (USDA-FS, 1986b). However, the standard in Chapter Two of the Eastern Region Supplement stipulated that only Development Level 1 is permissible for both areas, while a figure in Chapter Three indicated that Level 3 standards are appropriate in SPM areas. Additionally, there is confusion in the total facility capacities in these areas. The Eastern Region Supplement standard limits the total number of sites to ten in both areas, while a subsequent figure in Chapter Three specifies a range from ten to twenty-five sites. In keeping with the general goal of these areas, the standard for Recreation Development Level should be limited to Level 1 in SPNM areas, emphasizing walk-in sites with total capacities limited to ten sites. In those areas of unique environments where site hardening is essential, provisions for limited facility development of Level 2, including pit toilets, manufactured fire rings, and trash receptacles, should be made. This development should be made only for protection of the environment, such as controlling impacts to specific areas and limiting the impacts created by these sites. In SPM areas, Recreation Development Level should be limited to Level 2

with facilities containing no more than twenty sites. This clearly distinguishes these sites from Roaded Natural standards and shows a progression along the recreation spectrum from SPNM to SPM to Roaded Natural.

A third major discrepancy of the Eastern Region Supplement is in Visual Quality Objectives. Specifically, a contradiction arises between the stated standards for visual quality and the wording used to explain ROS and the Visual Management System in Chapter Three. The Supplement clearly authorizes both ROS Classes to be managed under an objective of Modification in one place, while stating that visual quality is to be maintained at least at Retention level in SPNM and Partial Retention in SPM. In order to rectify this discrepancy, the Supplement should be amended to a minimum of Retention in SPNM areas and Partial Retention in SPM areas. A Modification objective should be permitted in SPM areas where necessary to achieve management objectives but not be visible from a road, trail or recreation site.

The last area of contention is the lack of specific standards for facilities such as boat launches and trails for cross country skiing, horse, and mountain bikes use. It was generally considered that boat launches be Recreation Development Level 2 for SPNM and SPM areas. This would eliminate surfaced launches and parking lot capacities beyond 10 vehicles. However, this level encourages car and truck access to SPNM areas that are generally characterized as nonmotorized with limited access. As a result, the parameters for SPNM areas should be for carry-in boats only, with no place to back in with trailerable boats. In SPM areas, access into the water should be provided for small trailered and car top boats where appropriate.

As for the trails, the standards for nonmotorized trails needs simply to be updated to incorporate these uses. There is some compatibility between horse and mountain bike trail trails, which need more vertical space and wider trail

treads than hiking and skiing trails. As a result, trails should be cleared vertically to at least ten feet and have trail width of forty-eight inches or less. Parameters for cross country skiing trail may be similar to that of foot trail. However, sharp twists and steep down hills that may characterize hiking trails, are not appropriate for skiing trails. Such considerations should be made in designating and constructing these trails.

Conclusion

Monitoring and evaluation is a valuable and integral component of quality management of HNF semiprimitive areas. Data gathered through the implementation of this independent monitoring and evaluation program provides baseline information concerning the extent that management activities in each of the semiprimitive areas of the HNF comply with recreation management standards and guidelines. It also provides specific suggestions for improvement and rational for current conditions. The results of this monitoring and evaluation program will be used in future assessments to further evaluate and improve the management of these areas.

Based on data collected in this monitoring program, significant compliance with semiprimitive guidelines was attained in the HNF. However, there are a few key areas of non-compliance where management intervention is necessary. To ensure that this is accomplished, managers must not only actively alleviate those areas of non-compliance inventoried, but they must implement a regular monitoring program. The foundation and procedures for such an assessment have been established and should be continued in 1999.

Monitoring and accountability of management is becoming more important as the public becomes increasingly critical of managers and their actions. HNF managers need to demonstrate to their constituents that they are

meeting their stewardship responsibility and their own requirements. Additionally, there is another need to develop a strong monitoring program, as semiprimitive areas are an evolving concept. Those in the HNF are on sites where dynamic ecosystem change will occur as well as human use. Successfully, managing in this environment requires current; accurate information, which monitoring can provide. This supports and active, on-going program of evaluation to continue the Forest Services tradition of professional, scientific, and visionary management.

APPENDICES

APPENDIX A

Description of ROS Classes

Primitive

These areas are characterized by essentially unmodified natural environment. Interaction between users is vary low and evidence of users is minimal. The area in managed to be essentially free from evidence of human-induced restrictions and controls.

Semiprimitive Nonmotorized

These areas are characterized by predominantly natural or natural appearing environment. Interaction between users is low, but there is often evidence of other users. The area is managed in such away that minimum on-site controls and restrictions may be present, but they are subtle. Motorized use is not permitted.

Semiprimitive Motorized

These areas are characterized by predominately natural or natural appearing environment. Concentration of users is low, but there is often evidence of users. The area is managed in such away that minimum on-site controls and restrictions may be present, but they are subtle. Motorized use is permitted.

Roaded Natural

These areas are characterized by predominately natural appearing environments with moderate evidence of the sights and sounds of man. Interaction between users may be low to moderate, but with evidence of users prevalent. Resource modifications and utilization practices are evident but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities.

Rural

These areas are characterized by substantially modified natural environments. Resource modifications and utilization practices are to enhance specific recreation activities. Sights and sounds of humans are readily evident, and interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities for intensified motorized use and parking are available.

Urban

These areas are characterized by substantially urbanized environment, although the background may have natural appearing elements. Renewable resource modifications and utilization practices are to enhance specific recreation activities. Sights and sounds of humans, on-site are predominate.

APPENDIX B

Boat Launch Inventory Guide

BOAT LAUNCH: (SPM & SPNM) INVENTORY GUIDE

Date of Inspection _____ Code Number _____
Ranger District_____
Management Area Number_____Management Area Name_____
Inventory Taker_____

Boat Launch Name_____ Official USFS designated **Yes** or **No**

Location of Boat Launch USFS Rd. #_____Common Name_____

Directions: Cir. all that apply, describe any concerns using the back sheet if needed.

Boat Launch Construction

Material of boat launch construction

Concrete **Asphalt** **Earth**

Gravel **Other** (Describe)---------->

Are vehicles able to access the shore

Yes or **No**------(only carry-in possible)

If no, what type of device(s) is used to barring vehicle entry to the lake/river:

Metal Gate **Wooden Gate** **Posts** **Rocks**

Dirt mound **Other** (describe)---------->

Estimate the number of cars that can park at the launch #_____

Notes

Boat Launch Facilities

Indicate the number of each type of facility

Trash containers ---------- ( )
Picnic tables ---------- ( )
Pier ---------- ( )
Fish cleaning stat, w/o running water ( )
Others (describe)_____( )-->
_____ ( )-->

Are toilets present **Yes** or **No**

If yes, indicate the total number of each type

Vault( ) Pit( ) Compost( ) Flush( )

BOAT LAUNCH: (SPM & SPNM) INVENTORY GUIDE

Material/Design Classification of Facilities:
Natural/Native-Wood, stone, gravel, etc.
Synthetic/Non-Native-Metal, cement, asphalt, manufactured wood products (plywood), plastic, etc.
Rustic/Simple- Subordinate dimensioned or synthetic materials, rough sawn lumber, earth based colors (browns, greens), etc.
Non-Rustic/Complex-Dimensioned and finished wood, treated wood, bricks, etc.

Using the above classifications, list and describe all structures, detailing the fundamental components, i.e. toilet- structure is, foundation is, etc. Use the back this sheet if needed.

Visual Quality

Is there any evidence of management activities visible from the boat launch? Consider the following:

Heavy equipment	**Earth moving operations**
New logging roads	**Timber harvest**
Utility corridors	**Others**

List and describe all management activities visible from the boat launch area and rate the visual quality based on these definitions. Use the information from the National Forest Landscape Management booklet, pages 26-35 to help further guide your rating.

Retention: Management activities are not evident to the casual forest visitor.
Partial Retention: Management activities are evident yet subordinate to the characteristic landscape to the casual forest visitor.
Modification: Management activities are evident and dominate the characteristic landscape to the casual forest visitor.

Management Activity	Photo #	Visual Quality Rating
Photograph of the launch area		N/A

APPENDIX C

Camping Areas Inventory Guide

CAMPING (SPM & SPNM) INVENTORY GUIDE

Date of Inspection_____ Code Number _____
Ranger District_____
Management Area Number_____Management Area Name_____
Inventory taker_____

Campground Name_____ (cir. one) **Disp.** or **Dev.** or **Other Shelter**
Is this the official USFS campground name? **Yes** or **No**
Location of Campground USFS Road #_____ Common Name_____

Directions: Cir. all that apply, describe any concerns using the back sheet if needed.

Descricption of Camping Area

Number of sites #_____ **exact** or **approx.**

Camping area open to a vehicle/trailer
Yes or **No**

Sites leveled through management **Yes** or **No**

Sites surfaced through management **Yes** or **No**

Average distance between sites #_____

No. of campsites without vegetative screen for privacy/natural atmosphere between sites
#_____

No. of campsites where there is vegetative screen for privacy/natural atmosphere between sites #_____

Notes

Campsite Facilities

Inidicate the number of each type of facility.

Toilets ----------( )
Stone fire ring ----------( )
Manufactured fire ring ----------( )
Tent pad ---------- ( )
Hand pump ----------( )
Running water----------( )
Trash container----------( )
Fish cleaning station w/o running water--( )
Horse tie-up----------( )
Picnic table----------( )

Campsite Facilities (con't)

Reg/Info Station----------( )
Others (describe)_____ ( )-->
_____ ( )-->
_____ ( )-->

Type and total number of toilets found

Vault-( )Pit-( )Compost-( )Flush-( ) None

Material/Design Classification of Facilities:

Natural/Native-Wood, stone, gravel, etc.
Synthetic/Non-Native-Metal, cement, asphalt, manufactured wood products (plywood), plastic, etc.
Rustic/Simple- Subordinate dimensioned or synthetic materials, rough sawn lumber, earth based colors (browns, greens), etc.
Non-Rustic/Complex-Dimensioned and finished wood, treated wood, bricks, etc.

Using the above Classifications, list and describe all structures and facilities detailing ,the fundamental components, i.e. Toilet- structure is, foundation is, etc. Use the extra sheet if needed. _____

Describe any interpretive displays and/or signs in the campground area. Note things like, materials used in their construction, and display techniques of messages, etc.

Visual Quality

Is there any evidence of management activities visible from the campground? Consider the following:

Heavy equipments	**Earth moving operations**
New logging roads	**Timber harvest**
Utility corroidor	**Others**

List and describe all management activities visible from the camping area and rate the visual quality based on these definition. Use the information from the National Forest Landscape Management booklet, pages 26-35 to help further guide your rating.

Retention: Management activities are not evident to the casual forest visitor
Partial Retention: Management activities are evident yet subordinate to the characteristic landscape to the casual forest visitor.
Modification: Management activities are evident and dominate to the characteristic landscape to the casual forest visitor.

Management Activity	Photo #	Visual Quality Rating

APPENDIX D

Picnic and Swimming Area Inventory Guide

PICNIC/SWIM AREAS (SPM & SPNM) INVENTORY GUIDE

Date of Inspection_____ Code Number _____
Ranger District_____
Management Area #_____ Management Area Name_____

Inspector_____

(Circle those that apply) **Swim** and/or **Picnic** Name_____

USFS Designated **Yes** or **No** Is the site found in a campground **Yes** or **No**

Location of Swim/Picnic Area USFS Rd. #____ Common Name_____

Directions: Cir. all that apply, describe any concerns using the back sheet if needed.

Picnic Areas Facilities

Indicate the no. of each type of facility

Stone fire ring ---------- ( )
Manufactured fire ring ------- ( )
Hand pump ----------( )
Trash containers ----------( )
Picnic tables ----------( )
Grills ----------( )
Others _____ ( )----->
_____ ( )----->
_____ ( )----->

Based on the location of the picnic tables/grills & their relationship to one another, approx. the no. of picnic sites #_____

Approximate the average distance sites are separated (make notes if necessary) _____feet

Any toilets present **Yes** or **No**

If yes, indicate the Number found
Vault( ) Pit( ) Compost( ) Flush( )

Notes

Swimming Areas

Is this site designated for swimming? **Yes** or **No**

Is there a life saving station (float, rope, reaching device)? **Yes** or **No**

PICNIC/SWIM AREAS (SPM & SPNM) INVENTORY GUIDE

Describe the swimming area, note any structures, or amenities used to enhance this site.

Material/Design Classification of Facilities:

Natural/Native-Wood, stone, gravel, etc.

Synthetic/Non-Native-Metal, cement, asphalt, manufactured wood products (plywood), plastic, etc.

Rustic/Simple- Subordinate dimensioned or synthetic materials, rough sawn lumber, earth based colors (browns, greens), etc.

Non-Rustic/Complex-Dimensioned and finished wood, treated wood, bricks, etc.

Using the above Classifications, list and describe all structures and facilities detailing the fundamental components, i.e. Toilet- structure is, foundation is, etc. Use the extra sheet if needed.

Picnic Areas

Swimming Areas

Visual Quality

Is there any evidence of management activities visible from the swimming or picnic area? Consider the following:

Heavy equipments	**Earth moving operations**
New logging roads	**Timber harvest**
Utility corridor	**Others**

List and describe all management activities visible from the swimming and picnic area and rate the visual quality based on these definitions. Use the information from the National Forest Landscape Management booklet, pages 26-35 to help further guide your rating.

Retention: Management activities are not evident to the casual forest visitor
Partial Retention: Management activities are evident yet subordinate to the characteristic landscape to the casual forest visitor.
Modification: Management activities are evident and dominate the characteristic landscape to the casual forest visitor.

Management Activity	Photo #	Visual Quality Rating

APPENDIX E

Interior Roads Inventory Guide

INTERIOR ROADS (SPM & SPNM) INVENTORY GUIDE

Date of Inspection _____ Code Number _____
Ranger District_____
Management Area Number_____Management Area Name_____
Inventory Taker_____

***PLEASE NOTE* For perimeter roads, record location on page 1 and rate the visual quality of any management activity on page 3. Additionally, every road found within the compartment should be evaluated separately.**

Road Location:

USFS Road number_____ Common Name_____
Location notes:

Directions: Cir. all that apply, describe any concerns using the back sheet if needed.

Road Classification

Rank the Traffic Service Level of this road based on the descriptions in National Forest Roads Pamphlet.

Level A Level B Level C Level D

Notes

Road Information

Est. the length of the road in the MA_____Mile

Is the road 'Posted Closed' to motorized vehicles

Yes or **No**

Is a device used to bar entry to motor vehicels

Yes or **No**

If yes, circle the type of device(s) used to barring

Metal gate Wooden gate Posts Rocks

Dirt mound Downed trees Other------->

Arterial Roads-Provide service to large land areas.
Collectors Roads- These are intermediate links. They connect major, heavily traveled, multiple-purpose arterial routes and single-resource local roads.
Local Roads- Connect terminal facilities, such as log landings & rec. sites, with forest collector or arterial roads. They are often less than 1.5 miles & serve a single resource.

Cir. one of the following based on the above definations which best describes this road.

Arterial Road Collector Road Local Road

Visual Quality

Is there any evidence of management activities visible from the road?
Consider the following:

Heavy equipment	**Earth moving operations**
New logging roads	**Timber harvest**
Utility corridors	**Others**

List and describe all management activities visible along the roadway and rate the visual quality based on these definition. Use the information from the National Forest Landscape Management booklet, pages 26-35 to help further guide your rating.

> **Retention:** Management activities are not evident to the casual forest visitor
> **Partial Retention:** Management activities are evident yet subordinate to the characteristic landscape to the casual forest visitor.
> **Modification:** Management activities are evident and dominate to the characteristic landscape to the casual forest visitor.

Management Activity	Photo #	Visual Quality Rating

APPENDIX F

Semiprimitive Nonmotorized Trails Inventory Guide

SEMIPRIMITIVE NONMOTORIZED AREA TRAILS INVENTORY GUIDE

Date of Inspection_____ Code Number _____
Ranger District_____
Management Area Number_____Management Area Name_____
Inventory taker_____

Trail Name_____

Location of trail head USFS Rd #_____Common Name_____

Directions: Cir. all that apply, describe any concerns using the back sheet if needed.

Trail Head

Notes

Trail type posted: **Not Posted** **Foot** **Bike** **Horse** **Ski** **Other** (explain)---------->

Trail is signed closed to; **Not signed** **Horse** **ORV** **Ski** **Snowmobile** **Motor Vehicle** **Other**

Is there a device barring entry to OR or, Motor Vehicle. **Yes** or **No**

If yes, what is it **Dirt Mound** **Metal Gate** **Wooden Gate** **Down Trees** **Posts** **Rocks** **Other** (explain)---------->

Are there and facilities, such as a hand pump, toilet, etc. found at the trail head. If so, list and describe the materials used in their construction. _____

Trail Maintenance

Is there evidence of trail maintenance, for resource protection and traveler safety?

Clearing of obstructions (trees, etc.)- **Yes** or **No**

Surfacing (mulching, ect.), (describe) **Yes** or **No**

Erosion control devices, (describe) -- **Yes** or **No**

Rerouting of trail---------- **Yes** or **No**

Other (describe)---------- **Yes** or **No**

Trail Maintenance (con't)

Rank the overall conditions of the trail in terms of maintenance for the safety of the user & describe why.

1. __Maintained below adequate level for designated travel
2. __Maintained at an adequate level for designated travel
3. __Maintained above an adequate level for designated travel

Do any of these conditions exist on the trail.

Mud holes **Trail obstructions** **Potential dead falls**

Unmarked Intersections **Other** (explain)---------->

Travel Route (circle & est. %)

Trail follows **Old Roadway** (%)

Cleared Trail (%)

Type of trail marking found at:

Trail Head	**Intersecation**	**On Trail**
Blaze____	Blaze____	Blaze____
Tags ____	Tags ____	Tags ____
Signs____	Signs____	Signs____

Are the trail markings on

Posts and/or **Trees**

What is the average width of the trail tread?

<18" **18-48"** **<48"**

Trail Signage

Trail length, in Managmenent Area

Total_____ Miles

Derived from: **Map** **Sign**

Miles are: **Exact** **Approx.**

Do trail sign messages show (cir. all that apply)

Destinations **Mileage** **Safety Info.**

Regulatory Info. Other (explain)-------->

Is signing adequate to provide guidance &location information **Yes** or **No** (explain)----->

Trail Bridges

No. of bridges located along the trail _____

What is the tread width in inches _____in.

Material/Design Classifications:

Natural/Native-Wood, stone, gravel, etc.

Synthetic/Non-Native-Metal, cement, asphalt, manufactured wood products (plywood), plastic, etc.

Rustic/Simple- Subordinate dimensioned or synthetic materials, rough sawn lumber, earth based colors (browns, greens), etc.

Non-Rustic/Complex-Dimensioned and finished wood, treated wood, bricks, etc.

Using the above Classifications, list and describe all bridges detailing, the fundamental components, i.e. bridges deck, structure, etc. Use the extra sheet if needed.

Indicate the no. of bridges not constructed of natural and rustic materials. #_____

Indicate the no. of bridges simple in design. # _____

Indicate the no. of minimal size for safe crossing. #_____

Interpretive Materials

Are there any facilities and/or interpretive materials at the trail head or on the trail, i.e. bulletin board, no. markers corresponding to written materials **Yes** or **No**

If yes, describe facilities, and collect. _____

Visual Quality

Is there any evidence of management activities along the trail. Consider the following:

Heavy equipment	**Earth moving operations**
New logging roads	**Timber harvest**
Utility corridors	**Others**

List and describe all management activities visible along the trail and rate the visual quality based on these definition. Use the information from the National Forest Landscape Management booklet, pages 26-35 to help further guide your rating.

Retention: Management activities are not evident to the casual forest visitor
Partial Retention: Management activities are evident yet subordinate to the characteristic landscape to the casual forest visitor.
Modification: Management activities are evident and dominate to the characteristic landscape to the casual forest visitor.

Management Activity	Photo #	Visual Quality Rating

APPENDIX G

Semiprimitive Motorized Trails Inventory Guide

SEMIPRIMITIVE MOTORIZED AREA TRAILS INVENTORY GUIDE

Date of Inspection_____ Code Number _____
Ranger District_____
Management Area Number_____Management Area Name_____
Inventory taker_____

Trail Name_____

Location of trail head USFS Rd #_____Common Name_____

Directions: Cir. all that apply, describe any concerns using the back sheet if needed.

Trail Head

Notes

Trail type **Not Posted ORV Foot**

Snowmobile Horse Ski Other ---->

Trail signed closed for; **Not signed Horse**

ORV Ski Motor Vehicle Snowmobile Other

Is there a device barring entry to motorized travel
Yes or **No**

If yes, what is it **Dirt Mound Metal Gate**

Wooden Gate Down Trees Posts Rocks

Other (explain)---------->

Are there and facilities, such as hand pump, toilet, etc. found at the trail head. If so, list and describe the materials used in their construction._____

Trail Maintenance

Is there evidence of trail maintenance, for resource protection and traveler safety?

Clearing of obstructions (trees, etc.) -------Yes or No

Surfacing (mulching, ect.) (describe) ------Yes or No

Erosion control devices (describe) ---------Yes or No

Rerouting of trail----------Yes or No

Other (describe)----------Yes or No

Trail Maintenance (con't)

Rank the overall conditions of the trail in terms of maintenance for the safety of the user & describ why.

1. __Main't below adequate level for designated travel
2. __Main't at an adequate level for designated travel
3. __Main't above an adequate level for designated travel

Do any of these conditions exist on the trail?

Mud holes **Trail obstructions** **Potential dead falls**

Unmarked Intersections **Other (explain)---------->**

Travel Route (circle & est. %)

Trail follows **Old Roadway** (%)

Cleared Trail (%)

Type of trail marking found at:

Trail Head	**Intersecation**	**On Trail**
Blaze____	Blaze____	Blaze____
Tags ____	Tags ____	Tags ____
Signs____	Signs____	Signs____

Are the trail markings on

Posts and/or **Trees**

What is the avg. width of the trail tread?

<18" **18-48"** **<48"**

Trail Signage

Trail length, in Managmenent Area

Total_____ Miles

Derived from: **Map** **Sign**

Miles are: **Exact** **Approx.**

Do trail sign messages show (cir. all that apply)

Destinations **Mileage** **Safety Info.**

Regulatory Info. **Other** (explain)------>

Is signing adequate to provide guidance and location info. **Yes** or **No** (explain)------>

Trail Bridges

No. of bridges located along the trail _____

What is the tread width in inches _____in.

Material/Design Classifications:

Natural/Native-Wood, stone, gravel, etc.

Synthetic/Non-Native-Metal, cement, asphalt, manufactured wood products (plywood), plastic, etc.

Rustic/Simple-Subordinate dimensioned or synthetic materials, rough sawn lumber, earth based colors (browns, greens), etc.

Non-Rustic/Complex-Dimensioned and finished wood, treated wood, bricks, etc.

Using the above Classifications, list and describe all bridges detailing, the fundamental components, i.e. bridges deck, structure, etc. Use the extra sheet if needed.

Indicate the no. of bridges not constructed of natural and rustic materials. #_____

Indicate the no. of bridges simple in design. # _____

Indicate the no. of minimal size for safe crossing. #_____

Interpretive Materials

Are there any facilities and/or interpretive materials at the trail head or on the trail, i.e. bulletin board, no. markers corresponding to written materials **Yes** or **No**

If yes, describe facilities, and collect material.

Visual Quality

Is there any evidence of management activities along the trail. Consider the following:

Heavy equipment	**Earth moving operations**
New logging roads	**Timber harvest**
Utility corridors	**Others**

List and describe all management activities visible along the trail and rate the visual quality based on these definition. Use the information from the National Forest Landscape Management booklet, pages 26-35 to help further guide your rating.

Retention: Management activities are not evident to the casual forest visitor
Partial Retention: Management activities are evident yet subordinate to the characteristic landscape to the casual forest visitor.
Modification: Management activities are evident and dominate to the characteristic landscape to the casual forest visitor.

Management Activity	Photo #	Visual Quality Rating

APPENDIX H

ROS User Guide; Eastern Region Supplement: Standards & Guidelines

Semiprimitive Nonmotorized

1) Provide 1/2 mile to 2 miles per square mile of foot and/or horse trail.
2) Roads and trails normally closed to public motor vehicle travel.
3) Trails are maintained for foot and/or horse use.
4) Trail maintenance for protection of resources and public safety.
5) Campsite facilities authorized for resource protection and may include toilet, fire ring and tent pad.
6) Developed facilities contains no more then 10 sites and are development level 1.
7) Non-recreational activities scheduled for days, weeks, periods seasons of low or no recreational use.
8) Visual quality objectives of preservation, retention are normal; objective of partial retention is incompatible.
9) Noisy power/mechanical tools may be used in management activities but scheduled during periods of low or no recreational use.
10) Motorized use period may be scheduled with corresponding change to SPM class and proper notification to public.
11) Native materials used in construction of recreation facilities.
12) Informal interpretive services provided through publications.
13) Conduct cultural resource surveys, stablization and preservation of sites.
14) Determine Limits of Acceptable change for social and resource protection purposes.
15) Trail standards suitable for SPM only.
16) Signing for safety and administrative use. Signs show destinations, mileage regulatory and safety message.
17) Camping generally permitted throughout area.
18) Trail reassurance provided by blaze marks on trees only.
19) Trail tread width no wider than 18 inches.
20) Low density road system may be used for nonmotorized recreational purposes.
21) Fords, low water bridges, and rustic simple bridge designs provide drainage crossings.
22) Vegetative management enhances recreational experience and, where appropriate, designed to achieve objectives for Management Area.
23) Roads limited to Traffic Services Level C and/or D.

Semiprimitive Motorized

1) Provide 1/2 mile to 2 miles per square mile of foot, horse trail, and/or motor trail.
2) Roads and trails may be open or closed to public motor vehicle travel.
3) Trails are maintained for foot, horse use or specific motor vehicle use.
4) Trail maintenance for protection of resources and public safety.
5) Campsite facilities authorized for resource protection and may include toilet, fire ring and tent pad.
6) Developed facilities contains no more then 10 sites and are development level 1.
7) Non-recreational activities scheduled for days, weeks, periods seasons of low or no recreational use.
8)Visual quality objectives of preservation, retention are normal; objective of partial retention is normal from sensitive roads and trails.
9) Noisy power/mechanical tools may be used in management activities but scheduled during periods of low or no recreational use.
10) Non-Motorized use period may be scheduled with corresponding change to SPNM class and proper notification to public.
11) Native materials used in construction of recreation facilities.
12) Informal interpretive services provided through publications.
13) Conduct cultural resource surveys, stablization and preservation of sites.
14) Determine Limits of Acceptable change for social and resource protection purposes.
15) Trail standards suitable for SPNM and SPM.
16) Signing for safety and administrative use. Signs show destinations, mileage, regulatory, and safety message.
17) Camping generally permitted throughout area.
18) Trail reassurance provided by blaze marks on trees only.
19) Trail tread width no wider than 48 inches.
20) Low density road system may be used for non-motorized recreational purposes or can be restricted to specific vehicles.
21) Fords, low water bridges, and rustic simple bridge designs provide drainage crossings.
22) Vegetative management enhances recreational experience and, where appropriate, designed to achieve objectives for Management Area.
23) Roads limited to Traffic Services Level C and/or D.

APPENDIX I

Selected LRMP Semiprimitive Management Area Standards & Guidelines

Management Area 6.1-Semiprimitive Nonmotorized Area

2300 Recreation Management

A. Cultural Resources

-Interpretation of cultural resources will be compatible with natural character and recreation opportunities of this management area.

B. Off-Road Vehicles (ORVs)

-This management are is closed to all motorized vehicles except those authorized by permit or contract and those needed for limited access under special situations.

C. Recreation Development

-Recreation facilities will be constructed to Recreation Development Levels 1 and 2 (Primitive and semiprimitive standards). Minor facilities such as designated occupancy sites with wilderness-type toilets or constructed trails heads are appropriate.

-Location of recreation developments will be determined with priority given to: Correcting health and safety problems; Protecting the environment; complement prescribed recreation opportunities; meeting public demand; protecting sensitive species, meeting the primary experience requirements set forth in section 2300-D.

-Place recreation facilities with priority to protecting the environment, correcting health and safety problems, and complementing featured recreation opportunities.

D. Recreation Opportunities

-Featuring primarily the semiprimitive nonmotorized recreation opportunities class (ROC).

E. Trails

-Trails management will be compatible with the semiprimitive nonmotorized ROC objectives and may permit development to an average of three miles of nonmotorized trail per square mile. Trailheads may be constructed on the periphery of the area. Primitive roads within the area are usually closed to motorized use. Structures are rare and isolated.

7700 Transportation System

A. Roads - General

-Public motorized travel within the area is not permitted. Local roads may exist within the management areas. Arterial and collector roads should exist along boundary areas.

-Long-term road densities may average two miles per square mile or less over entire management area. Temporary road densities should be relatively low for resource needs and obliterated following the intended use. Low road density will be traded for longer, less economical skidding distances of more then 1/4 mile. Skid trail densities will be high but will be concentrated in small localized areas coincident with permitted logging activities.

B. Road Maintenance

-Road maintenance will generally be only that needed to correct or prevent damage to resources (level 1).

C. Road Design and Construction

-Where construction, reconstruction, or relocation are required, emphasis should be placed on minimum standards. Locate roads to minimize impact on recreation and wildlife habitat areas. Use roads which deadened to provide separation of user areas. Avoid areas with high environmental impacts and/or costs (minimize necessity of ditches and gravel) emphasize use of existing corridors.

-Local roads should be primarily single lane, Service Level D designed for use by a standard pick-up (without trailer) or single bed log trucks. Standard 8-10 mbf log trucks may have difficulty or not be able to negotiate all road segments. Consider use of roads designed for winter only use to reduce impacts during recreation use season and constrain standards.

-Construction and reconstruction activities should be scheduled to minimize impacts on recreation user and wildlife populations.

D. Traffic Management

-Public motorized will be prohibited By Forest Supervisors order. Limited motorized access will be permitted under special situations. Use may be restricted seasonally or for special project duration.

-Existing road entrances will be closed by physical barriers. Existing roads and residual corridors in excess of management needs as well as all temporary roads should be obliterated converted to trails for walking or cross country ski where appropriate.

Management Area 6.2-Semiprimitive Motorized Areas

2300 Recreation Management

A. Cultural Resources

-Interpretation of cultural resources will be compatible with natural character and recreation opportunities of this management area.

B. Off-Road Vehicles (ORVs)

-ORV use will be limited to designated roads and trails.

C. Recreation Development

-Recreation facilities will be constructed to Recreation Development Levels 1 and 2 (Primitive and semiprimitive standards) Minor facilities such as designated occupancy sites with wilderness-type toilets or constructed trails heads are appropriate.

-Location of recreation developments will be determined with priority given to: Correcting health and safety problems; Protecting the environment; complement prescribed recreation opportunities; meeting public demand; protecting sensitive species, meeting the primary experience requirements set forth in section 2300-D.

D. Recreation Opportunities

-Featuring primarily the semiprimitive motorized recreation opportunities class (ROC). Portions of wildlife emphasis may be managed to feature Roaded Natural opportunities.

E. Trails

-Density of motorized trails, in addition to existing roads, may be up to a maximum of one mile per square mile for nonmotorized trails, a maximum density of three square mile is allowed.

-Nonmotorized trail systems should be maintained separately form motorized activities or trails.

-Permit the development and grooming of cross-country and touring ski trails and snowmobiles trails to Forest Service Standards by communities, organizations or businesses that will support and operate them.

<u>7700 Transportation System</u>

A. Roads - General

-Motorized travel within the area is limited to use of designated open facilities. Local roads and some collector roads are permitted within the management area. Arterial roads should only exist along the area boundaries

-Long-term road densities may average two and a half miles per square mile or less over entire management area. Temporary road densities should be relatively low for resource needs and obliterated following the intended use. Low road density will be traded for longer, less economical skidding distances of more then 1/4 mile. Skid trail densities will be high but will be concentrated in small localized areas coincident with permitted logging activities.

B. Road Maintenance

-Most open roads will be maintained for use by high clearance vehicles only (level 2). Selected road which are open to public travel (passenger cars) and serve recreation facilities (such as trailheads and fishing accesses) will be maintained to level 3.

C. Road Design and Construction

-Where construction, reconstruction, or relocation are required, emphasis should

be placed on minimum standards. Locate roads to minimize impact on recreation and wildlife habitat areas. Use roads which deadened to provide

separation of use areas. Avoid areas with high environmental impacts and/or costs (minimize necessity of ditches and gravel) emphasize use of existing corridors.

-Selected roads serving recreation facilities may be designed to service Level C (limited passing, slowed by road conditions) for use by standard passenger car with trailer), Local roads should be primarily single lane, Service Level D designed for use by a standard pick-up (without trailer) or single bed log trucks. Standard 8-10 mbf log trucks may have difficulty or not be able to negotiate all road segments. Consider use of roads designed for winter only use to reduce impacts during recreation use season and constrain standards.

-Construction and reconstruction activities should be scheduled to minimize impacts on recreation user and wildlife populations.

D. Traffic Management

-Public use will be generally be limited to designated facilities (up to 1.5 mile/square mile). Use may be restricted seasonally or for special project duration to protect facilities during wet periods, reduce recreation/logging conflicts, or mitigate impacts on wildlife.

-Use of open roads will generally be encouraged through positive signing (posted open and/or inclusion of the travelway of Forest visitor maps. Use of closed roads will be prohibited by Forest Supervisor's order.

-Extended road entrance closures will be accomplished by physical barriers. Use of gates is inappropriate to control seasonal use of recreation areas and protect wildlife habitat. Existing roads and residual corridors in excess of management needs as well as all temporary roads should be obliterated converted to trails where appropriate.

Management Area 6.3-Semiprimitive Nonmotorized Area

2300 Recreation Management

A. Cultural Resources

-Interpretation of cultural resources will be compatible with natural character and recreation opportunities of this management area.

B. Off-Road Vehicles (ORVs)

-This management area is closed to all motorized vehicles except those authorized by permit or contract and those needed for limited access under special situations.

C. Recreation Development

-Recreation facilities will be constructed to Recreation Development Levels 1 and 2 (Primitive and semiprimitive standards) Minor facilities such as designated occupancy sites with wilderness-type toilets or constructed trails heads are appropriate.

-Location of recreation developments will be determined with priority given to: Correcting health and safety problems; Protecting the environment; complement prescribed recreation opportunities; meeting public demand; protecting sensitive species, meeting the primary experience requirements set forth in section 2300-D.

-Place recreation facilities with priority to protecting the environment, correcting health and safety problems, and complementing featured recreation opportunities.

D. Recreation Opportunities

-Featuring primarily the semiprimitive nonmotorized recreation opportunities class (ROC).

E. Trails

-Trails management will be compatible with the semiprimitive nonmotorized ROC objectives and may permit development to an average of three miles of nonmotorized trail per square mile. Trailheads may be constructed on the periphery of the area. Primitive roads within the area are usually closed to motorized use. Structures are rare and isolated.

7700 Transportation System

A. Roads - General

-Motorized travel within the management area is not generally permitted. Temporary roads or trails may be used for special management activities when required to protect semiprimitive values, carry out wildlife and fish habitat projects, or protect adjacent land from fire or pest, or when authorized by permit or contract. Where temporary motorized access is needed, use of existing corridors is strongly emphasized. Arterial and collector roads may exist only along area boundaries. New construction should not occur. Skid trail densities are not applicable.

B. Road Maintenance

-Road maintenance will only be that needed to correct or prevent damage to resources until revegetation is accomplished and existing roads are effectively deleted from the transportation system (level 1).

C. Road Design and Construction

- No new long-term roads will be constructed.

D. Traffic Management

-Closed roads will be physically, blocked, obliterated and revegetated to a cover type compatible with wildlife management.

Management Area 6.4-Semiprimitive Motorized Areas

2300 Recreation Management

A. Cultural Resources

-Interpretation of cultural resources will be compatible with natural character and recreation opportunities of this management area.

B. Off-Road Vehicles (ORVs)

-ORV use will be limited to designated roads and trails.

C. Recreation Development

-Recreation facilities will be constructed to Recreation Development Levels 1 and 2 (Primitive and semiprimitive standards) Minor facilities such as designated occupancy sites with wilderness-type toilets or constructed trails heads are appropriate.

-Location of recreation developments will be determined with priority given to: Correcting health and safety problems; Protecting the environment;

complement prescribed recreation opportunities; meeting public demand; protecting sensitive species, meeting the primary experience requirements set forth in section 2300-D.

D. Recreation Opportunities

-Featuring primarily the semiprimitive motorized recreation opportunities class (ROC).

E. Trails

-Density of motorized trails, in addition to existing roads, may be up to a maximum of one mile per square mile; for nonmotorized trails, a maximum density of three square mile is allowed.

7700 Transportation System

A. Roads - General

-Motorized travel within the area is limited to use of designated open facilities. Local roads and some collector and arterial roads are permitted within the management area.

-Long-term road densities may average two and a half miles per square mile or less over entire management area. Temporary road densities should be relatively low for resource needs and obliterated following the intended use. Low road density will be traded for longer, less economical skidding distances of more then 1/4 mile. Skid trail densities will be high but will be concentrated in small localized areas coincident with permitted logging activities.

B. Road Maintenance

-Most open roads will be maintained for use by high clearance vehicles only (level 2).

C. Road Design and Construction

-Where construction, reconstruction, or relocation are required, emphasis should be placed on minimum standards. Locate roads to minimize impact on recreation and wildlife habitat areas. Use deadened roads to provide separation of use areas. Avoid areas with high environmental impacts and/or costs (minimize necessity of ditches and gravel) emphasize use of existing corridors. Local roads should be primarily single lane, Service Level D designed for use by a standard pick-up (without trailer) or single bed log trucks. Standard 8-10 mbf log trucks may have difficulty or not be able to negotiate all road segments. Consider use of roads designed for winter only use to reduce impacts during recreation use season and constrain standards.

-Construction and reconstruction activities should be scheduled to minimize impacts on recreation user and wildlife populations.

D. Traffic Management

-Motorized use will be generally be limited to designated facilities (up to 1.5 mile/square mile). Use may be restricted seasonally or for special project duration to protect facilities during wet periods, reduce recreation/logging conflicts, or mitigate impacts on wildlife.

-Use of open roads will generally be encouraged through positive signing (posted open and/or inclusion of the travelway of Forest visitor maps. Use

of closed roads will be prohibited by Forest Supervisor's order.
-Extended road entrance closures will be accomplished with physical barriers. Existing roads and residual corridors in excess of management needs as well as all temporary roads should be converted to trails where appropriate, or obliterated. Revegetate to a cover type compatible with wildlife management.

APPENDIX J

Description of Selected Recreation Development Levels[1]

Primitive Development Level 1

Minimum site modification. Rustic or Rudimentary improvements are designed for protection of site rather then comfort of the users. Use of synthetic material is excluded. Minimum control are subtle. There is no obvious regimentation of users. Spacing is informal and extended to minimize contacts between users. Motorized access is not provided or permitted.

Semiprimitive Development Level 2 (Nonmotorized and Motorized)

Little site modification. Rustic or rudimentary improvements are designed primarily for protection of site rather then comfort of the users. Use of synthetic material is avoided. Minimum control are subtle. There is little obvious regimentation of users. Spacing is informal and extended to minimize contacts between users. Motorized access may be provided or permitted. Primary access is over primitive roads.

Road Natural Development Level 3

Moderate site modification. Facilities are designed about equal for protection of site and comfort of users. Contemporary/rustic design of improvements is usually based on use of native material. Inconspicuous vehicular traffic controls are usually provided. Roads may be hard surfaced and trails formalized. Development density is about three family units per acre. Primary access may be over high standard roads. Interpretive services is informal but generally direct.

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[1] Source: Final Environmental Impact Statement: Land and Resource Management Plan. (1986b). Hiawatha National Forest, USDA, Forest Service. Eastern Region. Milwaukee, WI. Glossary 13.

APPENDIX K

Description of Traffic Service Levels[2]

Traffic Service Level A

These are normally high standard roads, mostly often arterial. They are often two-lane, blacktopped roads.

Traffic Service Level B

Usually a collector road and usually gravel surfaced. May be considered a medium standard road. May be single or double lane, with mixed timber and recreation traffic. Traffic controls may be applied to reduce traffic volumes and conflicts. Road location is strongly influenced by topography. Road surface is stable for most traffic during the normal use season.

Traffic Service Level C

Normally considered a local road, of minimum standard. Traffic flow is interrupted by limited passing facilities or slowed by road conditions. Most safety features are provided by traffic management, such as single lane or allow hours, or seasons of use. Usually managed open, but can be closed depending upon resource needs. Road location is dictated by topographic features. Road surface may not be stable under all traffic or weather conditions and may have rutting and dust. (road is suitable for standard passenger cars).

Traffic Service Level D

Usually a low-standard, local road or travel way, with slow traffic flow which may be blocked by active resource activity (such as logging or mining). Two-way traffic is difficult an may require backing of one vehicle for another to pass. Some vehicles can not travel on these roads. Road surfaces may be rough and irregular. Use may be discouraged or closed immediately after the resource activity ends. When closed, the road is usually seeded with grass for erosion control and wildlife purposes, or allowed to regenerate naturally. The road will not normally be needed until re-entry years later for resource activity. Temporary bridges and culverts are permissible. (roads suitable for pick-ups and high-clearance vehicles)

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2 Source: National Forest Roads or All Uses. (undated pamphlet). USDA, Forest Service. Eastern Region, Milwaukee, WI. 10-11.

APPENDIX L

Descriptions of Selected Visual Quality Objectives[3]

Preservation

This VQO provides for only ecological changes to take place. Management activities, except for very low visual impact recreation facilities, are prohibited.

Retention

This VQO provides for the management activities which are not visual evident. Activities may only repeat form, line, color and texture which are found frequently in the characteristic landscape. Reductions in contrast to form. line color or texture should be accomplished during management activities or immediately thereafter.

Partial Retention

Management activities remain visually subordinate to the characteristic landscape. Reduction to contrast to line, form, color and texture should be accomplished within the first year, or as soon as the project completion as possible.

Modification

Management activities may dominate the original characteristic landscape. These activities must borrow from naturally established form, line, color and texture so as to appear natural or compatible to the natural surroundings.

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[3] Source: Final Environmental Impact Statement: Land and Resource Management Plan. (1986b). Hiawatha National Forest, USDA, Forest Service. Eastern Region. Milwaukee, WI. IV-19 and IV-26.

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